Draft
Environmental Impact Report

SCH# 2019060259

Volumes 2 and 3: Appendices

SANBORN SOLAR PROJECT
by Sanborn Solar, LLC *(PP19102)*

Zone Change Case No. 56, Map No. 196
Zone Change Case No. 2, Map No. 212
Zone Change Case No. 59, Map No. 213
Conditional Use Permit No. 45, Map No. 196
Conditional Use Permit No. 5, Map No. 212
Conditional Use Permit No. 66, Map No. 213
Mojave Specific Plan Amendment No. 30, Map 196

Kern County
Planning and Natural Resources Department
Bakersfield, California

February 2020

Appendix A

Initial Study/Notice of Preparation

ESA

INITIAL STUDY/NOTICE OF PREPARATION

Sanborn Solar Project
by Sanborn Solar, LLC

Zone Change Case 56, Map 196
Zone Change Case 2, Map 212
Zone Change Case 59, Map 213
Conditional Use Permit 45, Map 196
Conditional Use Permit 5, Map 212
Conditional Use Permit 66, Map 213

PLN18-01989

(PP19102)

LEAD AGENCY:

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June 2019

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PLANNING AND NATURAL RESOURCES DEPARTMENT

Planning
Community Development
Administrative Operations

DATE: June 28, 2019

TO: See Attached Mailing List

FROM: Kern County Planning and Natural Resources Department
Attn: Taylor Schoene
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SUBJECT: NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT

The Kern County Planning and Natural Resources Department as Lead Agency (per CEQA Guidelines Section 15062) has determined that preparation of an Environmental Impact Report (per CEQA Guidelines 15161) is necessary for the project identified below. The Planning and Natural Resources Department solicits the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval of projects.

Due to the limits mandated by State law, your response must be received by **July 28, 2019 at 5 pm.** Your comments can also be submitted at a scoping meeting that will be held at the Kern County Planning and Natural Resources Department on **July 19, 2019 at 1:30 pm** at the address shown above.

Documents can be viewed online at: https://kernplanning.com/planning/notices-of-preparation/

PROJECT TITLE: Sanborn Solar Project by Sanborn Solar, LLC (PP18125): ZCC No. 56, Map 196; ZCC No. 2, Map 212; ZCC No. 59, Map 213; CUP No. 45, Map 196; CUP No. 5, Map 212; CUP No. 66, Map 213.

PROJECT LOCATION: The proposed project is located at the western edge of the Antelope Valley, directly south of the community of Mojave. The proposed project is south of State Route 58 (SR 58) and east of State Route 14 (SR 14). The site is located within Sections 22, 23, 26, 27, 35, Township 11 North, Range 12 West (SBB&M), Section 1, Township 10 North, Range 12 West (SBB&M), and Section 7, Township 10 North, Range 11 West (SBB&M).

PROJECT DESCRIPTION: Implementation of the project as proposed would require: a) Zone Change Case (ZCC) No. 56, Map No. 196; ZCC No. 2, Map No. 212; ZCC No. 59, Map No. 213 b) Conditional Use Permit (CUP) No. 45, Map No. 196; CUP No. 5, Map No. 212; CUP No. 66, Map No. 213; to facilitate the future construction and operation of a solar facility and associated infrastructure to generate a combined 300 megawatts of renewable electrical energy on approximately 2,102 acres of privately owned land.

Signature: Taylor Schoene
Name: Taylor Schoene, Planner I

EIR 02-18 SANBORN SOLAR
WO # PP 19102
I:\Planning\WORKGRPS\WP\LABELS\eir02-18tds.nop UPDATED.docx
cc 06/19/2019

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SHAKED BARAK
6480 W DIABLO DR
LAS VEGAS NV 891181827

428 020 07 00 5
GM GABRYCH FAMILY L P
2006 OLD HIGHWAY 395
FALLBROOK CA 920288816

429 151 06 00 4
GONZALES ANNE MAZUR
14381 LAKE ST
GARDEN GROVE CA 92643

428 191 03 00 0
GONZALES JONATHAN H
26070 LAKEVIEW AV
INGLESIDE IL 60041

429 050 32 00 3
GOSMEYER CLAYTON
PO BOX 92
PAYETTE ID 836610092

428 202 45 00 1
GRIFFETH LIV TR
5200 IRVINE BL SP 303
IRVINE CA 926202057

244 233 05 00 1
GS EQUITY RESOURCES II INC
P O BOX 8159
CALABASAS CA 91372

429 050 14 00 1
HALL JOSEPH C & GERTIE R
105 S JOAQUIN ST
COALINGA CA 932102416

428 192 16 00 5
HARDY RODNEY A
860 CALLE PLUMA
SAN CLEMENTE CA 926732721

428 202 42 00 2
HARRISON JOHN L
2424 WEST 1800 SOUTH
WESTHAVEN UT 84401

428 202 41 00 9
HAVENS CLOYD E & MARY P TRS
27529 POTOMAC DR
SUN CITY CA 92586

428 152 06 00 4
HAYNES ANTHONY
1240 SE JOHNSON AV
PULLMAN WA 991635413

429 152 18 00 6
HERNANDEZ MONICA Y AYALA
PO BOX 902064
PALMDALE CA 935902064

429 050 11 00 2
HERNANDEZ TERESO F
1801 LEWIS ST
BAKERSFIELD CA 933074530

429 042 07 00 2
HORAK GORDON M & KATHLEEN
27161 CALLE JUANITA
CAPSTRANO BCH CA 92624

428 152 04 00 8
HORVATH JENO & PAMELA ANN
TRUST
16654 SOLEDAD CANYON RD # 517
SANTA CLARITA CA 91387

244 432 11 00 9
HOWE J&P FAMILY TRUST
12418 PRAIRIE ROSE WY
BAKERSFIELD CA 93312

429 042 02 00 7
HUNSLEY JOHN C
8305 KEOKUK AV
WINNETKA CA 91306

428 192 17 00 8
IRYAMI MOUSA & ALBERT
11872 WILSHIRE BL
W LOS ANGELES CA 90025

429 050 43 00 5
JENKINS VERNON LAMAR FMLY TR
2115 S MAGNOLIA AV
ONTARIO CA 91762

428 192 07 00 9
JIBILIAN ALBERT
8117 W MANCHESTER AV # 777
PLAYA DEL REY CA 90293

429 042 16 00 8
JUNGBLUTH R J TRUST
134 ARGONNE AV
LONG BEACH CA 90503

428 202 46 00 4
KADEN ROGER T
4643 CAPAY DR # 3
SAN JOSE CA 951182514

428 140 13 00 7
KILBY SIDNEY ROBERT TRUST
P O BOX 1085
MOJAVE CA 93502

428 173 04 00 1
KIRKEBY LENNY E & CAROLEE F
2258 SAN GORGONIO RD
LA CANADA CA 910111351

429 042 09 00 8
SEBESTYEN JULIE BARBARA
PO BOX 542
LA MIRADA CA 906370542

428 202 49 00 3
SELIS LAURA
1200 ARCADIA AV APT B
AUSTIN TX 787573044

429 151 52 00 7
SELVIDGE GLENN E
672 DELA CRUZ DR
WINNSBORO TX 754943053

428 174 33 00 2
KUNICH FLORENCE TR
2133 MCRAE DR
SAN PEDRO CA 90732

428 192 20 00 6
KWON MI HEE LIM
14413 PEBBLE CREEK WY
GARDENA CA 90247

244 432 01 00 0
LANDSIEDEL TERRY V
P O BOX 1467
ROSAMOND CA 93560

428 152 02 00 2
LAW ARDEN S
PO BOX 4971
COVINA CA 91723

428 192 19 00 4
LE THU VAN & BAO YEN
7273 CROCKETT CT
FONTANA CA 923362912

244 432 14 00 8
LEE KWANG SOO & SHIN GOO
11743 VALLEY BL
EL MONTE CA 917323037

244 432 20 00 5
LEE SUN OK
9048 RIVES AV
DOWNEY CA 902402657

428 152 07 01 6
LEMANN WALTER
439 E MCGILVRA BL
SEATTLE WA 981125045

244 432 21 00 8
LIN JENNIFER J
2208 S DATE AV
ALHAMBRA CA 91803

244 432 26 00 3
ROYNON DEAN & ELSIE FAMILY TRUST
250 E TELEGRAPH RD
FILLMORE CA 930152143

244 432 30 00 4
LIVINGSTONE ED FAM REV LIV TR
730 CRYSTAL DR
GRANTS PASS OR 975279404

429 152 04 00 5
LOPEZ ADA
12719 YORKSHIRE DR
APPLE VALLEY CA 92308

428 192 23 00 5
LUKINS RODNEY G
1536 MARYLAND AV
W SACRAMENTO CA 95691

429 042 14 00 2
MADRID KYLE BRANDON
39972 MILLSTREAM LN
MADERA CA 936368166

428 192 14 00 9
MALEKZADEH ALI A & ALVAREZ M
19 E CHATFIELD PL
PAINTED POST NY 14870

428 202 33 00 6
RONAS ERLINDA P
77 SARRAGUT ST
SAN FRANCISCO CA 94112

429 042 06 00 9
MATTHEWS ALLEN W & LINDA LEE
14305 SW BEEF BEND RD APT 8
PORTLAND OR 972241931

428 152 11 00 8
MAYO CASIANO M & PERLA J
2311 ROOSEVELT DR # 1
ANCHORAGE AK 99517

429 042 30 00 8
MILLER HELEN E
1121 W VALLEY BL STE I144
TEHACHAPI CA 935612171

428 030 20 00 5
MOJAVE 189 LLC
9960 W CHEYENNE AV STE 212
LAS VEGAS NV 891297703

429 042 08 00 5
RODRIGUEZ ROSARIO G
49846 W 110TH ST
LANCASTER CA 935369411

429 050 31 00 0
TRAN CHIEU THANH REVOCABLE LIVING TRUST
13281 ROAN RD
GARDEN GROVE CA 928431611

244 432 05 00 2
TRIPLE E DEV CORP
5560 S FORT APACHE RD STE 100
LAS VEGAS NV 891487699

429 050 29 00 5
TUBAO TERESITA S
1989 NEWCASTLE DR
OXNARD CA 93036

428 191 01 00 4
RENNIE FAMILY TR
2078 S WEST ST
ANAHEIM CA 928024000

428 020 06 00 2
MOJAVE 729 LAND LLC
12671 HIGH BLUFF DR STE 150
SAN DIEGO CA 92130

429 152 09 00 0
REDMAN MARSHALL & DORIS E
12121 WILSHIRE BL STE 600
LOS ANGELES CA 90025

428 161 02 00 8
TANG DAVID K
1942 SAMARA DR
ROWLAND HTS CA 91745

428 161 01 00 5
TANG SAMANTHA K
1942 SAMARA DR
ROLLAND HEIGHTS CA 91748

244 432 03 00 6
TIVENS RANDY L & LISA
21250 CALIFA ST STE 113
WOODLAND HILLS CA 913675025

244 413 61 00 5
RUSEN HARTLEY DAVID
10325 LUBAO AV
CHATSWORTH CA 91311

428 192 01 00 1
SAHA MRINMOY & SUSHMITA
12435 BURR CT
SAN DIEGO CA 921294140

235 132 16 00 1
SAHOTA BHUPHINDER KAUR
8499 MONTE CRISTO AV
LIVINGSTON CA 953349354

429 152 03 00 2
SANCHEZ SAMUEL & DINA
19213 FRIAR ST
TARZANA CA 913356633

428 192 03 00 7
REIFMAN IRVING
12121 WILSHIRE BL STE 1120
LOS ANGELES CA 900251164

428 192 06 00 6
MOODY CANIDA C
13712 MILL VALLEY RD
VALENCIA CA 913552641

429 151 07 00 7
MURAKAMI TR
3334 BENT TWIG LN
DIAMOND BAR CA 917653811

428 202 47 00 7
NAPOLITANO STEVEN A
1305 WALNUT AV
MANHATTAN BEACH CA 90266

428 192 26 00 4
NOSEWORTHY PHILIP A & PATRICIA
PO BOX 5682
SUGARLOAF CA 923865682

429 042 03 00 0
OLSON LEE W & KATHLEEN A
FAMILY TRUST
5162 ROTHERHAM CI
WESTMINSTER CA 92683

428 192 05 00 3
PACIFIC GAS & ELECTRIC CO
1 MARKET PZ STE 400
SAN FRANCISCO CA 941051004

428 174 31 00 6
PANG SHIOULE
1609 CAMPBELL AV
ALHAMBRA CA 91803

244 413 40 00 4
PAULEY JOSEPH L & BEVERLY M TR
P O BOX 57
ROSAMOND CA 93560

428 192 25 00 1
SANDERS STEVEN D
359 SPRING ST # 3
SPARTANBURG SC 29306

428 030 04 00 9
MONTE VISTA SOLAR LLC
350 W WASHINGTON ST STE 600
TEMPE AZ 85281

428 191 05 00 6
MOORE DAVID M
5020 VIA LUCIA
YORBA LINDA CA 92886

429 151 22 00 0
MURRAY WILLIAM A JR & LINDA J
PO BOX 4175
EVERETT WA 982040018

428 161 03 00 1
NAZARIAN MARY H
27871 ENCANTO
MISSION VIEJO CA 926922609

244 234 10 00 2
O BRIEN SUSAN
3921 SUNSET LN
OXNARD CA 930353948

428 192 12 00 3
ONODERA FAMILY TR
2300 BARTON CREEK BL APT 10
AUSTIN TX 787351684

429 042 37 00 9
PAIGE FAMILY TR
11807 ALAMO BLANCO DR # 401
SAN ANTONIO TX 78233

244 432 18 00 0
PARK LLOYD SANG
12420 INDIAN RIVER DR
APPLE VALLEY CA 923086773

428 202 48 00 0
PEREZ PEDRO & CONNIE FAMILY
TRUST
828 S 6TH ST
MONTEBELLO CA 906405914

428 152 07 01 6
SEAL TRUDY TRUST
4267 MARINA CITY DR # 314
MARINA DEL REY CA 902925810

429 152 20 00 1
MONTES NEMECIO A & GARCIA
MARIA ESPERANZA
10482 SILVER ST
MOJAVE CA 935017050

429 152 07 00 4
MORTIMER ROGER D
1609 DALTON AV
MOJAVE CA 935017045

428 192 04 00 0
MYERS MOJAVE LAND TRUST 192
117 NORTH 775 EAST
AMERICAN FORK UT 84003

428 152 05 00 1
NGUYEN BINH N & HUYNH CHIN T
16098 MOUNT HICKS ST
FOUNTAIN VALLEY CA 927081723

428 202 39 00 4
O NEILL REV TR
507 N RODEO DR
BEVERLY HILLS CA 90210

429 050 03 00 9
OWEN STEPHEN R TR
20 GLENEAGLES DR
NEWPORT BEACH CA 926604296

428 174 32 00 9
PANG SHIOULAN
1609 SOUTH CAMPBELL
ALHAMBRA CA 91803

428 191 06 00 9
PARKS STEPHEN W TRUST
724 S VELARE ST
ANAHEIM CA 92804

244 233 07 00 7
PESTAL TRUST
P O BOX 1385
SAN CLEMENTE CA 92674

428 191 11 00 3
PONG CHAI PONG
5001 VIA VERDE ST
ALTA LOMA CA 92337

244 233 08 00 0
PRONO TR
1736 FREEPORT TR
SAN PEDRO CA 907324045

428 202 40 00 6
PYERS EDWARD C & DONNA J
9207 RAMBLEWOOD DR
HARRISON TN 37341

244 432 07 00 8
RAMIREZ ANITA C TR
14120 OCEANGATE AV
HAWTHORNE CA 90250

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P. O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH # _____

Project Title: Sanborn Solar Project by Sanborn Solar, LLC

Lead Agency: Kern County Planning Department
Contact Person: Taylor Schoene
Mailing Address: 2700 "M" Street Suite 100
Phone: (661) 862-5017
City: Bakersfield
Zip: 93301-2323
County: Kern

Project Location: County: Kern
City/Nearest Community: Mojave
Cross Streets: SR 14 and Silver Queen Road
Zip Code: 93501
Lat. / Long.: 35° 2'51.9072 N / 118° 10'17.7060W
Total Acres: 2,102
Assessor's Parcel No.: Multiple
Section: Multiple Twp.: Multiple Range: Multiple Base: SBB&M
Within 2 Miles: State Hwy #: SR 14 and SR 58
Waterways: N/A
Airports: Mojave Air and Space Port
Railways: BNSF
Schools: Mojave High School

Document Type:

CEQA:
- ☒ NOP
- ☐ Early Cons
- ☐ Neg Dec
- ☐ Mit Neg Dec
- ☐ Draft EIR
- ☐ Supplement/Subsequent EIR (Prior SCH No.) _____
- Other _____

NEPA:
- ☐ NOI
- ☐ EA
- ☐ Draft EIS
- ☐ FONSI

Other:
- ☐ Joint Document
- ☐ Final Document
- ☐ Other _____

Local Action Type:

- ☐ General Plan Update
- ☐ General Plan Amendment
- ☐ General Plan Element
- ☐ Community Plan
- ☐ Specific Plan
- ☐ Master Plan
- ☐ Planned Unit Development
- ☐ Site Plan
- ☒ Rezone
- ☐ Prezone
- ☒ Use Permit
- ☐ Land Division (Subdivision, etc.)
- ☐ Annexation
- ☐ Redevelopment
- ☐ Coastal Permit
- ☐ Other _____

Development Type:

- ☐ Residential: Units _____ Acres _____
- ☐ Office: Sq.ft. _____ Acres _____ Employees _____
- ☐ Commercial: Sq.ft. _____ Acres _____ Employees _____
- ☐ Industrial: Sq.ft. _____ Acres _____ Employees _____
- ☐ Educational _____
- ☐ Recreational _____
- ☐ Water Facilities: Type _____ MGD _____
- ☐ Transportation: Type _____
- ☐ Mining: Mineral _____
- ☒ Power: Type Solar MW 300
- ☐ Waste Treatment: Type _____ MGD _____
- ☐ Hazardous Waste: Type _____
- ☐ Other: _____

Project Issues Discussed in Document:

- ☒ Aesthetic/Visual
- ☒ Agricultural Land
- ☒ Air Quality
- ☒ Archeological/Historical
- ☒ Biological Resources
- ☐ Coastal Zone
- ☒ Drainage/Absorption
- ☐ Economic/Jobs
- ☐ Fiscal
- ☒ Flood Plain/Flooding
- ☒ Forest Land/Fire Hazard
- ☒ Geologic/Seismic
- ☒ Minerals
- ☒ Noise
- ☐ Population/Housing Balance
- ☒ Public Services/Facilities
- ☐ Recreation/Parks
- ☐ Schools/Universities
- ☐ Septic Systems
- ☐ Sewer Capacity
- ☒ Soil Erosion/Compaction/Grading
- ☐ Solid Waste
- ☒ Toxic/Hazardous
- ☒ Traffic/Circulation
- ☒ Vegetation
- ☒ Water Quality
- ☒ Water Supply/Groundwater
- ☐ Wetland/Riparian
- ☒ Wildlife
- ☐ Growth Inducing
- ☒ Land Use
- ☒ Cumulative Effects
- ☐ Other _____

Present Land Use/Zoning/General Plan Designation:

Undeveloped Land. *Zoning:* A (Exclusive Agriculture), A-1 (Limited Agriculture), A-1 H (Limited Agriculture - Airport Approach Height Combining); Mojave Specific Plan and West Edwards Road Settlement Specific Plan: 8.5 (Resource Management (Minimum 20 acres)); 2.4 (Steep Slope)

Project Description: The project includes a request for land use entitlements necessary to facilitate the future construction and operation of a solar facility and associated infrastructure to generate a combined 300 megawatts of renewable electrical energy on approximately 2,102 acres of privately-owned land. Implementation of the project as proposed would require: a) Zone Change Case (ZCC) No. 56, Map No. 196; ZCC No. 2, Map No. 212; ZCC No. 59, Map No. 213 b) Conditional Use Permit (CUP) No. 45, Map No. 196; CUP No. 5, Map No. 212; CUP No. 66, Map No. 213.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "**X**".

If you have already sent your document to the agency please denote that with an "**S**".

S	Air Resources Board		Office of Emergency Services
	Boating & Waterways, Department of		Office of Historic Preservation
S	California Highway Patrol		Office of Public School Construction
	CalFire	S	Parks & Recreation
S	Caltrans District # 6 & 9		Pesticide Regulation, Department of
S	Caltrans Division of Aeronautics	S	Public Utilities Commission
	Caltrans Planning (Headquarters)	S	Regional WQCB # Lahontan
	Central Valley Flood Protection Board		Resources Agency
	Coachella Valley Mountains Conservancy		S.F. Bay Conservation & Development Commission
	Coastal Commission		San Gabriel & Lower L.A. Rivers and Mtns Conservancy
	Colorado River Board		San Joaquin River Conservancy
S	Conservation, Department of		Santa Monica Mountains Conservancy
	Corrections, Department of		State Lands Commission
	Delta Protection Commission		SWRCB: Clean Water Grants
	Education, Department of		SWRCB: Water Quality
S	Energy Commission		SWRCB: Water Rights
S	Fish & Game Region # Fresno		Tahoe Regional Planning Agency
S	Food & Agriculture, Department of	S	Toxic Substances Control, Department of
	General Services, Department of	S	Water Resources, Department of
	Health Services, Department of		
	Housing & Community Development		Other _____
	Integrated Waste Management Board		Other _____
S	Native American Heritage Commission		

Local Public Review Period (to be filled in by lead agency)

Starting Date June 28, 2019 Ending Date July 28, 2019

Lead Agency (Complete if applicable):

Consulting Firm: _____
Address: _____
City/State/Zip: _____
Contact: _____
Phone: _____

Applicant: Sanborn Solar, LLC; Attn: Simon Day
Address: 11512 El Camino Real, Suite 370
City/State/Zip: San Diego, CA 92130
Phone: (415) 404-0807

Signature of Lead Agency Representative: /s/ **Date:** 06/28/2019

Taylor Schoene, Planner I

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

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1. Project Description

1.1 Project Location

The Sanborn Solar Project (proposed project) is a proposal by Sanborn Solar, LLC (project proponent/operator) to construct and operate a photovoltaic (PV) solar facility and associated infrastructure necessary to generate a combined total of 300 megawatts (MW) of renewable electrical energy capacity on approximately 2,102 acres of privately-owned land in unincorporated portions of Kern County, California. **Figure 1**, *Site Vicinity*, shows the regional location of the proposed project. The project boundary includes land parcels that have been purchased, leased, or are in the process of purchase or lease acquisition by the project proponent. As shown in **Figure 2**, *Project Boundary*, the proposed project consists of two discontinuous sites, each of which would contain solar and energy storage facilities, which together would comprise the project site. A shown in **Figure 3**, *North Site*, and in **Figure 4**, *South Site*, the northern site is approximately 1,118 acres and the southern site is approximately 984 aces. The topography of the project area is relatively flat, with the exception of scattered hills in the surrounding area up to approximately 200 feet in height. Elevations across the project site range from approximately 2,660 feet above mean sea level (AMSL) in the northwest portion of the site to approximately 2,500 feet AMSL in the southeast portion of the site. The project would be built in several phases. Each site has two options for interconnection, as shown in **Figure 5**, *Proposed Interconnection Options*:

- Interconnection Option 1 - A 230 kilovolt (kV) generation tie (gen-tie) constructed from an onsite project substation, located near Lone Butte Road, would connect to an existing transmission lines with connection equipment situated on up to 5 acres of land at the corner of United Street and Purdy Avenue, or travel west to the Windhub and or/ Westwind Substation.
- Interconnection Option 2 - A 34.5 kV collection line would be constructed from the western limits of the project site near Lone Butte Road and travel west to a step-up conversion station. At the United Street step-up conversion station, the 34.5 kV power would be stepped-up to a 230 kV power for delivery to the Windhub and/or Westwind Substation.

The nearest populated areas to the project site are the unincorporated community of Mojave, the unincorporated community of Rosamond, and the City of Tehachapi, which are approximately 1.5 miles northeast, 7.5 miles southeast, and 14 miles northwest of the project site, respectively. Other communities within the vicinity of the project site are the City of California City in Kern County and the Cities of Lancaster and Palmdale in Los Angeles County, which are approximately 9 miles northeast, 18 miles southeast, and 26 miles southeast of the project site, respectively. Edwards Air Force Base is located directly south and adjacent to the project site.

The proposed project is located in unincorporated Kern County, within Sections 22, 23, 26, 27, 35, Township 11 North, Range 12 West (SBB&M), Section 1, Township 10 North, Range 12 West (SBB&M), and Section 7, Township 10 North, Range 11 West (SBB&M). The proposed project is located near the western edge of the Antelope Valley, directly south of the community of Mojave. The proposed project is south of State Route 58 (SR 58) and east of State Route 14 (SR 14). The project site is bounded by SR 58 and the Mojave Air and Space Port to the north, open space to the east and the west, and Edwards Air Force Base (EAFB) to the south.

Land uses in the region include a mix of agricultural grazing, undeveloped land, scattered single-family residences, and several approved or proposed renewable energy projects (solar and wind). Desert vegetation dominates the project site and region. Topography across the project site is relatively flat. The major north-south route in the region is SR 14, a four-lane highway located approximately 1.25 miles west of the project site. The major east-west route near the proposed project is SR 58, which is also a four-lane highway,

located north and northeast of the project site, less than 0.5 mile from the northern site. The project site is primarily accessible by exiting SR 14 at Silver Queen Road. The northern site would be accessed from gates off of a private access easement along the alignment of Lone Butte Road or 10th Street from SR 58 and the southern site would be accessed by Silver Queen Road or Reed Avenue from United Street.

The Assessor Parcel Numbers (APNs) are summarized in **Table 1**, *Project Assessor Parcel Numbers, Corresponding Map Codes, Zoning and Acreage*.

TABLE 1: PROJECT ASSESSOR PARCEL NUMBERS, CORRESPONDING MAP CODES, ZONING AND ACREAGE.

Site	APN	Acreage	Existing General Plan/ Specific Plan Designation	Zoning
Northern	428-030-02	108.64	4.1 *(Accepted County Plan Areas);* 8.5 *(Resource Management (Minimum 20 acres))*	A *(Exclusive Agriculture);* A-1 *(Limited Agriculture)*
	428-020-06	160	4.1 *(Accepted County Plan Areas);* 8.5 *(Resource Management (Minimum 20 acres))*	A *(Exclusive Agriculture)*
	428-020-07	160	4.1 *(Accepted County Plan Areas);* 8.5 *(Resource Management (Minimum 20 acres))*	A-1 *(Limited Agriculture);* A-1 *(Limited Agriculture-Airport Approach Height Combining)*
	428-030-32	72.49	4.1 *(Accepted County Plan Areas);* 8.5 *(Resource Management (Minimum 20 acres))*	A-1 *(Limited Agriculture)*
	428-030-04	160	4.1 *(Accepted County Plan Areas);* 8.5 *(Resource Management (Minimum 20 acres))*	A *(Exclusive Agriculture)*
	428-030-05	120	4.1 *(Accepted County Plan Areas);* 8.5 *(Resource Management (Minimum 20 acres))*	A-1 *(Limited Agriculture)*
	428-030-06	80	4.1 *(Accepted County Plan Areas);* 8.5 *(Resource Management (Minimum 20 acres))*	A *(Exclusive Agriculture)*

	428-030-07	40	4.1 *(Accepted County Plan Areas);* 8.5 *(Resource Management (Minimum 20 acres))*	A *(Exclusive Agriculture)*
	428-030-08	40	4.1 *(Accepted County Plan Areas);* 8.5 *(Resource Management (Minimum 20 acres))*	A *(Exclusive Agriculture)*
	428-030-09	40	4.1 *(Accepted County Plan Areas);* 8.5 *(Resource Management (Minimum 20 acres))*	A *(Exclusive Agriculture)*
	428-030-28	2.9	4.1 *(Accepted County Plan Areas);* 8.5 *(Resource Management (Minimum 20 acres))*	A *(Exclusive Agriculture)*
	428-030-31	97.74	4.1 *(Accepted County Plan Areas);* 8.5 *(Resource Management (Minimum 20 acres))*	A *(Exclusive Agriculture)*
Southern	244-233-01	325.48	4.1 *(Accepted County Plan Areas);* 8.5 *(Resource Management (Minimum 20 acres))*	A-1 *(Limited Agriculture)*
	244-233-02	320	4.1 *(Accepted County Plan Areas);* 8.5 *(Resource Management (Minimum 20 acres))*	A-1 *(Limited Agriculture)*
	429-030-02	320.17	4.1 *(Accepted County Plan Areas);* 8.5 *(Resource Management (Minimum 20 acres))*	A-1 *(Limited Agriculture)*

1.2 Environmental Setting

The proposed project is located on approximately 2,102 acres of undeveloped, privately owned land located at the western edge of the Antelope Valley, directly south of the community of Mojave. The northern site lies in the Sanborn and Mojave United States Geological Survey (USGS) 7.5-minute topographical quadrangles, and the southern site lies in the Bissell United States Geological Survey (USGS) 7.5-minute topographical quadrangle. Existing development in the project vicinity includes rural access roads, scattered rural residences, producing and non-producing water wells, off-highway vehicle use, cattle ranching and maintenance facilities, mining, wind and solar energy, and meteorological towers. The community of Mojave is directly north of the site, including the Mojave Air and Space Port directly north of SR 58. The Burlington Northern Santa Fe (BNSF) Railway forms the western edge of the northern site and the gen-tie line crosses the BNSF Railway in two locations. The southern site is directly north of Edwards Air Force Base. Topography across the project site is relatively flat as the site is south of the Tehachapi Mountains on lands that gradually slope downward from the northwest to the southeast. Desert vegetation dominates the region.

The project site is located within unincorporated Kern County and is designated as Mojave Specific Plan map codes 8.5 (Resource Management (Minimum 20 acres)) and 8.5/2.4 (Resource Management (Minimum 20 acres)-Steep Slope). A portion of the project is designated as West Edwards Road Settlement Specific Plan map code 8.5 (Resource Management (Minimum 20 acres)).

The project site is located within the A (Exclusive Agriculture), A-1 (Limited Agriculture), and A-1 H (Limited Agriculture-Airport Approach Height Combining) zone districts. The existing Mojave Specific Plan and West Edwards Road Settlement Specific Plan designations are shown in **Figure 6**, *Existing Mojave Specific Plan and West Edwards Road Settlement Specific Plan Designation*. The existing land uses of the project and its surroundings are listed in **Table 2**, *Project Site and Surrounding Land Uses*, below, and depicted in Figure 2, *Project Boundary*. The entire project is also subject to the provisions of the Kern County Zoning Ordinance and is zoned as specified in **Table 2**, below, and depicted in **Figure 7**, *Existing Zoning* and **Figure 8**, *Proposed Zoning*.

The northern site of the project is not located within a Federal Emergency Management Agency (FEMA) designated flood zone. A portion of the southern site is within the FEMA A Zone indicating that it is within the 100-year floodplain, as depicted in **Figure 9**, *FEMA Flood Zone Hazard*.

Based on a review of records maintained by the California Department of Conservation/Division of Oil, Gas and Geothermal Resources (DOGGR), wells were not identified on the project site (https://maps.conservation.ca.gov/doggr/wellfinder/#close). Records maintained by the Kern County Assessor indicated there is one Mineral Rights APN within the boundaries of the project site.

The project would be served by the Kern County Sherriff's Office (KCSO) for law enforcement and public safety, Kern County Fire Department (KCFD) for fire protection, and Kern County Medical Emergency Service for emergency medical and rescue services. The closest KCSO Substation is the Mojave Substation located approximately 1.5 miles west of the northern site at 1171 SR 58 in the community of Mojave. The nearest KCFD fire station that would serve the project is Station No. 14 (Mojave), located at 1953 SR 58 in the community of Mojave, approximately 1.8 miles northwest of the project site. The nearest hospitals are the Antelope Valley Hospital, in the City of Lancaster, approximately 20 miles to the south and the Tehachapi Hospital, in the City of Tehachapi, approximately 18.5 miles to the northwest. The nearest school to the project site is Mojave High School, located approximately 2 miles northwest in the community of Mojave.

The project site is not designated by the California Department of Conservation (DOC) as prime Farmland, Farmland of Statewide Importance, or Unique Farmland. The DOC designates the project site as "Nonagricultural and Natural Vegetation", "Grazing Land", and "Vacant or Disturbed Land" (DOC 2018). Parcels within the project boundary are not subject to a Williamson Act Land Use contract, nor are they located within a Kern County Agricultural Preserve.

TABLE 2: PROJECT SITE AND SURROUNDING LAND USES

	Existing Land Use	Existing Map Code Designation	Existing Zone Classification
Northern Site	Undeveloped	8.5 *(Resource Management (Minimum 20 acres))*	A *(Exclusive Agriculture)* A-1 *(Limited Agriculture)* A-1 H *(Limited Agriculture-Airport Approach Height Combining)*
Southern Site	Undeveloped	8.5 *(Resource Management (Minimum 20 acres))* 8.5/2.4 *(Resource Management (Minimum 20 acres/Steep Slope)*	A-1 *(Limited Agriculture)*
North		3.3/2.11 *(Other Facilities/Burn Dumps)* 6.2 *(General Commercial)* 7.1 *(Light Industrial)*	A *(Exclusive Agriculture)* A-1 *(Limited Agriculture)* M-1 PD *(Light Industrial-Precise Development)* M-1 PD FPS *(Light Industrial, Precise Development, Floodplain Secondary)* M-1 PD H *(Light Industrial, Precise Development, Airport Approach Height Combining)* M-2 PD H *(Light Industrial, Precise Development, Airport Approach Height Combining*)
East		1.1 *(State or Federal Land)* 3.3 *(Other Facilities)* 8.5 *(Resource Management (Minimum 20 acres))* 8.5/2.4 *(Resource Management (Minimum 20 acres/Steep Slope)*	A-1 *(Limited Agriculture)* A-1 H *(Limited Agriculture, Airport Approach Height Combining)*
South		1.1 *(State or Federal Land)*	A-1 *(Limited Agriculture)* A-1 FPS *(Limited Agriculture, Flood Plain Secondary)*

	Existing Land Use	Existing Map Code Designation	Existing Zone Classification
West		3.3 *(Other Facilities)* 3.4 *(Solid Waste Disposal Facility)* 3.4.1 *(Solid Waste Disposal Facility Buffer)* 7.3/2.5 *(Heavy Industrial/Flood Hazard)* 5.6 *(Residential Minimum 2.5 Gross Acres/DU)* 8.5 *(Resource Management (Minimum 20 acres))*	A *(Exclusive Agriculture)* A FPS *(Exclusive Agriculture, Floodplain Secondary)* A-1 *(Limited Agriculture)* A-1 MH *(Limited Agriculture, Mobile Home)* A-1 FPS *(Limited Agriculture, Flood Plain Secondary)* C-2 PD *(General Commercial, Precise Development)* E (2 ½) RS MH *(Estate 2.5 Acres, Residential Suburban, Mobile Home)* E (10) RS MH *(Estate 10 Acres, Residential Suburban, Mobile Home)* M-2 PD *(Medium Industrial, Precise Development)* M-2 PD FPS *(Medium Industrial, Precise Development, Flood Plain Secondary)* M-3 *(Heavy Industrial)* M-3 PD *(Heavy Industrial, Precise Development)* M-3 PD FPS *(Heavy Industrial, Precise Development, Floodplain Secondary)*

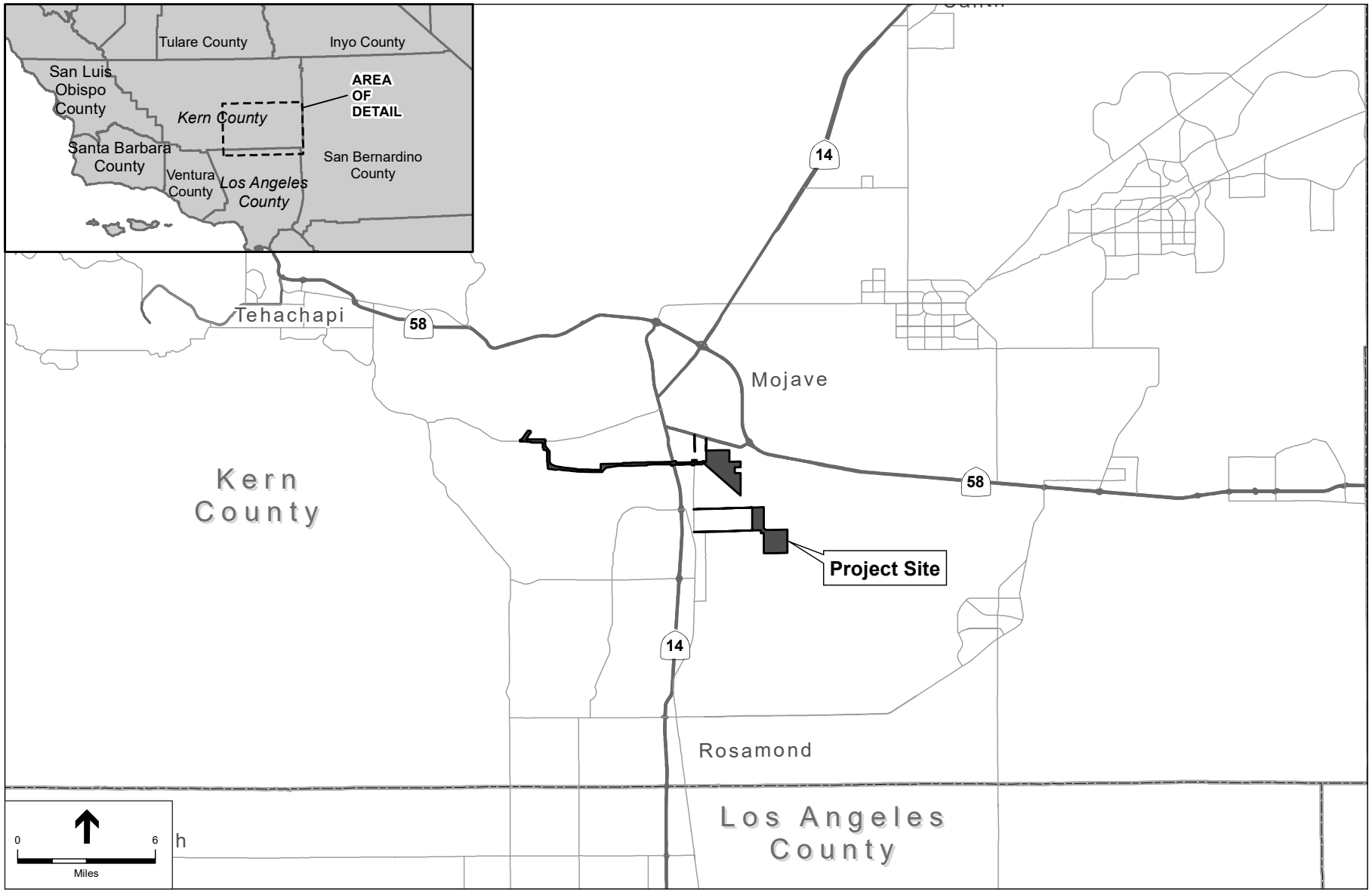


FIGURE 1: SITE VICINITY

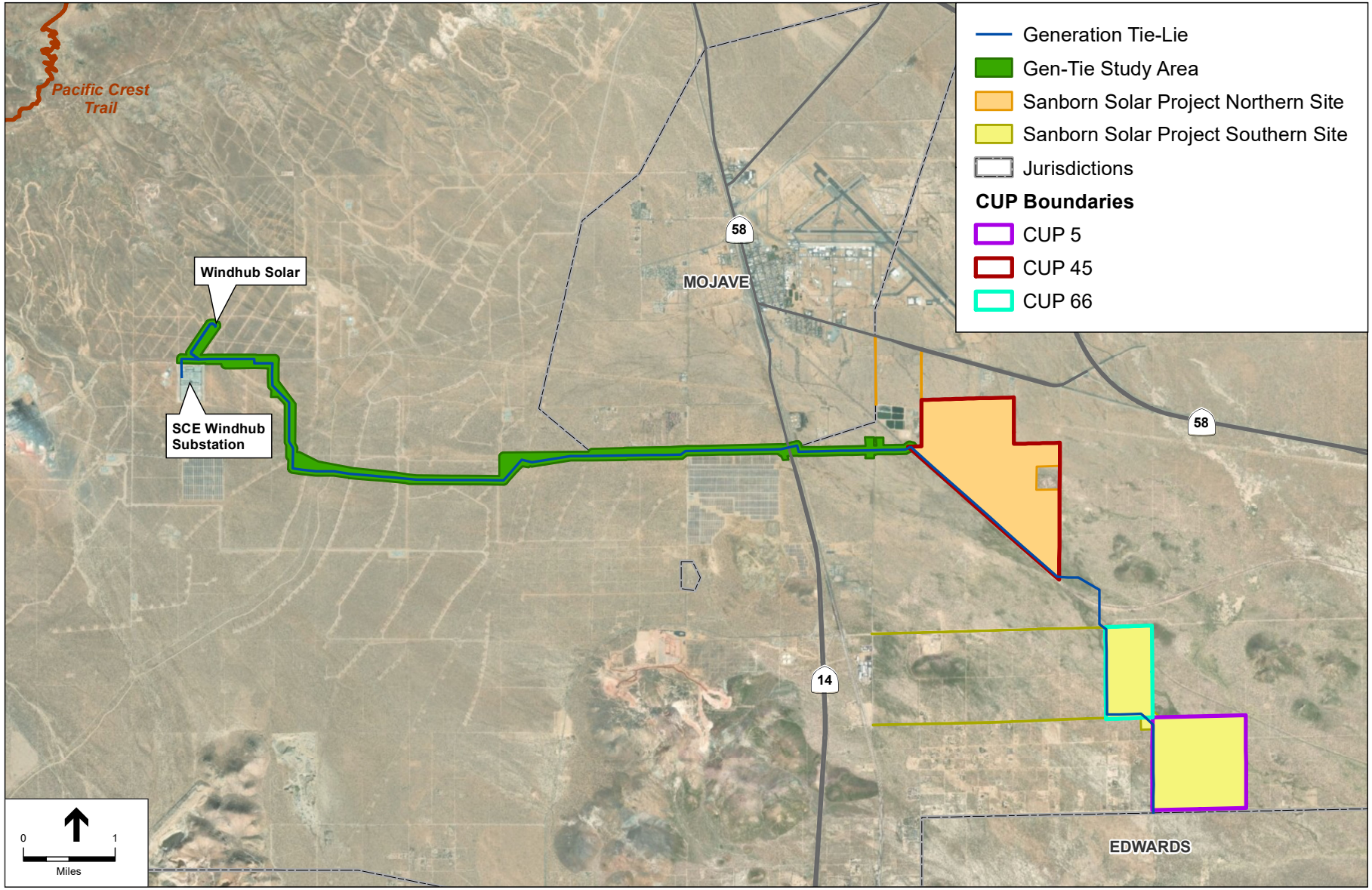


FIGURE 2: PROJECT BOUNDARY

FIGURE 3: NORTHERN SITE

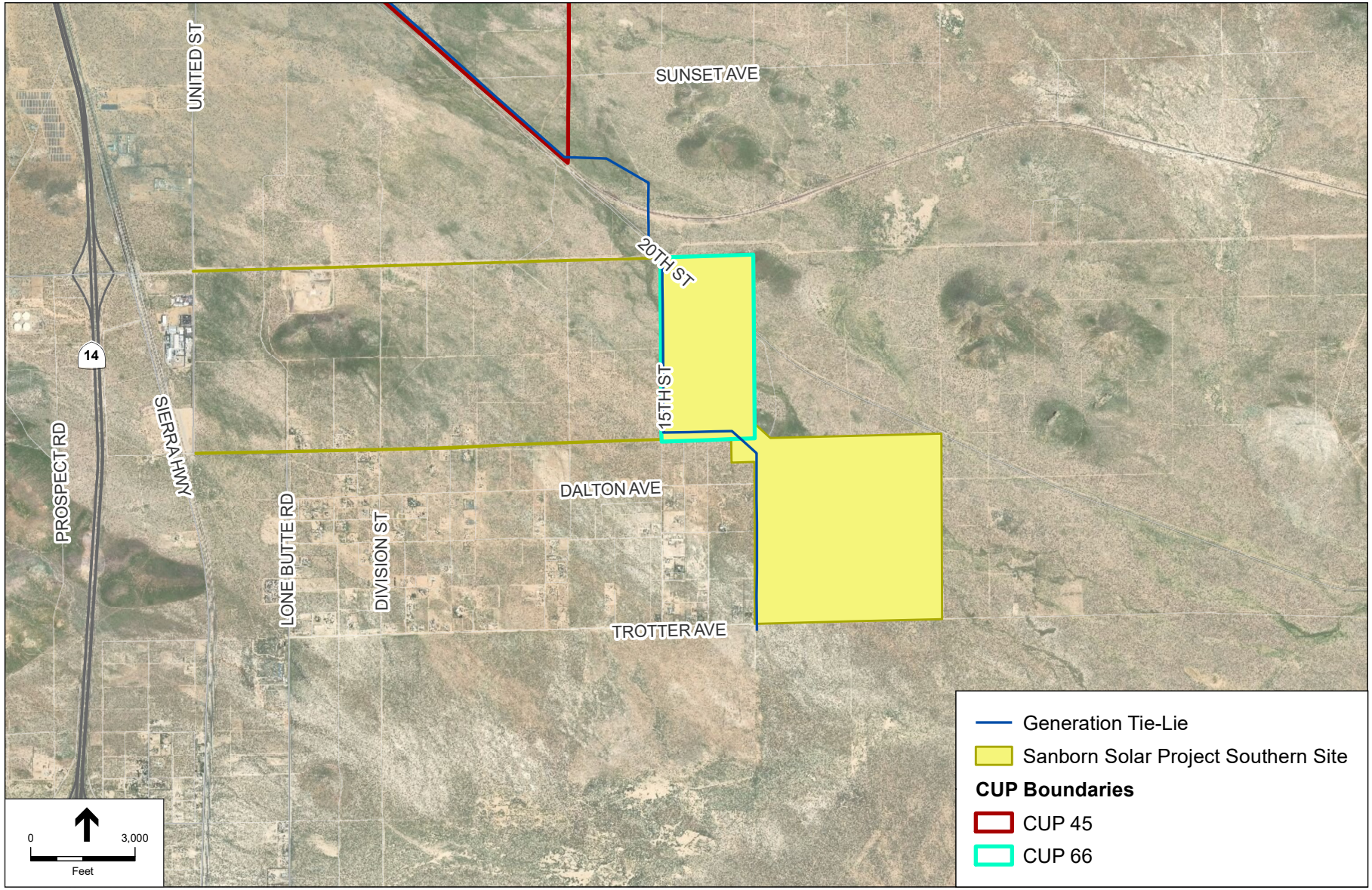


FIGURE 4: SOUTHERN SITE

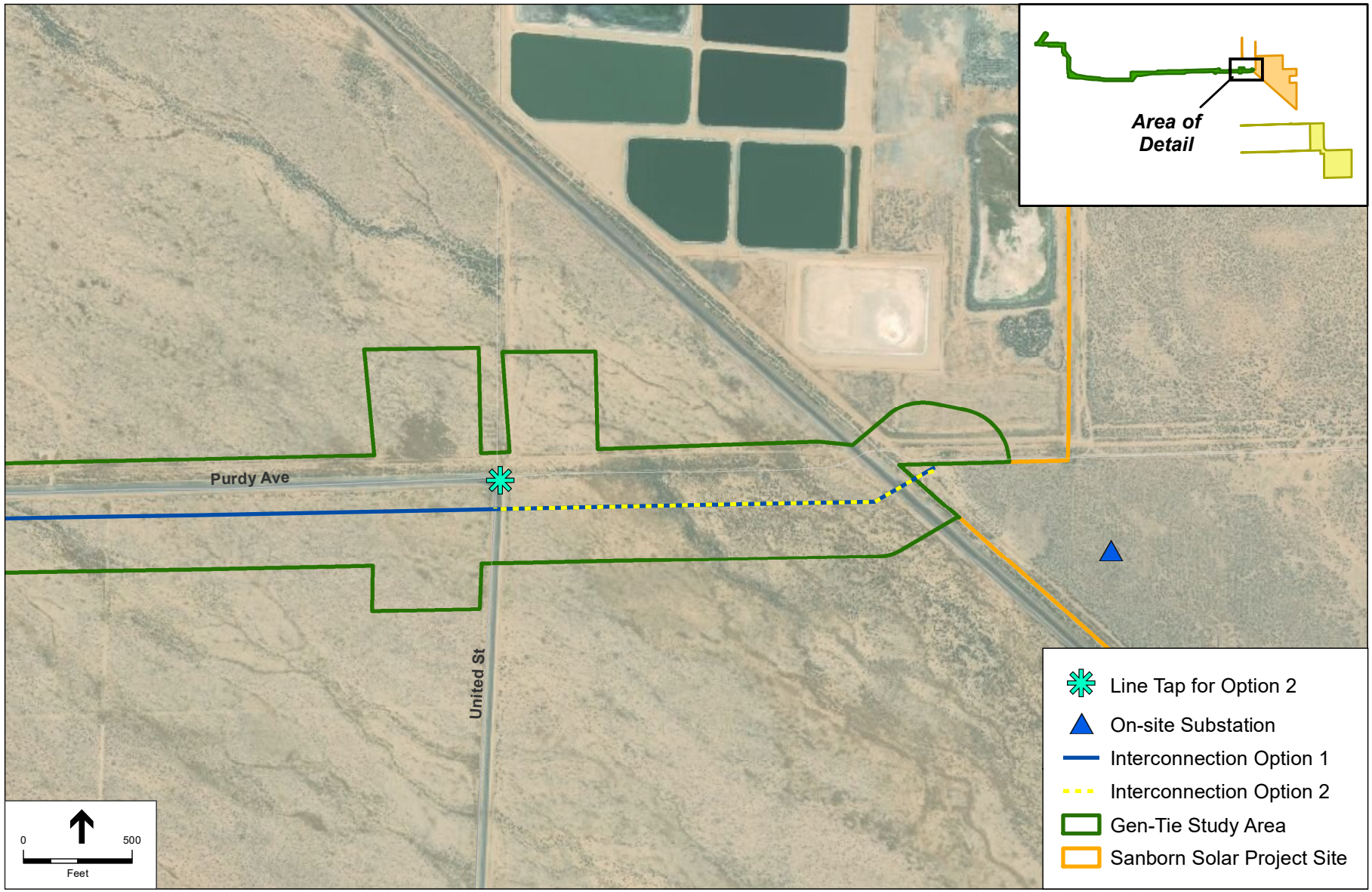


FIGURE 5: PROPOSED INTERCONNECTION OPTIONS

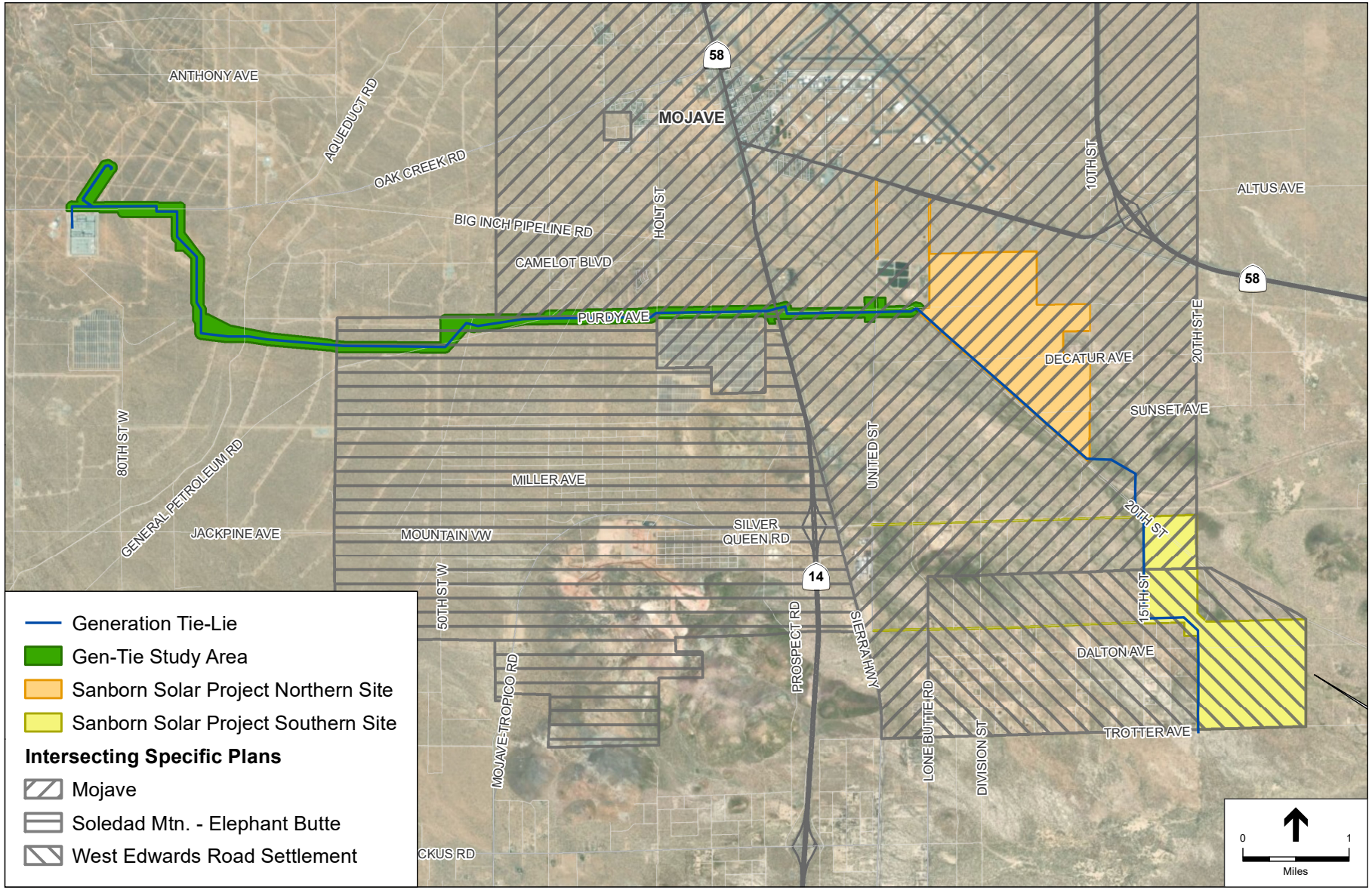
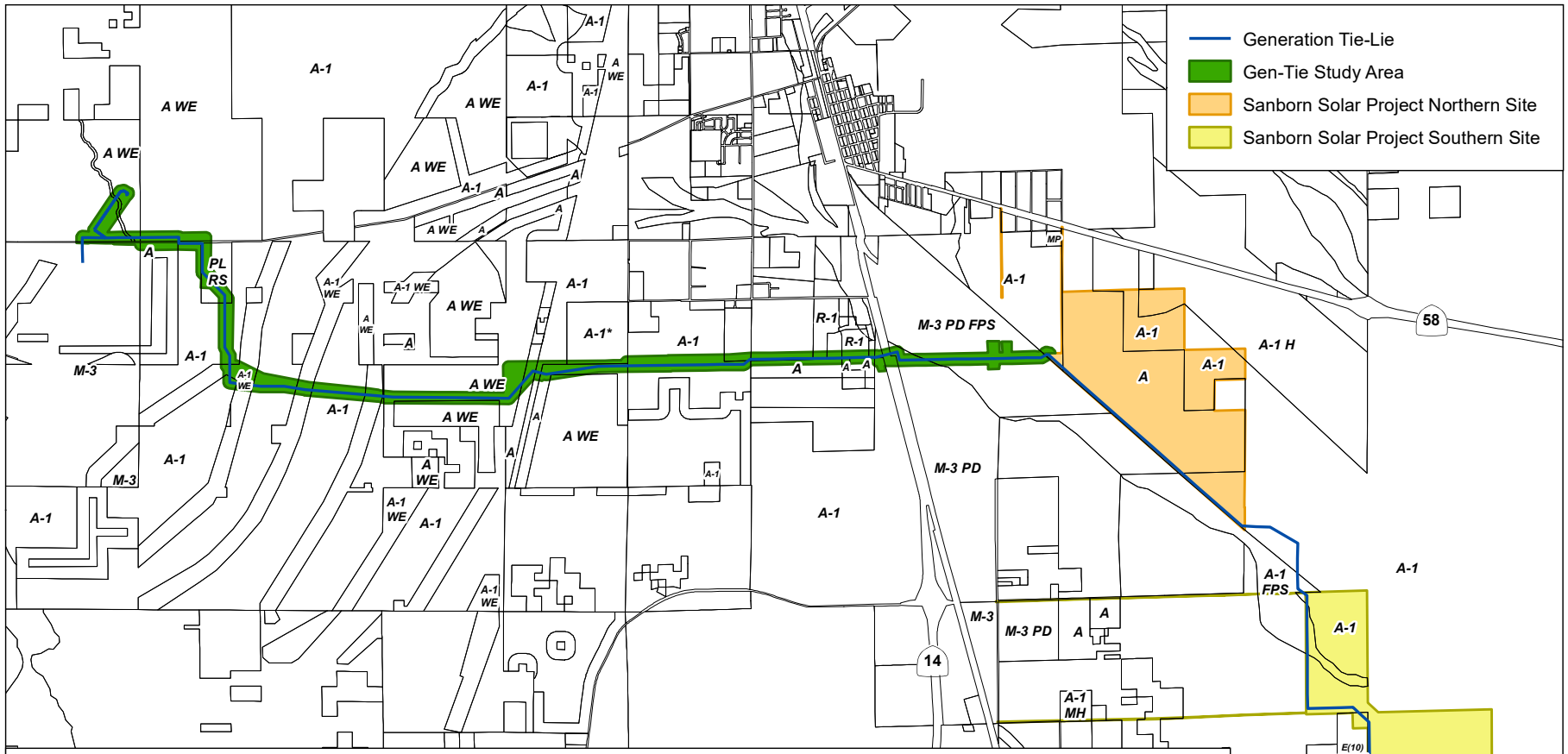


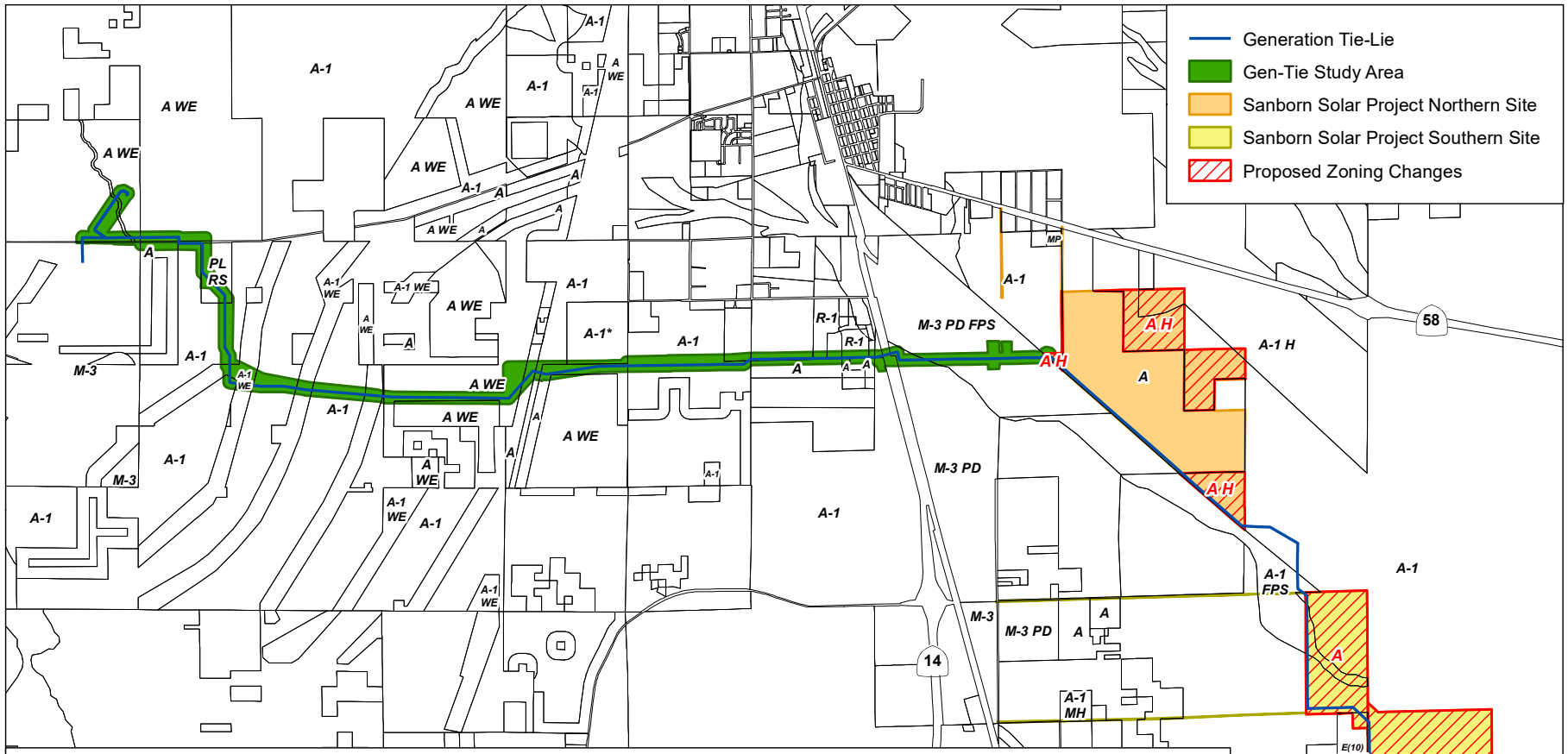
FIGURE 6: EXISTING MOJAVE SPECIFIC PLAN AND WEST EDWARDS ROAD SETTLEMENT SPECIFIC PLAN DESIGNATION



A WE: Exclusive Agriculture, Wind Energy
A WE: Exclusive Agriculture, Wind Energy Combining
A-1 FPS: Limited Agriculture, Floodplain Secondary Combining
A-1 H: Limited Agriculture, Airport Approach Height Combining
A-1 MH: Limited Agriculture, Mobilehome Combining
A-1 WE: Limited Agriculture, Wind Energy
A-1*: Limited Agriculture
A: Exclusive Agriculture
CH PD: Highway Commercial, Precise Development Combining
CO PD: Commercial Office, Precise Development

E(1/4): Estate .25 Acres
E(10) RS MH: Estate 10 Acres, Residential Suburban Combining, Mobilehome Combining
M-3 PD FPS: Heavy Industrial, Precise Development Combining, Floodplain Secondary Combining
M-3 PD: Heavy Industrial, Precise Development Combining
M-3: Heavy Industrial
MP: Mobilehome Park
OS: Open Space
PL RS: Platted Lands, Residential Suburban Combining
R-1 MH PD: Low Density Residential, Mobilehome Combining, Precise Development Combining
R-1: Low Density Residential

FIGURE 7: EXISTING ZONING



A WE: Exclusive Agriculture, Wind Energy
A WE: Exclusive Agriculture, Wind Energy Combining
A-1 FPS: Limited Agriculture, Floodplain Secondary Combining
A-1 H: Limited Agriculture, Airport Approach Height Combining
A-1 MH: Limited Agriculture, Mobilehome Combining
A-1 WE: Limited Agriculture, Wind Energy
A-1*: Limited Agriculture
A: Exclusive Agriculture
CH PD: Highway Commercial, Precise Development Combining
CO PD: Commercial Office, Precise Development

E(1/4): Estate .25 Acres
E(10) RS MH: Estate 10 Acres, Residential Suburban Combining, Mobilehome Combining
M-3 PD FPS: Heavy Industrial, Precise Development Combining, Floodplain Secondary Combining
M-3 PD: Heavy Industrial, Precise Development Combining
M-3: Heavy Industrial
MP: Mobilehome Park
OS: Open Space
PL RS: Platted Lands, Residential Suburban Combining
R-1 MH PD: Low Density Residential, Mobilehome Combining, Precise Development Combining
R-1: Low Density Residential

FIGURE 8: PROPOSED ZONING

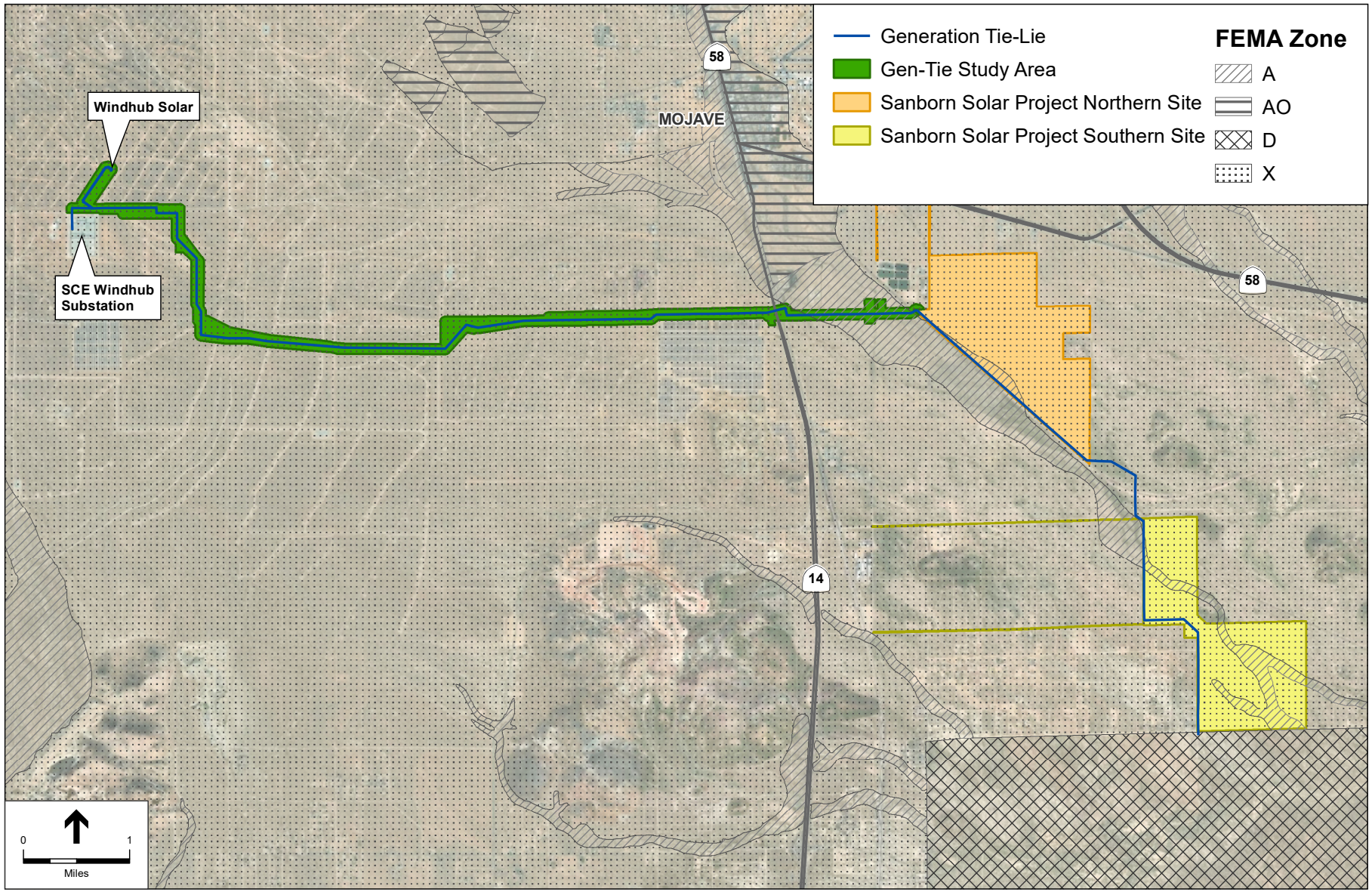


FIGURE 9: FEMA FLOOD ZONE HAZARD

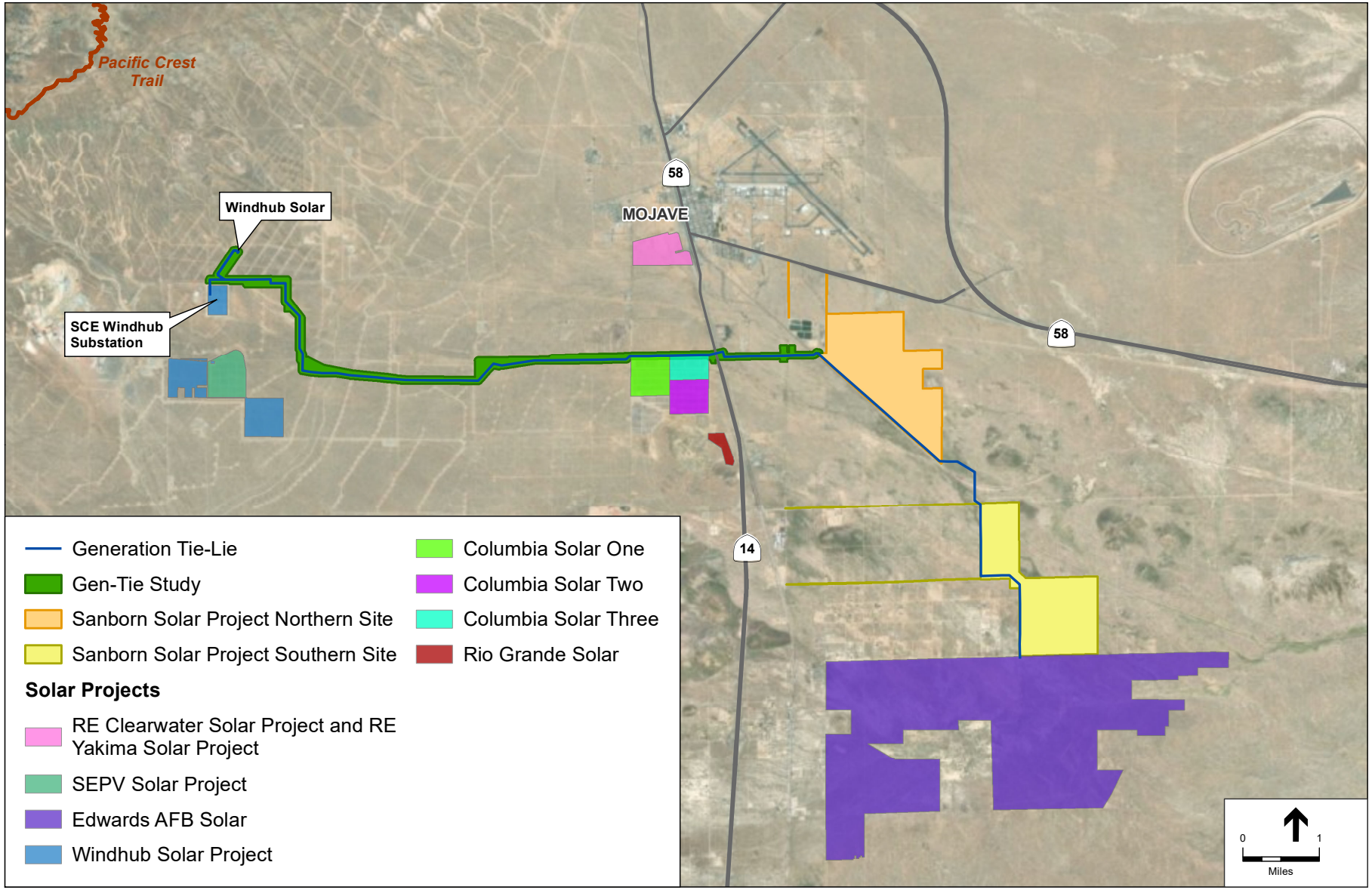


FIGURE 10: SURROUNDING SOLAR PROJECTS

Surrounding Land Uses

Existing development in the area includes rural access roads, scattered rural residences, producing and non-producing water wells, off-highway vehicle use, cattle ranching and maintenance facilities, mining, wind and solar energy, and met towers. A portion of the Pacific Crest Trail (PCT) is approximately 2.5 miles northwest of the project site.

There are several planned, existing, permitted, and solar energy and transmission projects in the region where the project site is located. As shown in **Figure 10**, *Surrounding Solar Projects*, the Edwards AFB Solar Project, located adjacent to the project's southern boundary, is currently in the planning stage. The High Desert Solar Project is immediately west of the project site and The RE Columbia Solar Project, RE Columbia Two Solar Project, RE Columbia Three Solar Project, and RE Rio Grande Solar Project, approximately 1.5 miles to the west, were approved in 2011 and are currently operational. The RE Clearwater Solar Project and RE Yakima Solar Project, approximately 1.8 miles to the northwest, was approved in 2014, but to date has not been constructed. The Windhub Solar Project, approximately 7 miles to the west, was approved by the Board of Supervisors in January 2019 and construction is scheduled to begin in 2019. The SEPV Solar Project, approximately 7.5 miles to the west, is currently operational.

1.3 Project Description

Project Overview

The proposed project would develop a photovoltaic (PV) solar facility and associate infrastructure necessary to generate a combined 300 megawatts (MW) of renewable electrical energy, including associated energy storage facilities, on 2,102 acres of privately-owned land in the southern portion of Kern County, directly south of the community of Mojave.
The proposed project consists of the following requests:

- Zone Change Case 56, Map 196 (Zone Change from A-1 and A-1 H to A H) - approximately 461 acres
- Zone Change Case 2, Map 212 (Zone Change from A-1 to A) - approximately 645 acres
- Zone Change Case 59, Map 213 (Zone Change from A-1 to A) - approximately 338 acres
- Conditional Use Permit 45, Map 196 (solar facility) - approximately 1,118 acres
- Conditional Use Permit 5, Map 212 (solar facility) - approximately 645 acres
- Conditional Use Permit 66, Map 213 (solar facility) - approximately 338 acres

Figure 2; *Project Boundary*, shows the boundaries of the proposed project. With the requested zone change, the entirety of the project would be zoned A (Exclusive Agriculture) and A H (Exclusive Agriculture-Airport Approach Height Combining). Therefore, pursuant to Chapter 19.12.030.G, Conditional Use Permits (CUPs) are required to allow for the construction and operation of the PV solar facility under this zoning.

As shown in Table 1, *Project Assessor Parcel Numbers, Corresponding Map Codes, Zoning and Acreage*, the proposed solar facility consists of 15 parcels. The proposed project consists of two development areas that comprise the project site and would be built in several phases pending power purchase agreements. The facilities would be designed to produce up to a combined 300 MW of solar power at the point of interconnection to the transmission grid. The northern site would produce approximately 155 MW and the southern site would produce approximately 145 MW. The project would have the following options for interconnection:

- Interconnection Option 1 - A 230 kV gen-tie constructed from an onsite project substation, located near Lone Butte Road. This option would connect to existing transmission lines with the connection equipment situated on up to 5 acres of land at the corner of United Street and Purdy Avenue, or travel west to the Windhub and or/ Westwind Substation.

- Interconnection Option 2 - A 34.5 kV collection line would be constructed from the western limits of the project site near Lone Butte Road and travel west to a step-up conversion station. At the United Street step-up conversion station, the 34.5 kV power would be stepped-up to a 230 kV power for delivery to the Windhub and/or Westwind Substation.

The proposed project would consist of approximately 1,052,000 PV panels arranged in a grid-pattern over the project site. The proposed project would include installation of PV panels that would be mounted on steel support posts that would be pile driven into the ground and connected to inverters. The PV panels would be made of a thin film material or polycrystalline silicon material covering the glass panes, which would be dark in color, highly absorptive, and have minimum reflectivity. The PV panels would be manufactured at an off-site location and transported to the project site for installation.

The project's PV panels would be provided on either a fixed-mount array system or a single-axis tracker system. Depending on the type of technology (modules) used, the panels would measure between 4 and 7 feet in length, and the total height of the panel system measured from ground surface would be approximately 7 to 12 feet. The length of each row of panels would be approximately 300 feet and would be oriented in the east–west direction in the case of a fixed-mount array being used, and oriented in the north–south direction in the case of single-axis trackers being used. The proposed facility is intended to operate year-round and would generate electricity during the daylight hours.

The power generated on the project site would assist the state in complying with the Renewables Portfolio Standard under Senate Bill 350, which requires that by December 31, 2030, 50 percent of all electricity sold in the state shall be generated from renewable energy sources. The power generated on the project site would be sold to California investor-owned utilities, municipalities, community choice aggregators, or other purchasers in furtherance of the goals of the California Renewable Energy Portfolio Standard. The project has an anticipated operational life of up to 35 years. At the end of the project's operational term, the project proponent would determine whether the project site should be decommissioned and deconstructed, or if it would seek an extension of its CUP. If any portion of the project site is decommissioned, it would be converted to other uses in accordance with the applicable land use regulations in effect at that time.

The combined project facilities would include the following components:

- Installation of up to a total combined 300-MW of solar PV modules, mounted either on a galvanized metal fixed-tilt or single-axis racking system. The mounting systems for the modules would be mounted on steel support posts that would be pile driven into the ground;

- Installation of an energy storage facility and accessories that would provide energy storage capacity for the electrical grid;

- A collector substation including circuit breakers, disconnect switches, metering protection equipment, and main step-up transformer(s);

- Potential upgrades to the existing Windhub Substation and/or Westwind Substation and installation of new circuits, lines, switches, utility poles, etc.;

- An Operations & Maintenance (O&M) facility on the northern site to maintain the facilities;

- Overhead and underground collection systems throughout the solar facilities (the collection systems would be aggregated at multiple circuit breakers or medium-voltage switchgear positions within the project facilities, leading to the collector substation);
- 34.5 kV to 230 kV step-up conversion station and/or kV gen-tie line to connect to the Windhub Substation and/or Westwind Substation;
- Telecommunication equipment, including underground and overhead fiber optics, and meteorological data collection systems or supervisory control and data acquisition (SCADA);
- Onsite access roads; and
- Perimeter security fencing and nighttime directional lighting.

Project Facilities

Solar PV Panels

Solar energy would be captured by PV panels, of which an estimated 1,052,000 individual panels would be installed onsite. The layout of the single axis tracker solar panels would be aligned in rows in the north south direction or in an east-west direction if a fixed tilt racking system were used instead. The maximum height of the single axis tracker solar panels would be up to 12 feet above grade at the beginning and end of each day. Each PV panel would be attached to embedded piers using a support structure. Panel layout and spacing is typically optimized to balance energy production versus peak capacity, and depends on the sun angles and shading due to the surrounding horizon of the site. If a tracking system is used, the panels would typically be mounted with the longer side oriented east to west across the tracker system's north-south axis. Individual arrays of panels would be combined to generate the total plant capacity.

Solar Trackers

The project's PV panels would be provided on either a single-axis tracker system or a fixed-mount array system. If using single-axis trackers, the PV panel rows would be oriented in the north-south direction. Single-axis tracking systems would employ a motor mechanism that would allow the arrays to track the path of the sun (from east to west) throughout the day. In the morning, the panels would face the east. Throughout the day, the panels would slowly move to the upright position at noon and on to the west at sundown. The panels would reset to the east in the evening or early morning to receive sunlight at sunrise. The exact tracker manufacturer and model would be determined in the final design. If the fixed tilt racking system is used, the PV panels would be in a fixed tilt position that allows for the most sunlight specific to the geography of the project site. Fixed-tilt structures, would be constructed in east/west rows with the PV panels mounted via angled brackets on top, facing south. The fixed-tilt structures would be supported by vertical posts driven in the ground. The fixed-tilt PV panels would be positioned to receive optimal solar energy over the course of a year, tilted between 15 to 30 degrees. As a fixed-tilt system, the PV panel would not track the path of the sun.

Depending on the type of technology (modules) used, the panels would measure between 4 and 7 feet in length, and the total height of the panel system measured from ground surface would be at most 12 above grade. The length of each row of panels would be approximately 300 feet and spacing between each row would be approximately 8 to 22 feet.

Collection, Inverter, and Transformer Systems

The AC-DC electrical collection system includes all cables and combiners that collect electricity from the panels, delivers it to the inverters, collects it from the inverters, and ultimately delivers it to the project switching station(s). The collection system would likely be installed along internal access roads to collect power from the rows of panels and deliver it to the switching station. This collection system would likely be installed in subsurface trenches, though in some areas of the site, part or all of the collection system may be housed in above-grade raceways mounted on supports approximately 24 to 36 inches above ground level. The collection system would be rated at between 1,000 to 2,000 volts DC until it reached the inverters and a 34.5 kV AC intermediate voltage system between the inverters and the project switching station. Each of the project's facilities would include inverters, underground and overhead electrical collection systems, and fiber optics. Electrical collection systems would be installed in conjunction with panel arrays within the project site, connecting each solar panel to a feeder circuit; each feeder circuit would in turn be connected to the collector substation. The different solar panel circuits would gather into 34.5 kV circuits and either step-up to 230 kV at the United Street conversion station and/or step-up to 230 kV at the onsite substation. The power would then be delivered via 230 kV circuits to a grid interconnection point at the Windhub Substation and/or Westwind Substation.

The DC electricity produced by the solar panels is converted to three-phase alternating current by a series of inverters. The two facilities would require up to 40 inverters. Alternating current is the type of electricity usable by the electric utility and is the form required to connect to the transmission system. The inverter pad equipment includes a transformer that steps up the electricity in its new form to an output voltage of 34.5 kV. This electricity is then transmitted via the medium voltage collection system to the switching station.

Energy Storage System

The proposed project would install an energy storage facility and associated infrastructure on both the northern and southern sites that would provide energy storage capacity for the electric grid. Adjacent to the on-site collector substation and/or throughout the solar arrays energy storage systems are proposed. The energy storage batteries would be housed in a structure or within connex boxes. In the event a single structure is constructed near the on-site substation, a height (including any screening for heating, ventilation, and air conditioning (HVAC)) of approximately 30 feet is anticipated as a worst-case scenario. The batteries under this configuration are housed in open-air-style racking (similar to computer racking) 10 to 12 feet high. The associated inverters, transformers, and switchgear would be located immediately adjacent to the structure on concrete pads. The energy storage structure would also have a fire rating in conformance with County standards and specialized fire suppression systems installed for the battery rooms. All nonbattery rooms would have County-approved standard sprinkler systems. The structure would also have HVAC cooling in the battery room to maintain energy efficiency. Power to the HVAC, lighting, etc. would be provided via a connection to the on-site substation service transformer with connection lines installed aboveground and/or belowground. The energy storage system would be unmanned, with remote operational control and periodic inspections and maintenance performed as necessary. The energy storage technology has not been determined at this time, but could include any commercially available battery technology, including but not limited to lithium iron, lead acid, sodium sulfur, and sodium or nickel hydride. Power stored by the energy storage facility would be gathered into 34.5 kV circuits and either step-up to 230 kV at the United Street conversion station and/or step-up to 230 kV at the onsite substation. The power would then be delivered via 230 kV circuits to a grid interconnection point at the Windhub Substation and/or Westwind Substation.

Substations

The solar facility would include an on-site substation, located on the northwest portion of the northern site. Substation generation voltage would step up from 34.5 kV to 230 kV for off-base transmission. The substation would contain a control building with an attached battery room and standard substation equipment. The substation would not exceed 1.5 acres in size. Substation equipment would generally be between 15 and 35 feet tall, with the exception of the transmission tower, which would be a maximum of 60 feet in height and a lightning protection mast, which would not exceed 75 feet in height (transmission tower plus 15 feet).

Grounding of the substation would be accomplished by ground grids designed to meet the requirements of the Institute of Electrical and Electronics Engineers (IEEE) Guide for Safety in AC Substation Grounding. Final ground grid design would be based on site-specific information such as available fault current and local soil resistivity. Typical ground grids consist of direct buried copper conductors with eight-foot-long copper-clad ground rods arranged in a grid pattern to approximately three feet outside of the substation area.

Operation and Maintenance Facilities

The O&M building would be up to approximately 8,000 square feet and is expected to be collocated with the proposed collector substation. It is anticipated that a maximum of six permanent staff employees would use the O&M building for ongoing facility monitoring, equipment storage, and repairs. The O&M building is expected to be a prefabricated commercial structure that measures up to 100 feet by 80 feet in area and 12 feet high. Permanent restroom facilities with septic tanks and/or portable toilets would be used for sanitary purposes at the O&M building, and a permanent water source in the form of trucked water, well water, or bottled water would be provided for the staff. The proposed building would include the requisite number of parking spaces for staff members' vehicles and O&M equipment. The parking area would measure approximately 10,000 square feet. Power for the O&M buildings and the project's associated structures would be provided by the project's electrical generation or supplied by the local power provider.

Onsite Meteorological Stations and Towers

The project would include one onsite solar meteorological station located near the O&M building which would consist of solar energy (irradiance) meters, as well as an air temperature sensor and wind anemometer. This equipment, specifically the wind anemometer, would have an estimated height of approximately 8 feet. The precise location of the meteorological station would be determined during detailed design engineering.

Site Access and Security

During operation, the project would be accessed from various roadways. SR 58 intersects with SR-14 and runs west of the project site; both the SR 58 and SR 14 provide primary access. The northern solar facility would be accessed by Lone Butte Road or 10th Street from SR 58. The southern solar facility would be accessed by Silver Queen Road or Reed Avenue from United Street off SR 14. Although the existing roadways would be used to the greatest extent possible, new unpaved roads would be constructed to serve as access roads from the existing road network to the solar array blocks. All road improvements would be completed per Caltrans and/or County code and regulations. These site access roads would remain in place for ongoing O&M activities after construction is completed.

Final service road alignments would depend on the final placement of the solar panels and on the results of field investigations, including topography and any other site-specific details to be incorporated into the final design. Should access roads be required to cross streambed areas under the jurisdiction of the California

Department of Fish and Wildlife, appropriate crossings would be installed to minimize impacts to these jurisdictional areas and comply with all California Fish and Game Code requirements, including authorization through a Streambed Alteration Agreement as appropriate.

All fence installation requirements would be evaluated, and the best-fit scenario would be incorporated in the project site based on the County's final determination. The fences would be installed around the perimeter of each site, substation, and other areas requiring controlled access, for safety and security purposes. The fencing would remain for the life of the project.

The project's lighting system would provide O&M personnel with illumination for both normal and emergency conditions. Lighting would be designed to provide the minimum illumination needed to achieve safety and security objectives. Permanent motion-sensitive, directional security lights would be installed to provide adequate illumination around the substation areas and points of ingress/egress. All lighting would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties in conformance with Kern County Ordinance (Chapter 19.81) - Outdoor Lighting-Dark Skies requirements. The project's lighting system would provide O&M personnel with illumination for both normal and emergency conditions. Lighting would be designed to provide the minimum illumination needed to achieve safety and security objectives. Motion-sensitive cameras would also be installed throughout each solar facility at the inverters for added security. The cameras would be mounted on poles of approximately 20 feet in height.

Construction Activities

The construction activities for the proposed project fall into three main categories: (1) site preparation; (2) system installation; and (3) testing, commissioning, and cleanup. The entire construction process is estimated to take approximately 580 construction days, over the course of a 30-month period. Site grading and earthwork is anticipated to begin during the third quarter of 2020, with operations beginning in the fourth quarter of 2022.

Schedule and Workforce

Construction would primarily occur during daylight hours, Monday through Friday, between 7:00 a.m. and 6:00 p.m., as required to meet the construction schedule. Additional hours/days may be necessary to facilitate the schedule. Any construction work performed outside of the normal work schedule would be coordinated with the appropriate agencies and would conform to the Kern County Noise Ordinance (Chapter 8.36).

The onsite construction workforce is expected to peak at up to 550 individuals; however, the average daily workforce is expected to be 350 construction, supervisory, support, and construction management personnel on site during construction. It is anticipated that the construction workforce would commute to the site each day from local communities and report to the designated construction staging yards prior to the beginning of each workday.

Site Grading and Earthwork

Beginning work on the project would involve preparing the land for installation of arrays, energy storage facility, related infrastructure, access driveways, and temporary construction staging areas. Prior to initial construction mobilization, preconstruction surveys would be performed and sediment and erosion controls would be installed in accordance with an approved Storm Water Pollution Prevention Plan (SWPPP). Stabilized construction entrances and exits would be installed at driveways to mitigate tracking of sediment onto adjacent public roadways.

Construction activities would be expected to include mowing, excavation, and grading of the project site. Site preparation and construction would occur in accordance with all federal, state, and County zoning codes and requirements. Noise-generating construction activities would be limited to the construction hours noted above. All stationary equipment and machines with the potential to generate a significant increase in noise or vibration levels would be located away from noise receptors to the extent feasible. The contractor would conduct construction activities in such a manner that the maximum noise levels at the affected buildings would not exceed established noise levels.

All applicable local, state, and federal requirements and best management practices (BMPs) would be incorporated into the construction activities for the project site. The construction contractor would be required to incorporate BMPs consistent with the County zoning ordinance and with guidelines provided in the California Stormwater Quality Association's Construction Best Management Practice Handbook, including the preparation of a SWPPP and a soil erosion and sedimentation control plan to reduce potential impacts related to construction of the proposed project. Prior to initial construction mobilization, pre-construction surveys would be performed and sediment and erosion controls would be installed in accordance with the approved SWPPP. Stabilized construction entrances and exits would be installed at driveways to reduce tracking of sediment onto adjacent public roadways.

Site preparation would be consistent with County BMPs and Eastern Kern Air Pollution Control District rules for dust control. Site preparation would involve the removal and proper disposal of existing vegetation and debris that would unduly interfere with project construction or the health and safety of onsite personnel. Dust-minimizing techniques would be employed, such as maintaining natural vegetation where possible, using mow-and-roll vegetation clearance strategy, placement of wind control fencing, application of water, and application of dust suppressants. Conventional grading would be performed throughout the project site but minimized to the maximum extent possible to reduce unnecessary soil movement that may result in dust. Earthworks scrapers, excavators, dozers, water trucks, paddlewheels, haul vehicles, and graders may all be used to perform grading. Land-leveling equipment, such as a smooth steel drum roller, would be used to even the surface of the ground and to compact the upper layer of soil to a value recommended by a geotechnical engineer for structural support. Access roads may be additionally compacted to 90 percent or greater, as required, to support construction and emergency vehicles. Certain access roads may also require the use of aggregate or decomposed granite to meet emergency access requirements. Soil movement from grading would be balanced on the site, and no import or export of soils would occur.

Trenching would be required for placement of underground electrical and communication lines, and may include the use of trenchers, backhoes, excavators, haul vehicles, compaction equipment, and water trucks. After preparation of the site, the pads for structures, equipment enclosures, and equipment vaults would be prepared per geotechnical engineer recommendations. The substations and switchyard areas would have a grounding grid installed and would be covered with aggregate surfacing for safe operation. Collection and transmission structures from the substation and switchyard to the existing transmission line would require drilling for foundation support, and the soils removed would be spread across the project site.

Solar Array Assembly

Erection of the solar arrays would include support structures and associated electrical equipment and cabling. First, steel piles would be driven into the soil using pneumatic techniques, similar to a hydraulic rock hammer attachment on the boom of a rubber-tired backhoe excavator. The piles, or "standards," are typically spaced approximately 10 feet apart and installed to a revealed height of approximately 4 feet above grade. Once the standards have been installed, the horizontal cross-members would be placed and secured. The arrays would consist of either a motorized single-axis tracking system or a fixed-mount array system. For a single-axis tracking system, the trackers and their associated motors would be mounted to the

horizontal cross-members. For a fixed-mount system, a galvanized metal racking system, which holds the PV modules in the correct position for maximum capture of solar insulation, would be field assembled and attached to the horizontal cross-members.

Concrete would be required for the footings and pads for the substation transformers and equipment. Concrete may also be required for pile foundation support, depending on the mounting system chosen for installation. Final concrete specifications would be determined during detailed design engineering. Concrete may be produced on the project site and would be poured throughout the site by truck, or purchased from an off-site supplier and trucked in to the project site. During this work, there would be multiple crews working on the site with various equipment and vehicles, including special vehicles for transporting the modules and other equipment. As the solar arrays are installed, the substations and shared solar switchyard would be constructed and the electrical collection and communication systems would be installed. Within the solar fields, the electrical and communication wiring would be installed in underground trenches, although some of the mid-voltage collection runs and communication systems may be on overhead lines. The wiring would connect to the appropriate electrical and communication terminations and the circuits would be checked and commissioned prior to operation.

Electrical Interconnection to Transmission Owner Infrastructure

The proposed project would connect with existing Southern California Edison (SCE) electrical distribution lines from SCE's circuit on the western border of the project boundary to a pole and pole-top mounted breaker onsite.

Construction Water Use

During construction of the proposed project, water would be required for common construction related purposes, including but not limited to dust suppression, soil compaction, and grading. Dust-control water may be used for ingress and egress of onsite construction vehicle equipment traffic and for the construction of the solar equipment. A sanitary water supply would not be required during construction, because restroom facilities would be provided by portable units to be serviced by licensed providers.

The overall construction water usage is anticipated to be approximately 200 acre-feet (AF) during the 30-month construction period. During construction, the water used is anticipated to be purchased from a local water purveyor or existing onsite water wells. Water demand during construction is expected to be the same if the project is constructed during a year with normal precipitation, a year with less-than-average precipitation, or a multiyear period of less-than-average precipitation.

Several sources of water have been identified, which individually or in combination, would be available to supply the proposed project’s construction water demands. These sources include onsite groundwater wells, the Mojave Public Utilities District (MPUD), and California City.

Project Operation and Maintenance

The project would include one onsite O&M building, to be utilized by a maximum of six permanent staff employees for ongoing facility monitoring, equipment storage and repairs during the operational phase of the project. Typical O&M activities that would occur on the project site during operation include, but are not limited to, liaison and remote monitoring; administration and reporting; semi-annual and annual services; remote operations of inverters; site security and management; additional communication protocol; repair and maintenance of solar facilities, substations, electrical transmission lines, and other project facilities; and periodic panel washing.

The project would produce a small amount of waste associated with maintenance activities, which could include broken and rusted metal, defective or malfunctioning modules, electrical materials, empty containers, and other miscellaneous solid waste, including the typical refuse generated by workers. Most of these materials would be collected and delivered back to the manufacturer or to recyclers. Non- recyclable waste would be placed in covered dumpsters and removed on a regular basis by a certified waste-handling contractor for disposal at a Class III landfill. The closest Class III municipal landfill is the Mojave Recycling and Sanitary Landfill (RSLF).

During operation and maintenance of the project, it is anticipated that water would be required for panel washing, equipment washing, sanitary and non-sanitary uses, and other miscellaneous water uses, such as landscaping. During solar and energy storage project operations, solar panel washing is expected to occur one to four times per year and general labor (up to 10 individuals) may assist in the panel cleaning. Panel washing of this size would require 45 days to complete per wash cycle. Water consumption is expected to be around 0.28 gallons per square yard of panel, based on other similar operations. Given a 300 MW AC plant, with four cycles per year, the annual water usage is expected to be up to approximately 30 AFY of water per year. Although the project proponent only expects to wash the PV panels once per year, the panels may need to be washed more frequently (up to four times per year) based on site conditions. Conditions that may necessitate increased wash requirements include unusual weather occurrences, forest fires, local air pollutants, and other similar conditions. Therefore, the proposed project is requesting the use of up to 30 AF per year for the explicit use of washing panels. This amount is in addition to the water necessary for the operations, fire suppression, and site maintenance, which is a small amount of groundwater (i.e., approximately 0.6 AF). In the event that electrical power distribution cannot be delivered to the groundwater pump, a generator would be located adjacent to the well pump to provide power.

Project Decommissioning

The project has an anticipated operational life of up to 35 years, after which the project proponent may choose to update site technology and recommission, or to decommission the site and remove the systems and their components. All decommissioning and restoration activities would adhere to the requirements of the appropriate governing authorities and in accordance with all applicable federal, state, and County regulations. Following the expiration of a power purchase agreement for the proposed project, the Applicant may, at its discretion, choose to enter into subsequent power purchase agreements or to decommission and remove the system and its components. The project site could then be converted to other uses in accordance with the applicable land use regulations in effect at that time.

It is anticipated that during project decommissioning, project structures would be removed from the ground on the project site. Aboveground equipment that would be removed would include module posts and support structures, on-site transmission poles that are not shared with third parties, and the overhead collection system within the project site; inverters, transformers, electrical wiring, and equipment on the inverter pads. The substation would be removed if it is owned by the project proponent; however, if a public or private utility assumes ownership of the substation, the substation may remain onsite to be used as part of the utility service to supply other applications.

Equipment would be de-energized prior to removal, salvaged (where possible), placed in appropriate shipping containers, and secured in a truck transport trailer for shipment off site to be recycled or disposed of at an appropriately licensed disposal facility. Removal of the solar modules would include removing the racks on which the solar panels are attached and placing them in secure transport crates and a trailer for storage, for ultimate transportation to another facility. Once the solar panels have been removed, the racks would be disassembled and the structures supporting the racks would be removed. Site infrastructure would be removed, including the fences and the concrete pads that may support the inverters, transformers, and

related equipment. The demolition debris and removed equipment may be cut or dismantled into pieces that can be safely lifted or carried with the equipment being used. The fencing and gates would be removed, and all materials would be recycled to the extent feasible. Project roads would be restored to their pre-construction condition unless the landowner elects to retain the improved roads for access throughout that landowner's property. The area would be thoroughly cleaned and all debris removed. A collection and recycling program would be executed to promote recycling of project components and minimize disposal in landfills.

1.4 Project Objectives

The project proponent has defined the following objectives for the project:

- Establish solar PV power-generating facilities of sufficient size and configuration to produce reliable electricity in an economically feasible and commercially financeable manner that can be marketed to different power utility companies.
- Develop a previously disturbed site that is close to transmission infrastructure in order to minimize environmental impacts.
- Use proven and established PV and energy storage technology that is efficient, requires low maintenance, and is recyclable.
- Maximize the use of existing transmission infrastructure.
- Ensure that the project can be constructed in a technologically feasible manner and operated in a manner that allows electricity to be provided at a competitive price.
- Use construction techniques that minimize soil disturbance and allow water to flow across the project site. Such techniques include only clearing and mowing of the site, with minimal overall mass grading; limited use of disk-and-roll and micrograding techniques; and minimizing large-scale grading in areas where site topography requires smoothing for external fence lines and roads or where grading is needed for project structures. These construction techniques avoid and minimize environmental impacts, including impacts to air quality and water quality.
- Assist California in meeting its greenhouse gas emissions reduction goals by 2020 and 2030 as required by the California Global Warming Solutions Act (Assembly Bill 32), as amended by Senate Bill 32 in 2016.

1.5 Proposed Discretionary Actions/ Required Approvals

To implement this project, the following discretionary and ministerial permits/approvals may be required, including but not limited to the following:

Federal

- U.S. Fish and Wildlife Service (USFWS)

State

- California Department of Fish and Wildlife (CDFW)
  - Section 1600 et seq. permits (Streambed Alteration Agreements)
  - Section 2081 Permit (State-listed endangered species)
- Lahontan Regional Water Quality Control Board (RWQCB)

- Waste Discharge Requirements
  - Regional Water Quality Certification (401 Permit)
- National Pollution Discharge Elimination System (NPDES) Construction General Permit
- General Construction Stormwater Permit (Preparation of a SWPPP)
- Regional Water Quality Certification (401 Permit)
- California Department of Transportation (Caltrans)
  - Right-of-Way Encroachment Permit
  - Oversized Loads Permit

Other additional permits or approvals from responsible agencies may be required for the project.

Local

County of Kern

- Certification of Final Environmental Impact Report
- Adoption of 15091 and 15093 Findings and Statement of Overriding Considerations
- Adoption of Mitigation Monitoring and Reporting Program
- Approval of Kern County Zone Change Cases (ZCC 56, Map 196; ZCC 2, Map 212; ZCC 59, Map 213)
- Approval of Kern County Conditional Use Permits (CUP 45, Map 196; CUP 5, Map 212; CUP 66, Map 213)
- Approval of applicable Franchise Agreement(s)
- Approval of Grading Permits
- Approval of Building Permits
- Approval of Encroachment Permits
- Fire Safety Plan

Eastern Kern Air Pollution Control District (EKAPCD)

- Fugitive Dust Control Plan
- Any other permits as required

Other additional permits or approvals from responsible agencies may be required for the proposed project.

2. Kern County Environmental Checklist Form

2.1 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a Potentially Significant Impact" as indicated by the checklist on the following pages.

☒ Aesthetics	☒ Agriculture/Forestry	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☒ Energy
☒ Geology / Soils	☒ Greenhouse Gas Emissions	☒ Hazards & Hazardous Materials
☒ Hydrology / Water Quality	☒ Land Use /Planning	☒ Mineral Resources
☒ Noise	☐ Population / Housing	☒ Public Services
☐ Recreation	☒ Transportation	☒ Tribal Cultural Resources
☒ Utilities / Service Systems	☒ Wildfire	☒ Mandatory Findings of Significance

DETERMINATION. (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☒ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (a) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (b) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENT IMPACT REPORT (EIR) is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Taylor Schoene

Signature — Date: 06/28/2019

Taylor Schoene — Printed Name

Planner I — Title

3. Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a Lead Agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the Lead Agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an Environmental Impact Report (EIR) is required.
4. Negative Declaration: "Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The Lead Agency must describe the mitigation measure and briefly explain how they reduce the effect to a less than significant level.
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or Negative Declaration, Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
   a. Earlier Analysis Used. Identify and state where they are available for review.
   b. Impacts Adequately Addressed. Identify which effects from the above checklist where within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
   c. Mitigation Measures. For effects that are "Less Than Significant With Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead Agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. The adopted guidelines state "This is only a suggested form, and lead agencies are free to use different formats; however, Lead Agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected. "Kern County has adopted this format and included all questions from Appendix G.
9. The explanation of each issue should identify:
   a. The significance criteria or threshold, if any, used to evaluate each question; and
   b. The mitigation measure identified, if any, to reduce the impact to less than significance.

I. Aesthetics Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
I. AESTHETICS Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☒	☐	☐	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☒	☐	☐	☐
c) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☒	☐	☐	☐
d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	☒	☐	☐	☐

RESPONSES:

(a) The project is located in a sparsely developed, rural area of Kern County. The project site is not located within an area designated for or identified as having a scenic vista or scenic views. However, because the project would substantially change views, impacts to scenic vistas may occur and, therefore, will be evaluated in the EIR.

(b) According to the California Department of Transportation (Caltrans) California Scenic Highway Mapping System, the closest eligible scenic highway is a portion of SR 58 approximately 1-mile north of the project site. Because of this distance, the PV solar facilities would be visible from SR 58. Therefore, project impacts to scenic resources within a state scenic highway may occur and, therefore, will be evaluated in the EIR.

(c) The aesthetic features of the existing visual environment within the project boundaries are relatively uniform, with flat landscapes dominated by desert vegetation. Outside of the project boundaries include a mix of agricultural grazing, undeveloped land, scattered single-family residences, and several approved or proposed renewable energy projects (solar and wind). Placement of PV solar panels and associated structures on the project site would alter the character of the area. Residents and travelers on adjacent roads would observe alterations to the existing landscape. Changes to visual quality and character of the project site may be significant, and impacts will be further evaluated in the EIR.

(d) The project is located in an area that contains scattered single-family residences, as well as permitted solar and wind electrical generation facilities and infrastructure. The PV modules are designed to absorb sunlight to maximize electrical output; therefore, they would not create significant reflective surfaces or the potential for glint/glare during the day. All lighting at the proposed solar facilities would be designed to meet Kern County Zoning Ordinance Chapter 19.81-Outdoor Lighting-Dark Skies Ordinance requirements. However, further analysis of the specific lighting and effects of nighttime light and glare from the project will be provided in the EIR.

II. Agriculture and Forest Resources Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
II. AGRICULTURE AND FOREST RESOURCES Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?	☐	☐	☒	☐
b) Conflict with existing zoning for agricultural use, or Williamson Act contract?	☐	☐	☒	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)) or timberland (as defined in Public Resources Code section 4526) or timberland zoned Timberland Production (as defined by Government Code Section 51104 (g),	☐	☐	☒	☐
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☒	☐
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☐
f) Result in the cancellation of an open space contract made pursuant to the California Land Conservation Act of 1965 or Farmland Security Zone Contract for any parcel of 100 or more acres (Section 15206(b)(3) Public Resources Code)?	☐	☐	☒	☐

RESPONSES:

(a) There is no designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance within the project area. The California Department of Conservation (CDC) Farmland Mapping and Monitoring Program (FMMP) 2016 Important Farmland Map, designates the project site as "Nonagricultural" and Natural Vegetation". Surrounding properties are designated as either: (a) "Nonagricultural and Natural Vegetation", (b) "Semi-Agricultural and Rural Commercial Land", (c) "Urban and Built-up Land", (d) "Rural Residential Land", or (e) "Vacant or Disturbed Land" (California Department of Conservation, 2016). As such, the project is not considered to be prime,

unique, or important farmland. Construction and/or operation of the project is not anticipated to result in the conversion of designated Farmland to a nonagricultural use; however, further analysis will be included in the EIR.

(b) According to available data, none of the parcels included as part of the proposed project or any property in the vicinity of the project are subject to a Williamson Act Land Use contract (Department of Conservation, 2013). There has been no farming on any of the parcels within the project site over the last ten years. The land in the area was cultivated until around 1970, primarily with alfalfa, but no farming has occurred on the parcels since that time. Although impacts on agricultural zoning and a Williamson Act Land Use are not anticipated and are considered less than significant, the impacts will be discussed further in the EIR.

(c) The project site is in the Exclusive Agriculture (A), Limited Agriculture (A-1), and Limited Agriculture – Airport Approach Height Combining (A-1 H) zone districts and is not zoned for forest land, timberland, or timberland production (Kern County, 2017). While the existing zoning is not consistent with the with the Kern County General Plan land use designation of 8.5, the proposed zone changes would ensure consistency with the Kern County General Plan land use designation of 8.5. According to the Kern County Zoning Ordinance, a commercial solar energy generating facility is a compatible use in the exclusive agriculture zone district. The construction and operation of a solar energy generating facility on the project site would require the approval of Conditional Use Permits (Kern County Zoning Ordinance 19.12.030.G). The proposed discretionary actions are consistent with the Kern County Zoning Ordinance regulations for solar uses. Given that the project site is not zoned for forest land, timberland, or timberland production, it is not anticipated to conflict with existing zoning; however, further analysis will be included in the EIR.

(d) The project is not situated on forest land and would not convert forest land to non-forest uses. There is no land in the vicinity of the project that is zoned as forest land, timberland, or lands zoned for timberland production. Therefore, there are no anticipated impacts related to the rezoning of forest land or conversion of forest land to a non-forest use; however, further analysis will be included in the EIR.

(e) The project site consists of largely undeveloped desert land, with scattered residential uses in the project vicinity. There are no existing agricultural or forest lands on the project site or within the vicinity. The project is not anticipated to convert farmland to non-agricultural uses or forest land to non-forest uses; however, further analysis will be included in the EIR.

(f) The project site is not subject to an open space contract made pursuant to the California Land Conservation Act of 1965 or the Farmland Security Zone Contract. As stated above, the project site is not under a Williamson Act Contract, and no impacts are anticipated; however, further analysis will be included in the EIR.

III. Air Quality Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
III. AIR QUALITY				
The significance criteria established by the applicable Air pollution control district shall be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard? Specifically, would implementation of the project (in a specific location) exceed any of the following adopted thresholds:				
i. San Joaquin Valley Unified Air Pollution Control District:				
Operational and Area Sources				
Reactive Organic Gases (ROG) 10 tons per year.	☐	☐	☒	☐
Oxides of Nitrogen (NO_x) 10 tons per year.	☐	☐	☒	☐
Particulate Matter (PM_{10}) 15 tons per year.	☐	☐	☒	☐
Stationary Sources as determined by District Rules				
Severe Nonattainment 25 tons per year.	☐	☐	☒	☐
Extreme Nonattainment 10 tons per year.	☐	☐	☒	☐
ii. Eastern Kern Air Pollution Control District:				
Operational and Area Sources				
Reactive Organic Gases (ROG) 25 tons per year.	☒	☐	☐	☐

III. Air Quality Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
Oxides of nitrogen (NO_x) 25 tons per year.	☒	☐	☐	☐
Particulate Matter (PM_{10}) 15 tons per year.	☒	☐	☐	☐
Stationary Sources - determined by District Rules				
25 tons per year.	☒	☐	☐	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.	☐	☐	☒	☐

RESPONSES:

(a) The project is located entirely within the jurisdiction of the Eastern Kern Air Pollution Control District (EKAPCD), in the Mojave Desert Air Basin (MDAB). The MDAB is designated as a nonattainment area for both the State and Federal ozone standards, and the State particulate matter of less than 10 microns in size (PM_{10}) standard. Project construction would generate emissions of reactive organic gases (ROG) and oxides of nitrogen (NO_X), both of which are known as ozone precursors, and PM_{10} that could result in significant impacts to air quality in the area. EKAPCD's most recently adopted air quality management plan as its Ozone Air Quality Attainment Plan (AQAP). As the project would generate emissions of ozone precursors (along with PM_{10}) during construction, the project could potentially conflict with EKAPCD's Ozone AQAP. Thus, further analysis of the project's air quality impacts is warranted to determine whether the project would conflict with or obstruct implementation of EKAPCD's applicable air quality plan for attainment and, if so, to determine the reasonable and feasible mitigation measures that could be imposed. These issues will be evaluated in the EIR.

(b) Project operational emissions are anticipated to be minimal. However, the short-term construction emissions generated at the project could significantly contribute to an existing or projected air quality violation of criteria pollutant (ROG, NOx, PM_{10}, and $PM_{2.5}$) standards established by EKAPCD, requiring the consideration of mitigation measures. The sources of construction emissions at the project would include off-road heavy equipment (e.g., graders, loaders, backhoes, dozers, etc.) used during the various construction phases for the project and on-road motor vehicles for equipment and material deliveries and workers commuting to and from the project site. This impact is potentially significant and will be evaluated further in the EIR.

(c) The land uses surrounding the project consists primarily of undeveloped land, scattered single-family residences, agriculture, as well as renewable energy (solar and wind) facilities. The nearest sensitive receptors to the project include a residence on the northern boundary of the project site.

Nearby sensitive receptors could be exposed to pollutant emissions during construction of the project. The project's construction-related activities would result in diesel exhaust emissions and dust that could adversely affect air quality for the nearest sensitive receptors.

Exposure to Valley Fever from fugitive dust generated during construction is a potentially significant impact. There is the potential that cocci spores could be stirred up during excavation, grading, and earth-moving activities, exposing construction workers and nearby sensitive receptors to these spores and thereby to the possibility of contracting Valley Fever. Thus, impact to sensitive receptors via pollutant concentrations is potentially significant and will be evaluated further in the EIR.

(d) The project would not have any stationary sources or equipment located onsite that would generate objectionable odors. During construction activities, only short-term, temporary odors from vehicle exhaust and construction equipment engines would occur. However, these odors would not affect a substantial number of people because the site is located in sparsely inhabited areas, and any odors would be temporary and would be dispersed rapidly. This will be further evaluated in the EIR.

IV. Biological Resources Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
c) Have a substantial adverse effect on federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☒	☐	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☒	☐	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☒	☐	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☒	☐

RESPONSES:

(a) The project is located in the southern portion of Kern County, directly south of the community of Mojave. The project is comprised of desert scrub with a minimal level of anthropogenic disturbances. The project may contain sensitive or special-status species. There is a potential for special-status plants and wildlife species to be present in project vicinity and, thus, is a potential impact.

The potential for special-status plant and animal species, riparian and sensitive natural communities, and species listed as either threatened or endangered by either the state or federal government to occur on the project site will be evaluated in the EIR. The proposed project's potential to have a substantial adverse effect, either directly or through habitat modifications, on any candidate, sensitive, or special-status species in local or regional plans or regulations by the California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Service (USFWS) will be evaluated in the EIR.

(b) The project site is undeveloped and is dominated by desert vegetation and, therefore, the potential for riparian or sensitive communities exists. The USFWS does not identify any critical habitats on or near the project (USFWS, 2016). The nearest preserve, the Antelope Valley California Poppy Reserve, is located approximately 20 miles southwest of the site. The next closest parklands or sanctuaries are the Desert Pines Wildlife Sanctuary and the Arthur B. Ripley Desert Woodland State Park, located approximately 22 miles southwest of the project. Nevertheless, a biological assessment protocol survey, soils characterization, and hydrologic analysis will be prepared for the proposed project. These studies will be used to evaluate potential project-related impacts to riparian and sensitive natural communities in the EIR.

(c) Potential jurisdictional features such as streams and washes could be present on the project site. A determination as to whether the project site contains features considered under federal or state jurisdiction will be conducted as part of the EIR. Impacts to protected wetlands would be considered potentially significant, if required. Further analysis will be included in the EIR.

(d) The project site and surrounding areas may be used for migration or dispersal by some species. Project construction and operation could remove foraging habitat. This type of impact would be potentially significant and, thus, will be evaluated in the EIR.

(e) The CDFW considers Joshua tree woodland to be a sensitive natural plant community and compliance with the California Desert Native Plants Act of the California Food and Agricultural Code, Division 23, is required for the removal of Joshua trees. Scattered Joshua trees occur throughout portions of the northern and southern site; however, they do not occur at a density high enough to consider them a distinct woodland community. Nevertheless, potential impacts to Joshua trees and other similar resources will be analyzed in this EIR.

(f) The project site is not located within a local, regional, or state habitat conservation plan boundary. Therefore, impacts are anticipated to be less than significant; however, further analysis will be presented in the EIR.

V. Cultural Resources Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5?	☒	☐	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines § 15064.5?	☒	☐	☐	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☒	☐	☐	☐

RESPONSES:

(a) - (b) The project consists of undeveloped land. Development of the project would require ground disturbance for grading, installation of the solar arrays and gen-tie lines; this development could potentially impact historical resources and archaeological resources. A cultural resources survey will be conducted for the project. Further evaluation in the EIR is warranted to identify potential impacts to historical and archaeological resources and to formulate avoidance or mitigation measures, if applicable.

(c) There is no evidence to indicate the project is located within an area likely to contain human remains and discovery of human remains during earthmoving activities is not anticipated. However, the potential for human remains to be encountered will be further analyzed in the EIR.

VI. Energy Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
VI. ENERGY Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient or unnecessary consumption of energy resources, during project construction or operation?	☒	☐	☐	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

RESPONSES:

(a) Construction of the proposed project would involve onsite energy demand and consumption related to use of oil in the form of gasoline and diesel fuel for construction worker vehicle trips, hauling and materials delivery truck trips, and operation of off-road construction equipment. In addition, diesel-fueled portable generators may be necessary to provide additional electricity demands for temporary onsite lighting, welding, and for supplying energy to areas of the sites where energy supply cannot be met via a hookup to the existing electricity grid.

Following implementation of the proposed project, energy would cease to be consumed onsite and would instead switch to production. Energy use associated with operation of the proposed project would be typical of a solar facility. Operation and maintenance facilities associated with the project would require electricity and/or natural gas for interior and exterior building lighting, heating, ventilation, and air conditioning (HVAC), electronic equipment, machinery, appliances, security systems, and more. Maintenance activities during operations, such as landscape maintenance, could involve the use of electric or gas-powered equipment. In addition to onsite energy use, the proposed project would result in transportation energy use associated with employee vehicle trips generated by the proposed project. Further analysis in the EIR is warranted.

(b) Due to the increased onsite consumption of energy during construction, the project has the potential to conflict with or obstruct a state or local plan for energy efficiency. Operation of the project would lead to an overall increase in the County's Renewable Energy Portfolio, and would align with the stated General Plan policy to encourage the development of renewable energy within Kern County. Impacts are considered to be less than significant; however, further analysis is warranted and this topic will be discussed and analyzed in the EIR.

VII. Geology and Soils Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
VII. GEOLOGY AND SOILS				
Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii. Strong seismic groundshaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☒	☐	☐	☐
iv. Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☒	☐	☐	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (19914), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☒	☐

VII. Geology and Soils Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
VII. GEOLOGY AND SOILS Would the project:				
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	☒	☐	☐	☐

RESPONSES:

(a)

(i) The project site is not located within any earthquake fault zone or seismic hazard zone as established pursuant to the Alquist-Priolo Earthquake Fault Zoning Act. The nearest active fault is the Garlock Fault, which is located approximately 4 miles northwest of the western extent of the gen-tie line.

In addition, although the project does not include any habitable structures, construction of the project would be subject to all applicable ordinances of the Kern County Building Code (Chapter 17.08). Kern County has adopted the California Building Code (CBC) 2016 Edition (CCR Title 24) effective January 1, 2017, which imposes substantially the same requirements as the International Building Code (IBC), 2015 Edition, with some modifications and amendments. Adherence to all applicable regulations would reduce any potential impacts associated with the project. Impacts would be less than significant; however, further analysis in the EIR is warranted.

(ii) Due to the location of active faults in the general region, strong seismic ground shaking could occur at the project site, resulting in damage to structures that are not properly designed to withstand strong ground shaking. The project would include the construction of solar PV panel arrays, energy storage facility, transmission lines, and other associated infrastructure. As described above, the project also would include the construction of an O&M building. Should strong seismic ground shaking occur at the project site, damage to the PV panels and other ancillary facilities (e.g., O&M building) could result. However, construction of the project would be subject to all applicable ordinances of the Kern County Building Code (Chapter 17.08), and IBC and CBC earthquake construction standards, including those relating to soil characteristics. Further analysis in the EIR is warranted.

(iii) Liquefaction potential occurs when there is a combination of unconsolidated soil type and high groundwater combined with high potential seismic activity. The potential for substantial adverse effects to the project due to seismic-related ground failure, including liquefaction, will be examined in the EIR.

(iv) The project site is not considered to be a high risk area for landslides, as it is relatively flat and is not subject to movement of rock, debris, or soil. However, the potential for substantial adverse effects to the project due to landslides will be examined in the EIR.

(b) The project would employ a combination of mowing, "disk-and-roll" techniques and, where necessary, conventional grading. Disk-and-roll site preparation uses tractors pulling disking equipment to till under vegetation. As a result, project construction would have the potential to result in erosion, sedimentation, and discharge of construction debris from the site. Vegetation clearing and grading activities, for example, could lead to exposed or stockpiled soils susceptible to peak stormwater runoff flows and wind forces. The compaction of soils by heavy equipment may minimally reduce the infiltration capacity of soils (exposed during construction) and increase runoff or erosion potential. An erosion and sediment control plan would be prepared that specifies best management practices (BMPs) to prevent construction pollutants, including eroded soils (such as topsoil), from moving off the site. Although impacts are anticipated to be less than significant with implementation of the project proponent's approach to site preparation and the County and state requirements, impacts related to soil erosion or the loss of topsoil will be evaluated further in the EIR.

(c) The project lies in a relatively flat-lying plain where landslides, lateral spreading, subsidence, liquefaction, and collapse are not expected to occur. Liquefaction potential occurs when there is a combination of unconsolidated soil type and high groundwater combined with high potential seismic activity. Impacts related to geologic instability are not anticipated to occur or pose a hazard to the proposed project or surrounding area; nevertheless, the potential for substantial adverse effects to the project due to geologic instability and liquefaction will be examined in the EIR.

(d) Expansive soils are fine-grained soils (generally high plasticity clays) that can undergo a significant increase in volume with an increase in water content and a significant decrease in volume with a decrease in water content. Changes in the water content of a highly expansive soil can result in severe distress to structures constructed on or against the soil. The EIR will confirm the presence or absence of expansive soils within the project area.

(e) The project includes construction of one O&M building, which would support an estimated 6 permanent staff employees. The project would either provide wastewater disposal facilities (i.e., septic systems) or portable bathroom facilities to accommodate use by these employees. Based on information of the surrounding soils and experience from neighboring solar projects, the installation of septic systems is not anticipated to result in any significant impacts. Nevertheless, impacts from these facilities warrant further evaluation in the EIR.

(f) Kern County is rich in paleontological resources. If paleontologically sensitive formations are located under the project, ground disturbance could result in potentially significant impacts to paleontological resources. Thus, a paleontological study for the project will be performed. While impacts are anticipated to be less than significant, further evaluation in the EIR is warranted to identify potential impacts and to formulate avoidance or mitigation measures, if applicable.

VIII. Greenhouse Gas Emissions Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
VIII GREENHOUSE GAS EMISSIONS				
· Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☒	☐	☐	☐
b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	☒	☐	☐	☐

RESPONSES:

(a) Greenhouse gas (GHG) emissions emitted by human activity are implicated in global climate change or global warming. The principal GHGs are CO_2, methane (CH_4), NOX, ozone, water vapor, and fluorinated gases. The temporary construction activities associated with the project, which would involve operation of heavy off-road equipment, on-road trucks (for deliveries and hauling), and construction worker commute trips, would generate GHGs. However, as a solar facility, the project is expected to displace traditional sources of electricity production that involves combustion energy sources (e.g., burning coal, fuel oil, or natural gas). As such, the provision of clean, renewable energy by the project would produce GHG-free electricity that is anticipated to offset GHGs that would otherwise be generated by traditional sources of electricity. The potential impacts associated with GHG emissions generated during construction of the project and the potential GHG offsets resulting from operation of the project will be further evaluated in the EIR.

(b) California has passed several bills and the governor has signed at least three executive orders regarding GHGs. Assembly Bill (AB) 32 (the Global Warming Solutions Act) was passed by the California legislature on August 31, 2006 that require the State's global warming emissions to be reduced to 1990 levels by 2020. The reduction will be accomplished through an enforceable statewide cap on GHG emissions that was phased in starting in 2012.

In 2002, California established its Renewable Portfolio Standards (RPS) Program, with the goal of increasing the percentage of renewable energy in the State's electricity mix to 20 percent renewable energy by 2017. In 2006, under SB 107, the RPS Program codified the 20 percent goal. The RPS Program requires electric utilities and providers to increase procurement from eligible renewable energy resources by at least one percent of their retail sales annually until they reach 20 percent by 2017. On November 17, 2008, the governor signed Executive Order S-14-08, requiring California utilities to reach the 33 percent renewable goal by 2020. In 2015, SB 350 was enacted to increase the RPS to 50 percent and reduce greenhouse gas emissions by 40 percent by the year 2030. The Project is intended to: (1) reduce importation of power from fossil fuel power plants; and (2) contribute to a reduction in GHGs. Heavy equipment operation, truck deliveries, and construction worker commute trips associated with construction of the proposed project would temporarily generate GHGs; however, operation of the project would offset GHGs generated by traditional sources of electricity. The project's potential GHG impacts and the potential GHG offsets resulting from operation of the project will be further evaluated in the EIR.

IX. Hazards and Hazardous Materials Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
IX. HAZARDS AND HAZARDOUS MATERIALS				
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 1/4 mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☒	☐	☐	☐
e) For a project located within the adopted Kern County Airport Land Use Compatibility Plan, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☒	☐	☐	☐
f) Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☒	☐

IX. Hazards and Hazardous Materials Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
h) Would implementation of the project generate vectors (flies, mosquitoes, rodents, etc.) or have a component that includes agricultural waste? Specifically, would the project exceed the following qualitative threshold: The presence of domestic flies, mosquitoes, cockroaches, rodents, and/or any other vectors associated with the project is significant when the applicable enforcement agency determines that any of the vectors:				
i. Occur as immature stages and adults in numbers considerably in excess of those found in the surrounding environment; and	☐	☐	☒	☐
ii. Are associated with design, layout, and management of project operations; and	☐	☐	☒	☐
iii. Disseminate widely from the property; and	☐	☐	☒	☐
iv. Cause detrimental effects on the public health or well being of the majority of the surrounding population.	☐	☐	☒	☐

RESPONSES:

(a) The project would not involve the routine transport, use, or disposal of hazardous materials as defined by the Hazardous Materials Transportation Uniform Safety Act and is not expected to create a significant hazard to the public or the environment. During construction, the project would include the transport of general construction materials (i.e., concrete, wood, metal, and fuel, etc.) as well as materials necessary to construct the proposed PV solar arrays. Project-related infrastructure would not emit hazardous materials, or be constructed of acutely hazardous materials or substances that could adversely impact the public or onsite workers. Wastes to be generated during construction of the project would also be non-hazardous, and would consist of cardboard, wood pallets, copper wire, scrap steel, common trash, and wood wire spools. Although field equipment used during construction activities could contain various hazardous materials (i.e., hydraulic oil, diesel fuel, grease, lubricants, solvents, adhesives, and paints, etc.), these materials are not considered to be acutely hazardous and would be used in accordance with the manufacturers' specifications and all applicable regulations.

The project would be subject to all local, state, and federal laws pertaining to the use of hazardous materials on the site and would be subject to review by the Kern County Public Health Services Department/Environmental Health Services Division.

The PV panels include semiconductor materials, such as cadmium telluride or Crystalline or amorphous silicon, which are encapsulated within the PV panels. The chemical properties of the semiconductor materials and the construction of the PV panels minimize risk of exposure to human health or the environment. Broken PV panels would be replaced and disposed of off-site in compliance with local, state and federal laws, and would therefore not be a source of pollution or threat to human health or the environment. Impacts resulting from the transport, use or disposal of hazardous materials during construction and operation of the proposed project will be evaluated further in the EIR.

(b) The proposed project would be subject to all local, state, and federal laws pertaining to the use of hazardous materials on the site and would be subject to review by the Kern County Environmental Health Services Division. However, construction and operation of the proposed project may include the accidental release of storage materials, such as cleaning fluids and petroleum products including lubricants, fuels, and solvents. In addition, the proposed project would also include Energy Storage Systems (ESS). The ESS would be composed of battery storage modules placed in multiple prefabricated enclosures or containers near the onsite substation. In the event a single structure is constructed near the onsite substation, a height (including any screening for heating, ventilation, and air conditioning (HVAC)) of approximately 30 feet is anticipated as a worst-case scenario. In the event containers are utilized, it is anticipated that containers would measure 40 feet in length and height of 9 feet. Potentials hazards associated with ESS include increased potential for electrical shock and chemical release associated with the batteries used. The energy storage structure would have a fire rating in conformance with County standards and specialized fire suppression systems installed for the battery rooms. Also, implementation of established construction controls and safety procedures would reduce the risk of hazardous materials spills and releases during project construction. Implementation of BMPs would ensure that hazardous materials used on site during operation would neither be released into the environment nor expose operational personnel to hazardous materials. Nevertheless, the potential impacts from reasonably foreseeable upset or accidental conditions will be further addressed in the EIR.

(c) The nearest school to the project is Mojave High School, located approximately 2 miles northwest in the community of Mojave. The project would not emit hazardous materials or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school; however, this impact will be further evaluated in the EIR.

(d) A review of the California EPA, Department of Toxic Substances Control's latest list of parcels relating to hazardous wastes pursuant to Section 65962.5 of the California Government Code will be conducted to determine if the project site is listed. The results will be presented in the EIR and any potential impacts will be evaluated.

(e) The project site is within the sphere of influence of the Mojave Air and Space Port as identified by the Kern County Airport Land Use Compatibility Plan (ALUCP). Potential impacts related to safety hazards for people residing or working in the project area with respect to the project's inclusion in the Mojave Air and Space Port sphere of influence will be evaluated in the EIR.

(f) The project would not interfere with any known existing emergency response plans, emergency vehicle access, or personnel access to the project site. The project site is located in a remote area with several alternative access roads allowing access to the project site in the event of an emergency. Therefore, no impacts related to impairment of the implementation of, or physical interference with, an adopted emergency response plan or emergency evacuation plan are anticipated; however, further analysis will be presented in the EIR.

(g) Construction and operation of the proposed project would not result in increased risk of wildfires in the area. The proposed project would comply with all applicable wildland fire management plans and policies established by CalFire and the KCFD. Accordingly, the proposed project is not expected to expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Impacts are expected to be less than significant; however, further analysis of this issue will be discussed in the EIR.

(h) (i.-iv.) Project-related infrastructure is not expected to result in features or conditions that could potentially provide habitat for vectors such as mosquitoes, flies, cockroaches, or rodents (such as standing water, agricultural products, or agricultural waste). The project site would produce a small amount of solid waste from construction activities. This may include paper, wood, glass, plastics from packing material, waste lumber, insulation, scrap metal and concrete, empty nonhazardous containers, and vegetation waste. These wastes would be segregated, where practical, for recycling. Non-recyclable wastes would be placed in covered dumpsters and removed on a regular basis by a certified waste-handling contractor for disposal at a Class III landfill. Construction and operation of the proposed solar arrays and associated facilities would not produce excessive wastes, standing water, or other features that would attract nuisance pests or vectors. Therefore, impacts that could potentially occur are anticipated to be less than significant; however, further analysis will be included in the EIR.

X. Hydrology and Water Quality Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
X. HYDROLOGY AND WATER QUALITY Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☒	☐	☐	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☒	☐	☐	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner which would:				
i. result in a substantial erosion or siltation on –or off-site	☒	☐	☐	☐
ii. substantially increase the rate of amount of surface runoff in a manner which would result in flooding on-or offsite;	☒	☐	☐	☐
iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☒	☐	☐	☐
iv. impeded or redirect flood flows?	☒	☐	☐	☐
d) In flood hazard, tsunami, seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

RESPONSES:

(a) The project site is within the Lahontan Regional Water Quality Control Board (RWQCB) jurisdiction. Project construction activities have the potential to result in erosion, sedimentation, and discharge of construction debris, and could result in the discharge of wastewater and urban runoff at the Project site. If not properly managed, this wastewater could violate the water quality standards or waste discharge requirements of the RWQCB. However, the construction contractor would be required to incorporate BMPs consistent with the County zoning ordinance and with guidelines provided in the California Stormwater Quality Association's Construction Best Management Practice Handbook, including the preparation of a SWPPP and a soil erosion and sedimentation control plan to reduce potential impacts related to construction of the proposed project.

Project construction activities (such as grading) could potentially degrade water quality through erosion and subsequent sedimentation of drainage routes. The project would not contain facilities that would be considered a substantial source of polluted runoff. Accidental release of potentially harmful materials, such as engine oil, diesel fuel, and cement slurry could degrade the water quality of nearby streams. However, the project would be required to develop a drainage control plan and implement BMPs that would reduce the impact of project activities on surrounding water quality. Potential impacts to water quality will be evaluated further in the EIR.

(b) During construction of the proposed project, water would be required for common construction related purposes, including but not limited to dust suppression, soil compaction, and grading. Dust-control water may be used for ingress and egress of on-site construction vehicle equipment traffic and for the construction of the solar equipment. A sanitary water supply would not be required during construction, because restroom facilities would be provided by portable units to be serviced by licensed providers. The overall construction water usage is anticipated to be approximately 200 acre-feet (AF) during the 30-month construction period. During construction, the water used is anticipated to be purchased from a local water purveyor or onsite water wells. During operation and maintenance of the project, it is anticipated that water would be required for panel washing, equipment washing, non-sanitary uses, and other miscellaneous water uses, such as landscaping. Permanent restroom facilities with septic tanks and/or portable toilets would be used for sanitary purposes at the O&M building, and a permanent water source in the form of trucked water, well water, or bottled water would be provided for the staff. The annual water usage is expected to be up to approximately 30 AF of water. A water supply assessment will be completed for the project to analyze potential impacts to groundwater. These impacts will be addressed further in the EIR.

(c) (i-iv) The project would utilize construction techniques that minimize soil disturbance and allow water to flow across the project site. Such techniques include only clearing and mowing of the site, with minimal overall mass grading; limited use of disk-and-roll and micrograding techniques; and minimizing large-scale grading in areas where site topography requires smoothing for external fence lines and roads or where grading is needed for project structures.

A SWPPP and/or Drainage Control Plan, as necessary, would be prepared for the project. Although no known stream course will be altered as a result of the project, a hydrology study will be prepared for the project in accordance with Kern County requirements. The project is not anticipated to result in potentially significant impact in regards to flooding onsite or offsite.

Development of the project site would slightly decrease the pervious surface area of the project site, and could result in an increase in sheet flow across the site. A drainage control plan would be prepared, if necessary, that will incorporate BMPs to limit erosion during construction and operation of the project. A SWPPP would be prepared that would provide recommendations on the

proper control and treatment of any stormwater prior to discharge. The project would alter drainage patterns at the site by developing a previously undeveloped site. With adherence to site-specific BMPs, potential pollutants would be minimized to the extent practicable and should not exceed numeric thresholds for water quality protection.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) designates the northern site as Flood Zones X. Flood Zone X is an indicated area outside the 500-year flood. The southern site is located within Flood Zones X and A. Flood Zone A indicates special flood hazard areas subject to inundation by the one percent annual chance flood (i.e., the 100-year floodplain). The project would be reviewed by the Kern County Public Works Department for adherence to all floodplain management standards if deemed necessary. Further analysis is required in the EIR.

(d) The project is not located near an ocean or enclosed body of water, and therefore would not be subject to inundation by seiche or tsunami. Mudflows are a type of mass wasting or landslide, where earth and surface materials are rapidly transported downhill under the force of gravity, and are often triggered by heavy rainfall and soil that is not able to sufficiently drain or absorb water and the super-saturation results in soil and rock materials to become unstable and slide away. Due to the relatively flat topography of the project and surrounding area, the potential to be inundated by mudflow is considered remote. Impacts are not anticipated; however, further analysis will be presented in the EIR.

(e) Relative to a sustainable groundwater management plan, the project site is located within the Antelope Valley Groundwater Basin. The Antelope Valley Groundwater Basin is an adjudicated basin, with all water rights having been previously prescribed. As such, all water usage for the project will conform with existing adjudication plans. This impact will be further analyzed in the EIR.

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XI. Land Use and Planning Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
XI. LAND USE AND PLANNING Would the project:				
a) Physically divide an established community?	☐	☐	☒	☐
b) Cause a significant environmental impact due to a conflict with any land use plan, policy or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☒	☐	☐	☐

RESPONSES:

(a) The project would be developed on primarily open, undeveloped desert land that has been historically grazed. The surrounding area is primarily open desert, permitted solar energy generating facilities, or land in agricultural production. There are scattered rural residences in the project vicinity. The project site is directly south of the community of Mojave. The project is not anticipated to physically divide or restrict access to the community of Mojave or any other community; however, further analysis will be presented in the EIR.

(b) The project is located within the Mojave Specific Plan area and the West Edwards Road Settlement Specific Plan area and has land use designations of 8.5 (Resource Management (Minimum 20 acres)), and 8.5/2.4 (Resource Management (Minimum 20 acres) Steep Slope). As proposed, there would be no changes to the map code designations of the project site. Solar energy-generating facilities are an allowable use under the 8.5 map code designation.

The site is zoned A (Exclusive Agriculture), A-1 (Limited Agriculture), and A-1 H (Limited Agriculture – Airport Approach Height Combining). As proposed, the site would be rezoned to A or A H, with the exception of those portions which are already in the A Zone District. According to the Kern County Zoning Ordinance Section 19.12.030 G, solar energy electrical generators, when not accessory to a permitted or conditionally permitted use, are permitted within the A Zone District subject to the approval of a Conditional Use Permit (CUP). The project proponents are requesting three CUPs to allow for the construction and operation of a PV solar facility and associated infrastructure necessary to generate 300 megawatts (MW) of renewable electrical energy and/or energy storage capacity.

The proposed zoning classifications of the project site are consistent with the current Mojave Specific Plan and West Edwards Road Settlement Specific Plan map code designations. Therefore, with approval of the requested CUPs, the project would not have the potential to conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect. An evaluation will be presented in the EIR.

XII. Mineral Resources Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
XII. MINERAL RESOURCES Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☒	☐
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☒	☐

RESPONSES:

(a) The project site is not designated as a mineral recovery area by the Kern County General Plan, nor is it identified as a mineral resource zone by the Department of Conservation's State Mining and Geology Board. The Standard Hill Mine (State Mine ID #91-15-0018) is located approximately 1.5 miles southwest of the project site. The mine is located on and adjacent to Standard Hill, which has a history of metallic mining. On April 24, 1986, the Kern County Board of Zoning Adjustment approved a pilot project (Conditional Use Permit (CUP) 12, Map 196 - Resolution 91-86) for a two-year period, on approximately 20 acres to determine whether it would be economically feasible to operate a full-scale commercial gold mining operation. The Board of Zoning Adjustment subsequently approved the expansion of the surface mining operation in accordance with the Surface Mining and Reclamation Act of 1975 (SMARA), on October 8, 1987 (CUP 16, Map 196 - Resolution 195-87). The approved project site consists of 14 parcels with a combined area of approximately 1,277 acres.

The Golden Queen/Soledad Mountain Mine (State Mine ID #91-15-0098) is located approximately 3 miles southwest of the project site. It is located on and adjacent to Soledad Mountain, an area for precious metals mining and ore processing since the early 1900s. In 1997, the Kern County Board of Supervisors approved two CUPs (CUP 41, Map 213 and CUP 22, Map 214) to allow a surface mining and reclamation plan in accordance with the provisions of (SMARA) of 1975. In 2010, the Board of Supervisors modified the two aforementioned CUPs (Resolutions 170-10 and 171-10, respectively) and approved a new CUP (CUP 27, Map 196 - Resolution 169-10). The open pit mining operation encompasses 2,500 acres, of which 905 acres will be mined, and is designed to recover precious metals from excavated ore via cyanide heap leach processing methods. Construction and operation of the proposed project would not interfere with mineral extraction and processing, and is not anticipated to have significant impacts on future mineral development; however, further analysis will be conducted in the EIR.

(b) As mentioned previously, the project site is not located within a designated mineral and petroleum resource site within the Kern County General Plan. The project site is not located within the NR (Natural Resources) or PE (Petroleum Extraction) zoned districts. Therefore, the installation of the solar facilities is not anticipated to preclude future mineral resource development nor is it anticipated to result in the loss of a locally important mineral resource recover site; however, further analysis will be conducted in the EIR.

XIII. Noise Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
XIII. NOISE Would the project result in:				
a) Generation of a substantial temporary or permanent increase in the ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies?	☒	☐	☐	☐
b) Generation of, excessive ground borne vibration or ground borne noise levels?	☒	☐	☐	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☒	☐	☐	☐
d) For a project located within the Kern County Airport Land Use Compatibility Plan, would the project expose people residing or working in the project area to excessive noise levels?	☒	☐	☐	☐

RESPONSES:

(a) Land uses determined to be "sensitive" to noise as defined by the Kern County General Plan include residential areas, schools, convalescent and acute care hospitals, parks and recreational areas, and churches. The nearest residence is located adjacent to the project's northern border. The nearest school is located approximately 2 miles northwest in the community of Mojave.

Construction activity associated with the operation of heavy equipment, including post driving, has the highest potential for creating noise. A noise analysis will be included in the EIR to determine the project's consistency with the Kern County Noise Ordinance (Kern County Code of Ordinances, Title 8, Chapter 8.36), the Mojave Specific Plan and the West Edwards Road Settlement Specific Plan, and any other applicable regulations. Thus, further analysis of this impact will be analyzed in the EIR.

(b) Groundborne vibration and groundborne noise could originate from the operation of heavy off-road equipment during the construction phase of the project. Steel piles would be driven into the soil using pneumatic techniques, similar to a hydraulic rock hammer attachment on the boom of a rubber-tired backhoe excavator. The project would be expected to comply with all applicable requirements for long-term operation, as well as with measures to reduce excessive groundborne vibration and noise to ensure that the project would not expose persons or structures to excessive groundborne vibration. Operation of the solar PV panels would not result in groundborne vibration

or noise being emitted, resulting in no impact. Further analysis of groundborne vibration and groundborne noise will be included in the EIR.

(c) Due to the quiet nature of solar facilities, operation of the project would generate very little noise. Traffic during the operational phase of solar facility would be for routine access and maintenance activities and would primarily consist of personal vehicles for a small maintenance crew. Nevertheless, a noise analysis will be included in the EIR to determine the project's consistency with the Kern County Noise Ordinance (Kern County Code of Ordinances, Title 8, Chapter 8.36), the Mojave Specific Plan and the West Edwards Road Settlement Specific Plan, and any other applicable regulations. Thus, further analysis of ambient noise levels and the project's potential impact on those levels will be included in the EIR.

(d) The project site is within the sphere of influence of the Mojave Air and Space Port as identified by the Kern County Airport Land Use Compatibility Plan (ALUCP). Implementation of the proposed project could potentially expose people residing or working in the project area to excessive noise levels. Further analysis related to airports will be evaluated in the EIR.

XIV. Population and Housing Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
XIV. POPULATION AND HOUSING Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

RESPONSES:

(a) Although the project would provide new employment consistent with the adopted Kern County General Plan goals, plans, and policies, long-term employment opportunities would be minimal. The project would include the construction of one unmanned O&M building; with a maximum of 6 permanent onsite employees proposed or required to operate, maintain, or monitor the facilities. Maintenance personnel are expected to visit the project site several times per year for routine maintenance and periodic washing of PV panels (up to four times per year).
The project would require an average of 350 daily onsite construction workers and approximately 550 construction workers at peak construction. The entire construction process is estimated to take approximately 580 construction days, over the course of a 30-month period. It is anticipated that the construction workforce would commute to the site from various local communities and the number of workers expected to relocate to the surrounding area is not expected to be substantial. If temporary housing should be necessary, it is expected that accommodations would be available in the nearby hotels in Rosamond, Mojave, Lancaster, or other local communities. Therefore, the project would not directly or indirectly induce the development of any new housing or business.

Typical established local thresholds of significance for housing and population growth pursuant to the *CEQA Guidelines*, Section 15064.7, include effects that would induce substantial growth or concentration of a population beyond County projections, alter the location, distribution, density, or growth rate of the population beyond that projected in the General Plan Housing Element, result in a substantial increase in demand for additional housing, or create a development that significantly reduces the ability of the County to meet housing objectives set forth in the General Plan Housing Element. The effects of the project in relation to these local thresholds are minimal. Therefore, impacts regarding substantial population growth would be less than significant and no further analysis is warranted.

(b) The proposed project is located on former agricultural land with no existing housing; as such, the proposed project would not displace any existing housing such that it would necessitate the construction of replacement housing elsewhere. Therefore, displacement of existing housing would not occur and no further evaluation is required in the EIR.

XV. Public Services Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
XV. PUBLIC SERVICES				
Would the project**:**				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services:				
i. Fire Protection?	☒	☐	☐	☐
ii. Police Protection?	☒	☐	☐	☐
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☐	☒
v. Other Public Facilities?	☐	☐	☐	☒

RESPONSES:

(a)

(i) Fire suppression and emergency medical services are provided by the KCFD. The nearest KCFD fire station that would serve the project is Station No. 14 (Mojave), located at 1953 SR 58 in the community of Mojave, approximately 1.8 miles northwest of the northern site. Adherence to all applicable regulations would reduce wildfire ignitions and prevent the spread of wildfires. However, Project construction and operation activities may result in increased need for fire-fighting personnel and facilities. Given the location of the project in the rural environment and KCFD's obligation to respond to all structure fires in their jurisdiction, fire-fighting capacity in the project area could result in potential impacts on fire services from construction and operation of the solar facilities. This will be evaluated in the EIR.

(ii) Law enforcement services in the project area are provided by the KCSO. The nearest KCSO that would serve the project is the Mojave Substation located approximately 1.5 miles west of the northern site at 1171 SR 58 in the community of Mojave. Although the potential is low, the project may attract vandals or other security risks, and construction activities would result in increases in traffic volumes along surrounding roads, which could increase demand on law enforcement services. Access would be limited to the project during construction and operation, thereby minimizing the need for police services;

nonetheless, the project's impacts on sheriff services are potentially significant and will be evaluated in the EIR.

(iii) The entire construction process is estimated to occur over a 30-month period. An average of 350 daily onsite workers, and a peak workforce of 550 workers could be required for project construction. It is expected most of these workers would live in the region and would commute to the project site from where their children are already enrolled in school. Even if workers came from out of the area, they would likely return to their out-of-town residences once the facilities were built and would not take their children out of their current schooling situation. Therefore, temporary increases in population are not expected to adversely affect local school populations. Additionally, operation of the project would require approximately six full-time workers. Employees would likely commute to the project site from their existing permanent residences; however, even if the maintenance employees were hired from out of the area and had to relocate to eastern Kern County, the resulting addition of potential families to this area would not result in a substantial increase in the number of users at local schools. Therefore, there would be no impact and further analysis is not warranted in the EIR.

(iv-v) The temporary workers during the construction period (an average of 350 workers and a peak workforce of 550 workers) would not result in a substantial additional demand for parks or other public facilities such as post office, courthouse, and/or library services. Additionally, operation of the Project would require approximately 6 full-time workers. Employees would likely commute to the Project from their existing permanent residences, however even if the maintenance employees were hired from out of the area and relocated to eastern Kern County, the resulting potential addition of families to the area would not result in a substantial increase in the number of users of local parks. As a result, there would be no impact to parks or other public services, and further analysis of this issue is not warranted in the EIR.

XVI. Recreation Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
XVI. RECREATION				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

RESPONSES:

(a-b) The project does not include new recreational facilities, and would not appreciably increase demands on existing facilities. The average daily workforce during construction is expected to consist of 350 personnel, with a peak workforce of 550 personnel for short periods of time. The temporary increase in use of recreation facilities during construction that might be caused by an influx of workers would be minimal. Operation of the project would require employees for maintenance and monitoring activities, but would likely be drawn from the local labor force and would commute from their existing permanent residences to the project site during those times. However, even if the maintenance/monitoring employees were hired from out of the area and relocated to eastern Kern County, the resulting addition of families to this area would not result in a substantial increase in the number of users at local parks. As a result, there would not be a detectable increase in the use of parks or other recreational facilities. Impacts would not occur, and further analysis is not warranted in the EIR.

XVII. Transportation Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
XVII. TRANSPORTATION Would the project:				
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☒	☐	☐	☐
b) Conflict or be inconsistent with CEQA Guidelines § 15064.3 (b)	☒	☐	☐	☐
c) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d) Result in inadequate emergency access?	☐	☐	☒	☐

RESPONSES:

(a) Construction activities associated with the project would temporarily contribute to traffic volumes on nearby roadways. Worker commute vehicles would account for the majority of traffic trips to and from the site. During the construction phase, it is estimated there would be an increase in workers commuting to and from the project site. Operation of the project would require up to 6 full-time employees, who would commute to and from the site. Project-generated traffic would result in vehicle miles traveled (VMT) and will therefore need to be analyzed for consistency with State and local guidance. The impact will be evaluated further in the EIR.

(b) The project is located in unincorporated Kern County. Construction of the project would result in an increase in truck traffic at the site; therefore, it is anticipated that the project would exceed any LOS standard established by the County Congestion Management Plan for designated roads or highways. Implementation of the proposed project would generate traffic on the existing roadway network. As such, impacts are considered potentially significant. This impact will be discussed and analyzed in the EIR.

(c) The project proposes access from existing roads. The northern site would be accessed from gates off of a private access easement along the alignment of Lone Butte Rd. or 10th Street from SR 58 and the southern site would be accessed by Silver Queen Road or Reed Avenue from United Street. The project would not include the development of sharp curves, dangerous intersections or other hazardous design features. The project would be setback from the roadways as required by the Kern County Zoning Ordinance. Additionally, all roadways, including off-site improvements, constructed in association with the proposed project would be subject to existing zoning standards and safety specifications for roadways. Therefore, the project is not anticipated to increase hazards

due to a design feature or incompatible uses; however, further analysis will be conducted in the EIR.

(d) As described in item (a) above, construction of the project would generate VMT, which could temporarily increase the daily traffic volumes on local roadways and intersections. However, the project would not physically impede the existing emergency response plans, emergency vehicle access, or personnel access to the site. The project site and vicinity are accessible via a number of existing roads, with alternative access roads allowing easy access in the event of an emergency. Therefore, no adverse impacts related to impairment of the implementation of or physical interference with an adopted emergency response plan or emergency evacuation plan is anticipated. Impacts are considered less than significant, but will be discussed in the EIR.

XVIII. Tribal Cultural Resources Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
XVIII. TRIBAL CULTURAL RESOURCES. Would the project:				
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources defined in Public Resources Code section 5020.1 (k) or	☒	☐	☐	☐
ii. A recourse determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native America tribe.	☒	☐	☐	☐

RESPONSES:

(a) The proposed project could potentially impact tribal cultural resources. All tribes with possible cultural affiliation, and who have indicated interest in the project area will be notified, per Assembly Bill 52. Further evaluation in the EIR is warranted to identify potential impacts to tribal cultural resources and to formulate avoidance or mitigation measures, if applicable.

XIX. Utilities and Service Systems Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
XIX. UTILITIES AND SERVICE SYSTEMS. Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☒	☐	☐	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☒	☐	☐	☐
c) Result in a determination by the waste water treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, State, and local management and reduction statutes and regulations related to solid waste	☐	☐	☒	☐

RESPONSES:

(a) Portable toilet facilities, serviced by licensed providers, would be delivered to the project site for the construction period. They would be pumped out periodically and waste would be held in holding tanks until disposed of offsite in an appropriate manner by the contracted sanitary service provider. No new or expanded wastewater treatment facilities would be required, since wastewater generated by the project would be disposed of by a contractor at an approved offsite location. Although the project is not proposing construction of any new or expanded water or wastewater treatment facilities, this issue will be further addressed in the EIR. The project would create additional impervious surfaces on the project site and may require water for dust suppression during construction and panel washing. These changes would not substantially increase the amount of stormwater runoff. The pattern and concentration of runoff could be altered by project activities, such as grading of the site and roads. However, a drainage plan would be required to be approved by

the Kern County Public Works Department/Floodplain Management Section prior to issuance of building permits. With adherence to all applicable regulations, it is anticipated that the project would not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. However, further analysis is warranted in the EIR.

(b) Water for construction and panel washing would be piped from an onsite water well, or purchased from a local water purveyor and trucked onto the site. Potable water would be brought to the site for drinking and domestic needs during construction. Construction of the project would require approximately 200 acre-feet of water. During operation and maintenance of the project, it is anticipated that water would be required for panel washing, equipment washing, sanitary and non-sanitary uses, and other miscellaneous water uses, such as landscaping. It is expected that operation of the project would require approximately 30 acre-feet of water per year. The project is not anticipated to impact water supplies and new or expanded entitlements would not be required. However, further analysis is warranted in the EIR.

(c) The project is not expected to generate a significant amount of wastewater. Wastewater generated by the project would be disposed of by a contractor at an approved offsite location. Therefore, wastewater generated would be negligible and would not exceed wastewater treatment capacity of any treatment providers. Impacts would be less than significant, and no further analysis is warranted in the EIR.

(d) The proposed project is not expected to generate a significant amount of waste that would exceed the capacity of local landfills. Materials brought to the project site would be used to construct facilities, and few residual materials are expected. Non-hazardous construction refuse and solid waste would be either collected and recycled or disposed of at a local Class III landfill, while any hazardous waste generated during construction would be disposed of at an approved location. The closest Class III municipal landfill is the Mojave Recycling and Sanitary Landfill (RSLF) which is located approximately 1.7 miles west of the project. It is not anticipated that the amount of solid waste generated by the proposed project would exceed the capacity of local landfills. Further analysis of this issue will be included in the EIR.

(e) The project would generate solid waste during construction and operation, thus requiring the consideration of waste reduction and recycling measures. The 1989 California Integrated Waste Management Act (AB 939) requires Kern County to attain specific waste diversion goals. In addition, the California Solid Waste Reuse and Recycling Access Act of 1991, as amended, requires expanded or new development projects to incorporate storage areas for recycling bins into the proposed project design. The proposed project would be required to comply with the 1989 California Integrated Waste Management Act and the 1991 California Solid Waste Reuse and Recycling Access Act of 1991. Further analysis of this issue will be included in the EIR.

XX. Wildfire Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
XX. WILDFIRE If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b) Due to slope, prevailing winds, or other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☒	☐	☐	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

RESPONSES:

(a) The project is not classified as a high fire hazard severity zone and is not anticipated to physically impede the existing emergency response plans, emergency vehicle access, or personnel access to the site. The site is located in a rural, sparsely developed area with limited population. The project site is not located along an identified emergency evacuation route and is not identified in any adopted emergency evacuation plan. Therefore, less-than-significant impacts related to impairment of the implementation of, or physical interference with, an adopted emergency response plan or emergency evacuation plan are anticipated. Nevertheless, further analysis will be conducted in the EIR.

(b) Given the sites flat topography, the project site is not anticipated to expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds and other factors, or pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Nevertheless, further analysis will be conducted in the EIR.

(c) The project is for the development of a solar energy generation and storage facility, this facility would include the construction of power transmission lines, inverters, roads, and energy storage facility. Due to the presence of electrical equipment on site, this project has the potential to exacerbate wildfire risk and will be further evaluated in the EIR.

(d) The project site is not considered to be a high risk area for landslides as it is relatively flat and is not anticipated to be subject to post-fire slope instability, or drainage changes that would expose people or structures to significant risks; however, further analysis will be conducted in the EIR.

XXI. Mandatory Findings of Significance Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
XXI. MANDATORY FINDINGS OF SIGNIFICANCE.				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☒	☐	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

RESPONSES:

(a) The EIR's biological, cultural and tribal cultural resources sections will discuss specific project impacts on plants and wildlife including avian species, and impacts to cultural and tribal cultural resources. The document will also evaluate the project's contribution to cumulative biological, cultural and tribal cultural resources impacts and propose mitigation that will reduce the impacts to less-than-significant levels, where feasible.

(b) The project has the potential to cumulatively contribute to aesthetics, air quality, biological resources, cultural resources, tribal cultural resources, greenhouse gas emissions, and traffic impacts. The EIR will evaluate the project's contribution to cumulative impacts in these and other areas.

(c) The proposed project would not result in the long-term operation of any emission sources that would adversely affect nearby sensitive receptors. However, short-term construction activities could result in temporary increases in pollutant concentrations. Pollutants of primary concern commonly associated with construction-related activities include toxic air contaminants (i.e., DPM), asbestos, and fugitive dust. Within the project area, the potential for increased occurrences of Valley Fever is also of concern. Human health impacts from the short-term cumulative contribution to air quality impacts will be further evaluated in the EIR.

Appendix B
Glare Study

ESA

Glare Analysis Report for the Sanborn Solar Project

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AUGUST 2019

Printed on 30% post-consumer recycled material.

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1 PROJECT DESCRIPTION

1.1 Report Purpose and Scope

The purpose of this Glare Analysis Report is to assess the potential glare impacts associated with implementation of the proposed Sanborn Solar Project (project). The study was conducted per the Federal Aviation Administration's recommended procedures described in the *Technical Guidance for Evaluating Selected Solar Technologies on Airports* (FAA 2018) and the geometric glare modeling software utilized adheres to interim Federal Aviation Administration policy regarding solar energy system projects on federally obligated airports (78 FR 63276–63279).

This Glare Analysis Report includes an introduction to the photovoltaic (PV) technologies proposed to be implemented on the Project and their potential to result in glare. Section 1, Project Description, provides a description of the project, the project location, and describes the environmental setting for the project. Section 2, Glare Impacts, describes the methodology used to perform the glare analysis and a summary of the results of the analysis. Section 3, References Cited, includes a list of the references cited. Section 4, Document Preparers, includes a list of those who prepared this Glare Analysis Report. The complete detailed glare report generated by the modeling software is included in Appendix A, Modeling Results.

1.2 Regional and Local Setting

1.2.1 Regional Location

The project is located at the western edge of the Antelope Valley, directly south of the community of Mojave. The project consists of two discontinuous sites, the Project Northern Site and the Project Southern Site, both of which were considered in this analysis. The southern site is directly north of Edwards Air Force Base. The northern site lies in the Sanborn and Mojave U.S. Geological Survey (USGS) 7.5-minute quadrangles, Sections 22, 23, 26, 27, 34, and 35, Township 11 North, Range 12 West, San Bernardino Base and Meridian. The southern site lies in the Bissell USGS 7.5-minute quadrangles, Sections 1, 6, 7, and 12, Township 10 North, Ranges 12 West and 11 West, San Bernardino Base and Meridian.

Figure 1, Project Location, shows the locations of the solar arrays and surrounding municipalities, including the City of California City, and the communities of Mojave and Rosamond in unincorporated Kern County. The solar generation sites and 1.3 miles of the gen-tie are located east of State Route (SR) 14 (Antelope Valley Freeway) and the remainder of the gen-tie is located west of SR 14. The northern site is less than 1 mile southwest of State Route (SR) 58 (West Avenue D) and south of the

Mojave Air and Space Port. The Burlington Northern Santa Fe (BNSF) Railway forms the western edge of the northern site and the gen-tie line crosses the BNSF Railway in two locations.

1.2.2 Project Setting

Topography across the project site is relatively flat as the site is south of the Tehachapi Mountains on lands that gradually slope downward from the northwest to the southeast. Desert vegetation dominates the region. The major north-south roadways in the region is State Route (SR) 14, a four-lane highway. SR 58 is north and northeast of the project site and is less than 1 mile from the northern site. The project site is located approximately 38 miles east of I-5 and 17 miles north of SR 138. The project area is primarily accessible by exiting SR 14. The project site would be accessed from gates off of use Silver Queen Road, Reed Avenue, Lone Butte Road, and 10th Street.

1.2.3 Surrounding Land Uses and Project Site Conditions

The project site is located in an area of low population density and scattered vacant land and is traversed by a network of dirt roads. However, the site is directly south of the community of Mojave, which has a population of approximately 4,238. The project site consists largely of undeveloped lands, comprised of privately owned parcels. The project site is located on the northwestern end of the Antelope Valley. Land usages in the project area consist of a mix of agricultural grazing, undeveloped land, scattered single-family residences, and several approved or proposed large-scale solar facilities (RE Gaskell West Solar, RE Garland Solar, RE Astoria Solar, Antelope Valley Solar, Rosamond Solar, and Kingbird Solar).

Forest, parkland, and preserve areas in the vicinity of the project site include: the Tomo-Kahni State Historic Park approximately 7 miles northwest; the Angeles National Forest located approximately 25 miles southwest; the Desert Pines Wildlife Sanctuary and the Arthur B. Ripley Desert Woodland State Park located approximately 22 miles to the southwest; the Antelope Valley California Poppy Reserve located approximately 20 miles to the southwest; the Saddleback Butte State Park and the Antelope Valley Indian Museum approximately 24 miles southeast. The Pacific Crest National Scenic Trail (commonly known as the Pacific Crest Trail or PCT) passes approximately 4 miles northwest of the gen-tie line. The gen-tine line crosses the Los Angeles Aqueduct approximately 1.5 miles east of the Windhub Substation.

1.2.4 Regulations and Regulatory Requirements

1.2.4.1 Federal

Federal Aviation Administration

In order to understand and model glare in accordance with FAA standards, Sandia National Laboratories developed the Solar Glare Hazard Analysis Tool (SGHAT). With SGHAT, standardized safety metrics define the anticipated glare intensity that would cause unwanted visual impacts to Air Traffic Control towers and airplane pilots. Glare intensity is described according to potential for after-image and is illustrated on the FAA's Solar Glare Ocular Hazard Plot. Low potential for after-image is referred to as "green" glare and potential for after-image is referred to as "yellow" glare. "Red" glare is representative of glare conditions with potential for permanent eye damage. While use of SGHAT or the publically available and licensed SGHAT application ForgeSolar is required to demonstrate compliance with the standards for measuring ocular impact stated above for any proposed solar energy system located on a federally-obligated airport, the FAA has not established a formal policy for ocular impact assessments for non-airport solar facilities. Still, SGHAT and ForegeSolar are industry standard tools for assessing potential glare impacts associated with new solar facilities and buildings.

In ocular impact assessments for proposed solar facilities on a federally-obligated airport, FAA approval is provided if the project proponent can support consistency with the following standards:

- No potential for glint or glare in the existing or planned Airport Traffic Control Tower (ATCT) cab, and
- 2. No potential for glare or ''low potential for after-image'' (shown in green in Figure 1) along the final approach path for any existing landing threshold or future landing thresholds (including any planned interim phases of the landing thresholds) as shown on the current FAA-approved Airport Layout Plan (ALP).

SGHAT and ForgeSolar are also able to evaluate the potential of a particular PV array to produce glare intensity, predicting when and where glare would occur from a proposed PV array at discrete observation points (i.e. from the Air Traffic Control Tower, runway approach, or fixed receptor location). In instances where glare may be a concern, the tools can prescribe minor adjustments to the tilt, direction, and location of the panels to alleviate issues.

While the project is not located on a federally-obligated airport and is not required to do so by Kern County, Dudek staff utilized the industry standard ForgeSolar 3D geometric glare analysis software tool to disclose potential glare impacts associated with operation of the project.

1.2.4.2 State

California Environmental Quality Act (CEQA)

CEQA requires an analysis of aesthetic impacts when an agency or individual proposes an activity which may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment. In Appendix G, Environmental Checklist Form, the 2019 CEQA Statute and Guidelines contains the follow impact threshold related to glare:

- Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Other than the CEQA Guidelines, there are no state regulations pertaining to potential glare effects associated with the operation of solar facilities.

1.2.4.3 Local

Kern County General Plan Chapter 1: Land Use, Open Space, and Conservation Element

The following policy and implementation measure pertain to glare generated by new discretionary projects in Kern County:

- 1.10.7 Light and Glare (Policy 47): Ensure that light and glare from discretionary new development projects are minimized in rural as well as urban areas.
- Implementation Measure AA: The County shall utilize *CEQA Guidelines* and the provisions of the Zoning Ordinance to minimize the impacts of light and glare on adjacent properties and in rural undeveloped areas.

Chapter 19.81, Dark Skies Ordinance (Outdoor Lighting)

There are no local glare regulations that are applicable to the project. The Kern County Dark Skies Ordinance (Chapter 19.81 of the Kern County Zoning Ordinance) addresses glare however, regulations and development standards are specific to outdoor lighting and signage. There are no development standards in the Kern County Dark Skies Ordinance that pertain to solar facilities.

1.3 Proposed Project Description

Project Characteristics

The proposed project would include the development of solar facilities and associated infrastructure with the capacity to generate up to 300 MW of renewable electric energy and/or energy storage

capacity. Power generated by the proposed project would be transferred to the Windhub Substation and/or Westwind Substation. The solar facilities would utilize PV technology and consist of solar arrays affixed to single-axis tracking structures mounted to vertical posts. The solar facilities would operate year-round and would generate electricity during the daylight hours when electricity is at its peak. The site plan for the proposed project is shown on Figure 2, Project Design.

The solar and/or energy storage facilities are intended to operate year-round, and would be designed to produce up to a combined 300 MW of solar power and/or energy storage capacity at the Point of Interconnection to the transmission grid. The proposed project would utilize system blocks to convert solar energy directly to electrical power for export to the electrical grid. The proposed project would install PV modules that would be mounted on steel support posts that are placed pile driven into the ground and connected to inverters. The modules would be made of a thin film material or polycrystalline silicon material covering the glass panes, which would be dark in color, are highly absorptive, and have minimum reflectivity. The modules would be manufactured at an off-site location and transported to the project site.

This Glare Analysis Report considers the impacts of the PV solar arrays and their potential to generate glare. The project includes other components that have not potential for glare and are therefore not analyzed in this report. These components include, but may not be limited to:

- An energy storage facility that could include any commercially available battery technology, including but not limited to lithium iron, lead acid, sodium sulfur, and sodium or nickel hydride.
- A substation to collect the power generated by the PV solar system blocks, transport the power via the underground/overhead power collection system, and then convert the energy generated by the solar facilities for transmission in a 230 kV line to the SCE Windhub Substation and/or the privately owned Westwind Substation.
- An operations and maintenance building to be co-located with the proposed substation. It is anticipated that six permanent staff employees would use the O&M building for ongoing facility monitoring, equipment storage, and repairs.
- Underground electrical cables (underground collection system) would be installed from groups of PV arrays that would be arranged into power blocks. All electrical inverters and the transformers would be installed on pre-fabricated metal skids that sit on steel pier foundations or concrete foundation, depending on the design. The medium voltage collector lines would be routed to the onsite solar substations and transformed via high-voltage transformers to 230 kV and exported to the SCE Windhub Substation or the privately owned Westwind Substation.

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2 GLARE IMPACTS

2.1 General Concepts of Solar Technologies and Glare

The proposed project would involve installation of photovoltaic panels to convert the sun's light into electrical energy. To increase the efficiency of this conversion process, designers of solar systems strive to maximize the amount of solar energy that can be absorbed by solar cells. This work towards increasing efficiency has the added benefit of reducing the amount of light that reflects off of the surface of the solar panels. Reflected light can cause glint (a quick reflection) and glare (reflection that lasts for a longer duration), which can create hazards for pilots, air-traffic control personnel, motorists, and other potential receptors. For the purpose of this Glare Analysis Report, any light reflected off of the solar panels is referred to as 'glare.'

There are several key design considerations that can reduce glare from solar panels. One of the main factors of reflectance is the position of the PV modules relative to the sun. A panel that has been designed to absorb 90% of the sunlight that directly meets the face of the panels (perpendicular to the sun's rays) may have that absorption significantly reduced if the panel is not directly facing the sun (ForgeSolar 2019). Because the sun tracks across the sky over the course of a day, fixed-mount stationary panels can only maximize its efficiency for a few minutes out of the day when the sunlight is directly perpendicular to the face of the panel. To maximize the amount of solar energy generated from the solar array, some PV systems employ tracking mechanisms that would adjust to track the sun's trajectory as it crosses the sky. Figure 3, Comparison of Photovoltaic Tracking Systems, provides an illustrative example of fixed-mount panel system, single-axis tracking system, and dual-axis tracking system.

In addition to panel orientation, the materials used in the panel construction play an important role in reducing glare and maximizing efficiency. Different glass textures can be used to reflect light beams into the solar array and anti-reflective coatings can be added to the glass to further reduce reflectivity at high incidence angles (the angle at which the light hits the solar array).

The proposed project is anticipated to employ a single-axis tracking system, as illustrated by the middle panel system in Figure 3. The axis of rotation would be aligned north-south with a maximum tracking angle of 60°. The surface of the panels would be constructed out of smooth glass and would include an anti-reflective coating, as further described below.

Glare can result in visual hazards and temporary loss of vision. The hazard level of glare depends on the ocular impact to the observer. Generally, an ocular impact is calculated as a function of the incidence angle and the intensity of the light. For the purpose of this Glare Analysis Report, an ocular impact is classified in one of three categories as follows:

- Green: Low potential for the glare to cause an after-image (also known as flash blindness)
- Yellow: Potential to cause a temporary after-image
- Red: Potential to cause retinal burn and permanent eye damage

2.2 Methodology

In order to determine where and when glare might occur as a result of the proposed project, Dudek staff utilized a multi-step process that included a combination of spatial analysis, 3D geometric modeling, and aerial imagery interpolation. Because of the project's close proximity to the Mojave Air and Space Port (MASP) (located approximately 0.75 miles to the north of the project) and the existence of multiple highways to the east and west of the project site, a 10-mile-radius study area was determined to be necessary for this analysis, as shown on Figure 1.The location of the MASP is identified on Figure 1.

Dudek performed a visibility analysis on the surrounding terrain within the study area to determine where the project is most visible. Based on the visibility analysis, Dudek determined the location of potential receptors within the study area. All runway approach paths and air traffic control towers associated with MASP were included in this analysis regardless of visibility or distance. A geometric glare analysis was then conducted for the identified potential receptors to determine where and when glare might be encountered. Upon completion of the geometric analysis, Dudek reviewed the results for potential glare hazards and provided recommendations.

2.2.1 Visibility Analysis

The first step in pinpointing potential receptor locations was to determine where the project is most visible on the surrounding landscape. This is an important step because the geometric glare analysis software described in Section 2.2.3 does not take into consideration the terrain between the observer and the reflective surfaces associated with the project. Without this step, there would be potential for a false positive glare impact on an observer that, in reality, could not possibly see the project due to intervening terrain.

Figure 4, Visibility Analysis, shows the results of the visibility analysis performed by Dudek staff. Terrain within the study area is colored based on the percentage of the project visible from that location. Locations on the map colored red, are able to view most of the proposed solar arrays.

Areas in blue have their view of the arrays mostly obscured by terrain. This visibility analysis only utilized existing terrain models, and did not take into consideration existing and proposed structures or vegetation.

2.2.2 Potential Receptor Identification

Using the visibility analysis results in conjunction with aerial imagery, road centerline data, land use data, and flight path information, Dudek staff selected potential receptors based on their distance from the project and the percentage of the project visible from the receptor's location. To keep the geometric processing time within reasonable limits, only receptors that were either close to the project or able to see most of the project from their location were selected for the analysis. Figure 5, Modeled Receptor Locations, shows the locations of analyzed receptors as well as the modeled array locations. Modeled array extents were subdivided into smaller portions to increase the accuracy of the modeling software. The numbers assigned to each array on Figure 5 correspond the array identifiers in Appendix A. Each modeled receptor type shown on the figure is described below and receptor's precise modeling parameters can be found in Appendix A:

- Air Traffic Control Tower (ATCT) Observation Point – Two control towers were considered for this analysis; the currently operating tower located on the southeast side of MASP, adjacent to runway 30 and 26, and the non-operational historic control tower located south of runway 8. Control tower heights were estimated based on aerial imagery. See Appendix A for the precise heights used in the modeling.
- Dwelling Observation Point – Analysis included existing residential dwellings that were located adjacent to the project or within direct line of sight of most of the solar array. Because modeling every dwelling would not be feasible, Dudek staff selected representative dwellings from the neighborhoods surrounding the site.
- Hotel Observation Point – Mariah County Inn and Suites was selected because of its direct line-of-sight of the proposed project.
- Airport Flight Path Observation Route – Six flight path observation routes were selected to simulate an aircraft following a straight-line approach toward each runway at MASP. Flight path routes utilize glide slope and elevation parameters, as well as cockpit visibility angles. Modeled flight approaches extended out two miles from each runway threshold.
- Highway/Road Observation Route – Twelve Highway/Road observation routes were selected based on visibility, distance to the project site, and level of traffic expected on the roadways. To keep the number of receptor routes below the allowed limit by the geometric modeling software, Dudek staff selected routes that would be representative of each road type and road direction of travel within view of the project. Because of the project's

location in the northern hemisphere, roads to the east, west, and north of the project were preferred in the selection process because of their higher likelihood of receiving glare.

- Railroad Observation Route – A portion of the BNSF Railway directly adjacent to the west of northern project site was selected because of the potential for glare to impact railway operations at that location.
- Scenic Trail Observation Route – A portion of the Pacific Crest Trail was included in the analysis because of its high visibility of the project from the Tehachapi Mountains to the north.

Table 1 shows the number of receptor points/routes modeled categorized by receptor type.

Table 1
Receptor Counts

Receptor Type	Count
Airport Flight Paths	7
Air Traffic Control Towers (ATCT)	2
Observation Points (Dwellings and Hotels)	13
Observation Routes (Roads and Highways)	12
Scenic Trails	1
Railroads	1

2.2.3 Geometric Glare Analysis

Dudek staff utilized an industry standard 3D geometric glare analysis software tool developed by Sandia National Laboratories and licensed by ForgeSolar. By inputting the solar panel locations and characteristics, as well as the locations and elevations of the receptors, the software was able to simulate the sun's progression across the sky over the course of a year and model the potential glare caused by the proposed solar arrays. If glare is detected, the software is able to quantify the level of ocular impact hazard (green, yellow, or red) as well as pinpoint the exact time of year the glare would occur. This analysis was automatically performed for every minute of the calendar year, for each proposed solar array, and for each potential receptor defined in the model.

In order to ensure model accuracy, Dudek staff consulted the Project Applicant to get the precise characteristics of the proposed solar array system, as shown on Figure 2. Data gathered includes the physical location, orientation, build material (including the presence of anti-reflective coatings), tilt angle, and tracking technology. All of these characteristics were entered into the modeling software as described in Table 2.

Table 2
Solar Array Model Inputs

Solar Array Characteristics	Proposed Project Configuration	Comparison Configuration
Tracking method	Single-axis	No tracking
Module surface material	Smooth glass with anti-reflective coating	Smooth glass with anti-reflective coating
Orientation of tracking axis	North–south	Not applicable (panels face south with 22° tilt)
Maximum tracking angle	60°	Not applicable
Resting angle (when sun leaves maximum tracking angle)	60°	Not applicable

As described in Table 2, the proposed project is anticipated to utilize a single-axis tracking system. This tracking system would be oriented running north–south with the panel faces rotating from east to west. The system would be able to track the sun's progression across the sky, within the system's 120° range of motion (60° to the east and 60° to the west). When the sun is not within the 120° range of motion, the panels would rest at their maximum angle (60° east in the morning, 60° west in the late afternoon).

In addition to the proposed project configuration, Dudek also analyzed a comparison configuration in which no tracking mechanism was employed but all other applicable variables were the same. The purpose of this comparison was to illustrate the "worst-case" scenario pertaining to potential for glare (see Figure 3) and potential impacts to receptors in the surrounding area. As stated above, the proposed project is anticipated to utilize a single-axis tracking system. The fixed mount configuration system is assessed for disclosure purposes and provide a comparison of glare results. In the fixed-mount configuration, the panels were oriented facing south with an angle of 22.5°, which is a common configuration for fixed-mount systems, at the proposed project's northern latitude.

2.2.4 Analysis Results

Dudek has determined that, according to the results of the geometric analysis, the proposed project would not result in hazardous glare in the green, yellow, or red ocular impact categories. For comparison, the assessed fixed-mount configuration would result in significant green and yellow glare to multiple receptor routes and observation points (see Table 3 for a summary of the results). These results highlight that the single axis-tracking system utilized on the proposed project is a critical component to ensuring that glare is minimized.

Table 3
Glare Results

Array Model ID	Proposed Project (Single-Axis Tracking)		Comparison Configuration (Fixed-Mount, No Tracking)	
	"Green" Glare (Minutes per Year)	*"Yellow" Glare (Minutes per Year)*	*"Green" Glare (Minutes per Year)*	*"Yellow" Glare (Minutes per Year)*
Array 01	0	0	851	4,955
Array 02	0	0	95	3,500
Array 03	0	0	23	334
Array 04	0	0	29	110
Array 05	0	0	34	0
Array 06	0	0	1	58
Array 07	0	0	15	83
Array 08	0	0	0	0
Array 09	0	0	0	655
Array 10	0	0	498	14,361
Array 11	0	0	2,475	608
Array 12	0	0	3,323	10,427
Array 13	0	0	2,168	416
Array 14	0	0	292	0
Array 15	0	0	751	4,555
Array 16	0	0	711	80

2.2.5 Conclusions

As shown above, the proposed project would not result in any significant glare impacts when analyzed in accordance with preferred FAA methodology for assessing impacts to aviation facilities and activities. This conclusion is based on the incorporation of the tracking system into the design for all solar arrays, with the exception of Arrays 5, 8, and 14, which showed no “yellow” glare even in the fixed-mount configuration.

3 REFERENCES CITED

78 FR 63276–63279. Notice of interim policy: "Interim Policy, FAA Review of Solar Energy System Projects on Federally Obligated Airports." October 23, 2013.

FAA (Federal Aviation Administration). 2013. *Technical Guidance for Evaluating Selected Solar Technologies on Airports*. Version 1.1. Washington, DC: FAA, Office of Airports, Office of Airport Planning and Programming. April 2018.

ForgeSolar (ForgeSolar: PV Planning & Glare Analysis). 2019. "ForgeSolar Help." Website. https://www.forgesolar.com/help/.

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4 DOCUMENT PREPARERS

This Glare Analysis Report was prepared by Joshua Saunders and Christopher Starbird. Formatting was provided by David Mueller.

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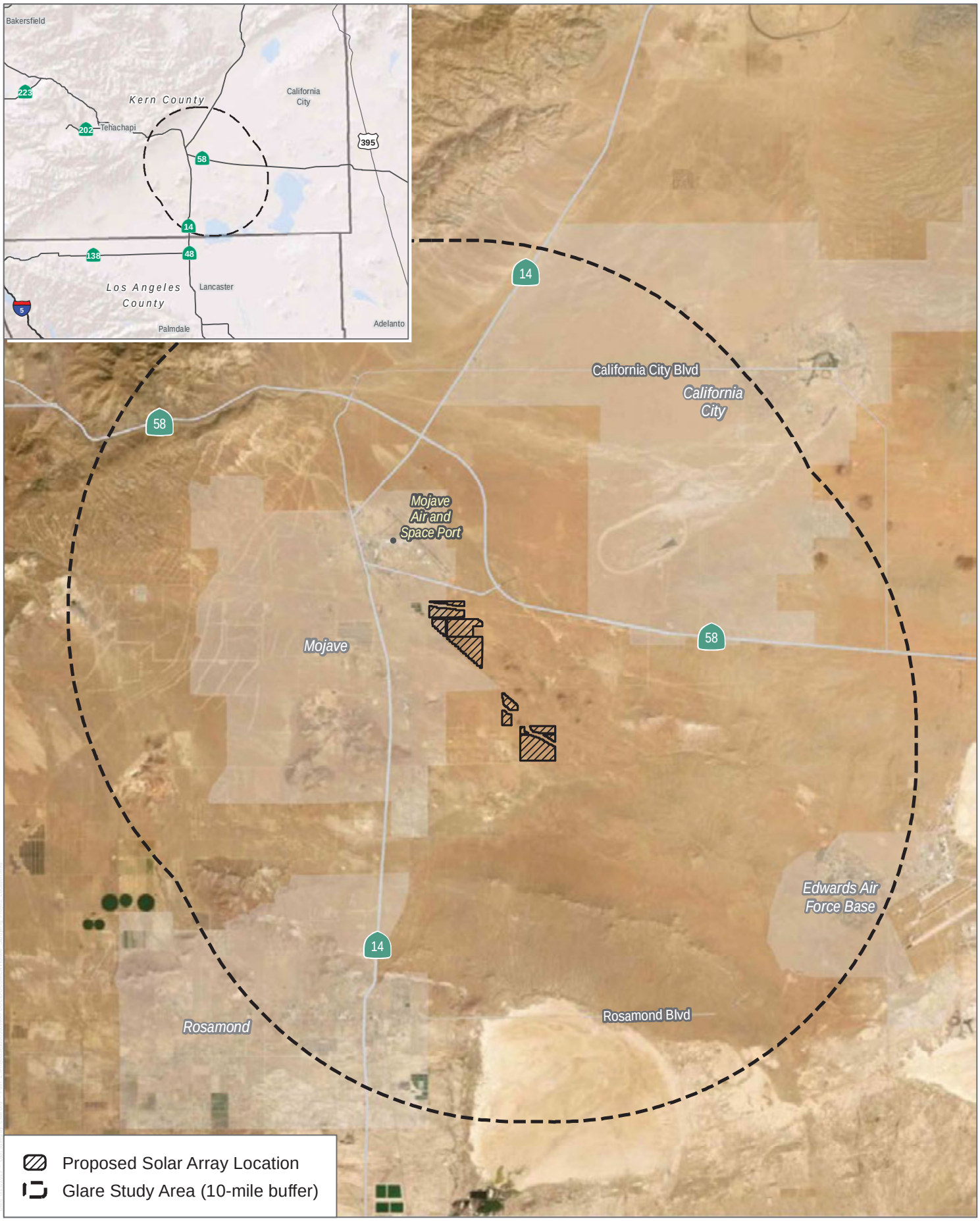

SOURCE: Esri, Digital Globe 2019, Open Street Map 2019

DUDEK

0 1.75 3.5 Miles

FIGURE 1

Project Location

Sanborn Solar

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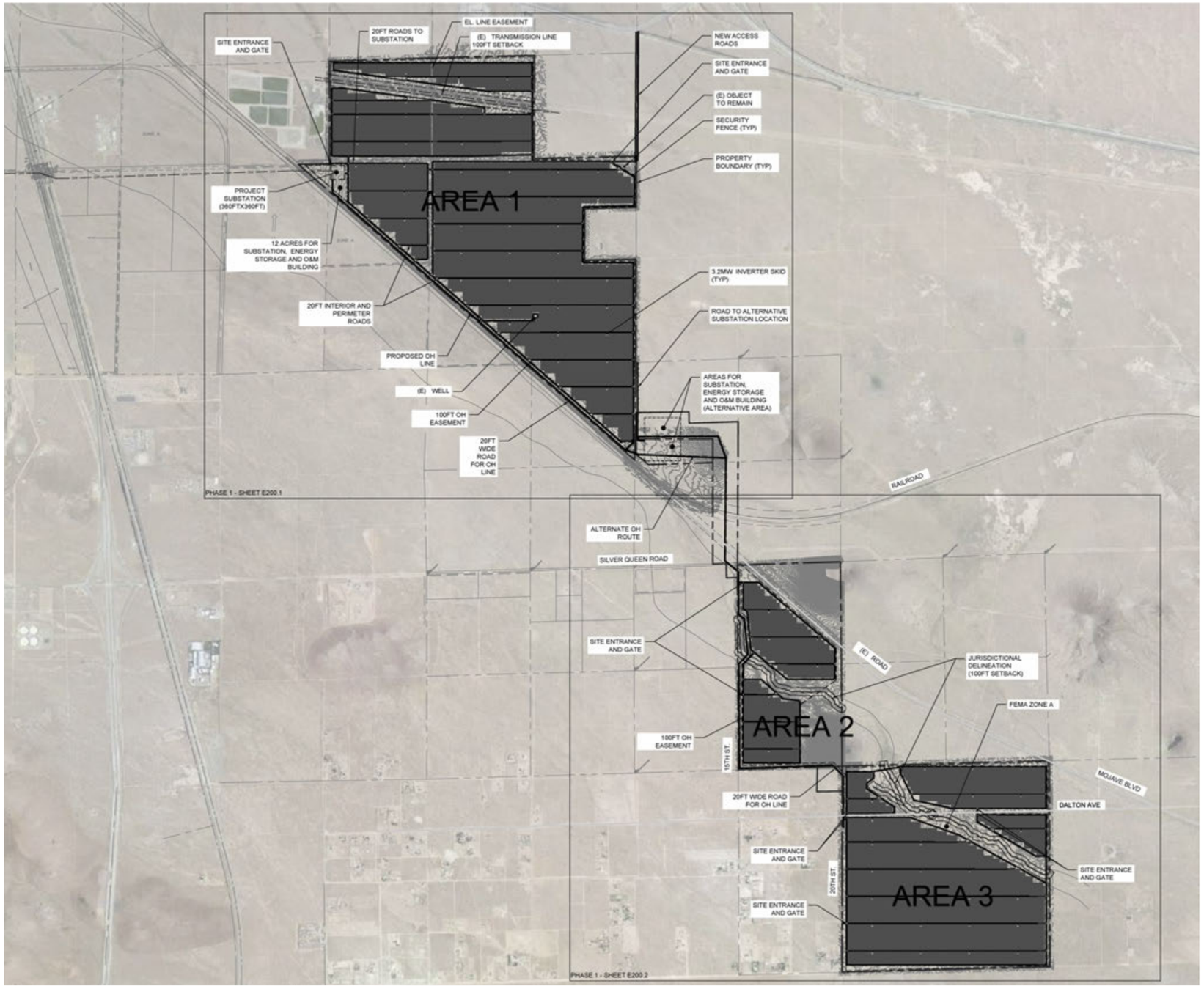

SHEET NOTES:

1. LOCATIONS SHOWN ARE FOR GENERAL GUIDANCE ONLY. SLOPES OF THE SITE ARE NOT DEPICTED AND LOCATIONS MUST BE VERIFIED ON SITE BEFORE INSTALLATION.

SYSTEM SPECIFICATIONS:

SYSTEM DC RATING (MW)	312.86
SYSTEM AC CAPACITY (MW)	252.80
SYSTEM AC RATING AT POI (MW)	225.00
DC/AC RATIO AT POI	1.111
MODULE MODEL	FIRST SOLAR 430
MODULE DC DC RATING (W)	430
MODULE COUNT	727,678
MODULES PER STRING	6
STRING COUNT	121,263
INVERTER MODEL	EMERSON Solar Water 3000 - PVH 6,000 kB
INVERTER RATING (MW)	3.20
QUANTITY OF INVERTERS	79
TRANSFORMER RATING (MVA)	3.20
QUANTITY OF TRANSFORMERS	79
DC SYSTEM VOLTAGE (V)	1500
INTERCONNECTION VOLTAGE (KV)	230
TRANSMISSION LENGTH (MILES)	0.5
RACKING SYSTEM	TRACKER (1 PORTRAIT)
MODULE TILT	+/- 60°
AZIMUTH	180
GCR	0.34
ROW TO ROW SPACING (FT)	19.45
ASHRAE 2% DESIGN BULB TEMP MAX (°F)	40°
ASHRAE EXTREME ANNUAL MEAN MINIMUM DRY BULB TEMP	10°
PROPERTY AREA (ACRES)	2181
FENCED AREA (ACRES)	1675
FENCING LENGTH (L.F.)	92626
ROADS (L.F.)	241460

LEGEND

- PROPERTY LINE
- FENCE LINE
- ROAD
- OVERHEAD ELECTRICAL
- SETBACK / WATERS
- RIGHT OF WAY (ROW)

OVERALL SITE LAYOUT

0' 600' 1200' 2400'

SOURCE: Revamp Engineering Incorporated, 2017

DUDEK

FIGURE 2

Project Design

Sanborn Solar

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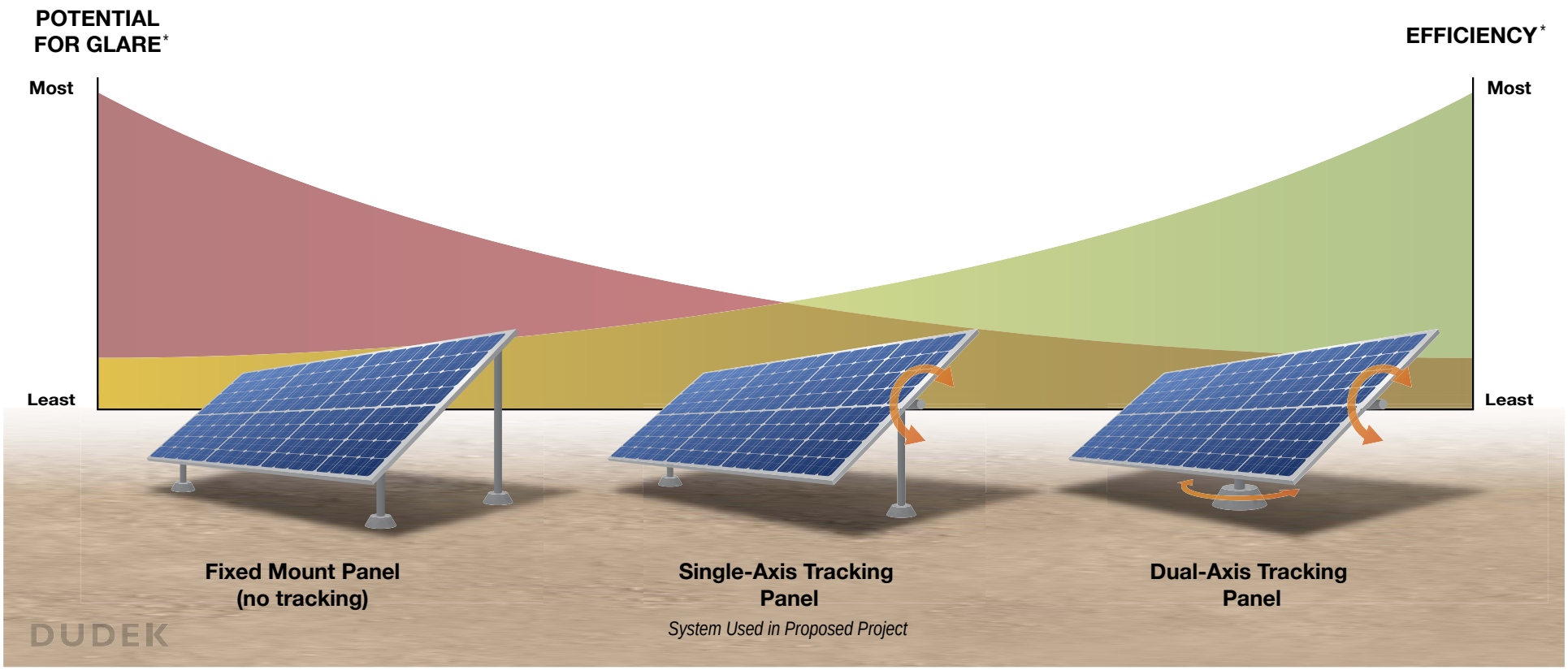

* Efficiency and glare relationships represented in this graphic have been exaggerated and are for illustrative purposes only.

SOURCE: DUDEK 2019

DUDEK

FIGURE 3

Comparison of Photovoltaic Tracking Systems

Sanborn Solar

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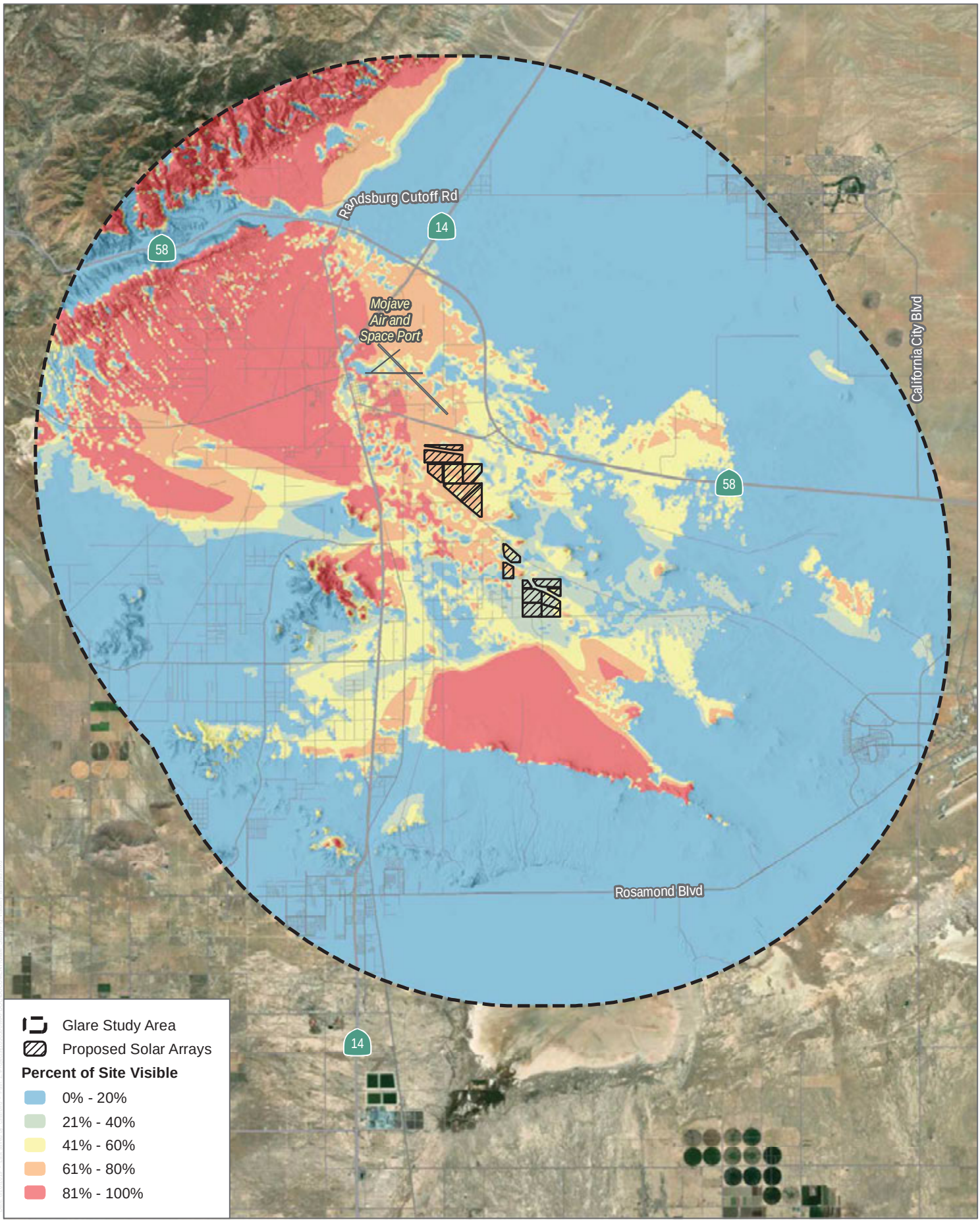

SOURCE: Esri, Digital Globe 2019, Open Street Map 2019

DUDEK

0 1.625 3.25 Miles

FIGURE 4

Visibility Analysis

Sanborn Solar

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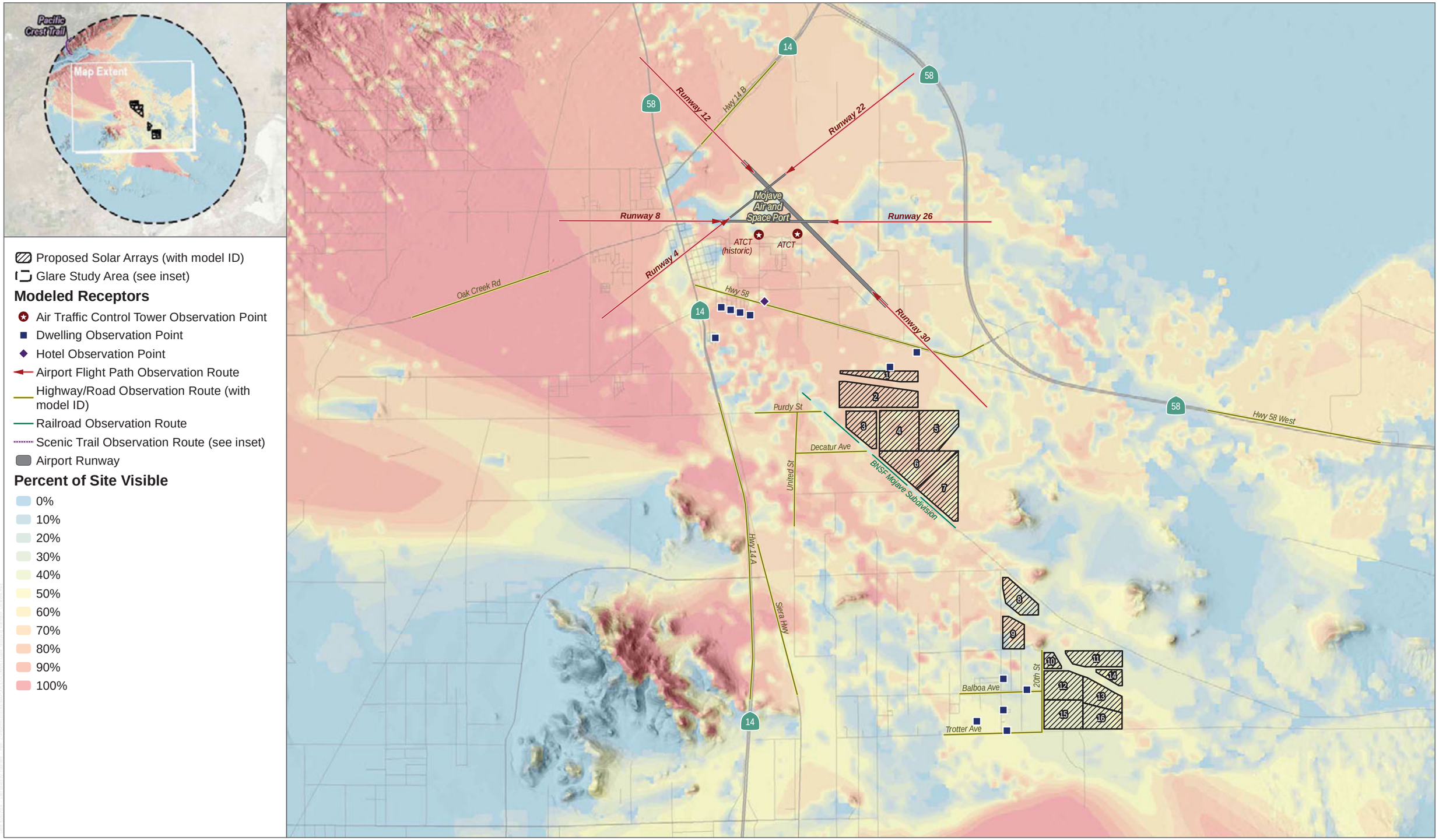

SOURCE: Esri, Digital Global 2019, Open Street Map 2019

DUDEK

0 0.5 1 Miles

FIGURE 5

Modeled Receptor Locations

Sanborn Solar

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APPENDIX A

Modeling Results

FORGESOLAR GLARE ANALYSIS

Project: **Sanborn Solar Project**
Proposed PV sites near the community of Mojave

Site configuration: **Single-Axis Tracking Final**
Analysis conducted by Brian Nordmann (cstarbird@dudek.com) at 20:57 on 22 Aug, 2019.

U.S. FAA 2013 Policy Adherence

The following table summarizes the policy adherence of the glare analysis based on the 2013 U.S. Federal Aviation Administration Interim Policy 78 FR 63276. This policy requires the following criteria be met for solar energy systems on airport property:

- No "yellow" glare (potential for after-image) for any flight path from threshold to 2 miles
- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics (see list below)

ForgeSolar does not represent or speak officially for the FAA and cannot approve or deny projects. Results are informational only.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
Flight path(s)	PASS	Flight path receptor(s) do not receive yellow glare
ATCT(s)	PASS	Receptor(s) marked as ATCT do not receive glare

Default glare analysis parameters and observer eye characteristics (for reference only):

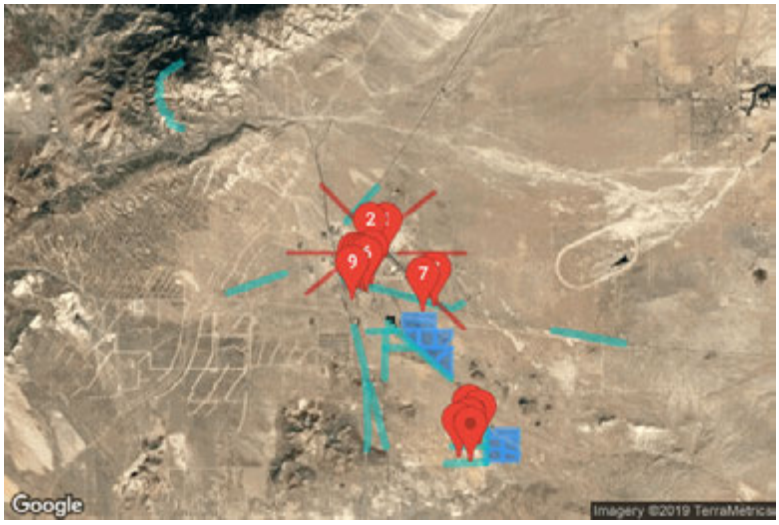
- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

FAA Policy 78 FR 63276 can be read at https://www.federalregister.gov/d/2013-24729

SITE CONFIGURATION

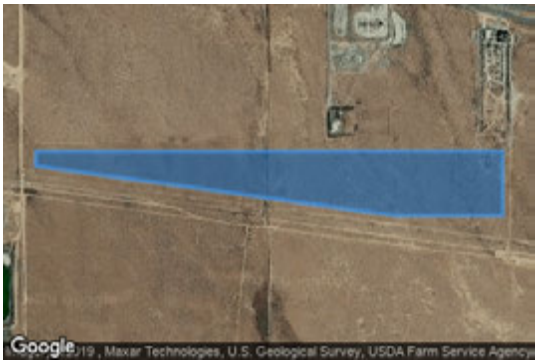
Analysis Parameters

DNI: peaks at 1,000.0 W/m^2
Time interval: 1 min
Ocular transmission coefficient: 0.5
Pupil diameter: 0.002 m
Eye focal length: 0.017 m
Sun subtended angle: 9.3 mrad
Site Config ID: 30567.5452



PV Array(s)

Name: Array 01
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 60.0°
Resting angle: 60.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	35.032050	-118.140136	2655.89	10.00	2665.89
2	35.032481	-118.140136	2656.96	10.00	2666.96
3	35.032492	-118.123188	2635.15	10.00	2645.15
4	35.030575	-118.123186	2629.52	10.00	2639.52
5	35.030573	-118.127084	2635.87	10.00	2645.87
6	35.032050	-118.140136	2655.89	10.00	2665.89

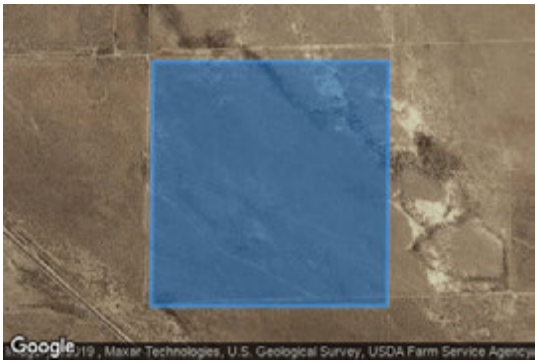
Name: Array 02
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 60.0°
Resting angle: 60.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	35.025966	-118.140312	2640.71	10.00	2650.72
2	35.030610	-118.140318	2653.67	10.00	2663.67
3	35.028828	-118.123174	2624.76	10.00	2634.76
4	35.025978	-118.123171	2620.24	10.00	2630.25
5	35.025966	-118.140312	2640.71	10.00	2650.72

Name: Array 03
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 60.0°
Resting angle: 60.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

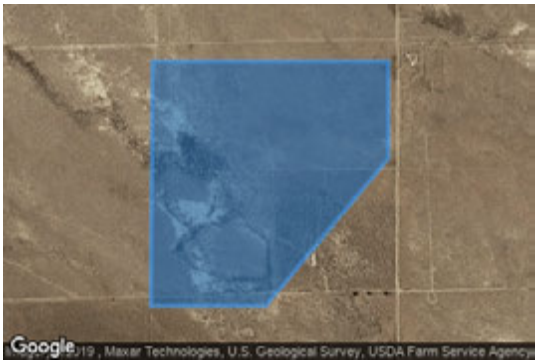
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	35.025288	-118.138813	2637.99	10.00	2648.00
2	35.025293	-118.132202	2630.36	10.00	2640.36
3	35.018578	-118.132195	2620.06	10.00	2630.07
4	35.018577	-118.133186	2620.86	10.00	2630.87
5	35.022439	-118.138810	2633.75	10.00	2643.75
6	35.025288	-118.138813	2637.99	10.00	2648.00

Name: Array 04
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 60.0°
Resting angle: 60.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



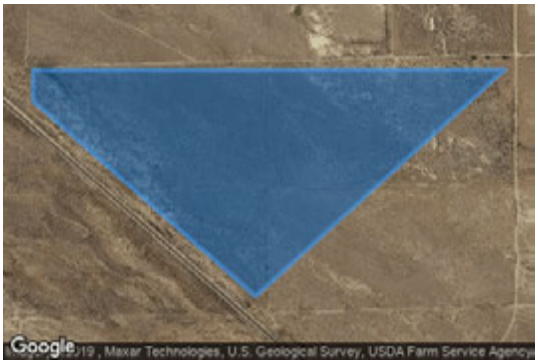
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	35.025420	-118.122943	2619.51	10.00	2629.51
2	35.018174	-118.123001	2609.36	10.00	2619.36
3	35.018168	-118.131571	2619.41	10.00	2629.41
4	35.025414	-118.131513	2629.77	10.00	2639.77
5	35.025420	-118.122943	2619.51	10.00	2629.51

Name: Array 05
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 60.0°
Resting angle: 60.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



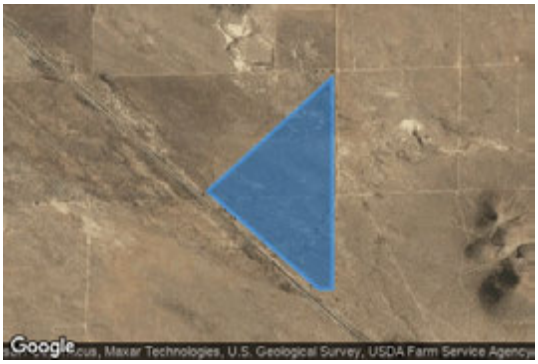
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	35.018174	-118.123001	2609.36	10.00	2619.36
2	35.025420	-118.122943	2619.51	10.00	2629.51
3	35.025425	-118.114373	2609.34	10.00	2619.34
4	35.022546	-118.114370	2602.35	10.00	2612.36
5	35.018176	-118.118824	2603.45	10.00	2613.45
6	35.018174	-118.123001	2609.36	10.00	2619.36

Name: Array 06
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 60.0°
Resting angle: 60.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	35.018179	-118.114431	2597.04	10.00	2607.04
2	35.011458	-118.123490	2602.87	10.00	2612.87
3	35.017252	-118.131570	2618.29	10.00	2628.29
4	35.018168	-118.131571	2619.41	10.00	2629.41
5	35.018179	-118.114431	2597.04	10.00	2607.04

Name: Array 07
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 60.0°
Resting angle: 60.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

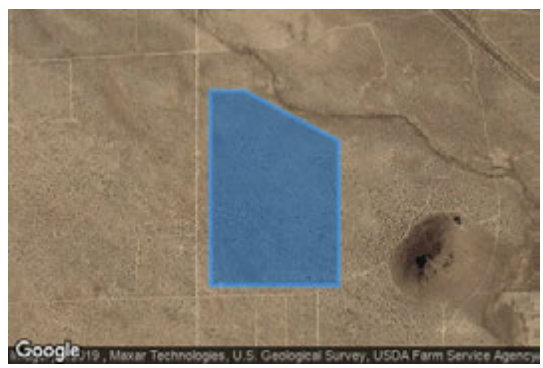


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	35.011458	-118.123490	2602.87	10.00	2612.87
2	35.018179	-118.114431	2597.04	10.00	2607.04
3	35.005665	-118.114421	2580.97	10.00	2590.97
4	35.005664	-118.115412	2581.52	10.00	2591.52
5	35.011458	-118.123490	2602.87	10.00	2612.87

Name: Array 08
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 60.0°
Resting angle: 60.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

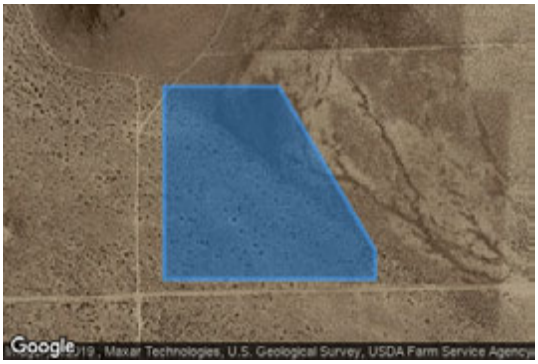
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.995544	-118.104680	2561.18	10.00	2571.18
2	34.995544	-118.103561	2561.75	10.00	2571.75
3	34.990749	-118.096971	2546.83	10.00	2556.83
4	34.988832	-118.096970	2543.84	10.00	2553.84
5	34.988830	-118.100931	2553.06	10.00	2563.06
6	34.990969	-118.104031	2554.11	10.00	2564.12
7	34.993695	-118.104679	2557.33	10.00	2567.33
8	34.995544	-118.104680	2561.18	10.00	2571.18

Name: Array 09
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 60.0°
Resting angle: 60.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



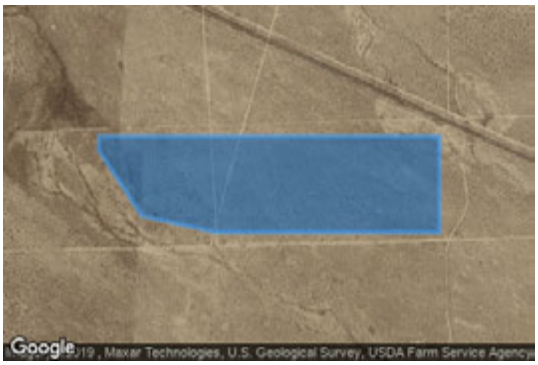
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.988581	-118.104676	2553.49	10.00	2563.49
2	34.988582	-118.103427	2553.07	10.00	2563.07
3	34.987097	-118.100004	2547.39	10.00	2557.39
4	34.982800	-118.100001	2547.51	10.00	2557.51
5	34.982798	-118.104672	2542.55	10.00	2552.55
6	34.988581	-118.104676	2553.49	10.00	2563.49

Name: Array 10
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 60.0°
Resting angle: 60.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



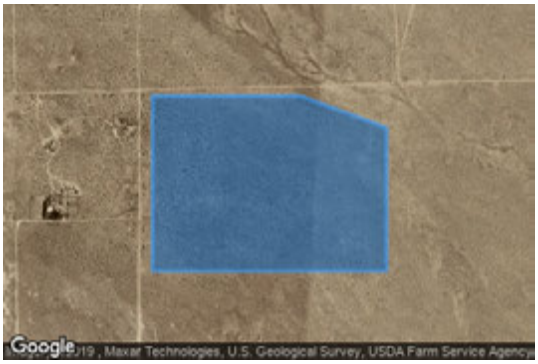
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.982090	-118.095737	2533.62	10.00	2543.62
2	34.982091	-118.093649	2530.79	10.00	2540.79
3	34.979672	-118.091905	2528.97	10.00	2538.97
4	34.979242	-118.091904	2528.96	10.00	2538.96
5	34.979240	-118.095735	2531.38	10.00	2541.38
6	34.982090	-118.095737	2533.62	10.00	2543.62

Name: Array 11
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 60.0°
Resting angle: 60.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



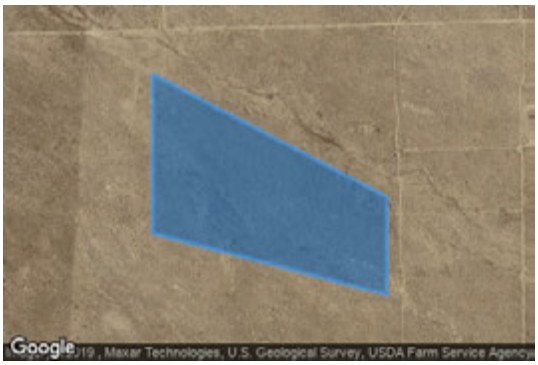
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.982446	-118.091058	2529.32	10.00	2539.32
2	34.982450	-118.078705	2512.12	10.00	2522.12
3	34.979600	-118.078704	2512.97	10.00	2522.97
4	34.979598	-118.086796	2520.01	10.00	2530.01
5	34.980083	-118.089508	2523.43	10.00	2533.43
6	34.982015	-118.091058	2527.24	10.00	2537.24
7	34.982446	-118.091058	2529.32	10.00	2539.32

Name: Array 12
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 60.0°
Resting angle: 60.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



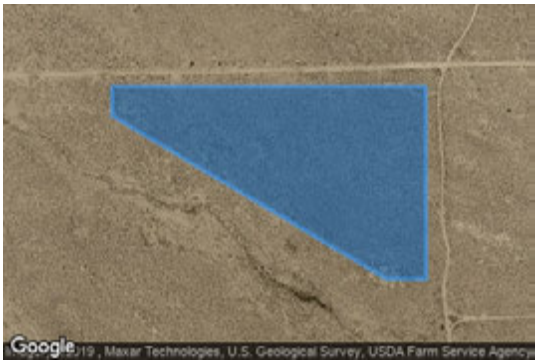
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.973647	-118.087232	2513.81	10.00	2523.81
2	34.973644	-118.095732	2519.71	10.00	2529.71
3	34.978831	-118.095735	2531.38	10.00	2541.38
4	34.978833	-118.090355	2523.34	10.00	2533.34
5	34.977887	-118.087234	2516.93	10.00	2526.93
6	34.973647	-118.087232	2513.81	10.00	2523.81

Name: Array 13
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 60.0°
Resting angle: 60.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



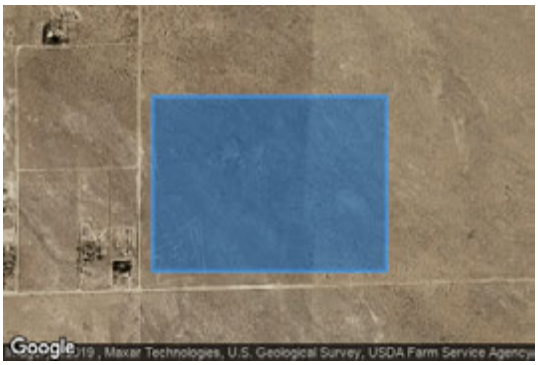
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.971354	-118.078731	2501.04	10.00	2511.04
2	34.973174	-118.087232	2513.32	10.00	2523.32
3	34.977887	-118.087234	2516.93	10.00	2526.93
4	34.974246	-118.078732	2504.17	10.00	2514.17
5	34.971354	-118.078731	2501.04	10.00	2511.04

Name: Array 14
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 60.0°
Resting angle: 60.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



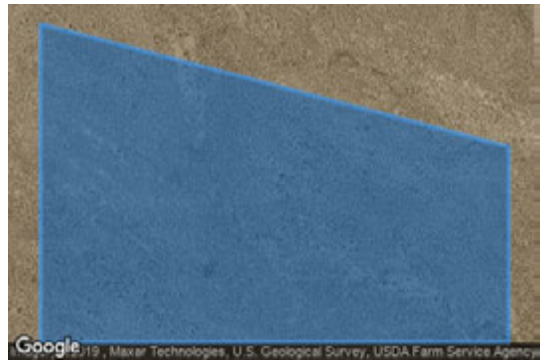
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.979049	-118.084407	2516.36	10.00	2526.36
2	34.979050	-118.078714	2509.17	10.00	2519.17
3	34.976201	-118.078702	2506.53	10.00	2516.53
4	34.976201	-118.079435	2507.51	10.00	2517.51
5	34.978618	-118.084407	2515.31	10.00	2525.31
6	34.979049	-118.084407	2516.36	10.00	2526.36

Name: Array 15
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 60.0°
Resting angle: 60.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.973647	-118.087232	2513.81	10.00	2523.81
2	34.968460	-118.087230	2505.39	10.00	2515.39
3	34.968457	-118.095729	2508.09	10.00	2518.09
4	34.973644	-118.095732	2519.71	10.00	2529.71
5	34.973647	-118.087232	2513.81	10.00	2523.81

Name: Array 16
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 60.0°
Resting angle: 60.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



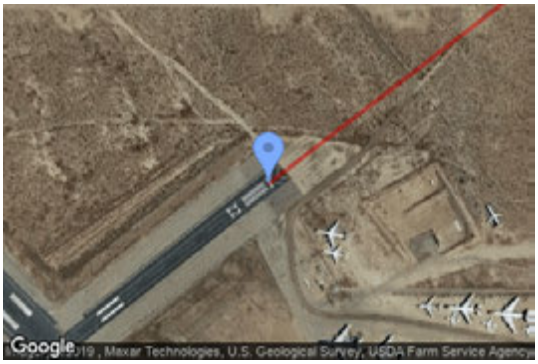
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.971354	-118.078731	2501.04	10.00	2511.04
2	34.968463	-118.078730	2499.45	10.00	2509.45
3	34.968460	-118.087230	2505.39	10.00	2515.39
4	34.973174	-118.087232	2513.32	10.00	2523.32
5	34.971354	-118.078731	2501.04	10.00	2511.04

Flight Path Receptor(s)

Name: MASP 12
Description: None
Threshold height: 50 ft
Direction: 135.6°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	35.067997	-118.159056	2793.14	50.00	2843.14
Two-mile	35.088637	-118.183823	3014.95	381.62	3396.57

Name: MASP 22
Description: None
Threshold height: 50 ft
Direction: 232.5°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

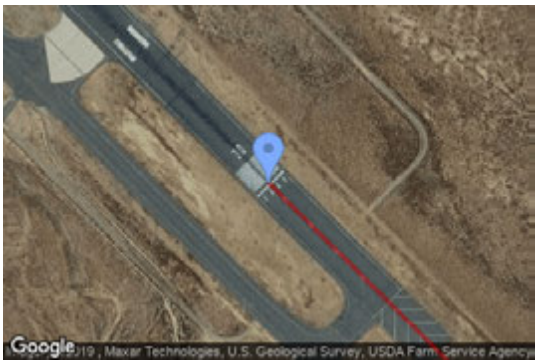


Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	35.067800	-118.151866	2779.04	50.00	2829.04
Two-mile	35.085397	-118.123804	2778.24	604.23	3382.47

Name: MASP 26
Description: None
Threshold height: 50 ft
Direction: 270.2°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	35.059183	-118.142549	2730.93	50.00	2780.94
Two-mile	35.059102	-118.107186	2677.53	656.93	3334.46

Name: MASP 30
Description: None
Threshold height: 50 ft
Direction: 314.8°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°



Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	35.046580	-118.133135	2681.13	50.00	2731.13
Two-mile	35.026204	-118.108051	2594.83	689.73	3284.56

Name: MASP 4
Description: None
Threshold height: 50 ft
Direction: 51.1°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	35.059748	-118.164297	2777.94	50.00	2827.94
Two-mile	35.041580	-118.191806	2773.04	608.33	3381.37

Name: MASP 8
Description: None
Threshold height: 50 ft
Direction: 90.1°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	35.059242	-118.166076	2778.64	50.00	2828.64
Two-mile	35.059272	-118.201439	2921.24	460.82	3382.07

Discrete Observation Receptors

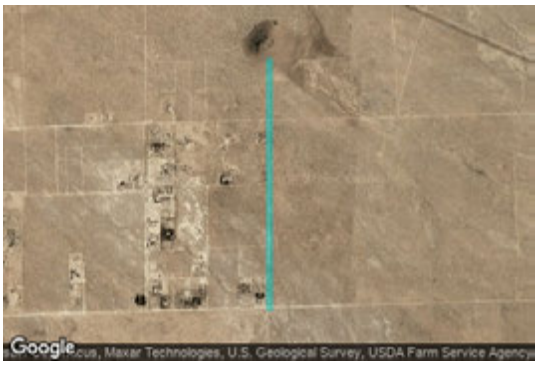
Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
1-ATCT	1	35.057003	-118.149446	2742.13	130.01
2-ATCT	2	35.056808	-118.157829	2763.15	50.00
OP 3	3	35.043859	-118.166033	2724.74	6.00
OP 4	4	35.043399	-118.164002	2723.46	6.00
OP 5	5	35.042923	-118.161898	2719.65	6.00
OP 6	6	35.042417	-118.159757	2715.36	6.00
OP 7	7	35.033207	-118.129279	2644.26	6.00
OP 8	8	35.035817	-118.123437	2642.84	6.00
OP 9	9	35.038382	-118.167332	2703.72	6.00
OP 10	10	34.975464	-118.099439	2527.69	6.00
OP 11	11	34.977417	-118.104572	2533.15	6.00
OP 12	12	34.971835	-118.104536	2520.83	6.00
OP 13	13	34.968115	-118.103764	2517.35	6.00
OP 14	14	34.969827	-118.110314	2528.88	6.00
OP 15	15	35.044898	-118.156588	2722.71	6.00

Map image of 1-ATCT

Map image of 2-ATCT

Route Receptor(s)

Name: 20th St
Path type: Two-way
Observer view angle: 50.0°

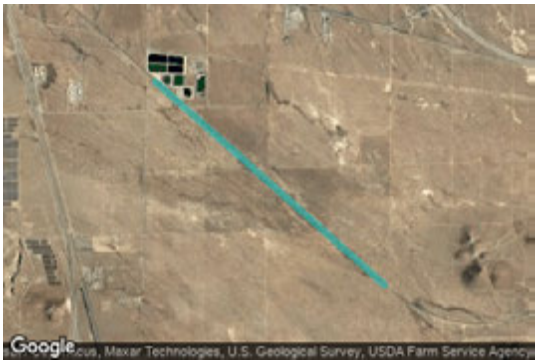


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.967877	-118.096158	2508.12	6.00	2514.12
2	34.982528	-118.096171	2574.73	6.00	2580.73

Name: Balboa Ave
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.975202	-118.096165	2523.52	6.00	2529.52
2	34.974733	-118.114050	2543.37	6.00	2549.37

Name: BNSF Mojave Subdivision
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	35.004453	-118.115009	2580.17	10.00	2590.17
2	35.028531	-118.148297	2653.20	10.00	2663.20

Name: Decatur Ave
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	35.017724	-118.149821	2645.73	6.00	2651.73
2	35.018130	-118.134371	2622.13	6.00	2628.13

Name: Heli South
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	35.060887	-118.156152	2765.63	30.00	2795.64
2	35.051191	-118.156066	2740.53	600.03	3340.56

Name: Hwy 14 A
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.973720	-118.159605	2632.93	6.00	2638.93
2	34.981174	-118.159040	2623.13	6.00	2629.13
3	34.999657	-118.159945	2654.73	6.00	2660.73
4	35.008541	-118.160687	2659.93	6.00	2665.93
5	35.010329	-118.161125	2665.33	6.00	2671.33
6	35.026751	-118.166504	2681.63	6.00	2687.63

Name: Hwy 14 B
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	35.073051	-118.170354	2854.84	6.00	2860.84
2	35.087825	-118.154281	2912.84	6.00	2918.84

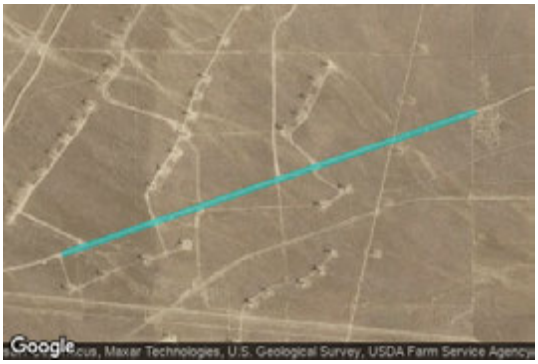
Name: Hwy 58
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	35.047795	-118.171654	2743.63	6.00	2749.63
2	35.042371	-118.147557	2698.33	6.00	2704.33
3	35.035016	-118.115572	2632.53	6.00	2638.53
4	35.034990	-118.114928	2632.03	6.00	2638.03
5	35.035044	-118.114090	2626.13	6.00	2632.13
6	35.035151	-118.113511	2628.23	6.00	2634.23
7	35.037194	-118.108942	2625.93	6.00	2631.93

Name: Hwy 58 West
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	35.019711	-118.022598	2655.43	6.00	2661.43
2	35.025512	-118.060111	2545.42	6.00	2551.42

Name: Oak Creek Rd
Path type: Two-way
Observer view angle: 50.0°

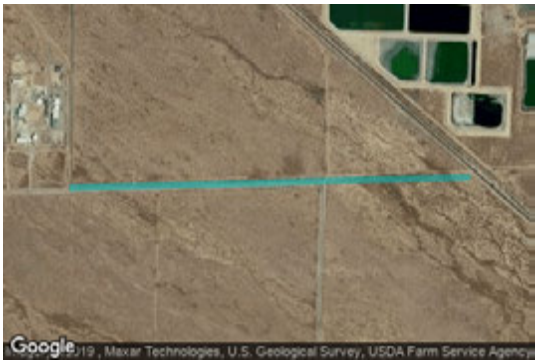


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	35.041934	-118.233269	3063.35	6.00	3069.35
2	35.050267	-118.203573	2881.24	6.00	2887.24

Name: Pacific Crest Trail
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	35.141754	-118.259116	6134.70	6.00	6140.70
2	35.140655	-118.261867	6185.00	6.00	6191.00
3	35.139053	-118.264187	6125.00	6.00	6131.00
4	35.137369	-118.267834	6012.49	6.00	6018.49
5	35.135800	-118.269110	5927.69	6.00	5933.69
6	35.134324	-118.270206	5884.99	6.00	5890.99
7	35.133103	-118.270690	5887.39	6.00	5893.39
8	35.131230	-118.269846	5737.68	6.00	5743.68
9	35.130324	-118.270301	5754.68	6.00	5760.68
10	35.129454	-118.269355	5707.18	6.00	5713.18
11	35.127750	-118.271304	5633.17	6.00	5639.18
12	35.127387	-118.270713	5515.47	6.00	5521.47
13	35.126115	-118.270337	5508.97	6.00	5514.97
14	35.125587	-118.269448	5486.07	6.00	5492.07
15	35.124455	-118.270195	5534.07	6.00	5540.07
16	35.122894	-118.268949	5475.37	6.00	5481.37
17	35.122918	-118.268147	5422.76	6.00	5428.76
18	35.121693	-118.269064	5393.76	6.00	5399.76
19	35.120193	-118.268033	5332.76	6.00	5338.76
20	35.120336	-118.266980	5283.76	6.00	5289.76
21	35.119204	-118.265948	5215.25	6.00	5221.25
22	35.119545	-118.264675	5165.65	6.00	5171.65
23	35.118386	-118.264487	5133.95	6.00	5139.95
24	35.116675	-118.265230	5043.15	6.00	5049.15
25	35.115369	-118.264028	4814.23	6.00	4820.24
26	35.114899	-118.262650	4727.63	6.00	4733.63
27	35.114354	-118.260759	4496.32	6.00	4502.32
28	35.113816	-118.259777	4357.21	6.00	4363.21
29	35.113459	-118.258379	4364.51	6.00	4370.51

Name: Purdy St
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	35.025251	-118.144245	2643.02	6.00	2649.02
2	35.024933	-118.158601	2665.96	6.00	2671.96

Name: Sierra Hwy
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	35.001440	-118.158015	2643.53	6.00	2649.53
2	34.974545	-118.149340	2585.13	6.00	2591.13

Name: Trotter Ave
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.967877	-118.096158	2508.16	6.00	2514.16
2	34.967368	-118.117388	2534.65	6.00	2540.65

Name: United St
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	35.004707	-118.150075	2625.53	6.00	2631.53
2	35.012585	-118.150010	2642.13	6.00	2648.13
3	35.020560	-118.149678	2646.13	6.00	2652.13
4	35.025134	-118.149449	2655.33	6.00	2661.33

GLARE ANALYSIS RESULTS

Summary of Glare

PV Array Name	Tilt (°)	Orient (°)	"Green" Glare min	"Yellow" Glare min	Energy kWh
Array 01	SA tracking	SA tracking	0	0	-
Array 02	SA tracking	SA tracking	0	0	-
Array 03	SA tracking	SA tracking	0	0	-
Array 04	SA tracking	SA tracking	0	0	-
Array 05	SA tracking	SA tracking	0	0	-
Array 06	SA tracking	SA tracking	0	0	-
Array 07	SA tracking	SA tracking	0	0	-
Array 08	SA tracking	SA tracking	0	0	-
Array 09	SA tracking	SA tracking	0	0	-
Array 10	SA tracking	SA tracking	0	0	-
Array 11	SA tracking	SA tracking	0	0	-
Array 12	SA tracking	SA tracking	0	0	-
Array 13	SA tracking	SA tracking	0	0	-
Array 14	SA tracking	SA tracking	0	0	-
Array 15	SA tracking	SA tracking	0	0	-
Array 16	SA tracking	SA tracking	0	0	-

Total annual glare received by each receptor

MASP 12	0	0

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
MASP 22	0	0
MASP 26	0	0
MASP 30	0	0
MASP 4	0	0
MASP 8	0	0
1-ATCT	0	0
2-ATCT	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0
OP 15	0	0
20th St	0	0
Balboa Ave	0	0
BNSF Mojave Subdivision	0	0
Decatur Ave	0	0
Heli South	0	0
Hwy 14 A	0	0
Hwy 14 B	0	0
Hwy 58	0	0
Hwy 58 West	0	0
Oak Creek Rd	0	0
Pacific Crest Trail	0	0
Purdy St	0	0
Sierra Hwy	0	0
Trotter Ave	0	0
United St	0	0

Results for: Array 01

Receptor	Green Glare (min)	Yellow Glare (min)
MASP 12	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
MASP 22	0	0
MASP 26	0	0
MASP 30	0	0
MASP 4	0	0
MASP 8	0	0
1-ATCT	0	0
2-ATCT	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0
OP 15	0	0
20th St	0	0
Balboa Ave	0	0
BNSF Mojave Subdivision	0	0
Decatur Ave	0	0
Heli South	0	0
Hwy 14 A	0	0
Hwy 14 B	0	0
Hwy 58	0	0
Hwy 58 West	0	0
Oak Creek Rd	0	0
Pacific Crest Trail	0	0
Purdy St	0	0
Sierra Hwy	0	0
Trotter Ave	0	0
United St	0	0

Flight Path: MASP 12

0 minutes of yellow glare

0 minutes of green glare

Flight Path: MASP 22

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 26

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 30

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 4

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 1-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 2-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Route: 20th St

0 minutes of yellow glare
0 minutes of green glare

Route: Balboa Ave

0 minutes of yellow glare
0 minutes of green glare

Route: BNSF Mojave Subdivision

0 minutes of yellow glare
0 minutes of green glare

Route: Decatur Ave

0 minutes of yellow glare
0 minutes of green glare

Route: Heli South

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 A

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 B

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58 West

0 minutes of yellow glare

0 minutes of green glare

Route: Oak Creek Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Pacific Crest Trail

0 minutes of yellow glare
0 minutes of green glare

Route: Purdy St

0 minutes of yellow glare
0 minutes of green glare

Route: Sierra Hwy

0 minutes of yellow glare
0 minutes of green glare

Route: Trotter Ave

0 minutes of yellow glare
0 minutes of green glare

Route: United St

0 minutes of yellow glare
0 minutes of green glare

Results for: Array 02

Receptor	Green Glare (min)	Yellow Glare (min)
MASP 12	0	0
MASP 22	0	0
MASP 26	0	0
MASP 30	0	0
MASP 4	0	0
MASP 8	0	0
1-ATCT	0	0
2-ATCT	0	0
OP 3	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0
OP 15	0	0
20th St	0	0
Balboa Ave	0	0
BNSF Mojave Subdivision	0	0
Decatur Ave	0	0
Heli South	0	0
Hwy 14 A	0	0
Hwy 14 B	0	0
Hwy 58	0	0
Hwy 58 West	0	0
Oak Creek Rd	0	0
Pacific Crest Trail	0	0
Purdy St	0	0
Sierra Hwy	0	0
Trotter Ave	0	0
United St	0	0

Flight Path: MASP 12

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 22

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 26

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 30

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 4

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 1-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 2-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Route: 20th St

0 minutes of yellow glare
0 minutes of green glare

Route: Balboa Ave

0 minutes of yellow glare
0 minutes of green glare

Route: BNSF Mojave Subdivision

0 minutes of yellow glare
0 minutes of green glare

Route: Decatur Ave

0 minutes of yellow glare
0 minutes of green glare

Route: Heli South

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 A

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 B

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58 West

0 minutes of yellow glare
0 minutes of green glare

Route: Oak Creek Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Pacific Crest Trail

0 minutes of yellow glare

0 minutes of green glare

Route: Purdy St

0 minutes of yellow glare
0 minutes of green glare

Route: Sierra Hwy

0 minutes of yellow glare
0 minutes of green glare

Route: Trotter Ave

0 minutes of yellow glare
0 minutes of green glare

Route: United St

0 minutes of yellow glare
0 minutes of green glare

Results for: Array 03

Receptor	Green Glare (min)	Yellow Glare (min)
MASP 12	0	0
MASP 22	0	0
MASP 26	0	0
MASP 30	0	0
MASP 4	0	0
MASP 8	0	0
1-ATCT	0	0
2-ATCT	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 13	0	0
OP 14	0	0
OP 15	0	0
20th St	0	0
Balboa Ave	0	0
BNSF Mojave Subdivision	0	0
Decatur Ave	0	0
Heli South	0	0
Hwy 14 A	0	0
Hwy 14 B	0	0
Hwy 58	0	0
Hwy 58 West	0	0
Oak Creek Rd	0	0
Pacific Crest Trail	0	0
Purdy St	0	0
Sierra Hwy	0	0
Trotter Ave	0	0
United St	0	0

Flight Path: MASP 12

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 22

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 26

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 30

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 4

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 1-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 2-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Route: 20th St

0 minutes of yellow glare
0 minutes of green glare

Route: Balboa Ave

0 minutes of yellow glare
0 minutes of green glare

Route: BNSF Mojave Subdivision

0 minutes of yellow glare
0 minutes of green glare

Route: Decatur Ave

0 minutes of yellow glare
0 minutes of green glare

Route: Heli South

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 A

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 B

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58 West

0 minutes of yellow glare
0 minutes of green glare

Route: Oak Creek Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Pacific Crest Trail

0 minutes of yellow glare
0 minutes of green glare

Route: Purdy St

0 minutes of yellow glare
0 minutes of green glare

Route: Sierra Hwy

0 minutes of yellow glare

0 minutes of green glare

Route: Trotter Ave

0 minutes of yellow glare
0 minutes of green glare

Route: United St

0 minutes of yellow glare
0 minutes of green glare

Results for: Array 04

Receptor	Green Glare (min)	Yellow Glare (min)
MASP 12	0	0
MASP 22	0	0
MASP 26	0	0
MASP 30	0	0
MASP 4	0	0
MASP 8	0	0
1-ATCT	0	0
2-ATCT	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0
OP 15	0	0
20th St	0	0
Balboa Ave	0	0
BNSF Mojave Subdivision	0	0
Decatur Ave	0	0
Heli South	0	0
Hwy 14 A	0	0
Hwy 14 B	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Hwy 58	0	0
Hwy 58 West	0	0
Oak Creek Rd	0	0
Pacific Crest Trail	0	0
Purdy St	0	0
Sierra Hwy	0	0
Trotter Ave	0	0
United St	0	0

Flight Path: MASP 12

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 22

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 26

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 30

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 4

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 1-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 2-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Route: 20th St

0 minutes of yellow glare
0 minutes of green glare

Route: Balboa Ave

0 minutes of yellow glare
0 minutes of green glare

Route: BNSF Mojave Subdivision

0 minutes of yellow glare
0 minutes of green glare

Route: Decatur Ave

0 minutes of yellow glare
0 minutes of green glare

Route: Heli South

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 A

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 B

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58 West

0 minutes of yellow glare
0 minutes of green glare

Route: Oak Creek Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Pacific Crest Trail

0 minutes of yellow glare
0 minutes of green glare

Route: Purdy St

0 minutes of yellow glare
0 minutes of green glare

Route: Sierra Hwy

0 minutes of yellow glare
0 minutes of green glare

Route: Trotter Ave

0 minutes of yellow glare
0 minutes of green glare

Route: United St

0 minutes of yellow glare

0 minutes of green glare

Results for: Array 05

Receptor	Green Glare (min)	Yellow Glare (min)
MASP 12	0	0
MASP 22	0	0
MASP 26	0	0
MASP 30	0	0
MASP 4	0	0
MASP 8	0	0
1-ATCT	0	0
2-ATCT	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0
OP 15	0	0
20th St	0	0
Balboa Ave	0	0
BNSF Mojave Subdivision	0	0
Decatur Ave	0	0
Heli South	0	0
Hwy 14 A	0	0
Hwy 14 B	0	0
Hwy 58	0	0
Hwy 58 West	0	0
Oak Creek Rd	0	0
Pacific Crest Trail	0	0
Purdy St	0	0
Sierra Hwy	0	0
Trotter Ave	0	0
United St	0	0

Flight Path: MASP 12

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 22

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 26

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 30

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 4

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 1-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 2-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Route: 20th St

0 minutes of yellow glare
0 minutes of green glare

Route: Balboa Ave

0 minutes of yellow glare
0 minutes of green glare

Route: BNSF Mojave Subdivision

0 minutes of yellow glare
0 minutes of green glare

Route: Decatur Ave

0 minutes of yellow glare
0 minutes of green glare

Route: Heli South

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 A

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 B

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58

0 minutes of yellow glare

0 minutes of green glare

Route: Hwy 58 West

0 minutes of yellow glare
0 minutes of green glare

Route: Oak Creek Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Pacific Crest Trail

0 minutes of yellow glare
0 minutes of green glare

Route: Purdy St

0 minutes of yellow glare
0 minutes of green glare

Route: Sierra Hwy

0 minutes of yellow glare
0 minutes of green glare

Route: Trotter Ave

0 minutes of yellow glare
0 minutes of green glare

Route: United St

0 minutes of yellow glare
0 minutes of green glare

Results for: Array 06

Receptor	Green Glare (min)	Yellow Glare (min)
MASP 12	0	0
MASP 22	0	0
MASP 26	0	0
MASP 30	0	0
MASP 4	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
MASP 8	0	0
1-ATCT	0	0
2-ATCT	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0
OP 15	0	0
20th St	0	0
Balboa Ave	0	0
BNSF Mojave Subdivision	0	0
Decatur Ave	0	0
Heli South	0	0
Hwy 14 A	0	0
Hwy 14 B	0	0
Hwy 58	0	0
Hwy 58 West	0	0
Oak Creek Rd	0	0
Pacific Crest Trail	0	0
Purdy St	0	0
Sierra Hwy	0	0
Trotter Ave	0	0
United St	0	0

Flight Path: MASP 12

0 minutes of yellow glare

0 minutes of green glare

Flight Path: MASP 22

0 minutes of yellow glare

0 minutes of green glare

Flight Path: MASP 26

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 30

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 4

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 1-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 2-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Route: 20th St

0 minutes of yellow glare
0 minutes of green glare

Route: Balboa Ave

0 minutes of yellow glare
0 minutes of green glare

Route: BNSF Mojave Subdivision

0 minutes of yellow glare
0 minutes of green glare

Route: Decatur Ave

0 minutes of yellow glare
0 minutes of green glare

Route: Heli South

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 A

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 B

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58 West

0 minutes of yellow glare
0 minutes of green glare

Route: Oak Creek Rd

0 minutes of yellow glare

0 minutes of green glare

Route: Pacific Crest Trail

0 minutes of yellow glare
0 minutes of green glare

Route: Purdy St

0 minutes of yellow glare
0 minutes of green glare

Route: Sierra Hwy

0 minutes of yellow glare
0 minutes of green glare

Route: Trotter Ave

0 minutes of yellow glare
0 minutes of green glare

Route: United St

0 minutes of yellow glare
0 minutes of green glare

Results for: Array 07

Receptor	Green Glare (min)	Yellow Glare (min)
MASP 12	0	0
MASP 22	0	0
MASP 26	0	0
MASP 30	0	0
MASP 4	0	0
MASP 8	0	0
1-ATCT	0	0
2-ATCT	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0
OP 15	0	0
20th St	0	0
Balboa Ave	0	0
BNSF Mojave Subdivision	0	0
Decatur Ave	0	0
Heli South	0	0
Hwy 14 A	0	0
Hwy 14 B	0	0
Hwy 58	0	0
Hwy 58 West	0	0
Oak Creek Rd	0	0
Pacific Crest Trail	0	0
Purdy St	0	0
Sierra Hwy	0	0
Trotter Ave	0	0
United St	0	0

Flight Path: MASP 12

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 22

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 26

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 30

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 4

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 1-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 2-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Route: 20th St

0 minutes of yellow glare
0 minutes of green glare

Route: Balboa Ave

0 minutes of yellow glare
0 minutes of green glare

Route: BNSF Mojave Subdivision

0 minutes of yellow glare
0 minutes of green glare

Route: Decatur Ave

0 minutes of yellow glare
0 minutes of green glare

Route: Heli South

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 A

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 B

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58 West

0 minutes of yellow glare
0 minutes of green glare

Route: Oak Creek Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Pacific Crest Trail

0 minutes of yellow glare
0 minutes of green glare

Route: Purdy St

0 minutes of yellow glare

0 minutes of green glare

Route: Sierra Hwy

0 minutes of yellow glare
0 minutes of green glare

Route: Trotter Ave

0 minutes of yellow glare
0 minutes of green glare

Route: United St

0 minutes of yellow glare
0 minutes of green glare

Results for: Array 08

Receptor	Green Glare (min)	Yellow Glare (min)
MASP 12	0	0
MASP 22	0	0
MASP 26	0	0
MASP 30	0	0
MASP 4	0	0
MASP 8	0	0
1-ATCT	0	0
2-ATCT	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0
OP 15	0	0
20th St	0	0
Balboa Ave	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
BNSF Mojave Subdivision	0	0
Decatur Ave	0	0
Heli South	0	0
Hwy 14 A	0	0
Hwy 14 B	0	0
Hwy 58	0	0
Hwy 58 West	0	0
Oak Creek Rd	0	0
Pacific Crest Trail	0	0
Purdy St	0	0
Sierra Hwy	0	0
Trotter Ave	0	0
United St	0	0

Flight Path: MASP 12

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 22

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 26

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 30

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 4

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 1-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 2-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Route: 20th St

0 minutes of yellow glare
0 minutes of green glare

Route: Balboa Ave

0 minutes of yellow glare
0 minutes of green glare

Route: BNSF Mojave Subdivision

0 minutes of yellow glare
0 minutes of green glare

Route: Decatur Ave

0 minutes of yellow glare
0 minutes of green glare

Route: Heli South

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 A

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 B

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58 West

0 minutes of yellow glare
0 minutes of green glare

Route: Oak Creek Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Pacific Crest Trail

0 minutes of yellow glare
0 minutes of green glare

Route: Purdy St

0 minutes of yellow glare
0 minutes of green glare

Route: Sierra Hwy

0 minutes of yellow glare
0 minutes of green glare

Route: Trotter Ave

0 minutes of yellow glare

0 minutes of green glare

Route: United St

0 minutes of yellow glare
0 minutes of green glare

Results for: Array 09

Receptor	Green Glare (min)	Yellow Glare (min)
MASP 12	0	0
MASP 22	0	0
MASP 26	0	0
MASP 30	0	0
MASP 4	0	0
MASP 8	0	0
1-ATCT	0	0
2-ATCT	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0
OP 15	0	0
20th St	0	0
Balboa Ave	0	0
BNSF Mojave Subdivision	0	0
Decatur Ave	0	0
Heli South	0	0
Hwy 14 A	0	0
Hwy 14 B	0	0
Hwy 58	0	0
Hwy 58 West	0	0
Oak Creek Rd	0	0
Pacific Crest Trail	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Purdy St	0	0
Sierra Hwy	0	0
Trotter Ave	0	0
United St	0	0

Flight Path: MASP 12

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 22

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 26

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 30

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 4

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 1-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 2-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Route: 20th St

0 minutes of yellow glare
0 minutes of green glare

Route: Balboa Ave

0 minutes of yellow glare
0 minutes of green glare

Route: BNSF Mojave Subdivision

0 minutes of yellow glare
0 minutes of green glare

Route: Decatur Ave

0 minutes of yellow glare
0 minutes of green glare

Route: Heli South

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 A

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 B

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58 West

0 minutes of yellow glare
0 minutes of green glare

Route: Oak Creek Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Pacific Crest Trail

0 minutes of yellow glare
0 minutes of green glare

Route: Purdy St

0 minutes of yellow glare
0 minutes of green glare

Route: Sierra Hwy

0 minutes of yellow glare
0 minutes of green glare

Route: Trotter Ave

0 minutes of yellow glare
0 minutes of green glare

Route: United St

0 minutes of yellow glare
0 minutes of green glare

Results for: Array 10

Receptor	Green Glare (min)	Yellow Glare (min)
MASP 12	0	0
MASP 22	0	0
MASP 26	0	0
MASP 30	0	0
MASP 4	0	0
MASP 8	0	0
1-ATCT	0	0
2-ATCT	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0
OP 15	0	0
20th St	0	0
Balboa Ave	0	0
BNSF Mojave Subdivision	0	0
Decatur Ave	0	0
Heli South	0	0
Hwy 14 A	0	0
Hwy 14 B	0	0
Hwy 58	0	0
Hwy 58 West	0	0
Oak Creek Rd	0	0
Pacific Crest Trail	0	0
Purdy St	0	0
Sierra Hwy	0	0
Trotter Ave	0	0
United St	0	0

Flight Path: MASP 12

0 minutes of yellow glare

0 minutes of green glare

Flight Path: MASP 22

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 26

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 30

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 4

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 1-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 2-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Route: 20th St

0 minutes of yellow glare
0 minutes of green glare

Route: Balboa Ave

0 minutes of yellow glare
0 minutes of green glare

Route: BNSF Mojave Subdivision

0 minutes of yellow glare
0 minutes of green glare

Route: Decatur Ave

0 minutes of yellow glare
0 minutes of green glare

Route: Heli South

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 A

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 B

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58 West

0 minutes of yellow glare
0 minutes of green glare

Route: Oak Creek Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Pacific Crest Trail

0 minutes of yellow glare
0 minutes of green glare

Route: Purdy St

0 minutes of yellow glare
0 minutes of green glare

Route: Sierra Hwy

0 minutes of yellow glare
0 minutes of green glare

Route: Trotter Ave

0 minutes of yellow glare
0 minutes of green glare

Route: United St

0 minutes of yellow glare
0 minutes of green glare

Results for: Array 11

Receptor	Green Glare (min)	Yellow Glare (min)
MASP 12	0	0
MASP 22	0	0
MASP 26	0	0
MASP 30	0	0
MASP 4	0	0
MASP 8	0	0
1-ATCT	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
2-ATCT	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0
OP 15	0	0
20th St	0	0
Balboa Ave	0	0
BNSF Mojave Subdivision	0	0
Decatur Ave	0	0
Heli South	0	0
Hwy 14 A	0	0
Hwy 14 B	0	0
Hwy 58	0	0
Hwy 58 West	0	0
Oak Creek Rd	0	0
Pacific Crest Trail	0	0
Purdy St	0	0
Sierra Hwy	0	0
Trotter Ave	0	0
United St	0	0

Flight Path: MASP 12

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 22

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 26

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 30

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 4

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 1-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 2-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Route: 20th St

0 minutes of yellow glare
0 minutes of green glare

Route: Balboa Ave

0 minutes of yellow glare
0 minutes of green glare

Route: BNSF Mojave Subdivision

0 minutes of yellow glare
0 minutes of green glare

Route: Decatur Ave

0 minutes of yellow glare
0 minutes of green glare

Route: Heli South

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 A

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 B

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58 West

0 minutes of yellow glare
0 minutes of green glare

Route: Oak Creek Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Pacific Crest Trail

0 minutes of yellow glare

0 minutes of green glare

Route: Purdy St

0 minutes of yellow glare
0 minutes of green glare

Route: Sierra Hwy

0 minutes of yellow glare
0 minutes of green glare

Route: Trotter Ave

0 minutes of yellow glare
0 minutes of green glare

Route: United St

0 minutes of yellow glare
0 minutes of green glare

Results for: Array 12

Receptor	Green Glare (min)	Yellow Glare (min)
MASP 12	0	0
MASP 22	0	0
MASP 26	0	0
MASP 30	0	0
MASP 4	0	0
MASP 8	0	0
1-ATCT	0	0
2-ATCT	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 13	0	0
OP 14	0	0
OP 15	0	0
20th St	0	0
Balboa Ave	0	0
BNSF Mojave Subdivision	0	0
Decatur Ave	0	0
Heli South	0	0
Hwy 14 A	0	0
Hwy 14 B	0	0
Hwy 58	0	0
Hwy 58 West	0	0
Oak Creek Rd	0	0
Pacific Crest Trail	0	0
Purdy St	0	0
Sierra Hwy	0	0
Trotter Ave	0	0
United St	0	0

Flight Path: MASP 12

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 22

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 26

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 30

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 4

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 1-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 2-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Route: 20th St

0 minutes of yellow glare
0 minutes of green glare

Route: Balboa Ave

0 minutes of yellow glare
0 minutes of green glare

Route: BNSF Mojave Subdivision

0 minutes of yellow glare
0 minutes of green glare

Route: Decatur Ave

0 minutes of yellow glare
0 minutes of green glare

Route: Heli South

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 A

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 B

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58 West

0 minutes of yellow glare
0 minutes of green glare

Route: Oak Creek Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Pacific Crest Trail

0 minutes of yellow glare
0 minutes of green glare

Route: Purdy St

0 minutes of yellow glare
0 minutes of green glare

Route: Sierra Hwy

0 minutes of yellow glare

0 minutes of green glare

Route: Trotter Ave

0 minutes of yellow glare
0 minutes of green glare

Route: United St

0 minutes of yellow glare
0 minutes of green glare

Results for: Array 13

Receptor	Green Glare (min)	Yellow Glare (min)
MASP 12	0	0
MASP 22	0	0
MASP 26	0	0
MASP 30	0	0
MASP 4	0	0
MASP 8	0	0
1-ATCT	0	0
2-ATCT	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0
OP 15	0	0
20th St	0	0
Balboa Ave	0	0
BNSF Mojave Subdivision	0	0
Decatur Ave	0	0
Heli South	0	0
Hwy 14 A	0	0
Hwy 14 B	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Hwy 58	0	0
Hwy 58 West	0	0
Oak Creek Rd	0	0
Pacific Crest Trail	0	0
Purdy St	0	0
Sierra Hwy	0	0
Trotter Ave	0	0
United St	0	0

Flight Path: MASP 12

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 22

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 26

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 30

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 4

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 1-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 2-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Route: 20th St

0 minutes of yellow glare
0 minutes of green glare

Route: Balboa Ave

0 minutes of yellow glare
0 minutes of green glare

Route: BNSF Mojave Subdivision

0 minutes of yellow glare
0 minutes of green glare

Route: Decatur Ave

0 minutes of yellow glare
0 minutes of green glare

Route: Heli South

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 A

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 B

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58 West

0 minutes of yellow glare
0 minutes of green glare

Route: Oak Creek Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Pacific Crest Trail

0 minutes of yellow glare
0 minutes of green glare

Route: Purdy St

0 minutes of yellow glare
0 minutes of green glare

Route: Sierra Hwy

0 minutes of yellow glare
0 minutes of green glare

Route: Trotter Ave

0 minutes of yellow glare
0 minutes of green glare

Route: United St

0 minutes of yellow glare

0 minutes of green glare

Results for: Array 14

Receptor	Green Glare (min)	Yellow Glare (min)
MASP 12	0	0
MASP 22	0	0
MASP 26	0	0
MASP 30	0	0
MASP 4	0	0
MASP 8	0	0
1-ATCT	0	0
2-ATCT	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0
OP 15	0	0
20th St	0	0
Balboa Ave	0	0
BNSF Mojave Subdivision	0	0
Decatur Ave	0	0
Heli South	0	0
Hwy 14 A	0	0
Hwy 14 B	0	0
Hwy 58	0	0
Hwy 58 West	0	0
Oak Creek Rd	0	0
Pacific Crest Trail	0	0
Purdy St	0	0
Sierra Hwy	0	0
Trotter Ave	0	0
United St	0	0

Flight Path: MASP 12

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 22

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 26

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 30

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 4

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 1-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 2-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Route: 20th St

0 minutes of yellow glare
0 minutes of green glare

Route: Balboa Ave

0 minutes of yellow glare
0 minutes of green glare

Route: BNSF Mojave Subdivision

0 minutes of yellow glare
0 minutes of green glare

Route: Decatur Ave

0 minutes of yellow glare
0 minutes of green glare

Route: Heli South

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 A

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 B

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58

0 minutes of yellow glare

0 minutes of green glare

Route: Hwy 58 West

0 minutes of yellow glare
0 minutes of green glare

Route: Oak Creek Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Pacific Crest Trail

0 minutes of yellow glare
0 minutes of green glare

Route: Purdy St

0 minutes of yellow glare
0 minutes of green glare

Route: Sierra Hwy

0 minutes of yellow glare
0 minutes of green glare

Route: Trotter Ave

0 minutes of yellow glare
0 minutes of green glare

Route: United St

0 minutes of yellow glare
0 minutes of green glare

Results for: Array 15

Receptor	Green Glare (min)	Yellow Glare (min)
MASP 12	0	0
MASP 22	0	0
MASP 26	0	0
MASP 30	0	0
MASP 4	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
MASP 8	0	0
1-ATCT	0	0
2-ATCT	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0
OP 15	0	0
20th St	0	0
Balboa Ave	0	0
BNSF Mojave Subdivision	0	0
Decatur Ave	0	0
Heli South	0	0
Hwy 14 A	0	0
Hwy 14 B	0	0
Hwy 58	0	0
Hwy 58 West	0	0
Oak Creek Rd	0	0
Pacific Crest Trail	0	0
Purdy St	0	0
Sierra Hwy	0	0
Trotter Ave	0	0
United St	0	0

Flight Path: MASP 12

0 minutes of yellow glare

0 minutes of green glare

Flight Path: MASP 22

0 minutes of yellow glare

0 minutes of green glare

Flight Path: MASP 26

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 30

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 4

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 1-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 2-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Route: 20th St

0 minutes of yellow glare
0 minutes of green glare

Route: Balboa Ave

0 minutes of yellow glare
0 minutes of green glare

Route: BNSF Mojave Subdivision

0 minutes of yellow glare
0 minutes of green glare

Route: Decatur Ave

0 minutes of yellow glare
0 minutes of green glare

Route: Heli South

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 A

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 B

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58 West

0 minutes of yellow glare
0 minutes of green glare

Route: Oak Creek Rd

0 minutes of yellow glare

0 minutes of green glare

Route: Pacific Crest Trail

0 minutes of yellow glare
0 minutes of green glare

Route: Purdy St

0 minutes of yellow glare
0 minutes of green glare

Route: Sierra Hwy

0 minutes of yellow glare
0 minutes of green glare

Route: Trotter Ave

0 minutes of yellow glare
0 minutes of green glare

Route: United St

0 minutes of yellow glare
0 minutes of green glare

Results for: Array 16

Receptor	Green Glare (min)	Yellow Glare (min)
MASP 12	0	0
MASP 22	0	0
MASP 26	0	0
MASP 30	0	0
MASP 4	0	0
MASP 8	0	0
1-ATCT	0	0
2-ATCT	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0
OP 15	0	0
20th St	0	0
Balboa Ave	0	0
BNSF Mojave Subdivision	0	0
Decatur Ave	0	0
Heli South	0	0
Hwy 14 A	0	0
Hwy 14 B	0	0
Hwy 58	0	0
Hwy 58 West	0	0
Oak Creek Rd	0	0
Pacific Crest Trail	0	0
Purdy St	0	0
Sierra Hwy	0	0
Trotter Ave	0	0
United St	0	0

Flight Path: MASP 12

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 22

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 26

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 30

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 4

0 minutes of yellow glare
0 minutes of green glare

Flight Path: MASP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 1-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 2-ATCT

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Route: 20th St

0 minutes of yellow glare
0 minutes of green glare

Route: Balboa Ave

0 minutes of yellow glare
0 minutes of green glare

Route: BNSF Mojave Subdivision

0 minutes of yellow glare
0 minutes of green glare

Route: Decatur Ave

0 minutes of yellow glare
0 minutes of green glare

Route: Heli South

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 A

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 14 B

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 58 West

0 minutes of yellow glare
0 minutes of green glare

Route: Oak Creek Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Pacific Crest Trail

0 minutes of yellow glare
0 minutes of green glare

Route: Purdy St

0 minutes of yellow glare

0 minutes of green glare

Route: Sierra Hwy

0 minutes of yellow glare
0 minutes of green glare

Route: Trotter Ave

0 minutes of yellow glare
0 minutes of green glare

Route: United St

0 minutes of yellow glare
0 minutes of green glare

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
Several calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual results and glare occurrence may differ.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.

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Appendix C

Air Quality, Greenhouse Gas Emissions, and Health Risk Assessment for the Sanborn Solar Facility Project

ESA

Appendix C1

Air Quality and Greenhouse Gas Emissions Report

ESA

Air Quality and Greenhouse Gas Emissions Analysis Technical Report for the Sanborn Solar Project, Kern County, California

Prepared for:

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Contact: Simon Day

Prepared by:

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AUGUST 2019

Printed on 30% post-consumer recycled material.

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
°C	degrees Celsius
°F	degrees Fahrenheit
µg/m^3	micrograms per cubic meter
AB	Assembly Bill
AC	alternating current
AQMP	Air Quality Management Plan
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CALGreen	California's Green Building Standards
CalRecycle	California Department of Resources Recycling and Recovery
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH_4	methane
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO_2	carbon dioxide
County	County of Kern
CPUC	California Public Utilities Commission
CY	cubic yard
DPM	diesel particulate matter
EKAPCD	Eastern Kern Air Pollution Control District
EO	Executive Order
EPA	U.S. Environmental Protection Agency
GHG	greenhouse gas
GWP	global warming potential
H_2S	hydrogen sulfide
HAPs	hazardous air pollutants
HFC	hydrofluorocarbon
IPCC	Intergovernmental Panel on Climate Change
Kern COG	Kern County Council of Governments
KV	kilovolt
LCFS	Low Carbon Fuel Standard
LEED	Leadership in Energy and Environmental Design
LOS	level of service
LST	localized significance thresholds
MW	megawatt
MWh	megawatt-hour
MDAB	Mojave Desert Air Basin
MMT	million metric ton

Acronym/Abbreviation	Definition
MT CO_2e	metric tons of CO_2 equivalent
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen
O_3	ozone
PFC	perfluorocarbon
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to 10 microns
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to 2.5 microns
ppb	parts per billion
ppm	parts per million
PV	photovoltaic
RCP	Regional Comprehensive Plan
RPS	Renewable Portfolio Standard
RTP	Regional Transportation Plan
SB	Senate Bill
SCS	Sustainable Communities Strategy
SF_6	sulfur hexafluoride
SO_2	sulfur dioxide
SO_4	sulfates
SO_x	sulfur oxides
TAC	toxic air contaminants
VOC	volatile organic compound

EXECUTIVE SUMMARY

The purpose of this technical report is to assess the potential air quality and greenhouse gas (GHG) emissions impacts associated with implementation of the proposed Sanborn Solar Project (project). This assessment utilizes the significance thresholds in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.).

Project Overview

Sanborn Solar, LLC ("Applicant") proposes to construct and operate a 300-megawatt (MW) solar photovoltaic (PV) project in Kern County, near Mojave. The project would also include an energy storage facility, substations, and operations and maintenance building, electrical collector system and inverters, gen-tie power line and interconnection, and telecommunication facilities. The combined solar PV and energy storage components would enable the project to produce up to a combined 300 MW annually. Power generated by the proposed project would be transferred by a 230 kV gen-tie line to the shared switchyard, and ultimately to the existing SCE Windhub Substation and/or the privately owned Westwind Substation. The solar facilities would utilize PV technology and consist of solar arrays mounted on either fixed or tracking structures mounted to vertical posts. The solar facilities would operate year-round and would generate electricity during the daylight hours when electricity is at its peak.

Air Quality

The air quality impact analysis evaluated the potential for adverse impacts to air quality due to construction and operation of the project. Impacts were evaluated for their significance based on the Eastern Kern Air Pollution Control District (EKAPCD) mass daily criteria air pollutant thresholds of significance (EKAPCD 1999). Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. Criteria air pollutants include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}), particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), and lead. Pollutants that are evaluated include volatile organic compounds (VOCs) (also referred to as reactive organic gases), oxides of nitrogen (NO_x), CO, sulfur oxides (SO_x), PM_{10}, and $PM_{2.5}$. ROGs and NO_x are important because they are precursors to O_3.

Air Quality Plan Consistency

Implementation of the project would not exceed the demographic growth forecasts in the Kern County Council of Governments (Kern COG) 2014 Regional Transportation Plan and Sustainable

Communities Plan (RTP/SCS) and would also be consistent with the EKAPCD Attainment Plan for Ozone (O_3). However, the project would exceed EKAPCD thresholds for PM_{10} during construction after the implementation of mitigation measure. Since the Mojave District Air Basin (MDAB) is in non-attainment for PM_{10} the project could conflict with or delay the attainment of the standard. Based on these considerations, impacts related to the project's potential to conflict with or obstruct implementation of the applicable air quality plan would be significant and unavoidable.

Construction Criteria Air Pollutant Emissions

Construction of the project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and VOC off-gassing) and off-site sources (i.e., on-road haul trucks, vendor trucks, and worker vehicle trips). Maximum daily construction emissions would not exceed the EKAPCD significance thresholds for ROG, NO_x, CO, SO_x, or $PM_{2.5}$ during construction in all construction years (2020–2021). However, the project would exceed EKAPCD thresholds for PM_{10} during the 2020 construction year after mitigation. Therefore, impacts would be significant and unavoidable.

Operational Criteria Air Pollutant Emissions

Operation of the project would generate operational criteria air pollutants from mobile sources (vehicles), area sources (architectural coatings), and energy. Maximum operational emissions would not exceed the EKAPCD operational significance thresholds for ROG, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$.

Exposure of Sensitive Receptors

As determined in the ambient air quality analysis (AAQA), construction activities could result in or contribute to exceedances of the California Ambient Air Quality Standard (CAAQS) or National Ambient Air Quality Standard (NAAQS) for PM_{10} and $PM_{2.5}$, even after implementation of mitigation. This impact would be significant and unavoidable. As determined in the health risk assessment (HRA), project construction would emit diesel particulate matter (DPM) that would result in a cancer risk and chronic hazard index at the maximally exposed receptor below the applicable EKAPCD thresholds. No residual toxic air contaminants (TAC) emissions and corresponding cancer risk are anticipated after construction, and no long-term sources of TAC emissions are anticipated during operation of the project. Therefore, the exposure of project-related TAC emission impacts to sensitive receptors would be less than significant. The project would not negatively affect the level of service (LOS) of intersections on the project site and would not

significantly contribute to a CO hotspot. As such, potential project-generated impacts associated with CO hotspots would be less than significant.

Odors

Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment, architectural coatings, and asphalt pavement application, which would disperse rapidly from the project site and generally occur at magnitudes that would not affect substantial numbers of people. Impacts associated with odors during construction would be less than significant. The project is a solar development that would not include land uses with sources that have the potential to generate substantial odors and impacts associated with odors during operation would be less than significant.

Cumulative Impacts

The potential for the project to result in a cumulatively considerable impact, per the EKAPCD guidance and thresholds, is based on the project's impact with all other solar photovoltaic projects in the MDAB. As discussed previously, maximum construction and operational emissions with mitigation would not exceed the EKAPCD significance thresholds for ROG, NO_x, CO, SO_x, or $PM_{2.5}$. The project would exceed the EKAPCD threshold for PM_{10}, However, based on the cumulative impact methodology for Kern County the project would not produce a significant contribution to the air basin for any criteria air pollutant. Therefore, the project would not result in a cumulatively considerable increase in criteria air pollutants.

Greenhouse Gas Emissions

Global climate change is primarily considered a cumulative impact but must also be evaluated on a project-level under CEQA. A project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHG emissions. GHGs are gases that absorb infrared radiation in the atmosphere. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature. Global climate change concerns are focused on whether human activities are leading to an enhancement of the greenhouse effect. Principal GHGs regulated under state and federal law and regulations include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). GHG emissions are measured in metric tons of CO_2 equivalent (MT CO_2e), which account for weighted global warming potential (GWP) factors for CH_4 and N_2O.

Project-Generated Construction and Operational Greenhouse Gas Emissions

The threshold applied to assess the potential for the project to generate GHG emissions either directly or indirectly that may have a significant impact on the environment was the EKAPCD 2012 Addendum to CEQA Guidelines Addressing GHG Emission Impacts for Stationary Source Projects when Serving as Lead CEQA Agency threshold of 25,000 tons of CO_2E (22,680 MT of CO_2E) per year. Since the EKAPCD does not have guidance for determining the project lifetime's construction emissions, the project lifetime for this analysis is based on the standard 30 year assumption of the South Coast Air Quality Management District (SCAQMD), which is considered a conservative estimate for the proposed facility.

Construction of the project would result in GHG emissions primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. Total project-generated GHG emissions during construction were estimated to be 10,109 MT CO_2e over the construction period. Estimated project-generated construction emissions amortized over 30 years would be approximately 337 MT CO_2e per year.

The project would generate operational GHG emissions from vehicular sources from routine maintenance of the site. Estimated annual project-generated operational GHG emissions would be approximately 243 MT CO_2e per year. Estimated annual project-generated operational emissions in 2022 and amortized project construction emissions would be approximately 580 MT CO_2e per year, well below the 22,680 MT CO_2e threshold established by the EKAPCD. Therefore, the project's GHG contribution would not be cumulatively considerable and is less than significant.

GHG Emissions Benefits

Renewable energy production potentially offsets GHG emissions generated by fossil-fuel power plants. The project would provide a potential reduction of 327,253 MT CO_2e per year if the electricity generated by the Project were to be used instead of electricity generated by fossil-fuel sources. After accounting for the annualized construction and annual operational emissions of 580 MT CO_2e per year, and the annualized reduction in GHG from the production of solar energy of 327,253 MT CO_2e, the net reduction in GHG emissions would be 326,673 MT CO_2e per year. It should be noted that due to the project featuring a battery storage facility, it is more likely to utilize all the generated electricity from the solar farm compared to projects without energy storage.

Consistency with Applicable Greenhouse Gas Reduction Plans

The project's consistency was evaluated against the KCOG SCS/RTP, CARB's Scoping Plan, and SB 32 and S-3-05. The project was found to be consistent with the underlying assumptions in the KCOG SCS/RTP. Similarly, the project was consistent with the goals and applicable measures in

the Scoping Plan. The project would also contribute to and be consistent with SB 32 and S-3-05. This impact would be less than significant.

1 INTRODUCTION

1.1 Report Purpose and Scope

The purpose of this technical report is to assess the potential air quality and greenhouse gas (GHG) emissions impacts associated with implementation of the proposed Sanborn Solar Project (project). This assessment uses the significance thresholds in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.), and is based on the emissions-based significance thresholds recommended by the Eastern Kern Air Pollution Control District (EKAPCD) and the County of Kern (County).

This introductory section provides a description of the project and the project location. Section 2, Air Quality, describes the air quality–related environmental setting, regulatory setting, existing air quality conditions, and thresholds of significance and analysis methodology and presents an air quality impact analysis per Appendix G of the CEQA Guidelines. Section 3, Greenhouse Gas Emissions, follows the same format as Section 2 and similarly describes the GHG emissions–related environmental setting, regulatory setting, existing climate changes conditions, and thresholds of significance and analysis methodology and presents a GHG emissions impact analysis per Appendix G of the CEQA Guidelines. Section 4, References Cited, includes a list of the references cited. Section 5, List of Preparers, includes a list of those who prepared this technical report.

1.2 Regional and Local Setting

1.2.1 Regional Location

The project is located at the western edge of the Antelope Valley, directly south of the community of Mojave. The solar generation sites and 1.3 miles of the gen-tie are located east of State Route (SR) 14 (Antelope Valley Freeway) and the remainder of the gen-tie is located west of SR 14. The northern site is less than 1 mile southwest of State Route (SR) 58 (West Avenue D) and south of the Mojave Air and Space Port. The Burlington Northern Santa Fe (BNSF) Railway forms the western edge of the northern site and the gen-tie line crosses the BNSF Railway in two locations. The western extent of the gen-tie line is approximately 38 miles east of Interstate-5 (I-5). The gen-tie line crosses the Los Angeles Aqueduct approximately 1.5 miles east of the Windhub Substation. The southern site is directly north of Edwards Air Force Base. The northern site lies in the Sanborn and Mojave U.S. Geological Survey (USGS) 7.5-minute quadrangles, Sections 22, 23, 26, 27, 34, and 35, Township 11 North, Range 12 West, San Bernardino Base and Meridian. The southern site lies in the Bissell USGS 7.5-minute quadrangles, Sections 1, 6, 7 and 12, Township 10 North, Ranges 12 West and 11 West, San Bernardino Base and Meridian (see Figure 2, Vicinity Map).

The project is located within the Mojave Desert Air Basin (MDAB) and is within the jurisdictional boundaries of the EKAPCD. The MDAB and the EKAPCD are discussed further in Section 2.1, Environmental Setting, and Section 2.2, Regulatory Setting, respectively.

1.2.2 Project Setting

The project is located in the southern portion of Kern County, in central California as shown in Figure 2, Vicinity Map. The project site is located southeast of the Tehachapi Mountains and at the western edge of the Antelope Valley, in the southeastern portion of Kern County, approximately 10 miles north of Los Angeles County, and directly south of the community of Mojave.

The project is located directly south of the community of Mojave, approximately 9 miles southeast of the City of Tehachapi, approximately 6 miles southwest of California City, and approximately 40 miles southeast of the City of Bakersfield. Other communities within the vicinity include Rosamond in Kern County and the Cities of Lancaster and Palmdale in Los Angeles County, which are roughly 7 miles south, 18 miles south, and 25 miles south of the project site, respectively. Edwards Air Force Base is located directly south of the project site.

Land usages in the project area consist of a mix of agricultural grazing, undeveloped land, scattered single-family residences, and several approved or proposed large-scale solar facilities (RE Gaskell West Solar, RE Garland Solar, RE Astoria Solar, Antelope Valley Solar, Rosamond Solar, and Kingbird Solar). Topography across the project site is relatively flat as the site is south of the Tehachapi Mountains on lands that gradually slope downward from the northwest to the southeast. Desert vegetation dominates the region. The major north-south roadways in the region is SR 14, a four-lane highway that bi-sects the gen-tie line. SR 58 is north and northeast of the project site and is less than 1 mile from the northern site. The project site is located approximately 38 miles east of I-5 and 17 miles north of SR 138. The project area is primarily accessible by exiting SR 14. The project site would be accessed from gates off of use Silver Queen Road, Reed Avenue, Lone Butte Road, and 10th Street.

1.2.3 Surrounding Land Uses and Project Site Conditions

The project site is located in an area of low population density and scattered vacant land and is traversed by a network of dirt roads. However, the site is directly south of the community of Mojave, which has a population of 4,238. The project site consists largely of undeveloped lands, comprised of privately owned parcels. The project site is located on the northwestern end of the Antelope Valley. Existing development in the project vicinity includes rural access roads, scattered rural residences, producing and non-producing water wells, off-highway vehicle use, cattle

ranching and maintenance facilities, mining, wind and solar energy, and planned/existing met towers. The community of Mojave is directly north of the site, which includes the Mojave Air and Space Port. The BNSF Railway forms the western edge of the northern site and the gen-tie line crosses the BNSF Railway in two locations. The southern site is directly north of Edwards Air Force Base.

Forest, parkland, and preserve areas in the vicinity of the project site include: the Tomo-Kahni State Historic Park approximately 7 miles northwest; the Angeles National Forest located approximately 25 miles southwest; the Desert Pines Wildlife Sanctuary and the Arthur B. Ripley Desert Woodland State Park located approximately 22 miles to the southwest; the Antelope Valley California Poppy Reserve located approximately 20 miles to the southwest; the Saddleback Butte State Park and the Antelope Valley Indian Museum approximately 24 miles southeast. The Pacific Crest National Scenic Trail (commonly known as the Pacific Crest Trail or PCT) passes approximately 4 miles northwest of the gen-tie line. The gen-tine line crosses the Los Angeles Aqueduct approximately 1.5 miles east of the Windhub Substation. The project site is not located within the boundaries of an adopted Habitat Conservation Plan.

1.3 Proposed Project Description

1.3.1 Project Characteristics

The proposed project would include the development of solar facilities and associated infrastructure with the capacity to generate up to 300 MW of renewable electric energy and/or energy storage capacity. Power generated by the proposed project would be transferred to the Windhub Substation and/or Westwind Substation within the gen-tie study area shown on Figure 1. The solar facilities would utilize PV technology and consist of solar arrays mounted on either fixed or tracking structures mounted to vertical posts. The solar facilities would operate year-round and would generate electricity during the daylight hours when electricity is at its peak. The site plan for the proposed project is shown in Figure 3, Project Site Plan.

The solar and/or energy storage facilities are intended to operate year-round, and would be designed to produce up to a combined 300 MW of solar power and/or energy storage capacity at the Point of Interconnection to the transmission grid.

Solar PV Generating Facilities and Solar Modules

The proposed project would utilize system blocks to convert solar energy directly to electrical power for export to the electrical grid. The proposed project would install PV modules that would be mounted on steel support posts that are placed pile driven into the ground and connected to inverters. The modules would be made of a thin film material or polycrystalline silicon material

covering the glass panes, which would be dark in color, are highly absorptive, and have minimum reflectivity. The modules would be manufactured at an offsite location and transported to the project site.

Energy Storage Facility

The proposed project would install an energy storage facility and appurtenances that would provide energy storage capacity for the electric grid. The energy storage technology has not been determined at this time, but could include any commercially available battery technology, including but not limited to lithium iron, lead acid, sodium sulfur, and sodium or nickel hydride.

Substations

The proposed project would include construction of a substation to collect the power generated by the PV solar system blocks, transport the power via the underground/overhead power collection system, and then convert the energy generated by the solar facilities for transmission in a 230 kV line to the SCE Windhub Substation and/or the privately owned Westwind Substation.

Equipment at each of the substations would include a power transformer; foundations and oil containment system for the power transformer; concrete pad for the relay enclosure structure; a pre-fabricated relay enclosure to enclose the protection and control equipment; metering equipment; dead end structure; and high voltage step-up transformer, disconnect switches, circuit breakers and all associated equipment required to be compliant with utility grade interconnection services. The substation facilities would house the power generation control and relaying equipment, station batteries, SCADA and communication systems, and potentially housing with radio or microwave communication mounted on a transmission tower.

Operations and Maintenance Building

The O&M building would be up to approximately 8,000 square feet and is expected to be co-located with the proposed collector substation. It is anticipated that a maximum of six permanent staff employees would use the O&M building for ongoing facility monitoring, equipment storage, and repairs. The O&M building is expected to be a prefabricated commercial structure that measures up to 100 feet by 80 feet in area and 12 feet high. Permanent restroom facilities with septic tanks and/or portable toilets would be used for sanitary purposes at the O&M building, and a permanent water source in the form of trucked water, well water, or bottled water would be provided for the staff. The proposed building would include the requisite number of parking spaces for staff members' vehicles and O&M equipment.

Electrical Collection System and Inverters

The solar panels would be electrically connected to each other via aboveground wiring, and combiner boxes via underground wiring. Underground electrical cables (underground collection system) would be installed from groups of PV arrays that would be arranged into power blocks. The cables would convey direct current (DC) electricity to inverters, which convert the DC to alternating current (AC). All electrical inverters and the transformers would be installed on pre-fabricated metal skids that sit on steel pier foundations or concrete foundation, depending on the design. The inverter pad transformers would step up the voltage of the array output, which would be collected at the onsite circuit breakers or switchgear positions). From the circuit breakers or switchgear positions, the medium voltage collector lines would be routed to the onsite solar substations and transformed via high-voltage transformers to 230 kV and exported to the SCE Windhub Substation or the privately owned Westwind Substation.

1.3.2 Construction

Schedule and Workforce

The construction of the proposed project would last up to 30 months. However, for emissions modeling purposes it was conservatively assumed to require 18 months. Construction activities for the proposed project generally fall into three main categories: (1) site preparation; (2) system installation; and (3) testing, commissioning, cleanup.

The onsite construction workforce is expected to peak at up to 300 individuals; however, the average daily workforce is expected to be 150 construction, supervisory, support, and construction management personnel onsite during construction. It is anticipated that the construction workforce would commute to the site each day from local communities and report to the designated construction staging yards prior to the beginning of each workday. Construction staff not drawn from the local labor pool would stay in local hotels in Rosamond, Mojave, Lancaster, or other local communities. One or more of the proposed laydown yards may be used as a parking and meeting area for the construction employees and would be reclaimed after substantial completion of the project is reached. It is anticipated that the employees would utilize Silver Queen Road, Reed Avenue, Lone Butte Road, and 10th Street as points of ingress/egress to the property and that, once on site, they would access various sections via the existing and improved network of dirt roads.

The proposed project would be constructed by several, specialized construction contractors. Construction would primarily occur during daylight hours, Monday through Friday, between 7:00 a.m. and 6:00 p.m., as required to meet the construction schedule. Any construction work

performed outside of the normal work schedule would be coordinated with the appropriate agencies and would conform to the Kern County Noise Ordinance (Chapter 8.36).

Construction of the proposed project would also include the creation of access roads to the proposed panel locations, and construction of solar panels. In addition, the proposed project would require the installation of underground/overhead electricity lines, electrical transformers, laydown yards, as well as construction and installation of overhead electricity lines from the project site to the electrical interconnection point. Restoration of disturbed areas, temporary roadways, and equipment laydown sites that are not required as part of the ongoing operating of the facility would be reclaimed. Staging areas may be required for material handling, temporary storage, and other staging activities. In addition, a temporary concrete batch plant would be located within the project site during the construction phase, if required.

Site Grading and Earthwork

Construction activities would be expected to include mowing, excavation and grading of the project site. Site preparation and construction would occur in accordance with all federal, state, and Kern County zoning codes and requirements. Noise generating construction activities would be limited to the construction hours noted above. All stationary equipment and machines with the potential to generate a significant increase in noise or vibration levels would be located away from noise receptors to the extent feasible. The contractor would conduct construction activities in such a manner that the maximum noise levels at the affected buildings would not exceed established noise levels.

All applicable local, state, and federal requirements and best management practices (BMPs) would be incorporated into the construction activities for the project site. Beginning work on the project site would involve preparing the land for installation of arrays, energy storage facility, related infrastructure, access driveways, and temporary construction staging areas. The construction contractor would be required to incorporate BMPs consistent with the Kern County zoning ordinance and with guidelines provided in the California Storm Water Best Management Practice Handbooks: Construction, including the preparation of a Storm Water Pollution Prevention Plan (SWPPP) and a Soil Erosion and Sedimentation Control Plan in order to reduce potential impacts related to construction of the proposed project. Prior to initial construction mobilization, preconstruction surveys would be performed and sediment and erosion controls would be installed in accordance with the approved SWPPP. Stabilized construction entrance and exits would be installed at driveways to reduce tracking of sediment onto adjacent public roadways.

Site preparation would be consistent with Kern County's BMPs and Eastern Kern Air Pollution Control District rules for dust control. Site preparation would involve the removal and proper

disposal of existing vegetation and debris that would unduly interfere with project construction or the health and safety of onsite personnel. Dust minimizing techniques would be employed, such as maintaining natural vegetation where possible, utilizing "mow-and-roll" vegetation clearance strategy, placement of wind control fencing, application of water, and application of dust suppressants. Conventional grading would be performed throughout the project site but minimized to the maximum extent possible to reduce unnecessary soil movement that may result in dust. Earthworks scrapers, excavators, dozers, water trucks, paddlewheels, haul vehicles, and graders may all be used to perform grading. Land-leveling equipment, such as a smooth steel drum roller, would be used to even the surface of the ground and to compact the upper layer of soil to a value recommended by a geotechnical engineer for structural support. Access roads may be additionally compacted to 90% or greater, as required, to support construction and emergency vehicles. Certain access roads may also require the use of aggregate of decomposed granite to meet emergency access requirements. Soil movement from grading would be balanced on the site, and no import or export of soils would occur.

When possible, grading activities would be undertaken outside the normal rainy season (i.e., October 15 to April 15 for most of Southern California), thus minimizing the potential for increased surface runoff and the associated potential for soil erosion. It is anticipated that the recommended construction period would begin in early January in order to minimize effects on sensitive species and habitats, and completed 22 months later. Any construction activities that should take place in the rainy season would require supplemental erosion measures to be implemented.

Trenching would be required for placement of underground electrical and communications lines, and may include the use of trenchers, backhoes, excavators, haul vehicles, compaction equipment, and water trucks. After preparation of the site, the pads for structures, equipment enclosures and equipment vaults would be prepared per geotechnical engineer recommendations. The substations and switchyard areas would have a grounding grid installed and be covered with aggregate surfacing for safe operation. Collection and transmission structures from the substation and switchyard to the existing transmission line would require drilling for foundation support, and the soils removed would be spread across the project site.

Construction equipment would be turned off when not in use. The construction contractor would ensure that all construction and grading equipment is properly maintained. All vehicles and compressors would utilize exhaust mufflers and engine enclosure covers (as designed by the manufacturer) at all times.

Solar Array Assembly

Erection of the solar arrays would include support structures and associated electrical equipment and cabling. First, steel piles would be driven into the soil using pneumatic techniques, similar to a hydraulic rock hammer attachment on the boom of a rubber-tired backhoe excavator. The piles, or "standards," are typically spaced 10 feet apart and installed to a revealed height of approximately 4 feet above grade. Once the standards have been installed, the horizontal cross-members of the single-axle tracking system and associated motors would be placed and secured. A galvanized metal racking system, which holds the PV modules in the correct position for maximum capture of solar insulation would then be field assembled and attached to the horizontal cross members. The arrays would consist of either a fixed mount system or a single-axis tracking system.

Concrete would be required for the footings and pads for the substation transformers and equipment. Concrete may also be required for pile foundation support depending on the proposed mounting system chosen for installation. Final concrete specifications would be determined during detailed design engineering. Concrete will be purchased from an offsite supplier and trucked into the project site.

During this work, there would be multiple crews working on the site with various equipment and vehicles, including special vehicles for transporting the modules and other equipment. As the solar arrays are installed, the substations and shared solar switchyard would be constructed and the electrical collection and communication systems would be installed. Within the solar fields, the electrical and communication wiring would be installed in underground trenches, although some of the mid-voltage collection runs and communications may be on overhead lines. The wiring would connect to the appropriate electrical and communication terminations and the circuits would be checked and commissioned prior to operation.

Construction Water Use

During construction of the proposed project, water would be required for common construction-related purposes, including but not limited to: dust suppression, soil compaction, truck wheel washing, and grading. Dust control water may be used for construction traffic ingress and egress of onsite construction vehicle equipment traffic, and for the construction of the solar equipment. A sanitary water supply would not be required during construction, as restroom facilities would be provided by portable units to be serviced by licensed providers. The overall construction water usage is anticipated to be approximately 200 acre-feet (AF) during the 18-month construction period. During construction the water used is anticipated to be supplied by an offsite source or onsite water wells to be purchased from a local water purveyor. Water demand during construction

is expected to be the same if the project is constructed during a year with normal precipitation, a year with less-than-average precipitation, or a multi-year period of less than-average precipitation.

1.3.3 Operation

Typical O&M activities that would occur on the project site during operation include, but are not limited to: liaison and remote monitoring; administration and reporting; semi-annual and annual services; remote operations of inverters; site security and management; additional communication protocol; repair and maintenance of solar facilities, substations, electrical transmission lines, and other project facilities; and periodic panel washing.

Electrical Supply

Power for the O&M buildings and the project's associated structures would be provided by the project's electrical generation or supplied by the local power provider. The project would require power for the electrical enclosures, substation equipment, tracker motors, associated structures, and for plant lighting and security. The switchgear building battery room would supply DC power for the substation protection equipment.

Operations Water Use

During operation and maintenance of the Project, it is anticipated that water would be required for panel washing, equipment washing, non-sanitary uses, and other miscellaneous water uses, such as landscaping. It is anticipated that a total of approximately 30 acre feet per year (AFY) would be used for O&M activities on the project site. Water needed for ongoing operations and sanitary uses would be brought in by truck or procured from an onsite well. Bottled water for staff consumption would be provided. As noted above, water trucked in would be used to supply water for the O&M buildings and for ongoing maintenance activities during operations.

Solid Waste

The project would produce a small amount of waste associated with maintenance activities, which could include broken and rusted metal, defective or malfunctioning modules, electrical materials, empty containers, and other miscellaneous solid wastes, including the typical refuse generated by workers. Most of these materials would be collected and delivered back to the manufacturer or to recyclers. Non- recyclable waste would be placed in covered dumpsters and removed on a regular basis by a certified waste-handling contractor for disposal at a Class III landfill.

Security and Lighting

The proposed project would be fenced to help prevent access by the public. Gates would be installed at the roads entering the project site. Limiting access to the project site would be necessary both to ensure the safety of the public and to protect the equipment from potential theft and vandalism.

There is minimal potential for wildfire in the vicinity. Vegetation is sparse with little potential for vegetative fuel buildup. Nevertheless, the project proponent would prepare a fire safety plan for the project in compliance with applicable Kern County regulations.

The project's lighting system would provide operation and maintenance personnel with illumination for both normal and emergency conditions. Lighting would be designed to provide the minimum illumination needed to achieve safety and security objectives. Additionally, lighting would be directed downward and shielded to focus illumination on the desired areas only and to minimize light trespass in accordance with applicable Kern County requirements.

Assumptions used to estimate project-generated operational emissions are discussed in Section 2.4.2, Approach and Methodology.

Decommissioning

At the end of the proposed project's operational term, the project proponent may determine that the project site should be decommissioned and deconstructed, or it may seek an extension of its Conditional Use Permit (CUP). Because the PV arrays supporting equipment sit on the surface of the land, when the arrays are removed after the proposed project's lifetime, the land would be largely unaltered from its natural state. The project proponent will work with the County to put an agreement in place that will ensure the decommissioning of the project site after its productive lifetime. The proposed project would utilize BMPs to ensure the collection and recycling of modules and to avoid the potential for modules to be disposed of as municipal waste.

The project has an anticipated operational life of up to 35 years, after which the project proponent may choose to update site technology and re-commission, or decommission and remove the systems and their components. All decommissioning and restoration activities would adhere to the requirements of the appropriate governing authorities and in accordance with all applicable federal, State, and county regulations. Following the expiration of a Power Purchase Agreement for the proposed project, the project proponent may, at its discretion, choose to enter into subsequent Power Purchase Agreements or decommission and remove the system and its components. The project site could then be converted to other uses in accordance with the applicable land use regulations in effect at that time.

It is anticipated that during project decommissioning project structures would be removed from the ground on the project site. Above-ground equipment that would be removed would include module posts and support structures, onsite transmission poles that are not shared with third parties and the overhead collection system within the project site, inverters, transformers, electrical wiring, equipment on the inverter pads. The substation would be removed if it is owned by the project, however if a public or private utility assumes ownership of the substation, the substation may remain onsite to be used as part of the utility service to supply other applications.

Equipment would be de-energized prior to removal, salvaged (where possible), placed in appropriate shipping containers, and secured in a truck transport trailer for shipment offsite to be recycled or disposed of at an appropriately licensed disposal facility. Removal of the solar modules would include removal of the racks on which the solar panels are attached, and their placement in secure transport crates and a trailer for storage, for ultimate transportation to another facility. Once the solar modules are removed, the racks would be disassembled, and the structures supporting the racks would be removed. Site infrastructure would be removed, including fences, and concrete pads that may support the inverters, transformers and related equipment. The demolition debris and removed equipment may be cut or dismantled into pieces that can be safely lifted or carried with the equipment being used. The fence and gates would be removed, and all materials would be recycled to the extent feasible. Project roads would be restored to their pre-construction condition unless the landowner elects to retain the improved roads for access throughout that landowner's property. The area would be thoroughly cleaned and all debris removed. A collection and recycling program would be executed to promote recycling of project components and minimize disposal in landfills.

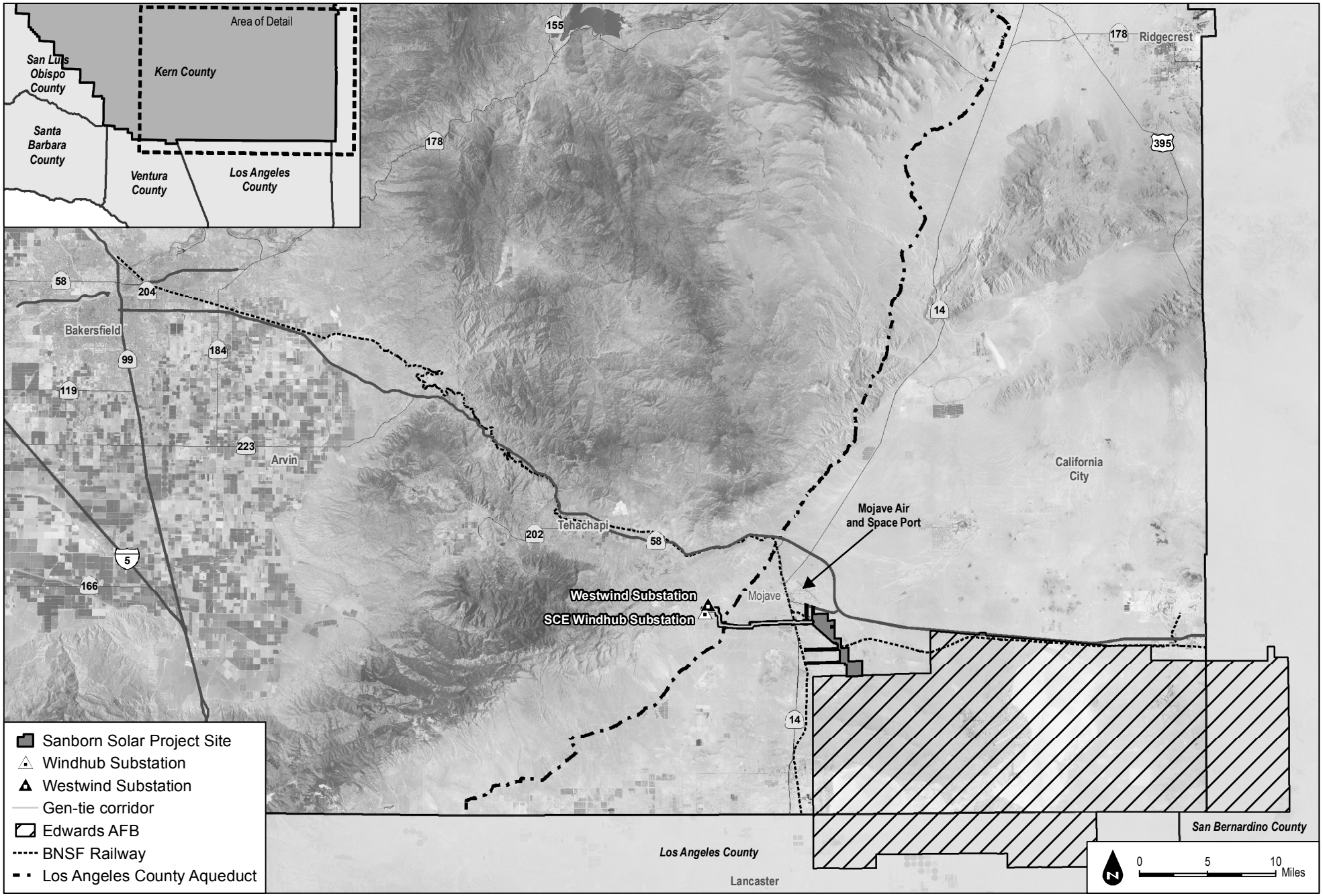

Figure 1-1: PROJECT VICINITY

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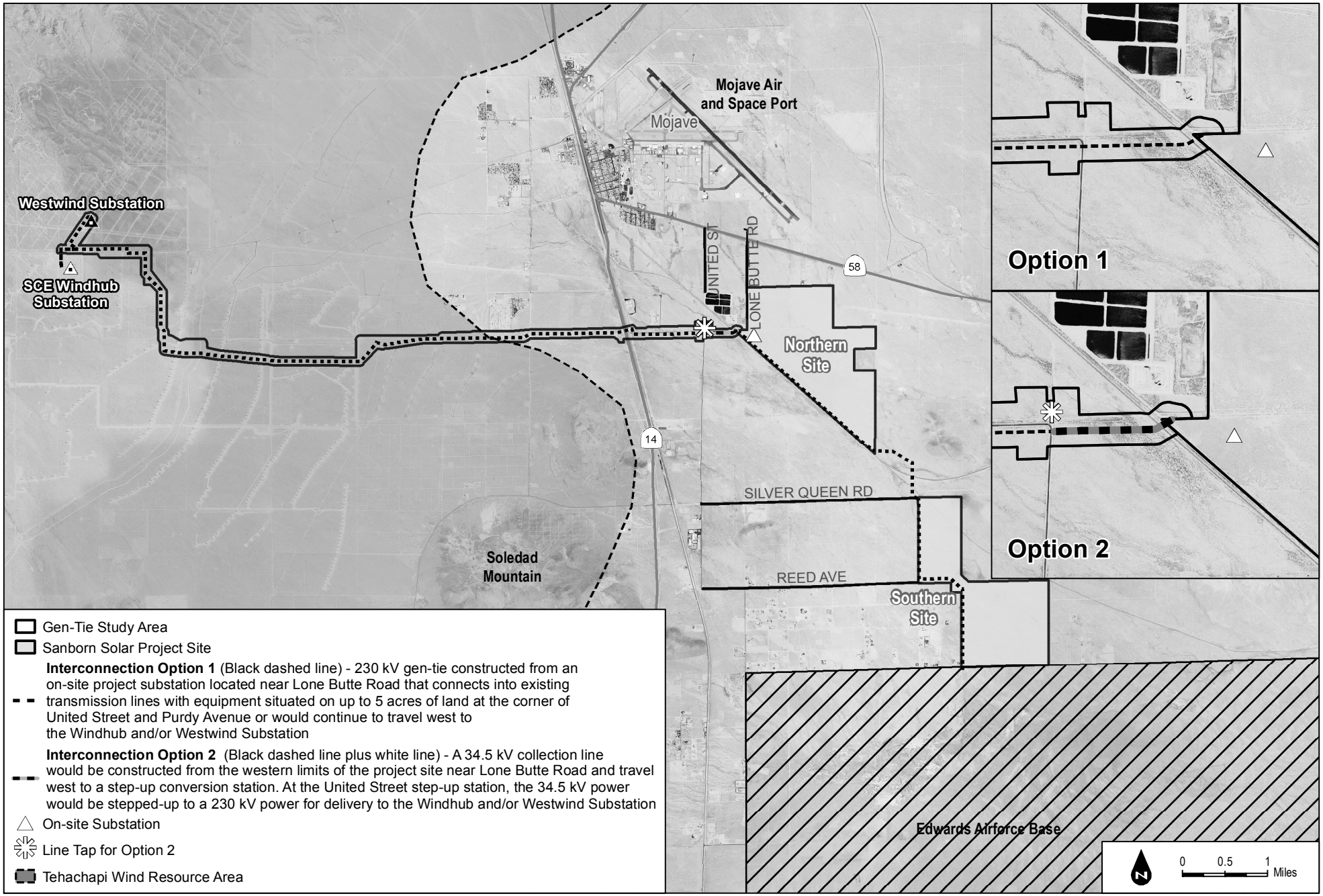

Figure 1-2: PROJECT SITE

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2 AIR QUALITY

2.1 Environmental Setting

2.1.1 Climate and Topography

As discussed in Section 1, the project is located within the MDAB.[1] The MDAB includes the desert portions of Los Angeles, Kern, San Bernardino, and Riverside Counties. Most of this area is commonly referred to as the high desert because elevations range from approximately 2,000 to 5,000 feet above mean sea level. The MDAB is generally above the regional inversion layer and experiences relatively good dispersion conditions.

The MDAB is separated from Southern California coastal regions and central California valley regions by mountains extending up to 10,000 feet above mean sea level. As a result, the Mojave Desert is removed from the cooling effects of the Pacific Ocean and is characterized by extreme temperatures. The MDAB consists of an assemblage of mountain ranges interspersed with valleys that often contain dry lakes. Lower-elevation mountains scattered throughout the basin are generally 1,000 feet to 4,000 feet high. Mountain passes form channels for air masses flowing from the west and southwest and the prevailing winds from the west and southwest are caused by the proximity of the MDAB to coastal and central regions and to the blocking effect of the Sierra Nevada to the north.

This EKAPCD region is characterized by hot, dry summers and cool winters, with little precipitation. During the summer, the MDAB is generally influenced by a Pacific subtropical high cell that resides off the coast of California. This high pressure cell prevents cloud formation and engenders daytime solar heating. The MDAB is rarely influenced by the cold air masses that move south from Canada and Alaska, as these frontal systems diffuse by the time they reach the basin. Most moisture arrives in frequent warm, moist, and unstable air masses from the south. The MDAB averages between 3 and 7 inches of precipitation per year (from 16 to 30 days with at least 0.01 inches of precipitation). The Mojave area estimates an average annual precipitation of 5.9 inches per year (WRCC 2016). The MDAB is classified as a dry-hot desert climate, with portions classified as dry-very hot desert, to indicate at least three months have maximum average temperatures over 100.4°F.

[1] The description of the MDAB climate and topography is based on the MDAQMD 2016 CEQA and Federal Conformity Guidelines (MDAQMD 2016).

2.1.2 Pollutants and Effects

2.1.2.1 Criteria Air Pollutants

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include O_3, nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter equal to or less than 10 microns (PM_{10}), particulate matter with an aerodynamic diameter equal to or less than 2.5 microns ($PM_{2.5}$), and lead. These pollutants, as well as toxic air contaminants (TACs), are discussed in the following text.[2] In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

Ozone. O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and O_3 precursors, such as hydrocarbons and NO_x[3]. These precursors are mainly NO_x and volatile organic compounds (VOCs). The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 exists in the upper atmosphere ozone layer as well as at the Earth's surface in the troposphere. The O_3 that the EPA and CARB regulate as a criteria air pollutant is produced close to the ground level, where people live, exercise, and breathe. Ground-level ozone is a harmful air pollutant that causes numerous adverse health effect and is thus, considered "bad" ozone. Stratospheric ozone, or "good" ozone, occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the earth's atmosphere. Without the protection of the beneficial stratospheric ozone layer, plant and animal life would be seriously harmed.

O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of

[2] The descriptions of each of the criteria air pollutants and associated health effects are based on the EPA's Criteria Air Pollutants (2016a) and the CARB Glossary of Air Pollutant Terms (2016a).

[3] NO_x is a general term pertaining to compounds of nitric oxide (NO), nitrogen dioxide (NO_2) and other oxides of nitrogen.

the lung tissue, and some immunological changes. These health problems are particularly acute in sensitive receptors such as the sick, the elderly, and young children.

Nitrogen Dioxide. NO_2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide, which is a colorless, odorless gas. NO_x plays a major role, together with VOCs, in the atmospheric reactions that produce O_3. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_x is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections.

Carbon Monoxide. CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, such as the project location, automobile exhaust accounts for the majority of CO emissions. CO is a nonreactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions—primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, which is a typical situation at dusk in urban areas from November to February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions.

Sulfur Dioxide. SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels.

SO_2 is an irritant gas that attacks the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. When combined with particulate matter, SO_2 can

injure lung tissue and reduce visibility and the level of sunlight. SO_2 can also yellow plant leaves and erode iron and steel.

Particulate Matter. Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Coarse particulate matter (PM_{10}) is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Fine particulate matter ($PM_{2.5}$) is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., from motor vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur oxides (SO_x), NO_x, and VOCs.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the blood stream, causing damage elsewhere in the body. Additionally, these substances can transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also damage and discolor surfaces on which they settle and produce haze and reduce regional visibility.

People with influenza, people with chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death as a result of breathing particulate matter. People with bronchitis can expect aggravated symptoms from breathing in particulate matter. Children may experience a decline in lung function due to breathing in PM_{10} and $PM_{2.5}$. Other groups considered sensitive are smokers, people who cannot breathe well through their noses, and exercising athletes (because many breathe through their mouths).

Lead. Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%.

With the phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead.

Volatile Organic Compounds. Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of O_3 are referred to and regulated as VOCs (also referred to as reactive organic gases). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

The primary health effects of VOCs result from the formation of O_3 and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs. There are no separate health standards for VOCs as a group.

2.1.2.2 Non-Criteria Air Pollutants

Toxic Air Contaminants. A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic noncancer health effects. A toxic substance released into the air is considered a TAC. TACs are identified by federal and state agencies based on a review of available scientific evidence. In the state of California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics "Hot Spots" Information and Assessment Act, Assembly Bill (AB) 2588, was enacted by the legislature in 1987 to address public concern over the release of TACs into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years.

Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources, such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources, such as automobiles; and area sources, such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced on either short-term (acute) or long-term (chronic) exposure to a given TAC.

Diesel Particulate Matter. Diesel particulate matter (DPM) is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and particle, both of which contribute to health risks. More than 90% of DPM is less than 1 micrometer in diameter (about 1/70th the diameter of a human hair), and thus is a subset of $PM_{2.5}$ (CARB 2016b). DPM is typically composed of carbon particles ("soot," also called black carbon) and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene (CARB 2016b). The California Air Resources Board (CARB) classified "particulate emissions from diesel-fueled engines" (i.e., DPM; 17 CCR 93000) as a TAC in August 1998. DPM is emitted from a broad range of diesel engines: on-road diesel engines of trucks, buses, and cars and off-road diesel engines including locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is associated with DPM (CARB 2000). To reduce the cancer risk associated with DPM, CARB adopted a diesel risk reduction plan in 2000 (CARB 2000). Because it is part of $PM_{2.5}$, DPM also contributes to the same non-cancer health effects as $PM_{2.5}$ exposure. These effects include premature death; hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma; increased respiratory symptoms; and decreased lung function in children. Several studies suggest that exposure to DPM may also facilitate development of new allergies (CARB 2016b). Those most vulnerable to non-cancer health effects are children whose lungs are still developing and the elderly who often have chronic health problems.

Odorous Compounds. Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The ability to detect odors varies considerably among the population and overall is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. Known as odor fatigue, a person can become desensitized to almost any odor, and recognition may only occur with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source;

wind speed and direction; and the sensitivity of receptors. Land uses that are typically associated with odor include but are not limited to automobile repair shops, distribution centers, manufacturing plants, landfills, waste water treatment plants, truck stops and agricultural operations (CARB 2005).

2.1.3 Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Facilities and structures where these air pollution-sensitive people live or spend considerable amounts of time are known as sensitive receptors. Land uses where air pollution-sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses) (CARB 2005). The County considers residences, schools, daycare centers, playgrounds and medical facilities as sensitive receptor land uses (Kern County 2006).

The greatest potential for exposure of sensitive receptors to air contaminants would occur during the temporary construction phase, when soil would be disturbed and equipment would be used for site grading, materials delivery, and PV solar panel installation. Potential exposure to emissions would vary substantially from day to day, depending on the amount of work being conducted, weather conditions, location of receptors, and exposure time. The construction-phase emissions in this analysis are estimated conservatively based on worst-case conditions, with maximum levels of construction activity occurring simultaneously within a short period of time. The nearest sensitive receptors are scattered rural residential land uses. Residential land uses have the highest potential to be affected by the project, in particular single-family or multiple-family residences located in the surrounding community within 1 mile (5,280 feet) of the project site. With respect to the northern site, there are three residential structures adjacent to the site, the nearest of which is 58 feet north of the site, located south and off of SR 58. There are no other sensitive receptor type properties within the 1-mile radius.

2.2 Regulatory Setting

2.2.1 Federal Regulations

2.2.1.1 Criteria Air Pollutants

The federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the Clean Air Act, including setting National Ambient Air Quality Standards (NAAQS) for major air pollutants; setting hazardous air pollutant (HAP) standards; approving state attainment plans;

setting motor vehicle emission standards; issuing stationary source emission standards and permits; and establishing acid rain control measures, stratospheric O_3 protection measures, and enforcement provisions. Under the Clean Air Act, NAAQS are established for the following criteria pollutants: O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The NAAQS (other than for O_3, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for O_3, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The Clean Air Act requires the EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a State Implementation Plan (SIP) that demonstrates how those areas will attain the standards within mandated time frames.

2.2.1.2 Hazardous Air Pollutants

The 1977 federal Clean Air Act amendments required the EPA to identify national emission standards for HAPs to protect public health and welfare. HAPs include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 federal Clean Air Act Amendments, which expanded the control program for HAPs, 189 substances and chemical families were identified as HAPs.

2.2.2 State Regulations

2.2.2.1 Criteria Air Pollutants

The federal Clean Air Act delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the federal Clean Air Act, and regulating emissions from motor vehicles and consumer products.

CARB has established California Ambient Air Quality Standards (CAAQS), which are generally more restrictive than the NAAQS. The CAAQS describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. Air quality is considered “in attainment” if pollutant levels are continuously below the CAAQS and violate the

standards no more than once each year. The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, and $PM_{2.5}$ and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. The NAAQS and CAAQS are presented in Table 1.

Table 1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary[c,d]*	*Secondary[c,e]*
O_3	1 hour	0.09 ppm (180 μg/m³)	—	Same as Primary Standard[f]
	8 hours	0.070 ppm (137 μg/m³)	0.070 ppm (137 μg/m³)[f]	
NO_2[g]	1 hour	0.18 ppm (339 μg/m³)	0.100 ppm (188 μg/m³)	Same as Primary Standard
	Annual arithmetic mean	0.030 ppm (57 μg/m³)	0.053 ppm (100 μg/m³)	
CO	1 hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	None
	8 hours	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	
SO_2[h]	1 hour	0.25 ppm (655 μg/m³)	0.075 ppm (196 μg/m³)	—
	3 hours	—	—	0.5 ppm (1,300 μg/m³)
	24 hours	0.04 ppm (105 μg/m³)	0.14 ppm (for certain areas)[g]	—
	Annual	—	0.030 ppm (for certain areas)[g]	—
PM_{10}[i]	24 hours	50 μg/m³	150 μg/m³	Same as Primary Standard
	Annual arithmetic mean	20 μg/m³	—	
$PM_{2.5}$[i]	24 hours	—	35 μg/m³	Same as Primary Standard
	Annual arithmetic mean	12 μg/m³	12.0 μg/m³	15.0 μg/m³
Lead[j,k]	30-day average	1.5 μg/m³	—	—
	Calendar quarter	—	1.5 μg/m³ (for certain areas)[k]	Same as Primary Standard
	Rolling 3-month average	—	0.15 μg/m³	
Hydrogen sulfide	1 hour	0.03 ppm (42 μg/m³)	—	—
Vinyl chloride[j]	24 hours	0.01 ppm (26 μg/m³)	—	—
Sulfates	24 hours	25 μg/m³	—	—

Table 1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary[c,d]*	*Secondary[c,e]*
Visibility reducing particles	8 hour (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to the number of particles when the relative humidity is less than 70%	—	—

Source: CARB 2016b.

Notes: O_3 = ozone; ppm = parts per million by volume; $\mu g/m^3$ = micrograms per cubic meter; NO_2 = nitrogen dioxide; CO = carbon monoxide; mg/m^3= milligrams per cubic meter; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SO_2 = sulfur dioxide.

a California standards for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, suspended particulate matter (PM_{10}, $PM_{2.5}$), and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

b National standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

c Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

d National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

e National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

f On October 1, 2015, the EPA Administrator signed the notice for the final rule to revise the primary and secondary NAAQS for O_3. The EPA is revising the levels of both standards from 0.075 ppm to 0.070 ppm and retaining their indicators (O_3), forms (fourth-highest daily maximum, averaged across 3 consecutive years) and averaging times (8 hours). The EPA is in the process of submitting the rule for publication in the Federal Register. The final rule will be effective 60 days after the date of publication in the Federal Register. The lowered national 8-hour standards are reflected in the table.

g To attain the national 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

h On June 2, 2010, a new 1-hour SO_2 standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the national 1-hour standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment of the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

i On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM_{10} standards (primary and secondary) of 150 $\mu g/m^3$ were also retained. The form of the annual primary and secondary standards is the annual mean averaged over 3 years.

j CARB has identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

k The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

2.2.2.2 Toxic Air Contaminants

The state Air Toxics Program was established in 1983 under AB 1807 (Tanner). The California TAC list identifies more than 700 pollutants, of which carcinogenic and noncarcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code. In accordance with AB 2728, the state list includes the (federal) HAPs. The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources; however, AB 2588 does not regulate air toxics emissions. TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment, and if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. The regulation is anticipated to result in an 80% decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-Ignition (Diesel) Engines and Equipment program. All of these regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel powered equipment. Several Airborne Toxic Control Measures that reduce diesel emissions, including In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.) and In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025).

California Health and Safety Code Section 41700

This section of the Health and Safety Code states that a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health, or safety of any of those persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property. This section also applies to sources of objectionable odors.

2.2.3 Local Regulations

2.2.3.1 Eastern Kern Air Pollution Control District

The EKAPCD is the agency responsible for the regulation and enforcement of federal, state, and local air pollution control requirements in the eastern, desert portion of Kern County that is included in the MDAB. The EKAPCD operates monitoring stations in eastern Kern County, develops rules and

regulations for stationary sources and equipment, prepares emissions inventory and air quality management planning documents, and conducts source testing and inspections.

The EKAPCD has adopted attainment plans to achieve state and federal air quality standards to comply with regulatory requirements within the MDAB. Because of eastern Kern County's moderate ozone nonattainment status, the EKAPCD has not been required to adopt updated attainment plans.

The EKAPCD 2017 Ozone Attainment Plan (adopted July 2017) is the most recent air quality plan for Eastern Kern County. The EKAPCD falls within the jurisdiction of the Kern COG, and vehicle volumes as well as associated criteria air pollutant emissions were included in the 2014 Kern COG RTP/SCS.

Applicable Rules

Emissions that would result from mobile, area, and stationary sources during construction and operation of the project are subject to the rules and regulations of the EKAPCD. The EKAPCD rules applicable to the project may include the following:

- **Rule 401 – Visible Emissions:** A person shall not discharge into the atmosphere, from any single source of emission whatsoever, any air contaminant for a period aggregating more than 3 minutes in any hour which is

  As dark or darker in shade as that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or

  Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subsection (a) of this rule.
- **Rule 402 – Fugitive Dust:**
  - A person shall not cause or allow fugitive dust emissions from any active operation to remain visible in the atmosphere beyond the property line of the emission source.
  - An owner/operator of any active operation subject to the rule shall implement one or more fugitive dust emission control strategy listed in Table 1, Reasonably Available Control Measure (RACM) or Table 2, Bulk Material Control Measures (BMCM) to limit visible dust emissions (VDE) to no more than 20% opacity or meet the conditions for a stabilized surface as defined in Section III.V.V
  - Bulk Materials: No person shall perform any outdoor handling storage and transport of bulk materials unless the appropriate control measures as listed in Table 2 are sufficiently implemented in order to limit VDE to no more than 20% opacity.

Conditions of Stabilized Surface, as defined in Section III. VV of this Rule, must also be met.

- An owner/operator shall submit a Fugitive Dust Emission Control Plan to the APCO prior to the start of any Large Operation as defined in Section III.CC. Activity shall not commence until the APCO has approved or conditionally approved a Fugitive Dust Emission Control plan.

- No person shall perform or authorize any earthmoving activity subject to requirements of this Rule unless the appropriate fugitive dust emission control measure(s) as described herein are implemented to limit VDE to no more than 20% opacity. Earthmoving activities include but not limited to, construction, demolition, excavation, extraction, land clearing, grubbing, scraping, on-site travel, and travel on access roads to and from site. This section also applies to the construction of new landfill disposal sites or modification to existing landfill disposal sites prior to commencement of normal landfill operations.
- **Rule 405 – Particulate Matter-Emission Rate:** A person shall not discharge into the atmosphere from any source operation, particulate matter in excess of the limits denoted in Table 405(a) of Rule 405. Where the process weight falls between the figures listed in the table, the emission limit shall be determined by linear interpolation.
- **Rule 407 – Sulfur Compounds:** A person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding in concentration at the point of discharge 0.2% by volume calculated as sulfur dioxide (SO_2)
- **Rule 409 – Nuisance:** A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to public or which endanger the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property.

2.2.3.2 Kern Council of Governments

The KCOG is the regional planning agency for Kern County and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. KCOG serves as the federally designated metropolitan planning organization for Kern County. With respect to air quality planning and other regional issues, KCOG has prepared the 2014 Regional Comprehensive Plan for the region (Kern COG 2014). The 2014 RCP is a long-term (20 year) general plan for the region's transportation network, and encompasses projects for all types of travel, including aviation and freight movement. The plan assesses environmental impacts of proposed projects, and establishes air quality conformity as required by federal regulations.

2.3 Regional and Local Air Quality Conditions

2.3.1 Mojave Desert Air Basin Attainment Status

Pursuant to the 1990 federal Clean Air Act amendments, the EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether the NAAQS have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "nonattainment" for that pollutant. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated as "unclassified" or "unclassifiable." The designation of "unclassifiable/attainment" means that the area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are re-designated as maintenance areas and must have approved Maintenance Plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as "attainment" or "nonattainment," but based on CAAQS rather than the NAAQS. Table 2 depicts the current attainment status of the project site with respect to the NAAQS and CAAQS. The attainment classifications for the criteria pollutants are outlined in Table 2.

Table 2
Mojave Desert Air Basin Attainment Status (Kern County)

Pollutant	Designation/Classification	
	Federal Standards	*State Standards*
Ozone (O_3) – 1-hour	No federal standard	Nonattainment
Ozone (O_3) – 8-hour	Nonattainment	Nonattainment
Nitrogen dioxide (NO_2)	Unclassifiable/attainment	Attainment
Carbon monoxide (CO)	Unclassifiable/attainment	Unclassified
Sulfur dioxide (SO_2)	Unclassified	Attainment
Respirable particulate matter (PM_{10})	Nonattainment (Moderate)	Nonattainment
Fine particulate matter ($PM_{2.5}$)	Unclassifiable/attainment	Unclassified
Lead (Pb)[1]	Unclassifiable/attainment	Attainment
Sulfates (SO_4)	No federal standard	Attainment
Hydrogen sulfide (H_2S)	No federal standard	Unclassified
Vinyl chloride[1]	No federal standard	No designation
Visibility-reducing particles	No federal standard	Unclassified

Sources: EPA 2016b (federal); CARB 2016c (state).
Note: Attainment = meets the standards; Nonattainment = does not meet the standards; Unclassified = insufficient data to classify; Unclassified/Attainment = meets the standard or is expected to be meet the standard despite a lack of monitoring data.[1] CARB has identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined.

In summary, the Kern County portion of the MDAB is currently designated as an attainment or an unclassifiable/attainment area for all of the NAAQS with the exception of the federal 8-hour O_3 standard and the PM_{10} standard (EPA 2016b). The updated Federal O_3 standard became effective December 28, 2015 at 0.070 ppm; however, the EPA has not released formal attainment designations regarding the updated standard. The County is currently designated as a nonattainment area for the state 1-hour and 8-hour O_3 standards and the state PM_{10} standards, but it is designated as attainment or unclassified for all other CAAQS (CARB 2016c).

2.3.2 Local Ambient Air Quality

Under authority and oversight from the EPA pursuant to 40 CFR Part 58, the EKAPCD and CARB maintain ambient air quality monitoring stations throughout the MDAB, and the EKAPCD currently operates three monitoring sites[4]. Air quality monitoring stations usually measure pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. Not all air pollutants are monitored at each station; thus, data from the closest representative station that monitors a specific pollutant are summarized.

The closest ambient air quality monitoring station to the project site that monitors O_3, PM_{10}, and $PM_{2.5}$ is the Mojave Air & Space Port monitoring station, located at 923 Poole Street, Mojave, California 93501, approximately 4 miles to the north of the proposed project. The data collected at this station are considered representative of the air quality experienced in the project vicinity. The most recent background ambient air quality data from 2014 to 2016 and the number of days exceeding the ambient air quality standards are presented in Table 3. The Johnston Farms Monitoring station, located in Edison, California, is the nearest air quality monitoring station that monitors NO_2, located approximately 59 miles to the northeast of the project site. The Arvin Monitoring station, located at 19405 Buena Vista Ave, Arvin, California, is the nearest air quality monitoring station that monitors CO, located approximately 59 miles to the northeast of the project site.

[4] Mojave, Ridgecrest, and Cranebreak

Table 3
Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
					2014	*2015*	*2016*	*2014*	*2015*	*2016*
Ozone (O_3)										
Mojave-923 Poole Street	ppm	Maximum 1-hour concentration	State	0.09	0.104	0.104	0.104	9	1	2
	ppm	Maximum 8-hour concentration	State	0.070	--	--	--	--	--	--
			Federal	0.070	0.095	0.084	0.093	88	31	52
Nitrogen Dioxide (NO_2)										
Johnson Farm, Edison	ppm	Maximum 1-hour concentration	State	0.18	35	46	45	0	0	0
			Federal	0.100	35.0	46.5	45.7	0	0	0
	ppm	Annual concentration	State	0.030	--	6	6	--	--	--
			Federal	0.053	6	7	6	--	--	--
Carbon Monoxide (CO)										
Arvin-19405 Buena Vista Ave	ppm	Maximum 1-hour concentration	State	20	--	--	--	--	--	--
			Federal	35	1.9	1.2	0.5	0	0	0
	ppm	Maximum 8-hour concentration	State	9.0	--	--	--	--	--	--
			Federal	9	1.0	0.5	0.3	0	0	0
Coarse Particulate Matter (PM_{10})[a]										
Mojave-923 Poole Street	µg/m³	Maximum 24-hour concentration	State	50	171.0	74.9	85.7	12.5 (12)	5.1 (5)	-- (3)
			Federal	150	184.2	80.4	96.3	1.1 (1)	0	0
	µg/m³	Annual concentration	State	20	22.7	18.7	--	--	--	--
Fine Particulate Matter ($PM_{2.5}$)[a]										
Mojave-923 Poole Street	µg/m³	Maximum 24-hour concentration	Federal	35	36.5	42.2	19.7	1.0 (1)	2.0 (2)	0
			State	12	--	6.1	--	--	--	--

	μg/m³	Annual concentration	Federal	12.0	--	5.9	5.1	--	--	--

Sources: CARB 2016c; EPA 2016d.

Notes: — = not available; μg/m3 = micrograms per cubic meter; ND = insufficient data available to determine the value; ppm = parts per million
Data taken from CARB iADAM (http://www.arb.ca.gov/adam) and EPA AirData (http://www.epa.gov/airdata) represent the highest concentrations experienced over a given year.
Exceedances of federal and state standards are only shown for O_3 and particulate matter. Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed federal or state standards during the years shown. There is no federal standard for 1-hour ozone, annual PM_{10}, or 24-hour SO_2, nor is there a state 24-hour standard for $PM_{2.5}$.

[a] Measurements of PM10 and PM2.5 are usually collected every 6 days and every 1 to 3 days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

2.4 Significance Criteria and Methodology

2.4.1 Thresholds of Significance

2.4.1.1 Kern County

The *Kern County CEQA Implementation Document* (Kern County 2004) and Kern County Environmental Checklist (Kern County 2012a) state that a project would have a significant environmental impact if it would:

a. Conflict with or obstruct the implementation of the applicable air quality plan

b. Violate any air quality standard as adopted in (c) i or (c) ii, or as established by EPA or air district or contribute substantially to an existing or projected air quality violation

c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for O_3 precursors). Specifically, would implementation of the project exceed any of the following adopted thresholds:

   i. Operational and Area Sources

      ROGs[5]: 10 tons per year
      NO_x: 10 tons per year
      PM_{10}: 15 tons year

   ii. Stationary Sources – as determined by District Rules

      Severe nonattainment: 25 tons per year

[5] The *Kern County CEQA Implementation Document* (June 2004) states the equivalence of ROG and VOC. The SJVAPCD threshold is set for ROG.

Extreme nonattainment: 10 tons per year

d. Expose sensitive receptors to substantial pollutant concentrations

e. Create objectionable odors affecting a substantial number of people.

The Kern County Planning Department developed guidelines to assist with the preparation of the air quality assessments for use as a technical document in EIRs in December 2006. The County's *Guidelines for Preparing Air Quality Assessments for Use in EIRs* (Kern County 2006) is intended to ensure that the assumptions and methodology used in the County's environmental documents are uniform from one project to the next to facilitate the comparison of air quality environmental effects. The County guidance states that the most recent air quality guidance documents from the SJVAPCD, such as the GAMAQI, must be used and referenced in the preparation of an air quality assessment and that the latest version of all models must be used for the appropriate application (Kern County 2006). It also notes that where the County's Planning Department guidelines require quantification and the SJVAPCD does not, for purposes of CEQA, the Planning Department guidelines must be followed.

The County-adopted thresholds of significance in the *Kern County CEQA Implementation Document* (Kern County 2004) indicated above were intended to promote consistency, efficiency, and predictability in the process of determining the significance of environmental effects. The County's *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* (2006) includes the thresholds of significance adopted by the Board of Supervisors in 2004 for use in all evaluations and environmental documents prepared by County departments with duties affected by CEQA. County guidance states that projects that produce emissions that exceed the adopted thresholds shall be considered significant for a project level and/or cumulatively for impacts to air quality, where the thresholds are defined for purposes of determining cumulative effects as the baseline for "considerable."

The County has also adopted criteria for determining if a quantitative CO hotspot analysis would be required. The guidance states that a CO hotspot analysis using the CALINE4 model would be required for the following project conditions:

- LOS of an intersection or roadway is identified as LOS E or worse.
- Signalization and/or channelization is added to an intersection.
- Sensitive receptors such as residences, schools, and hospitals are located in the vicinity of the affected intersection or signalization.

If no such conditions exist, then the assessment must include that information and note the reasons the CO hotspot analysis was not required.

Additional specific instructions included in the County's guidelines that are applicable to the project analysis are discussed in Section 2.4.2 under the appropriate impact assessment. Because the proposed project in not located with the San Joaquin Valley Air Pollution Control District, the SJVAPCD thresholds are not applicable to the proposed project and therefore are not included in this analysis.

2.4.1.2 Eastern Kern Air Pollution Control District

As discussed in the EKAPCD Guidelines for Implementation of the CEQA, a proposed project is determined to not have significant (as defined by CEQA, Section 21068) air quality impact on the environment, if operation of the project will (EKAPCD 1999):

1. Emit (from all project sources subject to KCAPCD Rule 201) less than offsets trigger levels set forth in Subsection III.B.3. of KCAPCD's Rule 210.1 (New and Modified Source Review Rule);

2. Emit less than 137 pounds per day of NOx or Reactive Organic Compounds (ROG) from motor vehicle trips (indirect sources only);

3. Not cause or contribute to an exceedance of any California or National Ambient Air Quality Standard;

4. Not exceed the District health risk public notification thresholds adopted by the EKAPCD Board; and

5. Be consistent with adopted federal and state Air Quality Attainment Plans. Also see EKCAPCD Rule 208.2 (Criteria for Finding of No Significant Environmental Impact (California Environmental Quality Act.))

6. Expose sensitive receptors to substantial pollutant concentrations:

    a. Cancer risk impacts – Maximum Exposed Individual (MEI) exceeds 10 in one million

    b. Chronic non-cancer risk impacts – Chronic Hazard Index (HIC) exceeds 1.0;

7. Create objectionable odors affecting a substantial number of people.

The District's determination as to whether or not the project may have a significant effect on other environmental issues may be based in part on published/adopted thresholds of significance and guidance provided by the jurisdiction in which the project is located. For issue areas for which

there are no thresholds, guidance provided in the State CEQA Guidelines shall provide the basis for determining significance. Thresholds of significance provide general guidance for determining significant impacts, but are not fixed definitions of significant impacts. Each project shall be judged individually for its potential for significant impacts, based on specific circumstances and evidence. A project which has no effect above threshold values individually or cumulatively will generally be determined not to have any significant impact, and a negative declaration shall be prepared as provided by Article VI. The EKAPCD adopted significance thresholds to address the significance of air quality impacts resulting from the proposed project.

2.4.2 Approach and Methodology

2.4.2.1 Air Quality Plan Consistency

As a component of the cumulative impact analysis, the County Air Quality Assessment guidance (Kern County 2006) states that the following should be included in the consistency determination for existing air quality plans:

- Discuss project in relation to Kern County Council of Governments (Kern COG) conformity and traffic analysis zones (TAZs).
- Quantify the emissions from similar projects in the Ozone Attainment Plan for the applicable basin. Discuss the Ozone Attainment Plan for the applicable air district, development, and relation to regional basin, Triennial Plan, and SIP.

2.4.2.2 Construction

County guidance states that an air quality assessment should include estimates of short-term construction emissions in tons per year (Kern County 2006). The estimates must include site grading and building construction emissions, with comparison to the adopted County CEQA thresholds and the applicable air district (EKAPCD for eastern Kern County) thresholds. Per the County's guidance, all assumptions should be clearly presented, including length of each construction phase, equipment that would be used during each phase, and the amount of soil disturbance, including any import or export of soil. The emission factors used to estimate emissions should be clearly documented, and the model output should be included in the report.

Construction of the project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and VOC off-gassing) and off-site sources (i.e., on-road haul trucks, vendor trucks, and worker vehicle trips). The California Emissions Estimator Model (CalEEMod) Version 2016.3.2 was used to estimate emissions from construction of the proposed project. CalEEMod is a statewide computer model

developed in cooperation with air districts throughout the state to quantify criteria air pollutant emissions associated with construction activities from a variety of land use projects, such as residential, commercial, and industrial facilities. CalEEMod input parameters, including the land use type used to represent the project and size, construction schedule, and anticipated construction equipment utilization, were based on information provided by project applicant, or default model assumptions if project specifics were unavailable.

Construction scenario assumptions, including phasing, equipment mix, and vehicle trips, were based on information provided by the project applicant. For purposes of estimating project emissions, and based on information provided by the project applicant, it is assumed that construction of the project would commence in February 2020[6] and would last approximately 18 months, ending in August 2021. The analysis contained herein is based on the following assumptions (duration of phases is approximate):

- Perimeter Fence Installation: 5.5 months (February 2020–July 2020)
- Site Preparation and Grading: 4 months (January 2020–April 2020)
- Trenching: 15 months (February 2020-–April 2021)
- Solar PV System Installation: 15 months (February 2020–April 2021)
- Generation Tie-In Installation: 4 months (September 2020-December 2020)
- Energy Storage System: 8.5 months (September 2020– April 2021)
- Testing and Commissioning: 4 months (May 2021–August 2021)
- Site Clean-up and Restoration: 1 month (July 2021)

As shown above, several of the construction phases will run concurrently. The commissioning of the solar PV system is not dependent on the energy storage system being built; therefore, the energy storage system can be constructed along a concurrent schedule. For the analysis, it was generally assumed that heavy construction equipment would be operating at the site for approximately 8 hours per day, 5 days per week (22 days per month), during project construction. Because the site has a very low slope, mass grading is not proposed under this project. There will be minor grading associated with the energy storage and on-site substation phases.

[6] The analysis assumes a construction start date of February 2020, which represents the earliest date construction would initiate. Assuming the earliest start date for construction represents the worst-case scenario for criteria air pollutant and GHG emissions because equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years.

Peak daily construction employees would be approximately 475 (generating 950 one-ways trips) with an average of 300 workers daily. As shown in Table 4, in addition to the 475 maximum daily workers traveling to the site there would be up to 80 truck trips per day at peak construction activity (trenching and system installation phases overlap). A total of up to 160 trips per day are anticipated during peak construction activities. Delivery of material and supplies would reach the site via on-road truck delivery via SR-14 or SR-58. The majority of the truck deliveries would be for the PV system installation, as well as any aggregate material that may be required for road base.

The construction equipment mix and vehicle trips used for estimating the project-generated construction emissions are shown in Table 4.

Table 4
Construction Scenario Assumptions

Construction Phase	One-way Vehicle Trips			Equipment		
	Average Daily Worker Trips	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Perimeter Fence Installation	100	32	4	Skid Loader	1	8
Site Preparation and Grading	160	0	32	Graders	2	8
				Dozers	1	8
				Scraper	1	8
				Roller	1	8
				Sheepfoot Roller	1	8
				Tractor/Loader/Backhoe	1	8
Underground Work	90	2	4	Excavator	2	8
				Sheepfoot Roller	1	8
				5kW generator	1	8
				Aussie Padder	1	8
				4x4 Forklift	1	8
System Installation	300	96	32	4x4 forklift	8	8
				Crane	1	8
				Pile Driver	4	8
				5 kW generator	2	8
Gen-tie Installation	120	2	4	Crane	1	8
Testing, Commissioning Site Cleanup and Restoration	120	16	16	Grader	1	8
				Skid loader	1	8

See Appendix A for details.

Water consumption during construction is estimated to be approximately 200 acre-feet (AF) for dust suppression and earthwork over an approximately 18-month period. Panel rinsing is expected to be conducted up to four times annually as performance testing and weather and site conditions dictate. Construction as well as operational water for panel rinsing would be provided by on-site groundwater through an improved existing well or a new well permitted and drilled (if necessary).

2.4.2.3 Operation

County guidance states that an air quality assessment should include estimates of long-term operational emissions in tons per year. Per the County's guidance, this report includes a summary of the unmitigated and mitigated emissions, with a comparison to Kern County CEQA thresholds in a table format within the impact analysis.

Emissions from the operational phase of the Project were estimated using the CalEEMod version 2016.3.2 and include area, energy, and mobile source emissions. The following paragraphs describe these sources in detail.

Area Sources

CalEEMod emission factors were used to estimate operational emissions from area sources, which include architectural coatings. ROG off-gassing emissions result from evaporation of solvents contained in surface coatings such as in paints and primers using during building maintenance. The ROG evaporative emissions from application of residential and nonresidential surface coatings were calculated based on the ROG emission factor, the building square footage, the assumed fraction of surface area, and the reapplication rate. The ROG emission factor is based on the ROG content of the surface coatings, and EKAPCD's Rule 410.1 (Architectural Coating Controls) governs the ROG content for interior and exterior coatings. The reapplication rate of 10% of area per year is assumed. Based on the type of structure for the energy storage structure, it is assumed that the surface area for painting equals 2.0 times the floor square footage, with 75% assumed for interior coating and 25% assumed for exterior surface coating (CAPCOA 2013).

Energy Sources

Energy sources include emissions associated with project electricity usage and on-site power generation. The groundwater well pumps are operated by a diesel generator. The generator emits criteria pollutants from the combustion of diesel fuel. The generator will be regulated by an operating permit under the EKAPCD's Rule 1160 for Internal Combustion Engines.

Electricity use would contribute indirectly to criteria air pollutant emissions; however, the emissions from electricity use were only quantified for GHGs, since criteria pollutant emissions

occur at the site of the power plant, which is typically off site. Energy use was provided by the applicant for security lighting and any ancillary use for the energy storage structure.

Mobile Sources

Mobile sources for the Project would primarily be motor vehicles (automobiles and light-duty trucks) traveling to and from the Project site. Motor vehicles may be fueled with gasoline, diesel, or alternative fuels. Based on conservative estimates for vehicular travel, the Project is anticipated to have up to 5,326 trips per year during operation, accounting for the commutes and performance of regular inspection and maintenance activities by ten full-time-equivalent staff.

2.4.2.4 Ambient Air Quality Impacts

The Kern County *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* (Kern County 2006) require a dispersion modeling analysis of the maximum 24-hour average concentrations of PM_{10} and $PM_{2.5}$ resulting from construction in comparison to applicable ambient air quality standards and thresholds; therefore, an ambient air quality analysis (AAQA) was performed for the project. The purpose of the AAQA is to determine whether the project's construction emissions would cause or contribute to exceedances of any CAAQS or NAAQS during construction. Dispersion modeling results are provided in Dudek's Ambient Air Quality Analysis (AAQA) and Health Risk Assessment (HRA) Sanborn Solar Facility Project. (Dudek 2018.)

Construction Emissions

The dispersion modeling was performed using the American Meteorological Society/EPA Regulatory Model (AERMOD), which is the model EKAPCD requires for atmospheric dispersion of emissions. Off-site concentrations were modeled for the construction phase with the estimated project emissions in order to determine compliance with the CAAQS and NAAQS. Principal parameters of AERMOD for the project construction include the following:

- **Dispersion Modeling:** The air dispersion model used was AERMOD, Version 16216r, with the Lakes Environmental Software implementation/user interface, AERMOD View, Version 9.5.0. AERMOD was run with all sources emitting unit emissions (1 g/s) to obtain the "X/Q" values. X/Q is a dispersion factor that is the average effluent concentration normalized by source strength, and is used as a way to simplify the representation of emissions from many sources. The X/Q values of ground-level concentrations (GLCs) were determined for construction emissions using AERMOD and the maximum concentrations determined for the 1-hour, 24-hour, and annual averaging periods.

- **Meteorological Data:** The latest 5-year meteorological data (2009–2013) for the Mojave Airport station from the CARB were used.
- **Urban and Rural Options:** Urban areas typically have more surface roughness and structures and low-albedo surfaces that absorb more sunlight—and thus more heat—relative to rural areas. The rural dispersion option was selected due to the undeveloped nature of the project site.
- **Modeling Options:** The modeling included the use of standard regulatory default options.
- **Terrain Characteristics:** The terrain in the vicinity of the project site is generally flat. Digital elevation model files were imported into AERMOD so that complex terrain features were evaluated as appropriate.
- **Modeling Grid:** For the AAQA, a nested grid of sensitive receptors was evaluated to capture maximum ambient pollutant impacts. This telescoping grid of receptors was set up with the following resolutions:
  - 25-meter spacing on the facility boundary
  - 25-meter spacing from facility boundary to 100 meters
  - 50-meter spacing from 100 meters to 250 meters
  - 100-meter spacing from 250 meters to 500 meters
  - 250-meter spacing from 500 meters to 1 kilometer
  - 500-meter spacing from 1 kilometer to 2 kilometers
- **Discrete Receptors:** Sensitive receptors include hospitals, schools, parks, playgrounds, daycare centers, nursing homes, convalescent facilities, and residential areas. Proximate sensitive receptors are scattered rural residential land uses.
- **Source Equipment Operating Scenarios:** Air dispersion modeling of construction was conducted using emissions generated using the CalEEMod. A single area source was modeled for the construction area, which included all PM_{10} exhaust from off-road equipment and on-road trucks. This approach is conservative since it concentrates emissions from on-road trucks to the project site, in proximity to sensitive receptors.
- **Source Release Characterizations:** For modeling construction emissions for the AAQA using AERMOD, based on number of concurrent activities and equipment usage for the project, it was assumed that approximately 25% of the total site area would have active construction activities at any one time (equates to an active area of 500 acres). For modeling emissions for the health risk assessment (HRA), it was assumed that construction would occur

across the entire solar fields. For both the AAQA and HRA, an initial vertical dimension of 1.4 meters and release height of 5 meters for diesel equipment and truck exhaust was assumed.

Operations

Since operational activities would be minimal, consisting of routine inspection and maintenance only, ambient air quality modeling was not performed.

2.4.2.5 Valley Fever Exposure

As noted above, there are no specific thresholds for the evaluation of potential Valley Fever exposure.

The Valley Fever fungal spores, *Coccidioides immitis*, live in the top 2 to 12 inches of soil in many parts of the state, including parts of Kern County. When fungal spores are present, any work activity that disturbs the soil, such as digging, grading, or other earth-moving operations, or vehicle operation on dirt roads, can cause the spores to become airborne, thereby increasing the risk of Valley Fever exposure (California Department of Industrial Relations 2013). All workers on sites where the fungus is present, and who are exposed to dusty conditions and wind-blown dusts, are at increased risk of becoming infected.

The fungal spores are too small to be seen by the naked eye, and there is no reliable way to test the soil for spores before working in a particular place (California Department of Public Health 2013). Accordingly, the Valley Fever analysis assumes the potential presence of the fungal spores within the project site. The potential for Valley Fever exposure as a result of the project is evaluated based on the anticipated earth-moving activities, and considers applicant-proposed measures and compliance with Rule 8021, Section 6.3, which requires development and implementation of a dust control plan to help control the release of the *Coccidioides immitis* fungus during construction activities.

2.4.2.6 Health Risk Assessment

Construction

This report includes a HRA associated with construction emissions and followed the methodologies prescribed in the California Environmental Protection Agency/Office of Environmental Health Hazard Assessment's (OEHHA's) *Air Toxics Hot Spots Program Risk Assessment Guidelines – Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2015), which was adopted in 2015 replacing the previous 2003 guidance manual. For risk assessment purposes, PM_{10} in diesel exhaust is considered DPM, originating mainly from off-road equipment operating at a defined location for a given length of time at a given distance from

sensitive receptors. Less-intensive, more-dispersed emissions result from on-road vehicle exhaust (e.g., heavy-duty diesel trucks). These emissions could result in elevated concentrations of DPM at nearby receptors, which could lead to an increase in the risk of cancer or other health impacts. Consequently, an HRA was performed to determine the extent of increased cancer risks and chronic health indices at the maximally exposed receptors from project construction.

The AERMOD parameter discussion included for the Ambient Air Quality Impacts section above also applies to the HRA. The dispersion of DPM was modeled using the AERMOD dispersion model, along with meteorological data provided by the CARB for the Mojave Airport, and the resultant health impacts were calculated using the CARB Hotspots Analysis and Reporting Program, Version 2 (HARP 2), which incorporates reference exposure levels (RELs) and cancer potency factors, which are periodically updated, and health effects calculations based on the 2015 OEHHA guidance manual. Accordingly, these risk assessments evaluate and reflect conservative, health-protective methodologies to assess health impacts to adults as well as infants, children, and other sensitive subpopulations. For the residential health risk associated with construction, the HRA assumes exposure would start in the third trimester of pregnancy and occur 8 hours per day, 5 days per week, for 2-years to account for the short-term construction activity duration.

Operations

Since operational activities would be minimal, consisting of routine inspection and maintenance only, no quantitative HRA was performed.

2.4.2.7 Carbon Monoxide Hotspot Analysis

As discussed in Section 2.4.1.1, Kern County established screening criteria to determine whether a project would result in a CO hotspot at affected roadway intersections.

2.4.2.8 Visibility Impacts

The County guidance states that potential impacts to visibility should be evaluated for all industrial projects and any other projects, such as mining projects, that have components that could generate dust or emissions related to visibility.

Per the Kern County guidelines, a visibility analysis is not required since the project is not a large industrial stationary-source project or a mining project, and it would not have long-term operational components that could generate substantial dust or emissions plumes related to visibility.

2.4.2.9 Odors

The County has not identified methods for assessing potential project-level odor impacts.

2.5 Impact Analysis

The EKAPCD significance criteria described in Section 2.4, Significance Criteria and Methodology, was used to evaluate air quality impacts associated with the construction and operation of the project.

2.5.1 Would the project conflict with or obstruct implementation of the applicable air quality plan?

A project is non-conforming with an air quality plan if it conflicts with or delays implementation of any applicable attainment or maintenance plan. A project is conforming if it complies with all applicable EKAPCD rules and regulations, complies with all proposed control measures that are not yet adopted from the applicable plan(s), and is consistent with the growth forecasts in the applicable plan(s) (or is directly included in the applicable plan). Zoning changes, specific plans, general plan amendments and similar land use plan changes which do not increase dwelling unit density, do not increase vehicle trips, and do not increase vehicle miles traveled are also deemed to comply with the applicable air quality plan. The project would be consistent with the Kern County General Plan and Kern County Zoning Ordinance upon approval of the project's conditional use permit.

The project would comply with all applicable EKAPCD rules and regulations, such as Rule 401 (Visible Emissions) and Rule 402 (Fugitive Dust). The project would not conflict with or propose to change existing land uses or result in population growth. However, as discussed in Section 2.5.2 and depicted in Table 7, short-term project construction emissions would exceed the EKAPCD significance thresholds for PM_{10}. As shown in Table 8, the implementation of mitigation measure MM-AQ-1 would reduce emissions, but not below the EKACPD threshold. In regards to long-term operations, the project would have routine inspection and maintenance, which would result in a net increase in emissions but would not exceed any EKACPD emissions thresholds. Because the MDAB is in non-attainment for PM_{10} and the project would result in significant temporary levels of PM10 emissions during construction, the project could conflict with or delay the attainment of the standard. Based on these considerations, the project would result in a significant and unavoidable impact.

Mitigation Measures

See section 2.5.2 for detailed discussion of MM-AQ-1.

Level of Significance After Mitigation

Impacts would be significant and unavoidable after implementation of MM-AQ-1.

2.5.2 Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Construction Emissions

Construction of the project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and VOC off-gassing) and off-site sources (i.e., on-road haul trucks, vendor trucks, and worker vehicle trips). Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and for dust, the prevailing weather conditions. Therefore, such emission levels can only be approximately estimated with a corresponding uncertainty in precise ambient air quality impacts.

As discussed in Section 2.4.2.1, Construction, criteria air pollutant emissions associated with temporary construction activity were quantified using CalEEMod. Construction emissions were calculated for the estimated worst-case day over the construction period associated with each phase and reported as the maximum daily emissions estimated during each year of construction (2020 and 2021). Construction schedule assumptions, including phase type, duration, and sequencing, were based on information provided by the project applicant and is intended to represent a reasonable scenario based on the best information available. Default values provided in CalEEMod were used where detailed project information was not available.

Implementation of the project would generate air pollutant emissions from entrained dust, off-road equipment, vehicle emissions, and architectural coatings. Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. The project would be required to comply with EKAPCD Rule 402 to control dust emissions generated during the grading activities. Standard construction practices that would be employed to reduce fugitive dust emissions include watering of the active sites three times per day depending on weather conditions. Internal combustion engines used by construction equipment, vendor trucks (i.e., delivery trucks), and worker vehicles would result in emissions of ROGs, NO_x, CO, PM_{10}, and $PM_{2.5}$. The application of architectural coatings, such as exterior application/interior paint and other finishes, and application of asphalt pavement would also produce ROG emissions; however, the contractor is required to procure architectural coatings from a supplier in compliance with the requirements of EKAPCD's Rule 410.1 (Architectural Coating Controls).

Table 5 presents the estimated maximum daily construction emissions generated during construction of the project. Details of the emission calculations are provided in Appendix A.

Table 5
Estimated Maximum Daily Mobile Unmitigated Construction Criteria Air Pollutant Emissions

Year	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	pounds per day					
2020	23.57	84.16	203.62	0.88	303.41	36.78
2021	16.34	58.13	142.71	0.67	233.52	28.08
Maximum Daily Mobile Emissions	**23.57**	**84.16**	**203.62**	**0.88**	**303.41**	**36.78**
EKAPCD Mobile Threshold	**137**	**137**	**-**	**-**	**-**	**-**
Threshold Exceeded?	No	No	No	No	No	No

Notes: CO = carbon monoxide; NO_x = oxides of nitrogen; EKAPCD = Eastern Kern Air Quality Pollution Control District; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SO_x = sulfur oxides; ROG = reactive organic gases

See Appendix A for complete results.

Maximum daily emissions of ROG, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions would occur during the construction phase in 2020 and 2021 as a result of off-road equipment operation and on-road vendor trucks and haul trucks. The overlap of the system installation phase and the trenching phases in 2020 would produce the maximum daily ROG and NO_x emissions. As shown in Table 5, daily construction emissions would not exceed the EKAPCD significance thresholds for ROG or NO_x in all construction years. Table 6 presents the estimated annual construction emissions generated during construction of the project in 2020 and 2021.

Table 6
Estimated Annual Construction Criteria Air Pollutant Emissions

Year	ROG	NOx	CO	SO_x	PM_{10}	$PM_{2.5}$
	tons per year					
2020	2.76	21.26	15.55	0.09	**97.36**	**10.91**
2021	0.69	5.51	15.55	0.02	27.48	3.03
Maximum Annual Emissions	**2.76**	**15.55**	**21.26**	**0.08**	**97.36**	**10.91**
EKAPCD Threshold	**25**	**25**	**-**	**27**	**15**	**-**
Threshold Exceeded?	No	No	No	No	**Yes**	No

Notes: CO = carbon monoxide; NO_x = oxides of nitrogen; EKAPCD = Eastern Kern Air Quality Pollution Control District; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SO_x = sulfur oxides; ROG = reactive organic gases
See Appendix A for complete results.

As shown in Table 6, the project would not exceed the EKAPCD annual emissions thresholds for ROG, NO_x, CO, SO_x, or $PM_{2.5}$ in either construction year. However, the project would exceed the

EKAPCD mass thresholds for $PM_{10.}$ Therefore, impacts would be potentially significant before mitigation.

In addition to the mass emissions analysis presented above, an AAQA was performed using AERMOD for the 24-hour and annual averaging periods where the maximum concentration for each source and receptor combination was generated to produce worst-case concentrations for PM_{10} and $PM_{2.5}$ based on an 8-hour per day, 5-day per week construction schedule. The particulates were modeled together, with a normalized (i.e., unit) emission rate of 1 gram per second for the area source. The use of a normalized emission rate enabled the modeling run outputs to be used for multiple pollutant analyses. This procedure is described as follows:

- For Step 1 of the AAQA analysis, the maximum background concentration for the monitoring stations closest to the project site (see Appendix A) for each pollutant and averaging period combination was added to the corresponding maximum GLC (project impact). The sum of these values was then compared to the corresponding CAAQS and NAAQS. If the project impact did not cause an exceedance of an AAQS, then the analysis was complete for that source/receptor/pollutant combination because no exceedance of an ambient air quality standard would occur. If the project impact caused an exceedance of an AAQS, then the analysis proceeded to Step 2.
- Step 2 was similar to a Step 1 with one major difference. If the background concentration plus GLC exceeds an AAQS, including instances where the background concentration alone exceeds an AAQS, the maximum GLC of each pollutant and averaging period combination was compared to its corresponding significant impact level (SIL), where a value exceeding the SIL is considered an indicator that the GLC represents a substantial contribution to an exceedance of an AAQS. If the maximum GLC did not exceed the corresponding SIL, then the analysis was complete for that source/receptor/pollutant combination because the emissions would not be considered to contribute to an exceedance of an AAQS, and no further action was required.

Table 7 presents a summary of the two-step process taken to determine whether construction activities associated with the project would cause or contribute to ambient air quality impacts, with the detailed AAQA included in Dudek's AAQA& HRA. (Dudek 2018)

Table 7
Unmitigated Construction Ambient Air Quality Impact Assessment Results[1]

STEP 1 – Ambient Air Quality Standard Basis				
Impact Parameter	*Applicable Standard*	*AAQS*	*Maximum Concentration: Project + Background Levels*	
		μg/m³	*μg/m³*	*Exceed AAQS?*
24-hour PM_{10}	State	50	411	*Yes (Step 2)*
	Federal	150	424	*Yes (Step 2)*
Annual PM_{10}	State	20	56	*Yes (Step 2)*
24-hour $PM_{2.5}$	Federal	35	69	*Yes (Step 2)*
Annual $PM_{2.5}$	State	12	10	No
	Federal	12	11	No
STEP 2 – EPA Significant Impact Level (SIL) Basis				
Impact Parameter		*Class II SILs*	*Project Construction*	
		μg/m³	*μg/m³*	*Exceed SIL?*
24-hour PM_{10}		5	240	*Yes*
Annual PM_{10}		1	32	*Yes*
24-hour $PM_{2.5}$		5	27	*Yes*

Note: AAQS = Ambient Air Quality Standard; CO = carbon monoxide; NO_2 = nitrogen dioxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; EPA = Environmental Protection Agency; SIL = significant impact level
Source: Dudek 2018.

[1] Step 1 – the AAQS basis compares the background concentrations plus project contribution to the state and federal AAQS to determine if there would be an exceedance of the respective standard. For PM_{10} and $PM_{2.5}$, background concentrations already exceed the applicable AAQS (except for the annual state and federal $PM_{2.5}$ AAQS), so Step 2—the SIL basis—compares the project contributions to levels determined by the EKAPCD to cause or contribute to ambient air quality exceedances and impacts.

As demonstrated in Table 7, the project would result in construction activities that could generate ambient concentrations of PM_{10} and $PM_{2.5}$ above the applicable thresholds. This impact would be potentially significant.

Construction Mitigation Measures

MM-AQ-1: As the project would be completed in compliance with Eastern Kern Air Pollution Control District Rules and Regulations, dust-control measures would be taken to ensure compliance specifically during grading and construction phases:

- The developer shall comply with the applicable provisions of Eastern Kern Air Pollution Control District Rule 402 that addresses man-made dust sources from large earthmoving and construction operations. The following specific controls shall be implemented:
    - Onsite vehicle speed shall be limited to 15 miles per hour.

- All areas with vehicle traffic and grading activity shall be paved, treated with dust palliatives, or watered a minimum of twice daily.
- Streets adjacent to the project site shall be kept clean and accumulated silt removed.
- Access to the site shall be by means of an apron into the project from adjoining surfaced roadways. The apron shall be surfaced or treated with dust palliatives. If operating on soils that cling to the wheels of the vehicles, a grizzly or other such device shall be used on the road exiting the project, immediately prior to the pavement, in order to remove most of the soil material from the vehicle's tires.

Construction Level of Significance After Mitigation

Table 8 presents the estimated maximum annual mitigated construction emissions generated during construction of the project.

Table 8
Estimated Maximum Annual Mitigated Construction Criteria Air Pollutant Emissions

Year	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	tons per year					
2020	2.76	21.26	15.55	0.09	26.06	3.56
2021	0.69	5.51	3.62	0.02	7.35	0.96
Maximum Annual Emissions	**2.76**	**21.26**	**15.55**	**0.09**	**26.06**	**3.56**
EKAPCD Threshold	**25**	**25**	**-**	**27**	**15**	**-**
Threshold Exceeded?	No	No	No	No	**Yes**	No

Notes: CO = carbon monoxide; NO_x = oxides of nitrogen; EKAPCD= Eastern Kern Air Pollution Control District; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SO_x = sulfur oxides; ROG = reactive organic gases
Mitigation measures incorporated include watering 2 times daily and limited vehicle speed for compliance with Rule 402.
See Appendix A for complete results.

As shown in Table 8, with implementation of MM-AQ-1, the project would still exceed thresholds for PM_{10}. Therefore, construction impacts would be significant and unavoidable. However, construction-generated emissions would be temporary and would not represent a long-term source of criteria air pollutant emissions. Table 9 presents the mitigated construction AAQA.

Table 9
Mitigated Construction Ambient Air Quality Impact Assessment Results[1]

STEP 1 – Ambient Air Quality Standard Basis				
Impact Parameter	*Applicable Standard*	*AAQS*	*Maximum Concentration: Project + Background Levels*	
		μg/m³	*μg/m³*	*Exceed AAQS?*
24-hour PM_{10}	State	50	234	*Yes (Step 2)*
	Federal	150	247	*Yes (Step 2)*
Annual PM_{10}	State	20	32	*Yes (Step 2)*
24-hour $PM_{2.5}$	Federal	35	51	*Yes (Step 2)*
Annual $PM_{2.5}$	State	12	7	No
	Federal	12	9	No
STEP 2 – EPA Significant Impact Level (SIL) Basis				
Impact Parameter		*Class II SILs*	*Project Construction*	
		μg/m³	*μg/m³*	*Exceed SIL?*
24-hour PM_{10}		5	63	*Yes*
Annual PM_{10}		1	9	*Yes*
24-hour $PM_{2.5}$		5	9	*Yes*

Note: AAQS = Ambient Air Quality Standard; CO = carbon monoxide; NO_2 = nitrogen dioxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; EPA = Environmental Protection Agency; SIL = significant impact level
See Appendix A for complete results. These results include compliance with fugitive dust control requirements of EKAPCD Rule 402.

[1] Step 1 – the AAQS basis compares the background concentrations plus project contribution to the state and federal AAQS to determine if there would be an exceedance of the respective standard. For PM_{10} and $PM_{2.5}$, background concentrations already exceed the applicable AAQS (except for the annual state and federal $PM_{2.5}$ AAQS), so Step 2—the SIL basis—compares the project contributions to levels determined by the EKAPCD to cause or contribute to ambient air quality exceedances and impacts.

As demonstrated in Table 9, mitigation measures would reduce PM_{10} and $PM_{2.5}$ concentrations associated with project construction, but the project would still result in construction activities that would generate ambient concentrations of PM_{10} and $PM_{2.5}$ above the applicable thresholds. The project would result in a significant and unavoidable impact from construction-related emissions of particulate matter.

Operational Emissions

The project involves development of a 300 MW PV solar energy facility with an energy storage system and overhead gen-tie line. Operation of the project would generate ROG, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from mobile sources, including vehicle trips from maintenance vehicles. As discussed in Section 2.4.2.2, Operation, pollutant emissions associated with long-term operations were quantified using CalEEMod. Project-generated mobile source emissions were estimated based on project-specific trip rates.

Table 10 presents the maximum daily mobile source emissions associated with operation (year 2022) of the project. The values shown are the maximum daily emissions results from the operation of the project. Details of the emission calculations are provided in Appendix A.

Table 10
Estimated Maximum Daily Mobile Operational Criteria Air Pollutant Emissions

Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	pounds per day					
Mobile	0.12	1.29	1.21	0.01	0.36	0.10
Total Daily Emissions	**0.12**	**1.29**	**1.21**	**0.01**	**0.36**	**0.10**
EKAPCD Threshold	**137**	**137**	**-**	**-**	**-**	**-**
Threshold Exceeded?	No	-	No	-	-	-

Notes: CO = carbon monoxide; NO_x = oxides of nitrogen; EKAPCD = Eastern Kern Air Pollution Control District; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SO_x = sulfur oxides; ROG = reactive organic gases
Operational emissions in year 2022 presented.
See Appendix A for complete results.

As shown in Table 10, the combined daily area, energy, and mobile source emissions would not exceed the EKAPCD operational thresholds for ROG, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$. Impacts associated with project-generated operational criteria air pollutant emissions would be less than significant. Table 11 depicts the combined annual operational emissions generated by the project.

Table 11
Estimated Maximum Annual Operational Criteria Air Pollutant Emissions

	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Tons per year					
Area	0.15	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.02	0.02	0.00	0.00	0.00
Mobile	0.02	0.24	0.21	0.00	0.06	0.02
Off-road	0.00	0.03	0.04	0.01	0.01	0.00
Total Daily Emissions	**0.17**	**0.29**	**0.27**	**0.00**	**0.07**	**0.02**
EKAPCD Threshold	**25**	**25**	**-**	**27**	**15**	**-**
Threshold Exceeded?	No	No	-	-	-	-

Notes: CO = carbon monoxide; NO_x = oxides of nitrogen; EKAPCD = Eastern Kern Air Quality Pollution Control District; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SO_x = sulfur oxides; ROG = reactive organic gases
Operational emissions in year 2022 presented.
See Appendix A for complete results.

As shown in Table 11, the combined annual area, energy, and mobile source emissions would not exceed the EKAPCD operational thresholds for ROG, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$. Impacts

associated with project-generated operational criteria air pollutant emissions would be less than significant.

Operational Mitigation Measures

No operational mitigation measures required.

Operational Level of Significance After Mitigation

Operational impacts would be less than significant without mitigation.

2.5.3 Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and the EKAPCD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, project-level thresholds of significance for criteria pollutants are relevant in the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality. As described in Section 2.5.2, the project would have a less than significant impact with mitigation for construction and a less than significant impact for operations.

The MDAB is a nonattainment area for O_3, PM_{10}, and $PM_{2.5}$ under the NAAQS and/or CAAQS. The poor air quality in the MDAB is the result of cumulative emissions from motor vehicles, off-road equipment, commercial and industrial facilities, and other emission sources. Projects that emit these pollutants or their precursors (i.e., ROG and NO_x for O_3) potentially contribute to poor air quality. As indicated in Table 8, annual construction emissions associated with the project would exceed the EKAPCD significance thresholds for PM_{10} with mitigation. The project would not generate a long-term increase in operational emissions, as shown in Table 11. Furthermore, the project would not conflict with the EKAPCD 2017 Ozone Attainment Plan, which address the cumulative emissions for Ozone and its precursors in the MDAB and account for emissions associated with construction activity in the MDAB.

Kern County's Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports (County of Kern 2006) requires three steps for estimating the potential significance of cumulative impacts (1) evaluate localized impacts (Guideline Instruction 16a), (2) evaluate

consistency with existing air quality plans (Guideline Instruction 16b), and (3) summarize CARB air basin emissions (Guideline Instruction 16c).

A review of the Kern County records indicates that, at the time this analysis was completed, there were 13 active Tentative Tracts or planned developments within a 1-mile radius of the proposed project and 50 planned developments within a 6-mile radius. A table listing both the 1-mile radius projects and 6-mile projects can be found in Appendix A.

Significant cumulative impacts from the proposed project, when considered with nearby, reasonably foreseeable planned projects, would occur, potentially, only during project construction. The majority of project emissions would occur temporarily during the construction phase. After that, there would be minimal emissions and insignificant cumulative impacts during operation of the proposed project.

As shown in Table 12, the increased emissions contributed by the project in relation to the total air basin appears to be insignificant since basin emissions would be essentially the same regardless of whether or not the project is approved.

Table 12
Annual Cumulative Percentage of Project Construction Emissions

	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Tons per year					
Kern County[1]	138,382.34	28,064.85	67,054.15	3,405.45	19,881.55	7,059.10
MDAB[2]	28,309.00	64,276.50	101,616.00	3,978.50	48,435.50	13,541.50
Proposed Project	2.76	21.26	15.55	0.09	26.06	3.56
Proposed Project % of Kern County	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Proposed Project % of MDAB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Notes: CO = carbon monoxide; NO_x = oxides of nitrogen; MDAB = Mojave Desert Air Basin; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SO_x = sulfur oxides; ROG = reactive organic gases
Maximum annual construction were presented.
Source: [1](CARB 2019a) [2](CARB 2019b)

With possible overlapping construction schedules, there is the potential for cumulative air quality impacts from the combination of the proposed project and proximate projects listed in Appendix A. However, the proposed project is required by EKCAPCD regulations to implement fugitive dust control measures to comply with Rule 402. The other projects will also be subject to Rule 402. Therefore based on the project's insignificant contribution of emissions of criteria air pollutant cumulative impacts on air quality would be less than significant.

Mitigation Measures

See section 2.5.2 for detailed discussion of MM-AQ-1.

Level of Significance After Mitigation

Impacts would be significant and unavoidable after the implementation of MM-AQ-1.

2.5.4 Would the project expose sensitive receptors to substantial pollutant concentrations?

Kern County considers residences, schools, hospitals, etc. to be sensitive receptor land uses (Kern County 2006). Land uses surrounding the proposed work areas consists primarily of undeveloped open space areas in the Mojave Desert, as well as rural residential land uses.

2.5.4.1 Valley Fever Exposure

As previously discussed, the project would be required to comply with Rule 402, which requires applicants to develop, prepare, submit, obtain approval of, and implement a Dust Control Plan, which would also control the release of the *Coccidioides immitis* fungus from construction activities. This requirement is included in MM-AQ-1. However, exposure to the *Coccidioides immitis* fungus would be potentially significant and MM-AQ-2 is provided to further reduce impacts associated with Valley Fever and to protect on-site construction workers and nearby receptors.

Mitigation Measures

In addition to MM-AQ-1 (Fugitive Dust) described in Section 2.5.2 above, the following mitigation measures are required to reduce the potential for construction workers and proximate residents to contract Valley Fever associated with project construction.

MM-AQ-2 **Valley Fever.** Prior to ground disturbance activities, the project proponent shall provide evidence to the Kern County Planning and Community Development Department that the project operator and/or construction manager has developed a "Valley Fever Training Handout", training, and schedule of sessions for education to be provided to all construction personnel. All evidence of the training session materials, handout(s) and schedule shall be submitted to the Kern County Planning and Community Development Department. Multiple training sessions may be conducted if different work crews will come to the site for different stages of construction; however, all construction personnel shall be provided training prior to beginning work. The evidence submitted to the Kern County Planning and

Community Development Department regarding the "Valley Fever Training Handout" and Session(s) shall include the following:

a. A sign-in sheet (to include the printed employee names, signature, and date) for all employees who attended the training session.

b. Distribution of a written flier or brochure that includes educational information regarding the health effects of exposure to criteria pollutant emissions and Valley Fever.

c. Training on methods that may help prevent Valley Fever infection.

d. A demonstration to employees on how to use personal protective equipment, such as respiratory equipment (masks), to reduce exposure to pollutants and facilitate recognition of symptoms and earlier treatment of Valley Fever. Where respirators are required, the equipment shall be readily available and shall be provided to employees for use during work. Proof that the demonstration is included in the training shall be submitted to the county. This proof can be via printed training materials/agenda, DVD, digital media files, or photographs.

The project proponent also shall consult with the County Health Services Department to develop a Valley Fever Dust Management Plan that addresses the potential presence of the *Coccidioides* spore and mitigates for the potential for Coccidioidomycosis (Valley Fever). Prior to issuance of permits, the project operator shall submit the Plan to the County Services Health Department. The Plan shall include a program to evaluate the potential for exposure to Valley Fever from construction activities and to identify appropriate safety procedures that shall be implemented, as needed, to minimize personnel and public exposure to potential *Coccidioides* spores. Measures in the Plan shall include the following:

a. Provide High-Efficiency Particulate Air (HEPA) filters for heavy equipment equipped with factory enclosed cabs capable of accepting the filters. Require contractors utilizing applicable heavy equipment to furnish proof of worker training on proper use of applicable heavy equipment cabs, such as turning on air conditioning prior to using the equipment.

b. Provide communication methods, such as two-way radios, for use in enclosed cabs.

c. Require National Institute for Occupational Safety and Health (NIOSH)-approved half-face respirators equipped with minimum N-95 protection factor for use during worker collocation with surface disturbance activities, as required per the hazard assessment process.

d. Cause employees to be medically evaluated, fit-tested, and properly trained on the use of the respirators, and implement a full respiratory protection program in accordance with the applicable California Occupational Safety and Health Administration Respiratory Protection Standard (8 CCR 5144).

e. Provide separate, clean eating areas with hand-washing facilities.

f. Install equipment inspection stations at each construction equipment access/egress point. Examine construction vehicles and equipment for excess soil material and clean, as necessary, before equipment is moved off-site.

g. Train workers to recognize the symptoms of Valley Fever, and to promptly report suspected symptoms of work-related Valley Fever to a supervisor.

h. Work with a medical professional to develop a protocol to medically evaluate employees who develop symptoms of Valley Fever.

i. Work with a medical professional, in consultation with the County Health Services Department, to develop an educational handout for on-site workers and surrounding residents within three miles of the project site, and include the following information on Valley Fever: what are the potential sources/ causes, what are the common symptoms, what are the options or remedies available should someone be experiencing these symptoms, and where testing for exposure is available. Prior to construction permit issuance, this handout shall have been created by the project operator and reviewed by the County. No less than 30 days prior to any work commencing, this handout shall be mailed to all existing residences within three miles of the project boundaries.

j. When possible, position workers upwind or crosswind when digging a trench or performing other soil-disturbing tasks.

k. Prohibit smoking at the worksite outside of designated smoking areas; designated smoking areas will be equipped with handwashing facilities.

l. Post warnings on-site and consider limiting access to visitors, especially those without adequate training and respiratory protection.

m. Audit and enforce compliance with relevant California Occupational Safety and Health Administration health and safety standards on the jobsite.

Level of Significance After Mitigation

Implementation of MM-AQ-1 and MM-AQ-2 would reduce impacts related to Valley Fever to a level that is less than significant.

2.5.4.2 Construction Health Risk Assessment

As discussed in Section 2.4.2.6, OEHHA approved the new *Air Toxics Hot Spots Program Risk Assessment Guidelines – Guidance Manual for Preparation of Health Risk Assessments* in March 2015. Based on the HRA results included in Dudek's HRA report, the maximally exposed individual residence (MEIR) would be located directly north of the project boundary at Universal Transverse Mercator (UTM) coordinates 396997.28m E, 3877296.01m N. Potential health risks at the MEIR resulting from construction activities are shown in Table 13.

Table 13
Construction Related Health Risk Assessment

Receptor	Cancer Risk (per Million)	Chronic Hazard Index
Unmitigated		
MEIR	0.90	0.0005
EKAPCD Significance Criteria	10	1
Exceed Threshold?	**No**	**No**

Note: MEIR = Maximally Exposed Individual Resident; EKAPCD = Eastern Kern Air Pollution Control District
Source Dudek 2018.
DPM exposure at receptors was modeled with AERMOD, the results of which were then input into HARP 2 to generate health risk estimates. For the MEIR, exposure was assumed to begin during the third trimester of pregnancy for a duration of 8 hours per day, 5 days per week, for 2-years to account for the short-term construction activity duration.

As depicted in Table 13, unmitigated project construction would emit TACs that would result in cancer risk and chronic hazard index at the MEIR below the EKAPCD thresholds of 10 in a million and 1, respectively. Overall, impacts associated with the project's potential to expose sensitive receptors to substantial TACs due to the project-generated construction emissions would be less than significant.

Mitigation Measures

None required.

Level of Significance After Mitigation

Health risk impacts would be less than significant without mitigation.

2.5.4.3 Carbon Monoxide Hotspot Analysis

As discussed in Section 2.4.1, Thresholds of Significance and 2.4.2, Approach and Methodology, Kern County have established criteria to determine if a project would potentially result in a CO hotspot.

The County's guidance states that a CO hotspot analysis using the CALINE4 model would be required for the following project conditions:

- LOS of an intersection or roadway is identified as LOS E or worse.
- Signalization and/or channelization is added to an intersection.
- Sensitive receptors such as residences, schools, and hospitals are located in the vicinity of the affected intersection or signalization.

The project would have trip generation associated with construction worker vehicles and vendor trucks. As construction is only expected to last 18 months, it would be considered temporary and would not result in a long-term source of CO emissions. Also, the project would create minimal emission sources during operation. As identified in the project's Traffic Impact Analysis, the project would not cause the LOS of any studied intersection or roadway to operate at LOS E or worse during construction or operation or require adding signalization or channelization to an intersection. As such, a CO hotspot analysis is not required and the potential project-generated impacts associated with CO hotspots would be less than significant.

Mitigation Measures

None required.

Level of Significance After Mitigation

Impacts would be less than significant without mitigation.

2.5.4.4 Visibility Impacts

As discussed in Section 2.4.1, Thresholds of Significance and 2.4.2, Approach and Methodology, Kern County has established criteria to determine if a project would potentially result in a visibility impact; however, the EKAPCD has not established guidance to address visibility in CEQA documents. Per the Kern County guidelines, a visibility analysis is not required since the project is not a large industrial stationary source project or a mining project, and it would not have long-term operational components that could generate dust or emissions plumes related to visibility. Compliance with Rule 402 VIII, including implementation of a dust control plan, is sufficient mitigation to reduce air quality effects from construction-related PM_{10} emissions to a less-than-significant level

The project's potential to expose sensitive receptors to substantial pollutant concentrations associated with potential visibility impacts would be less than significant and no mitigation is required.

Mitigation Measures

None required.

Level of Significance After Mitigation

Impacts would be less than significant without mitigation.

Impact Summary

The project's impact related to the potential to expose sensitive receptors to substantial pollutant concentrations would be less than significant without mitigation in regards to construction health risk, CO hotspots, and visibility related impacts. The project's impact related to the potential to expose sensitive receptors to substantial pollutant concentrations would be less than significant with mitigation in regards to Valley Fever (MM-AQ-2).

2.5.5 Would the project create objectionable odors affecting a substantial number of people?

Odors are a form of air pollution that is most obvious to the general public and can present problems for both the source and surrounding community. Although offensive odors seldom cause physical harm, they can be annoying and cause concern. Odors would be potentially generated from vehicles and equipment exhaust emissions during construction of the project. Odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment. Such odors are temporary and generally occur at magnitudes that would not affect substantial numbers of people. In regards to long-term operations, the project would not change the routine inspection and maintenance of the existing transmission lines and would not result in any sources of substantial odors. Therefore, impacts associated with odors would be considered less than significant.

Mitigation Measures

None required.

Level of Significance After Mitigation

Impacts would be less than significant without mitigation.

3 GREENHOUSE GAS EMISSIONS

3.1 Environmental Setting

3.1.1 Climate Change Overview

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period of time (decades or longer). The Earth's temperature depends on the balance between energy entering and leaving the planet's system. Many factors, both natural and human, can cause changes in Earth's energy balance, including variations in the sun's energy reaching Earth, changes in the reflectivity of Earth's atmosphere and surface, and changes in the greenhouse effect, which affects the amount of heat retained by Earth's atmosphere (EPA 2017a).

The greenhouse effect is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. The greenhouse effect traps heat in the troposphere through a threefold process as follows: Short-wave radiation emitted by the Sun is absorbed by the Earth, the Earth emits a portion of this energy in the form of long-wave radiation, and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and toward the Earth. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature and creates a pleasant, livable environment on the Earth. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect and causing the Earth's surface temperature to rise.

The scientific record of the Earth's climate shows that the climate system varies naturally over a wide range of time scales and that, in general, climate changes prior to the Industrial Revolution in the 1700s can be explained by natural causes, such as changes in solar energy, volcanic eruptions, and natural changes in GHG concentrations. Recent climate changes, in particular the warming observed over the past century, however, cannot be explained by natural causes alone. Rather, it is extremely likely that human activities have been the dominant cause of that warming since the mid-twentieth century and is the most significant driver of observed climate change (IPCC 2014; EPA 2017a). Human influence on the climate system is evident from the increasing GHG concentrations in the atmosphere, positive radiative forcing, observed warming, and improved understanding of the climate system (IPCC 2014). The atmospheric concentrations of GHGs have increased to levels unprecedented in the last 800,000 years, primarily from fossil fuel emissions and secondarily from emissions associated with land use changes (IPCC 2014). Continued emissions of GHGs will cause further warming and changes in all components of the climate system, which is discussed further in Section 3.3.2, Potential Effects of Climate Change.

3.1.2 Climate Forcing Substances

Climate forcing substances include GHGs and other substances such as black carbon and aerosols. A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. GHGs include, but are not limited to, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), O_3, fluorinated gases (hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6) and nitrogen trifluoride (NF_3)), chlorofluorocarbons (CFCs), and hydrochlorofluorocarbons (HCFCs), in addition to water vapor.[7] Some GHGs, such as CO_2, CH_4, and N_2O, occur naturally and are emitted to the atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Some industrial gases are also GHGs that have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as HFCs, PFCs, and SF_6, which are associated with certain industrial products and processes. A summary of the most common GHGs and their sources is included in the following text.[8] Also included is a discussion of other climate forcing substances.

Carbon Dioxide. CO_2 is a naturally occurring gas and a by-product of human activities and is the principal anthropogenic GHG that affects the Earth's radiative balance. Natural sources of CO_2 include respiration of bacteria, plants, animals, and fungus; evaporation from oceans; volcanic out-gassing; and decomposition of dead organic matter. Human activities that generate CO_2 are from the combustion of fuels such as coal, oil, natural gas, and wood and changes in land use.

Methane. CH_4 is produced through both natural and human activities. CH_4 is a flammable gas and is the main component of natural gas. Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, flooded rice fields, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

Nitrous Oxide. N_2O is produced through natural and human activities, mainly through agricultural activities and natural biological processes, although fuel burning and other processes also create N_2O. Sources of N_2O include soil cultivation practices (microbial processes in soil and water), especially the use of commercial and organic fertilizers, manure management, industrial processes (such as in nitric acid production, nylon production, and fossil-fuel-fired power plants), vehicle emissions, and using N_2O as a propellant (such as in rockets, racecars, and aerosol sprays).

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7 California Health and Safety Code, Section 38505, identifies seven GHGs that ARB is responsible to monitor and regulate to reduce emissions: CO_2, CH_4, N_2O, SF_6, HFCs, PFCs, and NF_3.

8 The descriptions of GHGs are summarized from the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report (1995), IPCC Fourth Assessment Report (2007), ARB's Glossary of Terms Used in GHG Inventories (2015), and EPA's Glossary of Climate Change Terms (2016a).

Fluorinated Gases. Fluorinated gases (also referred to as F-gases) are synthetic powerful GHGs emitted from many industrial processes. Fluorinated gases are commonly used as substitutes for stratospheric ozone-depleting substances (e.g., CFCs, HCFCs, and halons). The most prevalent fluorinated gases include the following:

- **Hydrofluorocarbons:** HFCs are compounds containing only hydrogen, fluorine, and carbon atoms. HFCs are synthetic chemicals used as alternatives to ozone-depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are used in manufacturing.

- **Perfluorocarbons:** PFCs are a group of human-made chemicals composed of carbon and fluorine only. These chemicals were introduced as alternatives, with HFCs, to the ozone depleting substances. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing. Since PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere, these chemicals have long lifetimes, ranging between 10,000 and 50,000 years.

- **Sulfur Hexafluoride:** SF_6 is a colorless gas soluble in alcohol and ether and slightly soluble in water. SF_6 is used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.

- **Nitrogen Trifluoride:** NF_3 is used in the manufacture of a variety of electronics, including semiconductors and flat panel displays.

Chlorofluorocarbons. CFCs are synthetic chemicals that have been used as cleaning solvents, refrigerants, and aerosol propellants. CFCs are chemically unreactive in the lower atmosphere (troposphere) and the production of CFCs was prohibited in 1987 due to the chemical destruction of stratospheric O_3.

Hydrochlorofluorocarbons. HCFCs are a large group of compounds, whose structure is very close to that of CFCs—containing hydrogen, fluorine, chlorine, and carbon atoms—but including one or more hydrogen atoms. Like HFCs, HCFCs are used in refrigerants and propellants. HCFCs were also used in place of CFCs for some applications; however, their use in general is being phased out.

Black Carbon. Black carbon is a component of fine particulate matter, which has been identified as a leading environmental risk factor for premature death. It is produced from the incomplete combustion of fossil fuels and biomass burning, particularly from older diesel engines and forest fires. Black carbon warms the atmosphere by absorbing solar radiation, influences cloud

formation, and darkens the surface of snow and ice, which accelerates heat absorption and melting. Black carbon is a short-lived species that varies spatially, which makes it difficult to quantify the global warming potential. Diesel particulate matter emissions are a major source of black carbon and are TACs that have been regulated and controlled in California for several decades to protect public health. In relation to declining diesel particulate matter from ARB's regulations pertaining to diesel engines, diesel fuels, and burning activities, ARB estimates that annual black carbon emissions in California have reduced by 70% between 1990 and 2010, with 95% control expected by 2020 (CARB 2014).

Water Vapor. The primary source of water vapor is evaporation from the ocean, with additional vapor generated by sublimation (change from solid to gas) from ice and snow, evaporation from other water bodies, and transpiration from plant leaves. Water vapor is the most important, abundant, and variable GHG in the atmosphere and maintains a climate necessary for life.

Ozone. Tropospheric O_3, which is created by photochemical reactions involving gases from both natural sources and human activities, acts as a GHG. Stratospheric O_3, which is created by the interaction between solar ultraviolet radiation and molecular oxygen (O_2), plays a decisive role in the stratospheric radiative balance. Depletion of stratospheric O_3, due to chemical reactions that may be enhanced by climate change, results in an increased ground-level flux of ultraviolet-B radiation.

Aerosols. Aerosols are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light.

3.1.3 Global Warming Potential

Gases in the atmosphere can contribute to climate change both directly and indirectly. Direct effects occur when the gas itself absorbs radiation. Indirect radiative forcing occurs when chemical transformations of the substance produce other GHGs, when a gas influences the atmospheric lifetimes of other gases, and/or when a gas affects atmospheric processes that alter the radiative balance of the Earth (e.g., affect cloud formation or albedo) (EPA 2016a). The Intergovernmental Panel on Climate Change (IPCC) developed the global warming potential (GWP) concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram of a trace substance relative to that of 1 kilogram of a reference gas (IPCC 2014). The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons of CO_2 equivalent (MT CO_2e).

The current version of the California Emissions Estimator Model (CalEEMod) (version 2016.3.1) assumes that the GWP for CH_4 is 25 (so emissions of 1 MT of CH_4 are equivalent to emissions of 25 MT of CO_2), and the GWP for N_2O is 298, based on the IPCC Fourth Assessment Report (IPCC 2007). The GWP values identified in CalEEMod were applied to the project.

3.2 Regulatory Setting

3.2.1 Federal Regulations

Massachusetts v. EPA. In *Massachusetts v. EPA* (April 2007), the U.S. Supreme Court directed the EPA administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In December 2009, the administrator signed a final rule with the following two distinct findings regarding GHGs under Section 202(a) of the federal Clean Air Act:

- The Administrator found that elevated concentrations of GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations. This is the "endangerment finding."
- The Administrator further found the combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

Energy Independence and Security Act of 2007. The Energy Independence and Security Act of 2007 (December 2007), among other key measures, would do the following, which would aid in the reduction of national GHG emissions (EPA 2007):

- Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
- Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020, and directs National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.

- Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy-efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

Federal Vehicle Standards. In response to the U.S. Supreme Court ruling discussed above, the Bush Administration issued Executive Order 13432 in 2007 directing the EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the NHTSA issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011, and in 2010, the EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016.

In 2010, President Barack Obama issued a memorandum directing the Department of Transportation, Department of Energy, EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards projected to achieve 163 grams per mile of CO_2 in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021, and NHTSA intends to set standards for model years 2022–2025 in a future rulemaking. On January 12, 2017, the EPA finalized its decision to maintain the current greenhouse (GHG) emissions standards for model years 2022–2025 cars and light trucks (EPA 2017b).

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6%–23% over the 2010 baselines.

In August 2016, the EPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model year 2018 through 2027 for certain trailers, and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans, and all types and sizes of buses and work trucks. The final standards are expected to lower CO_2 emissions by approximately 1.1 billion MT and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program (EPA and NHTSA 2016).

Clean Power Plan and New Source Performance Standards for Electric Generating Units. On October 23, 2015, EPA published a final rule (effective December 22, 2015) establishing the Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units (80 FR 64510–64660), also known as the Clean Power Plan. These guidelines prescribe how states must develop plans to reduce GHG emissions from existing fossil-fuel-fired electric generating units. The guidelines establish CO_2 emission performance rates representing the best system of emission reduction for two subcategories of existing fossil-fuel-fired electric generating units: (1) fossil-fuel-fired electric utility steam-generating units, and (2) stationary combustion turbines. Concurrently, the EPA published a final rule (effective October 23, 2015) establishing Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units (80 FR 64661–65120). The rule prescribes CO_2 emission standards for newly constructed, modified, and reconstructed affected fossil-fuel-fired electric utility generating units. The U.S. Supreme Court stayed implementation of the Clean Power Plan pending resolution of several lawsuits. Additionally, in March 2017, President Trump directed the EPA Administrator to review the Clean Power Plan in order to determine whether it is consistent with current executive policies concerning GHG emissions, climate change and energy.

3.2.2 State Regulations

The statewide GHG emissions regulatory framework is summarized below by category: state climate change targets, building energy, renewable energy and energy procurement, mobile sources, solid waste, water, and other state regulations and goals. The following text describes executive orders (EO), assembly bills (AB), senate bills (SB), and other regulations and plans that would directly or indirectly reduce GHG emissions.

Climate Change

The state has taken a number of actions to address climate change. These include executive orders, legislation, and ARB plans and requirements. These are summarized below.

EO S-3-05. EO S-3-05 (June 2005) established California's GHG emissions reduction targets and laid out responsibilities among the state agencies for implementing the EO and for reporting on progress toward the targets. This EO established the following targets:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80% below 1990 levels.

EO S-3-05 directed the EPA to report biannually on progress made toward meeting the GHG targets and the impacts to California due to global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry. The Climate Action Team was formed, which subsequently issued reports from 2006 to 2010 (CAT 2010b).

EO B-18-12. EO B-18-12 (April 2012) directed state agencies, departments, and other entities under the governor's executive authority to take action to reduce entity-wide GHG emissions by at least 10% by 2015 and 20% by 2020, as measured against a 2010 baseline. EO B-18-12 also established goals for existing state buildings for reducing grid-based energy purchases and water use.

EO B-30-15. EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing GHG emissions to 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing GHG emissions to 80% below 1990 levels by 2050 as set forth in S-3-05. To facilitate achieving this goal, EO B-30-15 called for CARB to update the scoping plan to express the 2030 target in terms of millions of metric tons (MMT) of CO_2e. The EO also called for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets.

AB 32. In furtherance of the goals established in EO S-3-05, the legislature enacted AB 32 (Núñez and Pavley), the California Global Warming Solutions Act of 2006 (September 27, 2006). AB 32 provided initial direction on creating a comprehensive multiyear program to limit California's GHG emissions at 1990 levels by 2020 and initiate the transformations required to achieve the state's long-range climate objectives.

SB 32 and AB 197. SB 32 and AB 197 (enacted in 2016) are companion bills. SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40% below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly, to provide ongoing oversight over implementation of the state's climate policies. AB 197 also added two members of the Legislature to the Board as nonvoting members; requires CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and TACs from reporting facilities; and, requires CARB to identify specific information for GHG emissions reduction measures when updating the scoping plan.

CARB's 2007 Statewide Limit. In 2007, in accordance with California Health and Safety Code, Section 38550, CARB approved a statewide limit on the GHG emissions level for year 2020 consistent with the determined 1990 baseline (427 MMT CO_2e).

CARB's Climate Change Scoping Plan. One specific requirement of AB 32 is for CARB to prepare a scoping plan for achieving the maximum technologically feasible and cost-effective GHG emission reductions by 2020 (Health and Safety Code, Section 38561(a)) and to update the plan at least once every 5 years. In 2008, CARB approved the first scoping plan. The *Climate Change Scoping Plan: A Framework for Change* (Scoping Plan) included a mix of recommended strategies that combined direct regulations, market-based approaches, voluntary measures, policies, and other emission reduction programs calculated to meet the 2020 statewide GHG emission limit and initiate the transformations needed to achieve the state's long-range climate objectives. The key elements of the Scoping Plan include the following (CARB 2008):

1. Expanding and strengthening existing energy efficiency programs as well as building and appliance standards
2. Achieving a statewide renewable energy mix of 33%
3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California's GHG emissions
4. Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets
5. Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard
6. Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation

The Scoping Plan also identified local governments as essential partners in achieving California's goals to reduce GHG emissions because they have broad influence and, in some cases, exclusive authority over activities that contribute to significant direct and indirect GHG emissions through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations. Specifically, the Scoping Plan encouraged local governments to adopt a reduction goal for municipal operations and for community emissions to reduce GHGs by approximately 15% from then levels (2008) by 2020. Many local governments

developed community-scale local GHG reduction plans based on this Scoping Plan recommendation.

In 2014, CARB approved the first update to the Scoping Plan. The *First Update to the Climate Change Scoping Plan: Building on the Framework* (First Update) defined the state's GHG emission reduction priorities for the next 5 years and laid the groundwork to start the transition to the post-2020 goals set forth in EOs S-3-05 and B-16-2012. The First Update concluded that California is on track to meet the 2020 target but recommended a 2030 mid-term GHG reduction target be established to ensure a continuum of action to reduce emissions. The First Update recommended a mix of technologies in key economic sectors to reduce emissions through 2050, including energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and the rapid market penetration of efficient and clean energy technologies. As part of the First Update, CARB recalculated the state's 1990 emissions level, using more recent GWPs identified by the IPCC, from 427 MMT CO_2e to 431 MMT CO_2e (CARB 2014).

In 2015, as directed by EO B-30-15, CARB began working on an update to the Scoping Plan to incorporate the 2030 target of 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing GHG emissions to 80% below 1990 levels by 2050 as set forth in S-3-05. The Governor called on California to pursue a new and ambitious set of strategies, in line with the five climate change pillars from his inaugural address, to reduce GHG emissions and prepare for the unavoidable impacts of climate change. In the summer of 2016, the Legislature affirmed the importance of addressing climate change through passage of Senate Bill 32 (SB 32 (Pavley, Chapter 249, Statutes of 2016).

In December 2017, CARB adopted the *2017 Climate Change Scoping Plan Update* (2030 Scoping Plan) (CARB 2017). The 2030 Scoping Plan builds on the successful framework established in the initial Scoping Plan and First Update, while identifying new, technologically feasible and cost-effective strategies that will serve as the framework to achieve the 2030 GHG target and define the state's climate change priorities to 2030 and beyond. The strategies' "known commitments" include implementing renewable energy and energy efficiency (including the mandates of SB 350), increased stringency of the Low Carbon Fuel Standard, measures identified in the Mobile Source and Freight Strategies, measures identified in the proposed Short-Lived Climate Pollutant Plan, and increased stringency of SB 375 targets. To fill the gap in additional reductions needed to achieve the 2030 target, it recommends continuing the Cap-and-Trade Program and a measure to reduce GHGs from refineries by 20%.

For local governments, the 2030 Scoping Plan replaced the initial Scoping Plan's 15% reduction goal with a recommendation to aim for a community-wide goal of no more than six MT CO_2e per

capita by 2030 and no more than two MT CO_2e per capita by 2050, which are consistent with the state's long-term goals. These goals are also consistent with the Under 2 MOU (Under 2 2016) and the Paris Agreement (UNFCCC 2016), which are developed around the scientifically based levels necessary to limit global warming below 2°C. The 2030 Scoping Plan recognized the benefits of local government GHG planning (e.g., through climate action plans (CAPs)) and provide more information regarding tools CARB is working on to support those efforts. It also recognizes the CEQA streamlining provisions for project level review where there is a legally adequate CAP.[9]

The Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32, SB32, and the EO and establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. A project is considered consistent with the statutes and EOs if it meets the general policies in reducing GHG emissions to facilitate the achievement of the state's goals and does not impede attainment of those goals. As discussed in several cases, a given project need not be in perfect conformity with each and every planning policy or goals to be consistent. A project would be consistent if it will further the objectives and not obstruct their attainment

SB 605 and SB 1383. SB 605 (2014) requires CARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants in the state; and SB 1383 (2016) requires CARB to approve and implement that strategy by January 1, 2018. SB 1383 also establishes specific targets for the reduction of SLCPs (40% below 2013 levels by 2030 for methane and HFCs, and 50% below 2013 levels by 2030 for anthropogenic black carbon), and provides direction for reductions from dairy and livestock operations and landfills. Accordingly, and as mentioned above, CARB adopted its *Short-Lived Climate Pollutant Reduction Strategy* (*SLCP Reduction Strategy*) in March 2017. The *SLCP Reduction Strategy* establishes a framework for the statewide reduction of emissions of black carbon, methane and fluorinated gases.

Building Energy

Title 24, Part 6. Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically established Building Energy Efficiency Standards that are designed to ensure new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. These energy efficiency standards are

[9] *Sierra Club v. County of Napa* (2004) 121 Cal.App.4th 1490; *San Francisco Tomorrow et al. v. City and County of San Francisco* (2015) 229 Cal.App.4th 498; *San Franciscans Upholding the Downtown Specific Plan v. City & County of San Francisco* (2002) 102 Cal.App.4th 656; *Sequoyah Hills Homeowners Assn. V. City of Oakland* (1993) 23 Cal.App.4th 704, 719.

reviewed every few years by the Building Standards Commission and the California Energy Commission (CEC) (and revised if necessary) (California Public Resources Code, Section 25402(b)(1)). The regulations receive input from members of industry, as well as the public, with the goal of "reducing of wasteful, uneconomic, inefficient, or unnecessary consumption of energy" (California Public Resources Code, Section 25402). These regulations are scrutinized and analyzed for technological and economic feasibility (California Public Resources Code, Section 25402(d)) and cost effectiveness (California Public Resources Code, Sections 25402(b)(2) and (b)(3)). As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment. The current Title 24 standards are the 2016 standards, which became effective on January 1, 2017.

Title 24, Part 11. In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as CALGreen, and establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential and state-owned buildings and schools and hospitals. The CALGreen 2016 standards became effective on January 1, 2017. The mandatory standards require the following (24 CCR Part 11):

- Mandatory reduction in indoor water use through compliance with specified flow rates for plumbing fixtures and fittings
- Mandatory reduction in outdoor water use through compliance with a local water efficient landscaping ordinance or the California Department of Water Resources' Model Water Efficient Landscape Ordinance
- 65% of construction and demolition waste must be diverted from landfills
- Mandatory inspections of energy systems to ensure optimal working efficiency
- Inclusion of electric vehicle charging stations or designated spaces capable of supporting future charging stations
- Low-pollutant emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle boards

The CALGreen standards also include voluntary efficiency measures that are provided at two separate tiers and implemented at the discretion of local agencies and applicants. CALGreen's Tier 1 standards call for a 15% improvement in energy requirements; stricter water conservation, 65%

diversion of construction and demolition waste, 10% recycled content in building materials, 20% permeable paving, 20% cement reduction, and cool/solar-reflective roofs. CALGreen's more rigorous Tier 2 standards call for a 30% improvement in energy requirements, stricter water conservation, 75% diversion of construction and demolition waste, 15% recycled content in building materials, 30% permeable paving, 25% cement reduction, and cool/solar-reflective roofs.

The California Public Utilities Commission, CEC, and CARB also have a shared, established goal of achieving zero net energy (ZNE) for new construction in California. The key policy timelines include: (1) all new residential construction in California will be ZNE by 2020, and (2) all new commercial construction in California will be ZNE by 2030.[10]

Title 20. Title 20 of the California Code of Regulations requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. Performance of appliances must be certified through the CEC to demonstrate compliance with standards. New appliances regulated under Title 20 include: refrigerators, refrigerator-freezers and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwaters; clothes washers and dryers; cooking products; electric motors; low voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing for each type of appliance covered under the regulations and appliances must meet the standards for energy performance, energy design, water performance and water design. Title 20 contains three types of standards for appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

SB 1. SB 1 (2006) established a $3 billion rebate program to support the goal of the state to install rooftop solar energy systems with a generation capacity of 3,000 megawatts through 2016. SB 1 added sections to the Public Resources Code, including Chapter 8.8 (California Solar Initiative), that require building projects applying for ratepayer-funded incentives for photovoltaic systems to meet minimum energy efficiency levels and performance requirements. Section 25780 established that it is a goal of the state to establish a self-sufficient solar industry in which solar energy systems are a viable mainstream option for both homes and businesses within 10 years of adoption, and to place solar energy systems on 50% of new homes within 13 years of adoption. SB 1, also termed "GoSolarCalifornia," was previously titled "Million Solar Roofs."

[10] See, e.g., CPUC, California's Zero Net Energy Policies and Initiatives, Sept. 18, 2013, accessed at http://www.cpuc.ca.gov/NR/rdonlyres/C27FC108-A1FD-4D67-AA59- 7EA82011B257/0/3.pdf. It is expected that achievement of the zero net energy goal will occur via revisions to the Title 24 standards.

AB 1470. This bill established the Solar Water Heating and Efficiency Act of 2007. The bill makes findings and declarations of the Legislature relating to the promotion of solar water heating systems and other technologies that reduce natural gas demand. The bill defines several terms for purposes of the act. The bill requires the commission to evaluate the data available from a specified pilot program, and, if it makes a specified determination, to design and implement a program of incentives for the installation of 200,000 solar water heating systems in homes and businesses throughout the state by 2017.

Renewable Energy and Energy Procurement

SB 1078. SB 1078 (Sher) (September 2002) established the Renewable Portfolio Standard (RPS) program, which required an annual increase in renewable generation by the utilities equivalent to at least 1% of sales, with an aggregate goal of 20% by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20% of their power from renewable sources by 2010 (SB 107, EO S-14-08, and S-21-09).

SB 1368. SB 1368 (September 2006), required the CEC to develop and adopt regulations for GHG emission performance standards for the long-term procurement of electricity by local publicly owned utilities. These standards must be consistent with the standards adopted by the CPUC.

AB 1109. Enacted in 2007, AB 1109 required the CEC to adopt minimum energy efficiency standards for general-purpose lighting, to reduce electricity consumption 50% for indoor residential lighting and 25% for indoor commercial lighting.

EO S-14-08. EO S-14-08 (November 2008) focused on the contribution of renewable energy sources to meet the electrical needs of California while reducing the GHG emissions from the electrical sector. This EO required that all retail suppliers of electricity in California serve 33% of their load with renewable energy by 2020. Furthermore, the EO directed state agencies to take appropriate actions to facilitate reaching this target. The CNRA, through collaboration with the CEC and California Department of Fish and Wildlife (formerly the California Department of Fish and Game), was directed to lead this effort.

EO S-21-09 and SBX1-2. EO S-21-09 (September 2009) directed CARB to adopt a regulation consistent with the goal of EO S-14-08 by July 31, 2010. CARB was further directed to work with the CPUC and CEC to ensure that the regulation builds upon the RPS program and was applicable to investor-owned utilities, publicly owned utilities, direct access providers, and community choice providers. Under this order, CARB was to give the highest priority to those renewable resources that provide the greatest environmental benefits with the least environmental costs and impacts on

public health and can be developed the most quickly in support of reliable, efficient, cost-effective electricity system operations. On September 23, 2010, CARB initially approved regulations to implement a Renewable Electricity Standard. However, this regulation was not finalized because of subsequent legislation (SB X1-2, Simitian, statutes of 2011) signed by Governor Brown in April 2011.

SB X1 2 expanded the Renewables Portfolio Standard by establishing a renewable energy target of 20% of the total electricity sold to retail customers in California per year by December 31, 2013, and 33% by December 31, 2020, and in subsequent years. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation (30 MW or less), digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location.

SB X1-2 applies to all electricity retailers in the state, including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. All of these entities must meet the renewable energy goals listed above.

SB 350. SB 350 (October 2015) further expanded the RPS by establishing a goal of 50% of the total electricity sold to retail customers in California per year by December 31, 2030. In addition, SB 350 included the goal to double the energy efficiency savings in electricity and natural gas final end uses (e.g., heating, cooling, lighting, or class of energy uses on which an energy-efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires the CPUC, in consultation with the CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal.

Mobile Sources

AB 1493. In a response to the transportation sector accounting for more than half of California's CO_2 emissions, AB 1493 was enacted in July 2002. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles that are primarily used for noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. When fully phased in, the near-term (2009–2012) standards will result in a reduction of about 22% in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term (2013–2016) standards will result in a reduction of about 30%.

EO S-1-07. Issued on January 18, 2007, EO S-1-07 sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO_2e grams per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. CARB adopted the implementing regulation in April 2009. The regulation is expected to increase the production of biofuels, including those from alternative sources, such as algae, wood, and agricultural waste.

SB 375. SB 375 (2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 required CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035. Regional metropolitan planning organizations (MPOs) are then responsible for preparing a Sustainable Communities Strategy within their Regional Transportation Plan. The goal of the Sustainable Communities Strategy is to establish a forecasted development pattern for the region that, after considering transportation measures and policies, will achieve, if feasible, the GHG reduction targets. If a Sustainable Communities Strategy is unable to achieve the GHG reduction target, an MPO must prepare an Alternative Planning Strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

Pursuant to Government Code Section 65080(b)(2)(K), a sustainable communities strategy does not: (i) regulate the use of land; (ii) supersede the land use authority of cities and counties; or (iii) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with it. Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the state-mandated housing element process.

In 2010, CARB adopted the SB 375 targets for the regional MPOs. The targets for Kern COG, the designated Metropolitan Planning Organization for the project site, are a 5% reduction in emissions per capita by 2020 and a 10% reduction by 2035. See additional discussion of the Kern COG plan under Local Regulations.

Advanced Clean Cars Program. In January 2012, CARB approved the Advanced Clean Cars program, a new emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package. The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars (CARB 2011). To improve air quality, CARB has implemented new emission standards to reduce smog-forming

emissions beginning with 2015 model year vehicles. It is estimated that in 2025 cars will emit 75% less smog-forming pollution than the average new car sold today. To reduce GHG emissions, CARB, in conjunction with the EPA and the NHTSA, has adopted new GHG standards for model year 2017 to 2025 vehicles; the new standards are estimated to reduce GHG emissions by 34% in 2025. The Zero Emissions Vehicle (ZEV) program will act as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles in the 2018 to 2025 model years.

EO B-16-12. EO B-16-12 (2012) directs state entities under the Governor's direction and control to support and facilitate development and distribution ZEVs. This EO also sets a long-term target of reaching 1.5 million zero-emission vehicles on California's roadways by 2025. On a statewide basis, EO B-16-12 also establishes a GHG emissions reduction target from the transportation sector equaling 80% less than 1990 levels by 2050. In furtherance of this EO, the Governor convened an Interagency Working Group on Zero-Emission Vehicles that has published multiple reports regarding the progress made on the penetration of ZEVs in the statewide vehicle fleet.

AB 1236. AB 1236 (October 2015) (Chiu) required a city, county, or city and county to approve an application for the installation of electric vehicle charging stations, as defined, through the issuance of specified permits unless the city or county makes specified written findings based upon substantial evidence in the record that the proposed installation would have a specific, adverse impact upon the public health or safety, and there is no feasible method to satisfactorily mitigate or avoid the specific, adverse impact. The bill provided for appeal of that decision to the planning commission, as specified. The bill provided that the implementation of consistent statewide standards to achieve the timely and cost-effective installation of electric vehicle charging stations is a matter of statewide concern. The bill required electric vehicle charging stations to meet specified standards. The bill required a city, county, or city and county with a population of 200,000 or more residents to adopt an ordinance, by September 30, 2016, that created an expedited and streamlined permitting process for electric vehicle charging stations, as specified. The bill also required a city, county, or city and county with a population of less than 200,000 residents to adopt this ordinance by September 30, 2017.

Water

EO B-29-15. In response to the ongoing drought in California, EO B-29-15 (April 2015) set a goal of achieving a statewide reduction in potable urban water usage of 25% relative to water use in 2013. The term of the EO extended through February 28, 2016, although many of the directives have since become permanent water-efficiency standards and requirements. The EO includes specific directives that set strict limits on water usage in the state. In response to EO B-29-15, the California Department of Water Resources has modified and adopted a revised version of the

Model Water Efficient Landscape Ordinance that, among other changes, significantly increases the requirements for landscape water use efficiency and broadens its applicability to include new development projects with smaller landscape areas.

Solid Waste

AB 939 and AB 341. In 1989, AB 939, known as the Integrated Waste Management Act (California Public Resources Code, Sections 40000 et seq.), was passed because of the increase in waste stream and the decrease in landfill capacity. The statute established the California Integrated Waste Management Board, which oversees a disposal reporting system. AB 939 mandated a reduction of waste being disposed where jurisdictions were required to meet diversion goals of all solid waste through source reduction, recycling, and composting activities of 25% by 1995 and 50% by the year 2000.

AB 341 (Chapter 476, Statutes of 2011 (Chesbro)) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that not less than 75% of solid waste generated be source-reduced, recycled, or composted by the year 2020, and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery (CalRecycle) to develop strategies to achieve the state's policy goal. CalRecycle conducted several general stakeholder workshops and several focused workshops and in August 2015 published a discussion document titled AB 341 Report to the Legislature, which identifies five priority strategies that CalRecycle believes would assist the state in reaching the 75% goal by 2020, legislative and regulatory recommendations and an evaluation of program effectiveness (CalRecycle 2012).

Other State Actions

EO S-13-08. EO Order S-13-08 (November 2008) is intended to hasten California's response to the impacts of global climate change, particularly sea-level rise. Therefore, the EO directs state agencies to take specified actions to assess and plan for such impacts. The final *2009 California Climate Adaptation Strategy* report was issued in December 2009 (CNRA 2009a), and an update, *Safeguarding California: Reducing Climate Risk*, followed in July 2014 (CNRA 2014). To assess the state's vulnerability, the report summarizes key climate change impacts to the state for the following areas: Agriculture, Biodiversity and Habitat, Emergency Management, Energy, Forestry, Ocean and Coastal Ecosystems and Resources, Public Health, Transportation, and Water.

2015 State of the State Address. In January 2015, Governor Brown in his inaugural address and annual report to the Legislature established supplementary goals that would further reduce GHG emissions over the next 15 years. These goals include an increase in California's renewable energy portfolio from 33% to 50%, a reduction in vehicle petroleum use for cars and trucks by up to 50%,

measures to double the efficiency of existing buildings, and decreasing emissions associated with heating fuels.

2016 State of the State Address. In his January 2016 address, Governor Brown established a statewide goal to bring per capita GHG emission down to two tons per person, which reflects the goal of the Global Climate Leadership Memorandum of Understanding (Under 2 MOU) to limit global warming to less than two degrees Celsius by 2050. The Under 2 MOU agreement pursues emission reductions of 80% to 95% below 1990 levels by 2050 and/or reach a per capita annual emissions goal of less than two metric tons by 2050. A total of 135 jurisdictions representing 32 countries and six continents, including California, have signed or endorsed the Under 2 MOU (Under 2 2016).

3.2.3 Local Regulations

3.2.3.1 Eastern Kern Air Pollution Control District

The adopted *CEQA Guidelines* provide regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, while giving lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHG and global climate change impacts. Quantitative significance thresholds for this impact area have not been adopted by the State of California.

Kern County has not developed a quantified threshold of significance for GHG emissions, but a project found to contribute to a net decrease in GHG emissions and found to be consistent with the adopted implementation of CARB AB 32 Scoping Plan is presumed to have less-than significant GHG impacts.

The EKAPCD (March 2012) adopted an addendum to their CEQA Guidelines to address GHG impacts, including quantitative thresholds for determining significance of GHG emissions for new stationary source projects where EKAPCD serves as the lead CEQA review agency. A project is considered to have a significant project or cumulatively considerable impact if it exceeds the following criteria:

- Generate 25,000 tons or more of CO_2e per year (22,680 MT CO_2e)

The above impact would be considered to be fully reduced to below the significance level if it meets one of the following conditions:

- The project demonstrates to EKAPCD that it is in compliance with a state GHG reduction plan such as AB 32 or future federal GHG reduction plan if it is more stringent than the state plan; or
- Project GHG emissions can be reduced by at least 20% below BAU through implementation of one or more of the following strategies:
    a. Compliance with a Best Performance Standard (BPS);
    b. Compliance with GHG Offset; and/or
    c. Compliance with an Alternative GHG Reduction Strategy.

Although the EKAPCD is not the lead CEQA review agency for the project, in the absence of a quantified threshold of significance for GHG emissions from Kern County, the EKAPCD's quantitative thresholds are used in this analysis to determine the project's impacts with respect to GHG emissions. Since the EKAPCD does not have guidance for determining the project lifetime's construction emissions, the project lifetime for this analysis is based on the standard 30 year assumption of the South Coast Air Quality Management District (SCAQMD), which is considered a reasonable estimate for the proposed facility.

3.2.3.2 Kern Council of Governments

2014 Regional Transportation Plan/Sustainable Communities Strategy

The Kern COG 2014 RTP includes an SCS component in accordance with SB 375, the Sustainable Communities and Climate Protection Act of 2008. The Kern COG board of directors adopted its first SCS on June 19, 2014, and made a determination that, if implemented, the SCS would achieve the per capita passenger vehicle GHG emissions targets established by the board of directors. The 2020 target is a 5% per capita reduction and the 2035 target is a 10% per capita reduction from the 2005 base year. Kern COG submitted its adopted SCS and GHG determination to CARB for review on June 4, 2015. On July 24, 2015, CARB accepted the determination that the Kern COG 2014 SCS, if implemented, would achieve the region's per capita GHG emission reduction targets for 2020 and 2035.

The SCS strives to reduce air emissions from passenger vehicle and light-duty truck travel by better coordinating transportation expenditures with forecasted development patterns and, if feasible, help meet CARB GHG targets for the region. As explained in the Kern COG 2014 RTP

EIR, the key purpose of SB 375[11] and the Kern COG SCS is to reduce per capita emissions originating from passenger vehicles and light-duty trucks. Accordingly, the 2014 RTP:

- Describes sources of emissions in the Kern region, 2020 and 2035 emission reduction targets established by CARB for the San Joaquin Valley, and modeling techniques used to estimate and forecast emissions
- Identifies statewide strategies to reduce transportation-related emissions and their anticipated effect within the Kern region
- Identifies regional strategies that complement the SCS by reducing emissions in other sectors (e.g., energy consumption)
- Quantifies the effect of policies and programs in the RTP that reduce transportation-related emissions in the region and
- Compares the emissions reductions anticipated with implementation of the SCS with the regional targets (Kern COG 2014b).

The GHG emission targets for lowering emissions in the San Joaquin Valley, as set by CARB and approved by the Kern COG board of directors, call for a 5% reduction in per capita emissions from passenger vehicles and light trucks by 2020 and a 10% reduction by 2035 through land use and transportation planning. Based on the analysis of strategies included in the SCS, CO_2 emissions are anticipated to be 14.1% lower than 2005 levels by 2020 and 16.6% lower by 2035, exceeding the targets established by CARB in 2010 (Kern COG 2014a).

3.2.3.3 County of Kern

Kern County has not adopted a GHG reduction plan or climate action plan as of this writing.

3.3 Climate Change Conditions and Inventories

3.3.1 Sources of Greenhouse Gas Emissions

Per the EPA's *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2015* (EPA 2017c), total United States GHG emissions were approximately 6,586.70 MMT CO_2e in 2015. The primary GHG emitted by human activities in the United States was CO_2, which represented approximately 82.2% of total GHG emissions (5,411.40 MMT CO_2e). The largest source of CO_2, and of overall GHG

[11] SB 375 requires CARB to develop regional GHG emission reduction targets for passenger vehicles. CARB is to establish targets for the automobile and light-duty truck sector for 2020 and 2035 for each region covered by one of the state's 18 metropolitan planning organizations. Regional metropolitan planning organizations are responsible for preparing an SCS within their RTP.

emissions, was fossil-fuel combustion, which accounted for approximately 93.3% of CO_2 emissions in 2015 (5,049.8 MMT CO_2e). Relative to 1990, gross United States GHG emissions in 2015 are higher by 3.5%; down from a high of 15.5% above 1990 levels in 2007. GHG emissions decreased from 2014 to 2015 by 2.3% (153.0 MMT CO_2e) and overall, net emissions in 2015 were 11.5% below 2005 levels (EPA 2017c).

According to California's 2000–2015 GHG emissions inventory (2017 edition), California emitted 440.36 MMT CO_2e in 2015, including emissions resulting from out-of-state electrical generation (CARB 2017b). The sources of GHG emissions in California include transportation, industrial uses, electric power production from both in-state and out-of-state sources, commercial and residential uses, agriculture, high global-warming potential substances, and recycling and waste. The California GHG emission source categories (as defined in CARB's 2008 Scoping Plan) and their relative contributions in 2015 are presented in Table 14.

Table 14
Greenhouse Gas Emissions Sources in California

Source Category	Annual GHG Emissions (MMT CO_2e)	Percent of Total[a]
Transportation	164.63	37%
Industrial[b]	91.71	21%
Electric power[c]	83.67	19%
Commercial and residential	37.92	9%
Agriculture	34.65	8%
High global-warming potential substances	19.05	4%
Recycling and waste	8.73	2%
Total	**440.36**	**100%**

Source: CARB 2017b.
Notes: Emissions reflect the 2015 California GHG inventory.
MMT CO_2e = Million metric tons of carbon dioxide equivalent
[a] Percentage of total has been rounded, and total may not sum due to rounding.
[b] The Aliso Canyon natural gas leak event released 1.96 MMT CO_2e of unanticipated emissions in 2015 and 0.52 MMT CO_2e in 2016. These leak emissions will be fully mitigated according to legal settlement and are tracked separately from routine inventory emissions.
[c] Includes emissions associated with imported electricity, which account for 33. 74 MMT CO_2e annually.

During the 2000 to 2015 period, per capita GHG emissions in California have continued to drop from a peak in 2001 of 14.0 MT per person to 11.3 MT per person in 2015, representing a 19% decrease. In addition, total GHG emissions in 2015 were approximately 1,500,000 MT CO_2e less than 2014 emissions. The declining trend in GHG emissions, coupled with programs that will continue to provide additional GHG reductions going forward, demonstrates that California is on track to meet the 2020 target of 431,000,000 MT CO_2e (CARB 2017c).

Kern County Inventory

On May 3, 2011, the Kern County Board of Supervisors signed a memorandum of understanding with the SJVAPCD to develop a communitywide GHG emissions inventory for the County. The *Kern County Communitywide GHG Emission Inventory 2005 Baseline Year – 2020 Forecast* was finalized in May 2012. As indicated in the report title, the inventory assumed 2005 as the base year and 2020 as the forecast year.

The GHG emissions inventories were estimated for nine primary sectors (electricity production and consumption, residential/commercial/industrial combustion, transportation, fossil fuels industry, industrial processes, waste management, agriculture, forestry and land use, and other sources). The 2005 base year GHG emissions inventory was estimated at 27.0 MMT CO_2e, of which the fossil fuel industry represented 40%, followed by the electricity consumption sector at 22%. The 2020 forecasted GHG emissions inventory was estimated to be 27.3 MMT CO_2e, of which the electricity consumption sector represents 31%, followed by the fossil fuel industry sector at 26%.

The 2005 baseline GHG emissions inventory is presented in Table 15.

Table 15
Kern Countywide GHG Inventory – Base Year (2005)

Sector	Annual GHG Emissions (MT CO_2e)	Percent of Total
Emissions Generated		
Electricity consumption[a]	6,039,114	22%
Residential/commercial/industrial combustion	1,281,498	5%
Transportation	4,569,913	17%
Fossil fuels industry	10,928,153	40%
Industrial processes	1,852,124	7%
Waste management	120,494	<1%
Agriculture	2,024,470	7%
Forestry and land use	11,028	<1%
Other sources	218,823	1%
Total[b]	**27,045,617**	
Sequestration		
Agriculture	412,957	13%
Forestry and land use	2,073,706	67%
Other sources	586,909	19%
Total sequestration	**3,073,572**	

Source: Kern County 2012b
Notes:
[a] Electricity production, which was estimated to generate 13,002,127 MT CO_2e, was not included.

[b] Does not include the subtraction of sequestering sectors.

The 2020 forecast GHG emissions inventory is presented in Table 16

Table 16
Kern Countywide GHG Inventory – Forecast Year (2020)

Sector	Annual GHG Emissions (MT CO_2e)	Percent of Total
Emissions Generated		
Electricity consumption[a]	8,572,261	31%
Residential/commercial/industrial combustion	1,689,414	6%
Transportation	4,823,756	18%
Fossil fuels industry	7,002,009	26%
Industrial processes	2,348,754	9%
Waste management	146,788	1%
Agriculture	2,652,616	10%
Forestry and land use	14,669	<1%
Other sources	22,442	<1%
Total[b]	**27,272,709**	
Sequestration		
Agriculture	386,575	12%
Forestry and land use	2,073,706	63%
Other sources	833,092	25%
Total sequestration	**3,293,373**	

Source: Kern County 2012b
Notes:
[a] Electricity production, which was estimated to generate 18,455,958 MT CO_2e, was not included.
[b] Does not include the subtraction of sequestering sectors.

3.3.2 Potential Effects of Human Activity on Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The 2014 *Intergovernmental Panel on Climate Change Synthesis Report* (IPCC 2014) indicated that warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. Signs that global climate change has occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice, rising sea levels, and ocean acidification (IPCC 2014).

In California, climate change impacts have the potential to affect sea-level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, frequency of severe weather events, and electricity demand and supply. The primary effect of global climate change has been a 0.2°C rise in average global tropospheric temperature per decade, determined from

meteorological measurements worldwide between 1990 and 2005. Scientific modeling predicts that continued emissions of GHGs at or above current rates would induce more extreme climate changes during the twenty-first century than were observed during the twentieth century. A warming of about 0.2°C (0.36°F) per decade is projected, and there are identifiable signs that global warming could take place.

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. The average temperatures in California have increased, leading to more extreme hot days and fewer cold nights. Shifts in the water cycle have been observed, with less winter precipitation falling as snow, and both snowmelt and rainwater running off earlier in the year. Sea levels have risen, and wildland fires are becoming more frequent and intense due to dry seasons that start earlier and end later (CAT 2010).

An increase in annual average temperature is a reasonably foreseeable effect of climate change. Observed changes over the last several decades across the western United States reveal clear signals of climate change. Statewide average temperatures increased by about 1.7°F from 1895 to 2011, and warming has been greatest in the Sierra Nevada (CCCC 2012). By 2050, California is projected to warm by approximately 2.7°F above 2000 averages, a threefold increase in the rate of warming over the last century. By 2100, average temperatures could increase by 4.1°F to 8.6°F, depending on emissions levels. Springtime warming—a critical influence on snowmelt—will be particularly pronounced. Summer temperatures will rise more than winter temperatures, and the increases will be greater in inland California, compared to the coast. Heat waves will be more frequent, hotter, and longer. There will be fewer extremely cold nights (CCCC 2012). A decline of Sierra Nevada snowpack, which accounts for approximately half of the surface water storage in California, by 30% to as much as 90% is predicted over the next 100 years (CAT 2006).

Model projections for precipitation over California continue to show the Mediterranean pattern of wet winters and dry summers with seasonal, year-to-year, and decade-to-decade variability. For the first time, however, several of the improved climate models shift toward drier conditions by the mid-to-late twenty-first century in central, and most notably, Southern California. By the late century, all projections show drying, and half of them suggest 30-year average precipitation will decline by over 10% below the historical average (CCCC 2012).

A summary of current and future climate change impacts to resource areas in California, as discussed in the *Safeguarding California: Reducing Climate Risk* (CNRA 2014), is provided below.

Agriculture. The impacts of climate change on the agricultural sector are far more severe than the typical variability in weather and precipitation patterns that occur year to year. The agriculture

sector and farmers face some specific challenges that include more drastic and unpredictable precipitation and weather patterns; extreme weather events that range from severe flooding to extreme drought to destructive storm events; significant shifts in water availably and water quality; changes in pollinator lifecycles; temperature fluctuations, including extreme heat stress and decreased chill hours; increased risks from invasive species and weeds, agricultural pests, and plant diseases; and disruptions to the transportation and energy infrastructure supporting agricultural production. These challenges and associated short-term and long-term impacts can have both positive and negative effects on agricultural production. Nonetheless, it is predicted that current crop and livestock production will suffer long-term negative effects resulting in a substantial decrease in the agricultural sector if not managed or mitigated.

Biodiversity and Habitat. The state's extensive biodiversity stems from its varied climate and assorted landscapes, which have resulted in numerous habitats where species have evolved and adapted over time. Specific climate change challenges to biodiversity and habitat include species migration in response to climatic changes, range shift and novel combinations of species; pathogens, parasites and disease; invasive species; extinction risks; changes in the timing of seasonal life-cycle events; food web disruptions; threshold effects (i.e., a change in the ecosystem that results in a "tipping point" beyond which irreversible damage or loss has occurs). Habitat restoration, conservation, and resource management across California and through collaborative efforts amongst public, private and nonprofit agencies has assisted in the effort to fight climate change impacts on biodiversity and habitat. One of the key measures in these efforts is ensuring species' ability to relocate as temperature and water availability fluctuate as a result of climate change based on geographic region.

Energy. The energy sector provides California residents with a supply of reliable and affordable energy through a complex integrated system. Specific climate change challenges for the energy sector include temperature, fluctuating precipitation patterns, increasing extreme weather events and sea level rise. Increasing temperatures and reduced snowpack negatively impact the availability of a steady flow of snowmelt to hydroelectric reservoirs. Higher temperatures also reduce the capacity of thermal power plants since power plant cooling is less efficient at higher ambient temperatures. Increased temperatures will also increase electricity demand associated with air conditioning. Natural gas infrastructure in coastal California is threatened by sea level rise and extreme storm events.

Forestry. Forests occupy approximately 33% of California's 100 million acres and provide key benefits such as wildlife habitat, absorption of carbon dioxide, renewable energy and building materials. The most significant climate change related risk to forests is accelerated risk of wildfire and more frequent and severe droughts. Droughts have resulted in more large-scale mortalities and combined with increasing temperatures have led to an overall increase in wildfire risks. Increased

wildfire intensity subsequently increases public safety risks, property damage, fire suppression and emergency response costs, watershed and water quality impacts, and vegetation conversions. These factors contribute to decreased forest growth, geographic shifts in tree distribution, loss of fish and wildlife habitat and decreased carbon absorption. Climate change may result in increased establishment of non-native species, particularly in rangelands where invasive species are already a problem. Invasive species may be able to exploit temperature or precipitation changes, or quickly occupy areas denuded by fire, insect mortality or other climate change effects on vegetation.

Ocean and Coastal Ecosystems and Resources. Sea level rise, changing ocean conditions, and other climate change stressors are likely to exacerbate long-standing challenges related to ocean and coastal ecosystems in addition to threatening people and infrastructure located along the California coastline and in coastal communities. Sea level rise in addition to more frequent and severe coastal storms and erosion are threatening vital infrastructure such as roads, bridges, power plants, ports and airports, gasoline pipes, and emergency facilities as well as negatively impacting the coastal recreational assets such as beaches and tidal wetlands. Water quality and ocean acidification threaten the abundance of seafood and other plant and wildlife habitats throughout California and globally.

Public Health. Climate change can impact public health through various environmental changes and is the largest threat to human health in the twenty-first century. Changes in precipitation patterns affect public health primarily through potential for altered water supplies, and extreme events such as heat, floods, droughts, and wildfires. Increased frequency, intensity, and duration of extreme heat and heat waves are likely to increase the risk of mortality due to heat related illness as well as exacerbate existing chronic health conditions. Other extreme weather events are likely to negatively impact air quality and increase or intensify respiratory illness such as asthma and allergies. Additional health effects that climate change may affect include cardiovascular disease, vector-borne diseases, mental health impacts, and malnutrition injuries. Increased frequency of these ailments is likely to increase the direct risk of injury and/or mortality.

Transportation. Residents of California rely on airports, seaports, public transportation and an extensive roadway network to gain access to destinations, goods and services. While the transportation industry is a source of GHG emissions, it is also vulnerable to climate change risks. Particularly, sea level rise and erosion threaten many coastal California roadways, airports, seaports, transit systems, bridge supports and energy and fueling infrastructure. Increasing temperatures and extended periods of extreme heat threaten the integrity of the roadways and rail lines. High temperatures cause the road surfaces to expand, which leads to increased pressure and pavement buckling. High temperatures can also cause rail breakages, which could lead to train derailment. Other forms of extreme weather events, such as extreme storm events, can negatively impact infrastructure, which can impair movement of peoples and goods, or potentially block

evacuation routes and emergency access roads. Increased wildfires, flooding, erosion risks, landslides, mudslides and rockslides can all profoundly impact the transportation system and pose a serious risk to public safety.

Water. Water resources in California support residences, plants, wildlife, farmland, landscapes and ecosystems and bring trillions of dollars in economic activity. Climate change could seriously impact the timing, form, amount of precipitation, runoff patterns, and frequency and severity of precipitation events. Higher temperatures reduce the amount of snowpack and lead to earlier snowmelt, which can impact water supply availability, natural ecosystems and winter recreation. Water supply availability during the intense dry summer months is heavily dependent on the snowpack accumulated during the winter. Increased risk of flooding has a variety of public health concerns including water quality, public safety, property damage, displacement and post-disaster mental health problems. Prolonged and intensified droughts can also negatively groundwater reserves and result in increased overdraft and subsidence. Droughts can also negatively impact agriculture and farmland throughout the state. The higher risk of wildfires can lead to increased erosion, which can negatively impact watersheds and result in poor water quality. Water temperatures are also prone to increase, which can negatively impact wildlife that rely on a specific range of temperatures for suitable habitat.

3.4 Significance Criteria and Methodology

3.4.1 Significance Criteria

Guidelines for the Determination of Significance

SB 97, enacted in 2007, expressly recognized the need to analyze GHG emissions as a part of the CEQA process. SB 97 required the Governor's Office of Planning and Research (OPR) to develop, and the Natural Resources Agency to adopt, amendments to the CEQA Guidelines to address the analysis and mitigation of GHG emissions (Pub. Resources Code section 21083.05). In 2010, a series of CEQA Guidelines amendments were adopted to fulfill SB 97 requirements, including revisions to Appendix G of the CEQA Guidelines. The revisions included two questions related to GHG emissions, which were intended to satisfy the Legislative directive in Public Resources Code section 21083.05 that the effects of GHG emissions be analyzed under CEQA.

Section 15064.4 of the CEQA Guidelines was added as one of the amendments addressing GHG emissions. Section 15064.4 states that the "determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions

resulting from a project…."[12] Section 15064.4(b)(1)-(3) further states that, "a lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment: (1) the extent to which a project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting; (2) whether project emissions exceed a threshold of significance that the lead agency determines applies to the project; and, (3) the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions…."

Recognizing that GHG emissions contribute to the cumulative impact condition of global climate change, section 15064(h)(1) of the CEQA Guidelines is also applicable. Section 15064(h)(1) states that "the lead agency shall consider whether the cumulative impact is significant and whether the effects of the project are cumulatively considerable." A cumulative impact may be significant when the project's incremental effect, though individually limited, is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of other past, current, and reasonably foreseeable probable future projects. As discussed above, climate change is the product of incremental contributions of GHG emissions on a global scale.

Finally, section 15064(h)(3) of the CEQA Guidelines is pertinent. Section 15064(h)(3) states that: "[a] lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program…that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located."

Appendix G of the CEQA Guidelines

According to Appendix G of the CEQA Guidelines, a project would have a significant environmental impact if it would:

1. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment

[12] Section 15064 of the CEQA Guidelines provides the foundational guidance for determinations of significant effect on the environment. As noted in subsection (b) of section 15064, "[a]n ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting."

2. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

3.4.1.3 EKAPCD

The CEQA guidelines for projects that fall within the EKAPCD boundary are found in the EKAPCD Addendum to CEQA Guidelines Addressing GHG Emission Impacts For Stationary Source Projects When Serving As Lead CEQA Agency (EKAPCD 2012). Under CEQA, the EKAPCD is an expert commenting agency on air quality and related matters within its jurisdiction or impacting on its jurisdiction. Under the Federal Clean Air Act the District has adopted federal attainment plans for ozone and PM_{10}. The District has dedicated assets to reviewing projects to ensure that they will not: (1) cause or contribute to any new violation of any air quality standard; (2) increase the frequency or severity of any existing violation of any air quality standard; or (3) delay timely attainment of any air quality standard or any required interim emission reductions or other milestones of any federal attainment plan. As Kern County currently does not have CEQA guidance for GHG sections, the EKAPCD guidance will be used for this project. These Guidelines are intended to assist persons preparing environmental analysis or review documents for any project within the jurisdiction of the District by providing background information and guidance on the preferred analysis approach.

Project-Specific CEQA significance for GHG Emissions will be assessed as follows:

A. If project is exempt from CEQA due to either a statutory or categorical exemption, no further analysis under CEQA is required.

B. Project-Specific GHG Emissions must be quantified if the project is not exempt from CEQA.

C. Project is considered to have a less than significant or cumulatively considerable impact on GHG emissions if it meets one of the following conditions:

    1. Project-Specific GHG emissions are less than 25,000 tons per year (tpy);

    2. Project demonstrates to EKAPCD that it is in compliance with state GHG reduction plan such as AB 32 or future federal GHG reduction plan if it is more stringent than state plan;

    3. Project GHG emissions will be mitigated to a less than significant impact if GHGs can be reduced by at least 20% below Business-As-Usual (BAU) through implementation of one or more of the following strategies:

(a) Compliance with a Best Performance Standard (BPS) as set forth in Section VI of the CEQA Guidance;

(b) Compliance with GHG Offset as detailed in Section VI of the CEQA Guidance;

(c) Compliance with an Alternative GHG Reduction Strategy as discussed in Section VII of the CEQA Guidance.

D. If none of the above is met the project will be deemed significant and an Environmental Impact Report (EIR) will be required.

3.4.2 Approach and Methodology

As discussed in Section 3.1.2, this analysis assumes that the GWP for CH_4 is 25 and the GWP for N_2O is 298, based on the IPCC Fourth Assessment Report (IPCC 2007).

3.4.2.1 Construction

CalEEMod Version 2016.3.2 was used to estimate potential project-generated GHG emissions during construction. Construction of the project would result in GHG emissions primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. All details for construction criteria air pollutants discussed in Section 2.4.2.2, are also applicable for the estimation of construction-related GHG emissions. As such, see Section 2.4.2.2 for a discussion of construction emissions calculation methodology and assumptions.

3.4.2.2 Operation

CalEEMod was used to estimate potential project-generated operational GHG emissions from vehicular sources, area sources (natural gas combustion and landscape maintenance), electrical generation (including electrical generation associated with water supply and wastewater treatment), and solid waste. Emissions from each category—area sources, energy sources, mobile sources, solid waste, and water supply and wastewater treatment—is discussed in the following text with respect to the project. For additional details, see Section 2.4.2.3, Operation, for a discussion of operational emission calculation methodology and assumptions, specifically for area, energy (natural gas), and mobile sources. Operational year 2022 was assumed because it would be the first full year of project operation.

Energy Sources

The estimation of operational energy emissions was based on electricity consumption for the security lighting, well pumps, and energy storage structure. This consumption was estimated using the CalEEMod, assuming the square footage for the energy storage structure, and a building type of a refrigerated warehouse. CalEEMod default energy intensity factors (CO_2, CH_4, and N_2O mass emissions per kilowatt-hour) for Southern Californian Edison are based on the value for Southern Californian Edison's energy mix in 2007. As explained in Section 3.2.2, SB X1 2 established a target of 33% from renewable energy sources for all electricity providers in California by 2020 and SB 350 calls for further development of renewable energy, with a target of 50% by 2030. The estimated energy usage and GHG emission factors for SCE for year 2007 were used to conservatively calculate GHG emissions from this source category.

Mobile Sources

All details for criteria air pollutants discussed in Section 2.4.2.3 are also applicable for the estimation of operational mobile source GHG emissions. Regulatory measures related to mobile sources include AB 1493 (Pavley) and related federal standards. AB 1493 required that CARB establish GHG emission standards for automobiles, light-duty trucks, and other vehicles determined by CARB to be vehicles that are primarily used for noncommercial personal transportation in the state. In addition, the NHTSA and EPA have established corporate fuel economy standards and GHG emission standards, respectively, for automobiles and light-, medium-, and heavy-duty vehicles. Implementation of these standards and fleet turnover (replacement of older vehicles with newer ones) will gradually reduce emissions from the project's motor vehicles. The effectiveness of fuel economy improvements was evaluated by using the CalEEMod emission factors for motor vehicles in 2020 to the extent it was captured in EMFAC 2014.

The Low Carbon Fuel Standard calls for a 10% reduction in the "carbon intensity" of motor vehicle fuels by 2020, which would further reduce GHG emissions. However, the carbon intensity reduction associated with the Low Carbon Fuel Standard was not assumed in EMFAC 2014 and thus, was not included in CalEEMod Version 2016.3.2 or the calculations below, which are therefore considered conservative.

Water and Wastewater

Supply, conveyance, treatment, and distribution of water for the project require the use of electricity, which would result in associated indirect GHG emissions. Water for dust suppression and cleaning the PV panels will come from on-site wells. The emissions associated with water use

are generated from the generator used to power the water well pumps. The emissions from this generator are accounted for in the Energy source emissions estimates.

Solid Waste

The project would generate solid waste, and therefore, result in CO_2e emissions associated with landfill off-gassing. CalEEMod default values for solid waste generation were used to estimate GHG emissions associated with solid waste. Solid waste would be generated through maintenance activities and the O&M building.

Area Sources

Gas-Insulated Switchgear

During O&M, one of the main sources of GHG emissions would be fugitive emissions from equipment containing SF_6 gas installed at the proposed on-site substations. SF_6 has a GWP of 23,900 using CO_2 at a reference value of 1 (UNFCCC 2012). The only piece of equipment within a substation that will have SF_6 gas would be the 115 kV breakers. It is conservatively assumed that the project would require approximately 600 lbs of SF_6 gas to operate the breakers annually. The proposed project's circuit breakers would have a maximum annual leak rate of 0.5%, based on the manufacturer's guaranteed specifications.

3.5 Impact Analysis

The EKAPCD's significance criteria described in Section 3.4, Significance Criteria and Methodology, were used to evaluate GHG emissions impacts associated with the construction and operation of the project.

3.5.1 Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Construction Emissions

Construction of the project would result in GHG emissions, which are primarily associated with use of off-road construction equipment, on-road vendor trucks, and worker vehicles. The SCAQMD recommends that construction emissions be amortized over a 30-year project lifetime, so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies. Thus, the total construction GHG emissions were calculated, amortized over 30 years, and added to the total operational emissions for comparison with the GHG significance threshold of 25,000 tons of CO_2e (22,680 MT CO_2e) per year. The

determination of significance, therefore, is addressed in the operational emissions discussion following the estimated construction emissions.

CalEEMod was used to calculate the annual GHG emissions based on the construction scenario described in Section 2.4.2.2. Construction of the project is anticipated to commence in February 2020 and reach completion at the end of July 2021, lasting a total of 18 months. On-site sources of GHG emissions include off-road equipment and off-site sources include on-road vehicles (haul trucks, vendor trucks, and worker vehicles). Table 17 presents construction emissions for the project in 2020 and 2021 from on-site and off-site emission sources.

Table 17
Estimated Annual Construction GHG Emissions

Year	CO_2	CH_4	N_2O	CO_2e
	metric tons per year			
2020	7,916.08	0.39	0.00	7,926.08
2021	2,179.96	0.10	0.00	2,182.45
Total	**10,096.04**	**0.49**	**0.00**	**10,108.53**
Annualized Emissions over 30 Years	—	—	—	***336.95***

Notes: CH_4 = methane; CO_2 = carbon dioxide; CO_2e = carbon dioxide equivalent; N_2O = nitrous oxide
See Appendix A for complete results.

As shown in Table 16, the estimated total GHG emissions during construction of would be approximately 7,926 MT CO_2e in 2020 and 2,183 MT CO_2e in 2021, for a total of 10,109 MT CO_2e over the construction period. Estimated project-generated construction emissions amortized over 30 years would be approximately 337 MT CO_2e per year. As with project-generated construction air quality pollutant emissions, GHG emissions generated during construction of the project would be short-term in nature, lasting only for the duration of the construction period, and would not represent a long-term source of GHG emissions. Because there is no separate GHG threshold for construction, the evaluation of significance is discussed in the operational emissions analysis in the following text.

Operational Emissions

Operation of the project would generate GHG emissions through motor vehicle trips to and from the project site; energy use (natural gas and generation of electricity consumed by the project); solid waste disposal; and generation of electricity associated with water supply, treatment, and distribution and wastewater treatment. CalEEMod was used to calculate the annual GHG emissions based on the operational assumptions described in Section 3.4.2.2.

The estimated operational (year 2022) project-generated GHG emissions are shown in Table 18.

Table 18
Estimated Annual Operational GHG Emissions

Emission Source	CO_2	CH_4	N_2O	CO_2e
	metric tons per year			
Area	0.0	0.00	0.00	32.52[a]
Energy	47.34	0.01	0.00	47.57
Mobile	105.19	0.01	0.00	105.42
Off-road	4.89	0.00	0.00	4.93
Waste	7.23	0.43	0.00	17.91
Water	34.57	0.00	0.00	34.82
Total	**192.09**	**0.44**	**0.00**	**243.16**
Annualized Emissions over 30 Years	—			***336.95***
Operation + Amortized Construction Total	**—**			***580.11***

Notes: CH_4 = methane; CO_2 = carbon dioxide; CO_2e = carbon dioxide equivalent; N_2O = nitrous oxide
[a] Includes emissions from SF_6 (600pounds of SF_6 assuming a 5% leak rate = 32.52MT CO_2e per year.)
See Appendix A for complete results.

As shown in Table 18, estimated annual project-generated GHG emissions would be approximately 243 MT CO_2e per year as a result of project operation. Estimated annual project-generated operational emissions in 2022 and amortized project construction emissions would be approximately 580 MT CO_2e per year. As shown, the total annual emissions would not exceed the GHG significance threshold of 22,680 MT CO_2e per year. Because the project's GHG emissions would not result in a cumulatively considerable contribution, the project would result in a cumulative impact in terms of climate change that is less than significant.

Mitigation Measures

None required.

Level of Significance After Mitigation

Impacts would be less than significant without mitigation.

GHG Emissions Benefits

In keeping with the renewable energy target under the Scoping Plan and as required by SB 350,

the proposed project would provide a source of renewable energy to achieve the RPS of 50% by 2030. Renewable energy, in turn, potentially offsets GHG emissions generated by fossil-fuel power plants. The project is expected to produce 920,400 MWh per year. The latest published GHG emission factor for Southern California Edison is 0.256 MT CO_2e/MWh (Southern California Edison 2017). Southern California Edison reported that 28 percent of its power mix was renewable in 2016 (CEC 2017). Therefore, the non-renewable GHG emission factor would be 0.356 MT CO_2e/MWh. Thus, the Project would provide a potential reduction of 327,253 MT CO_2e per year if the renewable electricity generated by the project were to be used instead of electricity generated by fossil-fuel sources. Annualized construction and operational emissions are calculated to be 580 MT CO_2e per year. Thus, the net reduction in GHG emissions would be 326,673 MT CO_2e per year and 9,800,190 MT CO_2e over a 30-year project lifetime. This reduction is not considered in the significance determination of the project's GHG emissions, but is provided for disclosure purposes.

Carbon Sequestration

Carbon sequestration is the process by which CO_2 is removed from the atmosphere and deposited into a carbon reservoir (e.g. vegetation). Trees and vegetation take in CO_2 from the atmosphere during photosynthesis, break down the CO_2, store the carbon within plant parts, and release the oxygen back into the atmosphere. It has been shown that arid ecosystems like that of the project site are actually a significant sink of atmospheric CO_2 (Evans et al 2014), with the majority within the soil and not biomass. Although the project site is a sink for CO_2, the project will only have a disturbance during the construction phase and the only remaining structures in the ground will be the energy storage building, PV array poles, fence poles, and gen-tie line poles, which consist of a small fraction of the project area. Therefore, the project will not have a significant impact on the project area's ability to remain a CO_2 sink and sequester additional carbon in the future.

3.5.2 Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Consistency with the Kern COG's 2025 Regional Transportation Plan/Sustainable Communities Strategy

As discussed in Section 3.2.3, Kern County does not have an applicable GHG reduction plan. Under the EKAPCD's CEQA thresholds for GHG, a project would not have a significant GHG impact if it is consistent with an applicable plan to reduce GHG emissions, and a CEQA-compliant analysis was completed for the GHG reduction plan. Kern COG's RTP/SCS is an applicable plan adopted for the purpose of reducing GHGs from the land use and transportation sectors in Kern County, and was adopted after completion of a programmatic Environmental Impact Report

(PEIR). CARB approved the RTP/SCS in 2015. The project could result in a significant impact due to a conflict with an applicable plan, policy or regulation if it would be inconsistent with the adopted Kern COG RTP/SCS. Therefore, the project could have a potential conflict with the RTP/SCS if it were to be found inconsistent based on a qualitative assessment of the project's consistency with Kern COG's SCS policies. The proposed project is consistent with the 2014 RTP/SCS as the project is consistent with the Kern County Zoning Ordinance and Kern County General Plan. The 2014 RTP/SCS incorporates local land use projections and circulation networks in city and county general plans. The 2014 RTP/SCS is not directly applicable to the project because the underlying purpose of the 2014 RTP/SCS is to provide direction and guidance by making the best transportation and land use choices for future development, though the project would not conflict with the goals and policies of the 2014 RTP/SCS. Additionally, the project would not impact local transportation and land use during operation.

Consistency with CARB's Scoping Plan`

As discussed in Section 3.2.2, the Scoping Plan (approved by CARB on December 12, 2008 and updated in 2014 and 2017) provides a framework for actions to reduce California's GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. As such, the Scoping Plan is not directly applicable to specific projects. Relatedly, in the Final Statement of Reasons for the Amendments to the CEQA Guidelines, the CNRA observed that "[t]he [Scoping Plan] may not be appropriate for use in determining the significance of individual projects because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan" (CNRA 2009b). Under the Scoping Plan, however, there are several state regulatory measures aimed at the identification and reduction of GHG emissions. CARB and other state agencies have adopted many of the measures identified in the Scoping Plan. Most of these measures focus on area source emissions (e.g., energy usage, high-GWP GHGs in consumer products) and changes to the vehicle fleet (i.e., hybrid, electric, and more fuel-efficient vehicles) and associated fuels (e.g., LCFS), among others.

The Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32 and establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. Table 19 highlights measures that have been developed under the Scoping Plan and the project's consistency with Scoping Plan measures. The table also includes measures proposed in the 2017 Scoping Plan Update. To the extent that these regulations are applicable to the project, its inhabitants, or uses, the project would comply with all applicable regulations adopted in furtherance of the Scoping Plan.

Table 19
Project Consistency with Scoping Plan GHG Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Project Consistency
Transportation Sector		
Advanced Clean Cars	T-1	**Consistent**. The Project's employees would purchase vehicles in compliance with CARB vehicle standards that are in effect at the time of vehicle purchase.
Low Carbon Fuel Standard	T-2	**Consistent**. Motor vehicles driven by the Project's employees would use compliant fuels.
Regional Transportation-Related GHG Targets	T-3	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Advanced Clean Transit	Proposed	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Last Mile Delivery	Proposed	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Reduction in Vehicle Miles Traveled	Proposed	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Vehicle Efficiency Measures 1. Tire Pressure 2. Fuel Efficiency Tire Program 3. Low-Friction Oil 4. Solar-Reflective Automotive Paint and Window Glazing	T-4	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Ship Electrification at Ports (Shore Power)	T-5	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Goods Movement Efficiency Measures 1. Port Drayage Trucks 2. Transport Refrigeration Units Cold Storage Prohibition 3. Cargo Handling Equipment, Anti-Idling, Hybrid, Electrification 4. Goods Movement Systemwide Efficiency Improvements 5. Commercial Harbor Craft Maintenance and Design Efficiency 6. Clean Ships 7. Vessel Speed Reduction	T-6	**Not applicable**. The Project would not prevent CARB from implementing this measure.
California Sustainable Freight Action Plan	Proposed	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Heavy-Duty Vehicle GHG Emission Reduction 1. Tractor-Trailer GHG Regulation 2. Heavy-Duty Greenhouse Gas Standards for New Vehicle and Engines (Phase I)	T-7	**Not applicable**. The Project would not prevent CARB from implementing this measure.

Table 19
Project Consistency with Scoping Plan GHG Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Project Consistency
Medium- and Heavy-Duty Vehicle Hybridization Voucher Incentive Project	T-8	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Medium and Heavy-Duty GHG Phase 2	Proposed	**Not applicable**. The Project would not prevent CARB from implementing this measure.
High-Speed Rail	T-9	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Electricity and Natural Gas Sector		
Energy Efficiency Measures (Electricity)	E-1	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Energy Efficiency (Natural Gas)	CR-1	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Solar Water Heating (California Solar Initiative Thermal Program)	CR-2	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Combined Heat and Power	E-2	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Renewable Portfolios Standard (33% by 2020)	E-3	**Consistent.** The project supports the RPS goal by providing renewable solar energy.
Renewable Portfolios Standard (50% by 2050)	Proposed	**Consistent** The project supports the RPS goal by providing renewable solar energy.
SB 1 Million Solar Roofs (California Solar Initiative, New Solar Home Partnership, Public Utility Programs) and Earlier Solar Programs	E-4	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Water Sector		
Water Use Efficiency	W-1	**Consistent.** The project will utilize water panel washing, equipment washing, non-sanitary uses, and other miscellaneous water uses, such as landscaping obtained on site from existing wells or by truck. The water will be used in an efficient manner to reduce impact to local water resources.
Water Recycling	W-2	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Water System Energy Efficiency	W-3	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Reuse Urban Runoff	W-4	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Renewable Energy Production	W-5	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Green Buildings		
1. State Green Building Initiative: Leading the Way with State Buildings (Greening New and Existing State Buildings)	GB-1	**Not applicable**. The Project would not prevent CARB from implementing this measure.

Table 19
Project Consistency with Scoping Plan GHG Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Project Consistency
2. Green Building Standards Code (Greening New Public Schools, Residential and Commercial Buildings)	GB-1	**Not applicable**. The Project would not prevent CARB from implementing this measure.
3. Beyond Code: Voluntary Programs at the Local Level (Greening New Public Schools, Residential and Commercial Buildings)	GB-1	**Not applicable**. The Project would not prevent CARB from implementing this measure.
4. Greening Existing Buildings (Greening Existing Homes and Commercial Buildings)	GB-1	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Industry Sector		
Energy Efficiency and Co-Benefits Audits for Large Industrial Sources	I-1	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Oil and Gas Extraction GHG Emission Reduction	I-2	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Reduce GHG Emissions by 20% in Oil Refinery Sector	Proposed	**Not applicable**. The Project would not prevent CARB from implementing this measure.
GHG Emissions Reduction from Natural Gas Transmission and Distribution	I-3	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Refinery Flare Recovery Process Improvements	I-4	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Work with the local air districts to evaluate amendments to their existing leak detection and repair rules for industrial facilities to include methane leaks	I-5	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Recycling and Waste Management Sector		
Landfill Methane Control Measure	RW-1	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Increasing the Efficiency of Landfill Methane Capture	RW-2	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Mandatory Commercial Recycling	RW-3	**Consistent**. The Project would recycle the maximum extent that is feasible in accordance with state and local regulations.
Increase Production and Markets for Compost and Other Organics	RW-3	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Anaerobic/Aerobic Digestion	RW-3	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Extended Producer Responsibility	RW-3	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Environmentally Preferable Purchasing	RW-3	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Forests Sector		

Table 19
Project Consistency with Scoping Plan GHG Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Project Consistency
Sustainable Forest Target	F-1	**Not applicable**. The Project would not prevent CARB from implementing this measure.
High GWP Gases Sector		
Motor Vehicle Air Conditioning Systems: Reduction of Refrigerant Emissions from Non-Professional Servicing	H-1	**Not applicable**. The Project would not prevent CARB from implementing this measure.
SF_6 Limits in Non-Utility and Non-Semiconductor Applications	H-2	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Reduction of Perfluorocarbons in Semiconductor Manufacturing	H-3	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Limit High GWP Use in Consumer Products	H-4	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Air Conditioning Refrigerant Leak Test During Vehicle Smog Check	H-5	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Stationary Equipment Refrigerant Management Program – Refrigerant Tracking/Reporting/Repair Program	H-6	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Stationary Equipment Refrigerant Management Program – Specifications for Commercial and Industrial Refrigeration	H-6	**Not applicable**. The Project would not prevent CARB from implementing this measure.
SF_6 Leak Reduction Gas Insulated Switchgear	H-6	**Consistent**. The project will comply with any and all applicable regulatory requirements for any SF_6 containing switchgear.
40 percent reduction in methane and hydrofluorocarbon (HFC) emissions	Proposed	**Not applicable**. The Project would not prevent CARB from implementing this measure.
50 percent reduction in black carbon emissions	Proposed	**Not applicable**. The Project would not prevent CARB from implementing this measure.
Agriculture Sector		
Methane Capture at Large Dairies	A-1	**Not applicable**. The Project would not prevent CARB from implementing this measure.

Source: CARB 2017.
Notes: CARB = California Air Resources Board; CCR = California Code of Regulations; GHG = greenhouse gas; GWP = global warming potential; LEED = Leadership in Energy and Environmental Design; SB = Senate Bill; SF_6 = sulfur hexafluoride

Based on the analysis in Table 19, the project would be consistent with the applicable strategies and measures in the Scoping Plan.

The project would not impede and may help the attainment of the GHG reduction goals for 2030 or 2050 identified in EO S-3-05 and SB 32. As discussed in Section 3.2.2, EO S-3-05 establishes the following goals: GHG emissions should be reduced to 2000 levels by 2010, to 1990 levels by 2020, and to 80% below 1990 levels by 2050. SB 32 establishes for a statewide GHG emissions reduction target whereby CARB, in adopting rules and regulations to achieve the maximum technologically

feasible and cost-effective GHG emissions reductions, shall ensure that statewide GHG emissions are reduced to at least 40% below 1990 levels by December 31, 2030. While there are no established protocols or thresholds of significance for that future year analysis, CARB forecasts that compliance with the current Scoping Plan puts the state on a trajectory of meeting these long-term GHG goals, although the specific path to compliance is unknown (CARB 2014).

To begin, CARB has expressed optimism with regard to both the 2030 and 2050 goals. It states in the First Update to the Climate Change Scoping Plan that "California is on track to meet the near-term 2020 GHG emissions limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32" (CARB 2014). With regard to the 2050 target for reducing GHG emissions to 80% below 1990 levels, the First Update to the Climate Change Scoping Plan states the following (CARB 2014):

> This level of reduction is achievable in California. In fact, if California realizes the expected benefits of existing policy goals (such as 12,000 megawatts of renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under AB 758, and others) it could reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80% below 1990 levels by 2050. Additional measures, including locally driven measures and those necessary to meet federal air quality standards in 2032, could lead to even greater emission reductions.

In other words, CARB believes that the state is on a trajectory to meet the 2030 and 2050 GHG reduction targets set forth in AB 32, SB 32, and EO S-3-05. This is confirmed in the Second Update, which states (CARB 2017):

> The Proposed Plan builds upon the successful framework established by the Initial Scoping Plan and First Update, while also identifying new, technologically feasibility and cost-effective strategies to ensure that California meets its GHG reduction targets in a way that promotes and rewards innovation, continues to foster economic growth, and delivers improvements to the environment and public health, including in disadvantaged communities. The Proposed Plan is developed to be consistent with requirements set forth in AB 32, SB 32, and AB 197.

The project would not interfere with implementation of any of the previously described GHG reduction goals for 2030 or 2050 because the project would not exceed the EKAPCD's recommended draft interim threshold of 22,680 MT CO_2e per year (EKCAPCD 2012). As discussed in Section 3.4.1, this threshold was established based on the goal of AB 32 to reduce statewide GHG emissions to 1990 levels by 2020. Because the project would not exceed the threshold, this analysis

provides support for the conclusion that the project would not impede the state's trajectory toward the previously described statewide GHG reduction goals for 2030 or 2050.

In addition, as discussed previously, the project is consistent with the GHG emission reduction measures in the Scoping Plan and would not conflict with the state's trajectory toward future GHG reductions. In addition, since the specific path to compliance for the state in regards to the long-term goals will likely require development of technology or other changes that are not currently known or available, specific additional mitigation measures for the project would be speculative and cannot be identified at this time. The project's consistency would assist in meeting the County's contribution to GHG emission reduction targets in California. With respect to future GHG targets under SB 32 and EO S-3-05, CARB has also made clear its legal interpretation is that it has the requisite authority to adopt whatever regulations are necessary, beyond the AB 32 horizon year of 2020, to meet SB 32's 40% reduction target by 2030 and EO S-3-05's 80% reduction target by 2050; this legal interpretation by an expert agency provides evidence that future regulations will be adopted to continue the state on its trajectory toward meeting these future GHG targets. As discussed in Section 3.5.1, the Project would create renewable energy production and thus would support the goals within SB 32 and EO S-3-05. Based on the considerations previously outlined, the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, and no mitigation is required. This impact would be less than significant.

Mitigation Measures

None required.

Level of Significance After Mitigation

Impacts would be less than significant without mitigation.

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13 CCR 2449–2449.3 and Appendix A. General Requirements for In-Use Off-Road Diesel-Fueled Fleets.14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

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APPENDIX A

Detailed Calculation Tables

Sanborn Solar

Kern County APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	28.72	1000sqft	2,021.00	28,720.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Operational year 2022.

Land Use - 2,101 acre project site.

Construction Phase - Construction schedule provided by project applicant.

Off-road Equipment - Equipment specified by the project applicant. ATVs and Pickup trucks were accounted for in the Trips and VMT tab as worker vehicles. (4 ATVs and 4 pick-up trucks = 16 additional worker trips). Other general industrial equipment = pile driver.

Off-road Equipment - Equipment specified by the project applicant. (trucks were accounted for as worker vehicles in the trips and VMT tab.

Off-road Equipment - Equipment specified by the project applicant. Pick up trucks and flatbed trucks were accounted for in the worker trip estimate under the Trips and VMT tab. 1 pick-up truck and 1 flatbed truck = 4 additional worker trips.

Off-road Equipment - Equipment specified by the project applicant. Water trucks were accounted for in the Trips and VMT tab under vendor trucks. (3 water trucks = 6 additional vendor truck trips)

Off-road Equipment - Equipment specified by the project applicant. Pickup trucks were accounted for in the Trips and VMT tab as worker vehicles. (4 pick-up trucks = 8 additional worker vehicles)

Off-road Equipment - Equipment specified by the project applicant. Other construction equipment = Aussie padder. Water trucks were accounted in the Trips and VMT tab under vendor trucks. (1 water truck = 2 additional vendor truck trips)

Trips and VMT - Trip values and lengths are based on information provided by the project applicant.

On-road Fugitive Dust - Distance on unpaved roads is based on information provided by the project applicant.

Grading - CalEEMod default values.

Vehicle Trips - Operational trip values are based on information provided by the project applicant.

Water And Wastewater - 9,770,000 gallons (30 acre feet) for panel washing. 19,511 gallons (0.6 acre feet) for interior use.

Construction Off-road Equipment Mitigation - Assumed compliance with EKAPCD Rule 402: vehicle speed limited to 15 miles per hour and watering 2x daily.

Mobile Commute Mitigation - No mitigation was applied.

Operational Off-Road Equipment - Two forklifts and two tractor/loader/backhoes for 8 hours a day 12x a year.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	155,000.00	300.00
tblConstructionPhase	NumDays	155,000.00	80.00
tblConstructionPhase	NumDays	6,000.00	110.00
tblConstructionPhase	NumDays	6,000.00	80.00
tblConstructionPhase	NumDays	6,000.00	70.00
tblLandUse	LotAcreage	0.66	2,021.00
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.34	0.34
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	LoadFactor	0.48	0.48
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.42	0.42

tblOffRoadEquipment	LoadFactor	0.20	0.20
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Other General Industrial Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Scrapers
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	8.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
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tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
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tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	99.10
tblOnRoadDust	HaulingPercentPave	100.00	99.10
tblOnRoadDust	HaulingPercentPave	100.00	99.10
tblOnRoadDust	HaulingPercentPave	100.00	99.10
tblOnRoadDust	HaulingPercentPave	100.00	99.10
tblOnRoadDust	HaulingPercentPave	100.00	99.10
tblOnRoadDust	RoadSiltLoading	0.10	0.03
tblOnRoadDust	RoadSiltLoading	0.10	0.03
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tblOnRoadDust	RoadSiltLoading	0.10	0.03
tblOnRoadDust	RoadSiltLoading	0.10	0.03
tblOnRoadDust	RoadSiltLoading	0.10	0.03
tblOnRoadDust	VendorPercentPave	100.00	99.10
tblOnRoadDust	VendorPercentPave	100.00	99.10
tblOnRoadDust	VendorPercentPave	100.00	99.10
tblOnRoadDust	VendorPercentPave	100.00	99.10

tblOnRoadDust	VendorPercentPave	100.00	99.10
tblOnRoadDust	VendorPercentPave	100.00	99.10
tblOnRoadDust	WorkerPercentPave	100.00	99.10
tblOnRoadDust	WorkerPercentPave	100.00	99.10
tblOnRoadDust	WorkerPercentPave	100.00	99.10
tblOnRoadDust	WorkerPercentPave	100.00	99.10
tblOnRoadDust	WorkerPercentPave	100.00	99.10
tblOnRoadDust	WorkerPercentPave	100.00	99.10
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	12.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	12.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	2.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	2.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	70.00
tblTripsAndVMT	HaulingTripLength	20.00	70.00
tblTripsAndVMT	HaulingTripLength	20.00	70.00
tblTripsAndVMT	HaulingTripLength	20.00	70.00
tblTripsAndVMT	HaulingTripLength	20.00	70.00
tblTripsAndVMT	HaulingTripLength	20.00	70.00
tblTripsAndVMT	HaulingTripNumber	0.00	4.00
tblTripsAndVMT	HaulingTripNumber	0.00	64.00
tblTripsAndVMT	HaulingTripNumber	0.00	32.00
tblTripsAndVMT	HaulingTripNumber	0.00	4.00
tblTripsAndVMT	HaulingTripNumber	0.00	4.00
tblTripsAndVMT	HaulingTripNumber	0.00	16.00
tblTripsAndVMT	VendorTripLength	6.60	70.00
tblTripsAndVMT	VendorTripLength	6.60	70.00
tblTripsAndVMT	VendorTripLength	6.60	70.00
tblTripsAndVMT	VendorTripLength	6.60	70.00
tblTripsAndVMT	VendorTripLength	6.60	70.00

tblTripsAndVMT	VendorTripLength	6.60	70.00
tblTripsAndVMT	VendorTripNumber	0.00	32.00
tblTripsAndVMT	VendorTripNumber	5.00	96.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	5.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	16.00
tblTripsAndVMT	WorkerTripLength	16.80	70.00
tblTripsAndVMT	WorkerTripLength	16.80	70.00
tblTripsAndVMT	WorkerTripLength	16.80	70.00
tblTripsAndVMT	WorkerTripLength	16.80	70.00
tblTripsAndVMT	WorkerTripLength	16.80	70.00
tblTripsAndVMT	WorkerTripLength	16.80	70.00
tblTripsAndVMT	WorkerTripNumber	3.00	104.00
tblTripsAndVMT	WorkerTripNumber	12.00	616.00
tblTripsAndVMT	WorkerTripNumber	18.00	160.00
tblTripsAndVMT	WorkerTripNumber	15.00	90.00
tblTripsAndVMT	WorkerTripNumber	12.00	124.00
tblTripsAndVMT	WorkerTripNumber	5.00	128.00
tblWater	IndoorWaterUseRate	6,641,500.00	19,511.00
tblWater	OutdoorWaterUseRate	0.00	9,770,000.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					

2020	2.7597	15.5520	21.2623	0.0864	96.8903	0.4676	97.3580	10.4723	0.4379	10.9102	0.0000	7,916.2603	7,916.2603	0.3930	0.0000	7,926.0840
2021	0.6860	3.6246	5.5053	0.0238	27.4808	0.0966	27.5774	2.9398	0.0905	3.0304	0.0000	2,179.9619	2,179.9619	0.0994	0.0000	2,182.4457
Maximum	**2.7597**	**15.5520**	**21.2623**	**0.0864**	**96.8903**	**0.4676**	**97.3580**	**10.4723**	**0.4379**	**10.9102**	**0.0000**	**7,916.2603**	**7,916.2603**	**0.3930**	**0.0000**	**7,926.0840**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	2.7597	15.5520	21.2622	0.0864	25.5968	0.4676	26.0644	3.1193	0.4379	3.5573	0.0000	7,916.2593	7,916.2593	0.3930	0.0000	7,926.0830
2021	0.6860	3.6246	5.5053	0.0238	7.2502	0.0966	7.3469	0.8720	0.0905	0.9625	0.0000	2,179.9616	2,179.9616	0.0994	0.0000	2,182.4454
Maximum	**2.7597**	**15.5520**	**21.2622**	**0.0864**	**25.5968**	**0.4676**	**26.0644**	**3.1193**	**0.4379**	**3.5573**	**0.0000**	**7,916.2593**	**7,916.2593**	**0.3930**	**0.0000**	**7,926.0830**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**73.59**	**0.00**	**73.26**	**70.24**	**0.00**	**67.58**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-2-2020**	**4-1-2020**	4.2446	4.2446
2	**4-2-2020**	**7-1-2020**	4.9942	4.9942
3	**7-2-2020**	**10-1-2020**	4.2937	4.2937
4	**10-2-2020**	**1-1-2021**	4.5003	4.5003
5	**1-2-2021**	**4-1-2021**	3.4668	3.4668
6	**4-2-2021**	**7-1-2021**	0.6375	0.6375
7	**7-2-2021**	**9-30-2021**	0.1884	0.1884
		Highest	4.9942	4.9942

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1455	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.1000e-004	5.1000e-004	0.0000	0.0000	5.5000e-004
Energy	2.6000e-003	0.0237	0.0199	1.4000e-004		1.8000e-003	1.8000e-003		1.8000e-003	1.8000e-003	0.0000	47.3437	47.3437	1.3900e-003	6.6000e-004	47.5740
Mobile	0.0198	0.2378	0.2062	1.1300e-003	0.0641	7.4000e-004	0.0648	0.0172	7.0000e-004	0.0179	0.0000	105.1881	105.1881	9.1000e-003	0.0000	105.4155
Offroad	3.3400e-003	0.0328	0.0407	6.0000e-005		1.9200e-003	1.9200e-003		1.7700e-003	1.7700e-003	0.0000	4.8909	4.8909	1.5800e-003	0.0000	4.9304
Waste						0.0000	0.0000		0.0000	0.0000	7.2285	0.0000	7.2285	0.4272	0.0000	17.9083
Water						0.0000	0.0000		0.0000	0.0000	6.1900e-003	34.6656	34.6718	2.0700e-003	3.1000e-004	34.8162
Total	**0.1712**	**0.2942**	**0.2670**	**1.3300e-003**	**0.0641**	**4.4600e-003**	**0.0686**	**0.0172**	**4.2700e-003**	**0.0215**	**7.2347**	**192.0888**	**199.3235**	**0.4413**	**9.7000e-004**	**210.6449**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1455	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.1000e-004	5.1000e-004	0.0000	0.0000	5.5000e-004
Energy	2.6000e-003	0.0237	0.0199	1.4000e-004		1.8000e-003	1.8000e-003		1.8000e-003	1.8000e-003	0.0000	47.3437	47.3437	1.3900e-003	6.6000e-004	47.5740
Mobile	0.0198	0.2378	0.2062	1.1300e-003	0.0641	7.4000e-004	0.0648	0.0172	7.0000e-004	0.0179	0.0000	105.1881	105.1881	9.1000e-003	0.0000	105.4155
Offroad	3.3400e-003	0.0328	0.0407	6.0000e-005		1.9200e-003	1.9200e-003		1.7700e-003	1.7700e-003	0.0000	4.8909	4.8909	1.5800e-003	0.0000	4.9304
Waste						0.0000	0.0000		0.0000	0.0000	7.2285	0.0000	7.2285	0.4272	0.0000	17.9083

Water						0.0000	0.0000		0.0000	0.0000	6.1900e-003	34.6656	34.6718	2.0700e-003	3.1000e-004	34.8162
Total	**0.1712**	**0.2942**	**0.2670**	**1.3300e-003**	**0.0641**	**4.4600e-003**	**0.0686**	**0.0172**	**4.2700e-003**	**0.0215**	**7.2347**	**192.0888**	**199.3235**	**0.4413**	**9.7000e-004**	**210.6449**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation 1 - Perimeter Fence Installation	Site Preparation	2/24/2020	7/24/2020	5	110	
2	Building Construction 1 - System Installation	Building Construction	2/10/2020	4/4/2021	5	300	
3	Site Preparation 2 - Clearing and Grubbing	Site Preparation	1/2/2020	4/22/2020	5	80	
4	Trenching - Underground work	Trenching	2/24/2020	4/16/2021	5	300	
5	Building Construction 2 - Gen-tie Construction	Building Construction	9/1/2020	12/21/2020	5	80	
6	Site Preparation 3 - Testing, Commissioning, Site Clearning	Site Preparation	4/26/2021	7/30/2021	5	70	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction 1 - System Installation	Generator Sets	2	8.00	84	0.74
Building Construction 2 - Gen-tie Construction	Generator Sets	0	0.00	84	0.74
Site Preparation 1 - Perimeter Fence Installation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Building Construction 1 - System Installation	Cranes	1	8.00	231	0.29
Building Construction 1 - System Installation	Forklifts	8	8.00	89	0.20

Building Construction 1 - System Installation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Site Preparation 1 - Perimeter Fence Installation	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation 3 - Testing, Commissioning, Site Clearning and	Rubber Tired Dozers	0	0.00	247	0.40
Building Construction 1 - System Installation	Welders	0	0.00	46	0.45
Site Preparation 2 - Clearing and Grubbing	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction 2 - Gen-tie Construction	Welders	0	0.00	46	0.45
Site Preparation 2 - Clearing and Grubbing	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation 1 - Perimeter Fence Installation	Skid Steer Loaders	1	8.00	65	0.37
Building Construction 2 - Gen-tie Construction	Cranes	1	8.00	231	0.29
Building Construction 2 - Gen-tie Construction	Forklifts	0	0.00	89	0.20
Building Construction 2 - Gen-tie Construction	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction 1 - System Installation	Other General Industrial Equipment	1	8.00	88	0.34
Site Preparation 2 - Clearing and Grubbing	Graders	2	8.00	187	0.41
Site Preparation 2 - Clearing and Grubbing	Scrapers	1	8.00	367	0.48
Site Preparation 2 - Clearing and Grubbing	Rollers	2	8.00	80	0.38
Trenching - Underground work	Excavators	2	8.00	158	0.38
Trenching - Underground work	Rollers	1	8.00	80	0.38
Trenching - Underground work	Generator Sets	1	8.00	84	0.74
Trenching - Underground work	Other Construction Equipment	1	8.00	172	0.42
Trenching - Underground work	Forklifts	1	8.00	89	0.20
Site Preparation 3 - Testing, Commissioning, Site Clearning and	Skid Steer Loaders	1	8.00	65	0.37
Site Preparation 3 - Testing, Commissioning, Site Clearning and	Graders	1	8.00	187	0.41
Site Preparation 3 - Testing, Commissioning, Site Clearning and	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Site Preparation 3 - Testing, Commissioning, Site Clearning and	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Site Preparation 3 - Testing, Commissioning, Site Clearning and	Tractors/Loaders/Backhoes	0	0.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation 1 - Perimeter Fence	1	104.00	32.00	4.00	70.00	70.00	70.00	LD_Mix	HDT_Mix	HHDT

Building Construction 1 - System Installation	12	616.00	96.00	64.00	70.00	70.00	70.00	LD_Mix	HDT_Mix	HHDT
Site Preparation 2 - Clearing and Grubbing	7	160.00	6.00	32.00	70.00	70.00	70.00	LD_Mix	HDT_Mix	HHDT
Trenching - Underground work	6	90.00	4.00	4.00	70.00	70.00	70.00	LD_Mix	HDT_Mix	HHDT
Building Construction 2 - Gen-tie	3	124.00	2.00	4.00	70.00	70.00	70.00	LD_Mix	HDT_Mix	HHDT
Site Preparation 3 - Testing	2	128.00	16.00	16.00	70.00	70.00	70.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation 1 - Perimeter Fence Installation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.3800e-003	0.0582	0.0761	1.1000e-004		2.5200e-003	2.5200e-003		2.3200e-003	2.3200e-003	0.0000	9.9470	9.9470	3.2200e-003	0.0000	10.0274
Total	**4.3800e-003**	**0.0582**	**0.0761**	**1.1000e-004**	**0.0000**	**2.5200e-003**	**2.5200e-003**	**0.0000**	**2.3200e-003**	**2.3200e-003**	**0.0000**	**9.9470**	**9.9470**	**3.2200e-003**	**0.0000**	**10.0274**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	4.0000e-005	1.2900e-003	2.1000e-004	0.0000	1.7200e-003	0.0000	1.7300e-003	1.9000e-004	0.0000	1.9000e-004	0.0000	0.4741	0.4741	2.0000e-005	0.0000	0.4745
Vendor	0.0395	0.8903	0.2187	3.7800e-003	1.5214	7.7400e-003	1.5291	0.1679	7.4000e-003	0.1753	0.0000	358.6822	358.6822	8.7700e-003	0.0000	358.9016
Worker	0.1017	0.0958	0.8055	2.7300e-003	4.8780	1.6400e-003	4.8796	0.5196	1.5100e-003	0.5211	0.0000	246.8607	246.8607	6.4300e-003	0.0000	247.0214
Total	**0.1413**	**0.9873**	**1.0244**	**6.5100e-003**	**6.4010**	**9.3800e-003**	**6.4104**	**0.6876**	**8.9100e-003**	**0.6965**	**0.0000**	**606.0170**	**606.0170**	**0.0152**	**0.0000**	**606.3975**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.3800e-003	0.0582	0.0761	1.1000e-004		2.5200e-003	2.5200e-003		2.3200e-003	2.3200e-003	0.0000	9.9470	9.9470	3.2200e-003	0.0000	10.0274
Total	**4.3800e-003**	**0.0582**	**0.0761**	**1.1000e-004**	**0.0000**	**2.5200e-003**	**2.5200e-003**	**0.0000**	**2.3200e-003**	**2.3200e-003**	**0.0000**	**9.9470**	**9.9470**	**3.2200e-003**	**0.0000**	**10.0274**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.2900e-003	2.1000e-004	0.0000	4.6000e-004	0.0000	4.7000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.4741	0.4741	2.0000e-005	0.0000	0.4745
Vendor	0.0395	0.8903	0.2187	3.7800e-003	0.4145	7.7400e-003	0.4222	0.0547	7.4000e-003	0.0621	0.0000	358.6822	358.6822	8.7700e-003	0.0000	358.9016
Worker	0.1017	0.0958	0.8055	2.7300e-003	1.2806	1.6400e-003	1.2823	0.1519	1.5100e-003	0.1534	0.0000	246.8607	246.8607	6.4300e-003	0.0000	247.0214
Total	**0.1413**	**0.9873**	**1.0244**	**6.5100e-003**	**1.6956**	**9.3800e-003**	**1.7050**	**0.2067**	**8.9100e-003**	**0.2156**	**0.0000**	**606.0170**	**606.0170**	**0.0152**	**0.0000**	**606.3975**

3.3 Building Construction 1 - System Installation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3089	2.9112	2.4533	3.9400e-003		0.1808	0.1808		0.1700	0.1700	0.0000	343.7219	343.7219	0.0758	0.0000	345.6179
Total	**0.3089**	**2.9112**	**2.4533**	**3.9400e-003**		**0.1808**	**0.1808**		**0.1700**	**0.1700**	**0.0000**	**343.7219**	**343.7219**	**0.0758**	**0.0000**	**345.6179**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.2000e-004	0.0160	2.6500e-003	6.0000e-005	0.0274	6.0000e-005	0.0275	2.9600e-003	5.0000e-005	3.0100e-003	0.0000	5.9167	5.9167	2.0000e-004	0.0000	5.9218
Vendor	0.2523	5.6817	1.3956	0.0242	9.7091	0.0494	9.7585	1.0712	0.0473	1.1185	0.0000	2,289.0447	2,289.0447	0.0560	0.0000	2,290.4445
Worker	1.2812	1.2066	10.1493	0.0344	61.4622	0.0207	61.4829	6.5464	0.0191	6.5655	0.0000	3,110.4447	3,110.4447	0.0810	0.0000	3,112.4698
Total	**1.5339**	**6.9043**	**11.5475**	**0.0586**	**71.1987**	**0.0702**	**71.2689**	**7.6206**	**0.0664**	**7.6870**	**0.0000**	**5,405.4061**	**5,405.4061**	**0.1372**	**0.0000**	**5,408.8360**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3089	2.9112	2.4533	3.9400e-003		0.1808	0.1808		0.1700	0.1700	0.0000	343.7215	343.7215	0.0758	0.0000	345.6175
Total	**0.3089**	**2.9112**	**2.4533**	**3.9400e-003**		**0.1808**	**0.1808**		**0.1700**	**0.1700**	**0.0000**	**343.7215**	**343.7215**	**0.0758**	**0.0000**	**345.6175**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.2000e-004	0.0160	2.6500e-003	6.0000e-005	7.3200e-003	6.0000e-005	7.3800e-003	9.0000e-004	5.0000e-005	9.5000e-004	0.0000	5.9167	5.9167	2.0000e-004	0.0000	5.9218
Vendor	0.2523	5.6817	1.3956	0.0242	2.6453	0.0494	2.6947	0.3492	0.0473	0.3965	0.0000	2,289.0447	2,289.0447	0.0560	0.0000	2,290.4445
Worker	1.2812	1.2066	10.1493	0.0344	16.1359	0.0207	16.1566	1.9136	0.0191	1.9327	0.0000	3,110.4447	3,110.4447	0.0810	0.0000	3,112.4698
Total	**1.5339**	**6.9043**	**11.5475**	**0.0586**	**18.7885**	**0.0702**	**18.8587**	**2.2637**	**0.0664**	**2.3301**	**0.0000**	**5,405.4061**	**5,405.4061**	**0.1372**	**0.0000**	**5,408.8360**

3.3 Building Construction 1 - System Installation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0784	0.7454	0.6824	1.1100e-003		0.0441	0.0441		0.0415	0.0415	0.0000	96.9457	96.9457	0.0212	0.0000	97.4755

Total	**0.0784**	**0.7454**	**0.6824**	**1.1100e-003**		**0.0441**	**0.0441**		**0.0415**	**0.0415**	**0.0000**	**96.9457**	**96.9457**	**0.0212**	**0.0000**	**97.4755**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4000e-004	4.0600e-003	7.2000e-004	2.0000e-005	0.0272	1.0000e-005	0.0272	2.8600e-003	1.0000e-005	2.8700e-003	0.0000	1.6486	1.6486	5.0000e-005	0.0000	1.6500
Vendor	0.0541	1.3417	0.3296	6.7500e-003	2.7385	4.8800e-003	2.7433	0.3021	4.6600e-003	0.3068	0.0000	639.9501	639.9501	0.0145	0.0000	640.3117
Worker	0.3339	0.3015	2.6285	9.3800e-003	17.3355	5.7300e-003	17.3412	1.8464	5.2800e-003	1.8517	0.0000	848.7789	848.7789	0.0204	0.0000	849.2893
Total	**0.3882**	**1.6472**	**2.9589**	**0.0162**	**20.1011**	**0.0106**	**20.1117**	**2.1514**	**9.9500e-003**	**2.1614**	**0.0000**	**1,490.3777**	**1,490.3777**	**0.0349**	**0.0000**	**1,491.2509**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0784	0.7454	0.6824	1.1100e-003		0.0441	0.0441		0.0415	0.0415	0.0000	96.9456	96.9456	0.0212	0.0000	97.4754
Total	**0.0784**	**0.7454**	**0.6824**	**1.1100e-003**		**0.0441**	**0.0441**		**0.0415**	**0.0415**	**0.0000**	**96.9456**	**96.9456**	**0.0212**	**0.0000**	**97.4754**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4000e-004	4.0600e-003	7.2000e-004	2.0000e-005	7.0500e-003	1.0000e-005	7.0600e-003	8.0000e-004	1.0000e-005	8.1000e-004	0.0000	1.6486	1.6486	5.0000e-005	0.0000	1.6500
Vendor	0.0541	1.3417	0.3296	6.7500e-003	0.7461	4.8800e-003	0.7510	0.0985	4.6600e-003	0.1032	0.0000	639.9501	639.9501	0.0145	0.0000	640.3117
Worker	0.3339	0.3015	2.6285	9.3800e-003	4.5512	5.7300e-003	4.5569	0.5397	5.2800e-003	0.5450	0.0000	848.7789	848.7789	0.0204	0.0000	849.2893
Total	**0.3882**	**1.6472**	**2.9589**	**0.0162**	**5.3043**	**0.0106**	**5.3149**	**0.6390**	**9.9500e-003**	**0.6490**	**0.0000**	**1,490.3777**	**1,490.3777**	**0.0349**	**0.0000**	**1,491.2509**

3.4 Site Preparation 2 - Clearing and Grubbing - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3257	0.0000	0.3257	0.1416	0.0000	0.1416	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1459	1.6788	0.8505	1.8100e-003		0.0726	0.0726		0.0668	0.0668	0.0000	159.1397	159.1397	0.0515	0.0000	160.4264
Total	**0.1459**	**1.6788**	**0.8505**	**1.8100e-003**	**0.3257**	**0.0726**	**0.3983**	**0.1416**	**0.0668**	**0.2083**	**0.0000**	**159.1397**	**159.1397**	**0.0515**	**0.0000**	**160.4264**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	3.3000e-004	0.0103	1.7000e-003	4.0000e-005	0.0138	4.0000e-005	0.0138	1.5000e-003	3.0000e-005	1.5300e-003	0.0000	3.7928	3.7928	1.3000e-004	0.0000	3.7960
Vendor	5.3900e-003	0.1214	0.0298	5.2000e-004	0.2075	1.0600e-003	0.2085	0.0229	1.0100e-003	0.0239	0.0000	48.9112	48.9112	1.2000e-003	0.0000	48.9411
Worker	0.1138	0.1071	0.9013	3.0500e-003	5.4578	1.8400e-003	5.4597	0.5813	1.6900e-003	0.5830	0.0000	276.2078	276.2078	7.1900e-003	0.0000	276.3876
Total	**0.1195**	**0.2388**	**0.9328**	**3.6100e-003**	**5.6791**	**2.9400e-003**	**5.6820**	**0.6057**	**2.7300e-003**	**0.6084**	**0.0000**	**328.9118**	**328.9118**	**8.5200e-003**	**0.0000**	**329.1247**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1270	0.0000	0.1270	0.0552	0.0000	0.0552	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1459	1.6788	0.8505	1.8100e-003		0.0726	0.0726		0.0668	0.0668	0.0000	159.1395	159.1395	0.0515	0.0000	160.4262
Total	**0.1459**	**1.6788**	**0.8505**	**1.8100e-003**	**0.1270**	**0.0726**	**0.1996**	**0.0552**	**0.0668**	**0.1220**	**0.0000**	**159.1395**	**159.1395**	**0.0515**	**0.0000**	**160.4262**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.3000e-004	0.0103	1.7000e-003	4.0000e-005	3.7100e-003	4.0000e-005	3.7500e-003	4.7000e-004	3.0000e-005	5.0000e-004	0.0000	3.7928	3.7928	1.3000e-004	0.0000	3.7960
Vendor	5.3900e-003	0.1214	0.0298	5.2000e-004	0.0565	1.0600e-003	0.0576	7.4600e-003	1.0100e-003	8.4700e-003	0.0000	48.9112	48.9112	1.2000e-003	0.0000	48.9411
Worker	0.1138	0.1071	0.9013	3.0500e-003	1.4329	1.8400e-003	1.4347	0.1699	1.6900e-003	0.1716	0.0000	276.2078	276.2078	7.1900e-003	0.0000	276.3876
Total	**0.1195**	**0.2388**	**0.9328**	**3.6100e-003**	**1.4931**	**2.9400e-003**	**1.4960**	**0.1779**	**2.7300e-003**	**0.1806**	**0.0000**	**328.9118**	**328.9118**	**8.5200e-003**	**0.0000**	**329.1247**

3.5 Trenching - Underground work - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1938	1.8893	1.9495	3.0500e-003		0.1045	0.1045		0.0979	0.0979	0.0000	266.2192	266.2192	0.0692	0.0000	267.9490
Total	**0.1938**	**1.8893**	**1.9495**	**3.0500e-003**		**0.1045**	**0.1045**		**0.0979**	**0.0979**	**0.0000**	**266.2192**	**266.2192**	**0.0692**	**0.0000**	**267.9490**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0000e-005	9.6000e-004	1.6000e-004	0.0000	1.7100e-003	0.0000	1.7200e-003	1.8000e-004	0.0000	1.9000e-004	0.0000	0.3540	0.3540	1.0000e-005	0.0000	0.3543
Vendor	0.0101	0.2266	0.0557	9.6000e-004	0.3873	1.9700e-003	0.3892	0.0427	1.8800e-003	0.0446	0.0000	91.3009	91.3009	2.2300e-003	0.0000	91.3568
Worker	0.1792	0.1688	1.4195	4.8100e-003	8.5961	2.9000e-003	8.5990	0.9156	2.6700e-003	0.9183	0.0000	435.0272	435.0272	0.0113	0.0000	435.3105
Total	**0.1893**	**0.3963**	**1.4753**	**5.7700e-003**	**8.9851**	**4.8700e-003**	**8.9900**	**0.9585**	**4.5500e-003**	**0.9631**	**0.0000**	**526.6822**	**526.6822**	**0.0136**	**0.0000**	**527.0215**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1938	1.8893	1.9495	3.0500e-003		0.1045	0.1045		0.0979	0.0979	0.0000	266.2189	266.2189	0.0692	0.0000	267.9487
Total	**0.1938**	**1.8893**	**1.9495**	**3.0500e-003**		**0.1045**	**0.1045**		**0.0979**	**0.0979**	**0.0000**	**266.2189**	**266.2189**	**0.0692**	**0.0000**	**267.9487**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0000e-005	9.6000e-004	1.6000e-004	0.0000	4.6000e-004	0.0000	4.6000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.3540	0.3540	1.0000e-005	0.0000	0.3543
Vendor	0.0101	0.2266	0.0557	9.6000e-004	0.1055	1.9700e-003	0.1075	0.0139	1.8800e-003	0.0158	0.0000	91.3009	91.3009	2.2300e-003	0.0000	91.3568
Worker	0.1792	0.1688	1.4195	4.8100e-003	2.2568	2.9000e-003	2.2597	0.2676	2.6700e-003	0.2703	0.0000	435.0272	435.0272	0.0113	0.0000	435.3105
Total	**0.1893**	**0.3963**	**1.4753**	**5.7700e-003**	**2.3627**	**4.8700e-003**	**2.3676**	**0.2816**	**4.5500e-003**	**0.2862**	**0.0000**	**526.6822**	**526.6822**	**0.0136**	**0.0000**	**527.0215**

3.5 Trenching - Underground work - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0589	0.5667	0.6575	1.0300e-003		0.0306	0.0306		0.0286	0.0286	0.0000	90.3207	90.3207	0.0234	0.0000	90.9047

Total	**0.0589**	**0.5667**	**0.6575**	**1.0300e-003**		**0.0306**	**0.0306**		**0.0286**	**0.0286**	**0.0000**	**90.3207**	**90.3207**	**0.0234**	**0.0000**	**90.9047**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	2.9000e-004	5.0000e-005	0.0000	1.7000e-003	0.0000	1.7000e-003	1.8000e-004	0.0000	1.8000e-004	0.0000	0.1187	0.1187	0.0000	0.0000	0.1188
Vendor	2.5900e-003	0.0644	0.0158	3.2000e-004	0.1314	2.3000e-004	0.1316	0.0145	2.2000e-004	0.0147	0.0000	30.7047	30.7047	6.9000e-004	0.0000	30.7220
Worker	0.0562	0.0507	0.4422	1.5800e-003	2.9165	9.6000e-004	2.9175	0.3106	8.9000e-004	0.3115	0.0000	142.7993	142.7993	3.4300e-003	0.0000	142.8852
Total	**0.0588**	**0.1154**	**0.4581**	**1.9000e-003**	**3.0496**	**1.1900e-003**	**3.0508**	**0.3253**	**1.1100e-003**	**0.3264**	**0.0000**	**173.6226**	**173.6226**	**4.1200e-003**	**0.0000**	**173.7259**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0589	0.5667	0.6575	1.0300e-003		0.0306	0.0306		0.0286	0.0286	0.0000	90.3206	90.3206	0.0234	0.0000	90.9046
Total	**0.0589**	**0.5667**	**0.6575**	**1.0300e-003**		**0.0306**	**0.0306**		**0.0286**	**0.0286**	**0.0000**	**90.3206**	**90.3206**	**0.0234**	**0.0000**	**90.9046**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	2.9000e-004	5.0000e-005	0.0000	4.4000e-004	0.0000	4.4000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1187	0.1187	0.0000	0.0000	0.1188
Vendor	2.5900e-003	0.0644	0.0158	3.2000e-004	0.0358	2.3000e-004	0.0360	4.7300e-003	2.2000e-004	4.9500e-003	0.0000	30.7047	30.7047	6.9000e-004	0.0000	30.7220
Worker	0.0562	0.0507	0.4422	1.5800e-003	0.7657	9.6000e-004	0.7667	0.0908	8.9000e-004	0.0917	0.0000	142.7993	142.7993	3.4300e-003	0.0000	142.8852
Total	**0.0588**	**0.1154**	**0.4581**	**1.9000e-003**	**0.8019**	**1.1900e-003**	**0.8031**	**0.0956**	**1.1100e-003**	**0.0967**	**0.0000**	**173.6226**	**173.6226**	**4.1200e-003**	**0.0000**	**173.7259**

3.6 Building Construction 2 - Gen-tie Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0328	0.3630	0.2442	4.5000e-004		0.0182	0.0182		0.0168	0.0168	0.0000	39.3767	39.3767	0.0127	0.0000	39.6951
Total	**0.0328**	**0.3630**	**0.2442**	**4.5000e-004**		**0.0182**	**0.0182**		**0.0168**	**0.0168**	**0.0000**	**39.3767**	**39.3767**	**0.0127**	**0.0000**	**39.6951**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	4.0000e-005	1.2900e-003	2.1000e-004	0.0000	1.7200e-003	0.0000	1.7300e-003	1.9000e-004	0.0000	1.9000e-004	0.0000	0.4741	0.4741	2.0000e-005	0.0000	0.4745
Vendor	1.8000e-003	0.0405	9.9400e-003	1.7000e-004	0.0692	3.5000e-004	0.0695	7.6300e-003	3.4000e-004	7.9700e-003	0.0000	16.3037	16.3037	4.0000e-004	0.0000	16.3137
Worker	0.0882	0.0830	0.6985	2.3700e-003	4.2298	1.4200e-003	4.2313	0.4505	1.3100e-003	0.4518	0.0000	214.0610	214.0610	5.5700e-003	0.0000	214.2004
Total	**0.0900**	**0.1248**	**0.7086**	**2.5400e-003**	**4.3007**	**1.7700e-003**	**4.3025**	**0.4583**	**1.6500e-003**	**0.4600**	**0.0000**	**230.8389**	**230.8389**	**5.9900e-003**	**0.0000**	**230.9886**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0328	0.3630	0.2442	4.5000e-004		0.0182	0.0182		0.0168	0.0168	0.0000	39.3767	39.3767	0.0127	0.0000	39.6950
Total	**0.0328**	**0.3630**	**0.2442**	**4.5000e-004**		**0.0182**	**0.0182**		**0.0168**	**0.0168**	**0.0000**	**39.3767**	**39.3767**	**0.0127**	**0.0000**	**39.6950**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.2900e-003	2.1000e-004	0.0000	4.6000e-004	0.0000	4.7000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.4741	0.4741	2.0000e-005	0.0000	0.4745
Vendor	1.8000e-003	0.0405	9.9400e-003	1.7000e-004	0.0188	3.5000e-004	0.0192	2.4900e-003	3.4000e-004	2.8200e-003	0.0000	16.3037	16.3037	4.0000e-004	0.0000	16.3137
Worker	0.0882	0.0830	0.6985	2.3700e-003	1.1105	1.4200e-003	1.1119	0.1317	1.3100e-003	0.1330	0.0000	214.0610	214.0610	5.5700e-003	0.0000	214.2004
Total	**0.0900**	**0.1248**	**0.7086**	**2.5400e-003**	**1.1298**	**1.7700e-003**	**1.1316**	**0.1342**	**1.6500e-003**	**0.1359**	**0.0000**	**230.8389**	**230.8389**	**5.9900e-003**	**0.0000**	**230.9886**

3.7 Site Preparation 3 - Testing, Commissioning, Site Clearning

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0186	0.0000	0.0186	2.0000e-003	0.0000	2.0000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0184	0.2417	0.1101	3.0000e-004		7.9700e-003	7.9700e-003		7.3300e-003	7.3300e-003	0.0000	26.6406	26.6406	8.6200e-003	0.0000	26.8560
Total	**0.0184**	**0.2417**	**0.1101**	**3.0000e-004**	**0.0186**	**7.9700e-003**	**0.0265**	**2.0000e-003**	**7.3300e-003**	**9.3300e-003**	**0.0000**	**26.6406**	**26.6406**	**8.6200e-003**	**0.0000**	**26.8560**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.6000e-004	4.6200e-003	8.2000e-004	2.0000e-005	6.8900e-003	2.0000e-005	6.9000e-003	7.5000e-004	1.0000e-005	7.6000e-004	0.0000	1.8734	1.8734	6.0000e-005	0.0000	1.8750
Vendor	9.5600e-003	0.2372	0.0583	1.1900e-003	0.4841	8.6000e-004	0.4849	0.0534	8.2000e-004	0.0542	0.0000	113.1225	113.1225	2.5600e-003	0.0000	113.1864
Worker	0.0736	0.0665	0.5793	2.0700e-003	3.8205	1.2600e-003	3.8218	0.4069	1.1600e-003	0.4081	0.0000	187.0587	187.0587	4.5000e-003	0.0000	187.1712
Total	**0.0833**	**0.3082**	**0.6384**	**3.2800e-003**	**4.3115**	**2.1400e-003**	**4.3136**	**0.4611**	**1.9900e-003**	**0.4631**	**0.0000**	**302.0546**	**302.0546**	**7.1200e-003**	**0.0000**	**302.2326**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.2400e-003	0.0000	7.2400e-003	7.8000e-004	0.0000	7.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0184	0.2417	0.1101	3.0000e-004		7.9700e-003	7.9700e-003		7.3300e-003	7.3300e-003	0.0000	26.6406	26.6406	8.6200e-003	0.0000	26.8560
Total	**0.0184**	**0.2417**	**0.1101**	**3.0000e-004**	**7.2400e-003**	**7.9700e-003**	**0.0152**	**7.8000e-004**	**7.3300e-003**	**8.1100e-003**	**0.0000**	**26.6406**	**26.6406**	**8.6200e-003**	**0.0000**	**26.8560**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.6000e-004	4.6200e-003	8.2000e-004	2.0000e-005	1.8600e-003	2.0000e-005	1.8700e-003	2.3000e-004	1.0000e-005	2.5000e-004	0.0000	1.8734	1.8734	6.0000e-005	0.0000	1.8750
Vendor	9.5600e-003	0.2372	0.0583	1.1900e-003	0.1319	8.6000e-004	0.1328	0.0174	8.2000e-004	0.0182	0.0000	113.1225	113.1225	2.5600e-003	0.0000	113.1864
Worker	0.0736	0.0665	0.5793	2.0700e-003	1.0030	1.2600e-003	1.0043	0.1190	1.1600e-003	0.1201	0.0000	187.0587	187.0587	4.5000e-003	0.0000	187.1712
Total	**0.0833**	**0.3082**	**0.6384**	**3.2800e-003**	**1.1368**	**2.1400e-003**	**1.1389**	**0.1366**	**1.9900e-003**	**0.1386**	**0.0000**	**302.0546**	**302.0546**	**7.1200e-003**	**0.0000**	**302.2326**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Mitigated	0.0198	0.2378	0.2062	1.1300e-003	0.0641	7.4000e-004	0.0648	0.0172	7.0000e-004	0.0179	0.0000	105.1881	105.1881	9.1000e-003	0.0000	105.4155
Unmitigated	0.0198	0.2378	0.2062	1.1300e-003	0.0641	7.4000e-004	0.0648	0.0172	7.0000e-004	0.0179	0.0000	105.1881	105.1881	9.1000e-003	0.0000	105.4155

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	43.08	43.08	43.08	166,438	166,438
Total	43.08	43.08	43.08	166,438	166,438

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.486321	0.031785	0.181048	0.107930	0.020259	0.005756	0.011219	0.141006	0.002203	0.001426	0.008588	0.001195	0.001263

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	21.5959	21.5959	8.9000e-004	1.8000e-004	21.6732
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	21.5959	21.5959	8.9000e-004	1.8000e-004	21.6732
NaturalGas Mitigated	2.6000e-003	0.0237	0.0199	1.4000e-004		1.8000e-003	1.8000e-003		1.8000e-003	1.8000e-003	0.0000	25.7478	25.7478	4.9000e-004	4.7000e-004	25.9008
NaturalGas Unmitigated	2.6000e-003	0.0237	0.0199	1.4000e-004		1.8000e-003	1.8000e-003		1.8000e-003	1.8000e-003	0.0000	25.7478	25.7478	4.9000e-004	4.7000e-004	25.9008

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Heavy Industry	482496	2.6000e-003	0.0237	0.0199	1.4000e-004		1.8000e-003	1.8000e-003		1.8000e-003	1.8000e-003	0.0000	25.7478	25.7478	4.9000e-004	4.7000e-004	25.9008
Total		**2.6000e-003**	**0.0237**	**0.0199**	**1.4000e-004**		**1.8000e-003**	**1.8000e-003**		**1.8000e-003**	**1.8000e-003**	**0.0000**	**25.7478**	**25.7478**	**4.9000e-004**	**4.7000e-004**	**25.9008**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Heavy Industry	482496	2.6000e-003	0.0237	0.0199	1.4000e-004		1.8000e-003	1.8000e-003		1.8000e-003	1.8000e-003	0.0000	25.7478	25.7478	4.9000e-004	4.7000e-004	25.9008
Total		**2.6000e-003**	**0.0237**	**0.0199**	**1.4000e-004**		**1.8000e-003**	**1.8000e-003**		**1.8000e-003**	**1.8000e-003**	**0.0000**	**25.7478**	**25.7478**	**4.9000e-004**	**4.7000e-004**	**25.9008**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	67779.2	21.5959	8.9000e-004	1.8000e-004	21.6732
Total		**21.5959**	**8.9000e-004**	**1.8000e-004**	**21.6732**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	67779.2	21.5959	8.9000e-004	1.8000e-004	21.6732
Total		**21.5959**	**8.9000e-004**	**1.8000e-004**	**21.6732**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1455	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.1000e-004	5.1000e-004	0.0000	0.0000	5.5000e-004
Unmitigated	0.1455	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.1000e-004	5.1000e-004	0.0000	0.0000	5.5000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0333					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1122					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.1000e-004	5.1000e-004	0.0000	0.0000	5.5000e-004
Total	**0.1455**	**0.0000**	**2.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.1000e-004**	**5.1000e-004**	**0.0000**	**0.0000**	**5.5000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0333					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1122					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.1000e-004	5.1000e-004	0.0000	0.0000	5.5000e-004
Total	**0.1455**	**0.0000**	**2.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.1000e-004**	**5.1000e-004**	**0.0000**	**0.0000**	**5.5000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	34.6718	2.0700e-003	3.1000e-004	34.8162
Unmitigated	34.6718	2.0700e-003	3.1000e-004	34.8162

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0.019511 / 9.77	34.6718	2.0700e-003	3.1000e-004	34.8162

Total		**34.6718**	**2.0700e-003**	**3.1000e-004**	**34.8162**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0.019511 / 9.77	34.6718	2.0700e-003	3.1000e-004	34.8162
Total		**34.6718**	**2.0700e-003**	**3.1000e-004**	**34.8162**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	7.2285	0.4272	0.0000	17.9083
Unmitigated	7.2285	0.4272	0.0000	17.9083

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	35.61	7.2285	0.4272	0.0000	17.9083
Total		**7.2285**	**0.4272**	**0.0000**	**17.9083**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	35.61	7.2285	0.4272	0.0000	17.9083
Total		**7.2285**	**0.4272**	**0.0000**	**17.9083**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Forklifts	2	8.00	12	89	0.20	Diesel
Tractors/Loaders/Backhoes	2	8.00	12	97	0.37	Diesel

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Forklifts	1.3600e-003	0.0127	0.0138	2.0000e-005		8.4000e-004	8.4000e-004		7.7000e-004	7.7000e-004	0.0000	1.6115	1.6115	5.2000e-004	0.0000	1.6245
Tractors/Loaders/ Backhoes	1.9800e-003	0.0201	0.0269	4.0000e-005		1.0800e-003	1.0800e-003		9.9000e-004	9.9000e-004	0.0000	3.2794	3.2794	1.0600e-003	0.0000	3.3059
Total	**3.3400e-003**	**0.0328**	**0.0407**	**6.0000e-005**		**1.9200e-003**	**1.9200e-003**		**1.7600e-003**	**1.7600e-003**	**0.0000**	**4.8909**	**4.8909**	**1.5800e-003**	**0.0000**	**4.9304**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sanborn Solar

Kern County APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	28.72	1000sqft	2,021.00	28,720.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Operational year 2022.

Land Use - 2,101 acre project site.

Construction Phase - Construction schedule provided by project applicant.

Off-road Equipment - Equipment specified by the project applicant. ATVs and Pickup trucks were accounted for in the Trips and VMT tab as worker vehicles. (4 ATVs and 4 pick-up trucks = 16 additional worker trips). Other general industrial equipment = pile driver.

Off-road Equipment - Equipment specified by the project applicant. (trucks were accounted for as worker vehicles in the trips and VMT tab.

Off-road Equipment - Equipment specified by the project applicant. Pick up trucks and flatbed trucks were accounted for in the worker trip estimate under the Trips and VMT tab. 1 pick-up truck and 1 flatbed truck = 4 additional worker trips.

Off-road Equipment - Equipment specified by the project applicant. Water trucks were accounted for in the Trips and VMT tab under vendor trucks. (3 water trucks = 6 additional vendor truck trips)

Off-road Equipment - Equipment specified by the project applicant. Pickup trucks were accounted for in the Trips and VMT tab as worker vehicles. (4 pick-up trucks = 8 additional worker vehicles)

Off-road Equipment - Equipment specified by the project applicant. Other construction equipment = Aussie padder. Water trucks were accounted in the Trips and VMT tab under vendor trucks. (1 water truck = 2 additional vendor truck trips)

Trips and VMT - Trip values and lengths are based on information provided by the project applicant.

On-road Fugitive Dust - Distance on unpaved roads is based on information provided by the project applicant.

Grading - CalEEMod default values.

Vehicle Trips - Operational trip values are based on information provided by the project applicant.

Water And Wastewater - 9,770,000 gallons (30 acre feet) for panel washing. 19,511 gallons (0.6 acre feet) for interior use.

Construction Off-road Equipment Mitigation - Assumed compliance with EKAPCD Rule 402: vehicle speed limited to 15 miles per hour and watering 2x daily.

Mobile Commute Mitigation - No mitigation was applied.

Operational Off-Road Equipment - Two forklifts and two tractor/loader/backhoes for 8 hours a day 12x a year.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	155,000.00	300.00
tblConstructionPhase	NumDays	155,000.00	80.00
tblConstructionPhase	NumDays	6,000.00	110.00
tblConstructionPhase	NumDays	6,000.00	80.00
tblConstructionPhase	NumDays	6,000.00	70.00
tblLandUse	LotAcreage	0.66	2,021.00
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.34	0.34
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	LoadFactor	0.48	0.48
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	LoadFactor	0.20	0.20
tblOffRoadEquipment	LoadFactor	0.37	0.37

tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Other General Industrial Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Scrapers
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	8.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	UsageHours	7.00	8.00

tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	99.10
tblOnRoadDust	HaulingPercentPave	100.00	99.10
tblOnRoadDust	HaulingPercentPave	100.00	99.10
tblOnRoadDust	HaulingPercentPave	100.00	99.10
tblOnRoadDust	HaulingPercentPave	100.00	99.10
tblOnRoadDust	HaulingPercentPave	100.00	99.10
tblOnRoadDust	RoadSiltLoading	0.10	0.03
tblOnRoadDust	RoadSiltLoading	0.10	0.03
tblOnRoadDust	RoadSiltLoading	0.10	0.03
tblOnRoadDust	RoadSiltLoading	0.10	0.03
tblOnRoadDust	RoadSiltLoading	0.10	0.03
tblOnRoadDust	RoadSiltLoading	0.10	0.03
tblOnRoadDust	VendorPercentPave	100.00	99.10
tblOnRoadDust	VendorPercentPave	100.00	99.10
tblOnRoadDust	VendorPercentPave	100.00	99.10
tblOnRoadDust	VendorPercentPave	100.00	99.10
tblOnRoadDust	VendorPercentPave	100.00	99.10
tblOnRoadDust	VendorPercentPave	100.00	99.10

tblOnRoadDust	WorkerPercentPave	100.00	99.10
tblOnRoadDust	WorkerPercentPave	100.00	99.10
tblOnRoadDust	WorkerPercentPave	100.00	99.10
tblOnRoadDust	WorkerPercentPave	100.00	99.10
tblOnRoadDust	WorkerPercentPave	100.00	99.10
tblOnRoadDust	WorkerPercentPave	100.00	99.10
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	12.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	12.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	2.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	2.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	70.00
tblTripsAndVMT	HaulingTripLength	20.00	70.00
tblTripsAndVMT	HaulingTripLength	20.00	70.00
tblTripsAndVMT	HaulingTripLength	20.00	70.00
tblTripsAndVMT	HaulingTripLength	20.00	70.00
tblTripsAndVMT	HaulingTripLength	20.00	70.00
tblTripsAndVMT	HaulingTripNumber	0.00	4.00
tblTripsAndVMT	HaulingTripNumber	0.00	64.00
tblTripsAndVMT	HaulingTripNumber	0.00	32.00
tblTripsAndVMT	HaulingTripNumber	0.00	4.00
tblTripsAndVMT	HaulingTripNumber	0.00	4.00
tblTripsAndVMT	HaulingTripNumber	0.00	16.00
tblTripsAndVMT	VendorTripLength	6.60	70.00
tblTripsAndVMT	VendorTripLength	6.60	70.00
tblTripsAndVMT	VendorTripLength	6.60	70.00
tblTripsAndVMT	VendorTripLength	6.60	70.00
tblTripsAndVMT	VendorTripLength	6.60	70.00
tblTripsAndVMT	VendorTripLength	6.60	70.00
tblTripsAndVMT	VendorTripNumber	0.00	32.00

tblTripsAndVMT	VendorTripNumber	5.00	96.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	5.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	16.00
tblTripsAndVMT	WorkerTripLength	16.80	70.00
tblTripsAndVMT	WorkerTripLength	16.80	70.00
tblTripsAndVMT	WorkerTripLength	16.80	70.00
tblTripsAndVMT	WorkerTripLength	16.80	70.00
tblTripsAndVMT	WorkerTripLength	16.80	70.00
tblTripsAndVMT	WorkerTripLength	16.80	70.00
tblTripsAndVMT	WorkerTripNumber	3.00	104.00
tblTripsAndVMT	WorkerTripNumber	12.00	616.00
tblTripsAndVMT	WorkerTripNumber	18.00	160.00
tblTripsAndVMT	WorkerTripNumber	15.00	90.00
tblTripsAndVMT	WorkerTripNumber	12.00	124.00
tblTripsAndVMT	WorkerTripNumber	5.00	128.00
tblWater	IndoorWaterUseRate	6,641,500.00	19,511.00
tblWater	OutdoorWaterUseRate	0.00	9,770,000.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	29.2956	166.1072	243.2741	0.9176	1,062.3840	5.2242	1,067.6082	113.9594	4.8761	118.8354	0.0000	92,549.9754	92,549.9754	4.9851	0.0000	92,674.6020

2021	17.7870	87.3442	158.9562	0.6343	767.3500	2.4953	769.8453	80.3680	2.3418	82.7098	0.0000	64,049.4572	64,049.4572	2.7622	0.0000	64,118.5110
Maximum	**29.2956**	**166.1072**	**243.2741**	**0.9176**	**1,062.3840**	**5.2242**	**1,067.6082**	**113.9594**	**4.8761**	**118.8354**	**0.0000**	**92,549.9754**	**92,549.9754**	**4.9851**	**0.0000**	**92,674.6020**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	29.2956	166.1072	243.2741	0.9176	274.9060	5.2242	280.1302	33.6827	4.8761	38.5588	0.0000	92,549.9754	92,549.9754	4.9851	0.0000	92,674.6020
2021	17.7870	87.3442	158.9562	0.6343	197.7750	2.4953	200.2703	23.5076	2.3418	25.8494	0.0000	64,049.4572	64,049.4572	2.7622	0.0000	64,118.5110
Maximum	**29.2956**	**166.1072**	**243.2741**	**0.9176**	**274.9060**	**5.2242**	**280.1302**	**33.6827**	**4.8761**	**38.5588**	**0.0000**	**92,549.9754**	**92,549.9754**	**4.9851**	**0.0000**	**92,674.6020**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**74.17**	**0.00**	**73.86**	**70.57**	**0.00**	**68.04**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.7972	3.0000e-005	2.9400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.2900e-003	6.2900e-003	2.0000e-005		6.7000e-003
Energy	0.0143	0.1296	0.1089	7.8000e-004		9.8500e-003	9.8500e-003		9.8500e-003	9.8500e-003		155.5185	155.5185	2.9800e-003	2.8500e-003	156.4426
Mobile	0.1242	1.2860	1.2117	6.5400e-003	0.3587	4.0800e-003	0.3628	0.0962	3.8500e-003	0.1001		670.5610	670.5610	0.0530		671.8868

Offroad	0.5566	5.4611	6.7834	9.2800e-003		0.3200	0.3200		0.2944	0.2944		898.5396	898.5396	0.2906		905.8047
Total	**1.4923**	**6.8767**	**8.1069**	**0.0166**	**0.3587**	**0.3339**	**0.6927**	**0.0962**	**0.3081**	**0.4043**		**1,724.6253**	**1,724.6253**	**0.3466**	**2.8500e-003**	**1,734.1409**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.7972	3.0000e-005	2.9400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.2900e-003	6.2900e-003	2.0000e-005		6.7000e-003
Energy	0.0143	0.1296	0.1089	7.8000e-004		9.8500e-003	9.8500e-003		9.8500e-003	9.8500e-003		155.5185	155.5185	2.9800e-003	2.8500e-003	156.4426
Mobile	0.1242	1.2860	1.2117	6.5400e-003	0.3587	4.0800e-003	0.3628	0.0962	3.8500e-003	0.1001		670.5610	670.5610	0.0530		671.8868
Offroad	0.5566	5.4611	6.7834	9.2800e-003		0.3200	0.3200		0.2944	0.2944		898.5396	898.5396	0.2906		905.8047
Total	**1.4923**	**6.8767**	**8.1069**	**0.0166**	**0.3587**	**0.3339**	**0.6927**	**0.0962**	**0.3081**	**0.4043**		**1,724.6253**	**1,724.6253**	**0.3466**	**2.8500e-003**	**1,734.1409**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation 1 - Perimeter Fence Installation	Site Preparation	2/24/2020	7/24/2020	5	110	
2	Building Construction 1 - System Installation	Building Construction	2/10/2020	4/4/2021	5	300	
3	Site Preparation 2 - Clearing and Grubbing	Site Preparation	1/2/2020	4/22/2020	5	80	
4	Trenching - Underground work	Trenching	2/24/2020	4/16/2021	5	300	
5	Building Construction 2 - Gen-tie Construction	Building Construction	9/1/2020	12/21/2020	5	80	

6	Site Preparation 3 - Testing, Commissioning, Site Clearning	Site Preparation	4/26/2021	7/30/2021	5	70	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction 1 - System Installation	Generator Sets	2	8.00	84	0.74
Building Construction 2 - Gen-tie Construction	Generator Sets	0	0.00	84	0.74
Site Preparation 1 - Perimeter Fence Installation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Building Construction 1 - System Installation	Cranes	1	8.00	231	0.29
Building Construction 1 - System Installation	Forklifts	8	8.00	89	0.20
Building Construction 1 - System Installation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Site Preparation 1 - Perimeter Fence Installation	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation 3 - Testing, Commissioning, Site Clearning and	Rubber Tired Dozers	0	0.00	247	0.40
Building Construction 1 - System Installation	Welders	0	0.00	46	0.45
Site Preparation 2 - Clearing and Grubbing	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction 2 - Gen-tie Construction	Welders	0	0.00	46	0.45
Site Preparation 2 - Clearing and Grubbing	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation 1 - Perimeter Fence Installation	Skid Steer Loaders	1	8.00	65	0.37
Building Construction 2 - Gen-tie Construction	Cranes	1	8.00	231	0.29
Building Construction 2 - Gen-tie Construction	Forklifts	0	0.00	89	0.20
Building Construction 2 - Gen-tie Construction	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction 1 - System Installation	Other General Industrial Equipment	1	8.00	88	0.34
Site Preparation 2 - Clearing and Grubbing	Graders	2	8.00	187	0.41
Site Preparation 2 - Clearing and Grubbing	Scrapers	1	8.00	367	0.48
Site Preparation 2 - Clearing and Grubbing	Rollers	2	8.00	80	0.38
Trenching - Underground work	Excavators	2	8.00	158	0.38

Trenching - Underground work	Rollers	1	8.00	80	0.38
Trenching - Underground work	Generator Sets	1	8.00	84	0.74
Trenching - Underground work	Other Construction Equipment	1	8.00	172	0.42
Trenching - Underground work	Forklifts	1	8.00	89	0.20
Site Preparation 3 - Testing, Commissioning, Site Clearning and	Skid Steer Loaders	1	8.00	65	0.37
Site Preparation 3 - Testing, Commissioning, Site Clearning and	Graders	1	8.00	187	0.41
Site Preparation 3 - Testing, Commissioning, Site Clearning and	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Site Preparation 3 - Testing, Commissioning, Site Clearning and	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Site Preparation 3 - Testing, Commissioning, Site Clearning and	Tractors/Loaders/Backhoes	0	0.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation 1 - Perimeter Fence	1	104.00	32.00	4.00	70.00	70.00	70.00	LD_Mix	HDT_Mix	HHDT
Building Construction 1 - System Installation	12	616.00	96.00	64.00	70.00	70.00	70.00	LD_Mix	HDT_Mix	HHDT
Site Preparation 2 - Clearing and Grubbing	7	160.00	6.00	32.00	70.00	70.00	70.00	LD_Mix	HDT_Mix	HHDT
Trenching - Underground work	6	90.00	4.00	4.00	70.00	70.00	70.00	LD_Mix	HDT_Mix	HHDT
Building Construction 2 - Gen-tie	3	124.00	2.00	4.00	70.00	70.00	70.00	LD_Mix	HDT_Mix	HHDT
Site Preparation 3 - Testing	2	128.00	16.00	16.00	70.00	70.00	70.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation 1 - Perimeter Fence Installation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0796	1.0581	1.3844	2.0600e-003		0.0458	0.0458		0.0421	0.0421		199.3572	199.3572	0.0645		200.9691
Total	**0.0796**	**1.0581**	**1.3844**	**2.0600e-003**	**0.0000**	**0.0458**	**0.0458**	**0.0000**	**0.0421**	**0.0421**		**199.3572**	**199.3572**	**0.0645**		**200.9691**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.5000e-004	0.0224	3.7600e-003	9.0000e-005	0.0348	8.0000e-005	0.0349	3.7000e-003	8.0000e-005	3.7800e-003		9.5484	9.5484	3.1000e-004		9.5561
Vendor	0.7187	15.4241	3.9426	0.0690	30.7530	0.1407	30.8937	3.3141	0.1346	3.4487		7,209.5132	7,209.5132	0.1694		7,213.7488
Worker	1.9391	1.5444	17.7101	0.0547	98.7381	0.0299	98.7680	10.2986	0.0275	10.3261		5,451.0416	5,451.0416	0.1469		5,454.7151
Total	**2.6586**	**16.9908**	**21.6564**	**0.1238**	**129.5259**	**0.1706**	**129.6966**	**13.6164**	**0.1622**	**13.7786**		**12,670.1032**	**12,670.1032**	**0.3167**		**12,678.0200**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0796	1.0581	1.3844	2.0600e-003		0.0458	0.0458		0.0421	0.0421	0.0000	199.3572	199.3572	0.0645		200.9691

Total	**0.0796**	**1.0581**	**1.3844**	**2.0600e-003**	**0.0000**	**0.0458**	**0.0458**	**0.0000**	**0.0421**	**0.0421**	**0.0000**	**199.3572**	**199.3572**	**0.0645**		**200.9691**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.5000e-004	0.0224	3.7600e-003	9.0000e-005	9.1600e-003	8.0000e-005	9.2400e-003	1.1400e-003	8.0000e-005	1.2200e-003		9.5484	9.5484	3.1000e-004		9.5561
Vendor	0.7187	15.4241	3.9426	0.0690	8.1682	0.1407	8.3089	1.0595	0.1346	1.1941		7,209.5132	7,209.5132	0.1694		7,213.7488
Worker	1.9391	1.5444	17.7101	0.0547	25.3377	0.0299	25.3675	2.9711	0.0275	2.9986		5,451.0416	5,451.0416	0.1469		5,454.7151
Total	**2.6586**	**16.9908**	**21.6564**	**0.1238**	**33.5151**	**0.1706**	**33.6857**	**4.0317**	**0.1622**	**4.1939**		**12,670.1032**	**12,670.1032**	**0.3167**		**12,678.0200**

3.3 Building Construction 1 - System Installation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6401	24.8824	20.9683	0.0337		1.5450	1.5450		1.4528	1.4528		3,238.3637	3,238.3637	0.7145		3,256.2265
Total	**2.6401**	**24.8824**	**20.9683**	**0.0337**		**1.5450**	**1.5450**		**1.4528**	**1.4528**		**3,238.3637**	**3,238.3637**	**0.7145**		**3,256.2265**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.3700e-003	0.1315	0.0221	5.3000e-004	0.2610	4.8000e-004	0.2615	0.0275	4.6000e-004	0.0280		56.0175	56.0175	1.7900e-003		56.0623
Vendor	2.1562	46.2722	11.8278	0.2070	92.2589	0.4220	92.6810	9.9424	0.4037	10.3461		21,628.5395	21,628.5395	0.5083		21,641.2465
Worker	11.4855	9.1475	104.8980	0.3240	584.8335	0.1770	585.0104	60.9994	0.1631	61.1625		32,286.9386	32,286.9386	0.8703		32,308.6968
Total	**13.6461**	**55.5512**	**116.7479**	**0.5315**	**677.3534**	**0.5995**	**677.9529**	**70.9693**	**0.5673**	**71.5365**		**53,971.4956**	**53,971.4956**	**1.3804**		**54,006.0057**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6401	24.8824	20.9683	0.0337		1.5450	1.5450		1.4528	1.4528	0.0000	3,238.3637	3,238.3637	0.7145		3,256.2265
Total	**2.6401**	**24.8824**	**20.9683**	**0.0337**		**1.5450**	**1.5450**		**1.4528**	**1.4528**	**0.0000**	**3,238.3637**	**3,238.3637**	**0.7145**		**3,256.2265**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	4.3700e-003	0.1315	0.0221	5.3000e-004	0.0680	4.8000e-004	0.0684	8.2300e-003	4.6000e-004	8.6900e-003		56.0175	56.0175	1.7900e-003		56.0623
Vendor	2.1562	46.2722	11.8278	0.2070	24.5047	0.4220	24.9267	3.1785	0.4037	3.5822		21,628.5395	21,628.5395	0.5083		21,641.2465
Worker	11.4855	9.1475	104.8980	0.3240	150.0769	0.1770	150.2539	17.5978	0.1631	17.7609		32,286.9386	32,286.9386	0.8703		32,308.6968
Total	**13.6461**	**55.5512**	**116.7479**	**0.5315**	**174.6496**	**0.5995**	**175.2490**	**20.7846**	**0.5673**	**21.3518**		**53,971.4956**	**53,971.4956**	**1.3804**		**54,006.0057**

3.3 Building Construction 1 - System Installation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3764	22.5863	20.6787	0.0337		1.3376	1.3376		1.2575	1.2575		3,238.3128	3,238.3128	0.7079		3,256.0108
Total	**2.3764**	**22.5863**	**20.6787**	**0.0337**		**1.3376**	**1.3376**		**1.2575**	**1.2575**		**3,238.3128**	**3,238.3128**	**0.7079**		**3,256.0108**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.1000e-003	0.1183	0.0213	5.3000e-004	0.9172	4.1000e-004	0.9176	0.0945	4.0000e-004	0.0949		55.3410	55.3410	1.7300e-003		55.3844
Vendor	1.6378	38.8090	9.8790	0.2052	92.2590	0.1477	92.4067	9.9424	0.1412	10.0836		21,438.7283	21,438.7283	0.4638		21,450.3240
Worker	10.6009	8.1091	96.5550	0.3133	584.8335	0.1736	585.0070	60.9994	0.1599	61.1593		31,236.5188	31,236.5188	0.7779		31,255.9667
Total	**12.2428**	**47.0363**	**106.4553**	**0.5191**	**678.0096**	**0.3216**	**678.3313**	**71.0363**	**0.3015**	**71.3379**		**52,730.5882**	**52,730.5882**	**1.2435**		**52,761.6752**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3764	22.5863	20.6787	0.0337		1.3376	1.3376		1.2575	1.2575	0.0000	3,238.3128	3,238.3128	0.7079		3,256.0108
Total	**2.3764**	**22.5863**	**20.6787**	**0.0337**		**1.3376**	**1.3376**		**1.2575**	**1.2575**	**0.0000**	**3,238.3128**	**3,238.3128**	**0.7079**		**3,256.0108**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.1000e-003	0.1183	0.0213	5.3000e-004	0.2328	4.1000e-004	0.2332	0.0262	4.0000e-004	0.0266		55.3410	55.3410	1.7300e-003		55.3844
Vendor	1.6378	38.8090	9.8790	0.2052	24.5048	0.1477	24.6524	3.1786	0.1412	3.3198		21,438.7283	21,438.7283	0.4638		21,450.3240
Worker	10.6009	8.1091	96.5550	0.3133	150.0769	0.1736	150.2505	17.5978	0.1599	17.7577		31,236.5188	31,236.5188	0.7779		31,255.9667
Total	**12.2428**	**47.0363**	**106.4553**	**0.5191**	**174.8145**	**0.3216**	**175.1361**	**20.8026**	**0.3015**	**21.1041**		**52,730.5882**	**52,730.5882**	**1.2435**		**52,761.6752**

3.4 Site Preparation 2 - Clearing and Grubbing - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1431	0.0000	8.1431	3.5393	0.0000	3.5393			0.0000			0.0000
Off-Road	3.6465	41.9689	21.2635	0.0453		1.8139	1.8139		1.6688	1.6688		4,385.5371	4,385.5371	1.4184		4,420.9964
Total	**3.6465**	**41.9689**	**21.2635**	**0.0453**	**8.1431**	**1.8139**	**9.9570**	**3.5393**	**1.6688**	**5.2081**		**4,385.5371**	**4,385.5371**	**1.4184**		**4,420.9964**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.2000e-003	0.2466	0.0414	1.0000e-003	0.3830	8.9000e-004	0.3839	0.0407	8.5000e-004	0.0416		105.0329	105.0329	3.3600e-003		105.1169
Vendor	0.1348	2.8920	0.7392	0.0129	5.7662	0.0264	5.7926	0.6214	0.0252	0.6466		1,351.7837	1,351.7837	0.0318		1,352.5779
Worker	2.9832	2.3760	27.2462	0.0841	151.9048	0.0460	151.9508	15.8440	0.0424	15.8864		8,386.2178	8,386.2178	0.2261		8,391.8693
Total	**3.1262**	**5.5146**	**28.0269**	**0.0981**	**158.0540**	**0.0732**	**158.1272**	**16.5061**	**0.0684**	**16.5745**		**9,843.0344**	**9,843.0344**	**0.2612**		**9,849.5641**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.1758	0.0000	3.1758	1.3803	0.0000	1.3803			0.0000			0.0000

Off-Road	3.6465	41.9689	21.2635	0.0453		1.8139	1.8139		1.6688	1.6688	0.0000	4,385.5371	4,385.5371	1.4184		4,420.9964
Total	**3.6465**	**41.9689**	**21.2635**	**0.0453**	**3.1758**	**1.8139**	**4.9897**	**1.3803**	**1.6688**	**3.0491**	**0.0000**	**4,385.5371**	**4,385.5371**	**1.4184**		**4,420.9964**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.2000e-003	0.2466	0.0414	1.0000e-003	0.1007	8.9000e-004	0.1016	0.0125	8.5000e-004	0.0134		105.0329	105.0329	3.3600e-003		105.1169
Vendor	0.1348	2.8920	0.7392	0.0129	1.5315	0.0264	1.5579	0.1987	0.0252	0.2239		1,351.7837	1,351.7837	0.0318		1,352.5779
Worker	2.9832	2.3760	27.2462	0.0841	38.9810	0.0460	39.0270	4.5709	0.0424	4.6132		8,386.2178	8,386.2178	0.2261		8,391.8693
Total	**3.1262**	**5.5146**	**28.0269**	**0.0981**	**40.6133**	**0.0732**	**40.6865**	**4.7820**	**0.0684**	**4.8505**		**9,843.0344**	**9,843.0344**	**0.2612**		**9,849.5641**

3.5 Trenching - Underground work - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7303	16.8686	17.4064	0.0272		0.9327	0.9327		0.8738	0.8738		2,620.1465	2,620.1465	0.6810		2,637.1712
Total	**1.7303**	**16.8686**	**17.4064**	**0.0272**		**0.9327**	**0.9327**		**0.8738**	**0.8738**		**2,620.1465**	**2,620.1465**	**0.6810**		**2,637.1712**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.7000e-004	8.2200e-003	1.3800e-003	3.0000e-005	0.0170	3.0000e-005	0.0171	1.7900e-003	3.0000e-005	1.8200e-003		3.5011	3.5011	1.1000e-004		3.5039
Vendor	0.0898	1.9280	0.4928	8.6300e-003	3.8441	0.0176	3.8617	0.4143	0.0168	0.4311		901.1891	901.1891	0.0212		901.7186
Worker	1.6781	1.3365	15.3260	0.0473	85.4465	0.0259	85.4723	8.9122	0.0238	8.9361		4,717.2475	4,717.2475	0.1272		4,720.4265
Total	**1.7682**	**3.2727**	**15.8202**	**0.0560**	**89.3076**	**0.0435**	**89.3511**	**9.3283**	**0.0407**	**9.3690**		**5,621.9378**	**5,621.9378**	**0.1485**		**5,625.6490**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7303	16.8686	17.4064	0.0272		0.9327	0.9327		0.8738	0.8738	0.0000	2,620.1465	2,620.1465	0.6810		2,637.1712
Total	**1.7303**	**16.8686**	**17.4064**	**0.0272**		**0.9327**	**0.9327**		**0.8738**	**0.8738**	**0.0000**	**2,620.1465**	**2,620.1465**	**0.6810**		**2,637.1712**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	2.7000e-004	8.2200e-003	1.3800e-003	3.0000e-005	4.4300e-003	3.0000e-005	4.4600e-003	5.3000e-004	3.0000e-005	5.6000e-004		3.5011	3.5011	1.1000e-004		3.5039
Vendor	0.0898	1.9280	0.4928	8.6300e-003	1.0210	0.0176	1.0386	0.1324	0.0168	0.1493		901.1891	901.1891	0.0212		901.7186
Worker	1.6781	1.3365	15.3260	0.0473	21.9268	0.0259	21.9527	2.5711	0.0238	2.5949		4,717.2475	4,717.2475	0.1272		4,720.4265
Total	**1.7682**	**3.2727**	**15.8202**	**0.0560**	**22.9523**	**0.0435**	**22.9958**	**2.7041**	**0.0407**	**2.7448**		**5,621.9378**	**5,621.9378**	**0.1485**		**5,625.6490**

3.5 Trenching - Underground work - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5504	14.9124	17.3021	0.0272		0.8045	0.8045		0.7536	0.7536		2,620.0399	2,620.0399	0.6777		2,636.9816
Total	**1.5504**	**14.9124**	**17.3021**	**0.0272**		**0.8045**	**0.8045**		**0.7536**	**0.7536**		**2,620.0399**	**2,620.0399**	**0.6777**		**2,636.9816**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.6000e-004	7.3900e-003	1.3300e-003	3.0000e-005	0.0498	3.0000e-005	0.0498	5.1400e-003	2.0000e-005	5.1700e-003		3.4588	3.4588	1.1000e-004		3.4615
Vendor	0.0682	1.6170	0.4116	8.5500e-003	3.8441	6.1500e-003	3.8503	0.4143	5.8800e-003	0.4202		893.2804	893.2804	0.0193		893.7635
Worker	1.5488	1.1848	14.1071	0.0458	85.4465	0.0254	85.4718	8.9122	0.0234	8.9356		4,563.7771	4,563.7771	0.1137		4,566.6185
Total	**1.6173**	**2.8092**	**14.5200**	**0.0544**	**89.3404**	**0.0315**	**89.3719**	**9.3317**	**0.0293**	**9.3609**		**5,460.5163**	**5,460.5163**	**0.1331**		**5,463.8435**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5504	14.9124	17.3021	0.0272		0.8045	0.8045		0.7536	0.7536	0.0000	2,620.0399	2,620.0399	0.6777		2,636.9816
Total	**1.5504**	**14.9124**	**17.3021**	**0.0272**		**0.8045**	**0.8045**		**0.7536**	**0.7536**	**0.0000**	**2,620.0399**	**2,620.0399**	**0.6777**		**2,636.9816**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.6000e-004	7.3900e-003	1.3300e-003	3.0000e-005	0.0127	3.0000e-005	0.0127	1.4300e-003	2.0000e-005	1.4600e-003		3.4588	3.4588	1.1000e-004		3.4615
Vendor	0.0682	1.6170	0.4116	8.5500e-003	1.0210	6.1500e-003	1.0272	0.1324	5.8800e-003	0.1383		893.2804	893.2804	0.0193		893.7635
Worker	1.5488	1.1848	14.1071	0.0458	21.9268	0.0254	21.9522	2.5711	0.0234	2.5945		4,563.7771	4,563.7771	0.1137		4,566.6185
Total	**1.6173**	**2.8092**	**14.5200**	**0.0544**	**22.9605**	**0.0315**	**22.9921**	**2.7050**	**0.0293**	**2.7343**		**5,460.5163**	**5,460.5163**	**0.1331**		**5,463.8435**

3.6 Building Construction 2 - Gen-tie Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8200	9.0755	6.1048	0.0112		0.4552	0.4552		0.4188	0.4188		1,085.1345	1,085.1345	0.3510		1,093.9084
Total	**0.8200**	**9.0755**	**6.1048**	**0.0112**		**0.4552**	**0.4552**		**0.4188**	**0.4188**		**1,085.1345**	**1,085.1345**	**0.3510**		**1,093.9084**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.0200e-003	0.0308	5.1800e-003	1.3000e-004	0.0479	1.1000e-004	0.0480	5.0900e-003	1.1000e-004	5.1900e-003		13.1291	13.1291	4.2000e-004		13.1396
Vendor	0.0449	0.9640	0.2464	4.3100e-003	1.9221	8.7900e-003	1.9309	0.2071	8.4100e-003	0.2155		450.5946	450.5946	0.0106		450.8593
Worker	2.3120	1.8414	21.1158	0.0652	117.7262	0.0356	117.7618	12.2791	0.0328	12.3119		6,499.3188	6,499.3188	0.1752		6,503.6987
Total	**2.3580**	**2.8362**	**21.3674**	**0.0697**	**119.6962**	**0.0445**	**119.7407**	**12.4913**	**0.0414**	**12.5327**		**6,963.0425**	**6,963.0425**	**0.1862**		**6,967.6976**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8200	9.0755	6.1048	0.0112		0.4552	0.4552		0.4188	0.4188	0.0000	1,085.1345	1,085.1345	0.3510		1,093.9084

Total	**0.8200**	**9.0755**	**6.1048**	**0.0112**		**0.4552**	**0.4552**		**0.4188**	**0.4188**	**0.0000**	**1,085.1345**	**1,085.1345**	**0.3510**		**1,093.9084**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.0200e-003	0.0308	5.1800e-003	1.3000e-004	0.0126	1.1000e-004	0.0127	1.5600e-003	1.1000e-004	1.6700e-003		13.1291	13.1291	4.2000e-004		13.1396
Vendor	0.0449	0.9640	0.2464	4.3100e-003	0.5105	8.7900e-003	0.5193	0.0662	8.4100e-003	0.0746		450.5946	450.5946	0.0106		450.8593
Worker	2.3120	1.8414	21.1158	0.0652	30.2103	0.0356	30.2459	3.5424	0.0328	3.5753		6,499.3188	6,499.3188	0.1752		6,503.6987
Total	**2.3580**	**2.8362**	**21.3674**	**0.0697**	**30.7334**	**0.0445**	**30.7779**	**3.6102**	**0.0414**	**3.6516**		**6,963.0425**	**6,963.0425**	**0.1862**		**6,967.6976**

3.7 Site Preparation 3 - Testing, Commissioning, Site Clearning

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.5267	6.9053	3.1459	8.6600e-003		0.2278	0.2278		0.2096	0.2096		839.0363	839.0363	0.2714		845.8203
Total	**0.5267**	**6.9053**	**3.1459**	**8.6600e-003**	**0.5303**	**0.2278**	**0.7580**	**0.0573**	**0.2096**	**0.2668**		**839.0363**	**839.0363**	**0.2714**		**845.8203**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.4000e-003	0.1267	0.0228	5.7000e-004	0.2189	4.4000e-004	0.2193	0.0233	4.2000e-004	0.0237		59.2940	59.2940	1.8600e-003		59.3404
Vendor	0.2730	6.4682	1.6465	0.0342	15.3765	0.0246	15.4011	1.6571	0.0235	1.6806		3,573.1214	3,573.1214	0.0773		3,575.0540
Worker	2.2028	1.6850	20.0634	0.0651	121.5238	0.0361	121.5599	12.6752	0.0332	12.7084		6,490.7052	6,490.7052	0.1617		6,494.7463
Total	**2.4802**	**8.2799**	**21.7327**	**0.0999**	**137.1192**	**0.0611**	**137.1803**	**14.3555**	**0.0572**	**14.4127**		**10,123.1206**	**10,123.1206**	**0.2408**		**10,129.1408**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2068	0.0000	0.2068	0.0223	0.0000	0.0223			0.0000			0.0000
Off-Road	0.5267	6.9053	3.1459	8.6600e-003		0.2278	0.2278		0.2096	0.2096	0.0000	839.0363	839.0363	0.2714		845.8203
Total	**0.5267**	**6.9053**	**3.1459**	**8.6600e-003**	**0.2068**	**0.2278**	**0.4346**	**0.0223**	**0.2096**	**0.2319**	**0.0000**	**839.0363**	**839.0363**	**0.2714**		**845.8203**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	4.4000e-003	0.1267	0.0228	5.7000e-004	0.0576	4.4000e-004	0.0580	7.1500e-003	4.2000e-004	7.5800e-003		59.2940	59.2940	1.8600e-003		59.3404
Vendor	0.2730	6.4682	1.6465	0.0342	4.0841	0.0246	4.1087	0.5298	0.0235	0.5533		3,573.1214	3,573.1214	0.0773		3,575.0540
Worker	2.2028	1.6850	20.0634	0.0651	31.1848	0.0361	31.2209	3.6567	0.0332	3.6899		6,490.7052	6,490.7052	0.1617		6,494.7463
Total	**2.4802**	**8.2799**	**21.7327**	**0.0999**	**35.3265**	**0.0611**	**35.3876**	**4.1936**	**0.0572**	**4.2508**		**10,123.1206**	**10,123.1206**	**0.2408**		**10,129.1408**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1242	1.2860	1.2117	6.5400e-003	0.3587	4.0800e-003	0.3628	0.0962	3.8500e-003	0.1001		670.5610	670.5610	0.0530		671.8868
Unmitigated	0.1242	1.2860	1.2117	6.5400e-003	0.3587	4.0800e-003	0.3628	0.0962	3.8500e-003	0.1001		670.5610	670.5610	0.0530		671.8868

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	43.08	43.08	43.08	166,438	166,438
Total	43.08	43.08	43.08	166,438	166,438

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

General Heavy Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.486321	0.031785	0.181048	0.107930	0.020259	0.005756	0.011219	0.141006	0.002203	0.001426	0.008588	0.001195	0.001263

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0143	0.1296	0.1089	7.8000e-004		9.8500e-003	9.8500e-003		9.8500e-003	9.8500e-003		155.5185	155.5185	2.9800e-003	2.8500e-003	156.4426
NaturalGas Unmitigated	0.0143	0.1296	0.1089	7.8000e-004		9.8500e-003	9.8500e-003		9.8500e-003	9.8500e-003		155.5185	155.5185	2.9800e-003	2.8500e-003	156.4426

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	1321.91	0.0143	0.1296	0.1089	7.8000e-004		9.8500e-003	9.8500e-003		9.8500e-003	9.8500e-003		155.5185	155.5185	2.9800e-003	2.8500e-003	156.4426

Total		**0.0143**	**0.1296**	**0.1089**	**7.8000e-004**		**9.8500e-003**	**9.8500e-003**		**9.8500e-003**	**9.8500e-003**		**155.5185**	**155.5185**	**2.9800e-003**	**2.8500e-003**	**156.4426**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	1.32191	0.0143	0.1296	0.1089	7.8000e-004		9.8500e-003	9.8500e-003		9.8500e-003	9.8500e-003		155.5185	155.5185	2.9800e-003	2.8500e-003	156.4426
Total		**0.0143**	**0.1296**	**0.1089**	**7.8000e-004**		**9.8500e-003**	**9.8500e-003**		**9.8500e-003**	**9.8500e-003**		**155.5185**	**155.5185**	**2.9800e-003**	**2.8500e-003**	**156.4426**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.7972	3.0000e-005	2.9400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.2900e-003	6.2900e-003	2.0000e-005		6.7000e-003
Unmitigated	0.7972	3.0000e-005	2.9400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.2900e-003	6.2900e-003	2.0000e-005		6.7000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1824					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6146					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.7000e-004	3.0000e-005	2.9400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.2900e-003	6.2900e-003	2.0000e-005		6.7000e-003
Total	**0.7972**	**3.0000e-005**	**2.9400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.2900e-003**	**6.2900e-003**	**2.0000e-005**		**6.7000e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1824					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6146					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.7000e-004	3.0000e-005	2.9400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.2900e-003	6.2900e-003	2.0000e-005		6.7000e-003
Total	**0.7972**	**3.0000e-005**	**2.9400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.2900e-003**	**6.2900e-003**	**2.0000e-005**		**6.7000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Forklifts	2	8.00	12	89	0.20	Diesel
Tractors/Loaders/Backhoes	2	8.00	12	97	0.37	Diesel

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Forklifts	0.2272	2.1098	2.3075	3.0600e-003		0.1398	0.1398		0.1286	0.1286		296.0617	296.0617	0.0958		298.4555
Tractors/Loaders/ Backhoes	0.3294	3.3513	4.4759	6.2200e-003		0.1802	0.1802		0.1658	0.1658		602.4779	602.4779	0.1949		607.3492
Total	**0.5566**	**5.4611**	**6.7834**	**9.2800e-003**		**0.3200**	**0.3200**		**0.2944**	**0.2944**		**898.5396**	**898.5396**	**0.2906**		**905.8047**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sanborn Solar

Kern County APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	28.72	1000sqft	2,021.00	28,720.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Operational year 2022.

Land Use - 2,101 acre project site.

Construction Phase - Construction schedule provided by project applicant.

Off-road Equipment - ATVs and Pick up trucks were accounted for in the Trips and VMT tab as worker vehicles. (4 ATVs and 4 pick-up trucks = 16 additional worker trips). Other general industrial equipment = pile driver.

Off-road Equipment - Equipment specified by the project applicant. Pick up trucks and flatbed trucks were accounted for in the worker trip estimate under the Trips and VMT tab. 1 pick-up truck and 1 flatbed truck = 4 additional worker trips.

Off-road Equipment - Equipment specified by the project applicant. Pick up trucks and flatbed trucks were accounted for in the worker trip estimate under the Trips and VMT tab. 1 pick-up truck and 1 flatbed truck = 4 additional worker trips.

Off-road Equipment - Equipment specified by the project applicant. Water trucks were accounted for in the Trips and VMT tab under vendor trucks. (3 water trucks = 6 additional vendor truck trips)

Off-road Equipment - Equipment specified by the project applicant. Pickup trucks were accounted for in the Trips and VMT tab as worker vehicles. (4 pick-up trucks = 8 additional worker vehicles)

Off-road Equipment - Equipment specified by the project applicant. Other construction equipment = Aussie padder. Water trucks were accounted in the Trips and VMT tab under vendor trucks. (1 water truck = 2 additional vendor truck trips)

Trips and VMT - Trip values and lengths are based on information provided by the project applicant.

On-road Fugitive Dust - Distance on unpaved roads is based on information provided by the project applicant.

Grading - CalEEMod default values.

Vehicle Trips - Operational trip values are based on information provided by the project applicant.

Water And Wastewater - 9,770,000 gallons (30 acre feet) for panel washing. 19,511 gallons (0.6 acre feet) for interior use.

Construction Off-road Equipment Mitigation - Assumed compliance with EKAPCD Rule 402: vehicle speed limited to 15 miles per hour and watering 2x daily.
Mobile Commute Mitigation - No mitigation was applied.

Operational Off-Road Equipment - Two forklifts and two tractor/loader/backhoes for 8 hours a day 12x a year.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	155,000.00	300.00
tblConstructionPhase	NumDays	155,000.00	80.00
tblConstructionPhase	NumDays	6,000.00	110.00
tblConstructionPhase	NumDays	6,000.00	80.00
tblConstructionPhase	NumDays	6,000.00	70.00
tblLandUse	LotAcreage	0.66	2,021.00
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.34	0.34
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	LoadFactor	0.48	0.48
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.42	0.42

tblOffRoadEquipment	LoadFactor	0.20	0.20
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Other General Industrial Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Scrapers
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	8.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	99.10
tblOnRoadDust	HaulingPercentPave	100.00	99.10
tblOnRoadDust	HaulingPercentPave	100.00	99.10
tblOnRoadDust	HaulingPercentPave	100.00	99.10
tblOnRoadDust	HaulingPercentPave	100.00	99.10
tblOnRoadDust	HaulingPercentPave	100.00	99.10
tblOnRoadDust	RoadSiltLoading	0.10	0.03
tblOnRoadDust	RoadSiltLoading	0.10	0.03
tblOnRoadDust	RoadSiltLoading	0.10	0.03
tblOnRoadDust	RoadSiltLoading	0.10	0.03
tblOnRoadDust	RoadSiltLoading	0.10	0.03
tblOnRoadDust	RoadSiltLoading	0.10	0.03
tblOnRoadDust	VendorPercentPave	100.00	99.10
tblOnRoadDust	VendorPercentPave	100.00	99.10
tblOnRoadDust	VendorPercentPave	100.00	99.10
tblOnRoadDust	VendorPercentPave	100.00	99.10

tblOnRoadDust	VendorPercentPave	100.00	99.10
tblOnRoadDust	VendorPercentPave	100.00	99.10
tblOnRoadDust	WorkerPercentPave	100.00	99.10
tblOnRoadDust	WorkerPercentPave	100.00	99.10
tblOnRoadDust	WorkerPercentPave	100.00	99.10
tblOnRoadDust	WorkerPercentPave	100.00	99.10
tblOnRoadDust	WorkerPercentPave	100.00	99.10
tblOnRoadDust	WorkerPercentPave	100.00	99.10
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	12.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	12.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	2.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	2.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	70.00
tblTripsAndVMT	HaulingTripLength	20.00	70.00
tblTripsAndVMT	HaulingTripLength	20.00	70.00
tblTripsAndVMT	HaulingTripLength	20.00	70.00
tblTripsAndVMT	HaulingTripLength	20.00	70.00
tblTripsAndVMT	HaulingTripLength	20.00	70.00
tblTripsAndVMT	HaulingTripNumber	0.00	4.00
tblTripsAndVMT	HaulingTripNumber	0.00	64.00
tblTripsAndVMT	HaulingTripNumber	0.00	32.00
tblTripsAndVMT	HaulingTripNumber	0.00	4.00
tblTripsAndVMT	HaulingTripNumber	0.00	4.00
tblTripsAndVMT	HaulingTripNumber	0.00	16.00
tblTripsAndVMT	VendorTripLength	6.60	70.00
tblTripsAndVMT	VendorTripLength	6.60	70.00
tblTripsAndVMT	VendorTripLength	6.60	70.00
tblTripsAndVMT	VendorTripLength	6.60	70.00
tblTripsAndVMT	VendorTripLength	6.60	70.00

tblTripsAndVMT	VendorTripLength	6.60	70.00
tblTripsAndVMT	VendorTripNumber	0.00	32.00
tblTripsAndVMT	VendorTripNumber	5.00	96.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	5.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	16.00
tblTripsAndVMT	WorkerTripLength	16.80	70.00
tblTripsAndVMT	WorkerTripLength	16.80	70.00
tblTripsAndVMT	WorkerTripLength	16.80	70.00
tblTripsAndVMT	WorkerTripLength	16.80	70.00
tblTripsAndVMT	WorkerTripLength	16.80	70.00
tblTripsAndVMT	WorkerTripLength	16.80	70.00
tblTripsAndVMT	WorkerTripNumber	3.00	104.00
tblTripsAndVMT	WorkerTripNumber	12.00	616.00
tblTripsAndVMT	WorkerTripNumber	18.00	160.00
tblTripsAndVMT	WorkerTripNumber	15.00	90.00
tblTripsAndVMT	WorkerTripNumber	12.00	124.00
tblTripsAndVMT	WorkerTripNumber	5.00	128.00
tblWater	IndoorWaterUseRate	6,641,500.00	19,511.00
tblWater	OutdoorWaterUseRate	0.00	9,770,000.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					

2020	30.5604	169.2761	205.5416	0.8534	1,062.3840	5.2249	1,067.6089	113.9594	4.8767	118.8361	0.0000	86,165.8526	86,165.8526	4.8388	0.0000	86,286.8216
2021	18.6704	89.2154	133.4662	0.5891	767.3500	2.4957	769.8457	80.3680	2.3422	82.7102	0.0000	59,551.6069	59,551.6069	2.6715	0.0000	59,618.3943
Maximum	**30.5604**	**169.2761**	**205.5416**	**0.8534**	**1,062.3840**	**5.2249**	**1,067.6089**	**113.9594**	**4.8767**	**118.8361**	**0.0000**	**86,165.8526**	**86,165.8526**	**4.8388**	**0.0000**	**86,286.8216**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	30.5604	169.2761	205.5416	0.8534	274.9060	5.2249	280.1309	33.6827	4.8767	38.5595	0.0000	86,165.8526	86,165.8526	4.8388	0.0000	86,286.8216
2021	18.6704	89.2154	133.4662	0.5891	197.7750	2.4957	200.2707	23.5076	2.3422	25.8498	0.0000	59,551.6069	59,551.6069	2.6715	0.0000	59,618.3943
Maximum	**30.5604**	**169.2761**	**205.5416**	**0.8534**	**274.9060**	**5.2249**	**280.1309**	**33.6827**	**4.8767**	**38.5595**	**0.0000**	**86,165.8526**	**86,165.8526**	**4.8388**	**0.0000**	**86,286.8216**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**74.17**	**0.00**	**73.86**	**70.57**	**0.00**	**68.04**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.7972	3.0000e-005	2.9400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.2900e-003	6.2900e-003	2.0000e-005		6.7000e-003
Energy	0.0143	0.1296	0.1089	7.8000e-004		9.8500e-003	9.8500e-003		9.8500e-003	9.8500e-003		155.5185	155.5185	2.9800e-003	2.8500e-003	156.4426

Mobile	0.1103	1.2769	1.1044	6.0300e-003	0.3587	4.1200e-003	0.3628	0.0962	3.8800e-003	0.1001		619.2563	619.2563	0.0583		620.7126
Offroad	0.5566	5.4611	6.7834	9.2800e-003		0.3200	0.3200		0.2944	0.2944		898.5396	898.5396	0.2906		905.8047
Total	**1.4784**	**6.8676**	**7.9996**	**0.0161**	**0.3587**	**0.3340**	**0.6927**	**0.0962**	**0.3081**	**0.4044**		**1,673.3206**	**1,673.3206**	**0.3519**	**2.8500e-003**	**1,682.9666**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.7972	3.0000e-005	2.9400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.2900e-003	6.2900e-003	2.0000e-005		6.7000e-003
Energy	0.0143	0.1296	0.1089	7.8000e-004		9.8500e-003	9.8500e-003		9.8500e-003	9.8500e-003		155.5185	155.5185	2.9800e-003	2.8500e-003	156.4426
Mobile	0.1103	1.2769	1.1044	6.0300e-003	0.3587	4.1200e-003	0.3628	0.0962	3.8800e-003	0.1001		619.2563	619.2563	0.0583		620.7126
Offroad	0.5566	5.4611	6.7834	9.2800e-003		0.3200	0.3200		0.2944	0.2944		898.5396	898.5396	0.2906		905.8047
Total	**1.4784**	**6.8676**	**7.9996**	**0.0161**	**0.3587**	**0.3340**	**0.6927**	**0.0962**	**0.3081**	**0.4044**		**1,673.3206**	**1,673.3206**	**0.3519**	**2.8500e-003**	**1,682.9666**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation 1 - Perimeter Fence Installation	Site Preparation	2/24/2020	7/24/2020	5	110	
2	Building Construction 1 - System Installation	Building Construction	2/10/2020	4/4/2021	5	300	
3	Site Preparation 2 - Clearing and Grubbing	Site Preparation	1/2/2020	4/22/2020	5	80	

4	Trenching - Underground work	Trenching	2/24/2020	4/16/2021	5	300	
5	Building Construction 2 - Gen-tie Construction	Building Construction	9/1/2020	12/21/2020	5	80	
6	Site Preparation 3 - Testing, Commissioning, Site Clearning	Site Preparation	4/26/2021	7/30/2021	5	70	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction 1 - System Installation	Generator Sets	2	8.00	84	0.74
Building Construction 2 - Gen-tie Construction	Generator Sets	0	0.00	84	0.74
Site Preparation 1 - Perimeter Fence Installation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Building Construction 1 - System Installation	Cranes	1	8.00	231	0.29
Building Construction 1 - System Installation	Forklifts	8	8.00	89	0.20
Building Construction 1 - System Installation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Site Preparation 1 - Perimeter Fence Installation	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation 3 - Testing, Commissioning, Site Clearning and	Rubber Tired Dozers	0	0.00	247	0.40
Building Construction 1 - System Installation	Welders	0	0.00	46	0.45
Site Preparation 2 - Clearing and Grubbing	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction 2 - Gen-tie Construction	Welders	0	0.00	46	0.45
Site Preparation 2 - Clearing and Grubbing	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation 1 - Perimeter Fence Installation	Skid Steer Loaders	1	8.00	65	0.37
Building Construction 2 - Gen-tie Construction	Cranes	1	8.00	231	0.29
Building Construction 2 - Gen-tie Construction	Forklifts	0	0.00	89	0.20
Building Construction 2 - Gen-tie Construction	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction 1 - System Installation	Other General Industrial Equipment	1	8.00	88	0.34
Site Preparation 2 - Clearing and Grubbing	Graders	2	8.00	187	0.41
Site Preparation 2 - Clearing and Grubbing	Scrapers	1	8.00	367	0.48

Site Preparation 2 - Clearing and Grubbing	Rollers	2	8.00	80	0.38
Trenching - Underground work	Excavators	2	8.00	158	0.38
Trenching - Underground work	Rollers	1	8.00	80	0.38
Trenching - Underground work	Generator Sets	1	8.00	84	0.74
Trenching - Underground work	Other Construction Equipment	1	8.00	172	0.42
Trenching - Underground work	Forklifts	1	8.00	89	0.20
Site Preparation 3 - Testing, Commissioning, Site Clearning and	Skid Steer Loaders	1	8.00	65	0.37
Site Preparation 3 - Testing, Commissioning, Site Clearning and	Graders	1	8.00	187	0.41
Site Preparation 3 - Testing, Commissioning, Site Clearning and	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Site Preparation 3 - Testing, Commissioning, Site Clearning and	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Site Preparation 3 - Testing, Commissioning, Site Clearning and	Tractors/Loaders/Backhoes	0	0.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation 1 - Perimeter Fence	1	104.00	32.00	4.00	70.00	70.00	70.00	LD_Mix	HDT_Mix	HHDT
Building Construction 1 - System Installation	12	616.00	96.00	64.00	70.00	70.00	70.00	LD_Mix	HDT_Mix	HHDT
Site Preparation 2 - Clearing and Grubbing	7	160.00	6.00	32.00	70.00	70.00	70.00	LD_Mix	HDT_Mix	HHDT
Trenching - Underground work	6	90.00	4.00	4.00	70.00	70.00	70.00	LD_Mix	HDT_Mix	HHDT
Building Construction 2 - Gen-tie	3	124.00	2.00	4.00	70.00	70.00	70.00	LD_Mix	HDT_Mix	HHDT
Site Preparation 3 - Testing	2	128.00	16.00	16.00	70.00	70.00	70.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation 1 - Perimeter Fence Installation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0796	1.0581	1.3844	2.0600e-003		0.0458	0.0458		0.0421	0.0421		199.3572	199.3572	0.0645		200.9691
Total	**0.0796**	**1.0581**	**1.3844**	**2.0600e-003**	**0.0000**	**0.0458**	**0.0458**	**0.0000**	**0.0421**	**0.0421**		**199.3572**	**199.3572**	**0.0645**		**200.9691**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.6000e-004	0.0230	4.0100e-003	9.0000e-005	0.0348	8.0000e-005	0.0349	3.7000e-003	8.0000e-005	3.7800e-003		9.4376	9.4376	3.4000e-004		9.4461
Vendor	0.7277	15.9343	4.0389	0.0685	30.7530	0.1408	30.8938	3.3141	0.1347	3.4489		7,159.9994	7,159.9994	0.1850		7,164.6243
Worker	2.0706	1.6471	13.6195	0.0480	98.7381	0.0299	98.7680	10.2986	0.0275	10.3261		4,789.6688	4,789.6688	0.1240		4,792.7683
Total	**2.7990**	**17.6044**	**17.6624**	**0.1167**	**129.5259**	**0.1708**	**129.6967**	**13.6164**	**0.1623**	**13.7788**		**11,959.1057**	**11,959.1057**	**0.3093**		**11,966.8387**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0796	1.0581	1.3844	2.0600e-003		0.0458	0.0458		0.0421	0.0421	0.0000	199.3572	199.3572	0.0645		200.9691
Total	**0.0796**	**1.0581**	**1.3844**	**2.0600e-003**	**0.0000**	**0.0458**	**0.0458**	**0.0000**	**0.0421**	**0.0421**	**0.0000**	**199.3572**	**199.3572**	**0.0645**		**200.9691**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.6000e-004	0.0230	4.0100e-003	9.0000e-005	9.1600e-003	8.0000e-005	9.2400e-003	1.1400e-003	8.0000e-005	1.2200e-003		9.4376	9.4376	3.4000e-004		9.4461
Vendor	0.7277	15.9343	4.0389	0.0685	8.1682	0.1408	8.3091	1.0595	0.1347	1.1942		7,159.9994	7,159.9994	0.1850		7,164.6243
Worker	2.0706	1.6471	13.6195	0.0480	25.3377	0.0299	25.3675	2.9711	0.0275	2.9986		4,789.6688	4,789.6688	0.1240		4,792.7683
Total	**2.7990**	**17.6044**	**17.6624**	**0.1167**	**33.5151**	**0.1708**	**33.6859**	**4.0317**	**0.1623**	**4.1940**		**11,959.1057**	**11,959.1057**	**0.3093**		**11,966.8387**

3.3 Building Construction 1 - System Installation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6401	24.8824	20.9683	0.0337		1.5450	1.5450		1.4528	1.4528		3,238.3637	3,238.3637	0.7145		3,256.2265
Total	**2.6401**	**24.8824**	**20.9683**	**0.0337**		**1.5450**	**1.5450**		**1.4528**	**1.4528**		**3,238.3637**	**3,238.3637**	**0.7145**		**3,256.2265**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.4500e-003	0.1349	0.0235	5.3000e-004	0.2610	4.8000e-004	0.2615	0.0275	4.6000e-004	0.0280		55.3672	55.3672	2.0100e-003		55.4174
Vendor	2.1830	47.8030	12.1166	0.2056	92.2589	0.4225	92.6815	9.9424	0.4042	10.3466		21,479.9981	21,479.9981	0.5550		21,493.8728
Worker	12.2641	9.7557	80.6695	0.2845	584.8335	0.1770	585.0104	60.9994	0.1631	61.1625		28,369.5765	28,369.5765	0.7344		28,387.9355
Total	**14.4515**	**57.6936**	**92.8096**	**0.4906**	**677.3534**	**0.6000**	**677.9534**	**70.9693**	**0.5677**	**71.5370**		**49,904.9418**	**49,904.9418**	**1.2914**		**49,937.2256**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6401	24.8824	20.9683	0.0337		1.5450	1.5450		1.4528	1.4528	0.0000	3,238.3637	3,238.3637	0.7145		3,256.2265
Total	**2.6401**	**24.8824**	**20.9683**	**0.0337**		**1.5450**	**1.5450**		**1.4528**	**1.4528**	**0.0000**	**3,238.3637**	**3,238.3637**	**0.7145**		**3,256.2265**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day											lb/day				
Hauling	4.4500e-003	0.1349	0.0235	5.3000e-004	0.0680	4.8000e-004	0.0684	8.2300e-003	4.6000e-004	8.6900e-003		55.3672	55.3672	2.0100e-003		55.4174
Vendor	2.1830	47.8030	12.1166	0.2056	24.5047	0.4225	24.9272	3.1785	0.4042	3.5827		21,479.9981	21,479.9981	0.5550		21,493.8728
Worker	12.2641	9.7557	80.6695	0.2845	150.0769	0.1770	150.2539	17.5978	0.1631	17.7609		28,369.5765	28,369.5765	0.7344		28,387.9355
Total	**14.4515**	**57.6936**	**92.8096**	**0.4906**	**174.6496**	**0.6000**	**175.2495**	**20.7846**	**0.5677**	**21.3523**		**49,904.9418**	**49,904.9418**	**1.2914**		**49,937.2256**

3.3 Building Construction 1 - System Installation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3764	22.5863	20.6787	0.0337		1.3376	1.3376		1.2575	1.2575		3,238.3128	3,238.3128	0.7079		3,256.0108
Total	**2.3764**	**22.5863**	**20.6787**	**0.0337**		**1.3376**	**1.3376**		**1.2575**	**1.2575**		**3,238.3128**	**3,238.3128**	**0.7079**		**3,256.0108**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.1800e-003	0.1212	0.0226	5.2000e-004	0.9172	4.1000e-004	0.9176	0.0945	4.0000e-004	0.0949		54.6920	54.6920	1.9500e-003		54.7407
Vendor	1.6640	40.0168	10.1677	0.2038	92.2590	0.1480	92.4071	9.9424	0.1416	10.0840		21,290.5475	21,290.5475	0.5102		21,303.3026
Worker	11.3478	8.6412	74.0508	0.2751	584.8335	0.1736	585.0070	60.9994	0.1599	61.1593		27,447.3286	27,447.3286	0.6565		27,463.7403

Total	**13.0160**	**48.7792**	**84.2412**	**0.4795**	**678.0096**	**0.3220**	**678.3316**	**71.0363**	**0.3019**	**71.3382**		**48,792.5681**	**48,792.5681**	**1.1686**		**48,821.7836**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3764	22.5863	20.6787	0.0337		1.3376	1.3376		1.2575	1.2575	0.0000	3,238.3128	3,238.3128	0.7079		3,256.0108
Total	**2.3764**	**22.5863**	**20.6787**	**0.0337**		**1.3376**	**1.3376**		**1.2575**	**1.2575**	**0.0000**	**3,238.3128**	**3,238.3128**	**0.7079**		**3,256.0108**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.1800e-003	0.1212	0.0226	5.2000e-004	0.2328	4.1000e-004	0.2332	0.0262	4.0000e-004	0.0266		54.6920	54.6920	1.9500e-003		54.7407
Vendor	1.6640	40.0168	10.1677	0.2038	24.5048	0.1480	24.6528	3.1786	0.1416	3.3201		21,290.5475	21,290.5475	0.5102		21,303.3026
Worker	11.3478	8.6412	74.0508	0.2751	150.0769	0.1736	150.2505	17.5978	0.1599	17.7577		27,447.3286	27,447.3286	0.6565		27,463.7403
Total	**13.0160**	**48.7792**	**84.2412**	**0.4795**	**174.8145**	**0.3220**	**175.1365**	**20.8026**	**0.3019**	**21.1045**		**48,792.5681**	**48,792.5681**	**1.1686**		**48,821.7836**

3.4 Site Preparation 2 - Clearing and Grubbing - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1431	0.0000	8.1431	3.5393	0.0000	3.5393			0.0000			0.0000
Off-Road	3.6465	41.9689	21.2635	0.0453		1.8139	1.8139		1.6688	1.6688		4,385.5371	4,385.5371	1.4184		4,420.9964
Total	**3.6465**	**41.9689**	**21.2635**	**0.0453**	**8.1431**	**1.8139**	**9.9570**	**3.5393**	**1.6688**	**5.2081**		**4,385.5371**	**4,385.5371**	**1.4184**		**4,420.9964**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.3500e-003	0.2530	0.0441	9.9000e-004	0.3830	9.0000e-004	0.3839	0.0407	8.6000e-004	0.0416		103.8135	103.8135	3.7600e-003		103.9075
Vendor	0.1364	2.9877	0.7573	0.0129	5.7662	0.0264	5.7926	0.6214	0.0253	0.6467		1,342.4999	1,342.4999	0.0347		1,343.3671
Worker	3.1855	2.5340	20.9531	0.0739	151.9048	0.0460	151.9508	15.8440	0.0424	15.8864		7,368.7212	7,368.7212	0.1907		7,373.4897
Total	**3.3303**	**5.7746**	**21.7545**	**0.0877**	**158.0540**	**0.0733**	**158.1273**	**16.5061**	**0.0685**	**16.5746**		**8,815.0345**	**8,815.0345**	**0.2292**		**8,820.7643**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Fugitive Dust					3.1758	0.0000	3.1758	1.3803	0.0000	1.3803			0.0000			0.0000
Off-Road	3.6465	41.9689	21.2635	0.0453		1.8139	1.8139		1.6688	1.6688	0.0000	4,385.5371	4,385.5371	1.4184		4,420.9964
Total	**3.6465**	**41.9689**	**21.2635**	**0.0453**	**3.1758**	**1.8139**	**4.9897**	**1.3803**	**1.6688**	**3.0491**	**0.0000**	**4,385.5371**	**4,385.5371**	**1.4184**		**4,420.9964**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.3500e-003	0.2530	0.0441	9.9000e-004	0.1007	9.0000e-004	0.1016	0.0125	8.6000e-004	0.0134		103.8135	103.8135	3.7600e-003		103.9075
Vendor	0.1364	2.9877	0.7573	0.0129	1.5315	0.0264	1.5580	0.1987	0.0253	0.2239		1,342.4999	1,342.4999	0.0347		1,343.3671
Worker	3.1855	2.5340	20.9531	0.0739	38.9810	0.0460	39.0270	4.5709	0.0424	4.6132		7,368.7212	7,368.7212	0.1907		7,373.4897
Total	**3.3303**	**5.7746**	**21.7545**	**0.0877**	**40.6133**	**0.0733**	**40.6866**	**4.7820**	**0.0685**	**4.8505**		**8,815.0345**	**8,815.0345**	**0.2292**		**8,820.7643**

3.5 Trenching - Underground work - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7303	16.8686	17.4064	0.0272		0.9327	0.9327		0.8738	0.8738		2,620.1465	2,620.1465	0.6810		2,637.1712
Total	**1.7303**	**16.8686**	**17.4064**	**0.0272**		**0.9327**	**0.9327**		**0.8738**	**0.8738**		**2,620.1465**	**2,620.1465**	**0.6810**		**2,637.1712**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.8000e-004	8.4300e-003	1.4700e-003	3.0000e-005	0.0170	3.0000e-005	0.0171	1.7900e-003	3.0000e-005	1.8200e-003		3.4605	3.4605	1.3000e-004		3.4636
Vendor	0.0910	1.9918	0.5049	8.5700e-003	3.8441	0.0176	3.8617	0.4143	0.0168	0.4311		894.9999	894.9999	0.0231		895.5780
Worker	1.7918	1.4254	11.7861	0.0416	85.4465	0.0259	85.4723	8.9122	0.0238	8.9361		4,144.9057	4,144.9057	0.1073		4,147.5880
Total	**1.8831**	**3.4256**	**12.2925**	**0.0502**	**89.3076**	**0.0435**	**89.3511**	**9.3283**	**0.0407**	**9.3690**		**5,043.3660**	**5,043.3660**	**0.1305**		**5,046.6296**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7303	16.8686	17.4064	0.0272		0.9327	0.9327		0.8738	0.8738	0.0000	2,620.1465	2,620.1465	0.6810		2,637.1712
Total	**1.7303**	**16.8686**	**17.4064**	**0.0272**		**0.9327**	**0.9327**		**0.8738**	**0.8738**	**0.0000**	**2,620.1465**	**2,620.1465**	**0.6810**		**2,637.1712**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	2.8000e-004	8.4300e-003	1.4700e-003	3.0000e-005	4.4300e-003	3.0000e-005	4.4600e-003	5.3000e-004	3.0000e-005	5.6000e-004		3.4605	3.4605	1.3000e-004		3.4636
Vendor	0.0910	1.9918	0.5049	8.5700e-003	1.0210	0.0176	1.0386	0.1324	0.0168	0.1493		894.9999	894.9999	0.0231		895.5780
Worker	1.7918	1.4254	11.7861	0.0416	21.9268	0.0259	21.9527	2.5711	0.0238	2.5949		4,144.9057	4,144.9057	0.1073		4,147.5880
Total	**1.8831**	**3.4256**	**12.2925**	**0.0502**	**22.9523**	**0.0435**	**22.9958**	**2.7041**	**0.0407**	**2.7448**		**5,043.3660**	**5,043.3660**	**0.1305**		**5,046.6296**

3.5 Trenching - Underground work - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5504	14.9124	17.3021	0.0272		0.8045	0.8045		0.7536	0.7536		2,620.0399	2,620.0399	0.6777		2,636.9816
Total	**1.5504**	**14.9124**	**17.3021**	**0.0272**		**0.8045**	**0.8045**		**0.7536**	**0.7536**		**2,620.0399**	**2,620.0399**	**0.6777**		**2,636.9816**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.6000e-004	7.5700e-003	1.4100e-003	3.0000e-005	0.0498	3.0000e-005	0.0498	5.1400e-003	2.0000e-005	5.1700e-003		3.4183	3.4183	1.2000e-004		3.4213
Vendor	0.0693	1.6674	0.4237	8.4900e-003	3.8441	6.1700e-003	3.8503	0.4143	5.9000e-003	0.4202		887.1061	887.1061	0.0213		887.6376
Worker	1.6580	1.2625	10.8191	0.0402	85.4465	0.0254	85.4718	8.9122	0.0234	8.9356		4,010.1617	4,010.1617	0.0959		4,012.5595

Total	**1.7276**	**2.9375**	**11.2442**	**0.0487**	**89.3404**	**0.0316**	**89.3719**	**9.3317**	**0.0293**	**9.3610**		**4,900.6860**	**4,900.6860**	**0.1173**		**4,903.6184**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5504	14.9124	17.3021	0.0272		0.8045	0.8045		0.7536	0.7536	0.0000	2,620.0399	2,620.0399	0.6777		2,636.9816
Total	**1.5504**	**14.9124**	**17.3021**	**0.0272**		**0.8045**	**0.8045**		**0.7536**	**0.7536**	**0.0000**	**2,620.0399**	**2,620.0399**	**0.6777**		**2,636.9816**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.6000e-004	7.5700e-003	1.4100e-003	3.0000e-005	0.0127	3.0000e-005	0.0127	1.4300e-003	2.0000e-005	1.4600e-003		3.4183	3.4183	1.2000e-004		3.4213
Vendor	0.0693	1.6674	0.4237	8.4900e-003	1.0210	6.1700e-003	1.0272	0.1324	5.9000e-003	0.1383		887.1061	887.1061	0.0213		887.6376
Worker	1.6580	1.2625	10.8191	0.0402	21.9268	0.0254	21.9522	2.5711	0.0234	2.5945		4,010.1617	4,010.1617	0.0959		4,012.5595
Total	**1.7276**	**2.9375**	**11.2442**	**0.0487**	**22.9605**	**0.0316**	**22.9921**	**2.7050**	**0.0293**	**2.7343**		**4,900.6860**	**4,900.6860**	**0.1173**		**4,903.6184**

3.6 Building Construction 2 - Gen-tie Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8200	9.0755	6.1048	0.0112		0.4552	0.4552		0.4188	0.4188		1,085.1345	1,085.1345	0.3510		1,093.9084
Total	**0.8200**	**9.0755**	**6.1048**	**0.0112**		**0.4552**	**0.4552**		**0.4188**	**0.4188**		**1,085.1345**	**1,085.1345**	**0.3510**		**1,093.9084**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.0400e-003	0.0316	5.5100e-003	1.2000e-004	0.0479	1.1000e-004	0.0480	5.0900e-003	1.1000e-004	5.1900e-003		12.9767	12.9767	4.7000e-004		12.9884
Vendor	0.0455	0.9959	0.2524	4.2800e-003	1.9221	8.8000e-003	1.9309	0.2071	8.4200e-003	0.2156		447.5000	447.5000	0.0116		447.7890
Worker	2.4688	1.9638	16.2387	0.0573	117.7262	0.0356	117.7618	12.2791	0.0328	12.3119		5,710.7589	5,710.7589	0.1478		5,714.4546
Total	**2.5153**	**2.9913**	**16.4966**	**0.0617**	**119.6962**	**0.0445**	**119.7407**	**12.4913**	**0.0414**	**12.5327**		**6,171.2356**	**6,171.2356**	**0.1599**		**6,175.2320**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Off-Road	0.8200	9.0755	6.1048	0.0112		0.4552	0.4552		0.4188	0.4188	0.0000	1,085.1345	1,085.1345	0.3510		1,093.9084
Total	**0.8200**	**9.0755**	**6.1048**	**0.0112**		**0.4552**	**0.4552**		**0.4188**	**0.4188**	**0.0000**	**1,085.1345**	**1,085.1345**	**0.3510**		**1,093.9084**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.0400e-003	0.0316	5.5100e-003	1.2000e-004	0.0126	1.1000e-004	0.0127	1.5600e-003	1.1000e-004	1.6700e-003		12.9767	12.9767	4.7000e-004		12.9884
Vendor	0.0455	0.9959	0.2524	4.2800e-003	0.5105	8.8000e-003	0.5193	0.0662	8.4200e-003	0.0746		447.5000	447.5000	0.0116		447.7890
Worker	2.4688	1.9638	16.2387	0.0573	30.2103	0.0356	30.2459	3.5424	0.0328	3.5753		5,710.7589	5,710.7589	0.1478		5,714.4546
Total	**2.5153**	**2.9913**	**16.4966**	**0.0617**	**30.7334**	**0.0445**	**30.7779**	**3.6102**	**0.0414**	**3.6516**		**6,171.2356**	**6,171.2356**	**0.1599**		**6,175.2320**

3.7 Site Preparation 3 - Testing, Commissioning, Site Clearning

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.5267	6.9053	3.1459	8.6600e-003		0.2278	0.2278		0.2096	0.2096		839.0363	839.0363	0.2714		845.8203
Total	**0.5267**	**6.9053**	**3.1459**	**8.6600e-003**	**0.5303**	**0.2278**	**0.7580**	**0.0573**	**0.2096**	**0.2668**		**839.0363**	**839.0363**	**0.2714**		**845.8203**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.4800e-003	0.1298	0.0242	5.6000e-004	0.2189	4.4000e-004	0.2193	0.0233	4.2000e-004	0.0237		58.5986	58.5986	2.0800e-003		58.6507
Vendor	0.2773	6.6695	1.6946	0.0340	15.3765	0.0247	15.4012	1.6571	0.0236	1.6807		3,548.4246	3,548.4246	0.0850		3,550.5504
Worker	2.3580	1.7956	15.3872	0.0572	121.5238	0.0361	121.5599	12.6752	0.0332	12.7084		5,703.3410	5,703.3410	0.1364		5,706.7512
Total	**2.6398**	**8.5949**	**17.1061**	**0.0917**	**137.1192**	**0.0612**	**137.1804**	**14.3555**	**0.0572**	**14.4128**		**9,310.3642**	**9,310.3642**	**0.2235**		**9,315.9524**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2068	0.0000	0.2068	0.0223	0.0000	0.0223			0.0000			0.0000
Off-Road	0.5267	6.9053	3.1459	8.6600e-003		0.2278	0.2278		0.2096	0.2096	0.0000	839.0363	839.0363	0.2714		845.8203
Total	**0.5267**	**6.9053**	**3.1459**	**8.6600e-003**	**0.2068**	**0.2278**	**0.4346**	**0.0223**	**0.2096**	**0.2319**	**0.0000**	**839.0363**	**839.0363**	**0.2714**		**845.8203**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day											lb/day				
Hauling	4.4800e-003	0.1298	0.0242	5.6000e-004	0.0576	4.4000e-004	0.0580	7.1500e-003	4.2000e-004	7.5800e-003		58.5986	58.5986	2.0800e-003		58.6507
Vendor	0.2773	6.6695	1.6946	0.0340	4.0841	0.0247	4.1088	0.5298	0.0236	0.5534		3,548.4246	3,548.4246	0.0850		3,550.5504
Worker	2.3580	1.7956	15.3872	0.0572	31.1848	0.0361	31.2209	3.6567	0.0332	3.6899		5,703.3410	5,703.3410	0.1364		5,706.7512
Total	**2.6398**	**8.5949**	**17.1061**	**0.0917**	**35.3265**	**0.0612**	**35.3877**	**4.1936**	**0.0572**	**4.2509**		**9,310.3642**	**9,310.3642**	**0.2235**		**9,315.9524**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1103	1.2769	1.1044	6.0300e-003	0.3587	4.1200e-003	0.3628	0.0962	3.8800e-003	0.1001		619.2563	619.2563	0.0583		620.7126
Unmitigated	0.1103	1.2769	1.1044	6.0300e-003	0.3587	4.1200e-003	0.3628	0.0962	3.8800e-003	0.1001		619.2563	619.2563	0.0583		620.7126

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	43.08	43.08	43.08	166,438	166,438
Total	43.08	43.08	43.08	166,438	166,438

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.486321	0.031785	0.181048	0.107930	0.020259	0.005756	0.011219	0.141006	0.002203	0.001426	0.008588	0.001195	0.001263

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0143	0.1296	0.1089	7.8000e-004		9.8500e-003	9.8500e-003		9.8500e-003	9.8500e-003		155.5185	155.5185	2.9800e-003	2.8500e-003	156.4426
NaturalGas Unmitigated	0.0143	0.1296	0.1089	7.8000e-004		9.8500e-003	9.8500e-003		9.8500e-003	9.8500e-003		155.5185	155.5185	2.9800e-003	2.8500e-003	156.4426

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					

General Heavy Industry	1321.91	0.0143	0.1296	0.1089	7.8000e-004		9.8500e-003	9.8500e-003		9.8500e-003	9.8500e-003		155.5185	155.5185	2.9800e-003	2.8500e-003	156.4426
Total		**0.0143**	**0.1296**	**0.1089**	**7.8000e-004**		**9.8500e-003**	**9.8500e-003**		**9.8500e-003**	**9.8500e-003**		**155.5185**	**155.5185**	**2.9800e-003**	**2.8500e-003**	**156.4426**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	1.32191	0.0143	0.1296	0.1089	7.8000e-004		9.8500e-003	9.8500e-003		9.8500e-003	9.8500e-003		155.5185	155.5185	2.9800e-003	2.8500e-003	156.4426
Total		**0.0143**	**0.1296**	**0.1089**	**7.8000e-004**		**9.8500e-003**	**9.8500e-003**		**9.8500e-003**	**9.8500e-003**		**155.5185**	**155.5185**	**2.9800e-003**	**2.8500e-003**	**156.4426**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.7972	3.0000e-005	2.9400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.2900e-003	6.2900e-003	2.0000e-005		6.7000e-003
Unmitigated	0.7972	3.0000e-005	2.9400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.2900e-003	6.2900e-003	2.0000e-005		6.7000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1824					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6146					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.7000e-004	3.0000e-005	2.9400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.2900e-003	6.2900e-003	2.0000e-005		6.7000e-003
Total	**0.7972**	**3.0000e-005**	**2.9400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.2900e-003**	**6.2900e-003**	**2.0000e-005**		**6.7000e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1824					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6146					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.7000e-004	3.0000e-005	2.9400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.2900e-003	6.2900e-003	2.0000e-005		6.7000e-003
Total	**0.7972**	**3.0000e-005**	**2.9400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.2900e-003**	**6.2900e-003**	**2.0000e-005**		**6.7000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Forklifts	2	8.00	12	89	0.20	Diesel
Tractors/Loaders/Backhoes	2	8.00	12	97	0.37	Diesel

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Forklifts	0.2272	2.1098	2.3075	3.0600e-003		0.1398	0.1398		0.1286	0.1286		296.0617	296.0617	0.0958		298.4555
Tractors/Loaders/Backhoes	0.3294	3.3513	4.4759	6.2200e-003		0.1802	0.1802		0.1658	0.1658		602.4779	602.4779	0.1949		607.3492
Total	**0.5566**	**5.4611**	**6.7834**	**9.2800e-003**		**0.3200**	**0.3200**		**0.2944**	**0.2944**		**898.5396**	**898.5396**	**0.2906**		**905.8047**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sanborn Solar Project 1 Mile Cumulative Projects List

#	Case ID	Name	Project Location	Request	Case Type	NUMBER	MAP	SECTION	Notes	TownshipRangeSection	APN	Acreage
1	11590	PALMER, PATRICK & JACKQUELINE	10237 MARY ST., MOJAVE	SECONDARY RES. UNIT (MOBILEHOME)	CUP	61	213		$ RECEIVED 9/26	10/12-12	429-160-06	, 2.50
2	14358	Joan Jackson	10623 Silver Street, Mojave	CUP to allow 3+ cargo containers	CUP		213		Reassigned to Patty 3/27/2014 Followup letter 5/1/2014 Two cargo containers are permitted, but 3 or more require CUP. Can't adverstise the request as 3+, so need to determine specific number of cargo containers being requested. Additionally, it appears from the photos there may be as many as 5 cargo containers currently on site. This would require a violation hearing unless they have previous approval and they want to add more, in which case it could be a modfication of a CUP. Check with Cassandra on what she identified during her preliminary review. . .this may require a site inspection. Also consider requesting a revised site plan that complies with the initial preliminary review letter (i.e. property boundary, drawn to scale, etc) and call out existing and proposed cargo containers.	10/12-11	429-134-20	, 2.47
3	13539	JONATHAN BENDER	1300 BLK OF HWY 58 (SOUTH SIDE)	MOJAVE SOLAR PARK BY CAL WEST ENGERGY	CUP		196	16	ALSO INCLUDES 236-360-64	11/12-16	236-360-12	, 29.00
4	12581	ESTEP, FAUNA	1634 HWY 58, MOJAVE	TO C-2 PD	ZCC	18	196	16	STAFF ADDED H COMBINING DISTRICT	11/12-16	236-360-12	, 6.49
10	13147	COLUMBIA LLC BY RECURRENT ENERGY	S/E PURDY AVE & GOLDTOWN ST.	CUP FOR SOLAR GENERATION	CUP		196		SEE CASE ID 13146 FOR TEHACHAPI CUP & 13148 FOR ROSAMOND CUP (ALL LOCATIONS PROCESSED IN ONE EIR)		427-030-03	, 0.00
11	11875	KJELSTROM & ASSOC \ SERVICE ROCK PRODUCTS	S/S HWY 58, 1/4 M E/O JANATA ST	ZC FROM A H TO M-2 PD	ZCC	42	196	23	PARC ON 08-22-06; PARC FOLLOW UP LETTER OUT 08-30-06; REASSIGNED ON 11-22-06 TO SCOTT; REASSIGNED ON 02-13-07 TO MICHAEL; APPLICATION DEEMED COMPLETE AND FEES ACCEPTED IN ERROR IN 03/2007. MND CIRCULATING 4/17/09 THRU 5/17/09	11/12-23	428-152-03	, 24.52
12	15238	801 Balboa LLC	Ss Hwy 202 aprx 700 ft w of Banduci	ZCC from E (5) to A to facilitate operation of a small, organic farm for temp sale of produce	CUP	71	196	27			377-020-09	, 0.00
13		Edwards AFB Solar Project by Edwards AFB, LLC	Edwards AFB	600 MW of electricity on 3,500 acres of land	Franchise Agreement		212 & 213			10/11-	244-250-02; Multiple	3,500

Note: 1-mile cumulative projects list provided by Kern County; highlighted cells indicate projects included in the cumulative analysis based on review of project characteristics, status, and location.

Sanborn Solar Project 6 Mile Cumulative Projects List

#	Case ID	Name	Project Location	Request	Case Type	NUMBER	MAP	SECTION	Notes	TownshipRangeSection	APN	Acreage
1	10955	FIRETHORN & AVENUE SOUTH, LLC/AEI-CASC ENG'G	N/2 & N/2 SE/4 SEC 29	ZC TO R-1	ZCC		196			11/12-29	427-030-03	,400.00
2	11007	OAK VALLEY INC BY DELMARTER AND DEIFEL	W/ OF KOCH & N/ OF OAK CREEK RD	ZCC TO E (2 1/2) RS FPS	ZCC		196	7	TR 6640	11/12-7	427-062-20	, 10.00
3	11121	WANG, KAREN/ PETER WANG	E/S HWY. 14 @FRONTAGE RD.	ZC TO C-2 PD	ZCC		213		COMP. 2-14. WILL NEED GPA GPA APPLIED FOR ON 3-7-06	10/12-16	430-051-14	, 0.96
4	11172	WANG, KAREN/ PETER WANG	E/S HWY 14 @ FRONTAGE RD	GPA TO 6.2	GPA		213			10/12-16	430-051-14	, 0.96
5	11216	KING, KARL/ RICHARD BEIGLE	NWC & NEC SOPP RD & HWY 14	GPA TO 5.5	GPA		213		TR 6466	10/12-21	430-022-05	,135.00
6	11217	KING, KARL/ RICHARD BEIGLE	NWC & NEC SOPP RD & HWY 14+B8:D8	ZC TO E-1	ZCC		213			10/12-21	430-022-05	,135.00
7	11465	COMPTON, CHRISTOPHER	LONE BUTTE RD.	VEHICLE WRECKING YARD	CUP	60	213		$ RECEIVED 8/4	10/12-22	430-260-41	, 2.50
8	11469	KJELSTROM & ASSOC \ SERVICE ROCK PRODUCTS CO.	S/S HWY 58, 1/4 M E/O JANATA ST	GPA FROM 8.5 TO 7.2	GPA	21	196	23	PARC ON 08-22-06; PARC FOLLOW UP LETTER OUT 08-30-06; REASSIGNED ON 11-22-06 TO SCOTT; REASSIGNED ON 02-13-07 TO MICHAEL; APPLICATION DEEMED COMPLETE AND FEES ACCEPTED IN ERROR IN 03/2007; MND CIRCULATING 4/17/09 THRU 5/17/09	11/12-23	428-152-03	, 24.52
11	11612	WANG, KAREN BY PETER WANG	NWC STATE RT 14 & DAWN RD	GPA FROM 8.5 TO 6.1, 6.2 OR 6.3	GPA		213	33	APPLICANT NEEDS TO SELECT COMERCIAL MAP CODE DESIGNATION; COMPLIANCE LETTER MAILED 02-07-07	10/12-33	431-121-16	, 2.51
12	11680	GREG LANSING / OLIVER CAGLE	N/S OF Y OF HWY 14 AND 58, MOJAVE	8.5, 8.5-2.5 and 5.4-2.5 to 5.3 465 s/f lots (Mojave Spec Plan)	SPA	22	196	5	Includes ZC 427-010-10 SEE CASE ID 12278 FOR ZCC APPLICATION SUBMITTAL REQUIREMENTS TURNED INTO STAFF ON 10/16/07 PROJECT REASSIGNED TO SARA ON 10/16/07; ORIGINALLY CALLED NICKIE LEE SILK BY WRA ENGINEERING	11/12-05	427-010-03	,510.00
13	11707	NORTH STAR PROPERTIES/ MARK JUDSON	W/SIDE KOCH AT DOUGLAS AVE, MOJAVE	ZC TO R-1 FPS CL & E(20) fps CL	ZCC	13	196	7	see Case ID 11488 (CL Plan) TR 6041 - Revised	11/12-7	427-061-04	, 37.70
14	11875	KJELSTROM & ASSOC \ SERVICE ROCK PRODUCTS	S/S HWY 58, 1/4 M E/O JANATA ST	ZC FROM A H TO M-2 PD	ZCC	42	196	23	PARC ON 08-22-06; PARC FOLLOW UP LETTER OUT 08-30-06; REASSIGNED ON 11-22-06 TO SCOTT; REASSIGNED ON 02-13-07 TO MICHAEL; APPLICATION DEEMED COMPLETE AND FEES ACCEPTED IN ERROR IN 03/2007. MND CIRCULATING 4/17/09 THRU 5/17/09	11/12-23	428-152-03	, 24.52
15	11893	KILBY, DOLORES/ANDERSON	2100 MONO ST., MOJAVE	ZC TO C-1 PD	ZCC	22	196	8	$ RECEIVED 2/12 SENDING TO 3/6/07 PARC	11/12-8	236-140-02	, 0.00
16	12162	PKB CONSULTING	W/S HOLT ST, 1/4 MI N/O ARROYO AVE	5.4 TO 5.3	GPA		196		REF ZC DB#12163; PARC HELD ON 8/21/07	11/12-06	427-052-03	, 40.00
17	12163	PKB CONSULTING	W/S HOLT ST, 1/4 MI N/O ARROYO AVE	A-1FPS TO R-1	ZCC		196		REF GPA DB#12162; PARC HELD ON 8/21/07	11/12-06	427-052-03	, 40.00
18	12205	GOLDEN QUEEN MINING CO., INC	SOLEDAD MOUTAIN	MODIFICATION OF SURFACE MINING & RECLAMATION PLAN; AND APPEAL 3, MAP 196	CUP	41	213		REF DB#12206; 13286	10/12-06	429-190-03	, 0.00
19	12206	GOLDEN QUEEN MINING CO., INC.	SOLEDAD MOUNTAIN	MODIFICATION OF SURFACE MINING & RECLAMATION PLAN; APPEAL 3, MAP 196	CUP	22	214		REF DB#12205; #13286	10/13-01	342-052-25	, 0.00
20	12250	CHRISTMAN, KATHERINE DAVIS BY CORNERSTONE ENG.	SWC BACKUS & 25TH ST. WEST	8.5 TO 5.6 & 5.7	GPA	22	213		SUBMITTED 09/19/2007; POSSIBLE VIOLATION(S0 IDENTIFIED; PARC HELD 12/18/2007	10/12-20	430-100-53	, 20.16
21	12278	GREG LANSING / OLIVER CAGLE	N/S OF Y OF HWY 14 AND 58, MOJAVE	8.5, 8.5-2.5 AND 5.4-2.5 TO 5.3 465 S/F LOTS (MOJAVE SPECIFIC PLAN)	ZCC	43	196	5	ADDATIONAL APN 427-010-10 SEE CASE ID 11680 FOR GPA APPLICATION SUBMITTAL REQUIREMENTS TURNED INTO STAFF ON 10/16/07 REASSIGNED TO SARA ON 10/16/07; ORIGINALLY CALLED NICKIE LEE SILK BY WRA ENGINEERING	11/12-05	427-010-03	,510.00
22	12320	ALTA WINDPOWER DEVELOPMENT, LLC	OAK CREEK RD & CAMERON RD	ZC TO A & INCORPORATE WE COMBINING DISTRICT	ZCC	40	197		REF DB#S 12321 & 12322	11/13-00	237-043-02	5,214.00
23	12322	ALTA WINDPOWER DEVELOPMENT, LLC	OAK CREEK RD & CAMERON RD	ZC TO A WE	ZCC	24	214		REF DB#S 12320 & 12321	10/13-02	345-061-03	,311.76
24	12459	UNITED ENGINEERING GROUP	E/S SIERRA HWY, 1 MI N. ROSAMOND	GPA FROM 5.6 & 5.6/2.4 TO 5.3 & 5.3/2.4	GPA	66	230		ADDITIONAL APN 471-022-19 SEE CASE ID 12864 FOR ZCC.	09/12-09	471-022-14	,536.00
25	12581	ESTEP, FAUNA	1634 HWY 58, MOJAVE	TO C-2 PD	ZCC	18	196	16	STAFF ADDED H COMBINING DISTRICT	11/12-16	236-360-12	, 6.49
26	12864	UNITED ENGINEERING GROUP	E/S SIERRA HWY, 1 MI N. ROSAMOND	ZCC FRO A-1 TO R-1 CL	ZCC	116	230		ADDITIONAL APN 471-022-19. SEE CASE ID 12459 FOR GPA	09/12-09	471-022-14	,536.00
27	13013	KERN COUNTY WASTE MANAGEMENT	MOJAVE LANDFILL	EXPANSION TO REGIONAL LANDFILL	ZCC	55	213		REVIEWING THE NOP 5/09		428-030-33	, 0.00
28	13052	FRESH WINDS INTERNATIONAL LTD BY WRA ENGINEERING	NEC Rutan & Purdy; Mojave	zone change to R-1	ZCC	1	196	19	x-ref TR 7204; Applicant address: PO Box 1057, Mojave, CA 93501 (661) 824-9312; case pulled prior to setting hearing; Unauthorized Sig on check for ZC. See file for letter from accounting;	11/12-19	427-120-07	, 40.00
30	13147	COLUMBIA LLC BY RECURRENT ENERGY	S/E PURDY AVE & GOLDTOWN ST.	CUP FOR SOLAR GENERATION	CUP		196		SEE CASE ID 13146 FOR TEHACHAPI CUP & 13148 FOR ROSAMOND CUP (ALL LOCATIONS PROCESSED IN ONE EIR)		427-030-03	, 0.00

31	13175	ALTA WINDPOWER DEVELOPMENT, LLC		TEMPORARY CONCRETE BATCH PLANT	CUP	6	197		REF ZC DB#12320, 12321, & 12322	11/13-00	237-043-02	, 0.00
32	13286	GOLDEN QUEEN MINING CO., INC.	SOLEDAD MOUNTAIN	SURFACE MINING & RECLAMATION PLAN; APPEAL 3, MAP 196	CUP	27	196		REF DB# 12205 & 12206	11/12-32	427-130-11	, 0.00
33	13377	RIO GRANDE SOLAR BY RECURRENT ENERGY	E/S HWY 14 & SIERRA HWY	CUP TO ALLOW CONSTRUCTION OF A 5 MW PV SOLAR FACILITY	CUP	30	196			11/12-33	427-400-00	, 46.00
34	13379	RE ROSAMOND TWO, LLC BY RECURRENT ENERGY	FAVARITO AVE. & 65TH STREET WEST	ZCC TO A	ZCC	146	230	03	SEE CASE ID 13378 FOR CUP	09/13-03	252-013-01	,160.00
35	13539	JONATHAN BENDER	1300 BLK OF HWY 58 (SOUTH SIDE)	MOJAVE SOLAR PARK BY CAL WEST ENGERGY	CUP		196	16	ALSO INCLUDES 236-360-64	11/12-16	236-360-12	, 29.00
36	13636	THE AEROMEN LLC	2 MILES WEST OF MOJAVE ON OAK CREEK	SOLAR: FOUR PV SOLAR PROJECTS ON 237 ACRES (THREE 5MW AND ONE 10MW)	CUP		197	13	237-562-12 -35 -37 -40 -41 -42	11/13-13	237-562-12	,237.00
37	13813	LANDTEC DEVELOPMENT/CORNERSTONE	INTSEC/30TH ST W & BACKUS RD	FROM 8.5 TO 6.2	GPA		213			10/12-20	430-100-01	, 9.66
38	13814	UNITED ENGINEERING GROUP	E/S SIERRA HWY, 1 MI N. ROSAMOND	GPA FROM 5.6 & 5.6/2.4 TO 5.3 & 5.3/2.4	GPA	67	230			09/12-09	471-022-14	,536.00
39	13815	ARFAN, MOHAMMAD/MONTESIANS, ESMERARDO	15190 SIERRA HWY.	RECYCLABLE COLLECTION & STORAGE	CUP		196	17	ADDITIONAL APN: 236-420-03	11/12-17	236-420-02	, 0.00
42	14264	Ron Leonard/Environmental Recycling Services	Boneyard Rd	Aircraft wrecking facility/yard for the purpose of scrap metal recycling	CUP	37	196		Assigned to Mike 10/4/2013 EOT request received Oct 2014, and again on Mar 2015 Assigned to Kristin 3/11/2015 EOT request received 2/9/2016, assigned to Paul S.	11/12-10	428-010-05	,496.50
43	14411	Grigor Termendjian	14675 Holt Street, Mojave	LNG Plant	CUP		196		Per Craig, Exempt from CEQA (15183), reassign to Scott Denney. Re-assigned to Scott Denney 12/2/2015 Now that the site has changed locations, do we have the consent of the property owner to process this? Re-assigned to Paul 5/17/2016	11/12-19	427-112-11	, 9.76
44	14512	Gettysburg Solar LLC	SW corner of Rosamond & 70th St. W	20 MW Solar Facility	SPA		213	21		09/13-21	374-011-06	,159.00
45	14513	Gettysburg Solar LLC	SW corner of Rosamond & 70th St. W	20 MW Solar Facility	ZCC		213	21		09/13-21	374-011-06	,159.00
46	14515	Gettysburg Solar LLC	SW corner of Rosamond & 70th St. W	20 MW Solar Facility	CUP		213	21		09/13-21	374-011-06	,159.00
47	14608	Mojave Chamber of Commerce	15811 K Street in Mojave	Allow the placement of a Commercial coach (caboose) and office	CUP	13	196	17	Assigned to John 12/19/2014 Re-assigned to Danielle 12/30/2015 236-221-11, 12	11/26-17	236-221-13	, 0.35
48	14626	T-Mobile West LLC Adrian Panaud	8747 25th street west, mojave	CUP for cell tower	CUP	63	213		Also see Case ID 14594 and 14626 In response to Roque's letter for cell tower CUP Assigned to Roque 1/22/2015 Reassinged to Randall 02/02/2015 Reassigned to Levi 02/25/2015	10/12-20	430-100-52	, 0.00
49	14678	Richard G Kosnik, POE Associates	Bishop Drive, Mojave	Zone Change to match zoning to 6.3 and 7.2 GPA	ZCC	19	169		Assigned to Kristin 4/4/2015	32/36-32	225-351-46	, 0.00
50	14837	Dona Recchia	Northerly of St Rt 58 Bypass	8.5/2.5, 8.3, & 4.1 to 6.3	GPA		168	26	224-610-05, 06, & 20. Also in Section 30 of next township to the east (Zone Map 169?). ZC application needed but not filed. Transferred to Adv. Planning 11/13/2015	32/35-26	224-610-04	,223.06
51	14874	Water Resorts Inc by Nelms Surveying	N/s Hwy 58 appr 900 ft E of Airport	Zone change to M-1	ZCC		196	16	X-ref PM 12192	11/12-16	236-360-69	, 20.04
52	15141	AT&T by Vance Pomeroy	1863 Highway 58, Mojave	To allow an 80 foot tall ball field light standard for wireless communication facility	CUP	7	196	16	See ID 15142 for Zone Variance		236-090-02	, 0.00
53	15178	Mojave Chamber of Commerce by Douglas Clipperton	15811 K Street, Mojave	EOT one year CUP allowed railroad caboose used as an office/info center.	CUP	13	196	17	Add'l APNs: 236-221-12 and 11. Request fees. Review to determine if the project descripiton has changed. Refer to CUPS TRK Case No. 14608.		236-221-13	, 0.35

Note: 6-mile cumulative projects list provided by Kern County; based on discussion with the County, an ambient growth rate was used to analyze projects included in this list.

Appendix C2

Ambient Air Quality Analysis and Health Risk Assessment

ESA

AMBIENT AIR QUALITY ANALYSIS AND HEALTH RISK ASSESSMENT SANBORN SOLAR FACILITY PROJECT

Kern County, California

Prepared for

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AUGUST 2019

Printed on 30% post-consumer recycled material.

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EXECUTIVE SUMMARY

Sanborn Solar, LLC proposes to develop the approximately 2,102-acre Sanborn Solar Project (project). The project would include the development of photovoltaic (PV) solar facilities and associated infrastructure with the capacity to generate up to 300 megawatts of renewable electric energy and/or energy storage capacity. Power generated by the proposed project would be transferred to the Windhub Substation and/or Westwind Substation within the gen-tie study area. The solar facilities would use PV technology and consist of solar arrays mounted on either fixed or tracking structures mounted to vertical posts. The solar facilities would operate year-round and would generate electricity during the daylight hours.

The Kern County *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* (Kern County 2006) require a dispersion modeling analysis of the maximum 24-hour average concentrations of particulate matter less than 10 microns (PM_{10}) and particulate matter less than 2.5 microns ($PM_{2.5}$) resulting from construction in comparison to applicable ambient air quality standards and thresholds; therefore, an ambient air quality analysis (AAQA) was performed for the project. The purpose of this AAQA is to determine whether the project's construction emissions would cause or contribute to exceedances of any California Ambient Air Quality Standards (CAAQS) or National Ambient Air Quality Standards (NAAQS) during construction.

The purpose of this health risk assessment (HRA) is to determine the potential cancer risk to the closest sensitive receptors of the project due to diesel particulate matter (DPM) emissions resulting from diesel construction equipment and diesel trucks.

Dispersion modeling was performed using the American Meteorological Society/ Environmental Protection Agency Regulatory Model (AERMOD), which is the model that Eastern Kern Air Pollution Control District (EKAPCD) requires for atmospheric dispersion of emissions. The Office of Environmental Health Hazard Assessment's (OEHHA) Air Toxics Hot Spot Program Risk Assessment Guidelines – Guidance Manual for Preparation of Health Risk Assessments (Risk Assessment Guidelines) (OEHHA 2015) was used to prepare the construction HRA for the project.

In summary, as detailed in the AAQA, the project could result in or contribute to exceedances of the CAAQS or NAAQS, even after implementation of mitigation. As determined in the HRA, project construction would emit DPM that would result in a cancer risk and chronic hazard index at the maximally exposed receptor below the applicable EKAPCD thresholds.

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1 INTRODUCTION

1.1 Document Overview

In support of the air quality and greenhouse gas emissions analysis technical report preparation, Dudek prepared an AAQA and HRA to estimate ambient air quality and health risk impacts from construction of the project. The analysis presented uses air dispersion modeling methodology to evaluate potential ambient air quality impacts and public health risks associated with construction of the project. Results of the modeling analysis are compared with the most recent significance thresholds established by the EKAPCD for purposes of California Environmental Quality Act (CEQA) analysis.

1.2 Project Description

The proposed project consists of two development areas and would be built in several phases pending power purchase agreements. Combined, the solar facilities would generate a total of 300 megawatts of renewable electrical energy and/or energy storage capacity. Each of the project's facilities would include solar panels/modules, inverters, internal service roads, and telecommunication equipment, including underground and overhead electrical collection systems and fiber optics. Electrical collection systems would be installed in conjunction with panel arrays within the project site, connecting each solar panel to a feeder circuit; each feeder circuit would in turn be connected to the collector substation. The different solar panel circuits would gather into 34.5-kilovolt circuits and either step-up to 230 kilovolt at the United Street conversion station and/or step-up to 230 kilovolt at the on-site substation. The power would then be delivered via 230-kilovolt circuits to a grid interconnection point at the Windhub Substation and/or Westwind Substation. The project site is in the southern portion of Kern County, in central California. The project site is located at the western edge of the Antelope Valley, directly south of the community of Mojave, on generally undeveloped land that has been historically used for grazing operations and that consists entirely of privately owned parcels.

1.3 Criteria Air Pollutants

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}),

particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), and lead. These pollutants, as well as toxic air contaminants (TACs), are discussed as follows. In California, sulfates (SO_4), vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

1.4 Toxic Air Contaminants

A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute (short-term) and/or chronic (long-term) noncancerous health effects. A toxic substance released into the air is considered a TAC. Examples include certain aromatic and chlorinated hydrocarbons, diesel-particulate matter (DPM), certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources such as automobiles; and area sources such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ system and may be experienced either on acute or chronic exposure to a given TAC.

In 1998, CARB designated diesel engine exhaust particulate matter (DPM) as a TAC. The exhaust from diesel engines is a complex mixture of gases, vapors, and particles, many of which are known human carcinogens. DPM has established cancer risk factors and relative exposure values for long term chronic health hazard impacts. No short-term, acute relative exposure level has been established for DPM; therefore, acute impacts of DPM are not addressed in this assessment.

Cancer Risk

Cancer risk is defined as the increase in probability (chance) of an individual developing cancer due to exposure to a carcinogenic compound, typically expressed as the increased chances in one million. The cancer risk from exposure to a TAC is estimated by calculating the inhalation (and if applicable, ingestion or dermal) dose in units of milligrams/kilogram body weight per day. The dose is based on an ambient concentration in units of micrograms per cubic meter ($\mu g/m^3$), age sensitivity factors, breathing rates, exposure period, and fraction of time spent at home. The cancer risk is calculated by multiplying the dose by the cancer potency factor, expressed as $(\text{milligrams/kilogram body weight per day})^{-1}$. Cancer risks are typically calculated for all carcinogenic TACs and summed to calculate the overall increase in cancer risk to an individual. The calculation procedure assumes that cancer risk is proportional to concentrations at any level of exposure and that risks due to different carcinogens are additive. This approach is generally

considered a conservative assumption at low doses and is consistent with the Office of Environmental Health Hazard Assessment's (OEHHA) regulatory approach.

The cancer risk calculations were performed by multiplying the predicted dispersion modeled output data by the TAC emissions and the appropriate risk values. The exposure and risk equations that were used to calculate the cancer risk at receptors are integrated in the Hotspots Analysis and Reporting Program, Version 2 (HARP 2) model, in accordance with the Risk Assessment Guidelines (OEHHA 2015).

The following equations were used to calculate the cancer risk using the model output data and estimated TAC emissions associated with diesel exhaust.

Cancer Risk = DOSE * CPF * ASF * ED/AT * FAH

DOSE = (C_{air} * DBR * A * EF * 10^{-6})

C_{air} = ER * X/Q

Where:

- DOSE: Daily inhalation dose (mg/kg-day)
- CPF: Cancer potency factor $(mg/kg\text{-}day)^{-1}$
- ASF: Age sensitivity factor for a specified age group (unitless)
- ED: Exposure duration (in years) for a specified age group
- AT: Averaging time for lifetime cancer risk (years)
- FAH: Fraction of time spent at home (unitless)
- C_{air}: Average air concentration of TAC from the air dispersion model ($\mu g/m^3$)
- DBR: Daily breathing rate (L/kg body weight-day)
- EF: Exposure frequency (unitless), days/365 days
- A: Inhalation absorption factor (unitless)
- 10^{-6}: Micrograms to milligrams conversion, liters to cubic meters conversion
- ER: Emission rates (g/s)
- X/Q: Model output data ($\mu g/m^3$)/(g/s)

Noncancerous Health Impacts

The noncancerous health impact of an inhaled TAC is measured by the hazard quotient, which is the ratio of the ambient concentration of a TAC in units of $\mu g/m^3$ divided by the reference exposure level (REL), also in units of $\mu g/m^3$. The REL is the concentration at or below which no adverse health effects are anticipated. The REL is typically based on health effects to a particular target organ system, such as the respiratory system, liver, or central nervous system. Hazard quotients of individual TACs are then summed for each target organ system to obtain a hazard index (HI). For DPM, the target organ system is the respiratory system.

In addition to the potential cancer risk, DPM has chronic (i.e., long-term) noncancerous health impacts. The chronic noncancerous HI for DPM was calculated by dividing the maximum modeled annual average concentration of TACs by its REL as implemented by HARP 2.

The chronic hazard quotients were calculated for DPM using the following equations (OEHHA 2015).

$$\mathbf{CHQ = (C_{air} / REL)}$$

Where:

- CHQ: Chronic hazard quotient
- C_{air}: Annual average concentration ($\mu g/m^3$)
- REL: Chronic reference exposure level ($\mu g/m^3$)

2 GUIDANCE AND THRESHOLDS

2.1 Kern County

The County's *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* (Kern County 2006) includes the thresholds of significance adopted by the Board of Supervisors in 2004 for use in all evaluations and environmental documents prepared by County departments with duties affected by CEQA. The County Guidelines require a dispersion modeling analysis of the maximum 24-hour average concentrations of PM_{10} and $PM_{2.5}$ resulting from construction in comparison to applicable NAAQS and CAAQS. County guidance states that projects that produce emissions that exceed the adopted thresholds shall be considered significant for a project level and/or cumulatively for impacts to air quality, where the thresholds are defined for purposes of determining cumulative effects as the baseline for "considerable."

2.2 Eastern Kern Air Pollution Control District Guidance

TACs are listed in the regulation implementing the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588). A subset of these TACs has been listed by the OEHHA as having acute, chronic, and/or carcinogenic effects on public health. The EKAPCD recommends health risk thresholds of cancer risk greater than or equal to 10 cases in one million and a chronic or acute HI equal to or greater than 1.0 (EKAPCD 2018).

2.3 Office of Environmental Health Hazard Assessment Guidance

OEHHA's most recent guidance is the *Air Toxics Hot Spots Program Risk Assessment Guidelines – Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2015), which was adopted in 2015 replacing the previous 2003 guidance manual. The Children's Environmental Health Protection Act of 1999 (Senate Bill 25), which requires explicit consideration of infants and children in assessing risks from air toxics, required revisions of the methods for both noncancerous and cancer risk assessment and of the exposure assumptions in the 2003 OEHHA HRA guidance manual. In response to SB 25, OEHHA released three technical support documents (TSDs) addressing RELs (OEHHA 2008), cancer potency (OEHHA 2009), and exposure assessment and stochastic analysis (OEHHA 2012) and adopted the revised HRA guidance manual (OEHHA 2015). The TSD for RELs and continuing work to re-evaluate TACs to ensure adequate protection for infants and children has led to revisions of RELs for approximately 10 chemicals and chemical families. The basic methodology for evaluating acute and chronic health effects using the RELs otherwise remained the same as in the previous guidance manual. Moreover, RELs are designed to protect the most sensitive individuals in the population, including infants and children, by selecting appropriate toxicological data and

including margins of safety. Accordingly, the evaluation methods are assumed to protect children and other sensitive subpopulations (groups of more highly susceptible individuals) from adverse health effects in the event of exposure (OEHHA 2008).

The cancer risk methodology described in exposure assessment and stochastic analysis TSD and the OEHHA guidance manual accounts for the higher sensitivity of infants and children by applying age-specific daily breathing rates (DBRs) and age-sensitivity factors (ASFs). According to the TSD, "accounting for effects of early-in-life exposure requires accounting for both the increased potency of early in life exposure to carcinogens and the greater exposure on a per [kilogram] body weight that occurs early in life due to behavioral and physiological differences between infants and children, and adults" (OEHHA 2012). In part, early-life periods are accounted for using age-sensitivity factors. Compared to the previous guidance, which relied on a single breathing rate for all ages, the revised guidance also includes age-specific DBRs that reflect the differences between those for infants, children, and adults.

3 ESTIMATED EMISSIONS

Construction of the project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, on-road vehicular travel on unpaved roads, and earthwork) and off-site sources (i.e., on-road haul trucks, vendor trucks, and worker vehicle trips on paved roads). Emissions from the construction phase of the project were estimated using the California Emissions Estimator Model (CalEEMod), version 2016.3.2. Table 1 presents the estimated unmitigated annual emissions generated during construction of the project.

Table 1
Estimated Annual Unmitigated Construction Criteria Air Pollutant Emissions

Year	ROG	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
	tons per year					
2020	2.76	21.26	15.55	0.09	97.36	10.91
2021	0.69	5.51	15.55	0.02	27.48	3.03
Maximum Annual Emissions	2.76	15.55	21.26	0.08	97.36	10.91
EKAPCD Threshold	*25*	—	*25*	*27*	*15*	—
Threshold Exceeded?	No	No	No	No	Yes	No

Notes: CO = carbon monoxide; NO_x = oxides of nitrogen; EKAPCD = Eastern Kern Air Quality Pollution Control District; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SO_x = sulfur oxides; ROG = reactive organic gases

As depicted in Table 1, emissions of PM_{10} (primarily associated with fugitive dust) would exceed the EKAPCD threshold. Mitigation Measure AQ-1 (Fugitive Dust) incorporates EKAPCD fugitive dust requirements.

Mitigation Measures

MM-AQ-1 As the project would be completed in compliance with Eastern Kern Air Pollution Control District Rules and Regulations, dust-control measures would be taken to ensure compliance specifically during grading and construction phases:

- The developer shall comply with the applicable provisions of Eastern Kern Air Pollution Control District Rule 402 that addresses man-made dust sources from large earthmoving and construction operations. The following specific controls shall be implemented:
  - On-site vehicle speed shall be limited to 15 miles per hour.
  - All areas with vehicle traffic and/or grading activity shall be paved, treated with dust palliatives, or watered a minimum of twice daily.

- Streets adjacent to the project site shall be kept clean and accumulated silt removed.
- Access to the site shall be by means of an apron into the project from adjoining surfaced roadways. The apron shall be surfaced or treated with dust palliatives. If operating on soils that cling to the wheels of the vehicles, a grizzly or other such device shall be used on the road exiting the project, immediately prior to the pavement, in order to remove most of the soil material from the vehicle's tires.

Mitigated annual emissions are depicted in Table 2.

Table 2
Estimated Annual Mitigated Construction Criteria Air Pollutant Emissions

Year	ROG	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
	tons per year					
2020	2.76	21.26	15.55	0.09	26.06	3.56
2021	0.69	5.51	3.62	0.02	7.35	0.96
Maximum Annual Emissions	2.76	21.26	15.55	0.09	26.06	3.56
EKAPCD Threshold	*25*	—	*25*	*27*	*15*	—
Threshold Exceeded?	No	No	No	No	Yes	No

Notes: CO = carbon monoxide; NO_x = oxides of nitrogen; EKAPCD = Eastern Kern Air Quality Pollution Control District; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SO_x = sulfur oxides; ROG = reactive organic gases

4 MODELING METHODOLOGY

4.1 Dispersion Model

Air dispersion models calculate the atmospheric transport and fate of pollutants from the emission source. The models calculate the concentration of selected pollutants at specific downwind ground-level points, such as residential or off-site workplace receptors. The transformation (fate) of an airborne pollutant, its movement with the prevailing winds (transport), its crosswind and vertical movement due to atmospheric turbulence (dispersion), and its removal due to dry and wet deposition are influenced by the pollutant's physical and chemical properties and by meteorological and environmental conditions. Factors such as distance from the source to the receptor, meteorological conditions, intervening land use and terrain, pollutant release characteristics, and background pollutant concentrations affect the predicted air concentration of an air pollutant. Air dispersion models have the capability to take all of these factors into consideration when calculating downwind ground-level pollutant concentrations.

Dispersion modeling was performed for both the AAQA and the HRA using AERMOD, which is the model EKAPCD requires for atmospheric dispersion of emissions. AERMOD is a steady-state Gaussian plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, building downwash, and both simple and complex terrain. For the AAQA, fence line and off-site concentrations were modeled for the construction phase using the estimated project emissions to determine compliance with the CAAQS and NAAQS. Discrete receptors were also identified at the nearest off-site receptors for purposes of the HRA. Principal parameters of AERMOD for the project construction include the following:

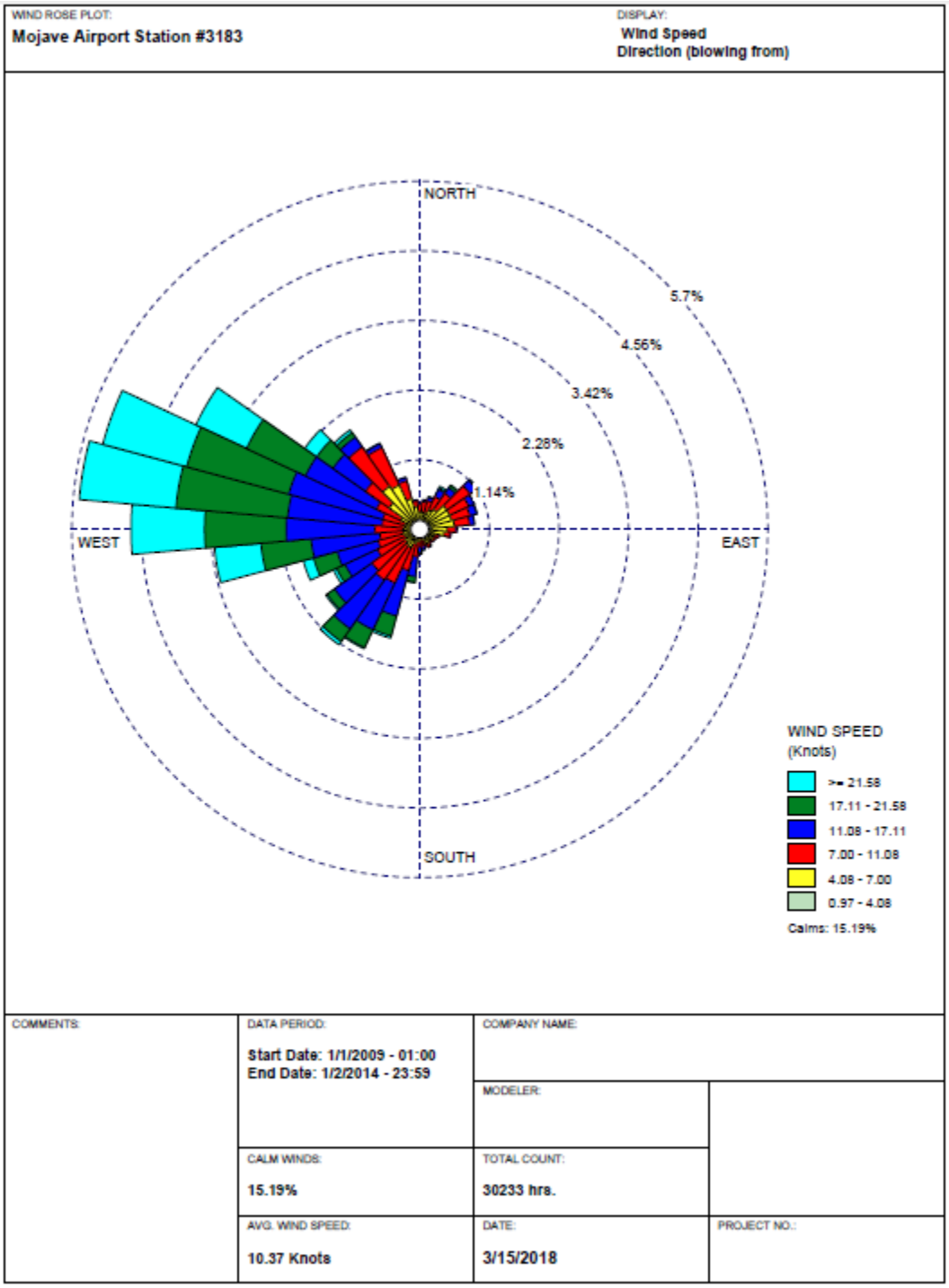
- **Dispersion Modeling:** The air dispersion model used was AERMOD, Version 16216r, with the Lakes Environmental Software implementation/user interface, AERMOD View, Version 9.5.0. AERMOD was run with all sources emitting unit emissions (1 g/s) to obtain the "X/Q" values. X/Q is a dispersion factor that is the average effluent concentration normalized by source strength, and is used as a way to simplify the representation of emissions from many sources. The X/Q values of ground-level concentrations (GLCs) were determined for construction emissions using AERMOD and the maximum concentrations determined for the 1-hour, 24-hour, and annual averaging periods.
- **Meteorological Data:** The latest 5-year meteorological data (2009–2013) for the Mojave Airport station from the CARB were used. A wind rose is provided for this station on Figure 1.
- **Urban and Rural Options:** Urban areas typically have more surface roughness and structures and low-albedo surfaces that absorb more sunlight—and thus more heat—

relative to rural areas. The rural dispersion option was selected due to the undeveloped nature of the project site.

- **Modeling Options:** The modeling included the use of standard regulatory default options.
- **Terrain Characteristics:** The terrain in the vicinity of the project site is generally flat. Digital elevation model files were imported into AERMOD so that complex terrain features were evaluated as appropriate.
- **Modeling Grid:** For the AAQA, a nested grid of sensitive receptors was evaluated to capture maximum ambient pollutant impacts. This telescoping grid of receptors was set up with the following resolutions:
  - 25-meter spacing on the facility boundary
  - 25-meter spacing from facility boundary to 100 meters
  - 50-meter spacing from 100 meters to 250 meters
  - 100-meter spacing from 250 meters to 500 meters
  - 250-meter spacing from 500 meters to 1 kilometer
  - 500-meter spacing from 1 kilometer to 2 kilometers

  For the HRA, a uniform Cartesian grid of 8,000 meters by 8,000 meters was used to determine the areas of maximum ambient pollutant concentrations.
- **Discrete Receptors:** Sensitive receptors include hospitals, schools, parks, playgrounds, daycare centers, nursing homes, convalescent facilities, and residential areas. Proximate sensitive receptors are scattered rural residential land uses, with locations depicted in Figure 2.
- **Source_Equipment Operating Scenarios:** Air dispersion modeling of construction and operational activities was conducted using emissions generated using the CalEEMod. A single area source was modeled for the construction area, which included all PM_{10} exhaust from off-road equipment and on-road trucks. This approach is conservative since it concentrates emissions from on-road trucks to the project site, in proximity to sensitive receptors.
- **Source Release Characterizations:** For modeling construction emissions for the AAQA using AERMOD, based on number of concurrent activities and equipment usage for the project, it was assumed that approximately 25% of the total site area would have active construction activities at any one time (equates to an active area of 500 acres). For modeling emissions for the HRA, it was assumed that construction would occur across the entire solar fields. For both the AAQA and HRA, an initial vertical dimension of 1.4 meters and release height of 5 meters for diesel equipment and truck exhaust was assumed.

Figure 1. Wind Rose for Mojave Airport Meteorological Station



Source: Lakes Environmental 2017.

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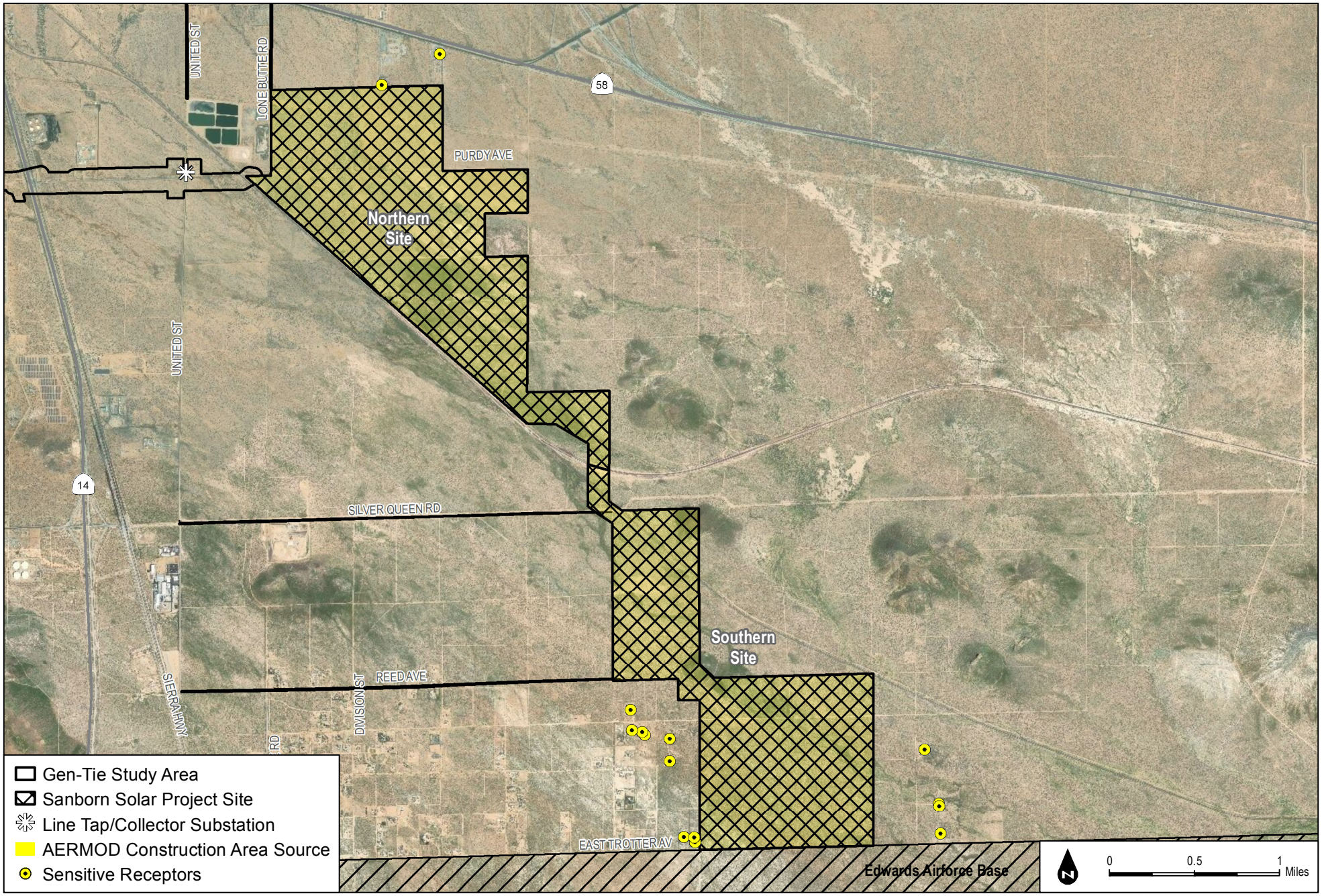

Figure 2: CONSTRUCTION AREA FOR HRA AND PROXIMATE DISCRETE SENSITIVE RECEPTOR LOCATIONS

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4.2 Ambient Air Quality Analysis Methodology

The AAQA was performed using AERMOD for the 24-hour and annual averaging periods where the maximum concentration for each source and receptor combination was generated to produce worst-case concentrations for PM_{10} and $PM_{2.5}$ based on an 8-hour per day, 5-day per week construction schedule. The particulates were modeled together, with a normalized (i.e., unit) emission rate of 1 gram per second for the area source. The use of a normalized emission rate enabled the modeling run outputs to be used for multiple pollutant analyses. This procedure is described as follows:

- For Step 1 of the AAQA analysis, the maximum background concentration for the monitoring stations closest to the project site (see Appendix A) for each pollutant and averaging period combination was added to the corresponding maximum GLC (project impact). The sum of these values was then compared to the corresponding CAAQS and NAAQS. If the project impact did not cause an exceedance of an AAQS, then the analysis was complete for that source/receptor/pollutant combination because no exceedance of an ambient air quality standard would occur. If the project impact caused an exceedance of an AAQS, then the analysis proceeded to Step 2.
- Step 2 was similar to a Step 1 with one major difference. If the background concentration plus GLC exceeds an AAQS, including instances where the background concentration alone exceeds an AAQS, the maximum GLC of each pollutant and averaging period combination was compared to its corresponding significant impact level (SIL), where a value exceeding the SIL is considered an indicator that the GLC represents a substantial contribution to an exceedance of an AAQS. If the maximum GLC did not exceed the corresponding SIL, then the analysis was complete for that source/receptor/pollutant combination because the emissions would not be considered to contribute to an exceedance of an AAQS, and no further action was required.

4.3 Health Risk Assessment Methodology

OEHHA's Risk Assessment Guidelines (2015) were used to prepare the HRA. For risk assessment purposes, PM_{10} in diesel exhaust is considered DPM, originating mainly from off-road equipment operating at a defined location for a given length of time at a given distance from sensitive receptors. Less-intensive, more-dispersed emissions result from on-road vehicle exhaust (e.g., heavy-duty diesel trucks). These emissions could result in elevated concentrations of DPM at nearby receptors, which could lead to an increase in the risk of cancer or other health impacts. Consequently, an HRA was performed to determine the extent of increased cancer risks and chronic health indices at the maximally exposed receptors from

project construction and operations. The dispersion of DPM was modeled using the AERMOD dispersion model, along with meteorological data provided by the CARB for the Mojave Airport, and the resultant health impacts were calculated using the CARB HARP 2. For the residential health risk associated with construction, the HRA assumes exposure would start in the third trimester of pregnancy and occur 8 hours per day, 5 days per week, for 24 months to account for the short-term construction activity duration.

5 AIR DISPERSION MODELING AMBIENT AIR QUALITY ANALYSIS AND HEALTH RISK ASSESSMENT RESULTS

5.1 Ambient Air Quality Analysis Results

Table 3 presents a summary of the two-step process taken to determine whether construction activities associated with the project would cause or contribute to ambient air quality impacts, with the detailed AAQA included in Appendix A.

Table 3
Unmitigated Construction Ambient Air Quality Impact Assessment Results[1]

STEP 1 – Ambient Air Quality Standard Basis				
Impact Parameter	*Applicable Standard*	*AAQS*	*Maximum Concentration: Project + Background Levels*	
		µg/m³	*µg/m³*	*Exceed AAQS?*
24-hour PM_{10}	State	50	411	*Yes (Step 2)*
	Federal	150	424	*Yes (Step 2)*
Annual PM_{10}	State	20	56	*Yes (Step 2)*
24-hour $PM_{2.5}$	Federal	35	69	*Yes (Step 2)*
Annual $PM_{2.5}$	State	12	10	No
	Federal	12	11	No
STEP 2 – EPA Significant Impact Level (SIL) Basis				
Impact Parameter		*Class II SILs*	*Project Construction*	
		µg/m³	*µg/m³*	*Exceed SIL?*
24-hour PM_{10}		5	240	*Yes*
Annual PM_{10}		1	32	*Yes*
24-hour $PM_{2.5}$		5	27	*Yes*

Note: AAQS = Ambient Air Quality Standard; CO = carbon monoxide; NO_2 = nitrogen dioxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; EPA = Environmental Protection Agency; SIL = significant impact level
See Appendix A for complete results.

1 Step 1 – the AAQS basis compares the background concentrations plus project contribution to the state and federal AAQS to determine if there would be an exceedance of the respective standard. For PM_{10} and $PM_{2.5}$, background concentrations already exceed the applicable AAQS (except for the annual state and federal $PM_{2.5}$ AAQS), so Step 2—the SIL basis—compares the project contributions to levels determined by the EKAPCD to cause or contribute to ambient air quality exceedances and impacts.

As demonstrated in Table 3, the project would result in construction activities that could generate ambient concentrations of PM_{10} and $PM_{2.5}$ above the applicable thresholds. Table 4 presents the mitigated construction AAQA.

Table 4
Mitigated Construction Ambient Air Quality Impact Assessment Results[1]

STEP 1 – Ambient Air Quality Standard Basis				
Impact Parameter	*Applicable Standard*	*AAQS*	*Maximum Concentration: Project + Background Levels*	
		µg/m³	*µg/m³*	*Exceed AAQS?*
24-hour PM_{10}	State	50	234	*Yes (Step 2)*
	Federal	150	247	*Yes (Step 2)*
Annual PM_{10}	State	20	32	*Yes (Step 2)*
24-hour $PM_{2.5}$	Federal	35	51	*Yes (Step 2)*
Annual $PM_{2.5}$	State	12	7	No
	Federal	12	9	No
STEP 2 – EPA Significant Impact Level (SIL) Basis				
Impact Parameter		*Class II SILs*	*Project Construction*	
		µg/m³	*µg/m³*	*Exceed SIL?*
24-hour PM_{10}		5	63	*Yes*
Annual PM_{10}		1	9	*Yes*
24-hour $PM_{2.5}$		5	9	*Yes*

Note: AAQS = Ambient Air Quality Standard; CO = carbon monoxide; NO_2 = nitrogen dioxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; EPA = Environmental Protection Agency; SIL = significant impact level
See Appendix A for complete results. These results include compliance with fugitive dust control requirements of EKAPCD Rule 402.

1 Step 1 – the AAQS basis compares the background concentrations plus project contribution to the state and federal AAQS to determine if there would be an exceedance of the respective standard. For PM_{10} and $PM_{2.5}$, background concentrations already exceed the applicable AAQS (except for the annual state and federal $PM_{2.5}$ AAQS), so Step 2—the SIL basis—compares the project contributions to levels determined by the EKAPCD to cause or contribute to ambient air quality exceedances and impacts.

As demonstrated in Table 4, mitigation measures would reduce PM_{10} and $PM_{2.5}$ concentrations associated with project construction, but the project would still result in construction activities that would generate ambient concentrations of PM_{10} and $PM_{2.5}$ above the applicable thresholds.

5.2 Construction Health Risk

Based on the HRA results included in Appendix B, the maximally exposed individual residence (MEIR) would be located directly north of the project boundary at Universal Transverse Mercator (UTM) coordinates 396997.28m E, 3877296.01m N. Potential health risks at the MEIR resulting from construction activities are shown in Table 5.

Table 5
Construction Related Health Risk Assessment

Receptor	Cancer Risk (per Million)	Chronic Hazard Index
Unmitigated		
MEIR	0.90	0.0005
EKAPCD Significance Criteria	10	1
Exceed Threshold?	No	No

Note: MEIR = Maximally Exposed Individual Resident; EKAPCD = Eastern Kern Air Pollution Control District
See Appendix B for AERMOD and HARP 2 model outputs.
DPM exposure at receptors was modeled with AERMOD, the results of which were then input into HARP 2 to generate health risk estimates. For the MEIR, exposure was assumed to begin during the third trimester of pregnancy for a duration of 8 hours per day, 5 days per week, for 24 months to account for the short-term construction activity duration.

As depicted in Table 5, unmitigated project construction would emit TACs that would result in cancer risk and chronic hazard index at the MEIR below the EKAPCD thresholds of 10 in a million and 1, respectively. Overall, impacts associated with the project's potential to expose sensitive receptors to substantial TACs due to the project-generated construction emissions would be less than significant.

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6 CONCLUSIONS

Based on this analysis, the AAQA showed that although mitigation measures would reduce PM_{10} and $PM_{2.5}$ concentrations associated with project construction, the project would still result in construction activities that would generate ambient concentrations of PM_{10} and $PM_{2.5}$ above the applicable thresholds. In regards to the HRA, construction of the project would not expose proximate sensitive residential receptors to TACs at levels above significance thresholds established by the EKAPCD.

The results determined in this analysis reflect reasonable estimates of source emissions and exhaust characteristics, available meteorological data near the project site, and the use of currently approved air quality models. Given the limits of available tools for such an analysis, the actual impacts may vary from the estimates in this assessment. However, the combined use of the AERMOD dispersion model and the health impact calculations required by the OEHHA and the EKAPCD tend to over-predict impacts, such that these analyses produce conservative (i.e., health-protective) results. Accordingly, the ambient air quality and health impacts are not expected to be higher than those estimated in this assessment.

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7 REFERENCES CITED

EKAPCD (Eastern Kern Air Pollution Control District). 2018. Personal communication via email with Wunna Aung, Air Quality Engineer with EKAPCD. February 12, 2018.

Lakes Environmental. 2017. *AERMOD View*, Version 9.5.0.

Kern County. 2006. *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports.* December 2006.

OEHHA (Office of Environmental Health Hazard Assessment). 2008. *Air Toxics Hot Spots Risk Assessment Guidelines – Technical Support Document for the Derivation of Noncancer Reference Exposure Levels*. June 2008. Accessed February 2018. http://www.oehha.ca.gov/air/hot_spots/2008/NoncancerTSD_final.pdf.

OEHHA. 2009. *Technical Support Document for Cancer Potency Factors: Methodologies for Derivation, Listing of Available Values, and Adjustments to Allow for Early Life Stage Exposures*. May 2009. Accessed February 2018. https://oehha.ca.gov/media/downloads/crnr/tsdcancerpotency.pdf.

OEHHA. 2012. *Air Toxics Hot Spots Program Risk Assessment Guidelines – Technical Support Document Exposure Assessment and Stochastic Analysis*. February 2012. Accessed February 2018. https://oehha.ca.gov/media/downloads/crnr/combinedsmall.pdf.

OEHHA. 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines – Guidance Manual for Preparation of Health Risk Assessments*. February 2015. Accessed February 2018. http://www.oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf.

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APPENDIX A

AAQA – AERMOD Input and Results

```
**
****************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.5.0
** Lakes Environmental Software Inc.
** Date: 3/22/2018
** File: C:\Lakes\AERMOD View\Sanborn Solar AAQA\Sanborn Solar AAQA.ADI
**
****************************************
**
**
****************************************
** AERMOD Control Pathway
****************************************
**
**
CO STARTING
   TITLEONE Sanborn Solar AAQA
   TITLETWO Construction PM
   MODELOPT DFAULT CONC
   AVERTIME 24 ANNUAL
   POLLUTID OTHER
   RUNORNOT RUN
   ERRORFIL "Sanborn Solar AAQA.err"
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION PAREA1       AREAPOLY   396563.651  3877229.245      807.510
** DESCRSRC Construction Area
** Source Parameters **
   SRCPARAM PAREA1       5.0122E-07     5.000         8     1.400
   AREAVERT PAREA1       396563.651 3877229.245 396589.205 3875654.067
   AREAVERT PAREA1       397950.718 3875669.410 397956.994 3876065.100
   AREAVERT PAREA1       398346.125 3876073.561 398346.125 3876457.833
   AREAVERT PAREA1       397527.998 3876441.305 397545.131 3877254.207

** Variable Emissions Type: "By Season / Hour / Day (SHRDOW)"
** Variable Emission Scenario: "Scenario 1"
** WeekDays:
** Winter
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 4.2 4.2 4.2 4.2
   EMISFACT PAREA1       SHRDOW 0.0 4.2 4.2 4.2 4.2 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** Spring
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 4.2 4.2 4.2 4.2
   EMISFACT PAREA1       SHRDOW 0.0 4.2 4.2 4.2 4.2 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
```

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** Summer
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 4.2 4.2 4.2 4.2
   EMISFACT PAREA1       SHRDOW 0.0 4.2 4.2 4.2 4.2 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** Fall
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 4.2 4.2 4.2 4.2
   EMISFACT PAREA1       SHRDOW 0.0 4.2 4.2 4.2 4.2 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** Saturday:
** Winter
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** Spring
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** Summer
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** Fall
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** Sunday:
** Winter
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** Spring
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** Summer
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** Fall
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   SRCGROUP ALL
SO FINISHED
**
****************************************
** AERMOD Receptor Pathway
```

```
****************************************
**
**
RE STARTING
   INCLUDED "Sanborn Solar AAQA.rou"
RE FINISHED
**
****************************************
** AERMOD Meteorology Pathway
****************************************
**
**
ME STARTING
   SURFFILE MetData\MojaveAirport\722953.SFC
   PROFFILE MetData\MojaveAirport\722953.PFL
   SURFDATA 3183 2009
   UAIRDATA 93214 2009
   PROFBASE 849.5 METERS
ME FINISHED
**
****************************************
** AERMOD Output Pathway
****************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 24 1ST
** Auto-Generated Plotfiles
   PLOTFILE 24 ALL 1ST "Sanborn Solar AAQA.AD\24H1GALL.PLT" 31
   PLOTFILE ANNUAL ALL "Sanborn Solar AAQA.AD\AN00GALL.PLT" 32
   SUMMFILE "Sanborn Solar AAQA.sum"
OU FINISHED
**
****************************************
** Project Parameters
****************************************
** PROJCTN  CoordinateSystemUTM
** DESCPTN  UTM: Universal Transverse Mercator
** DATUM    North American Datum 1983
** DTMRGN   CONUS
** UNITS    m
** ZONE     11
** ZONEINX  0
**
```

Results Summary

Sanborn Solar AAQA
Construction PM

Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
24-HR	1ST	14.24793	ug/m^3	396560.76	3876024.00	800.20	0.00	800.20	11/29/2010, 24
ANNUAL		1.92100	ug/m^3	397987.90	3876038.03	796.44	0.00	796.44	

Ambient Air Quality Analysis - Sanborn Solar Project - Unmitigated Scenario

Table 1. Max Emission Rates (lbs/day) for Project - (Summer/Winter Maximum from CalEEMod)

Max Rates	PM_{10}	$PM_{2.5}$
Total Daily, lbs/day	1067.61	118.84
Daily Max, g/s	16.81	1.87
Hourly Max lbs/hr	133.45	14.86

Note: The lbs/day values are maximum from summer and winter outputs from CalEEMod. Conversion assumes 8 hr workday

Table 2. AERMOD Maximum Impact X/Q, (ug/m^3)/(g/s)

Max 24-Hour	Max Annual
14.25	1.92

Note: These concentrations are based on the AERMOD Results Summary Report

Table 3. Project Contribution Concentrations (ug/m3)

Pollutant	CAS No.	Hr. Max (g/s) (from Table 1)	X/Q (ug/m3)/(g/s) (from Table 2)	Project Concentration (ug/m3)
24-hour PM_{10}	85101	16.81	14.25	239.57
Annual PM_{10}	85101	16.81	1.92	32.30
24-hour $PM_{2.5}$	88101	1.87	14.25	26.67
Annual $PM_{2.5}$	88101	1.87	1.92	3.60

Table 4. AAQA for Sanborn Solar Construction Project

Impact Parameter	Applicable Standard	Project Area Maximum Background Concentration (Years 2014-2016)		Project Contribution (ug/m3)	Cumulative Concentration (ug/m3)	AAQS Threshold (ug/m3)	Step 1 Significance	SIL (ug/m3)	Step 2 Significance
		ppmv	ug/m^3						
24-hour PM_{10}	State	--	171	239.57	411	50	Step 2	5	FAIL
	Federal	--	184	239.57	424	150	Step 2	5	FAIL
Annual PM_{10}	State	--	24	32.30	56	20	Step 2	1	FAIL
24-hour $PM_{2.5}$	Federal	--	42	26.67	69	35	Step 2	5	FAIL
Annual $PM_{2.5}$	State	--	6	3.60	10	12	Pass	1	Step 1
	Federal	--	8	3.60	11	12	Pass	1	Step 1

Sources:

CARB. 2016. “Ambient Air Quality Standards.” May 4, 2016. Accessed October 2017. http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.

CARB. 2017. “iADAM: Air Quality Data Statistics.” Accessed October 2017. https://www.arb.ca.gov/adam/topfour/topfour1.php.

Ambient Air Quality Analysis - Sanborn Solar Project - Mitigated Scenario

Table 1. Max Emission Rates (lbs/day) for Project - (Summer/Winter Maximum from CalEEMod)

Max Rates	PM_{10}	$PM_{2.5}$
Total Daily, lbs/day	280.13	38.56
Daily Max, g/s	4.41	0.61
Hourly Max lbs/hr	35.02	4.82

Note: The lbs/day values are maximum from summer and winter outputs from CalEEMod. Conversion assumes 8 hr workday

Table 2. AERMOD Maximum Impact X/Q, (ug/m^3)/(g/s)

Max 24-Hour	Max Annual
14.25	1.92

Note: These concentrations are based on the AERMOD Results Summary Report

Table 3. Project Contribution Concentrations (ug/m3)

Pollutant	CAS No.	Hr. Max (g/s)	X/Q (ug/m3)/(g/s)	Project Concentration (ug/m3)
		(from Table 1)	(from Table 2)	
24-hour PM_{10}	85101	4.41	14.25	62.86
Annual PM_{10}	85101	4.41	1.92	8.48
24-hour $PM_{2.5}$	88101	0.61	14.25	8.65
Annual $PM_{2.5}$	88101	0.61	1.92	1.17

Table 4. AAQA for Sanborn Solar Construction Project

Impact Parameter	Applicable Standard	Project Area Maximum Background Concentration (Years 2014-2016)		Project Contribution (ug/m3)	Cumulative Concentration (ug/m3)	AAQS Threshold (ug/m3)	Step 1 Significance	SIL (ug/m3)	Step 2 Significance
		ppmv	ug/m^3						
24-hour PM_{10}	State	--	171	62.86	234	50	Step 2	5	FAIL
	Federal	--	184	62.86	247	150	Step 2	5	FAIL
Annual PM_{10}	State	--	24	8.48	32	20	Step 2	1	FAIL
24-hour $PM_{2.5}$	Federal	--	42	8.65	51	35	Step 2	5	FAIL
Annual $PM_{2.5}$	State	--	6	1.17	7	12	Pass	1	Step 1
	Federal	--	8	1.17	9	12	Pass	1	Step 1

Sources:

CARB. 2016. “Ambient Air Quality Standards.” May 4, 2016. Accessed October 2017. http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.

CARB. 2017. “iADAM: Air Quality Data Statistics.” Accessed October 2017. https://www.arb.ca.gov/adam/topfour/topfour1.php.

APPENDIX B

HRA – AERMOD Input, Emissions Inventory, and HARP 2 Results

```
**
****************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.5.0
** Lakes Environmental Software Inc.
** Date: 3/28/2018
** File: C:\Lakes\AERMOD View\Sanborn Solar ConstHRA\Sanborn Solar
ConstHRA.ADI
**
****************************************
**
**
****************************************
** AERMOD Control Pathway
****************************************
**
**
CO STARTING
   TITLEONE Sanborn Solar Construction Health Risk Assessment
   MODELOPT DFAULT CONC
   AVERTIME 1 PERIOD
   POLLUTID PM_10
   RUNORNOT RUN
   ERRORFIL "Sanborn Solar ConstHRA.err"
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION PAREA1       AREAPOLY   399133.104  3874350.093      804.690
** DESCRSRC Construction
** Source Parameters **
   SRCPARAM PAREA1       1.1122E-07     5.000        29     1.400
   AREAVERT PAREA1       399133.104 3874350.093 398356.705 3874350.093
   AREAVERT PAREA1       398367.632 3875649.497 397959.977 3875653.137
   AREAVERT PAREA1       397956.337 3876053.513 398363.992 3876060.792
   AREAVERT PAREA1       398367.632 3876468.447 397559.601 3876461.168
   AREAVERT PAREA1       397570.520 3877280.118 395939.900 3877258.279
   AREAVERT PAREA1       395936.260 3876432.050 395696.034 3876424.770
   AREAVERT PAREA1       398356.713 3874037.075 398600.578 3874037.075
   AREAVERT PAREA1       398935.438 3873829.608 398920.878 3873254.523
   AREAVERT PAREA1       399150.184 3873083.453 399150.184 3871580.224
   AREAVERT PAREA1       399754.388 3871583.864 399761.667 3871390.956
   AREAVERT PAREA1       399965.495 3871394.596 399954.576 3869953.243
   AREAVERT PAREA1       401610.675 3869982.362 401610.675 3871631.181
   AREAVERT PAREA1       400100.167 3871605.703 399969.135 3871722.176
   AREAVERT PAREA1       399972.774 3873221.765 399244.819 3873207.206
   AREAVERT PAREA1       399117.426 3873301.840

** Variable Emissions Type: "By Season / Hour / Day (SHRDOW)"
** Variable Emission Scenario: "Scenario 1"
```

```
** WeekDays:
** Winter
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 4.2 4.2 4.2 4.2
   EMISFACT PAREA1       SHRDOW 0.0 4.2 4.2 4.2 4.2 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** Spring
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 4.2 4.2 4.2 4.2
   EMISFACT PAREA1       SHRDOW 0.0 4.2 4.2 4.2 4.2 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** Summer
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 4.2 4.2 4.2 4.2
   EMISFACT PAREA1       SHRDOW 0.0 4.2 4.2 4.2 4.2 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** Fall
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 4.2 4.2 4.2 4.2
   EMISFACT PAREA1       SHRDOW 0.0 4.2 4.2 4.2 4.2 0.0
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** Saturday:
** Winter
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** Spring
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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** Sunday:
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   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** Spring
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** Summer
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   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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   EMISFACT PAREA1       SHRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** Fall
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** AERMOD Receptor Pathway
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** AERMOD Meteorology Pathway
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ME STARTING
   SURFFILE MetData\MojaveAirport\722953.SFC
   PROFFILE MetData\MojaveAirport\722953.PFL
   SURFDATA 3183 2009
   UAIRDATA 93214 2009
   PROFBASE 849.5 METERS
ME FINISHED
**
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** AERMOD Output Pathway
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OU STARTING
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   RECTABLE 1 1ST
** Auto-Generated Plotfiles
   PLOTFILE 1 ALL 1ST "SANBORN SOLAR CONSTHRA.AD\01H1GALL.PLT" 31
   PLOTFILE PERIOD ALL "SANBORN SOLAR CONSTHRA.AD\PE00GALL.PLT" 32
   SUMMFILE "Sanborn Solar ConstHRA.sum"
OU FINISHED
**
****************************************
** Project Parameters
****************************************
** PROJCTN  CoordinateSystemUTM
** DESCPTN  UTM: Universal Transverse Mercator
** DATUM    North American Datum 1983
** DTMRGN   CONUS
** UNITS    m
** ZONE     11
** ZONEINX  0
**
```

Sanborn Solar Project - Construction Area Source
Annual Exhaust PM10 from Equipment and Haul Trucks

UNMITIGATED TOTAL	0.5642	tons during overall construction
Total	**0.5642**	tons during overall construction
	1,128.40	lbs during overall construction
	752.27	lbs/yr
	0.356	lbs/hr
	8	hours/day
	2112	hours/year
Construction =	264	days/year
	12	months
	1.5	year

Emissions from CalEEMod 2016.3.2:

	Exhaust PM10 tpy
2020	0.4676
2021	0.0966
Total	***0.5642***

**HARP - Air Dispersion Modeling and Risk Tool v17320
**3/28/2018
**Exported Risk Results

REC	GRP	X	Y	RISK_SUM	SCENARIO	INHAL_RISK
442	ALL	396997	3877296	8.97E-07	2YrCancerDerived_Inh_FAH16to70	8.97E-07
446	ALL	398086.2	3875776	8.51E-07	2YrCancerDerived_Inh_FAH16to70	8.51E-07
444	ALL	398403.8	3876440	7.69E-07	2YrCancerDerived_Inh_FAH16to70	7.69E-07
445	ALL	398420.6	3876417	7.35E-07	2YrCancerDerived_Inh_FAH16to70	7.35E-07
451	ALL	399888.7	3870105	5.41E-07	2YrCancerDerived_Inh_FAH16to70	5.41E-07
453	ALL	399880.5	3870146	5.30E-07	2YrCancerDerived_Inh_FAH16to70	5.30E-07
452	ALL	399784.2	3870153	3.81E-07	2YrCancerDerived_Inh_FAH16to70	3.81E-07
447	ALL	402067.6	3870958	2.98E-07	2YrCancerDerived_Inh_FAH16to70	2.98E-07
454	ALL	399656.2	3870874	2.90E-07	2YrCancerDerived_Inh_FAH16to70	2.90E-07
455	ALL	399659.8	3871083	2.85E-07	2YrCancerDerived_Inh_FAH16to70	2.85E-07
443	ALL	397550.1	3877585	2.61E-07	2YrCancerDerived_Inh_FAH16to70	2.61E-07
456	ALL	399290.4	3871359	2.44E-07	2YrCancerDerived_Inh_FAH16to70	2.44E-07
448	ALL	402197	3870451	2.24E-07	2YrCancerDerived_Inh_FAH16to70	2.24E-07
449	ALL	402198.8	3870425	2.21E-07	2YrCancerDerived_Inh_FAH16to70	2.21E-07
457	ALL	399425.4	3871125	2.14E-07	2YrCancerDerived_Inh_FAH16to70	2.14E-07
458	ALL	399401	3871152	2.12E-07	2YrCancerDerived_Inh_FAH16to70	2.12E-07
450	ALL	402211.8	3870161	1.86E-07	2YrCancerDerived_Inh_FAH16to70	1.86E-07

**HARP - Air Dispersion Modeling and Risk Tool v17320
**3/28/2018
**Exported Risk Results

REC	GRP	X	Y	SCENARIO	RESP	MAXHI
442	ALL	396997	3877296	NonCancerChronicDerived_Inh	0.000525	0.000525
446	ALL	398086.2	3875776	NonCancerChronicDerived_Inh	0.000498	0.000498
444	ALL	398403.8	3876440	NonCancerChronicDerived_Inh	0.000449	0.000449
445	ALL	398420.6	3876417	NonCancerChronicDerived_Inh	0.00043	0.00043
451	ALL	399888.7	3870105	NonCancerChronicDerived_Inh	0.000316	0.000316
453	ALL	399880.5	3870146	NonCancerChronicDerived_Inh	0.00031	0.00031
452	ALL	399784.2	3870153	NonCancerChronicDerived_Inh	0.000223	0.000223
447	ALL	402067.6	3870958	NonCancerChronicDerived_Inh	0.000174	0.000174
454	ALL	399656.2	3870874	NonCancerChronicDerived_Inh	0.00017	0.00017
455	ALL	399659.8	3871083	NonCancerChronicDerived_Inh	0.000167	0.000167
443	ALL	397550.1	3877585	NonCancerChronicDerived_Inh	0.000153	0.000153
456	ALL	399290.4	3871359	NonCancerChronicDerived_Inh	0.000143	0.000143
448	ALL	402197	3870451	NonCancerChronicDerived_Inh	0.000131	0.000131
449	ALL	402198.8	3870425	NonCancerChronicDerived_Inh	0.000129	0.000129
457	ALL	399425.4	3871125	NonCancerChronicDerived_Inh	0.000125	0.000125
458	ALL	399401	3871152	NonCancerChronicDerived_Inh	0.000124	0.000124
450	ALL	402211.8	3870161	NonCancerChronicDerived_Inh	0.000109	0.000109

Appendix C3

San Joaquin Valley Air Pollution Control District and South Coast Air Quality Management District Amicus Brief

ESA

Appendix

San Joaquin Valley Air Pollution Control District and South Coast Air Quality Management District *Sierra Club v. County of Fresno* Amicus Curiae Briefs

SUPREME COURT COPY

CASE NO. S219783

IN THE SUPREME COURT OF CALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,
Plaintiffs and Appellants

v.

COUNTY OF FRESNO,
Defendant and Respondent

FRIANT RANCH, L.P.,
Real Party in Interest and Respondent

SUPREME COURT
FILED

APR 13 2015

Frank A. McGuire Clerk

Deputy

After a Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726

APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF OF SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO AND REAL PARTY IN INTEREST AND RESPONDENT, FRIANT RANCH, L.P.

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Counsel for San Joaquin Valley Unified Air Pollution Control District

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APPLICATION

Pursuant to California Rules of Court 8.520(f)(1), proposed Amicus Curiae San Joaquin Valley Unified Air Pollution Control District hereby requests permission from the Chief Justice to file an amicus brief in support of Defendant and Respondent, County of Fresno, and Defendant and Real Parties in Interest Friant Ranch, L.P. Pursuant to Rule 8.520(f)(5) of the California Rules of Court, the proposed amicus curiae brief is combined with this Application. The brief addresses the following issue certified by this Court for review:

> Is an EIR adequate when it identifies the health impacts of air pollution and quantifies a project's expected emissions, or does CEQA further require the EIR to *correlate* a project's air quality emissions to specific health impacts?

As of the date of this filing, the deadline for the final reply brief on the merits was March 5, 2015. Accordingly, under Rule 8.520(f)(2), this application and brief are timely.

1. Background and Interest of San Joaquin Valley Unified Air Pollution Control District

The San Joaquin Valley Unified Air Pollution Control District ("Air District") regulates air quality in the eight counties comprising the San Joaquin Valley ("Central Valley"): Kern, Tulare, Madera, Fresno, Merced, San Joaquin, Stanislaus, and Kings, and is primarily responsible for attaining air quality standards within its jurisdiction. After billions of dollars of investment by Central Valley businesses, pioneering air quality regulations, and consistent efforts by residents, the Central Valley air basin has made historic improvements in air quality.

The Central Valley's geographical, topographical and meteorological features create exceptionally challenging air quality

conditions. For example, it receives air pollution transported from the San Francisco Bay Area and northern Central Valley communities, and the southern portion of the Central Valley includes three mountain ranges (Sierra, Tehachapi, and Coastal) that, under some meteorological conditions, effectively trap air pollution. Central Valley air pollution is only a fraction of what the Bay Area and Los Angeles produce, but these natural conditions result in air quality conditions that are only marginally better than Los Angeles, even though about ten times more pollution is emitted in the Los Angeles region. Bay Area air quality is much better than the Central Valley's, even though the Bay Area produces about six times more pollution. The Central Valley also receives air pollution transported from the Bay Area and northern counties in the Central Valley, including Sacramento, and transboundary anthropogenic ozone from as far away as China.

Notwithstanding these challenges, the Central Valley has reduced emissions at the same or better rate than other areas in California and has achieved unparalleled milestones in protecting public health and the environment:

- In the last decade, the Central Valley became the first air basin classified by the federal government under the Clean Air Act as a "serious nonattainment" area to come into attainment of health-based National Ambient Air Quality Standard ("NAAQS") for coarse particulate matter (PM10), an achievement made even more notable given the Valley's extensive agricultural sector. Unhealthy levels of particulate matter can cause and exacerbate a range of chronic and acute illnesses.
- In 2013, the Central Valley became the first air basin in the country to improve from a federal designation of "extreme" nonattainment to

actually attain (and quality for an attainment designation) of the 1-hour ozone NAAQS; ozone creates "smog" and, like PM10, causes adverse health impacts.

- The Central Valley also is in full attainment of federal standards for lead, nitrogen dioxide, sulfur dioxide, and carbon monoxide.
- The Central Valley continues to make progress toward compliance with its last two attainment standards, with the number of exceedences for the 8-hour ozone NAAQS reduced by 74% (for the 1997 standard) and 38% (for the 2008 standard) since 1991, and for the small particulate matter (PM2.5) NAAQS reduced by 85% (for the 1997 standard) and 61% (for the 2006 standard).

Sustained improvement in Central Valley air quality requires a rigorous and comprehensive regulatory framework that includes prohibitions (e.g., on wood-burning fireplaces in new residences), mandates (e.g., requiring the installation of best available pollution reduction technologies on new and modified equipment and industrial operations), innovations (e.g., fees assessed against residential development to fund pollution reduction actions to "offset" vehicular emissions associated with new residences), incentive programs (e.g., funding replacements of older, more polluting heavy duty trucks and school buses)[1], ongoing planning for continued air quality improvements, and enforcement of Air District permits and regulations.

The Air District is also an expert air quality agency for the eight counties and cities in the San Joaquin Valley. In that capacity, the Air District has developed air quality emission guidelines for use by the Central

---

[1] San Joaquin's incentive program has been so successful that through 2012, it has awarded over $ 432 million in incentive funds and has achieved 93,349 tons of lifetime emissions reductions. *See* SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, 2012 PM2.5 PLAN, 6-6 (2012) *available at* http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/06%20Chapter%206%20Incentives.pdf.

Valley counties and cities that implement the California Environment Quality Act (CEQA).[2] In its guidance, the Air District has distinguished between toxic air contaminants and criteria air pollutants.[3] Recognizing this distinction, the Air District's CEQA Guidance has adopted distinct thresholds of significance for *criteria* pollutants (i.e., ozone, PM2.5 and their respective precursor pollutants) based upon scientific and factual data which demonstrates the level that can be accommodated on a cumulative basis in the San Joaquin Valley without affecting the attainment of the applicable NAAQS.[4] For *toxic air* pollutants, the District has adopted different thresholds of significance which scientific and factual data demonstrates has the potential to expose sensitive receptors (i.e., children, the elderly) to levels which may result in localized health impacts.[5]

The Air District's CEQA Guidance was followed by the County of Fresno in its environment review of the Friant Ranch project, for which the Air District also served as a commenting agency. The Court of Appeal's holding, however, requiring correlation between the project's criteria

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[2] *See, e.g.*, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, PLANNING DIVISION, GUIDE FOR ASSESSING AND MITIGATING AIR QUALITY IMPACTS (2015), *available at* http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf ("CEQA Guidance").

[3] Toxic air contaminants, also known as hazardous air pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as birth defects. There are currently 189 toxic air contaminants regulated by the United States Environmental Protection Agency ("EPA") and the states pursuant to the Clean Air Act. 42 U.S.C. § 7412. Common TACs include benzene, perchloroethylene and asbestos. *Id.* at 7412(b).

In contrast, there are only six (6) criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide and lead. Although criteria air pollutants can also be harmful to human health, they are distinguishable from toxic air contaminants and are regulated separately. For instance, while criteria pollutants are regulated by numerous sections throughout Title I of the Clean Air Act, the regulation of toxic air contaminants occurs solely under section 112 of the Act. Compare 42 U.S.C. §§ 7407 – 7411 & 7501 – 7515 with 42 U.S.C. § 7411.

[4] See, e.g., CEQA Guidance at http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, pp. 64-66, 80.

[5] See, e.g., CEQA Guidance at http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, pp. 66, 99-101.

pollutants and local health impacts, departs from the Air District's Guidance and approved methodology for assessing criteria pollutants. A close reading of the administrative record that gave rise to this issue demonstrates that the Court's holding is based on a misunderstanding of the distinction between toxic air contaminants (for which a local health risk assessment is feasible and routinely performed) and criteria air pollutants (for which a local health risk assessment is not feasible and would result in speculative results).[6] The Air District has a direct interest in ensuring the lawfulness and consistent application of its CEQA Guidance, and will explain how the Court of Appeal departed from the Air District's long-standing CEQA Guidance in addressing criteria pollutants and toxic air contaminants in this amicus brief.

2. How the Proposed Amicus Curiae Brief Will Assist the Court

As counsel for the proposed amicus curiae, we have reviewed the briefs filed in this action. In addition to serving as a "commentary agency" for CEQA purposes over the Friant Ranch project, the Air District has a strong interest in assuring that CEQA is used for its intended purpose, and believes that this Court would benefit from additional briefing explaining the distinction between criteria pollutants and toxic air contaminants and the different methodologies employed by local air pollution control agencies such as the Air District to analyze these two categories of air pollutants under CEQA. The Air District will also explain how the Court of Appeal's opinion is based upon a fundamental misunderstanding of these two different approaches by requiring the County of Fresno to correlate the project's *criteria* pollution emissions with *local* health impacts. In doing

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[6] CEQA does not require speculation. *See, e.g.*, *Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal.*, 6 Cal. 4th 1112, 1137 (1993) (upholding EIR that failed to evaluate cumulative toxic air emission increases given absence of any acceptable means for doing so).

so, the Air District will provide helpful analysis to support its position that at least insofar as criteria pollutants are concerned, CEQA does not require an EIR to correlate a project's air quality emissions to specific health impacts, because such an analysis is not reasonably feasible.

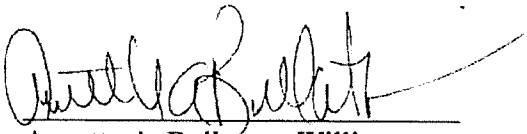
Rule 8.520 Disclosure

Pursuant to Cal. R. 8.520(f)(4), neither the Plaintiffs nor the Defendant or Real Party In Interest or their respective counsel authored this brief in whole or in part. Neither the Plaintiffs nor the Defendant or Real Party in Interest or their respective counsel made any monetary contribution towards or in support of the preparation of this brief.

CONCLUSION

On behalf of the San Joaquin Valley Unified Air Pollution Control District, we respectfully request that this Court accept the filing of the attached brief.

Dated: April 2, 2015



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SAN JOAQUIN VALLEY UNIFIED
AIR POLLUTION CONTROL
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_PM2.5/20%20Appendix%20F.pdf (visited March 19, 2015).....6

San Joaquin Valley Unified Air Pollution Control District Rule 2201 §§ 2.0; 3.3.9; 4.14.1, available at:
http://www.valleyair.org/rules/currntrules/Rule22010411.pdf
(visited March 19, 2015).....7

San Joaquin Valley Unified Air Pollution Control District Guide to Assessing and Mitigating Air Quality Impacts, (March 19, 2015) p. 22,
available at:
http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI%20Jan
%202002%20Rev.pdf (visited March 30, 2015).....7

San Joaquin Valley Unified Air Pollution Control District Environmental Review Guidelines (Aug. 2000) p. 4-11, available at: http://www.valleyair.org/transportation/CEQA%20Rules/ERG%20 Adopted%20_August%202000_.pdf (visited March 12, 2015).....8

San Joaquin Valley Unified Air Pollution Control District 2007 Ozone Plan, Appendix B pp. B-6, B-9, available at: http://www.valleyair.org/Air_Quality_ Plans/docs/AQ_Ozone_2007_Adopted/19%20Appendix%20B%20April% 202007.pdf (visited March 12, 2015).....9

I. INTRODUCTION.

The San Joaquin Valley Unified Air Pollution Control District ("Air District") respectfully submits that the Court of Appeal erred when it held that the air quality analysis contained in the Environmental Impact Report ("EIR") for the Friant Ranch development project was inadequate under the California Environmental Quality Act ("CEQA") because it did not include an analysis of the correlation between the project's criteria air pollutants and the potential adverse human health impacts. A close reading of the portion of the administrative record that gave rise to this issue demonstrates that the Court's holding is based on a misunderstanding of the distinction between toxic air contaminants and criteria air pollutants.

Toxic air contaminants, also known as hazardous air pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as birth defects. There are currently 189 toxic air contaminants (hereinafter referred to as "TACs") regulated by the United States Environmental Protection Agency ("EPA") and the states pursuant to the Clean Air Act. 42 U.S.C. § 7412. Common TACs include benzene, perchloroethylene and asbestos. *Id.* at 7412(b).

In contrast, there are only six (6) criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide and lead. Although criteria air pollutants can also be harmful to human health,

they are distinguishable from TACs and are regulated separately. For instance, while criteria pollutants are regulated by numerous sections throughout Title I of the Clean Air Act, the regulation of TACs occurs solely under section 112 of the Act. *Compare* 42 U.S.C. §§ 7407 – 7411 & 7501 – 7515 *with* 42 U.S.C. § 7411.

The most relevant difference between criteria pollutants and TACs for purposes of this case is the manner in which human health impacts are accounted for. While it is common practice to analyze the correlation between an individual facility's TAC emissions and the expected localized human health impacts, such is not the case for criteria pollutants. Instead, the human health impacts associated with criteria air pollutants are analyzed and taken into consideration when EPA sets the national ambient air quality standard ("NAAQS") for each criteria pollutant. 42 U.S.C. § 7409(b)(1). The health impact of a particular criteria pollutant is analyzed on a regional and not a facility level based on how close the area is to complying with (attaining) the NAAQS. Accordingly, while the type of individual facility / health impact analysis that the Court of Appeal has required is a customary practice for TACs, it is not feasible to conduct a similar analysis for criteria air pollutants because currently available computer modeling tools are not equipped for this task.

It is clear from a reading of both the administrative record and the Court of Appeal's decision that the Court did not have the expertise to fully

appreciate the difference between TACs and criteria air pollutants. As a result, the Court has ordered the County of Fresno to conduct an analysis that is not practicable and not likely yield valid information. The Air District respectfully requests that this portion of the Court of Appeal's decision be reversed.

II. THE COURT OF APPEAL ERRED IN FINDING THE FRIANT RANCH EIR INADEQUATE FOR FAILING TO ANALYZE THE SPECIFIC HUMAN HEALTH IMPACTS ASSOCIATED CRITERIA AIR POLLUTANTS.

Although the Air District does not take lightly the amount of air emissions at issue in this case, it submits that the Court of Appeal got it wrong when it required Fresno County to revise the Friant Ranch EIR to include an analysis correlating the criteria air pollutant emissions associated with the project with specific, localized health-impacts. The type of analysis the Court of Appeal has required will not yield reliable information because currently available modeling tools are not well suited for this task. Further, in reviewing this issue de novo, the Court of Appeal failed to appreciate that it lacked the scientific expertise to appreciate the significant differences between a health risk assessment commonly performed for toxic air contaminants and a similar type of analysis it felt should have been conducted for criteria air pollutants.

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A. Currently Available Modeling Tools are not Equipped to Provide a Meaningful Analysis of the Correlation between an Individual Development Project's Air Emissions and Specific Human Health Impacts.

In order to appreciate the problematic nature of the Court of Appeals' decision requiring a health risk type analysis for criteria air pollutants, it is important to understand how the relevant criteria pollutants (ozone and particulate matter) are formed, dispersed and regulated.

Ground level ozone (smog) is not directly emitted into the air, but is formed when precursor pollutants such as oxides of nitrogen (NOx) and volatile organic compounds (VOCs) are emitted into the atmosphere and undergo complex chemical reactions in the process of sunlight.[1] Once formed, ozone can be transported long distances by wind.[2] Because of the complexity of ozone formation, a specific tonnage amount of NOx or VOCs emitted in a particular area does not equate to a particular concentration of ozone in that area. In fact, even rural areas that have relatively low tonnages of emissions of NOx or VOCs can have high levels of ozone concentration simply due to wind transport.[3] Conversely, the San Francisco Bay Area has six times more NOx and VOC emissions per square mile than the San Joaquin Valley, but experiences lower

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[1] *See* United States Environmental Protection Agency, *Ground-level Ozone: Basic Information*, available at: http://www.epa.gov/airquality/ozonepollution/basic.html (visited March 10, 2015).
[2] *Id.*
[3] *Id.*

concentrations of ozone (and better air quality) simply because sea breezes disperse the emissions.[4]

Particulate matter ("PM") can be divided into two categories: directly emitted PM and secondary PM.[5] While directly emitted PM can have a localized impact, the tonnage emitted does not always equate to the local PM concentration because it can be transported long distances by wind.[6] Secondary PM, like ozone, is formed via complex chemical reactions in the atmosphere between precursor chemicals such as sulfur dioxides (SOx) and NOx.[7] Because of the complexity of secondary PM formation, the tonnage of PM-forming precursor emissions in an area does not necessarily result in an equivalent concentration of secondary PM in that area.

The disconnect between the *tonnage* of precursor pollutants (NOx, SOx and VOCs) and the *concentration* of ozone or PM formed is important because it is not necessarily the tonnage of precursor pollutants that causes human health effects, but the concentration of resulting ozone or PM. Indeed, the national ambient air quality standards ("NAAQS"), which are statutorily required to be set by the United States Environmental Protection

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[4] *San Joaquin Valley Air Pollution Control District 2007 Ozone Plan*, Executive Summary p. ES-6, available at: http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/03%20Executive%20Summary.pdf (visited March 10, 2015).

[5] United States Environmental Protection Agency, *Particulate Matter: Basic Information*, available at: http://www.epa.gov/airquality/particlepollution/basic.html (visited March 10, 2015).

[6] *Id.*

[7] *Id.*

Agency ("EPA") at levels that are "requisite to protect the public health," 42 U.S.C. § 7409(b)(1), are established as concentrations of ozone or particulate matter and not as tonnages of their precursor pollutants.[8]

Attainment of a particular NAAQS occurs when the concentration of the relevant pollutant remains below a set threshold on a consistent basis throughout a particular region. For example, the San Joaquin Valley attained the 1-hour ozone NAAQS when ozone concentrations remained at or below 0.124 parts per million Valley-wide on 3 or fewer days over a 3-year period.[9] Because the NAAQS are focused on achieving a particular concentration of pollution region-wide, the Air District's tools and plans for attaining the NAAQS are regional in nature.

For instance, the computer models used to simulate and predict an attainment date for the ozone or particulate matter NAAQS in the San Joaquin Valley are based on regional inputs, such as regional inventories of precursor pollutants (NOx, SOx and VOCs) and the atmospheric chemistry and meteorology of the Valley.[10] At a very basic level, the models simulate future ozone or PM levels based on predicted changes in precursor

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[8] See, e.g., United States Environmental Protection Agency, *Table of National Ambient Air Quality Standards*, available at: http://www.epa.gov/air/criteria.html#3 (visited March 10, 2015).

[9] *San Joaquin Valley Unified Air Pollution Control District 2013 Plan for the Revoked 1-Hour Ozone Standard*, Ch. 2 p. 2-16, available at: http://www.valleyair.org/Air_Quality_Plans/OzoneOneHourPlan2013/02Chapter2ScienceTrendsModeling.pdf (visited March 10, 2015).

[10] *Id.* at Ch. 2 p. 2-19 (visited March 12, 2015); *San Joaquin Valley Unified Air Pollution Control District 2008 PM2.5 Plan*, Appendix F, pp. F-2 – F-5, available at: http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Final_Adopted_PM2.5/20%20Appendix%20F.pdf
(visited March 19, 2015).

emissions Valley wide.[11] Because the NAAQS are set levels necessary to protect human health, the closer a region is to attaining a particular NAAQS, the lower the human health impact is from that pollutant.

The goal of these modeling exercises is not to determine whether the emissions generated by a particular factory or development project will affect the date that the Valley attains the NAAQS. Rather, the Air District's modeling and planning strategy is regional in nature and based on the extent to which *all* of the emission-generating sources in the Valley (current and future) must be controlled in order to reach attainment.[12]

Accordingly, the Air District has based its thresholds of significance for CEQA purposes on the levels that scientific and factual data demonstrate that the Valley can accommodate without affecting the attainment date for the NAAQS.[13] The Air District has tied its CEQA significance thresholds to the level at which stationary pollution sources permitted by the Air District must "offset" their emissions.[14] This "offset"

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[11] *Id.*

[12] Although the Air District does have a dispersion modeling tool used during its air permitting process that is used to predict whether a particular project's directly emitted PM will either cause an exceedance of the PM NAAQS or contribute to an existing exceedance, this model bases the prediction on a worst case scenario of emissions and meteorology and has no provision for predicting any associated human health impacts. Further, this analysis is only performed for stationary sources (factories, oil refineries, etc.) that are required to obtain a New Source Review permit from the Air District and not for development projects such as Friant Ranch over which the Air District has no preconstruction permitting authority. *See* San Joaquin Valley Unified Air Pollution Control District Rule 2201 §§ 2.0; 3.3.9; 4.14.1, available at: http://www.valleyair.org/rules/currntrules/Rule2201041 1.pdf (visited March 19, 2015).

[13] *San Joaquin Valley Unified Air Pollution Control District Guide to Assessing and Mitigating Air Quality Impacts*, (March 19, 2015) p. 22, available at: http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI%20Jan%202002%20Rev.pdf (visited March 30, 2015).

[14] *Id.* at pp. 22, 25.

level allows for growth while keeping the cumulative effects of all new sources at a level that will not impede attainment of the NAAQS.[15] In the Valley, these thresholds are 15 tons per year of PM, and 10 tons of NOx or VOC per year. *Sierra Club, supra*, 172 Cal.Rptr.3d at 303; AR 4554. Thus, the CEQA air quality analysis for criteria pollutants is not really a localized, project-level impact analysis but one of regional, "cumulative impacts."

Accordingly, the significance thresholds applied in the Friant Ranch EIR (15 tons per year of PM and 10 tons of NOx or VOCs) are not intended to be indicative of any localized human health impact that the project may have. While the health effects of air pollution are of primary concern to the Air District (indeed, the NAAQS are established to protect human health), the Air District is simply not equipped to analyze whether and to what extent the criteria pollutant emissions of an individual CEQA project directly impact human health in a particular area. This is true even for projects with relatively high levels of emissions of criteria pollutant precursor emissions.

For instance, according to the EIR, the Friant Ranch project is estimated to emit 109.52 tons per year of ROG (VOC), 102.19 tons per year of NOx, and 117.38 tons per year of PM. Although these levels well

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[15] [15] *San Joaquin Valley Unified Air Pollution Control District Environmental Review Guidelines* (Aug. 2000) p. 4-11, available at: http://www.valleyair.org/transportation/CEQA%20Rules/ERG%20Adopted%20_August%202000_.pdf (visited March 12, 2015).

exceed the Air District's CEQA significance thresholds, this does not mean that one can easily determine the concentration of ozone or PM that will be created at or near the Friant Ranch site on a particular day or month of the year, or what specific health impacts will occur. Meteorology, the presence of sunlight, and other complex chemical factors all combine to determine the ultimate concentration and location of ozone or PM. This is especially true for a project like Friant Ranch where most of the criteria pollutant emissions derive not from a single "point source," but from area wide sources (consumer products, paint, etc.) or mobile sources (cars and trucks) driving to, from and around the site.

In addition, it would be extremely difficult to model the impact on NAAQS attainment that the emissions from the Friant Ranch project may have. As discussed above, the currently available modeling tools are equipped to model the impact of *all* emission sources in the Valley on attainment. According to the most recent EPA-approved emission inventory, the NOx inventory for the Valley is for the year 2014 is 458.2 tons per day, or 167,243 tons per year and the VOC (or ROG) inventory is 361.7 tons per day, or 132,020.5 tons per year.[16] Running the photochemical grid model used for predicting ozone attainment with the

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[16] *San Joaquin Valley Unified Air Pollution Control District 2007 Ozone Plan*, Appendix B pp. B-6, B-9,
available at:
http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/19%20Appendix%20B%20April%202007.pdf (visited March 12, 2015).

emissions solely from the Friant Ranch project (which equate to less than one-tenth of one percent of the total NOx and VOC in the Valley) is not likely to yield valid information given the relative scale involved.

Finally, even once a model is developed to accurately ascertain local increases in concentrations of photochemical pollutants like ozone and some particulates, it remains impossible, using today's models, to correlate that increase in concentration to a specific health impact. The reason is the same: such models are designed to determine regional, population-wide health impacts, and simply are not accurate when applied at the local level.

For these reasons, it is not the norm for CEQA practitioners, including the Air District, to conduct an analysis of the localized health impacts associated with a project's criteria air pollutant emissions as part of the EIR process. When the accepted scientific method precludes a certain type of analysis, "the court cannot impose a legal standard to the contrary." *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 717 n. 8. However, that is exactly what the Court of Appeal has done in this case. Its decision upends the way CEQA air quality analysis of criteria pollutants occurs and should be reversed.

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B. The Court of Appeal Improperly Extrapolated a Request for a Health Risk Assessment for Toxic Air Contaminants into a Requirement that the EIR contain an Analysis of Localized Health Impacts Associated with Criteria Air Pollutants.

The Court of Appeal's error in requiring the new health impact analysis for criteria air pollutants clearly stems from a misunderstanding of terms of art commonly used in the air pollution field. More specifically, the Court of Appeal (and Appellants Sierra Club et al.) appear to have confused the health risk analysis ("HRA") performed to determine the health impacts associated with a project's toxic air contaminants ("TACs"), with an analysis correlating a project's criteria air pollutants (ozone, PM and the like) with specific localized health impacts.

The first type of analysis, the HRA, is commonly performed during the Air District's stationary source permitting process for projects that emit TACs and is, thus, incorporated into the CEQA review process. An HRA is a comprehensive analysis to evaluate and predict the dispersion of TACs emitted by a project and the potential for exposure of human populations. It also assesses and quantifies both the individual and population-wide health risks associated with those levels of exposure. There is no similar analysis conducted for criteria air pollutants. Thus, the second type of analysis (required by the Court of Appeal), is not currently part of the Air District's process because, as outlined above, the health risks associated

with exposure to criteria pollutants are evaluated on a regional level based on the region's attainment of the NAAQS.

The root of this confusion between the types of analyses conducted for TACs versus criteria air pollutants appears to stem from a comment that was presented to Fresno County by the City of Fresno during the administrative process.

In its comments on the draft EIR, the City of Fresno (the only party to raise this issue) stated:

> [t]he EIR must disclose the human health related effects of the Project's air pollution impacts. (CEQA Guidelines section 15126.2(a).) The EIR fails completely in this area. The EIR should be revised to disclose and determine the significance of TAC impacts, and of human health risks due to exposure to Project-related air emissions.

(AR 4602.)

In determining that the issue regarding the correlation between the Friant Ranch project's criteria air pollutants and adverse health impacts was adequately exhausted at the administrative level, the Court of Appeal improperly read the first two sentences of the City of Fresno's comment in isolation rather than in the context of the entire comment. *See Sierra Club v. County of Fresno* (2014) 172 Cal.Rptr.3d 271, 306. Although the comment first speaks generally in terms of "human health related effects" and "air pollution," it requests only that the EIR be revised to disclose "the significance of TACs" and the "human health risks due to exposure."

The language of this request in the third sentence of the comment is significant because, to an air pollution practitioner, the language would only have indicated only that a HRA for TACs was requested, and not a separate analysis of the health impacts associated with the project's criteria air pollutants. Fresno County clearly read the comment as a request to perform an HRA for TACs and limited its response accordingly. (AR 4602.)[17] The Air District submits that it would have read the City's comment in the same manner as the County because the City's use of the terms "human health risks" and "TACs" signal that an HRA for TACs is being requested. Indeed, the Air District was also concerned that an HRA be conducted, but understood that it was not possible to conduct such an analysis until the project entered the phase where detailed site specific information, such as the types of emission sources and the proximity of the sources to sensitive receptors became available. (AR 4553.)[18] The City of Fresno was apparently satisfied with the County's discussion of human health risks, as it did not raise the issue again when it commented on the final EIR. (AR 8944 – 8960.)

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[17] Appellants do not challenge the manner in which the County addressed TACs in the EIR. (Appellants' Answer Brief p. 28 fn. 7.)

[18] Appellants rely on the testimony of Air District employee, Dan Barber, as support for their position that the County should have conducted an analysis correlating the project's criteria air pollutant emissions with localized health impacts. (Appellants Answer Brief pp. 10-11; 28.) However, Mr. Barber's testimony simply reinforces the Air District's concern that a risk assessment (HRA) be conducted once the actual details of the project become available. (AR 8863.) As to criteria air pollutants, Mr. Barber's comments are aimed at the Air District's concern about the amount of emissions and the fact that the emissions will make it "more difficult for Fresno County and the Valley to reach attainment which means that the health of Valley residents maybe [sic] adversely impacted." Mr. Barber says nothing about conducting a separate analysis of the localized health impacts the project's emissions may have.

The Court of Appeal's holding, which incorrectly extrapolates a request for an HRA for TACs into a new analysis of the localized health impacts of the project's criteria air pollutants, highlights two additional errors in the Court's decision.

First, the Court of Appeal's holding illustrates why the Court should have applied the deferential substantial evidence standard of review to the issue of whether the EIR's air quality analysis was sufficient. The regulation of air pollution is a technical and complex field and the Court of Appeal lacked the expertise to fully appreciate the difference between TACs and criteria air pollutants and tools available for analyzing each type of pollutant.

Second, it illustrates that the Court likely got it wrong when it held that the issue regarding the criteria pollutant / localized health impact analysis was properly exhausted during the administrative process. In order to preserve an issue for the court, '[t]he "exact issue" must have been presented to the administrative agency....' [Citation.] *Citizens for Responsible Equitable Environmental Development v. City of San Diego*, (2011) 196 Cal.App.4th 515, 527 129 Cal.Rptr.3d 512, 521; *Sierra Club v. City of Orange* (2008) 163 Cal.App.4th 523, 535, 78 Cal.Rptr.3d 1, 13. "'[T]he objections must be sufficiently specific so that the agency has the

opportunity to evaluate and respond to them.' [Citation.]" *Sierra Club v. City of Orange*,163 Cal.App.4th at 536.[19]

As discussed above, the City's comment, while specific enough to request a commonly performed HRA for TACs, provided the County with no notice that it should perform a new type of analysis correlating criteria pollutant tonnages to specific human health effects. Although the parties have not directly addressed the issue of failure to exhaust administrative remedies in their briefs, the Air District submits that the Court should consider how it affects the issues briefed by the parties since "[e]xhaustion of administrative remedies is a jurisdictional prerequisite to maintenance of a CEQA action." *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1199, 22 Cal.Rptr.3d 203.

III. CONCLUSION

For all of the foregoing reasons, the Air District respectfully requests that the portion of the Court of Appeal's decision requiring an analysis correlating the localized human health impacts associated with an individual project's criteria air pollutant emissions be reversed.

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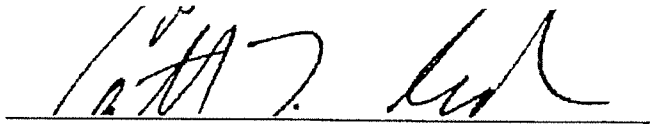
[19] *Sierra Club v. City of Orange*, is illustrative here. In that case, the plaintiffs challenged an EIR approved for a large planned community on the basis that the EIR improperly broke up the various environmental impacts by separate project components or "piecemealed" the analysis in violation of CEQA. In evaluating the defense that the plaintiffs had failed to adequately raise the issue at the administrative level, the Court held that comments such as *"the use of a single document for both a project-level and a program-level EIR [is] 'confusing'."* and *"[t]he lead agency should identify any potential adverse air quality impacts that could occur from all phases of the project and all air pollutant sources related to the project,"* were too vague to fairly raise the argument of piecemealing before the agency. *Sierra Club v. City of Orange*, 163 Cal.App.4th at 537.

correlating the localized human health impacts associated with an individual project's criteria air pollutant emissions be reversed.

Respectfully submitted,

Dated: April 2, 2015



Catherine T. Redmond
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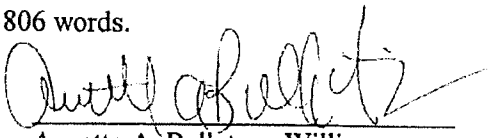
SAN JOAQUIN VALLEY
UNIFIED
AIR POLLUTION CONTROL
DISTRICT

CERTIFICATE OF WORD COUNT

Pursuant to Rule 8.204 of the California Rules of Court, I hereby certify that this document, based on the Word County feature of the Microsoft Word software program used to compose and print this document, contains, exclusive of caption, tables, certificate of word count, signature block and certificate of service, 3806 words.

Dated: April 2, 2015



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Sierra Club et al, v. County of Fresno, et al
Supreme Court of California Case No.: S219783
Fifth District Court of Appeal Case No.: F066798
Fresno County Superior Court Case No.: 11CECG00726

PROOF OF SERVICE

I am over the age of 18 years and not a p[arty to the above-captioned action; that my business address is San Joaquin Valley Unified Air Pollution Control District located at 1990 E. Gettysburg Avenue, Fresno, California 93726.

On April 2, 2015, I served the document described below:

APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF OF SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO

On all parties to this action at the following addresses and in the following manner:

PLEASE SEE ATTACHED SERVICE LIST

(XX) **(BY MAIL)** I caused a true copy of each document(s) to be laced in a sealed envelope with first-class postage affixed and placed the envelope for collection. Mail is collected daily at my office and placed in a United State Postal Service collection box for pick-up and delivery that same day.

( ) **(BY ELECTRONIC MAIL)** I caused a true and correct scanned image (.PDF file) copy to be transmitted via electronic mail transfer system in place at the San Joaquin Valley Unified Air Pollution Control District ("District"), originating from the undersigned at 1990 E. Gettysburg Avenue, Fresno, CA, to the address(es) indicated below.

( ) **(BY OVERNIGHT MAIL)** I caused a true and correct copy to be delivered via Federal Express to the following person(s) or their representative at the address(es) listed below.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that I executed this document on April 2, 2015, at Fresno, California.

Esthela Soto

SERVICE LIST

Sierra Club et al, v. County of Fresno, et al
Supreme Court of California Case No.: S219783
Fifth District Court of Appeal Case No.: F066798
Fresno County Superior Court Case No.: 11CECG00726

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S219783

IN THE SUPREME COURT OF C ALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,

Plaintiffs and Appellants,

v.

COUNTY OF FRESNO,

Defendant and Respondent,

and,

FRIANT RANCH, L.P.,

Real Party in Interest and Respondent.

SUPREME COURT
FILED

APR 13 2015

Frank A. McGuire Clerk

Deputy

After a Published Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726
Honorable Rosendo A. Pena, Jr.

APPLICATION OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT FOR LEAVE TO FILE BRIEF OF *AMICUS CURIAE* IN SUPPORT OF NEITHER PARTY AND *[PROPOSED]* BRIEF OF *AMICUS CURIAE*

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TO THE HONORABLE CHIEF JUSTICE AND JUSTICES OF THE SUPREME COURT:

APPLICATION FOR LEAVE TO FILE *AMICUS CURIAE* BRIEF

Pursuant to Rule 8.520(f) of the California Rules of Court, the South Coast Air Quality Management District (SCAQMD) respectfully requests leave to file the attached *amicus curiae* brief. Because SCAQMD's position differs from that of either party, we request leave to submit this amicus brief in support of neither party.

HOW THIS BRIEF WILL ASSIST THE COURT

SCAQMD's proposed amicus brief takes a position on two of the issues in this case. In both instances, its position differs from that of either party. The issues are:

1) Does the California Environmental Quality Act (CEQA) require an environmental impact report (EIR) to correlate a project's air pollution emissions with specific levels of health impacts?
2) What is the proper standard of review for determining whether an EIR provides sufficient information on the health impacts caused by a project's emission of air pollutants?

This brief will assist the Court by discussing the practical realities of correlating identified air quality impacts with specific health outcomes. In short, CEQA requires agencies to provide detailed information about a project's air quality impacts that is sufficient for the public and decisionmakers to adequately evaluate the project and meaningfully understand its impacts. However, the level of analysis is governed by a rule of reason; CEQA only requires agencies to conduct analysis if it is reasonably feasible to do so.

With regard to health-related air quality impacts, an analysis that correlates a project's air pollution emissions with specific levels of health impacts will be feasible in some cases but not others. Whether it is feasible depends on a variety of factors, including the nature of the project and the nature of the analysis under consideration. The feasibility of analysis may also change over time as air districts and others develop new tools for measuring projects' air quality related health impacts. Because SCAQMD has among the most sophisticated air quality modeling and health impact evaluation capability of any of the air districts in the State, it is uniquely situated to express an opinion on the extent to which the Court should hold that CEQA requires lead agencies to correlate air quality impacts with specific health outcomes.

SCAQMD can also offer a unique perspective on the question of the appropriate standard of review. SCAQMD submits that the proper standard of review for determining whether an EIR is sufficient as an informational document is more nuanced than argued by either party. In our view, this is a mixed question of fact and law. It includes determining whether additional analysis is feasible, which is primarily a factual question that should be reviewed under the substantial evidence standard. However, it also involves determining whether the omission of a particular analysis renders an EIR insufficient to serve CEQA's purpose as a meaningful, informational document. If a lead agency has not determined that a requested analysis is infeasible, it is the court's role to determine whether the EIR nevertheless meets CEQA's purposes, and courts should not defer to the lead agency's conclusions regarding the legal sufficiency of an EIR's analysis. The ultimate question of whether an EIR's analysis is "sufficient" to serve CEQA's informational purposes is predominately a question of law that courts should review de novo.

This brief will explain the rationale for these arguments and may assist the Court in reaching a conclusion that accords proper respect to a lead agency's factual conclusions while maintaining judicial authority over the ultimate question of what level of analysis CEQA requires.

STATEMENT OF INTEREST OF *AMICUS CURIAE*

The SCAQMD is the regional agency primarily responsible for air pollution control in the South Coast Air Basin, which consists of all of Orange County and the non-desert portions of the Los Angeles, Riverside, and San Bernardino Counties. (Health & Saf. Code § 40410; Cal. Code Regs., tit. 17, § 60104.) The SCAQMD participates in the CEQA process in several ways. Sometimes it acts as a lead agency that prepares CEQA documents for projects. Other times it acts as a responsible agency when it has permit authority over some part of a project that is undergoing CEQA review by a different lead agency. Finally, SCAQMD also acts as a commenting agency for CEQA documents that it receives because it is a public agency with jurisdiction by law over natural resources affected by the project.

In all of these capacities, SCAQMD will be affected by the decision in this case. SCAQMD sometimes submits comments requesting that a lead agency perform an additional type of air quality or health impacts analysis. On the other hand, SCAQMD sometimes determines that a particular type of health impact analysis is not feasible or would not produce reliable and informative results. Thus, SCAQMD will be affected by the Court's resolution of the extent to which CEQA requires EIRs to correlate emissions and health impacts, and its resolution of the proper standard of review.

CERTIFICATION REGARDING AUTHORSHIP AND FUNDING

No party or counsel in the pending case authored the proposed amicus curiae brief in whole or in part, or made any monetary contribution intended to fund the preparation or submission of the brief. No person or entity other than the proposed *Amicus Curiae* made any monetary contribution intended to fund the preparation or submission of the brief.

Respectfully submitted,

DATED: April 3, 2015

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BRIEF OF AMICUS CURIAE

SUMMARY OF ARGUMENT

The South Coast Air Quality Management District (SCAQMD) submits that this Court should not try to establish a hard-and-fast rule concerning whether lead agencies are required to correlate emissions of air pollutants with specific health consequences in their environmental impact reports (EIR). The level of detail required in EIRs is governed by a few, core CEQA (California Environmental Quality Act) principles. As this Court has stated, "[a]n EIR must include detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project." (*Laurel Heights Improvement Assn. v. Regents of the Univ of Cal.* (1988) 47 Cal.3d 376, 405 ["*Laurel Heights 1*"]) Accordingly, "an agency must use its best efforts to find out and disclose all that it reasonably can." (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 428 (quoting CEQA Guidelines § 15144)[1].). However, "[a]nalysis of environmental effects need not be exhaustive, but will be judged in light of what is reasonably feasible." (*Association of Irritated Residents v. County of Madera* (2003) 107 Cal.App.4th 1383, 1390; CEQA Guidelines §§ 15151, 15204(a).)

With regard to analysis of air quality related health impacts, EIRs must generally quantify a project's pollutant emissions, but in some cases it is not feasible to correlate these emissions to specific, quantifiable health impacts (e.g., premature mortality; hospital admissions). In such cases, a general description of the adverse health impacts resulting from the pollutants at issue may be sufficient. In other cases, due to the magnitude

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[1] The CEQA Guidelines are found at Cal. Code Regs., tit. 14 §§ 15000, *et seq*.

or nature of the pollution emissions, as well as the specificity of the project involved, it may be feasible to quantify health impacts. Or there may be a less exacting, but still meaningful analysis of health impacts that can feasibly be performed. In these instances, agencies should disclose those impacts.

SCAQMD also submits that whether or not an EIR complies with CEQA's informational mandates by providing sufficient, feasible analysis is a mixed question of fact and law. Pertinent here, the question of whether an EIR's discussion of health impacts from air pollution is sufficient to allow the public to understand and consider meaningfully the issues involves two inquiries: (1) Is it feasible to provide the information or analysis that a commenter is requesting or a petitioner is arguing should be required?; and (2) Even if it is feasible, is the agency relying on other policy or legal considerations to justify not preparing the requested analysis? The first question of whether an analysis is feasible is primarily a question of fact that should be judged by the substantial evidence standard. The second inquiry involves evaluating CEQA's information disclosure purposes against the asserted reasons to not perform the requested analysis. For example, an agency might believe that its EIR meets CEQA's informational disclosure standards even without a particular analysis, and therefore choose not to conduct that analysis. SCAQMD submits that this is more of a legal question, which should be reviewed de novo as a question of law.

ARGUMENT

I. RELEVANT FACTUAL AND LEGAL FRAMEWORK.

A. Air Quality Regulatory Background

The South Coast Air Quality Management District (SCAQMD) is one of the local and regional air pollution control districts and air quality

management districts in California. The SCAQMD is the regional air pollution agency for the South Coast Air Basin, which consists of all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. (Health & Saf. Code § 40410, 17 Cal. Code Reg. § 60104.) The SCAQMD also includes the Coachella Valley in Riverside County (Palm Springs area to the Salton Sea). (SCAQMD, *Final 2012 AQMP (Feb. 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "chapter 7" hyperlink; pp 7-1, 7-3 (last visited Apr. 1, 2015).) The SCAQMD's jurisdiction includes over 16 million residents and has the worst or nearly the worst air pollution levels in the country for ozone and fine particulate matter. (SCAQMD, *Final 2012 AQMP (Feb. 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "Executive Summary" hyperlink p. ES-1 (last visited Apr. 1, 2015).)

Under California law, the local and regional districts are primarily responsible for controlling air pollution from all sources except motor vehicles. (Health & Saf. Code § 40000.) The California Air Resources Board (CARB), part of the California Environmental Protection Agency, is primarily responsible for controlling pollution from motor vehicles. (*Id.*) The air districts must adopt rules to achieve and maintain the state and federal ambient air quality standards within their jurisdictions. (Health & Saf. Code § 40001.)

The federal Clean Air Act (CAA) requires the United States Environmental Protection Agency (EPA) to identify pollutants that are widely distributed and pose a threat to human health, developing a so-called "criteria" document. (42 U.S.C. § 7408; CAA § 108.) These pollutants are frequently called "criteria pollutants." EPA must then establish "national ambient air quality standards" at levels "requisite to protect public health",

allowing "an adequate margin of safety." (42 U.S.C. § 7409; CAA § 109.) EPA has set standards for six identified pollutants: ozone, nitrogen dioxide, sulfur dioxide, carbon monoxide, particulate matter (PM), and lead. (U.S. EPA, National Ambient Air Quality Standards (NAAQS), http://www.epa.gov/air/criteria.html (last updated Oct. 21, 2014).)[2]

Under the Clean Air Act, EPA sets emission standards for motor vehicles and "nonroad engines" (mobile farm and construction equipment, marine vessels, locomotives, aircraft, etc.). (42 U.S.C. §§ 7521, 7547; CAA §§ 202, 213.) California is the only state allowed to establish emission standards for motor vehicles and most nonroad sources; however, it may only do so with EPA's approval. (42 U.S.C. §§ 7543(b), 7543(e); CAA §§ 209(b), 209(c).) Sources such as manufacturing facilities, power plants and refineries that are not mobile are often referred to as "stationary sources." The Clean Air Act charges state and local agencies with the primary responsibility to attain the national ambient air quality standards. (42 U.S.C. § 7401(a)(3); CAA § 101(a)(3).) Each state must adopt and implement a plan including enforceable measures to achieve and maintain the national ambient air quality standards. (42 U.S.C. § 7410; CAA § 110.) The SCAQMD and CARB jointly prepare portion of the plan for the South Coast Air Basin and submit it for approval by EPA. (Health & Saf. Code §§ 40460, et seq.)

The Clean Air Act also requires state and local agencies to adopt a permit program requiring, among other things, that new or modified "major" stationary sources use technology to achieve the "lowest achievable emission rate," and to control minor stationary sources as

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[2] Particulate matter (PM) is further divided into two categories: fine particulate or $PM_{2.5}$ (particles with a diameter of less than or equal to 2.5 microns) and coarse particulate (PM_{10}) (particles with a diameter of 10 microns or less). (U.S. EPA, Particulate Matter (PM), http://www.epa.gov/airquality/particlepollution/ (last visited Apr. 1, 2015).)

needed to help attain the standards. (42 U.S.C. §§ 7502(c)(5), 7503(a)(2), 7410(a)(2)(C); CAA §§ 172(c)(5), 173(a)(2), 110(a)(2)(C).) The air districts implement these permit programs in California. (Health & Saf. Code §§ 42300, et seq.)

The Clean Air Act also sets out a regulatory structure for over 100 so-called "hazardous air pollutants" calling for EPA to establish "maximum achievable control technology" (MACT) for sources of these pollutants. (42 U.S.C. § 7412(d)(2); CAA § 112(d)(2).) California refers to these pollutants as "toxic air contaminants" (TACs) which are subject to two state-required programs. The first program requires "air toxics control measures" for specific categories of sources. (Health & Saf. Code § 39666.) The other program requires larger stationary sources and sources identified by air districts to prepare "health risk assessments" for impacts of toxic air contaminants. (Health & Saf. Code §§ 44320(b), 44322, 44360.) If the health risk exceeds levels identified by the district as "significant," the facility must implement a "risk reduction plan" to bring its risk levels below "significant" levels. Air districts may adopt additional more stringent requirements than those required by state law, including requirements for toxic air contaminants. (Health & Saf. Code § 41508; *Western Oil & Gas Assn. v. Monterey Bay Unified APCD* (1989) 49 Cal.3d 408, 414.) For example, SCAQMD has adopted a rule requiring new or modified sources to keep their risks below specified levels and use best available control technology (BACT) for toxics. (SCAQMD, *Rule 1401-New Source Review of Toxic Air Contaminants*, http://www.aqmd.gov/home/regulations/rules/scaqmd-rule-book/regulation-xiv; then follow "Rule 1401" hyperlink (last visited Apr. 1, 2015).)

B. The SCAQMD's Role Under CEQA

The California Environmental Quality Act (CEQA) requires public agencies to perform an environmental review and appropriate analysis for projects that they implement or approve. (Pub. Resources Code § 21080(a).) The agency with primary approval authority for a particular project is generally the "lead agency" that prepares the appropriate CEQA document. (CEQA Guidelines §§ 15050, 15051.) Other agencies having a subsequent approval authority over all or part of a project are called "responsible" agencies that must determine whether the CEQA document is adequate for their use. (CEQA Guidelines §§ 15096(c), 15381.) Lead agencies must also consult with and circulate their environmental impact reports to "trustee agencies" and agencies "with jurisdiction by law" including "authority over resources which may be affected by the project." (Pub. Resources Code §§ 21104(a), 21153; CEQA Guidelines §§ 15086(a)(3), 15073(c).) The SCAQMD has a role in all these aspects of CEQA.

Fulfilling its responsibilities to implement its air quality plan and adopt rules to attain the national ambient air quality standards, SCAQMD adopts a dozen or more rules each year to require pollution reductions from a wide variety of sources. The SCAQMD staff evaluates each rule for any adverse environmental impact and prepares the appropriate CEQA document. Although most rules reduce air emissions, they may have secondary environmental impacts such as use of water or energy or disposal of waste—e.g., spent catalyst from control equipment.[3]

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[3] The SCAQMD's CEQA program for its rules is a "Certified Regulatory Program" under which it prepares a "functionally equivalent" document in lieu of a negative declaration or EIR. (Pub. Resources Code § 21080.5, CEQA Guidelines § 15251(l).)

The SCAQMD also approves a large number of permits every year to construct new, modified, or replacement facilities that emit regulated air pollutants. The majority of these air pollutant sources have already been included in an earlier CEQA evaluation for a larger project, are currently being evaluated by a local government as lead agency, or qualify for an exemption. However, the SCAQMD sometimes acts as lead agency for major projects where the local government does not have a discretionary approval. In such cases, SCAQMD prepares and certifies a negative declaration or environmental impact report (EIR) as appropriate.[4] SCAQMD evaluates perhaps a dozen such permit projects under CEQA each year. SCAQMD is often also a "responsible agency" for many projects since it must issue a permit for part of the projects (e.g., a boiler used to provide heat in a commercial building). For permit projects evaluated by another lead agency under CEQA, SCAQMD has the right to determine that the CEQA document is inadequate for its purposes as a responsible agency, but it may not do so because its permit program already requires all permitted sources to use the best available air pollution control technology. (SCAQMD, *Rule 1303(a)(1) – Requirements*, http://www.aqmd.gov/home/regulations/rules/scaqmd-rule-book/regulation-xiii; then follow "Rule 1303" hyperlink (last visited Apr. 1, 2015).)

Finally, SCAQMD receives as many as 60 or more CEQA documents each month (around 500 per year) in its role as commenting agency or an agency with "jurisdiction by law" over air quality—a natural resource affected by the project. (Pub. Resources Code §§ 21104(a), 21153; CEQA Guidelines § 15366(a)(3).) The SCAQMD staff provides comments on as many as 25 or 30 such documents each month.

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[4] The SCAQMD's permit projects are not included in its Certified Regulatory Program, and are evaluated under the traditional local government CEQA analysis. (Pub. Resources Code §§ 21150-21154.)

(SCAQMD Governing Board Agenda, Apr. 3, 2015, Agenda Item 16, Attachment A, http://www.aqmd.gov/home/library/meeting-agendas-minutes/agenda?title=governing-board-meeting-agenda-april-3-2015; then follow "16. Lead Agency Projects and Environmental Documents Received by SCAQMD" hyperlink (last visited Apr. 1, 2015).) Of course, SCAQMD focuses its commenting efforts on the more significant projects.

Typically, SCAQMD comments on the adequacy of air quality analysis, appropriateness of assumptions and methodology, and completeness of the recommended air quality mitigation measures. Staff may comment on the need to prepare a health risk assessment detailing the projected cancer and noncancer risks from toxic air contaminants resulting from the project, particularly the impacts of diesel particulate matter, which CARB has identified as a toxic air contaminant based on its carcinogenic effects. (California Air Resources Board, Resolution 98-35, Aug. 27, 1998, http://www.arb.ca.gov/regact/diesltac/diesltac.htm; then follow Resolution 98-35 hyperlink (last visited Apr. 1, 2015).) Because SCAQMD already requires new or modified stationary sources of toxic air contaminants to use the best available control technology for toxics and to keep their risks below specified levels, (SCAQMD Rule 1401, supra, note 15), the greatest opportunity to further mitigate toxic impacts through the CEQA process is by reducing emissions—particularly diesel emissions—from vehicles.

II. THIS COURT SHOULD NOT SET A HARD-AND-FAST RULE CONCERNING THE EXTENT TO WHICH AN EIR MUST CORRELATE A PROJECT'S EMISSION OF POLLUTANTS WITH RESULTING HEALTH IMPACTS.

Numerous cases hold that courts do not review the correctness of an EIR's conclusions but rather its sufficiency as an informative document. (*Laurel Heights 1*, *supra*, 47 Cal.3d at p. 392; *Citizens of Goleta Valley v.*

Bd. of Supervisors (1990) 52 Cal.3d 553, 569; *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1197.)

As stated by the Court of Appeal in this case, where an EIR has addressed a topic, but the petitioner claims that the information provided about that topic is insufficient, courts must "draw[] a line that divides *sufficient* discussions from those that are *insufficient*." (*Sierra Club v. County of Fresno* (2014) 226 Cal.App.4th 704 (superseded by grant of review) 172 Cal.Rptr.3d 271, 290.) The Court of Appeal readily admitted that "[t]he terms themselves – sufficient and insufficient – provide little, if any, guidance as to where the line should be drawn. They are simply labels applied once the court has completed its analysis." (*Id.*)

The CEQA Guidelines, however, provide guidance regarding what constitutes a sufficient discussion of impacts. Section 15151 states that "the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible." Case law reflects this: "Analysis of environmental effects need not be exhaustive, but will be judged in light of what was reasonably feasible." (*Association of Irritated Residents v. County of Madera, supra,* 107 Cal.App.4th at p. 1390; see also CEQA Guidelines § 15204(a).)

Applying this test, this Court cannot realistically establish a hard-and-fast rule that an analysis correlating air pollution impacts of a project to quantified resulting health impacts is always required, or indeed that it is never required. Simply put, in some cases such an analysis will be "feasible"; in some cases it will not.

For example, air pollution control districts often require a proposed new source of toxic air contaminants to prepare a "health risk assessment" before issuing a permit to construct. District rules often limit the allowable cancer risk the new source may cause to the "maximally exposed individual" (worker and residence exposures). (*See, e.g.*, SCAQMD Rule 1401(c)(8); 1401(d)(1), *supra* note 15.) In order to perform this analysis, it

is necessary to have data regarding the sources and types of air toxic contaminants, location of emission points, velocity of emissions, the meteorology and topography of the area, and the location of receptors (worker and residence). (SCAQMD, *Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588), pp. 11-16*; (last visited Apr. 1, 2015) http://www.aqmd.gov/home/library/documents-support-material; "Guidelines" hyperlink; AB2588; then follow AB2588 Risk Assessment Guidelines hyperlink.)

Thus, it is feasible to determine the health risk posed by a new gas station locating at an intersection in a mixed use area, where receptor locations are known. On the other hand, it may not be feasible to perform a health risk assessment for airborne toxics that will be emitted by a generic industrial building that was built on "speculation" (i.e., without knowing the future tenant(s)). Even where a health risk assessment can be prepared, however, the resulting maximum health risk value is only a calculation of risk—it does not necessarily mean anyone will contract cancer as a result of the project.

In order to find the "cancer burden" or expected additional cases of cancer resulting from the project, it is also necessary to know the numbers and location of individuals living within the "zone of impact" of the project: i.e., those living in areas where the projected cancer risk from the project exceeds one in a million. (SCAQMD, Health Risk Assessment Summary form, http://www.aqmd.gov/home/forms ; filter by "AB2588" category; then "Health Risk Assessment" hyperlink (last visited Apr. 1, 2015).) The affected population is divided into bands of those exposed to at least 1 in a million risk, those exposed to at least 10 in a million risk, etc. up to those exposed at the highest levels. (*Id.*) This data allows agencies to calculate an approximate number of additional cancer cases expected from

the project. However, it is not possible to predict which particular individuals will be affected.

For the so-called criteria pollutants[5], such as ozone, it may be more difficult to quantify health impacts. Ozone is formed in the atmosphere from the chemical reaction of the nitrogen oxides (NO_x) and volatile organic compounds (VOC) in the presence of sunlight. (U.S. EPA, Ground Level Ozone, http://www.epa.gov/airquality/ozonepollution/ (last updated Mar. 25, 2015).) It takes time and the influence of meteorological conditions for these reactions to occur, so ozone may be formed at a distance downwind from the sources. (U.S. EPA, *Guideline on Ozone Monitoring Site Selection* (Aug. 1998) EPA-454/R-98-002 § 5.1.2, http://www.epa.gov/ttnamti1/archive/cpreldoc.html (last visited Apr. 1, 2015).) NO_x and VOC are known as "precursors" of ozone.

Scientifically, health effects from ozone are correlated with increases in the ambient level of ozone in the air a person breathes. (U.S. EPA, *Health Effects of Ozone in the General Population,* Figure 9, http://www.epa.gov/apti/ozonehealth/population.html#levels (last visited Apr. 1, 2015).) However, it takes a large amount of additional precursor emissions to cause a modeled increase in ambient ozone levels over an entire region. For example, the SCAQMD's 2012 AQMP showed that reducing NO_x by 432 tons per day (157,680 tons/year) and reducing VOC by 187 tons per day (68,255 tons/year) would reduce ozone levels at the SCAQMD's monitor site with the highest levels by only 9 parts per billion. (South Coast Air Quality Management District, *Final 2012 AQMP (February 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "Appendix V: Modeling & Attainment Demonstrations" hyperlink,

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[5] See discussion of types of pollutants, supra, Part I.A.

pp. v-4-2, v-7-4, v-7-24.) SCAQMD staff does not currently know of a way to accurately quantify ozone-related health impacts caused by NO_x or VOC emissions from relatively small projects.

On the other hand, this type of analysis may be feasible for projects on a regional scale with very high emissions of NO_x and VOCs, where impacts are regional. For example, in 2011 the SCAQMD performed a health impact analysis in its CEQA document for proposed Rule 1315, which authorized various newly-permitted sources to use offsets from the districts "internal bank" of emission reductions. This CEQA analysis accounted for essentially *all* the increases in emissions due to new or modified sources in the District between 2010 and 2030.[6] The SCAQMD was able to correlate this very large emissions increase (e.g., 6,620 pounds per day NO_x (1,208 tons per year), 89,180 pounds per day VOC (16,275 tons per year)) to expected health outcomes from ozone and particulate matter (e.g., 20 premature deaths per year and 89,947 school absences in the year 2030 due to ozone).[7] (SCAQMD Governing Board Agenda, February 4, 2011, Agenda Item 26, *Assessment for: Re-adoption of Proposed Rule 1315 – Federal New Source Review Tracking System* (see hyperlink in fn 6) at p. 4.1-35, Table 4.1-29.)

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[6] (SCAQMD Governing Board Agenda, February 4, 2011, Agenda Item 26, Attachment G, *Assessment for: Re-adoption of Proposed Rule 1315 – Federal New Source Review Tracking System, Vol. 1, p.4.0-6*, http://www.aqmd.gov/home/library/meeting-agendas-minutes/agenda?title=governing-board-meeting-agenda-february-4-2011; the follow "26. Adopt Proposed Rule 1315 – Federal New Source Review Tracking System" (last visited April 1, 2015).)

[7] The SCAQMD was able to establish the location of future NO_x and VOC emissions by assuming that new projects would be built in the same locations and proportions as existing stationary sources. This CEQA document was upheld by the Los Angeles County Superior Court in *Natural Res. Def. Council v SCAQMD*, Los Angeles Superior Court No. BS110792).

However, a project emitting only 10 tons per year of NO_x or VOC is small enough that its regional impact on ambient ozone levels may not be detected in the regional air quality models that are currently used to determine ozone levels. Thus, in this case it would not be feasible to directly correlate project emissions of VOC or NO_x with specific health impacts from ozone. This is in part because ozone formation is not linearly related to emissions. Ozone impacts vary depending on the location of the emissions, the location of other precursor emissions, meteorology and seasonal impacts, and because ozone is formed some time later and downwind from the actual emission. (EPA Guideline on Ozone Monitoring Site Selection (Aug. 1998) EPA-454/R-98-002, § 5.1.2; https://www.epa.gov/ttnamti1/archive/cpreldoc.html; then search "Guideline on Ozone Monitoring Site Selection" click on pdf) (last viewed Apr. 1, 2015).)

SCAQMD has set its CEQA "significance" threshold for NO_x and VOC at 10 tons per year (expressed as 55 lb/day). (SCAQMD, *Air Quality Analysis Handbook*, http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook; then follow "SCAQMD Air Quality Significance Thresholds" hyperlink (last visited Apr. 1, 2015).) This is because the federal Clean Air Act defines a "major" stationary source for "extreme" ozone nonattainment areas such as SCAQMD as one emitting 10 tons/year. (42 U.S.C. §§ 7511a(e), 7511a(f); CAA §§ 182(e), 182(f).) Under the Clean Air Act, such sources are subject to enhanced control requirements (42 U.S.C. §§ 7502(c)(5), 7503; CAA §§ 172(c)(5), 173), so SCAQMD decided this was an appropriate threshold for making a CEQA "significance" finding and requiring feasible mitigation. Essentially, SCAQMD takes the position that a source that emits 10 tons/year of NO_x or VOC would contribute cumulatively to ozone formation. Therefore, lead agencies that use SCAQMD's thresholds of significance may determine

that many projects have "significant" air quality impacts and must apply all feasible mitigation measures, yet will not be able to precisely correlate the project to quantifiable health impacts, unless the emissions are sufficiently high to use a regional modeling program.

In the case of particulate matter ($PM_{2.5}$)[8], another "criteria" pollutant, SCAQMD staff is aware of two possible methods of analysis. SCAQMD used regional modeling to predict expected health impacts from its proposed Rule 1315, as mentioned above. Also, the California Air Resources Board (CARB) has developed a methodology that can predict expected mortality (premature deaths) from large amounts of $PM_{2.5}$. (California Air Resources Board, *Health Impacts Analysis: PM Premature Death Relationship*, http://www.arb.ca.gov/research/health/pm-mort/pm-mort_arch.htm (last reviewed Jan. 19, 2012).) SCAQMD used the CARB methodology to predict impacts from three very large power plants (e.g., 731-1837 lbs/day). (Final Environmental Assessment for Rule 1315, *supra*, pp 4.0-12, 4.1-13, 4.1-37 (e.g., 125 premature deaths in the entire SCAQMD in 2030), 4.1-39 (0.05 to 1.77 annual premature deaths from power plants.) Again, this project involved large amounts of additional $PM_{2.5}$ in the District, up to 2.82 tons/day (5,650 lbs/day of $PM_{2.5}$, or, or 1029 tons/year. (*Id.* at table 4.1-4, p. 4.1-10.)

However, the primary author of the CARB methodology has reported that this $PM_{2.5}$ health impact methodology is not suited for small projects and may yield unreliable results due to various uncertainties.[9] (SCAQMD, *Final Subsequent Mitigated Negative Declaration for: Warren*

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[8] SCAQMD has not attained the latest annual or 24-hour national ambient air quality standards for "$PM_{2.5}$" or particulate matter less than 2.5 microns in diameter.

[9] Among these uncertainties are the representativeness of the population used in the methodology, and the specific source of PM and the corresponding health impacts. (*Id.* at p. 2-24.)

E&P, Inc. WTU Central Facility, New Equipment Project (certified July 19, 2011), http://www.aqmd.gov/home/library/documents-support-material/lead-agency-permit-projects/permit-project-documents---year-2011; then follow "Final Subsequent Mitigated Negative Declaration for Warren E&P Inc. WTU Central Facility, New Equipment Project" hyperlink, pp. 2-22, 2-23 (last visited Apr. 1, 2015).) Therefore, when SCAQMD prepared a CEQA document for the expansion of an existing oil production facility, with very small $PM_{2.5}$ increases (3.8 lb/day) and a very small affected population, staff elected not to use the CARB methodology for using estimated $PM_{2.5}$ emissions to derive a projected premature mortality number and explained why it would be inappropriate to do so. (*Id.* at pp 2-22 to 2-24.) SCAQMD staff concluded that use of this methodology for such a small source could result in unreliable findings and would not provide meaningful information. (*Id.* at pp. 2-23, 2-25.) This CEQA document was not challenged in court.

In the above case, while it may have been technically possible to plug the data into the methodology, the results would not have been reliable or meaningful. SCAQMD believes that an agency should not be required to perform analyses that do not produce reliable or meaningful results. This Court has already held that an agency may decline to use even the "normal" "existing conditions" CEQA baseline where to do so would be misleading or without informational value. (*Neighbors for Smart Rail v. Exposition Metro Line* (2013) 57 Cal.4th 439, 448, 457.) The same should be true for a decision that a particular study or analysis would not provide reliable or meaningful results.[10]

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[10] Whether a particular study would result in "informational value" is a part of deciding whether it is "feasible." CEQA defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and

Therefore, it is not possible to set a hard-and-fast rule on whether a correlation of air quality impacts with specific quantifiable health impacts is required in all cases. Instead, the result turns on whether such an analysis is reasonably feasible in the particular case.[11] Moreover, what is reasonably feasible may change over time as scientists and regulatory agencies continually seek to improve their ability to predict health impacts. For example, CARB staff has been directed by its Governing Board to reassess and improve the methodology for estimating premature deaths. (California Air Resources Board, *Health Impacts Analysis: PM Mortality Relationship*, http://www.arb.ca.gov/research/health/pm-mort/pm-mort.htm (last reviewed Dec. 29, 2010).) This factor also counsels against setting any hard-and-fast rule in this case.

III. THE QUESTION OF WHETHER AN EIR CONTAINS SUFFICIENT ANALYSIS TO MEET CEQA'S REQUIREMENTS IS A MIXED QUESTION OF FACT AND LAW GOVERNED BY TWO DIFFERENT STANDARDS OF REVIEW.

A. Standard of Review for Feasibility Determination and Sufficiency as an Informative Document

A second issue in this case is whether courts should review an EIR's informational sufficiency under the "substantial evidence" test as argued by Friant Ranch or the "independent judgment" test as argued by Sierra Club.

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technological factors." (Pub. Resources Code § 21061.1.) A study cannot be "accomplished in a *successful* manner" if it produces unreliable or misleading results.

[11] In this case, the lead agency did not have an opportunity to determine whether the requested analysis was feasible because the comment was non-specific. Therefore, SCAQMD suggests that this Court, after resolving the legal issues in the case, direct the Court of Appeal to remand the case to the lead agency for a determination of whether the requested analysis is feasible. Because Fresno County, the lead agency, did not seek review in this Court, it seems likely that the County has concluded that at least some level of correlation of air pollution with health impacts is feasible.

As this Court has explained, "a reviewing court must adjust its scrutiny to the nature of the alleged defect, depending on whether the claim is predominantly one of improper procedure or a dispute over the facts." (*Vineyard Area Citizens v. City of Rancho Cordova, supra,* 40 Cal.4th at 435.) For questions regarding compliance with proper procedure or other legal questions, courts review an agency's action de novo under the "independent judgment" test. (*Id.*) On the other hand, courts review factual disputes only for substantial evidence, thereby "accord[ing] greater deference to the agency's substantive factual conclusions." (*Id.*)

Here, Friant Ranch and Sierra Club agree that the case involves the question of whether an EIR includes sufficient information regarding a project's impacts. However, they disagree on the proper standard of review for answering this question: Sierra Club contends that courts use the independent judgment standard to determine whether an EIR's analysis is sufficient to meet CEQA's informational purposes,[12] while Friant Ranch contends that the substantial evidence standard applies to this question.

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[12] Sierra Club acknowledges that courts use the substantial evidence standard when reviewing predicate factual issues, but argues that courts ultimately decide as a matter of law what CEQA requires. (Answering Brief, pp. 14, 23.)

SCAQMD submits that the issue is more nuanced than either party contends. We submit that, whether a CEQA document includes sufficient analysis to satisfy CEQA's informational mandates is a mixed question of fact and law,[13] containing two levels of inquiry that should be judged by different standards.[14]

The state CEQA Guidelines set forth standards for the adequacy of environmental analysis. Guidelines Section 15151 states:

> An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection, but for adequacy, completeness, and a good-faith effort at full disclosure.

In this case, the basic question is whether the underlying analysis of air quality impacts made the EIR "sufficient" as an informative document. However, whether the EIR's analysis was sufficient is judged in light of what was reasonably feasible. This represents a mixed question of fact and law that is governed by two different standards of review.

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[13] Friant Ranch actually states that the claim that an EIR lacks sufficient relevant information is, "most properly thought of as raising mixed questions of fact and law." (Opening Brief, p. 27.) However, the remainder of its argument claims that the court should apply the substantial evidence standard of review to all aspects of the issue.

[14] Mixed questions of fact and law issues may implicate predominantly factual subordinate questions that are reviewed under the substantial evidence test even though the ultimate question may be reviewed by the independent judgment test. *Crocker National Bank v. City and County of San Francisco* (1989) 49 Cal.3d 881, 888-889.

SCAQMD submits that an EIR's sufficiency as an informational document is ultimately a legal question that courts should determine using their independent judgment. This Court's language in *Laurel Heights I* supports this position. As this Court explained: "The court does not pass upon the correctness of the EIR's environmental conclusions, but only upon its *sufficiency as an informative document.*" (*Laurel Heights I, supra,* 47 Cal.3d at 392-393) (emphasis added.) As described above, the Court in *Vineyard Area Citizens v. City of Rancho Cordova, supra,* 40 Cal.4th at 431, also used its independent judgment to determine what level of analysis CEQA requires for water supply impacts. The Court did not defer to the lead agency's opinion regarding the law's requirements; rather, it determined for itself what level of analysis was necessary to meet "[t]he law's informational demands." (*Id.* at p. 432.) Further, existing case law also holds that where an agency fails to comply with CEQA's information disclosure requirements, the agency has "failed to proceed in the manner required by law." (*Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 118.)

However, whether an EIR satisfies CEQA's requirements depends in part on whether it was reasonably feasible for an agency to conduct additional or more thorough analysis. EIRs must contain "a detailed statement" of a project's impacts (Pub. Res. Code § 21061), and an agency must "use its best efforts to find out and disclose all that it reasonably can." (CEQA Guidelines § 15144.) Nevertheless, "the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible." (CEQA Guidelines § 15151.)

SCAQMD submits that the question of whether additional analysis or a particular study suggested by a commenter is "feasible" is generally a question of fact. Courts have already held that whether a particular alternative is "feasible" is reviewed by the substantial evidence test.

(*Uphold Our Heritage v. Town of Woodside* (2007) 147 Cal.App.4th 587, 598-99; *Center for Biological Diversity v. County of San Bernardino* (2010) 185 Cal.App.4th 866, 883.) Thus, if a lead agency determines that a particular study or analysis is infeasible, that decision should generally be judged by the substantial evidence standard. However, SCAQMD urges this Court to hold that lead agencies must explain the basis of any determination that a particular analysis is infeasible in the EIR itself. An EIR must discuss information, including issues related to the feasibility of particular analyses "in sufficient detail to enable meaningful participation and criticism by the public. '[W]hatever is required to be considered in an EIR must be in that formal report; what any official might have known from other writings or oral presentations cannot supply what is lacking in the report.'" (*Laurel Heights I, supra*, 47 Cal.3d at p. 405 (quoting *Santiago County Water District v. County of Orange* (1981) 118 Cal.App.3d 818, 831) (discussing analysis of alternatives).) The evidence on which the determination is based should also be summarized in the EIR itself, with appropriate citations to reference materials if necessary. Otherwise commenting agencies such as SCAQMD would be forced to guess where the lead agency's evidence might be located, thus thwarting effective public participation.

Moreover, if a lead agency determines that a particular study or analysis would not result in reliable or useful information and for that reason is not feasible, that determination should be judged by the substantial evidence test. (See *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority, supra*, 57 Cal.4th 439, 448, 457:

whether "existing conditions" baseline would be misleading or uninformative judged by substantial evidence standard.[15])

If the lead agency's determination that a particular analysis or study is not feasible is supported by substantial evidence, then the agency has not violated CEQA's information disclosure provisions, since it would be infeasible to provide additional information. This Court's decisions provide precedent for such a result. For example, this Court determined that the issue of whether the EIR should have included a more detailed discussion of future herbicide use was resolved because substantial evidence supported the agency's finding that "the precise parameters of future herbicide use could not be predicted." *Ebbetts Pass Forest Watch v. California Dept. of Forestry & Fire Protection* (2008) 43 Cal.4th 936, 955.

Of course, SCAQMD expects that courts will continue to hold lead agencies to their obligations to consult with, and not to ignore or misrepresent, the views of sister agencies having special expertise in the area of air quality. (*Berkeley Keep Jets Over the Bay v. Board of Port Commissioners* (2007) 91 Cal.App.4th 1344, 1364 n.11.) In some cases, information provided by such expert agencies may establish that the purported evidence relied on by the lead agency is not in fact "substantial". (*Id.* at pp. 1369-1371.)

In sum, courts retain ultimate responsibility to determine what CEQA requires. However, the law does not require exhaustive analysis, but only what is reasonably feasible. Agencies deserve deference for their factual determinations regarding what type of analysis is reasonably feasible. On the other hand, if a commenter requests more information, and the lead agency declines to provide it but does *not* determine that the

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[15] The substantial evidence standard recognizes that the courts "have neither the resources nor the scientific expertise" to weigh conflicting evidence on technical issues. (*Laurel Heights I, supra,* 47 Cal.3d 376, 393.)

requested study or analysis would be infeasible, misleading or uninformative, the question becomes whether the omission of that analysis renders the EIR inadequate to satisfy CEQA's informational purposes. (*Id.* at pp. 1370-71.) Again, this is predominantly a question of law and should be judged by the de novo or independent judgment standard of review. Of course, this Court has recognized that a "project opponent or reviewing court can always imagine some additional study or analysis that might provide helpful information. It is not for them to design the EIR. That further study...might be helpful does not make it necessary." (*Laurel Heights I, supra,* 47 Cal.3d 376, 415 – see also CEQA Guidelines § 15204(a) [CEQA "does not require a lead agency to conduct every test. . . recommended or demanded by commenters."].) Courts, then, must adjudicate whether an omission of particular information renders an EIR inadequate to serve CEQA's informational purposes.[16]

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[16] We recognize that there is case law stating that the substantial evidence standard applies to "challenges to the scope of an EIR's analysis of a topic" as well as the methodology used and the accuracy of the data relied on in the document "because these types of challenges involve factual questions." (*Bakersfield Citizens for Local Control v. City of Bakersfield, supra,* 124 Cal.App.4th 1184, 1198, and cases relied on therein.) However, we interpret this language to refer to situations where the question of the scope of the analysis really is factual—that is, where it involves whether further analysis is feasible, as discussed above. This interpretation is supported by the fact that the *Bakersfield* court expressly rejected an argument that a claimed "omission of information from the EIR should be treated as inquiries whether there is substantial evidence supporting the decision approving the project. " *Bakersfield, supra,* 124 Cal.App.4th at p. 1208. And the *Bakersfield* court ultimately decided that the lead agency must analyze the connection between the identified air pollution impacts and resulting health impacts, even though the EIR already included some discussion of air-pollution-related respiratory illnesses. *Bakersfield, supra,* 124 Cal.App.4th at p. 1220. Therefore, the court must not have interpreted this question as one of the "scope of the analysis" to be judged by the substantial evidence standard.

B. Friant Ranch's Rationale for Rejecting the Independent Judgment Standard of Review is Unsupported by Case Law.

In its brief, Friant Ranch makes a distinction between cases where a required CEQA topic is not discussed at all (to be reviewed by independent judgment as a failure to proceed in the manner required by law) and cases where a topic is discussed, but the commenter claims the information provided is insufficient (to be judged by the substantial evidence test). (Opening Brief, pp. 13-17.) The Court of Appeal recognized these two types of cases, but concluded that both raised questions of law. (*Sierra Club v. County of Fresno* (2014) 226 Cal.App.4th 704 (superseded by grant of review) 172 Cal.Rptr.3d 271, 290.) We believe the distinction drawn by Friant Ranch is unduly narrow, and inconsistent with cases which have concluded that CEQA documents are insufficient. In many instances, CEQA's requirements are stated broadly, and the courts must interpret the law to determine what level of analysis satisfies CEQA's mandate for providing meaningful information, even though the EIR discusses the issue to some extent.

For example, the CEQA Guidelines require discussion of the existing environmental baseline. In *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 954-955, the lead agency had discussed the environmental baseline by describing historic month-end water levels in the affected lakes. However, the court held that this was not an adequate baseline discussion because it failed to discuss the timing and amounts of past actual water releases, to allow comparison with the proposed project. The court evidently applied the independent judgment test to its decision, even though the agency discussed the issue to some extent.

Likewise, in *Vineyard Area Citizens* (2007) 40 Cal.4th 412, this Court addressed the question of whether an EIR's analysis of water supply impacts complied with CEQA. The parties agreed that the EIR was required to analyze the effects of providing water to the development project, "and that in order to do so the EIR had, in some manner, to identify the planned sources of that water." (*Vineyard Area Citizens, supra,* at p. 428.) However, the parties disagreed as to the level of detail required for this analysis and "what level of uncertainty regarding the availability of water supplies can be tolerated in an EIR . . . ." (*Id.*) In other words, the EIR had analyzed water supply impacts for the project, but the petitioner claimed that the analysis was insufficient.

This Court noted that neither CEQA's statutory language or the CEQA Guidelines specifically addressed the question of how precisely an EIR must discuss water supply impacts. (*Id.*) However, it explained that CEQA "states that '[w]hile foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can.'" (*Id.*, [Guidelines § 15144].) The Court used this general principle, along with prior precedent, to elucidate four "principles for analytical adequacy" that are necessary in order to satisfy "CEQA's informational purposes." (*Vineyard Area Citizens, supra,* at p. 430.) The Court did not defer to the agency's determination that the EIR's analysis of water supply impacts was sufficient. Rather, this Court used its independent judgment to determine for itself the level of analysis required to satisfy CEQA's fundamental purposes. (*Vineyard Area Citizens, supra,* at p. 441: an EIR does not serve its purposes where it neglects to explain likely sources of water and "... leaves long term water supply considerations to later stages of the project.")

Similarly, the CEQA Guidelines require an analysis of noise impacts of the project. (Appendix G, "Environmental Checklist Form."[17]) In *Gray v. County of Madera* (2008) 167 Cal.App.4th 1099, 1123, the court held that the lead agency's noise impact analysis was inadequate even though it had addressed the issue and concluded that the increase would not be noticeable. If the court had been using the substantial evidence standard, it likely would have upheld this discussion.

Therefore, we do not agree that the issue can be resolved on the basis suggested by Friant Ranch, which would apply the substantial evidence standard to *every* challenge to an analysis that addresses a required CEQA topic. This interpretation would subvert the courts' proper role in interpreting CEQA and determining what the law requires.

Nor do we agree that the Court of Appeal in this case violated CEQA's prohibition on courts interpreting its provisions "in a manner which imposes procedural or substantive requirements beyond those explicitly stated in this division or in the state guidelines." (Pub. Resources Code § 21083.1.) CEQA requires an EIR to describe *all* significant impacts of the project on the environment. (Pub. Resources Code § 21100(b)(2); *Vineyard Area Citizens, supra,* at p. 428.) Human beings are part of the environment, so CEQA requires EIRs to discuss a project's significant impacts on human health. However, except in certain particular circumstances,[18] neither the CEQA statute nor Guidelines specify the precise level of analysis that agencies must undertake to satisfy the law's requirements. (see, e.g., CEQA Guidelines § 15126.2(a) [EIRs must describe "health and safety problems caused by {a project's} physical changes"].) Accordingly, courts must interpret CEQA as a whole to

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[17] Association of Environmental Professionals, 2015 CEQA Statute and Guidelines (2015) p.287.

[18] E.g., Pub. Resources Code § 21151.8(C)(3)(B)(iii) (requiring specific type of health risk analysis for siting schools).

determine whether a particular EIR is sufficient as an informational document. A court determining whether an EIR's discussion of human health impacts is legally sufficient does not constitute imposing a new substantive requirement.[19] Under Friant Ranch's theory, the above-referenced cases holding a CEQA analysis inadequate would have violated the law. This is not a reasonable interpretation.

IV. COURTS MUST SCRUPULOUSLY ENFORCE THE REQUIREMENTS THAT LEAD AGENCIES CONSULT WITH AND OBTAIN COMMENTS FROM AIR DISTRICTS

Courts must "scrupulously enforce" CEQA's legislatively mandated requirements. (*Vineyard Area Citizens, supra*, 40 Cal.4th 412, 435.) Case law has firmly established that lead agencies must consult with the relevant air pollution control district before conducting an initial study, and must provide the districts with notice of the intention to adopt a negative declaration (or EIR). (*Schenck v. County of Sonoma* (2011) 198 Cal.App.4th 949, 958.) As *Schenck* held, neither publishing the notice nor providing it to the State Clearinghouse was a sufficient substitute for sending notice directly to the air district. (*Id.*) Rather, courts "must be satisfied that [administrative] agencies have fully complied with the procedural requirements of CEQA, since only in this way can the important public purposes of CEQA be protected from subversion." *Schenck,* 198 Cal.App.4th at p. 959 (citations omitted).[20]

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[19] We submit that Public Resources Code Section 21083.1 was intended to prevent courts from, for example, holding that an agency must analyze economic impacts of a project where there are no resulting environmental impacts (see CEQA Guidelines § 15131) , or imposing new procedural requirements, such as imposing additional public notice requirements not set forth in CEQA or the Guidelines.

[20] Lead agencies must consult air districts, as public agencies with jurisdiction by law over resources affected by the project, *before* releasing an EIR. (Pub. Resources Code §§ 21104(a); 21153.) Moreover, air

Lead agencies should be aware, therefore, that failure to properly seek and consider input from the relevant air district constitutes legal error which may jeopardize their project approvals. For example, the court in *Fall River Wild Trout Foundation v. County of Shasta,* (1999) 70 Cal.App.4th 482, 492 held that the failure to give notice to a trustee agency (Department of Fish and Game) was prejudicial error requiring reversal. The court explained that the lack of notice prevented the Department from providing any response to the CEQA document. (*Id.* at p. 492.) It therefore prevented relevant information from being presented to the lead agency, which was prejudicial error because it precluded informed decision-making. (*Id.*)[21]

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districts should be considered "state agencies" for purposes of the requirement to consult with "trustee agencies" as set forth in Public Resources Code § 20180.3(a). This Court has long ago held that the districts are not mere "local agencies" whose regulations are superseded by those of a state agency regarding matters of statewide concern, but rather have concurrent jurisdiction over such issues. (*Orange County Air Pollution Control District v. Public Util. Com.* (1971) 4 Cal.3d 945, 951, 954.) Since air pollution is a matter of statewide concern, *Id* at 952, air districts should be entitled to trustee agency status in order to ensure that this vital concern is adequately protected during the CEQA process.

[21] In *Schenck,* the court concluded that failure to give notice to the air district was not prejudicial, but this was partly because the trial court had already corrected the error before the case arrived at the Court of Appeal. The trial court issued a writ of mandate requiring the lead agency to give notice to the air district. The air district responded by concurring with the lead agency that air impacts were not significant. (*Schenck,* 198 Cal.App.4th 949, 960.) We disagree with the *Schenck* court that the failure to give notice to the air district would not have been prejudicial (even in the absence of the trial court writ) merely because the lead agency purported to follow the air district's published CEQA guidelines for significance. (*Id.*, 198 Cal.App.4th at p. 960.) In the first place, absent notice to the air district, it is uncertain whether the lead agency properly followed those guidelines. Moreover, it is not realistic to expect that an air district's published guidelines would necessarily fully address all possible air-quality related issues that can arise with a CEQA project, or that those

Similarly, lead agencies must obtain additional information requested by expert agencies, including those with jurisdiction by law, if that information is necessary to determine a project's impacts. (*Sierra Club v. State Bd. Of Forestry* (1994) 7 Cal.4th 1215, 1236-37.) Approving a project without obtaining that information constitutes a failure to proceed in the manner prescribed by CEQA. (*Id.* at p. 1236.)

Moreover, a lead agency can save significant time and money by consulting with the air district early in the process. For example, the lead agency can learn what the air district recommends as an appropriate analysis on the facts of its case, including what kinds of health impacts analysis may be available, and what models are appropriate for use. This saves the lead agency from the need to do its analysis all over again and possibly needing to recirculate the document after errors are corrected, if new significant impacts are identified. (CEQA Guidelines § 15088.5(a).) At the same time, the air district's expert input can help the lead agency properly determine whether another commenter's request for additional analysis or studies is reasonable or feasible. Finally, the air district can provide input on what mitigation measures would be feasible and effective.

Therefore, we suggest that this Court provide guidance to lead agencies reminding them of the importance of consulting with the relevant air districts regarding these issues. Otherwise, their feasibility decisions may be vulnerable to air district evidence that establishes that there is no substantial evidence to support the lead agency decision not to provide specific analysis. (*See Berkeley Keep Jets Over the Bay, supra,* 91 Cal.App.4th 1344, 1369-1371.)

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guidelines would necessarily be continually modified to reflect new developments. Therefore we believe that, had the trial court not already ordered the lead agency to obtain the air district's views, the failure to give notice would have been prejudicial, as in *Fall River, supra,* 70 Cal.App.4th 482, 492.

CONCLUSION

The SCAQMD respectfully requests this Court *not* to establish a hard-and-fast rule concerning whether CEQA requires a lead agency to correlate identified air quality impacts of a project with resulting health outcomes. Moreover, the question of whether an EIR is "sufficient as an informational document" is a mixed question of fact and law containing two levels of inquiry. Whether a particular proposed analysis is feasible is predominantly a question of fact to be judged by the substantial evidence standard of review. Where the requested analysis is feasible, but the lead agency relies on legal or policy reasons not to provide it, the question of whether the EIR is nevertheless sufficient as an informational document is predominantly a question of law to be judged by the independent judgment standard of review.

Respectfully submitted,

DATED: April 3, 2015

SOUTH COAST AIR QUALITY
MANAGEMENT DISTRICT
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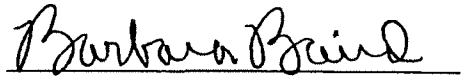
CERTIFICATE OF WORD COUNT

Pursuant to Rule 8.520(c)(1) of the California Rules of Court, I hereby certify that this brief contains 8,476 words, including footnotes, but excluding the Application, Table of Contents, Table of Authorities, Certificate of Service, this Certificate of Word Count, and signature blocks. I have relied on the word count of the Microsoft Word Vista program used to prepare this Certificate.

DATED: April 3, 2015 Respectfully submitted,



Barbara Baird

PROOF OF SERVICE

I am employed in the County of Los Angeles, California. I am over the age of 18 years and not a party to the within action. My business address is 21865 Copley Drive, Diamond Bar, California 91765.

On April 3, 2015 I served true copies of the following document(s) described as **APPLICATION OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT FOR LEAVE TO FILE BRIEF OF *AMICUS CURIAE* IN SUPPORT OF NEITHER PARTY AND *[PROPOSED]* BRIEF OF *AMICUS CURIAE*** by placing a true copy of the foregoing document(s) in a sealed envelope addressed as set forth on the attached service list as follows:

BY MAIL: I enclosed the document(s) in a sealed envelope or package addressed to the persons at the addresses listed in the Service List and placed the envelope for collection and mailing following our ordinary business practices. I am readily familiar with this District's practice for collection and processing of correspondence for mailing. Under that practice, the correspondence would be deposited with the United States Postal Service, with postage thereon fully prepaid at Diamond Bar, California, in the ordinary course of business. I am aware that on motion of the party served, service is presumed invalid if postal cancellation date or postage meter date is more than one day after date of deposit for mailing in affidavit.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on April 3, 2015 at Diamond Bar, California.

Patricia Anderson

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Appendix D

Biological Resources Technical Report

ESA

Biological Resources Technical Report for the Sanborn Solar Project

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SEPTEMBER 2019

Printed on 30% post-consumer recycled material.

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ACRONYMS AND ABBREVIATIONS

Acronym or Abbreviation	Definition
ACOE	U.S. Army Corps of Engineers
amsl	above mean sea level
APLIC	Avian Power Line Interaction Committee
BCC	Bird of Conservation Concern
BNSF	Burlington Northern Santa Fe
BTR	biological resources technical report
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CUP	Conditional Use Permit
EKAPCD	Eastern Kern Air Pollution Control District
EUL	Enhanced Use Lease
FP	fully protected
FT	federally threatened
gen-tie	generator tie-in
GIS	geographic information system
kV	kilovolt
NEPA	National Environmental Policy Act
O&M	operations and maintenance
OHWM	ordinary high water mark
PV	photovoltaic
ROW	right-of-way
RWQCB	Regional Water Quality Control Board
SR	State Route
SSC	Species of Special Concern
ST	state threatened
SWPPP	Stormwater Pollution Prevention Plan
USAF	U.S. Air Force
USFWS	U.S. Fish and Wildlife Service
WEAP	Worker Environmental Awareness Program

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1 INTRODUCTION

1.1 Purpose of Document

In accordance with the requirements of the California Environmental Quality Act (CEQA), the Kern County Environmental Checklist Form (Kern County 2012), and the Kern County Guide for the Preparation of Environmental Impact Reports (EIRs) (Kern County 2006a), the purpose of this biological resources technical report (BTR) for the Sanborn Solar Project (proposed project) is to: (1) document the biological resources that are present in the study area, (2) analyze the potential direct and indirect impacts to special-status biological resources resulting from the proposed project, (3) describe the significance of the potential impacts, and (4) identify recommended avoidance measures and other biological resource protection measures for consideration by Kern County, the Lead Agency, as part of the CEQA process.

1.2 Project Description

The proposed project consists of the development of a photovoltaic (PV) solar facility and associated infrastructure necessary to generate up to a combined 300 megawatts (MW) of renewable electrical energy and/or energy storage capacity.

The proposed project consists of two discontinuous sites, each of which would contain solar and energy storage facilities, which together would compose the project site (Figure 1-1). The northern site is approximately 1,041 acres, and the southern site is approximately 965 acres. The northern site is directly east of the BNSF Railway, south of State Route (SR) 58, and west of southern 10th Street. The southern site is directly north of Edwards Air Force Base (AFB), east of 15th Street, and 0.2 miles south of the BNSF Railway; its eastern edge generally follows an unnamed dirt road. A generator tie-in line (gen-tie) line would connect the energy generated on site to either the Windhub Substation, which is owned and operated by Southern California Edison (SCE), and/or the privately owned Westwind Substation (Figure 1-2).

The project includes two options for delivering power to the Windhub Substation or Westwind Substation. Potential options include the following:

- **Option 1 – 230 kV Gen-Tie from On-Site Substation**. Under this interconnection option, a 230 kV gen-tie would be constructed from an on-site project substation located near Lone Butte Road and then would either tap into existing transmission lines with line tap equipment situated on up to 5 acres of land at the corner of United Street and Purdy Avenue or travel west to the Windhub Substation and/or Westwind Substation.

- **Option 2 – United Street 34.5 kV to 230 kV Step-Up Conversion Station**. Under this interconnection option, a 34.5 kV collection line would be constructed from the western limits of the project site near Lone Butte Road and travel west to a step-up conversion station situated on up to approximately 5 acres and located within the gen-tie study area shown on Figure 1-2. At the United Street step-up conversion station, the 34.5 kV power would be stepped-up to 230 kV power for delivery to the Windhub Substation and/or Westwind Substation.

The northern site would be accessed by Lone Butte Road or 10th Street from SR-58, and the southern site would be accessed by Silver Queen Road or Reed Avenue from United Street.

The biological study area includes the project site, but is slightly larger than the project site and includes, for example, access roads and the transmission line corridor. The total biological study area is 2,987 acres.

The preliminary site plan is shown on Figure 1-3.

1.3 Project Location

The project site is in the southern portion of Kern County, in central California, as shown on Figure 1-1. The project site is located at the western edge of the Antelope Valley, directly south of the community of Mojave. The solar generation sites and 1.3 miles of the gen-tie line are east of SR-14 (Antelope Valley Freeway) and the remainder of the gen-tie line is west of SR-14. The northern site is less than 1 mile southwest of SR-58 (West Avenue D) and south of the Mojave Air and Space Port. The BNSF Railway forms the western edge of the northern site, and the gen-tie line crosses the BNSF Railway in two locations. The western extent of the gen-tie line is approximately 38 miles east of Interstate 5 (I-5). The gen-tine line crosses the Los Angeles Aqueduct approximately 1.5 miles east of the Windhub Substation. The southern site is directly north of Edwards AFB. The northern site lies in the Sanborn and Mojave U.S. Geological Survey 7.5-minute quadrangles, Sections 22, 23, 26, 27, 34, and 35, Township 11 North, Range 12 West, San Bernardino Base and Meridian. The southern site lies in the Bissell U.S. Geological Survey 7.5-minute quadrangles, Sections 1, 6, 7, and 12, Township 10 North, Ranges 12 West and 11 West, San Bernardino Base and Meridian.

The project is located on generally undeveloped land that has historically been used for grazing operations and that consists entirely of privately owned parcels. Figure 1-2 depicts the project boundaries.

2 METHODS

Endangered, rare, or threatened species, as defined in CEQA Guidelines Section 15380(b) (14 CCR 15000 et seq.), are referred to as "special-status species" in this BTR and include (1) endangered or threatened species recognized in the context of the California Endangered Species Act and the federal Endangered Species Act; (2) plant species with a California Rare Plant Rank (CRPR) (CDFW 2018a) (1A, 1B, and 2); (3) California Species of Special Concern (SSC), as designated by the California Department of Fish and Wildlife (CDFW; CDFW 2018b); (4) mammals and birds that are fully protected (FP) species, as described in Fish and Game Code, Sections 4700 and 3511 (CDFW 2018b); and (5) Birds of Conservation Concern (BCC), as designated by the U.S. Fish and Wildlife Service (USFWS; USFWS 2008; CDFW 2018b). Vegetation communities are considered sensitive natural communities or special-status vegetation communities if they have a conservation status of S1, S2, or S3 (CDFW 2018c).

The California Desert Native Plants Act protects California desert native plants from unlawful harvesting on both public and privately owned lands within Imperial, Kern, Los Angeles, Mono, Riverside, San Bernardino, and San Diego Counties. The following native plant species, or any part thereof, may not be harvested except under a permit issued by the commissioner or the sheriff of the county in which the native plant species are growing: all species of the Agavaceae (century plants, nolinas, and yuccas), all species of the family Cactaceae, all species of the family Fouquieriaceae (ocotillo, candlewood), all species of the genus *Prosopis* (mesquites), all species of the genus *Parkinsonia* (palo verdes), catclaw acacia (*Acacia greggii*), desert holly (*Atriplex hymenelytra*), smoke tree (*Psorothamnus spinosus*), and desert ironwood (*Olneya tesota*), both dead and alive (provision 80073). This provision excludes any plant species that is declared to be a rare, endangered, or threatened species by federal or state law or regulations, including, but not limited to, the California Fish and Game Code.

The biological resources study area (study area), as shown in Figure 2-1, is 2,987 acres and includes (1) an approximately 250-foot-wide buffer on the East–West Gen-Tie Routes (or a 500-foot-wide corridor); (2) the four access roads on United Street, Lone Butte Road, Reed Avenue, and Silver Queen Road; (3) the northern site; (4) the southern site; and (5) the potential substation and line tap location.

2.1 Vegetation Mapping

In January 2018, CDFW published the *List of California Sensitive Natural Communities* (List of Sensitive Communities; CDFW 2018c) based on the *Manual of California Vegetation*, Second Edition (Sawyer et al. 2009), which is the California expression of the National Vegetation Classification Standard, Version 2 (FGDC 2008). These classification systems focus on a

quantified, hierarchical approach that includes both floristic (plant species) and physiognomic (community structure and form) factors as currently observed (as opposed to predicting climax or successional stages). The nomenclature for vegetation communities in the study area follows the *Manual of California Vegetation* and the List of Sensitive Communities (CDFW 2018c). Natural vegetation communities were mapped in the field using the *Manual of California Vegetation* and List of Sensitive Communities. Kern County standards were used for mapping Joshua tree woodland, and Joshua tree woodlands with 10% cover of Joshua trees were mapped as Joshua tree woodland. Each natural community was mapped to the association level, with a few exceptions. Non-native grasslands were not mapped by semi-natural stand[1] type because none of these stand types are considered high priority for inventory, or special status, by CDFW (CDFW 2018c). Non-natural land covers (including disturbed habitats and urban/developed) were classified as described in Section 3.2.5. Additionally, rubber rabbitbrush scrub was mapped to the alliance level.

Vegetation mapping was conducted in April and May 2017, and March and September 2018, by Dudek biologists Callie Amoaku, Britney Strittmater, Patricia Schuyler, and Anna Cassady (Table 2-1). Vegetation communities were either mapped using a Trimble Geo XT GPS unit with sub-meter accuracy or delineated on field maps with a true-color orthorectified aerial photographic base (Dudek 2017). The maximum scale of the field maps was 400-scale (1 inch = 400 feet). In combination with the GPS data, geographic information system (GIS) analysts digitized the delineated vegetation community boundaries from field maps to create a base vegetation layer using ArcGIS.

The minimum mapping unit was 1 acre or less for communities that are considered high priority for inventory in the List of Sensitive Communities (CDFW 2018c). Data were collected for representative vegetation communities and land covers, including aspect, dominant layer, structure of dominant layer, associated species and estimated absolute cover, total vegetative cover of each strata, approximate stand size, disturbance information, other observations, and photographs.

Table 2-1
Survey Information for Vegetation Mapping

Date	Personnel	Field Hours	Survey Conditions
04/24/017	Britney Strittmater, Callie Amoaku	8:54 AM–5:17 PM	54°F–63°F; 80%–90% cc; 1–17 mph wind
04/25/017	Britney Strittmater, Callie Amoaku	8:15 AM–5:20 PM	58°F–62°F; 0%–10% cc; 3–18 mph wind
04/26/017	Britney Strittmater, Callie Amoaku	7:37 AM–2:30 PM	55°F–67°F; 30%–60% cc; 8–22 mph wind
05/02/2017	Callie Amoaku	8:15 AM-5:27 PM	74°F–90°F; 0%–20% cc; 0–1 mph wind
05/30/2017	Callie Amoaku, Patricia Schuyler	7:25 AM–6:03 PM	74°F–79°F; 30% cc; 0–3 mph wind
05/30/2017	Callie Amoaku, Patricia Schuyler	7:08 AM–3:36 PM	53°F –73°F; 100% cc; 3–20 mph wind

[1] Semi-natural stands are invasive naturalized plant groups where "plants are sufficiently dominant to have replaced most of the natives, and, in many situations, the associates are themselves non-native species" (Sawyer et al. 2009).

Table 2-1
Survey Information for Vegetation Mapping

Date	Personnel	Field Hours	Survey Conditions
03/02/18	Callie Amoaku	7:52 AM–5:40 PM	43°F –52°F; 80%-100% cc; 1–5 mph wind
09/07/18	Britney Strittmater, Anna Cassady	8:40 AM–2:40 PM	75°F –102°F; 0% cc; 0–3 mph wind

Legend
°F = degrees Fahrenheit; cc = cloud cover; mph = miles per hour.

2.2 Jurisdictional Delineation

2.2.1 Literature Review

For the jurisdictional delineation, Dudek reviewed aerial maps from Bing (2017), the USFWS National Wetlands Inventory (USFWS 2017a; USFWS 2018a), the U.S. Geological Survey National Hydrography Dataset (USGS 2017; USGS 2018), the State List of Hydric Soils (USDA 2017; USDA 2018a), and historical aerials and topographic maps (Google Earth 2017; Google Earth 2018; Historic Aerials Online 2017; Historic Aerials Online 2018). The National Hydrography Dataset contains water features such as lakes, ponds, streams, rivers, canals, dams, and stream gages (USGS 2017; USGS 2018). The USFWS created the National Wetlands Inventory to "provide biologists and others with information on the distribution and type of wetlands to aid in conservation efforts" (USFWS 2017a). Potential wetlands and waters are mapped by the USFWS based on aerial images, and that data is provided to the public. This compilation of data was reviewed to gain a better understanding of the hydrologic setting of the study area and identify areas potentially under the jurisdiction of the U.S. Army Corps of Engineers (ACOE).

2.2.2 Jurisdictional Delineation

A formal (routine) jurisdictional delineation of waters, including wetlands, was conducted in April and May 2017, and March 2018 within the study area (Table 2-2). Through previous jurisdictional delineations within the Antelope Valley watershed, in which the study area is located, ACOE determined drainages to be nonjurisdictional. To date, the ACOE has determined that Cache Creek, located approximately 8 miles northeast of the study area, to be nonjurisdictional (File No. SPL-2013-00545-TS). Additionally, ACOE determined all tributaries to Rosamond, Buckhorn, and Rogers Lakes, excluding Lake Palmdale and tributaries to Lake Palmdale, to be nonjurisdictional due to the Antelope Valley watershed being an isolated, intrastate watershed without any surface water related commerce (File No. SPL-2011-01084-SLP). Rosamond, Buckhorn, and Rogers Lakes are located approximately 11 to 16 miles south and southeast of the study area. Therefore, based on these previous determinations, all features within the study area were considered to be nonjurisdictional under the ACOE because surface flows either dissipate into the desert floor

evaporating or infiltrating into the groundwater basin or continue to flow to Rogers Lake during larger storm events; however, biologists confirmed that no ACOE-jurisdictional areas were present during the jurisdictional delineation.

All of the study area was surveyed on foot for waters of the United States, including wetlands, under the jurisdiction of ACOE, pursuant to Section 404 of the federal Clean Water Act. Non-wetland waters of the United States are delineated based on the presence of an ordinary high-water mark (OHWM), as determined using the methodology in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States, A Delineation Manual* (ACOE 2008a) and the *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (ACOE 2010). Wetland waters of the United States are delineated based on methodology described in the 1987 *Corps of Engineers Wetlands Delineation Manual* (ACOE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (ACOE 2008b). The ACOE and U.S. Environmental Protection Agency Rapanos Guidance states that the ACOE will regulate: (i) traditional navigable waters of the United States and (ii) their adjacent wetlands as well as (iii) non-navigable tributaries to traditional navigable waters that are relatively permanent and (iv) wetlands that directly abut such tributaries (ACOE and EPA 2008). In addition, if a significant nexus has been determined, the ACOE may also assert jurisdiction over (i) non-navigable tributaries that are not relatively permanent and (ii) their adjacent wetlands, as well as (iii) wetlands that are adjacent to but that do not directly abut a relatively permanent non-navigable tributary (ACOE and EPA 2008). The Rapanos Guidance was used to conduct the delineation. Rogers Lake and tributaries to Rogers Lake were not considered jurisdictional as this lake is isolated and does not contain any surface water related commerce. The Environmental Protection Agency (EPA) and ACOE published a final rule defining the scope of waters protected under the Clean Water Act (CWA) in 2015. The rule was published in response to various Supreme Court cases. The updated rule does not establish any regulatory requirements, but rather is intended to increase the predictability and consistency of the CWA program by clarifying the scope of "waters of the United States" protected under the Act. Under the 2015 rule, the scope of jurisdiction is narrower compared to previous regulation. Specifically, the rule places qualifiers on some existing categories, including tributaries. In addition, Congress has exempted certain discharges from CWA section 404 permitting requirements. The agencies have also adopted streamlined regulatory requirements to make permitting simpler and more expedient (80 FR 37053). The 2015 rule does not change the determination that the drainages in the study area are not ACOE-jurisdictional.

Areas regulated by the Regional Water Quality Control Board (RWQCB) are generally coincident with the ACOE, but can also include isolated features that have evidence of surface water inundation pursuant to the state Porter Cologne Act. These areas generally support at least one of

the three ACOE wetlands indicators but are considered isolated through the lack of surface water hydrology/connectivity downstream. To assist in the determination of RWQCB-jurisdictional areas in the study area, data was collected using the Arid West Ephemeral and Intermittent OHWM Datasheet at five features (see Appendix A-1). On Figure 3-1 and Figures 3-1A through 3-1W, these data collection points are referred to as OHWM Data Stations.

CDFW asserts jurisdiction over rivers, streams, lakes, and riparian vegetation associated with these features. Waters of the state were delineated based on watercourse characteristics present in the field, which include surface flow, sediment transportation and sorting, physical indicators of channel forms, channel morphology, and riparian habitat associated with a streambed. These characteristics are based on the CDFW guidance document, *A Review of Stream Processes and Forms in Dryland Watersheds* (Vyverberg 2010) and the *Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants* (CEC 2014).

To assist in the determination of CDFW-jurisdictional areas in the study area, data was collected using the Episodic Stream Indicator Data Sheet (Appendix G of CEC 2014) at 17 features (see Appendix A-2). On Figure 3-1 and Figures 3-1A through 3-1W, these data collection points are referred to as Data Stations. The study area was evaluated for evidence of fluvial indicators such as drainage swales, mud cracks, drift, wracking, vegetation-channel alignments, and hydrologic connectivity. The extent of any identified jurisdictional areas was determined by mapping the areas with fluvial characteristics and topography to the sampled locations. This data was also used to determine the location of isolated features pursuant to the state Porter-Cologne Act.

Table 2-2
Survey Information for Jurisdictional Delineation

Survey Date	Personnel	Field Hours	Survey Conditions
04/24/017	Britney Strittmater, Callie Amoaku	8:54 AM–5:17 PM	54°F–63°F; 80%–90% cc; 1–17 mph wind
04/25/017	Britney Strittmater, Callie Amoaku	8:15 AM–5:20 PM	58°F–62°F; 0%–10% cc; 3–18 mph wind
04/26/017	Britney Strittmater, Callie Amoaku	7:37 AM–2:30 PM	55°F–67°F; 30%–60% cc; 8–22 mph wind
05/30/2017	Callie Amoaku, Patricia Schuyler	7:25 AM–6:03 PM	74°F–79°F4; 0%–3 mph wind
05/31/2017	Callie Amoaku, Patricia Schuyler	7:08 AM–3:36 PM	53°F–73°F; 100% cc; 3–20 mph wind
03/02/18	Callie Amoaku	7:52 AM–5:40 PM	43°F –52°F; 80%-100% cc; 1–5 mph wind

Legend
°F = degrees Fahrenheit; cc = cloud cover; mph = miles per hour.

The limits of jurisdictional areas were collected in the field using a Trimble GeoXT GPS unit with sub-meter accuracy. The jurisdictional extents were digitized in GIS based on the GPS data and data collected directly onto field maps into a project-specific GIS using ArcGIS software.

2.3 Special-Status Plant Species Surveys

Special-status plant species surveys were conducted to determine the presence or absence of plant species that are considered endangered, rare, or threatened under CEQA Guidelines, Section 15380 (14 CCR 15000 et seq.).

2.3.1 Literature Review

Prior to field surveys, special-status plant species present or potentially present within the study area were identified through queries of the California Natural Diversity Database (CNDDB) (CDFW 2017), the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants (CNPS 2017), USFWS Information for Planning and Consultation (IPaC) (USFWS 2017b), USFWS species occurrence data (USFWS 2017c), and USFWS critical habitat data (USFWS 2017d). The CNPS Inventory and the CNDDB were queried based on the U.S. Geological Survey 7.5-minute quadrangles in which the study area is located (Monolith, Mojave, Sanborn, Bissell, and Soledad Mountain) and the 14 surrounding quadrangles (i.e., nine-quad search). The USFWS species occurrence and critical habitat data were queried using GIS software based on a 5-mile buffer around the study area. USFWS IPaC data was generated by the USFWS using a shapefile of the project site. Prior to conducting special-status plant species surveys in 2018, the CNDDB (CDFW 2018d), the CNPS (CNPS 2018a), IPaC (USFWS 2018b), USFWS species occurrence data (USFWS 2018c), and USFWS critical habitat data (USFWS 2018d) were queried as described above. Prior to conducting special-status plant species surveys in 2019, the CNDDB (CDFW 2019), the CNPS (CNPS 2019), IPaC (USFWS 2019a), USFWS species occurrence data (USFWS 2019b), and USFWS critical habitat data (USFWS 2019c) were queried as described above.

2.3.2 Reference Population Checks

Plant species bloom at slightly different times each year depending on temperature, rainfall patterns, elevation, and other environmental factors. Reference population checks involve locating known special-status plant species populations during a time frame when they are known to be blooming or exhibit other phenological characteristics that allow for species identification. Observations of reference populations during peak phenology ensure that these species would be identifiable if they were present in the study area.

In May 2017, Dudek biologists conducted reference population checks for some of the special-status plant species that had the potential to occur on the study area. Data gathered from the reference population checks were used to confirm that the species would have been detectable during the 2017 surveys. Table 2-3 includes a list of the focal special-status plant species that were

observed at the reference sites, as well as the observation date and distance of the reference population from the study area.

Table 2-3
Summary of Special-Status Plant Species Reference Site Checks

Scientific Name	Common Name	Status	Date Observed	Distance from Study Area
California macrophylla	round-leaved filaree	None/None/1B.2	05/04/2017	32 miles
Calochortus striatus	alkali mariposa lily	None/None/1B.2	05/04/2017 04/09/2019	2 miles
Cymopterus deserticola	desert cymopterus	None/None/1B.2	05/09/2017	16 miles
Delphinium recurvatum	recurved larkspur	None/None/1B.2	05/04/2017 04/09/2019	2 miles
Eriophyllum mohavense	Barstow woolly sunflower	None/None/1B.2	05/17/2017 04/09/2019	40 miles
Layia heterotricha	pale-yellow layia	None/None/1B.2	05/10/2017	13 miles
Navarretia setiloba	Piute Mountains navarretia	None/None/1B.1	05/04/2017	33 miles

Status Legend:
CRPR: California Rare Plant Rank
1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
Threat Rank
0.1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
0.2 – Moderately threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat

Additional areas were added to the study area after the May 2017 special-status plant species surveys were conducted. Dudek biologists conducted reference population checks for all of the species listed in Table 2-3, except round-leaved filaree. None of the occurrences located at the reference sites were identifiable, likely due to low rainfall, during the reference checks on April 30, 2018, or May 25, 2018; therefore, a special-status plant species survey was not conducted in 2018 in these additional areas. Reference population checks were conducted again in April 2019, as listed in Table 2-3, and surveys were performed in these additional areas in 2019.

2.3.3 Field Survey

Focused plant species surveys were floristic in nature and conformed to the *CNPS Botanical Survey Guidelines* (CNPS 2001), *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (CDFW 2018f), and the *General Rare Plant Survey Guidelines* (Cypher 2002). The plant species detected during the field surveys were identified to subspecies or variety, if applicable and feasible, to determine sensitivity status. Scientific and common names for plant species with a CRPR (formerly CNPS List) follow the *California Native Plant Society On-Line Inventory of Rare, Threatened, and Endangered Plants*

of California (CNPS 2018a). For plant species without a CRPR, scientific names follow the *Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California* (Jepson Flora Project 2018), and common names follow the *List of Vegetation Alliances and Associations* (CDFG 2010) or the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service Plants Database (USDA 2018b).

The survey was conducted by walking 20-meter transects to detect special-status species. The 20-meter transects were imported into the Esri Collector application, and digital devices were used in the field to navigate along the survey transect lines. Special-status plant species observed were mapped in the field using the Esri Collector application.

Table 2-4
Special-Status Plant Species Survey Information

Survey Date	Personnel	Field Hours	Survey Conditions
05/01/2017	Heather Moine, Paul Keating, Russell Sweet	8:30 a.m.–5:00 p.m.	64°F–88°F; 0% cc; 1–9 mph wind
05/02/2017	Heather Moine, Janice Wondolleck, Paul Keating, Russell Sweet	7:50 a.m.–4:30 p.m.	63°F–90°F; 0%–10% cc; 1–4 mph wind
05/03/2017	Callie Amoaku, Heather Moine, Janice Wondolleck, Paul Keating, Russell Sweet	7:50 a.m.–4:45 p.m.	68°F–91°F; 0%–25% cc; 1–2 mph wind
05/03/2017	Andrea Dransfield, Britney Strittmater, Kathleen Dayton, Monique O'Conner	8:00 a.m.–4:35 p.m.	71°F–94°F; 0%–50% cc; 2–4 mph wind
05/04/2017	Callie Amoaku, Heather Moine, Janice Wondolleck	7:15 a.m.–1:30 p.m.	67°F–88°F; 0% cc; 1–5 mph wind
05/04/2017	Andrea Dransfield, Britney Strittmater, Kathleen Dayton, Monique O'Conner	7:28 a.m.–4:31 p.m.	70°F–93°F; 0%–20% cc; 1–3 mph wind
05/05/2017	Andrea Dransfield, Kathleen Dayton, Monique O'Conner	6:44 a.m.–12:04 p.m.	72°F–86°F; 20%–50% cc; 1–3 mph wind
05/08/2017	Andrea Dransfield, Heather Moine, Kyle Matthews, Russell Sweet	7:30 a.m.–4:15 p.m.	54°F–73°F; 25%–50% cc; 1–6 mph wind
05/09/2017	Andrea Dransfield, Heather Moine, Kyle Matthews, Russell Sweet	7:30 a.m.–2:00 p.m.	61°F–81°F; 0%–50% cc; 4–5 mph wind
05/10/2017	Heather Moine, Russell Sweet	10:00 a.m.–3:15 p.m.	65°F–77°F; 0%–5% cc; 2–10 mph wind
05/19/2017	Andrea Dransfield, Heather Moine, Janice Wondolleck, Russell Sweet	7:30 a.m.–3:00 p.m.	59°F–80°F; 0% cc; 2–3 mph wind
05/30/2017	Callie Amoaku, Patricia Schuyler	10:51 a.m.–2:04 p.m.	79°F–82°F; 30% cc; 0–2 mph wind
04/15/2019	Heather Moine, Russell Sweet	9:00 a.m.–4:30 p.m.	64°F–73°F; 30%–40% cc; 8–13 mph wind
04/16/2019	Heather Moine, Russell Sweet	7:20 a.m.–5:05 p.m.	48°F–59°F; 0%–25% cc; 7–30 mph wind
04/17/2019	Heather Moine, Russell Sweet	6:50 a.m.–1:00 p.m.	50°F–70°F; 0%–5% cc; 4–8 mph wind

Notes: °F = degrees Fahrenheit; cc = cloud cover; mph = miles per hour.

2.4 Special-Status Wildlife

2.4.1 Desert Tortoise

Surveys for desert tortoise (*Gopherus agassizii*) were conducted within the study area. Surveys were conducted in accordance with the USFWS pre-project field survey protocol (USFWS 2010). Surveys included 10-meter-wide (approximately 33-foot-wide) belt transects covering the entire area of potential impacts. Surveys were completed during the desert tortoise's most active period during the spring (April and May, when temperatures are below 40° Celsius (104° Fahrenheit)), to maximize the possibility of detecting tortoises above ground. Biologists recorded all locations where desert tortoises or their sign (burrows, scat, carcasses, etc.) were observed. Desert tortoise burrows were each assigned to a "condition class" according to a scheme provided in the *Desert Tortoise (Mojave Population) Field Manual* (Gopherus agassizii) (USFWS 2009):

1. Currently active, with desert tortoise or recent desert tortoise sign.
2. Good condition, definitely desert tortoise; no evidence of recent use.
3. Deteriorated condition, which includes collapsed burrows; definitely desert tortoise.
4. Good condition; possibly desert tortoise.
5. Deteriorated condition, which possibly includes collapsed burrows; possibly desert tortoise.

Biologists also recorded temperatures during surveys, measuring air temperature approximately 5 centimeters (approximately 2 inches) above the soil surface in an area of full sun, but while shaded by the observer (Table 2-5). Data recording was consistent with the requirements of the USFWS 2010 Desert Tortoise Pre-Project Survey Protocol Data Sheet (USFWS 2010).

Table 2-5
Survey Information for Desert Tortoise

Survey Date	Personnel	Field Hours	Survey Conditions (Start–End)	Wind Speed (Start–End)
4/24/2017	Holly Hill, Dilip Mahto, Michelle Jordan, Sedona Maniak, Carrie Anderson	6:05 a.m.–7:25 p.m.	57°F–67°F	6–28 mph
4/25/2017	Holly Hill, Dilip Mahto, Michelle Jordan, Sedona Maniak, Carrie Anderson	7:00 a.m.–4:00 p.m.	50°F–64°F	25–25 mph
4/26/2017	Holly Hill, Dilip Mahto, Michelle Jordan, Sedona Maniak, Carrie Anderson	6:30 a.m.–5:00 p.m.	53°F–63°F	15–25 mph
4/27/2017	Holly Hill, Dilip Mahto, Sedona Maniak, Teresa Ray, Carrie Anderson	6:30 a.m.–1:30 p.m.	48°F–62°F	17–44 mph

Table 2-5
Survey Information for Desert Tortoise

Survey Date	Personnel	Field Hours	Survey Conditions (Start–End)	Wind Speed (Start–End)
4/28/2017	Holly Hill, Dilip Mahto, Sedona Maniak, Teresa Ray	6:30 a.m.–4:15 p.m.	52°F–95°F	15–5 mph
05/01/2017	Holly Hill, Sedona Maniak, Carrie Anderson, Susan Carlton, Teresa Ray	6:30 a.m.–7:00 p.m.	61°F–91°F	0–7 mph
05/02/2017	Holly Hill, Sedona Maniak, Carrie Anderson, Susan Carlton, Teresa Ray	6:15 a.m.–3:56 p.m.	65°F–74°F	3–3 mph
05/03/2017	Holly Hill, Sedona Maniak, Carrie Anderson, Amy Anderson	6:00 a.m.–4:36 p.m.	64°F–82°F	0–4 mph
05/04/2017	Holly Hill, Sedona Maniak, Carrie Anderson	6:35 a.m.–12:23 p.m.; 1:57 p.m.–4:20 p.m.	65°F–84°F	0–3 mph
05/05/2017	Holly Hill, Dilip Mahto, Sedona Maniak, Carrie Anderson	6:51 a.m.–4:07 p.m.	75°F–78°F	3–3 mph
05/08/2017	Holly Hill, Dilip Mahto, Michelle Jordan, Amy Anderson	7:00 a.m.–12:30 p.m.	48°F–68°F	1–4 mph
05/09/2017	Holly Hill, Dilip Mahto, Michelle Jordan, Amy Anderson	6:30 a.m.–4:36 p.m.	55°F–82°F	2–7 mph
05/10/2017	Amy Anderson, Dilip Mahto, Holly Hill	6:30 a.m.–4:07 p.m.	50°F–78°F	3–4 mph
05/11/2017	Amy Anderson, Dilip Mahto, Holly Hill	7:00 p.m.–4:30 p.m.	56°F–84°F	2–13 mph
05/12/2017	Amy Anderson, Holly Hill	6:31 a.m.–9:30 a.m.	56°F–74°F	4–10 mph
05/15/2017	Holly Hill, Dilip Mahto, Amy Anderson	7:07 a.m.–4:18 p.m.	44°F–61°F	3–5 mph
05/16/2017	Dilip Mahto, Holly Hill, Youssef Atallah, and Amy Anderson	7:00 a.m.–4:00 p.m.	54°F–67°F	5–7 mph
05/17/2017	Amy Anderson, Holly Hill, Dilip Mahto, Youssef Atallah	6:45 a.m.–7:45 p.m.	51°F–52°F	35–44 mph
05/18/2017	Amy Anderson, Holly Hill, Dilip Mahto, Youssef Atallah	7:00 a.m.–4:00 p.m.	48°F–75°F	1–12 mph
05/19/2017	Dilip Mahto, Holly Hill	6:30 a.m.–2:34 p.m.	53°F–72°F	0–1 mph
05/24/2017	Dilip Mahto, Sedona Maniak	7:00 a.m.–4:30 p.m.	78°F–93°F	7–13 mph
05/25/2017	Dilip Mahto, Sedona Maniak	6:00 a.m.–10:00 a.m.	70°F–74°F	12–10 mph
05/07/2018	Abby Bergsma, Zeph Friedman-Sowder	6:00 a.m.–4:00 p.m.	60°F–90°F	18–24 mph
05/08/2018	Abby Bergsma	6:00 a.m.–4:00 p.m.	63°F–93°F	1–18 mph
05/09/2018	Abby Bergsma	6:30 a.m.–2:30 p.m.	65°F–90°F	1–35 mph

Notes: °F = degrees Fahrenheit; mph = miles per hour.

2.4.2 Swainson's Hawk

Swainson's hawk surveys conformed with the CDFW-endorsed Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California (CEC and CDFG 2010). Per protocol requirements, Dudek conducted one survey during the pre-arrival period (Period 1: January–March 31 survey period), three surveys during the arrival and nest-building period (Period 2: April 1–30 survey period), and three surveys during the fledging period (Period 4: June 1–July 15 survey period) (Table 2-6).

The initial survey covered all accessible areas within 5 miles of potential project impacts, to determine potential nesting locations and become familiar with the Swainson's hawk survey area. Areas within Edwards AFB were not accessible, but biologists surveyed visible areas from outside the base. During the initial survey, Dudek biologists drove the entire accessible Swainson's hawk survey area, noting areas where Swainson's hawk nesting habitat occurred and familiarizing themselves with the survey area. Biologists recorded locations of all nest structures observed that were suitable for Swainson's hawks, although a thorough search for suitable nest structures was not completed during this survey. Biologists also noted any raptors (the orders Accipitriformes, Falconiformes, Strigiformes) observed during the survey. As Swainson's hawks may begin arriving during this period, biologists recorded the locations and behaviors of any Swainson's hawks observed.

During subsequent surveys, in survey periods 2 and 4, biologists surveyed the entire Swainson's hawk survey area described above, searching for Swainson's hawks and Swainson's hawk nests. All Swainson's hawk behaviors observed were noted; the locations of any observations of Swainson's hawks or Swainson's hawk nests were recorded; and the location of any potential Swainson's hawk nests, other raptor nests, and common raven (*Corvus corax*) nests (whether occupied or not), were recorded. All other raptor observations were also noted. Biologists drove slowly through or walked the entire Swainson's hawk survey area during each survey. The biologists stopped frequently while driving, to scan for Swainson's hawks and Swainson's hawk nests. Biologists used high-quality binoculars and spotting scopes for scanning, but also searched the area visually without the assistance of optics, while driving, walking, or occupying a stationary observation point. The latter were used where large habitat areas could be observed from a single location, especially when private property resulted in restricted access. Nest searching included all potential nests trees within the Swainson's hawk survey area. These included ornamental trees (trees of the genera *Pinus*, *Tamarix*, *Eucalyptus*, and *Populus*, among others), trees within windbreaks, and/or Joshua trees (*Yucca brevifolia*). Any suitable native trees were also examined.

During survey period 2 (April surveys), biologists focused particularly on identifying the locations of suitable nests and behaviors indicative of nesting (territorial or courtship displays, carrying nesting material and building nests, copulation). Surveys were conducted at any time during daylight hours. During survey period 4 (June 1 to July 15), biologists increasingly focused on searching for Swainson's hawk adults soaring, calling, or perching near nests, or Swainson's hawk fledglings active in the nest vicinity. Surveys during this period were conducted in daylight hours prior to 12:00 p.m. and after 4:00 p.m.

Table 2-6
Swainson's Hawk Survey Information

Survey Period/No.	Date	Personnel	Field Hours	Survey Conditions
1/1	03/30/2017	Dave Compton, Russell Sweet	7:20 a.m.–6:20 p.m.	55°F–62°F, 0%–50% cc, 5–43 mph wind
2/1 (day 1)	04/07/2017	Dave Compton, Russell Sweet	9:19 a.m.–5:00 p.m.	66°F–73°F, 50%–80% cc, 1–18 mph wind
2/1 (day 2)	04/21/2017	Dave Compton, Russell Sweet	6:20 a.m.–7:40 p.m.	48°F–74°F, 0%–5% cc, 3–21 mph wind
2/2 (day 1)	04/24/2017	Dave Compton, Russell Sweet	6:19 a.m.–6:27 p.m.	55°F–65°F, 40%–70% cc, 8–22 mph wind
2/2 (day 2)	04/25/2017	Dave Compton, Russell Sweet	7:00 a.m.–4:20 p.m.	48°F–73°F, 15%–85% cc, 5–20 mph wind
2/3 (day 1)	04/27/2017	Dave Compton, Russell Sweet	6:20 a.m.–6:15 p.m.	54°F–65°F, 5%–80% cc, 5–16 mph wind
2/3 (day 2)	04/28/2017	Dave Compton, Russell Sweet	7:05 a.m.–4:10 p.m.	42°F–70°F, 5%–80% cc, 5–20 mph wind
4/1 (day 1)	06/05/2017	Dave Compton, Russell Sweet	5:50 a.m.–12:00 p.m.; 4:00 p.m.–7:43 p.m.	65°F–98°F, 0% cc, 1–10 mph wind
4/1 (day 2)	06/06/2017	Dave Compton, Russell Sweet	5:50 a.m.–12:00 p.m.; 4:00 p.m.–6:30 p.m.	61°F–94°F, 5%–30% cc, 2–10 mph wind
4/2 (day 1)	06/19/2017	Dave Compton, Russell Sweet	5:50 a.m.–12:00 p.m.; 4:00 p.m.–7:55 p.m.	71°F–109°F, 0% cc, 4–9 mph wind
4/2 (day 2)	06/20/2017	Dave Compton, Russell Sweet	5:45 a.m.–12:00 p.m.	74°F–100°F, 0% cc, 1–3 mph wind
4/3 (day 1)	07/06/2017	Dave Compton, Russell Sweet	5:58 a.m.–11:59 a.m.; 4:00 p.m.–7:55 p.m.	76°F–103°F, 5%–20% cc, 1–15 mph wind
4/3 (day 2)	07/07/2017	Dave Compton, Russell Sweet	5:52 a.m.–11:45 a.m.	79°F–101°F, 0%–2% cc, 3–12 mph wind

Notes: °F = degrees Fahrenheit; cc = cloud cover; mph = miles per hour.

2.4.3 Mohave Ground Squirrel

A field-based habitat assessment that examined soil, vegetation, topographic and disturbance features was carried out to assess the suitability of habitat for Mohave ground squirrel

(S*permophilus [Xerospermophilus] mohavensis*) in the study area. The field survey involved windshield and foot surveys to sample the study area, recording plant species, vegetation communities, and disturbance factors that might affect Mohave ground squirrel suitability. The field assessment was carried out on March 26, April 3, and May 31, 2018, by Phil Brylski, PhD, who holds a CDFW Memorandum of Understanding to trap and handle Mohave ground squirrel.

The literature review included the following sources:

- Ecological studies on Mohave ground squirrel
- Mohave ground squirrel survey reports for the project region, where available
- Regional Mohave ground squirrel studies: Leitner's (2008, 2015) summary of Mohave ground squirrel capture results across the species' range for the periods 1998–2007 and 2008–2012
- Records in the CNDDB (CDFW 2018d) and the online database of museum mammal specimens (Vertnet.org 2018)

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3 ENVIRONMENTAL SETTING

3.1 Regional Setting

The study area is located in the southern portion of Kern County, in central California as shown in Figure 1-1. The study area is located southeast of the Tehachapi Mountains and at the western edge of the Antelope Valley, in the southeastern portion of Kern County, approximately 12 miles north of Los Angeles County, and directly south of the community of Mojave. The lowest elevation of the study area is approximately 2,350 feet above mean sea level (amsl) in the southeast, and the highest elevation in the study are is approximately 3,500 feet amsl in the west.

The study area is located directly south and southwest of the community of Mojave, approximately 11 miles southeast of the City of Tehachapi, approximately 9 miles southwest of California City, and approximately 40 miles southeast of the City of Bakersfield. Other communities within the vicinity include Rosamond in Kern County, and the Cities of Lancaster and Palmdale in Los Angeles County, which are roughly 7 miles south, 18 miles south, and 25 miles south of the project site, respectively. Edwards AFB is located directly south of the project site.

Land usages in the vicinity of the study area consist of a mix of agricultural grazing, undeveloped land, scattered single-family residences, and several approved or proposed large-scale solar facilities. Several commercial wind projects are also operating in the vicinity. Topography across the study area is relatively flat as the site is south of the Tehachapi Mountains on lands that gradually slope downward from the northwest to the southeast. Desert vegetation dominates the region. The major north–south roadway in the region is SR-14, a four-lane highway that bi-sects the gen-tie line. SR-58 is north of the study area. The study area is located approximately 37 miles east of I-5. It is primarily accessible by exiting SR-14. The project site would be accessed from gates off of Purdy Avenue and East Silver Queen Road.

3.2 Vegetation Communities

The acreages of the mapped vegetation alliances and other land covers within the study area are presented in Table 3-1, including those that are considered sensitive biological resources by CDFW under CEQA per the List of Sensitive Communities (CDFW 2018c). The term semi-natural stands versus alliance is used in the *Manual of California Vegetation* to distinguish between natural vegetation communities and vegetation types dominated by non-native plant species (Sawyer et al. 2009). The alliances and other land covers are grouped in Table 3-1 by the generalized habitat. The locations of the vegetation community alliances and land covers within the study area are shown on Figure 3-1 and Figures 3-1A through 3-1W and are briefly described by generalized habitat type in Sections 3.2.1 through 3.2.5.

Table 3-1
Vegetation Communities in the Study Area

General Habitat	Alliance	Association/Vegetation Community	Grand Total
Chenopod Scrub	Allscale Scrub	Allscale	1,983
		Chenopod Scrub Total	*1,983*
Great Basin Scrub	Rubber Rabbitbrush Scrub	N/A	4
		Great Basin Scrub Total	*4*
Non-Native Grassland	N/A	N/A	97
		Non-Native Grassland Total	*97*
Sonoran and Mojavean Desert Scrub	Cheesebush–Sweetbush Scrub	Cheesebush–Creosote Bush	71
		Cheesebush Scrub	47
	Creosote Bush Scrub	Creosote Bush	485
		Creosote Bush–Allscale	11
	White Bursage Scrub	White Bursage Scrub	79
	Creosote Bush–White Bursage Scrub	Creosote Bush–White Bursage Scrub	33
		Sonoran and Mojavean Desert Scrub Total	*726*
Riparian and Bottomland Habitat	Non-Vegetated Channel	N/A	5
		Riparian and Bottomland Habitat Total	*5*
Disturbed and Developed	N/A	Disturbed Habitat	137
	N/A	Urban/Developed	34
		Disturbed and Developed Total	*172*
		Total	**2,987**

3.2.1 Chenopod Scrub

Allscale Scrub Alliance

The allscale scrub alliance has an open to continuous shrub canopy cover with shrubs less than 3 meters (10 feet) in height with a variable ground layer (Sawyer et al. 2009). For a stand of vegetation to be classified as allscale scrub, allscale (*Atriplex polycarpa*) must be greater than 50% relative cover[2] in the shrub canopy. The allscale scrub alliance occurs in the Sierra Nevada foothills, and along the central California Coast Ranges, southeastern great basin, and the Mojave, Sonoran, and Colorado Deserts. This alliance occurs at elevations ranging from 75 meters (246 feet) below sea level to 1,500 meters (4,921 feet) amsl. The allscale scrub alliance occurs on alluvial fans, washes, playas, lakebeds, and shores, and along upper terraces and edges of washes (Sawyer et al. 2009).

Study Area-Specific Information

Within the study area, the allscale scrub alliance is characterized as having greater than 75% relative cover of allscale in the shrub canopy, including 15% to 25% absolute cover. Emergent Joshua tree is present at a low cover. The understory of this alliance is characterized by Arabian schismus (*Schismus arabicus*) and redstem stork's bill (*Erodium cicutarium*). Other native species noted in this association include Anderson's boxthorn (*Lycium andersonii*) and Cooper's goldenbush (*Ericameria cooperi* var. *cooperi*). In the study area, there is one association in the allscale scrub alliance—allscale association.

Status

The allscale scrub alliance and its associations are ranked as G5S4 and, thus, CDFW does not consider the allscale scrub alliance a sensitive biological resource under CEQA (CDFW 2018c).

3.2.2 Great Basin Scrub

Rubber Rabbitbrush Scrub Alliance

The rubber rabbitbrush alliance has a continuous or open shrub canopy cover with shrubs less than 3 meters (10 feet) in height with a sparse or grassy ground layer (Sawyer et al. 2009). For a stand of vegetation to be classified as rubber rabbitbrush scrub, rubber rabbitbrush (*Ericameria*

[2] Relative cover refers to the amount of the stand sampled that is covered by one species as compared to (relative to) the amount of the stand covered by all species (in that group). Thus, 50% relative cover means that half of the total cover of all species is composed of the single species. Relative cover values are proportional numbers and, if added, total 100% for each stand (CNPS and CDFG 2007).

nauseosa) must be greater than 50% relative cover in the shrub canopy. The rubber rabbitbrush scrub alliance occurs along the central and northern California Coast Ranges, Southern California mountains and valleys, southern Cascades, Klamath mountains, Modac Plateau, Mono, Sierra Nevada, southeastern great basin, northwestern basin range, and the Mojave Desert. This alliance occurs at elevations ranging from sea level to 3,200 meters (10,498 feet) amsl. The rubber rabbitbrush scrub alliance occurs on all topographic locations and is commonly found in disturbed areas (Sawyer et al. 2009).

Study Area-Specific Information

Within the study area, the rubber rabbitbrush scrub alliance is characterized as having greater than 75% relative cover of rubber rabbitbrush in the shrub canopy, including 25% to 55% absolute cover. The understory of this alliance is characterized by Arabian schismus, red brome (*Bromus madritensis* ssp. *rubens*), yellow pincushion (*Chaenactis glabriuscula*), and Menzies' fiddleneck (*Amsinckia menziesii*).

Status

The rubber rabbitbrush scrub alliance is ranked as G5S5; therefore, CDFW does not consider the rubber rabbitbrush scrub alliance a sensitive biological resource under CEQA (CDFW 2018c).

3.2.3 Non-native Grassland

As noted in Section 2.1, non-native grasslands were mapped to the general habitat type because CDFW does not consider any of the semi-natural stands sensitive biological resources under CEQA (CDFW 2018c).

Non-native grassland has a sparse to dense cover of annual grasses that is typically 0.2 meters (0.7 feet) to 0.5 meters (1.6 feet) tall and can be up to 1 meter (3 feet) tall. Grasses that occur in non-native grassland include wild oats (*Avena* spp.), bromes (*Bromus* spp.), fescue (*Vulpia* spp.), and Italian ryegrass (*Festuca perennis*). Forbs that occur with these grasses include California poppy (*Eschscholzia californica*), stork's bill (*Erodium* ssp.), goldfields (*Lasthenia* spp.), phacelias (*Phacelia* ssp.), gilias (*Gilia* spp.), and baby blue eyes (*Nemophila menziesii*) (Holland 1986). Non-native grassland also includes land that is used as pasture for grazing purposes. Grasses such as barley (*Hordeum* spp.) and wild oats may grow in these areas. This land has very few native species.

Study Area-Specific Information

Within the study area, non-native grasslands are characterized as having an understory dominated by non-native grasses including Arabian schismus, red brome, cheatgrass (*Bromus tectorum*), and hare barely (*Hordeum murinum* ssp. *leporinum*).

Status

Non-native grasslands are not considered a sensitive biological resource under CEQA (CDFG 2010). Non-native grasslands is not a natural vegetation community, but a semi-natural stand. Semi-natural stands are not ranked by CDFW.

3.2.4 Sonoran and Mojavean Desert Scrub

Cheesebush–Sweetbush Scrub Alliance

The cheesebush–sweetbush alliance has an open to intermittent shrub canopy with a sparse or seasonally present ground layer (CNPS 2018b). For a stand of vegetation to be classified as the cheesebush–sweetbush alliance, one of the following membership criteria must be met:

- Cheesebush is greater than 1% absolute cover in the shrub canopy; other shrubs, if present, less than half the cover of cheesebush except desert lavender (*Condea emoryi*) or desert purple sage (*Salvia dorrii*), which may have higher cover.
- Cheesebush is greater than 2% absolute cover in the shrub canopy; other shrubs less than 2% absolute cover in the shrub canopy.
- Cheesebush is greater than 5% absolute cover in the shrub canopy; emergent desert lavender and smoke tree (*Psorothamnus spinosus*) up to 3% absolute cover.
- Woolly brickellbush (*Brickellia incana*) greater than 50% relative cover in the shrub canopy, or greater than 30% relative cover with cheesebush or other shrubs.
- Sweetbush is greater than 50% relative cover in the shrub canopy, or greater than 30% relative cover with cheesebush.
- Cheesebush is greater than 50% relative cover in the shrub canopy, or greater than 30% relative cover with woolly fruit bur ragweed (*Ambrosia eriocentra*), woolly brickellbush, California buckwheat (*Eriogonum fasciculatum*), creosote bush, etc.
- Shrub cover is sparse with greater than 50% relative cover of woolly fruit bur ragweed and/or woolly brickellbush.

The cheesebush–sweetbush alliance occurs in the great valley, along the central California Coast Ranges, southeastern great basin, Southern California mountains and valleys, and the Mojave, Sonoran, and Colorado Deserts. This alliance occurs at elevations ranging from sea level to 1,600 meters (5,249 feet) amsl. The cheesebush–sweetbush alliance occurs on valleys, flats, or rarely flooded low-gradient deposits, or can be found in washes or intermittent channels, arroyos, and washes (Sawyer et al. 2009).

Study Area-Specific Information

Within the study area, the cheesebush–sweetbush alliance is characterized as having greater than 50% relative cover of cheesebush in the shrub canopy, including 5% to 15% absolute cover. The understory of this alliance is characterized by Arabian schismus. Other native species noted in this association include creosote bush (*Larrea tridentata*), peach thorn (*Lycium cooperi*), white bursage (*Ambrosia dumosa*), rayless goldenhead (*Acamptopappus sphaerocephalus*) and allscale. In the study area, there is one association in the cheesebush–sweetbush scrub alliance: cheesebush and cheesebush-creosote bush association.

Status

The cheesebush–sweetbush scrub alliance and its associations are ranked as G4S4; therefore, CDFW does not consider the cheesebush–sweetbush scrub alliance a sensitive biological resource under CEQA (CDFW 2018c).

Creosote Bush Scrub Alliance

The creosote bush scrub alliance has an open to intermittent shrub canopy cover with shrubs less than 3 meters (10 feet) in height with a open to intermittent ground layer containing seasonal annuals or perennial grasses (Sawyer et al. 2009). For a stand of vegetation to be classified as creosote bush scrub, creosote (*Larrea tridentata*) must exceed other shrubs in cover including emergent small trees and taller shrubs except for white bursage (*Ambrosia dumosa*). The creosote bush scrub alliance occurs in the Mojave, Sonoran, and Colorado Deserts; southeastern great basin; and Southern California mountains and valleys. This alliance occurs at elevations ranging from 75 meters below sea level to 1,000 meters (3,280 feet) amsl. The creosote bush scrub alliance occurs on upland slopes, alluvial fans, bajadas, and intermittent washes (Sawyer et al. 2009).

Study Area-Specific Information

Within the study area, the creosote bush scrub alliance is characterized as having greater than 50% relative cover of creosote bush in the shrub canopy, including 1% to 5% absolute cover. The understory of this alliance is characterized by red brome and Menzies' fiddleneck. Other native species

noted in this association include allscale and Cooper's goldenbush. In the study area, there are two associations in the creosote bush scrub alliance: creosote bush association and creosote bush-allscale association.

Status

The creosote bush scrub alliance and its associations are ranked as G5S5; therefore, CDFW does not consider the creosote bush scrub alliance a sensitive biological resource under CEQA (CDFW 2018c).

White Bursage Scrub Alliance

The white bursage scrub alliance has an open to intermittent shrub canopy cover with trees less than 1 meter (3 feet) in height with an open to intermittent ground layer containing seasonal annuals (Sawyer et al. 2009). For a stand of vegetation to be classified as white bursage scrub, white bursage must be greater than two times as much absolute cover as creosote bush, with white bursage exceeding the cover of all other shrubs in the shrub layer. The white bursage scrub alliance occurs in the Mojave, Sonoran, and Colorado Deserts, and Southern California mountains and valleys. This alliance occurs at elevations ranging from sea level to 1,700 meters (5,577 feet) amsl. The white bursage alliance occurs on upland slopes, rocky hillsides, alluvial fans, washes and river terraces, and sand fields (Sawyer et al. 2009).

Study Area-Specific Information

Within the study area, the white bursage scrub alliance is characterized as having greater than 25% relative cover of white bursage in the shrub canopy, including 1% to 5% absolute cover. The understory of this alliance is characterized by Arabian schismus and whitestem blazingstar (*Mentzelia albicaulis*). Other native species noted in this alliance include creosote bush, Anderson's boxthorn, peach thorn, Cooper's goldenbush, and rayless goldenhead. In the study area, there is one association in the white bursage scrub alliance—white bursage scrub association.

Status

The white bursage scrub alliance is ranked as G5S5; therefore, CDFW does not consider the white bursage scrub alliance a sensitive biological resource under CEQA (CDFW 2018c).

Creosote Bush–White Bursage Scrub Alliance

The creosote bush–white bursage scrub alliance has an open to intermittent, two-tiered shrub canopy cover (shrubs <3 meters or 9.8 feet) and the herbaceous layer is absent to intermittent with seasonal annuals (Sawyer et al. 2009). For a stand of vegetation to be classified as creosote bush–

white bursage scrub, creosote bush and white bursage must be greater than or equal to 1% absolute and two times the absolute cover of any other shrub; or creosote bush and white bursage must be greater than or equal to 1% absolute cover, and no shrub can be greater with the exception of rayless goldenhead, sweetbush, buck-horn cholla (*Cylindropuntia acanthocarpa*), Nevada joint fir (*Ephedra nevadensis*), needleleaf rabbitbrush (*Ericameria teretifolia*), or ratany (*Krameria* spp.), which may have higher cover but not more than three times that of creosote bush and white bursage. The creosote bush–white bursage scrub alliance occurs in the Mojave, Sonoran, and Colorado Deserts, and Southern California mountains and valleys. This alliance occurs at elevations ranging from 75 meters (246 feet) below mean sea level to 1,700 meters (5,577 feet) amsl. The creosote bush–white bursage scrub occurs on washes and rills, bajadas, valleys, basins, upland slopes, mesas, alluvial fans, and erosional highlands (CNPS 2018b).

Study Area-Specific Information

Within the study area, the creosote bush–white bursage scrub alliance is characterized as having 15% to 25% relative cover of creosote bush and 5% to 15% relative cover of white bursage. Other native species noted in this alliance include Joshua trees, cheesebush, and allscale. In the study area, there is one association in the creosote bush-white bursage scrub alliance—creosote bush-white bursage scrub.

Status

The creosote bush–white bursage alliance is ranked as G5S5; therefore, CDFW does not consider the creosote bush–white bursage alliance a sensitive biological resource under CEQA (CDFW 2018c).

3.2.5 Riparian and Bottomland Habitat

Non-vegetated Channel

Areas mapped as non-vegetated channel consist of ephemeral drainages that lack wetland or riparian vegetation and only flow for up to 24 hours after a storm event.

Status

Non-vegetated channel is not on the California Natural Community List (CDFW 2018e) and, thus, is not considered a sensitive natural community by CDFW. Because it is regulated by the RWQCB and CDFW as waters of the state, it is considered a sensitive biological resource under CEQA. Non-vegetated channel in the context of regulatory jurisdiction is described in Section 3.3.

3.2.6 Disturbed and Developed

Disturbed Habitat

Areas mapped as disturbed habitat include primarily dirt roads, but also include areas where disturbance (e.g., grading/disking) has occurred and that has resulted in a lack of vegetation.

Status

Disturbed habitat typically does not support any vegetation. Disturbed habitat is not on the California Natural Community List (CDFW 2018e) and, thus, is not considered a sensitive natural community (CDFW 2018c). Therefore, disturbed habitats are not considered a sensitive biological resource under CEQA.

Urban/Developed

Areas mapped as urban/developed land include areas devoid of vegetation, but also contain some kind of urban or developed feature such as a structure, pavement, landscaping, etc.

Status

Urban/developed land typically does not support any vegetation or is a landscaped area. Urban/developed land is not on the California Natural Community List (CDFW 2018e) and, thus, is not considered a sensitive natural community (CDFW 2018c). Therefore, urban/developed lands are not considered a sensitive biological resource under.

3.3 Jurisdictional Delineation and Determinations

Dudek performed a formal jurisdictional delineation within the 2,987-acre study area (Figure 2-1) in April and May 2017, and March 2018, with methods described in detail in Section 2.2. Representative photographs are included in Appendix B; and the results of the delineations are shown on Figure 3-1, and Figures 3-1A through 3-1W.

The study area is located east of the Tehachapi Mountains and south of Sugarloaf Mountain and is relatively flat, gradually sloping downward from the northwest to the southeast. Rogers Lake, a closed drainage basin, together with the adjacent smaller Rosamond and Buckthorn Lake, make up the largest water feature in the study area vicinity. Drainages within the study area originate from flows from the Tehachapi and Sugarloaf Mountains, road runoff, or sheet-flow, and either dissipate into the desert floor evaporating or infiltrating into the groundwater basin or continue to flow to Rogers Lake during larger storm events. The results of the jurisdictional delineation concluded there are non-wetland

jurisdictional waters within the study area. Details regarding the findings from the formal jurisdictional delineations for the study area are discussed below.

3.3.1 Federal Jurisdiction

The study area does not contain any streams, wetland waters, or other waters that are subject to federal jurisdiction under Section 404 of the Clean Water Act. Wetland hydrology indicators were not present (i.e., hydrophytic vegetation, hydric soils, or surface water). More specifically, as discussed in Section 2.2, the ACOE determined that all tributaries to Rogers Lakes are not waters of the United States (File No. SPL-2013-00545-TS; File No. SPL-2011-01084-SLP). Drainages within the study area either dissipate into the desert floor evaporating or infiltrating into the groundwater basin or continue to flow to Rogers Lake during larger storm events. The Antelope Valley Watershed is considered a closed basin and functions as an isolated intrastate watershed system lacking the presence of a traditional navigable water. Therefore, based upon these previous determinations, all features within the study area were considered to be non-jurisdictional under the ACOE.

3.3.2 State Jurisdiction

Water resources are also subject to state laws administered by CDFW and the RWQCB. Resources subject to the jurisdiction of the CDFW pursuant to Section 1602 of the California Fish and Game Code include ephemeral, intermittent, and perennial stream channels. The resources on site subject to the jurisdiction of the RWQCB pursuant to the Porter–Cologne Water Quality Control Act overlap those under the jurisdiction of CDFW.

3.3.3 Summary

Approximately 5.1 acres (34,332 linear feet) of waters of the state occur within the study area (Figure 3-1). CDFW- and RWQCB-jurisdictional areas present include ephemeral stream channels and swales. Table 3-2 includes the acres and linear feet of CDFW- and RWQCB-jurisdictional non-wetland waters within the study area and also includes the periodicity of the non-wetland waters of the state on site (i.e., ephemeral). The CDFW- and RWQCB-jurisdictional areas are shown on Figure 3-1, and Figures 3-1A through 3-1W.

Table 3-2
Jurisdictional Waters of the State in the Study Area

Jurisdiction	Total	
	Acres	*Linear Feet*
Non-wetland Waters of the State (RWQCB/CDFW) – Ephemeral	5.1	34,332

3.4 Plant Resources

The study area is not located in federally designated critical habitat for federally listed plant species. Based on the results of the special-status plant species surveys, eight alkali mariposa lilies (*Calochortus striatus*) were observed. Alkali mariposa lily has a CRPR of 1B.2.

A total of 145 species of native or naturalized plant species, 110 native (76%) and 35 non-native (24%), was recorded on the site (see Appendix C).

Special-status plant species that are not expected to occur due to lack of suitable vegetation or because the site is outside of the known elevation range of the species are listed in Appendix D. These species are not discussed further because no significant direct, indirect, or cumulative impacts are expected to result from the proposed project.

Table 3-3 evaluates the potential for special-status plant species that are in the known elevation range of the species and that occur in the vegetation communities present in the study area. The potential for special-status plant species to occur is either not expected or low (unless observed) based on survey results and other factors noted in Table 3-3. Based on the literature review and vegetation communities present, the following special-status plant species have a low potential to occur: recurved larkspur (*Delphinium recurvatum*; CRPR 1B.2), Barstow woolly sunflower (*Eriophyllum mohavense*; CRPR 1B.2), pale-yellow layia (*Layia heterotricha*; CRPR 1B.1), sagebrush loeflingia (*Loeflingia squarrosa var. artemisiarum*; CRPR 2B.2), and Latimer's woodland-gilia (*Saltugilia latimeri*; CRPR 2B.2). The remainder of the species listed in Table 3-3 are not expected to occur and are not discussed further.

3.4.1 Alkali Mariposa Lily (*Calochortus striatus*)

Alkali mariposa lily is a CRPR 1B.2. Alkali mariposa lily is a perennial herb and is found in shadscale scrub, chaparral, alkali meadows, and wetland-riparian vegetation communities (CNPS 2018). This species' blooming period is between April and June. Alkali mariposa lily occurs between 225 and 5,235 feet amsl.

Eight alkali mariposa lily individuals were observed within the study area (Table 3-3). One individual was observed in the northern portion of the study area within allscale, and the remaining seven individuals were observed in the southern portion of the study area within allscale.

3.4.2 Recurved Larkspur (*Delphinium recurvatum*)

Recurved larkspur is a CRPR 1B.2. Recurved larkspur is a perennial herb, endemic to California, and is found in shadscale scrub, valley grassland, and foothill woodland (CNPS 2018). This

species' blooming period is between March and June. Recurved larkspur occurs between 5 and 2,590 feet amsl.

Recurved larkspur has a low potential to occur (Table 3-3). There are known occurrences 4 miles south of the study area along Highway 14.

3.4.3 Barstow Woolly Sunflower (*Eriophyllum mohavense*)

Barstow woolly sunflower is a CRPR 1B.2. Barstow woolly sunflower is an annual herb, endemic to California, and is found in creosote bush scrub, shadscale scrub, and alkali sink (CNPS 2018). This species' blooming period is between April and May. Barstow woolly sunflower occurs between 1,640 and 3,150 feet amsl.

Barstow woolly sunflower has a low potential to occur (Table 3-3). There are known occurrences 4 miles northeast of the study area along the western and southern boundaries of the Hyundai track site.

3.4.4 Pale-Yellow Layia (*Layia heterotricha*)

Pale-yellow layia is a CRPR 1B.1. Pale-yellow layia is an annual herb, endemic to California, and is found in valley grassland, foothill woodland, pinyon-juniper woodland, and wetland-riparian vegetation communities (CNPS 2018). This species' blooming period is between March and June. Pale-yellow layia occurs between 980 and 5,595 feet amsl.

Pale-yellow layia has a low potential to occur (Table 3-3). There are known occurrences 4 miles northwest of the study area along the southern slopes of Horned Toad Hills.

3.4.5 Sagebrush Loeflingia (*Loeflingia squarrosa* var. *artemisiarum*)

Sagebrush loeflingia is a CRPR 2B.2. Sagebrush loeflingia is an annual herb and is found in creosote bush scrub and sagebrush scrub (CNPS 2018). This species' blooming period is between April and May. Sagebrush Loeflingia occurs between 2,295 and 5,300 feet amsl.

Sagebrush loeflingia has a low potential to occur (Table 3-3). There are known occurrences 2 miles west of the study area and east of Highway 14.

3.4.6 Latimer's Woodland-Gilia (*Saltugilia latimeri*)

Latimer's woodland-gilia is a CRPR 1B.2. Latimer's woodland-gilia is an annual herb and is found in chaparral, Mojavean desert scrub, and pinyon and juniper woodland (CNPS 2018). This species'

blooming period is between March and June. Latimer's woodland-gilia occurs between 1,310 and 6,235 feet amsl.

Latimer's woodland-gilia has a low potential to occur (Table 3-3). There are known occurrences 5 miles west of the study area along the foothills of the Tehachapi Mountains.

California Desert Native Plant Act

The following native plant species observed within the study area, or any part thereof, may not be harvested except under a permit issued by the commissioner or the sheriff of the county: Wiggins' cholla (*Cylindropuntia echinocarpa*), beavertail pricklypear (*Opuntia basilaris* var. *basilaris*), and Joshua tree (*Yucca brevifolia*).

Table 3-3
Special-Status Plant Species Potential to Occur in the Study Area

Scientific Name	Common Name	Status (Federal/State/ CRPR)	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet)	Potential to Occur[a]
Astragalus preussii var. *laxiflorus*	Lancaster milk-vetch	None/None/1B.1	Chenopod scrub/perennial herb/Mar–May/2,295–2,295	Not expected to occur. Closest known occurrence is located 12 miles away on Edwards AFB. Conspicuous perennial herb that would have been detected during focused surveys if present. However, 2017 and 2019 results were negative.
Calochortus striatus	alkali mariposa lily	None/None/1B.2	Chaparral, Chenopod scrub, Mojavean desert scrub, meadows and seeps; alkaline, mesic/ perennial bulbiferous herb/Apr–June/225–5,235	Eight individuals observed. One individual was observed in the northern portion in allscale, and seven individuals were observed in the southern portion of the study area within allscale.
Cymopterus deserticola	desert cymopterus	None/None/1B.2	Joshua tree woodland, Mojavean desert scrub; sandy/perennial herb/Mar–May/2,065–4,920	Not expected to occur. Closest known occurrence is located 7 miles away on Edwards AFB. Species was detectable at time of focused survey based on reference population checks. However, 2017 and 2019 results were negative.
Delphinium recurvatum	recurved larkspur	None/None/1B.2	Chenopod scrub, cismontane woodland, valley and foothill grassland; alkaline/perennial herb/Mar–June/5–2,590	Low potential to occur. Closest known occurrence is approximately 4 miles away. Species was detectable at time of focused survey based on reference population checks. However, 2017 and 2019 results were negative.
Eriastrum rosamondense	Rosamond eriastrum	None/None/1B.1	Chenopod scrub (openings), vernal pools (edges); alkaline hummocks, often sandy/annual herb/Apr–May(June–July)/2,295–2,345	Not expected to occur. Closest known occurrence is located 11 miles away. Species is typically found on hard packed sandy cryptogamic soil among low hummocks with dry pools, which is not present in the study area (Jepson Flora Project 2017). Not observed during 2017 or 2019 surveys.
Eriophyllum mohavense	Barstow woolly sunflower	None/None/1B.2	Chenopod scrub, Mojavean desert scrub, playas/annual herb/Mar–May/1,640–3,150	Low potential to occur. Closest known occurrence is located 4 miles away and suitable habitat present. However, 2017 and 2019 results were negative.
Eschscholzia minutiflora ssp. *twisselmannii*	Red Rock poppy	None/None/1B.2	Mojavean desert scrub (volcanic tuff)/annual herb/Mar–May/2,230–4,035	Not expected to occur. Closest known occurrence is located 8 miles away on Edwards AFB. Volcanic tuff not present. Not observed during 2017 or 2019 surveys.
Layia heterotricha	pale-yellow layia	None/None/1B.1	Cismontane woodland, coastal scrub, pinyon and juniper woodland, valley and foothill grassland; alkaline or clay/annual herb/Mar–June/980–5,595	Low potential to occur. Closest known occurrence is located less than 4 miles away and suitable habitat present. However, 2017 and 2019 results were negative.

Table 3-3
Special-Status Plant Species Potential to Occur in the Study Area

Scientific Name	Common Name	Status (Federal/State/ CRPR)	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet)	Potential to Occur[a]
Loeflingia squarrosa var. *artemisiarum*	sagebrush Loeflingia	None/None/2B.2	Desert dunes, Great Basin scrub, Sonoran desert scrub; sandy/annual herb/Apr–May/2,295–5,300	Low potential to occur. Closest known occurrence less than 2 miles away and suitable habitat present. However, 2017 and 2019 results were negative.
Navarretia setiloba	Piute Mountains navarretia	None/None/1B.1	Cismontane woodland, pinyon and juniper woodland, valley and foothill grassland; clay or gravelly loam/annual herb/Apr–July/935–6,890	Not expected to occur. Closest known occurrence is located 25 miles away. Species was detectable at time of focused survey based on reference population checks. However, 2017 and 2019 results were negative.
Phacelia nashiana	Charlotte's phacelia	None/None/1B.2	Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland; usually granitic, sandy/annual herb/Mar–June/1,965–7,220	Not expected to occur. Closest known occurrence is located 10 miles away. In the vicinity of the study area, this species occurs in the Tehachapi Mountains and not in the desert. Not observed during 2017 or 2019 surveys.
Puccinellia simplex	California alkali grass	None/None/1B.2	Chenopod scrub, meadows and seeps, valley and foothill grassland, vernal pools; alkaline, vernally mesic; sinks, flats, and lake margins/annual herb/Mar–May/5–3,050	Not expected to occur. Closest known occurrence is located over 8 miles away on Edwards AFB. According to Twisselmann (1995), this species occurs on moist alkaline soils on alkali flats and around alkaline vernal pools, which is not present in the study area. Not observed during 2017 or 2019 surveys.
Saltugilia latimeri	Latimer's woodland-gilia	None/None/1B.2	Chaparral, Mojavean desert scrub, pinyon and juniper woodland; rocky or sandy, often granitic, sometimes washes/annual herb/Mar–June/1,310–6,235	Low potential to occur. Closest known occurrence is located 5 miles away and suitable habitat present. However, 2017 and 2019 results were negative.
Senna covesii	Coves' cassia	None/None/2B.2	Sonoran desert scrub; dry, sandy desert washes and slopes/perennial herb/Mar–June(Aug)/735–4,250	Not expected to occur. Closest known occurrence is located 10 miles away on Edwards AFB. Not observed during 2017 or 2019 surveys.

Status Legend:
CRPR: California Rare Plant Rank
1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
Threat Rank
0.1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
0.2 – Moderately threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)
[a] The estimate of distance from the study area to known occurrences of species is approximate, partially due to the shape of the study area.

3.5 Wildlife Resources

The study area is not located in federally designated critical habitat for federally listed wildlife.

A total of 36 wildlife species were recorded in the study area, including 5 reptile species, 24 bird species, and 7 mammal species (see Appendix E).

Several special-status wildlife species have the potential to occur in the study area (Table 3-4). Those that occur in the region but that are not expected to occur in the study area, due for example, to a lack of suitable habitat, are included in Appendix F. These species are not discussed further because no significant direct, indirect, or cumulative impacts are expected to result from the proposed project. As noted in Section 2.4, focused surveys were conducted for Swainson's hawk throughout the study area and within a 5-mile buffer; focused surveys for desert tortoise were conducted in the study area; and a habitat assessment for Mojave ground squirrel was conducted in the study area. Information was also recorded for special-status wildlife species detected incidentally during focused surveys. Table 3-4 evaluates the potential for special-status wildlife to occur in the study area. Where focused surveys did not result in detections of the focal species, species are considered "not expected to occur." But species such as Swainson's hawk that may have the potential to occur only during parts of their life cycles, such as for migration or foraging, are still addressed in the discussion below. The potential to occur for special-status species for which no focused surveys were conducted is determined based on the species' range, known occurrences in the vicinity, and the presence of suitable habitat. Species with a "low potential to occur" are considered relatively unlikely to occur because habitat is marginal or the site is at the edge of the species' known range. Species with a "moderate potential to occur" are those that may occur because suitable habitat is present and the site is within the species' range, and species is known to occur in the vicinity, but for which habitat is marginal on the project site. Species that are considered to have a "high potential to occur" are those that are not specifically known to occur, although the study area is within the species' range and suitable habitat is present. This assessment may apply to species' whose occurrence is irregular (such as some migratory bird species) but that likely occur in some years, or it may apply to species that are difficult to detect during the surveys that were conducted, such as nocturnal species or species that occur or are active at times of year other than when surveys were conducted. It also may apply to species that occur in such low numbers that they went undetected during surveys. Species that are "present" are those that were observed directly or for which sign (scat, tracks, burrows, feathers) was observed.

Table 3-4
Special-Status Wildlife Potential to Occur in the Study Area

Scientific Name	Common Name	Status (Federal/ State)	Primary Habitat Associations	Potential to Occur[a]	
				Northern and Southern Sites	*Gen-Tie Study Area*
Reptiles					
Anniella pulchra	Northern California legless lizard	None/SSC	Stabilized dunes, beaches, dry washes, chaparral, scrubs, pine, oak, and riparian woodlands; associated with sparse vegetation and sandy or loose, loamy soils.	Not expected to occur. Not observed, and unlikely to be detected incidentally during surveys for other resources. The project site is outside species' known range.	Low potential to occur. Not observed, although species is unlikely to be detected incidentally during other surveys. The study area is at the edge of the species range. However, this species was observed 1.0 mile south of gen-tie study area during surveys for the Mojave West Solar Project (County 2014).
Gopherus agassizii	(Mojave) desert tortoise	FT/ST	Desert habitats; most common in desert scrub, desert wash, and Joshua tree woodland. Creosote bush scrub with annual wildflowers preferred. Requires friable soil for nests and burrows.	Present on the southern site. Low potential to occur on the northern site. No desert tortoises were directly observed during surveys, in any portion of the study area. However, sign (scat) and one confirmed desert tortoise burrow (Condition Class 1) was observed on the southern site. Habitat is marginal on the northern site, where no suitable burrows were observed.	Present. No desert tortoises were directly observed during surveys, in any portion of the study area. However, a Condition Class 2 burrow and Condition Class 3 burrow were observed along the gen-tie route. Suitable habitat occurs in much of the area west of SR-14.

Table 3-4
Special-Status Wildlife Potential to Occur in the Study Area

Scientific Name	Common Name	Status (Federal/ State)	Primary Habitat Associations	Potential to Occur[a]	
				Northern and Southern Sites	*Gen-Tie Study Area*
Birds					
Aquila chrysaetos	golden eagle	BGEPA, BCC/FP	Open country, especially hilly and mountainous regions; grassland, coastal sage scrub, chaparral, oak savannahs, open coniferous forest.	Not expected to nest. Moderate potential to occur during winter and dispersal. Not observed during surveys. The nearest CNDDB occurrence is approximately 4.0 miles southeast of the northern site, at Soledad Mountain, although the location is not known to have been occupied since 1969 (CDFW 2019). The next nearest occurrence is from 11.4 miles northeast of the northern site. Generally expected to nest in the Tehachapis, to the north and west, and potentially occur in the vicinity in winter and during dispersal. The site supports marginally suitable foraging habitat.	Not expected to nest. Moderate potential to occur during winter and dispersal. Not observed during surveys. The nearest CNDDB occurrence is from approximately 3.4 miles south of the gen-tie study area, at Soledad Mountain, although the location is not known to have been occupied since 1969. The next nearest occurrence is 7.6 miles north of the gen-tie study area, in the Tehachapi Mountains (CDFW 2019). The site supports marginally suitable foraging habitat.
Athene cunicularia	burrowing owl	BCC/SSC	Grasslands, open scrub, and agriculture, particularly with ground squirrel burrows.	Present. Observed twice during desert tortoise surveys on the northern site in 2017. Focused surveys were not conducted. CNDDB includes an occurrence approximately 0.6 miles southwest of the northern site (CDFW 2019). Suitable nesting and wintering	High potential to occur. The two on-site occurrences in 2017 were from approximately 1.0 and 1.2 miles east of the gen-tie study area, and the nearest CNDDB occurrence was approximately 3.4 miles south, in the Soledad Mountain area (CDFW 2019).

Table 3-4
Special-Status Wildlife Potential to Occur in the Study Area

Scientific Name	Common Name	Status (Federal/ State)	Primary Habitat Associations	Potential to Occur[a]	
				Northern and Southern Sites	*Gen-Tie Study Area*
				habitat is present over much of northern site, while the southern site probably provides more marginal habitat, although it still may support this species.	Although parts of the gen-tie study area occur in previously disturbed areas, much of it is desert scrub habitat that has potential to support this species during the nesting season or during winter.
Buteo regalis (wintering)	ferruginous hawk	BCC/None	Open, dry country, grasslands, open fields, agriculture. Occurs in California only during winter and migration.	Moderate potential to occur. Surveys were not conducted at an appropriate time to detect this species. The nearest CNNDB occurrence is from approximately 11.4 miles to the southwest of the northern site (CDFW 2019). However, this species is underreported in CNDDB. The site supports marginally suitable winter foraging habitat.	Moderate potential to occur. Surveys were not conducted at an appropriate time to detect this species. The nearest CNNDB occurrence is from approximately 6.8 miles to the south–southwest of the western end of the gen-tie study area (CDFW 2019). However, this species is underreported in CNDDB. The site supports marginally suitable winter foraging habitat.
Buteo swainsoni (nesting)	Swainson's hawk	BCC/ST	Open grassland, shrublands, croplands.	Not expected to nest. High potential to occur during migration. Surveys for nesting were negative in 2017. However, observed twice in April 2017 during focused surveys, both times west of SR-14 (Figure 3-4). An adult observed in the gen-tie study area (3.7 miles west of the northern site) exhibited behavior consistent with a	Not expected to nest. Present during migration. Survey results for nesting were negative in 2017. A single adult was observed in migration over the gen-tie study area in April 2017. The nearest CNDDB occurrences are 6.8 and 7.2 miles south–southwest of the western end of the gen-tie study area (CDFW 2019).

Table 3-4
Special-Status Wildlife Potential to Occur in the Study Area

Scientific Name	Common Name	Status (Federal/ State)	Primary Habitat Associations	Potential to Occur[a]	
				Northern and Southern Sites	*Gen-Tie Study Area*
				migrant, while a juvenile seen once, 6.2 miles southwest of the southern site, was not yet of nesting age. The nearest CNDDB occurrences are 8.2 and 8.6 miles west–southwest (CDFW 2019).	
Falco mexicanus (nesting)	prairie falcon	BCC/None	Grassland, savannahs, rangeland, agriculture, desert scrub, alpine meadows; nest on cliffs or bluffs.	Not expected to nest. Moderate potential to forage during the nesting season. Not observed during surveys. CNDDB does not provide specific locations for occurrences of this species. But it includes a non-specific location for the Soledad Mountain USGS quad from 1978, before current mining operations there. Suitable nesting habitat likely occurs at Soledad Mountain, approximately 4.0 miles southwest of the project site.	Not expected to nest. Moderate potential to forage during the nesting season. Not observed during surveys. Suitable nesting habitat likely occurs at Soledad Mountain, approximately 3.4 miles south of the gen-tie study area. Current mining operations there may preclude nesting.
Lanius ludovicianus (nesting)	loggerhead shrike	BCC/SSC	Grasslands; open shrublands with scattered shrubs, trees, fences, or other perches; riparian; and woodlands.	Present. In 2013, a family group was observed along the western edge of the northern site, and this species was observed regularly in the site vicinity (Figure 3-3). Extensive suitable nesting habitat is	Present. An adult was observed with juveniles in the gen-tie study area during Swainson's hawk surveys in 2017, and the species was seen regularly in the vicinity (Figure 3-3). Extensive suitable nesting habitat occurs in the vicinity of Joshua trees.

Table 3-4
Special-Status Wildlife Potential to Occur in the Study Area

Scientific Name	Common Name	Status (Federal/ State)	Primary Habitat Associations	Potential to Occur[a]	
				Northern and Southern Sites	*Gen-Tie Study Area*
				present, especially where Joshua trees are present.	
Spinus (Carduelis) lawrencei (nesting)	Lawrence's goldfinch	BCC/None	Valley foothill hardwood, valley foothill hardwood-conifer, desert riparian, palm oasis, pinyon-juniper and lower montane habitats.	Moderate potential to occur, especially near existing development. Not observed during surveys. Nesting and foraging habitat are marginal over most of the site.	Moderate potential to occur, especially near existing development. Not observed during surveys. Nesting and foraging habitat are marginal over most of the gen-tie study area.
Toxostoma lecontei	LeConte's thrasher	BCC/SSC[b]	Open desert wash, creosote scrub, alkali desert scrub, desert succulent scrub.	Present. Observed on the project site during surveys. Also observed generally near Joshua trees and other desert scrub communities in the vicinity during Swainson's hawk surveys in 2013. Suitable habitat, including micro-habitats suitable for nesting, occurs in areas with Joshua trees and desert scrub communities.	Present. Observed in the gen-tie study area and at various locations in the vicinity during Swainson's hawk surveys in 2013. The extensive desert scrub and Joshua trees in the area provide suitable habitat, which includes nesting habitat.
Mammals					
Antrozous pallidus	pallid bat	None/SSC	Arid habitats, including grasslands, shrublands, woodlands and forests; for roosting, prefers rocky outcrops, cliffs and crevices with access to open habitats for foraging.	Not expected to roost, but high potential to forage. Although CNDDB includes no occurrences in the area, the species was recorded during surveys of Soledad Mountain, southwest of the intersection of SR-14 and Silver Queen Road, in 1990 and	Not expected to roost, but high potential to forage. Recorded at nearby Soledad Mountain, and suitable foraging habitat occurs in the gen-tie study area.

Table 3-4
Special-Status Wildlife Potential to Occur in the Study Area

Scientific Name	Common Name	Status (Federal/ State)	Primary Habitat Associations	Potential to Occur[a]	
				Northern and Southern Sites	*Gen-Tie Study Area*
				1996 (Brown-Berry 2007). Bats roosting in this area or in nearby human-made structures potentially forage over the study area, which supports suitable foraging habitat.	
Corynorhinus townsendii	Townsend's big-eared bat	None/SSC	Mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava tubes, also man-made structures and tunnels; may roost in basal cavities of large trees.	Not expected to roost, but high potential to forage. The species has been detected roosting in abandoned mine shafts within approximately 3.5 miles southwest of the northern site (CDFW 2019; Brown-Berry 2007). Suitable foraging habitat occurs in the study area.	Not expected to roost, but high potential to forage. Known to roost at nearby Soledad Mountain, approximately 2.5 miles south of the gen-tie study area, which supports suitable foraging habitat.
Euderma maculatum	spotted bat	None/SSC	Foothills, mountains, desert regions of Southern California, including arid deserts, grasslands, and mixed conifer forests; roosts in rock crevices and cliffs; feeds over water and along washes.	Not expected to roost, and low potential to forage. CNDDB includes no occurrences in the area, but the study area is within the range of the species. Suitable roosting habitat likely occurs nearby, such as at Soledad Mountain southwest of SR-14 and Silver Queen Road, and suitable foraging habitat is present in the study area.	Not expected to roost, and low potential to forage. Suitable roosting habitat likely occurs nearby, such as at Soledad Mountain, and suitable foraging habitat is present throughout the gen-tie study area.
Perognathus alticolus inexpectatus	Tehachapi pocket mouse	None/SSC	Arid annual grassland and desert shrub communities, but also taken in fallow grain field and in Russian thistle.	Not expected to occur. Small mammals surveys were not conducted. However, the project site is outside the range of the	Low potential to occur. The nearest CNDDB occurrences are three between 0.6 and 1.4 miles from the study area, in the Tehachapi

Table 3-4
Special-Status Wildlife Potential to Occur in the Study Area

Scientific Name	Common Name	Status (Federal/ State)	Primary Habitat Associations	Potential to Occur[a]	
				Northern and Southern Sites	*Gen-Tie Study Area*
				species, which is in the Tehachapi Mountains.	foothills (CDFW 2019). However, the gen-tie study area is on the floor of the valley and outside the known range of the species.
Spermophilus (Xerospermophilus) mohavensis	Mohave ground squirrel	None/ST	Open desert scrub, alkali scrub and Joshua Tree woodland. Also feeds in annual grasslands restricted to Mojave desert.	Low potential to occur. Not observed during surveys. Numerous trapping surveys in and around the solar sites have resulted in no Mohave ground squirrel captures. These survey data indicate that Mohave ground squirrels are either absent from these sites or occur there in low numbers. The rarity of Mohave ground squirrel occurrences may be because the project area is on the western edge of the species' range (Brylski 2018).	Low potential to occur. Not observed during surveys. Numerous trapping surveys in and around the gen-tie study area have resulted in no Mohave ground squirrel captures. These survey data indicate that Mohave ground squirrels are either absent from these sites or occur there in low numbers. The rarity of Mohave ground squirrel occurrences may be because the project area is on the western edge of the species' range (Brylski 2018).
Taxidea taxus	American badger	None/SSC	Grasslands, agriculture, drier open stages of shrub, forest, and herbaceous habitats with friable soils.	High potential to occur. Observed approximately 8.5 miles west during Swainson's hawk surveys in 2017. CNDDB includes an occurrence approximately 6.6 miles north-northwest, and suitable habitat is widespread.	High potential to occur. Observed during Swainson's hawk surveys approximately 3.5 miles west southwest of the western extreme of the gen-tie study area. The nearest CNDDB occurrence is approximately 3.6 miles north. Abundant suitable habitat occurs in the area.
Vulpes macrotis arsipus	desert kit fox	None/None[c]	Open shadscale scrub, creosote bush scrub, and other desert scrub communities with a low ground	Present. A natal den and an additional burrow with sign were observed on the southern site in	High potential to occur. Suitable habitat is present throughout the area.

Table 3-4
Special-Status Wildlife Potential to Occur in the Study Area

Scientific Name	Common Name	Status (Federal/ State)	Primary Habitat Associations	Potential to Occur[a]	
				Northern and Southern Sites	*Gen-Tie Study Area*
			cover, friable soils, and a suitable small mammal prey base.	the spring 2017. Suitable habitat is present elsewhere.	

Notes:
[a] The estimate of distance from the study area to known occurrences of species is approximate, partially due to the shape of the study area.
[b] According to *California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California* (Shuford and Gardali 2008), only the San Joaquin Valley population of LeConte's thrasher is considered an SSC, which means that LeConte's thrashers in the study area would not be an SSC. However, LeConte's thrashers as a species are included in the current and previous versions of the Special Animals List (CDFW 2019), and occurrences are included in CNDDB (CDFW 2019). Therefore, for the purposes of this report, LeConte's thrashers are considered an SSC.
[c] Desert kit fox is has no special status but is regulated by CDFW as a fur-bearing mammal.

Status Legend:
Federal: BCC = USFWS Bird of Conservation Concern
BGEPA = Bald and Golden Eagle Protection Act
FT = Federally listed as threatened
State: SSC = California Species of Special Concern
FP = CDFW Fully Protected Species
ST = State listed as threatened

3.5.1 Reptiles

3.5.1.1 Desert Tortoise

The desert tortoise (*Gopherus agassizii*) is a federally threatened (FT) and state threatened (ST) species that occurs through much of the Mojave (including the Antelope Valley) and Sonoran deserts in California. It also occurs in parts of southern Nevada, southwestern Utah, and northwestern Arizona. Desert tortoises occupy a wide variety of desert habitats. In most parts of the Mojave Desert, they occur primarily in gently sloping terrain, but in some parts of their range, they occur more commonly in upper alluvial fans and lower mountain slopes (USFWS 2011; Rautenstrauch and O'Farrell 1994). In lower to middle elevations, they tend to occupy habitats dominated by creosote and white bursage, where rainfall is from 2 to 8 inches, the diversity of perennial plant species is relatively high, and high production of annuals occurs (USFWS 2011; Germano et al. 1994). Occupied habitats also include black bush scrub, juniper woodland, Joshua tree woodland, and other desert scrub communities (USFWS 2011; Germano et al. 1994). Desert tortoises feed largely on annuals, but also on a variety perennial plant species. Desert tortoises spend most of their lives underground in burrows, and are most active during spring and fall, but often emerge in summer after rain storms (Nagy and Medica 1986). They are long-lived, reaching sexual maturity between 13 and 20 years of age, and have a low reproductive rate (USFWS 2011).

No desert tortoises were directly observed during surveys, in any portion of the study area. However, sign of desert tortoise was observed in four locations (Figure 3-2). During surveys in spring 2017, biologists observed a Condition Class 1 desert tortoise burrow (with sign of recent use), including tracks, and observed older scat at a separate location (see Section 2.4.1 for a description of desert tortoise burrow condition classes). Both locations were on the southern site. In 2018, along the gen-tie route, biologists observed a Condition Class 2 desert tortoise burrow (in good condition, but with no recent sign of use) and a Class 3 desert tortoise burrow (in deteriorated condition) (Figure 3-2). In addition to these confirmed tortoise sign or burrow observations, biologists observed 12 Condition Class 4 burrows (in good condition, possibly desert tortoise) on the southern site, 3 such burrows along the access route along East Reed Avenue, and 2 along the gen-tie study area. No confirmed desert tortoise sign or burrows were observed on the northern site, and no possible desert tortoise burrows (condition classes 4 or 5) were observed on the northern site. The northern site, which was cultivated prior to 1970, is highly disturbed, and the herbaceous layer is dominated by non-native annuals (especially Arabian schismus and redstem stork's bill), which makes it marginally suitable habitat for desert tortoise.

3.5.1.2 Northern California Legless Lizard

The Northern California legless lizard (*Anniella pulchra*) is a California Species of Special Concern (SSC). It occurs from Central California south to at least Santa Barbara County, as well as in the fringes of the Antelope Valley in the vicinity of the study area. Four other species of legless lizard occur in the intervening areas of Southern California and the southern San Joaquin Valley, but the species occurring in much of this area remains unclear (Papenfuss and Parham 2013). Northern California legless lizard occurs in stabilized dunes; beaches; dry washes; chaparral; scrub communities; and pine, oak, and riparian woodlands. It is also associated with sparse vegetation and requires sandy or loose loamy soils that retain moisture year-round. Northern California legless lizard was not observed in the study area during surveys. However, it was observed 1.0 miles south of the gen-tie study area during surveys for the Mojave West Solar Project (County 2014). The westernmost extent of the gen-tie options, in the lower foothills of the Tehachapi Mountains, is at the boundary of the range for the species depicted in Papenfuss and Parham (2013). Suitable habitat occurs in the vicinity. The species is probably less likely to occur in locations farther east and south, and the project site and most of the gen-tie study area are outside the known range.

3.5.2 Birds

3.5.2.1 Burrowing Owl

The burrowing owl (*Athene cunicularia*) is an SSC and Bird of Conservation Concern (BCC) that inhabits the length of California. Burrowing owls prefer open, dry, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. They usually nest in the old burrow of a ground squirrel, badger, or other small mammal, although they may dig their own burrow in soft soil. Their prey consists mostly of insects, small mammals, reptiles, birds, and carrion. No focused surveys were conducted for burrowing owl, although the species is relatively detectable during the morning hours, when many surveys took place. Although focused surveys were not conducted, in 2017, burrowing owls were recorded at two locations in the northern site, and burrowing owl sign was recorded on the northern sites (Figure 3-3), and CNDDB includes occurrences from the region, including one approximately 4.0 miles southwest of the northern site and 3.4 miles south of the gen-tie study area (CDFW 2018d). The grasslands of the northern site provide the most suitable location for this species in the study area, including for nesting and wintering, although desert scrub present elsewhere has the potential to support this species at all seasons as well.

3.5.2.2 Ferruginous Hawk

The ferruginous hawk (*Buteo regalis*) is a BCC for the wintering season and is not known to nest in California. It is an uncommon winter resident and migrant at lower elevations and open grasslands in the eastern deserts of California, the Modoc Plateau, the Central Valley, and the Coast Ranges. It is a fairly common winter resident of grasslands and agricultural areas in southwestern California. It roosts in trees (sometimes communally) and on utility poles and feeds on smaller to medium-sized mammals, such as cottontails (*Sylvilagus* sp.) and California ground squirrels (*Spermophilus (Otospermophilus) beecheyi*). No ferruginous hawks were observed during surveys of the study area, but surveys were not conducted at an appropriate time of year for detecting this species. CNDDB includes several occurrences in the vicinity, but this database greatly underrepresents reports of this species. Garrett and Dunn (1981) considered the Antelope Valley to be an important wintering area for the species in California, although most likely winter closer to agricultural areas, which are absent near the study area, and grasslands, which are sparse and limited to the gen-tie study area.

3.5.2.3 Golden Eagle

The golden eagle is a CDFW fully protected (FP) species that is also protected under the Bald and Golden Eagle Protection Act. It is an uncommon permanent resident and migrant throughout California, except the center of the Central Valley. Golden eagles nest on secluded cliffs of all heights and in large trees in open areas. Nests are large platforms composed of sticks, twigs, and greenery. Golden eagles typically are found in rolling foothills, mountain areas, sage-juniper flats, and desert, and they avoid urban, agricultural, and heavily forested areas (Millsap 1981; Fischer et al. 1984; Craig et al. 1986; Marzluff et al. 1997). Golden eagles prey mainly on small to medium-sized mammals; they need open terrain for hunting and soar between 100 and 300 feet aboveground in search of prey. No golden eagles were observed during surveys. Focused surveys were not conducted, although it's likely the species would have been detected during surveys, particularly during Swainson's hawk surveys, if present within 5.0 miles of the study area. CNDDB includes an occurrence mapped generally in the Soledad Mountain area, approximately 4.0 miles from the northern site and 3.4 miles south of the gen-tie study area. However, this territory was last known to be occupied in 1969. Currently, an open-pit heap-leach gold and silver mine operation occupies the north slope of Soledad Mountain. The next nearest occurrences are from the Tehachapi Mountains (CDFW 2018d). CNDDB includes several additional occurrences in the Tehachapi Mountains within 10 miles of either the gen-tie study area or the project site. Non-breeding and dispersing golden eagles may occur in the study area on occasion. Nesting habitat is absent.

3.5.2.4 LeConte's Thrasher

The LeConte's thrasher (*Toxostoma lecontei*) is a BCC species that is resident in low to middle elevations in the deserts of eastern California and within a limited, disjunct range in the western San Joaquin Valley and adjacent smaller valleys, from southwestern Fresno County southward (Grinnell and Miller 1944; Fitton 2008). LeConte's thrashers maintain year-round home ranges in open scrub habitats, usually with sandy soils or in alkaline terrain, including desert washes, creosote scrub, alkali desert scrub, desert succulent scrub, Joshua tree habitats, and (in the San Joaquin Valley) saltbush scrub (Grinnell and Miller 1944; Fitton 2008). They feed mostly on a variety of insects and arthropods, but also on lizards and other small vertebrates. LeConte's thrashers were observed occasionally within desert scrub habitats with scattered Joshua trees during surveys, including two locations on the project site (Figure 3-3) and multiple observations (unmapped) in the vicinity during Swainson's hawk surveys. Abundant suitable habitat for resident LeConte's thrashers is present on the southern project site and in the gen-tie study area.

3.5.2.5 Lawrence's Goldfinch

Lawrence's goldfinch (*Spinus lawrencei*) is a BCC that is locally common along the western edge of the southern deserts, from Santa Clara and Monterey counties south through coastal slopes, and occasionally surrounding the foothills of the Central Valley (Zeiner et al. 1990). This species is unusual in that it generally migrates in an east to west direction between breeding areas in California and wintering areas in northern Mexico, southern Arizona, and New Mexico. Lawrence's goldfinch breeds primarily in California, but also south into northern Baja California, Mexico. Breeding tends to be concentrated in the foothills of the southern Sierra Nevada through the southern coastal ranges, and southward into the transverse ranges. Lawrence's goldfinch prefers valley foothill woodlands and hardwood conifer forests, Southern California desert riparian, palm oasis, pinyon–juniper, and lower montane areas. This species was not observed in the study area, although several were observed in a developed area adjacent to the gen-tie study area during Swainson's hawk surveys in June 2017. It is relatively unlikely to nest in most of the study area, although it has a moderate potential to nest near existing development, such as occurs near the southern site, where they may be attracted to moister areas around exotic plantings.

3.5.2.6 Loggerhead Shrike

The loggerhead shrike (*Lanius ludovicianus*) is an SSC during its nesting period that can be found in lowlands and foothills throughout California. It prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. Highest density occurs in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. Observations in 2017 included an adult with a

juvenile west of SR-14 and in the gen-tie study area, a family group near a nest structure at the edge of the northern site, and regular observations in the vicinity (Figure 3-3). Extensive suitable nesting habitat, particularly near Joshua trees, is present in the study area.

3.5.2.7 Prairie Falcon

The prairie falcon (*Falco mexicanus*) is a BCC that has a broad geographic range in the west and central United States and breeds in California primarily in the Coast, Transverse, and Peninsular Ranges; the eastern deserts; and the northeast. It also winters in the Central Valley, central coast, and Southern California coast. Prairie falcons primarily nest on sheltered ledges of cliffs and embankments at heights of 10 to more than 100 meters (33 to 328 feet) (Roppe et al. 1989; Steenhof 2013). They forage in open habitats with low vegetation. They feed on ground squirrels, birds that occupy open habitats (such as horned larks (*Eremophila alpestris*) and western meadowlark (*Sturnella neglecta*), and sometimes lizards and insects (Steenhof 2013). CNDDB includes a non-specific nesting occurrence from the Soledad Mountain USGS quadrangle. No prairie falcons were observed in the study area. Although focused surveys for this species were not conducted, it likely would have been detected during Swainson's hawk surveys, if nesting within 5.0 miles of the study area. Nesting habitat is absent in the study area, although suitable nesting sites likely occur nearby in the Soledad Mountain area, approximately 4.0 miles from the project site and 3.4 miles south of the gen-tie study area. Current gold and silver mining operations on the north slope of the mountain provide disturbance that limits the likelihood of the species nesting there. However, prairie falcons have the potential to forage in the study area, especially during the non-nesting season.

3.5.2.8 Swainson's Hawk

The Swainson's hawk (*Buteo swainsoni*) is an ST species and a BCC. It nests in California in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and the Mojave Desert. It breeds in stands with few trees in riparian areas, agricultural environments, near rural residents, in oak savannah, and in juniper-sage flats. In the Antelope Valley, Swainson's hawks also nest in Joshua trees. In many areas, alfalfa fields are their favored foraging areas, but they also forage in undisturbed grasslands, fallow agricultural fields, row crops, and a variety of desert scrub communities. Breeding Swainson's hawks rely heavily on vertebrates, especially California voles (*Microtus californica*) (Estep 1989) in their diets, but they also will take a variety of other small mammals, birds, and insects (CDFG 1993; Bechard et al. 2010).

Dudek biologists Dave Compton and Russell Sweet conducted all seven Swainson's hawk surveys under suitable conditions and according to the timing of surveys as outlined in the Swainson's hawk survey protocols (CEC and CDFG 2010). Although suitable nesting habitat was observed

widely across the Swainson's hawk survey area, no Swainson's hawk nests and no evidence of Swainson's hawk nesting were observed. Swainson's hawks were observed on two occasions, and different locations, during surveys. On April 17, 2017, an adult intermediate morph was observed flying over the gen-tie study area, west of Mojave and within the existing wind farms (Figure 3-4). Behavior was consistent with a migrant, at a time of year when migrants are still passing through Southern California. The individual was first observed flying north between the wind turbines, before it began soaring and gaining altitude, and eventually flying off high and well to the northeast. Although the bird was in view for approximately 10 minutes, it showed no indication of foraging or stopping in the area. This individual was not detected subsequently, and no Swainson's hawks were detected in this area during any surveys after this date.

On April 28, 2017, a juvenile Swainson's hawk was briefly observed perched in a Joshua tree more than a mile outside of the Swainson's hawk survey area (and 6.2 miles south of the gen-tie study area), in an area south of Backus Road and west of SR-14. This individual quickly left its perch and used the Joshua tree woodland to shield its departure from the area. The observer searched a wide area within the Joshua tree woodland, but did not find a suitable nest structure and did not immediately refind the juvenile Swainson's hawk. Approximately 1:15 hours later, a distant raptor was detected that was likely this individual, soaring over an area nearby. As a juvenile (just less than 1 year old), this individual was younger than this species is known to nest (Bechard et al. 2010). No Swainson's hawks were detected in this vicinity during subsequent surveys.

A variety of nests were observed during surveys that were potentially suitable for Swainson's hawks. Nearly all of these nests were confirmed to be nests of common raven. Several other nests were confirmed as being unoccupied during the nesting season. Suitable nests were observed in a variety of trees, including Joshua trees, pines (*Pinus* sp.), tamarisk (*Tamarix* sp.), and eucalyptus (*Eucalyptus* sp.). The majority of nests were near human habitation, and very few were within the wind farms within the northwestern and west-central parts of the Swainson's hawk survey area. No Swainson's hawks were observed in the vicinity of any suitable nest structure. The nearest CNDDB occurrences are 6.8 and 7.2 miles south–southwest of the study area at its nearest point. No agricultural lands suitable for foraging occur within 5.0 miles of the study area. Therefore, the potential for this species to nest in the study area is low. Furthermore, based on 2017 survey results, this species is currently absent as a breeder from the vicinity.

3.5.3 Mammals

3.5.3.1 American badger

The American badger (*Taxidea taxus*) is an SSC that is an uncommon, permanent resident throughout most of the state. It is most abundant in the drier open stages of most shrub, forest, and

herbaceous habitats with friable soils. Badgers are generally associated with treeless regions, prairies, park lands, and cold desert areas. They need sufficient food, uncultivated ground, and burrowing rodents to support their prey base. No badgers were observed in the study area. A single badger was observed at a burrow entrance approximately 3.5 miles west southwest of the gen-tie study area in April 2017, and CNDDB includes an occurrences approximately 5.0 miles north of the gen-tie study area. Suitable habitat is present throughout the project site and the gen-tie study area.

3.5.3.2 Desert Kit Fox

Title 14, California Code of Regulations (CCR), Section 460, prohibits taking of desert kit fox (*Vulpes macrotis arsipus*) at any time. The desert kit fox is a year-round resident of the southwestern deserts of California. Its western boundary that separates it from the federally listed and isolated San Joaquin kit fox subspecies is the Antelope Valley in the west Mojave. The Tehachapi and Southern Sierra Mountain ranges form a physical barrier between desert kit fox and San Joaquin kit fox, although Mercure et al. (1993) suggest that the lower elevation Tehachapi range may be more permeable to movement than the Southern Sierra range. Desert kit fox primarily occurs in open desert scrub habitats on gentle slopes. Dens are an important resource for kit fox because they provide microclimate moderation and protection from predators, and may be a limiting resource for kit fox distribution (Arjo et al. 2003). Several studies in California, Arizona, and Utah, as summarized by Tannerfeldt et al. (2003), show that the primary food sources for kit foxes are rodents and lagomorphs, including jackrabbit (*Lepus* spp.) and cottontails (*Sylvilagus* spp.). Desert kit fox was observed once in the study area, when an active natal den was observed on the southern site in the spring 2017, and desert kit fox sign was observed (tracks, scat) at several other locations in the study area (Figure 3-3). Desert kit fox has a high potential to occur in much of the study area, including the Gen-Tie Route.

3.5.3.3 Mohave Ground Squirrel

The study area is located in the extreme southwestern part of the historical range of Mohave ground squirrel. Mohave ground squirrel records within the vicinity of the study area (CDFW 2018d; Vertnet.org 2018) are as follows:

- Southeast side of SR-14 approximately 3 miles northeast of the community of Mojave at approximately 2,850 feet amsl. One individual Mohave ground squirrel was observed in 1998 (CNDDB occurrence No. 300). This locality is approximately 4.1 miles north of the proposed solar fields.
- Near Cache Creek, approximately 1.5 miles east of Junction of SR-58 and Ransburg Cutoff, at approximately 3,100 feet amsl. One Mohave ground squirrel specimen was collected in 1963; two Mohave ground squirrels were observed in 1987 (CNDDB

occurrence No. 284). This locality is approximately 5.75 miles north/northwest of the proposed solar field.

- Edwards AFB. One individual Mohave ground squirrel was captured at Grid S10-12 in 2010, and two Mohave ground squirrels were captured at Grid W-2 in 1994. These localities are approximately 8.3 miles east/northeast and 3.7 miles south/southeast of the southern site, respectively (Tetra Tech 1994; ICF 2010).
- North side of SR-58, approximately 0.6 miles east of Rosamond Boulevard (at Muroc Junction), west of the community of North Edwards (CNDDB occurrence No. 358). Nine juvenile Mohave ground squirrels were captured in June 2010. This locality is approximately 10.75 miles east of the southern part of the proposed solar field.

The CNDDB records closest to the study area are visual observations from 1998 and 1987 (CNDDB occurrence Nos. 300 and 284). Two visual observations of Mohave ground squirrel in the project vicinity that had been in the CNDDB in previous years were absent in the 2018 CNDDB. These were one individual observed northwest of the community of Mojave (CNDDB occurrence No. 320) and an individual observed approximately 1.2 miles southwest of the western terminus of the gen-tie line (CNDDB occurrence No. 326). It is likely that CDFW deemed these two Mohave ground squirrel occurrences uncertain and deleted from the CNDDB.

The study area contains potentially suitable habitat for Mohave ground squirrel, but is at the extreme far western reaches of its range. The soils on the site are predominantly loamy or sandy, with small areas of clay soils, and the terrain is relatively flat or sloping gently, with elevations ranging from approximately 2,500 to 2,640 feet amsl in the solar fields part of the study area and from 2,640 feet to 3,200 feet amsl along the gen-tie line.

There are several major habitat disturbances in the study area. The part of the solar field study area north of the railroad tracks, referred to as the northern site, has been heavily grazed by sheep for many years. Additionally, the northern site was cultivated, primarily with alfalfa, until around 1970. The sparse white bursage scrub south of the railroad tracks may have also been grazed, and approximately 14 acres of this area contains a clearing for an informal dump. The habitats in the western segment of the gen-tie line have been impacted by wind power infrastructure and solar panel fields. The habitat at the turbine sites and along the access roads within the wind farms has been converted to non-native grassland and ruderal habitats that are showing signs of recolonization by native shrubs. Two solar fields in the vicinity of the gen-tie line have converted natural habitat to developed land covers.

Leitner (2008, 2015) summarized the results of regional and protocol Mohave ground squirrel surveys throughout the species' range for the periods 1998–2007 and 2008–2012, with the following results:

- Figure 3-5 (Mohave ground squirrel records for the period 1998–2007) shows the locations of Mohave ground squirrel surveys in the vicinity of the study area in the 1998–2007 period. These surveys included 10 or more surveys southwest of the SR-14/SR-58 junction in the vicinity of the proposed solar fields, 15 or more surveys west of SR-14 in the vicinity of the gen-tie line, and 10 or more surveys north of SR-58. No Mohave ground squirrels were recorded in these surveys (Brylski 2018).
- Figure 3-6 (Mohave ground squirrel records for the period 2008–2012) shows the locations of Mohave ground squirrel surveys in the project vicinity in the 2008–2012 period. These included five surveys in the proposed solar fields and more than 20 surveys in the vicinity of the gen-tie line. No Mohave ground squirrel were recorded in these surveys. The five surveys on the site of the proposed solar field were conducted in five grids located in the central and northern part of the site (Phoenix 2009). Two surveys were carried out on a parcel that adjoins the gen-tie line (Brylski 2010, 2018).

The study area is largely flat to gently sloping terrain with loamy and sandy soils where Mohave ground squirrels could dig burrows. The vegetation in the study area is mainly allscale scrub with important areas of white bursage scrub, creosote bush scrub, and disturbed habitats. There are significant areas disturbed by sheep grazing, previous agriculture, and power development projects. Taken together, the allscale scrub and creosote bush scrub communities potentially provide suitable forage for Mohave ground squirrel. The area of suitable habitat in the study area would exclude the disturbed and developed areas, claypan areas, and steep slopes around the hills in the central part of the solar fields study area. The high-density allscale scrub that occurs on the northern portion of the northern site and the southern portion of the southern site is of low quality for Mohave ground squirrel (Brylski 2018).

There have been numerous trapping surveys in and around the solar sites and gen-tie study areas, with no Mohave ground squirrel captures. These survey data indicate that Mohave ground squirrels are either absent from these study areas or that they occur there in low numbers. The rarity of Mohave ground squirrel occurrences may be due to project area's location on the extreme western edge of the species' range (Brylski 2018).

The habitat in the study area is potentially suitable for Mohave ground squirrel, but the lack of occurrences in the vicinity of the proposed solar fields and gen-tie line suggests Mohave ground squirrel has a low potential to occur in these areas.

3.5.3.4 Pallid Bat

The pallid bat *(Antrozous pallidus)* is an SSC that occurs throughout California, except at the highest elevations of the Sierra Nevada range. Although this species prefers rocky outcrops, cliffs,

and crevices with access to open communities and land covers for foraging, it has been observed far from such areas (Hermanson and O'Shea 1983). A radio-tracking study in the central coastal region of California documented winter roosting in an unheated building, in trees (*Quercus lobata*, *Q. agrifolia*, *Umbellularia californica*, and *Platanus racemosa*), and in ground-level crevices. Foraging habitats for pallid bats are varied and include grasslands, oak savannahs and woodlands, riparian woodland, open pine forests, talus slopes, desert scrub, and agricultural areas. Focused surveys were not conducted for bats in the study area. However, pallid bats have been detected at Soledad Mountain (Brown-Berry 2007), approximately 3.5 miles southwest of the northern site and approximately 2.5 miles south of the gen-tie study area, and it also has potential to roost in human-made structures in the area. The study area supports no roosting habitat. However, suitable foraging habitat occurs throughout the area.

3.5.3.5 Spotted Bat

Spotted bat (*Euderma maculatum*) is an SSC that in California occurs across the desert regions, the Klamath Mountains of northeastern California, the Sierra Nevada up to 9,600 feet amsl, and several locations along the coast in Ventura and San Diego counties (Pierson and Rainey 1998). Spotted bats use caves, cave-like structures, and crevices in rock outcrops and on cliffs for day roosts (Watkins 1977). Pierson and Rainey (1998) found that most observations of foraging spotted bats were within about 6 miles of cliffs composed of granite, limestone, basalt, or other sedimentary rock. Although rare throughout its range, the species occurs in a wide variety of habitat types ranging from low elevation deserts to high elevation forests (Watkins 1977; Pierson and Rainey 1998). Focused surveys were not conducted for bats in the study area. Spotted bats could potentially roost in rock crevices near the study area, such as at Soledad Mountain southwest of the intersection of SR-14 and Silver Queen Road, but the study areas itself does not support roosting habitat. Suitable foraging habitat occurs throughout the study area, and should this species roost nearby, individuals could forage over the study area.

3.5.3.6 Tehachapi Pocket Mouse

The Tehachapi pocket mouse (*Perognathus alticolus inexpectatus*) is an SSC that occurs from the Tehachapi Pass area (northwest of Mojave) southwest to the Mount Pinos area on the boundary of Kern and Ventura Counties and the Lake Hughes area in northern Los Angeles County. It apparently is associated with arid annual grassland and desert scrub communities (Williams 1986). Known occurrences are mostly above 3,400 feet amsl (CNDDB). CNDDB includes three occurrences between 1.8 and 2.2 miles north of the western portion of the gen-tie study area (CDFW 2019). Except for the extreme westernmost areas, which are nearest the Tehachapi foothills, most of the study area is farther east and below the expected elevation of this species.

Therefore, it is not expected to occur on the site or most of the gen-tie study area. But suitable habitat occurs where the gen-tie study area is nearest the known range.

3.5.3.7 Townsend's Big-eared Bat

Townsend's big-eared bat (*Corynorhinus townsendii*) is an SSC that occurs throughout California with the exception of alpine and subalpine areas of the Sierra Nevada, although it has been found in the subalpine zone in the White Mountains to the east of the Sierra Nevada (Szewczak et al. 1998). Townsend's big-eared bat is primarily associated with mesic areas characterized by coniferous and deciduous forests and riparian communities, although it also occurs in xeric areas (Kunz and Martin 1982). In California, it roosts in caves, mines, tunnels, buildings, and other human-made structures. Focused surveys were not conducted for bats in the study area. However, during surveys of Soledad Mountain in 2006, Townsend's big-eared bats were detected at several locations, including within approximately 2.5 miles south of the gen-tie study area and within approximately 3.5 miles of the northern site. No roosting habitat is present in the study area. However, Townsend's big-eared bats roosting in the Soledad Mountain area potentially forage over the study area, which supports extensive suitable foraging habitat.

3.6 Wildlife Movement

Wildlife species generally inhabit suitable habitat patches distributed across a landscape. These habitat blocks, which may make up the species' home range or breeding territory, support most, if not all, of the species' life history needs (e.g., food resource, mates, refuge). For those species with wide ranges throughout a landscape, movement corridors are crucial for dispersal, to access food and/or shelter during the winter months, to escape catastrophic events (e.g., flood, fire, etc.), and to ward against genetic in-breeding (Rosenberg et al. 1997). In areas with open landscapes, wildlife has the potential to move across the landscape unimpeded and is not necessarily restricted to movement corridors. Where landscapes have movement constraints such as dense vegetation, steep slopes and canyons, or man-made impediments such as roads and human activity, wildlife may be restricted to wildlife corridors. Wildlife corridors are defined as areas that connect suitable wildlife habitat in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Natural features, such as canyon drainages, ridgelines, or areas with vegetation cover, provide corridors for wildlife travel. Wildlife corridors contribute to population viability by (1) assuring the continual exchange of genes between populations, which helps maintain genetic diversity; (2) providing access to adjacent habitat areas, representing additional territory for foraging and mating; (3) allowing for a greater carrying capacity; and (4) providing routes for colonization of habitat lands following local population extinctions or habitat recovery from ecological catastrophes (e.g., fires).

Habitat linkages are patches of native habitat that function to join two larger patches of habitat. Habitat linkages help reduce the adverse effects of habitat fragmentation and represent a potential route for gene flow and long-term dispersal. Linkages may serve as both habitat and avenues of gene flow for small animals such as reptiles and amphibians. They may be represented by continuous patches of habitat or by nearby habitat "islands" that function as "stepping stones" for dispersal.

A report prepared for the Wildlands Conservancy and the Bureau of Land Management (BLM) identifies the corridors within California's deserts that require maintenance or restoration in order to conserve the wildlife utilizing those corridors as linkages between habitat. The report, *A Linkage Network for the California Deserts* (Penrod et al. 2012) is a finer-scale analysis based on the *California Essential Habitat Connectivity Project* (Spencer et al. 2010), which provides a statewide Essential Habitat Connectivity Map designed to help inform land-planning efforts across the state. Since the Essential Habitat Connectivity Map was created at the state level, it was assumed that additional analysis of connectivity would be required at a more local level, and thus the California Desert Connectivity Project was formed. Unlike the statewide initiative, the California Desert Connectivity Project includes large military bases and areas managed by BLM. As described in *A Linkage Network for the California Deserts*, the California Desert Connectivity Project focuses on 22 linkages within the Mojave and Sonoran Deserts. The project addresses the habitat and movement requirements of 47 focal species (10 amphibians and reptiles, 13 mammals, 10 birds, 9 plants, and 5 invertebrates) (Penrod et al. 2012). Based on Figure 33 of the report, Linkage Networks, of the report, the closest linkage network is northeast of the site and connects landscape blocks of Edwards AFB and the southern Sierra Nevada. Therefore, the study area is located adjacent to, but outside of, an identified essential regional wildlife linkage.

As stated in Section 3.1, the study area vicinity consists of a mix of agricultural grazing, undeveloped land, scattered single-family residences, several approved or proposed large-scale solar facilities located nearby, and commercial wind projects. Topography across the study area is relatively flat as the site is southeast of the Tehachapi Mountains on lands that gradually slope downward from the northwest to the southeast. The study area is dominated by desert vegetation that, as described in Section 3.2, consists of open to intermittent shrub cover along with patches of non-native grassland. In addition to vegetated areas, the study area includes disturbed habitat (largely dirt roads) and urban/developed areas that include SR-14, other paved roads, substations, the BNSF, and rural residences.

Wildlife can move freely though open landscapes with minimal impediments such as paved roads and development. In denser landscapes where cover is harder for larger animals to penetrate, wildlife will often utilize man-made movement corridors such as scarcely traveled dirt roads and trails, as well as natural paths such as washes and small drainages. The study area is largely

undeveloped with an open landscape, and thus wildlife can move relatively freely throughout the area. In addition, wildlife can utilize dirt roads within the study area to move throughout the area. Constraints to wildlife movement include SR-14, Oak Creek Road, several other paved roads, an existing substation, wind turbines, the Southern Pacific Railroad, and scattered rural residential areas. While these features may constrain wildlife movement, the low traffic volume, along with light human presence, likely does not preclude wildlife from utilizing the study area and surrounding areas. Fencing along the boundary of Edwards AFB also provides a constraint south of the study area, although many species of wildlife may penetrate this barrier.

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4 IMPACTS AND MITIGATION MEASURES

4.1 Methods

4.1.1 Ground-Disturbing Activities

The project would result in approximately 2,213.4 acres of permanent impacts, including all 2,205.0 for the solar generation facilities and 8.4 acres within the gen-tie route. In addition, the project would result in 45.1 acres of temporary impacts within the gen-tie route.

The precise location of ground-disturbing impacts of the gen-tie route are not known at this time. However, all ground-disturbing impacts will occur in the study area. A fiber-optic line would be installed along the gen-tie route, primarily in access roads. To avoid elevation conflicts with crossing the Los Angeles Department of Water and Power (LADWP) high-voltage lines, a short segment of the gen-tie may be installed underground at this crossing point. The ground-disturbance estimated in Table 4-1 includes the estimate of impacts associated with the fiber-optic line and the crossing at the LADWP transmission line. Approximately six to seven poles can be constructed in 1 week.

Table 4-1
Potential Ground-Disturbing Impacts from Proposed Gen-Tie Route

Summary of Assumptions for Impacts	Gen-Tie Route	
	Permanent (Acres)	*Temporary (Acres)*
Assumes poles to be spaced about 700 feet apart, each foundation requiring 50 feet by 50 feet temporary disturbance and 6 feet by 6 feet permanent disturbance	0.1	5.1
Maintenance Road (assumes improved, 22-foot-wide road, 30-foot-wide temporary disturbance)	8.3	11.9
Assumes 3 laydown/assembly areas at 2.5 acres each	—	7.5
String Pulling Sites (assumes 30 pulling sites 100 feet by 300 feet, not including pole disturbances listed previously)	—	20.6
Total	**8.4**	**45.1**

4.1.2 Description of Impact Types

The various impact types described herein are defined in this section.

4.1.2.1 Construction-Related Impacts

Construction-Related (Short-Term Temporary) Direct Impacts

Absent the recommended mitigation measures, potential construction-related direct impacts to biological resources could result from unintentional clearing, trampling, or grading outside of the proposed construction zone. Accidental clearing, trampling, or grading outside designated construction zones may occur during construction activities for various reasons, such as incorrect construction grading plans, human error in interpreting grading plans, human error or accidents in operating construction equipment, and misunderstandings by construction personnel in adhering to construction plan requirements, including avoidance of biological resources. Construction of the gen-tie would result in 45.1 acres of temporary habitat impacts. Additionally, the permanent loss of or harm to individual special-status plant species and wildlife species from construction-related activities is addressed as a construction-related direct impact.

Construction-Related (Short-Term Temporary) Indirect Impacts

For the proposed project, the construction-related (short-term temporary) impacts would primarily be indirect and include temporary effects that are immediately related to construction, such as the generation of construction-related dust or noise.

4.1.2.2 Operations-Related Impacts

Temporary impacts to vegetation communities or land covers from operations and maintenance (O&M) activities to previously undisturbed areas, or to revegetated areas where temporary impacts occurred during construction, are not addressed under operations-related impacts. O&M activities addressed are only those that occur within existing permanent disturbance. However, if new impacts to vegetation communities or land covers not previously disturbed are required for O&M, the mitigation measures that apply to construction-related impacts would apply to the O&M activity. Therefore, with application of the construction-related mitigation measures, new impacts to vegetation communities or land covers not previously disturbed during construction associated with O&M would be less than significant.

Operations-Related (Long-Term Permanent) Direct Impacts

The project will result in permanent direct impacts to 2,213.4 acres of vegetation communities and land covers. These areas are the locations of the permanent project facilities. As noted above, the location of the 8.4 acres of permanent impacts within the gen-tie route are unknown. An unknown portion of these impacts would occur to existing roads or other disturbed or developed areas. The permanent loss of vegetation communities, suitable habitat for special-status wildlife,

jurisdictional waters of the state, and habitat for wildlife movement are addressed under operations-related (long-term permanent) direct impacts. The permanent loss of or harm to individual special-status plant species and wildlife species from construction-related activities is addressed as a construction-related direct impact, described in Section 4.1.2.1.

Operations-Related (Long-Term Permanent) Indirect Impacts

Operations-related (long-term permanent) indirect impacts could result from the proximity of the gen-tie to biological resources after construction. Operations-related (long-term permanent) indirect impacts from the proposed gen-tie routes are expected to be minimal. Examples of operations-related (long-term permanent) impacts to biological resources could include electrocution of raptors (absent mitigation).

4.1.3 Project Design Features

Increased risk of fire is a potential short-term and long-term indirect impact to biological resources that could result from implementation of the project. However, the potential impact would be less than significant because the proposed project would comply with all applicable wildland fire management plans and policies established by the California Department of Forestry and Fire Protection and the Kern County Fire Department. Additionally, all pesticide use will comply with the application restrictions mandated by the U.S. Environmental Protection Agency and the California Department of Pesticide Regulation. Compliance with these regulations avoids and minimizes potential misuse of pesticides, such as requiring that pesticides be applied by a certified licensed pest control applicator trained in the type, amount, and schedule of application; thus, the use of pesticide would not result in a significant impact to biological resources. Also, hydromodification is a potential long-term indirect impact that could affect biological resources. However, the project will be required to prepare a drainage plan that is designed to minimize runoff and will include engineering recommendations to minimize the potential for impeding or redirecting 100-year flood flows, which will be addressed in the project Environmental Impact Report. Therefore, significant impacts from hydromodification would not occur as a result of the proposed project.

4.2 Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist state that a project could potentially have a significant effect if it would:

1. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS (**Threshold Bio-1**).
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS (**Threshold Bio-2**).
3. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means (**Threshold Bio-3**).
4. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites (**Threshold Bio-4**).
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (**Threshold Bio-5**).
6. Conflict with the provisions of an adopted HCP [habitat conservation plan], Natural Community Conservation Plan, or other approved local, regional, or state HCP (**Threshold Bio-6**).

4.3 Threshold Bio-1

Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?

This section of the report analyzes whether there would be a significant impact to special-status plant species and wildlife species under CEQA and does not constitute an evaluation of the potential for "take" under the federal or state endangered species act. The applicant will make a determination as to whether they will apply for a 2081 Incidental Take Permit or 2080.1 Consistency Determination from CDFW under the state endangered species act and/or a Section 10 Permit from the USFWS under the federal endangered species act.

4.3.1 Special-Status Plant Species

Based on the results of the special-status plant species survey, eight alkali mariposa lilies would be impacted by the proposed project.

4.3.1.1 Construction (Short-Term) Impacts

4.3.1.1.1 Direct

Absent the recommended mitigation measures, potential construction-related direct impacts to special-status plant species could result during construction from unintentional clearing, trampling, or grading outside of the proposed construction zone. Also, temporary ground-disturbing activities, such as pole placement, road maintenance, laydown/assembly areas, and string pulling sites, would occur from the proposed project; the acreages for the gen-tie is estimated in Table 4-1.

Construction mitigation measures MM-BIO-1 (general construction-related avoidance and minimization measures) and MM-BIO-2 (WEAP training, biological monitoring, and compliance) would apply and these measures would avoid and minimize potential temporary direct impacts to special-status plant species because they require the project biologist to conduct a Worker Environmental Awareness Program (WEAP) for all construction/contractor personnel to ensure compliance with the mitigation measures and they require ongoing biological construction monitoring. This includes demarcation of the construction area using highly visible materials in the field that minimize unintentional impacts to special-status plant species and their habitat outside the designated construction area. Training and ongoing monitoring would aid in enforcing the requirements that construction must be restricted to designated areas and special-status plant species outside the designated construction zone would be avoided.

Additionally, MM-BIO-3 (avoidance, minimization, and mitigation measures for special-status plant species) states that if special-status plant species are found, direct impacts would be avoided, minimized, and mitigated. MM-BIO-3 also requires that the bulbs of the alkali mariposa lily are salvaged prior to the impact and translocated to an area that would not be impacted by the project. Also, areas that are directly but temporarily impacted shall be recontoured to natural grade and revegetated with application of a native seed mix in accordance with MM-BIO-4 (restoration of temporary impacts). The application of a native seed mix would promote passive restoration of temporary impact areas.

Construction-related direct impacts to special-status species would be less than significant with incorporation of MM-BIO-1, MM-BIO-2, MM-BIO-3, and MM-BIO-4. These biological mitigation measures are described in full in Section 4.3.3, Mitigation Measures.

4.3.1.1.2 Indirect

Special-status plant species and suitable habitat for special-status plant species may be indirectly impacted during construction. Potential short-term or temporary indirect impacts to special-status plant species resulting from construction activities include the generation of fugitive dust; changes in hydrology resulting from construction, including sedimentation and erosion; the release of chemical pollutants; and the adverse effect of invasive plant species. Potential short-term or temporary indirect impacts to special-status plant species are considered significant absent mitigation.

MM-BIO-1 (general avoidance and minimization measures) would minimize the potential effects of construction-related impacts by requiring vehicle maintenance restrictions to avoid chemical spills. MM-BIO-2 (WEAP training, biological monitoring, and compliance) would minimize the potential effects of construction-related impacts by requiring all construction/contractor personnel to attend WEAP training, conducting biological monitoring during construction activities, and requiring compliance with all environmental documents and permits. MM-BIO-4 (restoration of temporary impacts) would help prevent future adverse effects associated with leaving bare ground, such as increased dust and erosion, and would help prevent adverse effects of invasive plant species that may alter the composition of the habitat if introduced during restoration or allowed to passively colonize the area post-construction. MM-BIO-5 (preparation and implementation of a stormwater pollution prevention plan [SWPPP]) would require the implementation of best management practices, such as implementing fiber rolls and sand bags around drainage areas, if necessary. MM-BIO-6 (preparation and implementation of a dust control plan) would minimize the effects of dust during construction by implementing a dust control plan, which would require that construction-related dust is suppressed in compliance with the Eastern Kern Air Pollution Control District (EKAPCD) requirements.

These potential short-term or temporary indirect impacts to special-status plant species would be less than significant with implementation of MM-BIO-1, MM-BIO-2, MM-BIO-4, MM-BIO-5, and MM-BIO-6.

4.3.1.2 Operations (Long-Term) Impacts

4.3.1.2.1 Direct

The permanent loss of or harm to individual special-status plant species from construction-related activities is addressed as a construction-related direct impact described in Section 4.3.1.1. If new impacts to areas not previously disturbed are required for O&M, the mitigation measures that apply to construction-related impacts would apply to the O&M activity. Therefore, with application of the construction-related mitigation measures, new impacts special-status plant species not previously disturbed during construction would be less than significant. It is not expected that O&M activities will impact areas not previously impacted.

4.3.1.2.2 Indirect

Potential long-term indirect impacts that could result from development near special-status plant species or their suitable habitat include: chemical releases such as oils and grease from vehicles that could degrade habitat; increased invasive plant species that may degrade habitat; and trampling of vegetation and soil compaction by humans, which could affect soil moisture, water penetration, surface flows, and erosion. These potential long-term indirect impacts to special-status plant species would be significant absent mitigation.

MM-BIO-1 (general avoidance and minimization measures) requires that vehicles and equipment will be limited to maintenance access roads and the minimal area necessary to perform the work to minimize chemical releases and trampling of vegetation and soils compaction by humans. MM-BIO-4 (restoration of temporary impacts) would help prevent adverse effects of invasive plant species that may alter the composition of the habitat if introduced during restoration or allowed to passively colonize the area post-construction if these areas are not revegetated.

These potential long-term indirect impacts to special-status plant species would be less than significant with implementation of MM-BIO-1 and MM-BIO-4.

4.3.2 Special-Status Wildlife

As described in Table 3-4 and Section 3.5, several special-status wildlife species have at least a moderate potential to occur in the study area. These include desert tortoise, Northern California legless lizard, burrowing owl, ferruginous hawk, golden eagle, prairie falcon, Swainson's hawk, LeConte's thrasher, Lawrence's goldfinch, loggerhead shrike, Tehachapi pocket mouse, American badger, desert kit fox, pallid bat, spotted bat, and Townsend's big-eared bat. Note, however, that golden eagle, prairie falcon, and Swainson's hawk are not expected to nest in the study area. Potential impacts to each are discussed under both short-term and long-term impacts. Species with similar life histories and similar potential to occur are discussed as groups: foraging raptors (ferruginous hawk, golden eagle, prairie falcon, Swainson's hawk) and bats (pallid bat, spotted bat, Townsend's big-eared bat).

4.3.2.1 Construction (Short-Term) Impacts

4.3.2.1.1 Direct

Two types of short-term direct impacts can potentially occur to special-status wildlife species: impacts to habitat and impacts to the species from injury or mortality of individuals of the species. Total short-term habitat impacts will occur to 45.1 acres. It is not known what portion

of these impacts will be to natural vegetation communities and what portion will be to previously disturbed areas, such as areas occurring within existing road, power line, and other easements. These impacts may not occur to all areas at the same time. Absent the proposed mitigation measures, impacts causing injury or mortality of individuals could include, for example, crushing of low-mobility species during grading, entombment of burrowing species during grading, collisions with construction equipment, and destruction of bird nests during vegetation removal or grading.

Reptiles

Desert Tortoise

Although surveys resulted in no direct observations of desert tortoise, sign of desert tortoise was observed on the southern site during surveys and along the gen-tie route. No sign or live tortoises were observed on the northern site. The northern site was cultivated, primarily with alfalfa, until around 1970. Short-term (temporary impacts) are limited to 45.1 acres along the gen-tie route. Conservatively, this report assumes that all 45.1 acres of short-term temporary impacts are suitable desert tortoise habitat. Absent the recommended mitigation measures, potential construction-related direct impacts to desert tortoise could result from unintentional clearing, trampling, or grading outside of the proposed project impact area during construction. Also, temporary ground-disturbing activities, such as pole placement, road maintenance, laydown/assembly areas, and string pulling sites, would occur from the proposed project. These impacts could result in temporary loss of desert tortoise habitat, crushing of desert tortoise burrows, and entrapment or entombment of desert tortoises. Desert tortoise is an FT and ST species that has experienced significant declines throughout its range. Therefore, the proposed project could result in significant construction-related impacts to desert tortoise.

With respect to temporary habitat impacts in all project options (both unintentional and planned), areas that are directly but temporarily impacted shall be recontoured to natural grade and revegetated with application of a native seed mix in accordance with MM-BIO-4 (restoration of temporary impacts). The application of a native seed mix would promote passive restoration of temporary impact areas. Construction mitigation measure MM-BIO-8 (desert tortoise pre-construction surveys and avoidance/relocation plan) would result in identification of any desert tortoises within areas potentially impacted by the project, establishment of appropriate buffers, and avoidance of impacts to desert tortoise. MM-BIO-1 (general construction-related avoidance and minimization measures) would limit vehicles and construction equipment to identified impact areas and would limit ingress and egress to established roads. MM-BIO-2 (WEAP training, biological monitoring, and compliance) would require the project biologist to conduct a WEAP for all construction/contractor personnel and would require ongoing biological construction

monitoring to ensure compliance with mitigation measures. Training and ongoing monitoring would aid in enforcing the requirements that construction must be restricted to designated areas and impacts would not occur to desert tortoise outside the designated construction zone.

Construction-related direct impacts to desert tortoise would be less than significant with incorporation of MM-BIO-1, MM-BIO-2, MM-BIO-4, and MM-BIO-8. These biological mitigation measures are described in full in Section 4.3.3.

Northern California Legless Lizard

Although no Northern California legless lizards were observed during surveys, the species has the potential to occur along the gen-tie route. One Northern California legless lizard was observed near the gen-tie route during surveys on the SEPV Mojave West Solar Project site (Kern County Planning and Natural Resources Department 2014). Within the gen-tie route, temporary impacts to legless lizard habitat would be limited to impacts within desert drainages. Therefore, short-term direct impacts to Northern California legless lizard habitat would be minimal.

Absent the recommended mitigation measures, potential construction-related direct impacts to Northern California legless lizard could result from unintentional clearing, trampling, or grading outside of the construction zone. Also, temporary ground-disturbing activities, such as pole placement, road maintenance, laydown/assembly areas, and string pulling sites, would occur from the proposed project and could temporarily impact up to 45.1 acres of suitable habitat. These impacts could result in the temporary loss of Northern California legless lizard habitat and crushing of Northern California legless lizards. Short-term direct impacts to habitat would affect a relatively limited area at the edge of the species' range, and abundant available natural habitat would remain farther west. Therefore, short-term direct impacts to habitat would be less than significant. However, this low-mobility species would likely not be able to escape construction activity to occupy suitable adjacent habitats and therefore would be particularly susceptible to injury and mortality. In fact, impacts to a relatively small area could mean the loss of a population, which could substantially reduce the species' potential survival in the vicinity. Therefore, this impact would be significant absent mitigation.

Short-term direct impacts from injury or mortality of individuals would be reduced through MM-BIO-9 (pre-construction clearance surveys), which will require pre-construction surveys for special-status wildlife species using appropriate methods; avoidance of these species, where possible; and relocation of individuals that may be captured. In addition, for any non-listed special-status wildlife species occurring in construction areas, buffers will be established or, if establishing buffers is not feasible, attempts will be made to move the individuals to safety through capture and relocation or through encouraging them to leave the site. MM-BIO-1 (general construction-related

avoidance and minimization measures) would limit vehicles and construction equipment to identified impact areas and would limit ingress and egress to established roads. MM-BIO-2 (WEAP training, biological monitoring, and compliance) would require the project biologist to conduct a WEAP for all construction/contractor personnel and would require ongoing biological construction monitoring to ensure compliance with mitigation measures. Training and ongoing monitoring would aid in enforcing the requirements that construction must be restricted to designated areas and impacts would not occur to Northern California legless lizard outside the designated construction zone.

Construction-related direct impacts to Northern California legless lizard would be less than significant with incorporation of MM-BIO-1, MM-BIO-2, MM-BIO-4, and MM-BIO-9.

Birds

Burrowing Owl

Biologists recorded burrowing owls on or adjacent to the study area on several occasions, and suitable habitat occurs widely in the study area. Burrowing owls potentially occur in most vegetation communities occurring in the study area, including non-native grassland and open scrubs—allscale scrub, rubber rabbitbrush scrub, cheesebush scrub, white bursage, non-vegetated channel, and creosote bush scrub.

Since the exact location of the gen-tie route has yet to be determined, the extent of temporary impacts to burrowing owl habitat is not known. It is assumed that a portion of the impacts would be to existing easements and/or disturbed areas and that there would be some impacts to suitable burrowing owl habitat. However, conservatively, this report assumes that all 45.1 acres of short-term temporary impacts are suitable burrowing owl habitat. Absent the recommended mitigation measures, potential construction-related direct impacts to burrowing owl could result from unintentional clearing, trampling, or grading outside of the construction zone. Also, temporary ground-disturbing activities, such as pole placement, road maintenance, laydown/assembly areas, and string pulling sites, would occur from the proposed project. Since the extent of temporary habitat impacts would be limited, and because abundant habitat suitable for burrowing owl would remain outside construction zones, short-term habitat impacts would be less than significant. While short-term habitat impacts would be less than significant, areas that are directly but temporarily impacted shall be recontoured to natural grade and revegetated with application of a native seed mix in accordance with MM-BIO-4 (restoration of temporary impacts), which would further reduce impacts. However, ground disturbances could potentially result in destruction of burrowing owl dens, destruction of nests, eggs, and young, and entombment of adults. Burrowing owl is an

SSC that has experienced declines in California, and loss of individuals and destruction of nests is considered a significant impact.

Construction mitigation measure MM-BIO-10 (burrowing owl pre-construction surveys and avoidance/relocation plan) would result in identification of any burrowing owls within areas potentially impacted by the project, establishment of appropriate buffers, and avoidance of impacts to burrowing owl. MM-BIO-1 (general construction-related avoidance and minimization measures) would limit vehicles and construction equipment to identified impact areas and would limit ingress and egress to established roads. MM-BIO-2 (WEAP training, biological monitoring, and compliance) would further ensure avoidance of impacts to burrowing owls.

Construction-related direct impacts to burrowing owl would be less than significant with incorporation of MM-BIO-1, MM-BIO-2, and MM-BIO-10.

Foraging Raptors: Ferruginous Hawk, Golden Eagle, Prairie Falcon, Swainson's Hawk

Four special-status raptor species have the potential to forage in the study area, but are not expected or have a low potential to nest, as noted in Section 3.5.2. Ferruginous hawk is a BCC for wintering and does not nest in California. While the Antelope Valley is considered an important wintering area for ferruginous hawk in California, the species most likely winters closer to agricultural areas, which are absent near the study area, and grasslands, which are sparse. Golden eagle is a CDFW FP species and a BCC and is protected under the Bald and Golden Eagle Protection Act. It nests in the region and may forage occasionally in the study area, but nesting habitat is absent in the study area. Although potentially suitable nesting habitat for golden eagle occurs at Soledad Mountain, which is 4.0 miles from the northern site and 3.4 miles south of the gen-tie route, and the CNDDB includes a golden eagle occurrence from this area in 1969, the site is not known to have been occupied since then. In addition, the presence of an open-pit, heap-leach gold and silver mine on the north slope of Soledad Mountain (between the study area and remaining potential nesting habitat) greatly reduces the current likelihood of golden eagles reoccupying the area for nesting. Therefore, golden eagles have only a low potential to nest in the vicinity of the study area, and impacts would not occur to nesting golden eagles. Prairie falcon, a BCC species, has not been recorded nesting in the vicinity, and suitable nesting sites are absent from the study area, which lacks suitable cliffs and rock ledges. The potential for prairie falcon to nest in the vicinity of the study area is also limited by current mining activities at Soledad Mountain. CNDDB includes one occurrence at a non-specific location from the Soledad Mountain USGS quadrangle in 1978. Swainson's hawk is a BCC and ST species that nests in Joshua tree woodland and planted trees (e.g., wind breaks, trees near residences) elsewhere in the Antelope Valley. Nesting surveys within 5.0 miles of the study area in 2017 were negative for nesting Swainson's hawks, although one transient adult and one juvenile were seen once

each during surveys. Swainson's hawks nesting in the Antelope Valley may forage in desert scrub; however, no agricultural land suitable for foraging occurs within 5.0 miles of the study area.

Because of the negative survey results for Swainson's hawks and the absence of suitable agricultural foraging habitat in the study area vicinity, the project would not result in impacts to foraging habitat for nesting Swainson's hawks. Golden eagle and prairie falcon potentially forage in open types of all the natural vegetation communities occurring within the study area. The project would result in impacts of up to 45.1 acres along the gen-tie route and an undetermined portion of would be impacts to potential golden eagle, prairie falcon, and ferruginous hawk; conservatively, this report assumes that all 45.1 acres of short-term temporary impacts are suitable foraging habitat for these three species.

Because ferruginous hawk does not nest in the region, no suitable nesting habitat occurs in the study area for golden eagle and prairie falcon, and surveys for nesting Swainson's hawks within 5.0 miles of the study area were negative, the project would have no short-term direct construction-related impacts to nesting habitat. Temporary impacts would exclude these species from foraging in the study area only over small areas at any one time, and they would be able to reoccupy these areas after construction. Therefore, short-term impacts to foraging habitat would be less than significant. In addition, because only adults and fully fledged juveniles and subadults are expected to be present in the study area, these highly mobile raptors would be able to avoid injury or mortality from short-term direct construction-related impacts. As temporary direct impacts to foraging raptor habitat would be less than significant, no mitigation is necessary. However, these impacts would be further reduced by implementation of MM-BIO-4 (restoration of temporary impacts to uplands with non-invasive species), which would require that temporary impact areas be recontoured to natural grade and revegetated with application of a native seed mix.

Lawrence's Goldfinch

Although Lawrence's goldfinch was not observed in the study area, it was observed in a developed area adjacent to the gen-tie route and has a moderate potential to occur in the study area near existing development or areas supporting surface water. The temporary loss of habitat is not expected to have a significant impact on the species, due to the limited extent of impacts and relative abundance of habitat in and surrounding the study area. In addition, the 45.1 acres of temporary impacts are focused in the gen-tie area, most of which occurs away from development, exotic plantings, or surface water, where this species is most likely to occur. Direct impacts to nesting Lawrence's goldfinch are relatively unlikely, as this species is more likely to nest near residences than in Joshua trees or any other vegetation community likely to be directly impacted by the project. However, any impacts resulting in the loss of nests, eggs, or nestlings would be considered significant.

MM-BIO-11 (pre-construction nesting bird survey) would require nesting bird surveys prior to construction that will result in avoidance of impacts to native nesting birds, including Lawrence's goldfinch, and their nests, eggs, and young. MM-BIO-1 (general construction-related avoidance and minimization measures) will limit equipment access to identified impact areas, thus preventing accidental clearing of Lawrence's goldfinch habitat and destruction of nests. Implementation of MM-BIO-2 (WEAP training, biological monitoring, and compliance) would require that all workers complete a WEAP training and would require continual biological monitoring and compliance with all biological resources permit requirements.

Construction-related direct impacts to Lawrence's goldfinch would be less than significant with incorporation of MM-BIO-1, MM-BIO-2, and MM-BIO-11.

LeConte's Thrasher

LeConte's thrasher was observed occasionally within desert scrub habitats during surveys, including along the gen-tie route.

The temporary loss of habitat is not expected to have a significant impact on the species due to the abundance of habitat in and surrounding the study area that will remain available to LeConte's thrasher during construction. Adults of this species are very mobile and not susceptible to direct impacts from construction-related activities. However, the proposed project could have a direct impact on bird nests, eggs, and young, should nesting occur within construction areas. This impact would be significant absent mitigation.

MM-BIO-11 (pre-construction nesting bird survey) would require pre-construction nesting bird surveys, establishment of buffers, and avoidance of nests, including nests of LeConte's thrasher. MM-BIO-1 (general construction-related avoidance and minimization measures) will limit equipment access to identified impact areas, thus preventing accidental clearing of LeConte's thrasher habitat and destruction of nests. Implementation of MM-BIO-2 (WEAP training, biological monitoring, and compliance) would require that all workers complete a WEAP training, and would require continual biological monitoring and compliance with all biological resources permit requirements.

Construction-related direct impacts to LeConte's thrasher would be less than significant with incorporation of MM-BIO-1, MM-BIO-2, and MM-BIO-11.

Loggerhead Shrike

Several loggerhead shrikes were observed during surveys, and surveys also noted signs of nesting within the study area (see Section 3.5.2.6 and Figure 3-3). This species has the potential to occur throughout the study area. The temporary loss of habitat is not expected to have a significant impact

on the species, as abundant suitable habitat would remain available to the species after construction. Also, adult loggerhead shrikes are highly mobile and would avoid construction equipment and construction activities. However, the proposed project could result in destruction of nests, eggs, or young, if the species nests in construction areas. This impact would be significant absent mitigation.

MM-BIO-11 (pre-construction nesting bird survey) would require pre-construction nesting bird surveys, establishment of buffers, and avoidance of nests, including nests of loggerhead shrike. MM-BIO-1 (general construction-related avoidance and minimization measures) will limit equipment access to identified impact areas, thus preventing accidental clearing of loggerhead shrike habitat and destruction of nests. Implementation of MM-BIO-2 (WEAP training, biological monitoring, and compliance) would require that all workers complete a WEAP training and would require continual biological monitoring and compliance with all biological resources permit requirements.

Construction-related direct impacts to loggerhead shrike would be less than significant with incorporation of MM-BIO-1, MM-BIO-2, and MM-BIO-11.

Mammals

American Badger

American badger was not observed in the study area, but has a high potential to occur. Potential construction-related direct impacts to American badger and suitable habitat for American badger could result from unintentional clearing, trampling, or grading outside of the proposed project impact area during construction. Also, temporary ground-disturbing activities, such as pole placement, road maintenance, laydown/assembly areas, and string pulling sites, would occur from the proposed project and could result in temporary impacts of up to 45.1 acres of suitable habitat. These impacts could result in the temporary loss of American badger habitat and direct impacts to occupied dens and injury or mortality of badgers. The temporary direct impacts to suitable habitat for American badger are considered less than significant because they are relatively small (i.e., 45.1 acres) compared to the abundant suitable habitat that would remain available adjacent to the impact areas. The potential impacts to dens and loss or injury to individual badgers are considered significant, absent mitigation.

MM-BIO-12 requires pre-construction surveys for winter and natal badger dens, and, if present, implementation of avoidance measures to minimize impacts to badgers. If natal dens are found, a 200-foot buffer shall be flagged or fenced to avoid inadvertent impacts to the den. Construction would be postponed or halted until the project biologist determines that the young are no longer dependent on the natal den. With respect to natal den avoidance, MM-BIO-12 ensures that badgers would be allowed to complete pupping and disperse to off-site habitat when the natal den is

vacated. If winter dens are found, a 50-foot avoidance buffer shall be flagged or fenced to avoid inadvertent impacts to the den. If it is not feasible to avoid the wintering den during construction activities, an attempt would be made to trap or flush the individual and relocate it to suitable open space habitat. Additionally, badgers may be relocated by slowly excavating the burrow, either by hand or mechanized equipment, under the direct supervision of the project biologist. Therefore, MM-BIO-12 would avoid and minimize direct impacts to individual American badgers during winter construction when they may be in a torpid state in their dens. MM-BIO-1 (general construction-related avoidance and minimization measures) would require demarcation of the construction area using highly visible materials, so as to minimize unintentional impacts to surrounding resources. MM-BIO-2 (WEAP training, biological monitoring, and compliance) would require the project biologist to conduct a WEAP for all construction/contractor personnel and would require ongoing biological construction monitoring to ensure compliance with mitigation measures. Training and ongoing monitoring would aid in enforcing the requirements that construction must be restricted to designated areas and impacts would not occur to America badger outside the designated construction zone.

Construction-related direct impacts to American badger would be less than significant with incorporation of MM-BIO-1, MM-BIO-2, and MM-BIO-12. These biological mitigation measures are described in full in Section 4.3.3.

Desert Kit Fox

Desert kit fox was observed once in the study area, when an active natal den was observed on the southern site in the spring 2017, and desert kit fox sign was observed (tracks, scat) was observed at several other locations in the study area. Desert kit fox has a high potential to occur in much of the study area. Potential construction-related direct impacts to desert kit fox and suitable habitat for desert kit fox could result from unintentional clearing, trampling, or grading outside of the proposed project impact area during construction. Also, temporary ground-disturbing activities, such as pole placement, road maintenance, laydown/assembly areas, and string pulling sites, would occur from the proposed project and could result in temporary impacts of up to 45.1 acres of suitable habitat. These impacts could result in the temporary loss of desert kit fox habitat and direct impacts to occupied dens and injury or mortality of foxes. The temporary direct impacts to suitable habitat for desert kit fox are considered less than significant because they are relatively small (i.e., 45.1 acres) compared to the abundant suitable habitat that would remain available adjacent to the impact areas. The potential impacts to dens and loss or injury to individual desert kit foxes are considered significant, absent mitigation.

MM-BIO-9 requires pre-construction surveys for special-status wildlife species, including surveys for desert kit foxes and their dens, and, if present, implementation of avoidance measures to

minimize impacts to foxes. If natal dens are found, a 500-foot buffer shall be established to avoid inadvertent impacts to the den. Construction would be postponed or halted until the project biologist determines that the young are no longer dependent on the natal den. With respect to natal den avoidance, MM-BIO-9 ensures that desert kit foxes would be allowed to complete pupping and disperse to off-site habitat when the natal den is vacated. If the project biologist determines that the den is not occupied, the project biologist may excavate the den by hand. For occupied non-natal dens or potential dens that may be occupied, the qualified project biologist may place a one-way door over all entrances to the den for 7 days to exclude desert kit fox from the den. At the end of this period, the qualified project biologist may excavate the burrow by hand to prevent future occupancy. Therefore, MM-BIO-9 would avoid and minimize direct impacts to individual desert kit foxes during construction. MM-BIO-1 (general construction-related avoidance and minimization measures) would limit vehicles and construction equipment to identified impact areas and would limit ingress and egress to established roads, thus avoiding inadvertent impacts to kit fox dens. MM-BIO-2 (WEAP training, biological monitoring, and compliance) would require the project biologist to conduct a WEAP for all construction/contractor personnel and would require ongoing biological construction monitoring to ensure compliance with mitigation measures. Training and ongoing monitoring would aid in enforcing the requirements that construction must be restricted to designated areas and impacts would not occur to desert kit fox outside the designated construction zone.

Construction-related direct impacts to desert kit fox would be less than significant with incorporation of MM-BIO-1, MM-BIO-2, and MM-BIO-9. These biological mitigation measures are described in full in Section 4.3.3.

Mohave Ground Squirrel

The lack of Mohave ground squirrel occurrences in the vicinity of the proposed solar fields and gen-tie line suggest Mohave ground squirrel has a low potential to occur in these areas.

Absent the recommended mitigation measures, potential construction-related direct impacts to Mohave ground squirrel could result from unintentional clearing, trampling, or grading outside of the proposed project impact area during construction. Also, temporary ground-disturbing activities, such as pole placement, road maintenance, laydown/assembly areas, and string pulling sites, would occur from the proposed project and could result in temporary impacts of 45.1 acres of suitable habitat. The temporary direct impacts to suitable habitat for Mohave ground squirrel would be less than significant because they would be relatively small (i.e., 45.1 acres) compared to the abundant suitable habitat that would remain available adjacent to the impact areas. While the potential for Mohave ground squirrel to occur in the study area is low, crushing of Mohave ground squirrel burrows, and entrapment or entombment of Mohave ground squirrels, while not probable, is possible. Mohave ground squirrel is

an ST species that has a limited range. Therefore, the proposed project could result in significant construction-related impacts to Mohave ground squirrel.

Construction mitigation measure MM-BIO-13 (Mohave ground squirrel pre-construction surveys and avoidance and monitoring plan) would result in identification of any Mohave ground squirrels within areas potentially impacted by the project, establishment of appropriate buffers, and avoidance of impacts to Mohave ground squirrel. MM-BIO-1 (general construction-related avoidance and minimization measures) would limit vehicles and construction equipment to identified impact areas and would limit ingress and egress to established roads, thus avoiding inadvertent impacts to Mohave ground squirrels. MM-BIO-2 (WEAP training, biological monitoring, and compliance) would require the project biologist to conduct a WEAP for all construction/contractor personnel and would require ongoing biological construction monitoring to ensure compliance with mitigation measures. Training and ongoing monitoring would aid in enforcing the requirements that construction must be restricted to designated areas and impacts would not occur to Mohave ground squirrels outside the designated construction zone.

Construction-related direct impacts to Mohave ground squirrel would be less than significant with incorporation of MM-BIO-1, MM-BIO-2, and MM-BIO-13. These biological mitigation measures are described in full in Section 4.3.3.

Tehachapi Pocket Mouse

Tehachapi pocket mouse has a moderate potential to occur in the western part of the gen-tie route. Absent the recommended mitigation measures, potential construction-related direct impacts to Tehachapi pocket mouse could result from unintentional clearing, trampling, or grading outside of the proposed project impact area during construction. Also, temporary ground-disturbing activities, such as pole placement, road maintenance, laydown/assembly areas, and string pulling sites, would occur from the proposed project and could result in impacts of up to 45.1 acres of suitable habitat. These impacts could result in temporary loss of Tehachapi pocket mouse habitat and crushing of Tehachapi pocket mouse, either above ground or in burrows. Short-term impacts to habitat would affect a relatively limited area at the edge of the species' range, and abundant available natural habitat would remain farther eastward and northward. Therefore, short-term direct impacts to habitat would be less than significant. However, if this low-mobility, burrowing mammal is present during construction, it would be particularly susceptible to injury and mortality. This impact is considered significant absent mitigation.

Short-term direct impacts from injury or mortality of individuals would be reduced through MM-BIO-9 (pre-construction clearance surveys), which will require pre-construction surveys for special-status wildlife species using appropriate methods, avoidance of these species where

possible, and relocation of individuals that may be captured. In addition, for any non-listed special-status wildlife species occurring in construction areas during construction, buffers will be established or, if establishing buffers is not feasible, attempts will be made to move the individuals to safety through capture and relocation or through encouraging them to leave the site. MM-BIO-1 (general construction-related avoidance and minimization measures) would further reduce this impact by requiring demarcation of the construction area using highly visible materials, so as to minimize unintentional impacts to surrounding resources. MM-BIO-2 (WEAP training, biological monitoring, and compliance) would require the project biologist to conduct a WEAP for all construction/contractor personnel and would require ongoing biological construction monitoring to ensure compliance with mitigation measures. Training and ongoing monitoring would aid in enforcing the requirements that construction must be restricted to designated areas and impacts would not occur to Tehachapi pocket mouse outside the designated construction zone.

Construction-related direct impacts to Tehachapi pocket mouse would be less than significant with incorporation of MM-BIO-1, MM-BIO-2, and MM-BIO-9.

Bats: Pallid Bat, Spotted Bat, Townsend's Big-Eared Bat

Although pallid bat and Townsends's big-eared bat have been recorded at suitable roosting habitat in the Soledad Mountain area, and although spotted bat has a moderate potential to roost in the vicinity, no bat roosting habitat occurs in the study area. In addition, short-term foraging impacts would affect a small area at any one time, therefore limiting the areas that these species may not have access to for foraging. Also, only a small portion of the entire study area is within 2.5 mile of known roosting sites at Soledad Mountain, and most of the gen-tie route options are much farther away, and likely not important for foraging by these species. Therefore, the project would have no short-term direct impacts to roosting habitat, and short-term direct impacts to foraging habitat would be less than significant. As these species are highly mobile and highly maneuverable, and therefore able to avoid construction areas and equipment, no construction impacts would occur due to injury or mortality of individuals.

4.3.2.1.2 Indirect

Short-term indirect impacts to special-status wildlife species are those that occur during construction to species present near the site, but not within the construction zone. These include fugitive dust that can degrade habitat and result in health implications for wildlife species; noise and vibration that can stress wildlife species or cause them to leave an area of otherwise suitable habitat, or that can result in disruption of bird nesting and abandonment of nests; increased human presence, which can also disrupt daily activities of wildlife and cause them to leave an area; night-

time lighting, which can disrupt the activity patterns of nocturnal species, including many mammals and some birds, amphibians, and reptiles; and release of chemical pollutants, such as from oil leaks from construction vehicles and machinery.

Reptiles

Desert Tortoise

Construction activities have the potential to result in indirect impacts to desert tortoises and their habitat, along the gen-tie route and within the southern site. Desert tortoises are typically below ground at night, so impacts from lighting during night-time construction would be less than significant. Other potential short-term or temporary indirect impacts to desert tortoise include the generation of fugitive dust, noise and vibration, increased human presence, and the release of chemical pollutants. Potential short-term or temporary indirect impacts to desert tortoise are considered significant absent mitigation.

MM-BIO-8 (desert tortoise pre-construction surveys and avoidance plan) would result in identification of any desert tortoises within areas potentially impacted by the project, establishment of appropriate buffers, and avoidance of indirect impacts to desert tortoise, including noise, vibration, and increased human presence. MM-BIO-1 (general avoidance and minimization measures) would minimize the potential effects of construction-related impacts by requiring vehicle maintenance restrictions to avoid chemical spills. MM-BIO-2 (WEAP training, biological monitoring, and compliance) would minimize the potential effects of construction-related impacts by requiring all construction/contractor personnel to attend WEAP training, conducting biological monitoring during construction activities, and requiring compliance with all environmental documents and permits. MM-BIO-6 (preparation and implementation of a dust control plan) would minimize the effects of dust on desert tortoise during construction by implementing a dust control plan, which would require that construction-related dust is suppressed in compliance with the EKAPCD requirements.

These potential short-term or temporary indirect impacts to desert tortoise would be less than significant with implementation of MM-BIO-1, MM-BIO-2, MM-BIO-6, and MM-BIO-8.

Northern California Legless Lizard

Construction activities have the potential to result in indirect impacts to Northern California legless lizards and their habitat. Legless lizards are typically below ground, so impacts from generation of fugitive dust, increased human presence, and from lighting during night-time construction would be less than significant. Other potential short-term or temporary indirect impacts to Northern California legless lizard include noise and vibration and the release of chemical pollutants.

Potential short-term or temporary indirect impacts to Northern California legless lizard are considered significant absent mitigation.

MM-BIO-9 (pre-construction clearance surveys) would require buffers around special-status wildlife species, if possible, thus reducing the likelihood of impacts from noise and vibration. MM-BIO-1 (general avoidance and minimization measures) would minimize the potential effects of construction-related impacts by requiring vehicle maintenance restrictions to avoid chemical spills. MM-BIO-2 (WEAP training, biological monitoring, and compliance) would minimize the potential effects of construction-related impacts by requiring all construction/contractor personnel to attend WEAP training, conducting biological monitoring during construction activities, and requiring compliance with all environmental documents and permits.

Potential short-term or temporary indirect impacts to Northern California legless lizard would be reduced to less than significant with implementation of MM-BIO-1, MM-BIO-2, and MM-BIO-9.

Birds

Burrowing Owl

Construction activities have the potential to result in indirect impacts to burrowing owls and their habitat. Those impacts could include dust, noise and vibration, increased human presence, chemical spills, and night-time lighting. These potential short-term or temporary indirect impacts to burrowing owls are considered significant absent mitigation.

MM-BIO-10 (burrowing owl pre-construction surveys and avoidance/relocation plan) would require burrowing owl surveys and result in establishment of construction buffers around burrowing owl dens, thus limiting effects from most short-term indirect impacts, including noise and vibration, increased human presence, and night-time lighting. MM-BIO-1 (general construction-related avoidance and minimization measures) would prohibit night-time work and lighting within 50 feet of habitat for special-status species. MM-BIO-1 would also minimize the potential effects of construction-related impacts by requiring vehicle maintenance restrictions to avoid chemical spills. MM-BIO-2 (WEAP training, biological monitoring, and compliance) would require that all workers complete a WEAP training and would require ongoing biological monitoring and compliance with all biological resources permit requirements. MM-BIO-6 (preparation and implementation of a dust control plan) would minimize the effects of dust on burrowing owl during construction by implementing a dust control plan, which would require that construction-related dust is suppressed in compliance with the EKAPCD requirements.

Potential short-term or temporary indirect impacts to burrowing owls would be reduced to less than significant with implementation of MM-BIO-1, MM-BIO-2, MM-BIO-6, and MM-BIO-10.

Foraging Raptors: Ferruginous Hawk, Golden Eagle, Prairie Falcon, Swainson's Hawk

As noted above, these species are not expected to nest in the study area, or have a low potential to nest. Special-status raptors foraging in the area, which would include only adults and fully fledged subadults, are highly mobile and would be able to avoid any short-term indirect impacts from project construction.

Lawrence's Goldfinch

Construction activities have the potential to result in indirect impacts to Lawrence's goldfinches and their habitat. Generation of fugitive dust, noise and vibration, increased human presence, and night-time lighting could result in impacts to nesting Lawrence's goldfinches, resulting in nest abandonment and failure. These short-term indirect impacts are considered significant absent mitigation.

Several construction-related measures would reduce short-term indirect impacts. MM-BIO-11 (pre-construction nesting bird survey) would require nesting bird surveys, buffers to bird nests, and avoidance of impacts to nesting birds, and thus would minimize the effects of noise, vibration, and increased human presence on nesting birds. MM-BIO-1 (general construction-related avoidance and minimization measures) would prohibit night-time work within 50 feet of special-status species habitat, except in case of emergency. MM-BIO-2 (WEAP training, biological monitoring, and compliance) would require that all construction workers complete a WEAP and would also require biological monitoring and compliance with all biological resources permit requirements. MM-BIO-6 (preparation and implementation of a dust control plan) would minimize the effects of dust on nesting birds during construction, including Lawrence's goldfinch, by implementing a dust control plan, which would require that construction-related dust is suppressed in compliance with the EKAPCD requirements.

Potential short-term indirect impacts to Lawrence's goldfinches would be reduced to less than significant with implementation of MM-BIO-1, MM-BIO-2, MM-BIO-6, and MM-BIO-11.

LeConte's thrasher

Construction activities have the potential to result in indirect impacts to nesting LeConte's thrasher. Those impacts could include dust, noise and vibration, increased human presence, chemical spills, and night-time lighting. Potential short-term or temporary indirect impacts to LeConte's thrashers are considered significant absent mitigation.

Several construction-related measures would reduce short-term indirect impacts to LeConte's thrashers. MM-BIO-11 (pre-construction nesting bird survey) would require nesting bird surveys,

buffers to bird nests, and avoidance of impacts to nesting birds, and thus would minimize the effects of noise, vibration, and increased human presence on nesting birds. MM-BIO-1 (general construction-related avoidance and minimization measures) would prohibit night-time work within 50 feet of special-status species habitat, except in case of emergency. MM-BIO-2 (WEAP training, biological monitoring, and compliance) would require that all construction workers complete a WEAP and would also require biological monitoring and compliance with all biological resources permit requirements. MM-BIO-6 (preparation and implementation of a dust control plan) would minimize the effects of dust on nesting birds during construction, including LeConte's thrashers, by implementing a dust control plan, which would require that construction-related dust is suppressed in compliance with the EKAPCD requirements.

Potential short-term indirect impacts to LeConte's thrashers would be reduced to less than significant with implementation of MM-BIO-1, MM-BIO-2, MM-BIO-6, and MM-BIO-11.

Loggerhead Shrike

Construction activities have the potential to result in indirect impacts to nesting loggerhead shrikes. Those impacts could include dust, noise and vibration, increased human presence, chemical spills, and night-time lighting. Potential short-term or temporary indirect impacts to loggerhead shrikes are considered significant absent mitigation.

Several construction-related measures would reduce short-term indirect impacts to loggerhead shrikes. MM-BIO-11 (pre-construction nesting bird survey) would require nesting bird surveys, buffers to bird nests, and avoidance of impacts to nesting birds, and thus would minimize the effects of noise, vibration, and increased human presence on nesting birds. MM-BIO-1 (general construction-related avoidance and minimization measures) would prohibit night-time work within 50 feet of special-status species habitat, except in case of emergency. MM-BIO-2 (WEAP training, biological monitoring, and compliance) would require that all construction workers complete a WEAP and would also require biological monitoring and compliance with all biological resources permit requirements. MM-BIO-6 (preparation and implementation of a dust control plan) would minimize the effects of dust on nesting birds during construction, including loggerhead shrikes, by implementing a dust control plan, which would require that construction-related dust is suppressed in compliance with the EKAPCD Regulation VIII.

Potential short-term indirect impacts to loggerhead shrikes would be reduced to less than significant with implementation of MM-BIO-1, MM-BIO-2, MM-BIO-6, and MM-BIO-11.

Mammals

American Badger

Should American badgers occur in the study area, indirect short-term impacts from construction could result. Potential short-term or temporary indirect impacts to American badgers include the generation of fugitive dust, noise and vibration, increased human presence, and night-time lighting. Potential short-term or temporary indirect impacts to American badgers are considered significant absent mitigation.

MM-BIO-12 (pre-construction surveys for American badger) would require surveys for American badger dens and result in establishment of construction buffers around dens, thus limiting effects from most short-term indirect impacts, including noise and vibration, increased human presence, and night-time lighting. MM-BIO-1 (general construction-related avoidance and minimization measures) would prohibit night-time work and lighting within 50 feet of habitat for special-status species, except in case of emergency. MM-BIO-2 (WEAP training, biological monitoring, and compliance) would require that all workers complete a WEAP training and would require ongoing biological monitoring and compliance with all biological resources permit requirements. MM-BIO-6 (preparation and implementation of a dust control plan) would minimize the effects of dust on badger during construction by implementing a dust control plan, which would require that construction-related dust is suppressed in compliance with the EKAPCD requirements.

Potential short-term or temporary indirect impacts to American badgers would be reduced to less than significant with implementation of MM-BIO-1, MM-BIO-2, MM-BIO-6, and MM-BIO-12.

Desert Kit Fox

Should desert kit foxes occur in the study area, indirect short-term impacts from construction could result. Potential short-term or temporary indirect impacts to desert kit foxes include the generation of fugitive dust, noise and vibration, increased human presence, and night-time lighting. Potential short-term or temporary indirect impacts to desert kit foxes are considered significant absent mitigation.

MM-BIO-9 (pre-construction clearance surveys) would require surveys for desert kit foxes and their dens and would result in establishment of construction buffers around dens, thus limiting effects from most short-term indirect impacts, including noise and vibration, increased human presence, and night-time lighting. MM-BIO-1 (general construction-related avoidance and minimization measures) would prohibit night-time work and lighting within 50 feet of habitat for special-status species, except in case of emergency. MM-BIO-2 (WEAP training, biological monitoring, and compliance) would require that all workers complete a WEAP training and would require ongoing biological monitoring and compliance with all biological resources permit

requirements. MM-BIO-6 (preparation and implementation of a dust control plan) would minimize the effects of dust on desert kit fox during construction by implementing a dust control plan, which would require that construction-related dust is suppressed in compliance with the EKAPCD requirements.

Potential short-term or temporary indirect impacts to desert kit foxes would be reduced to less than significant with implementation of MM-BIO-1, MM-BIO-2, MM-BIO-6, and MM-BIO-9.

Mohave Ground Squirrel

While the potential for this species to occur is low, should Mohave ground squirrels occur in the study area, indirect short-term impacts from construction could result. Potential short-term or temporary indirect impacts to Mohave ground squirrels include the generation of fugitive dust, noise and vibration, increased human presence, night-time lighting, and the release of chemical pollutants. Potential short-term or temporary indirect impacts to Mohave ground squirrels are considered significant absent mitigation.

MM-BIO-13 (Mohave ground squirrel surveys and avoidance plan) would require pre-construction Mohave ground squirrel surveys, and would result in identification of any Mohave ground squirrels within areas potentially impacted by the project, establishment of appropriate buffers, and avoidance of indirect impacts to Mohave ground squirrels, including noise, vibration, and increased human presence. MM-BIO-1 (general avoidance and minimization measures) would minimize the potential effects of construction-related impacts by requiring vehicle maintenance restrictions to avoid chemical spills, by prohibiting night-time construction within 50 feet of the outside edge of the construction in areas containing habitat for special-status species except in case of an emergency, and by requiring that night-time lighting, when necessary, be directed away from natural areas. MM-BIO-2 (WEAP training, biological monitoring, and compliance) would minimize the potential effects of construction-related impacts by requiring all construction/contractor personnel to attend WEAP training, requiring biological monitoring during construction activities, and requiring compliance with all environmental documents and permits. MM-BIO-6 (preparation and implementation of a dust control plan) would minimize the effects of dust on Mohave ground squirrel during construction by implementing a dust control plan, which would require that construction-related dust is suppressed in compliance with the EKAPCD requirements.

These potential short-term or temporary indirect impacts to Mohave ground squirrels would be less than significant with implementation of MM-BIO-1, MM-BIO-2, MM-BIO-6, MM-BIO-13.

Tehachapi Pocket Mouse

Construction activities have the potential to result in indirect impacts to Tehachapi pocket mouse and its habitat. Although little is known of the habits of this subspecies, it is believed to be nocturnal and to feed on seeds and plant matter (Laabs 2008). Based on this, fugitive dust and chemical pollution have the potential to affect the species through degradation of habitat and impacts to the seeds and plant matter on which the species presumably feeds. Night-time lighting, noise and vibration, and increased human presence could affect the activity patterns of this nocturnal species, especially if work is conducted at night. Potential short-term or temporary indirect impacts to Tehachapi pocket mouse are considered significant absent mitigation.

MM-BIO-9 (pre-construction clearance surveys) would require buffers around special-status wildlife species, if possible, thus reducing the likelihood of impacts from noise and vibration and human presence. MM-BIO-1 (general avoidance and minimization measures) would minimize the potential effects of chemical pollution and night-time lighting by requiring vehicle maintenance restrictions to avoid chemical spills and by requiring that no night-time work take place within 50 feet of habitat for special-status wildlife species, except in case of emergency. BIO-2 (WEAP training, biological monitoring, and compliance) would generally minimize the potential indirect effects from construction by requiring all construction/ contractor personnel to attend WEAP training, conducting biological monitoring during construction activities, and requiring compliance with all environmental documents and permits. MM-BIO-6 (preparation and implementation of a dust control plan) would minimize the effects of dust on Tehachapi pocket mouse during construction by implementing a dust control plan, which would require that construction-related dust is suppressed in compliance with the EKAPCD requirements.

Potential short-term or temporary indirect impacts to Tehachapi pocket mouse would be reduced to less than significant with implementation of MM-BIO-1, MM-BIO-2, MM-BIO-6, and MM-BIO-9.

Bats: Pallid Bat, Spotted Bat, Townsend's Big-Eared Bat

As noted above, none of these species are expected to roost near construction activities. However, they have some potential to forage in the area. Should construction occur at night, minor effects could result from night-time lighting and human presence. However, because these species are highly mobile and highly maneuverable, they would be able to avoid these short-term indirect impacts, which would therefore be less than significant.

4.3.2.2 Operations (Long-Term) Impacts

Long-term direct impacts to special-status wildlife species, as with short-term direct impacts, include habitat impacts and impacts resulting in injury or mortality of individuals. Operations

(long-term) direct impacts to habitat are considered permanent impacts from loss of vegetation communities and land covers. As shown in Table 4-1, the project would result in permanent impacts to up to 8.4 acres of land covers in the gen-tie study area. The location of these impacts, and the proportion that would affect natural vegetation communities versus disturbed or developed land covers, is unknown. For the solar generation sites, it is assumed that the entire study area for each site would be impacted. However, the applicant will further refine the site design and avoid and minimize impacts to special-status biological resources, such as jurisdictional waters of the state, which will reduce the permanent impacts. The solar generation sites would result in the loss of up to 2,205.0 acres of land covers and vegetation communities.

Long-term direct impacts from injury or mortality of individuals include impacts occurring from activities related to O&M. For example, occasional road grading could result in crushing of low-mobility wildlife species occurring along the existing road or entombment of burrowing species in previously disturbed areas (although some of the burrowing species occurring in the study area avoid such areas).

4.3.2.2.1 Direct

Reptiles

Desert Tortoise

Sign of desert tortoise was observed on the southern site during surveys and along the gen-tie route, but neither sign nor tortoise were observed on the northern site. The northern site was cultivated, primarily with alfalfa, until around 1970. Therefore, the loss of suitable habitat for desert tortoise is most likely to occur from impacts on the southern site and along the gen-tie route, and, therefore, the loss of suitable habitat for desert tortoise could be up to 1,035 acres,[3] subject to verification after preparation of final grading plan. Desert tortoise is an FT and ST species whose population has declined in its range within California; any loss of habitat could be considered a potentially significant impact.

Although tortoise sign has been observed on the southern project site and along the gen-tie, no live tortoises have been observed. Observations of desert tortoise are relatively scarce in the project vicinity, and the project site, including the gen-tie route, occurs at the periphery of the species' range. The nearest areas of federally designated critical habitat for desert tortoise are approximately 15.8 miles southeast and 21.6 miles northeast of the project site. The site is 0.5 miles west of the nearest boundary of the primary population, a 1,700-square-mile area including parts of Kern, Los Angeles, and San Bernardino Counties (CDFW 2019). Much of the area to the

[3] This 1,035 acres of impacts associated with the southern site includes the access roads to the southern site.

west and north of the project site supports incompatible land uses or poor habitat for desert tortoise. Because of the absence of live tortoise occurrences on the site, its position at the periphery of the species' current range, and the quality of immediately surrounding habitats, as well as the abundance of suitable habitat to the east, where the largest primary population in the Mojave Desert is located, the loss of up to 1,035 acres of suitable habitat is considered less than significant. In addition, in the event that live desert tortoise is found on the project site, direct loss or injury of desert tortoise during the operations period, such as from maintenance activity, could result from the project; this potential impact would also be a significant impact absent mitigation.

Although, based on current information, long-term direct impacts to habitat would be less than significant and no mitigation is required, implementation of MM-BIO-7 (off-site habitat mitigation lands) would ensure mitigation for habitat loss if tortoise are discovered during pre-construction surveys and resource agency permits are obtained. MM-BIO-7 will require quantification of the loss of desert habitat on the southern site and along the gen-tie route and compensatory mitigation at a 1:1 ratio, if live desert tortoise are observed on site and cannot be avoided. During the operations period, implementation of MM-BIO-8 (desert tortoise pre-construction surveys and avoidance plan) will include several requirements resulting in avoidance of loss or injury to desert tortoises. These include worker education, cessation of work if desert tortoises are found in work areas, relocation of desert tortoises, if necessary, and restriction of work to daylight hours, except in an emergency. MM-BIO-2 also incorporates worker education by requiring that operational staff shall complete WEAP training prior to deployment on the site.

These potential long-term direct impacts to desert tortoises would be reduced to less than significant with implementation of MM-BIO-2 and MM-BIO-8. Long-term direct impacts from loss of habitat, which are already less than significant, would be further reduced by MM-BIO-7.

Northern California Legless Lizard

Northern California legless lizard is expected to be limited to desert drainages within a portion of the gen-tie route west of SR-14. Therefore, permanent, direct impacts to potentially suitable habitat for Northern California legless lizard would be minimal, occurring in a small portion within the 8.4 acres permanent impacts within the gen-tie route. Because of the relatively limited extent of permanent impacts to suitable habitat for the legless lizard, direct impacts to legless lizard habitat would be less than significant. Long-term direct impacts from occasional road grading during O&M are not likely to result in injury or mortality of individuals. Work for this activity is expected to occur only within previously disturbed and compacted areas that are not suitable for this species, which occurs in sandy or otherwise loose soils. Also, because this species does not travel far and stays mostly underground, it is unlikely to wander onto roads. Therefore, long-term direct impacts to Northern California legless lizards would be less than significant.

Birds

Burrowing Owl

The proposed project would result in the direct permanent impacts to 672.5 acres of potentially suitable habitat for burrowing owl.[4] Because abundant similar habitat would remain available for this species in the vicinity after project development, the loss of suitable habitat for burrowing owl is less than significant.

Most routine operation and maintenance activities are not likely to result in impacts to burrowing owls. Occasional grading of access roads is likely to occur, however. Nevertheless, these impacts would be limited to previously disturbed areas and are unlikely to affect burrowing owls. Therefore, permanent direct impacts to burrowing owls from O&M would be less than significant.

Ferruginous Hawk

Ferruginous hawk has a moderate potential to forage in the study area only as a winter visitor; it does not breed in California. Suitable winter foraging habitat within the study area includes grasslands. The proposed project has the potential to result in permanent impacts to up to 8.4 acres of non-native grassland along the proposed gen-tie route; there are no grasslands in the northern and southern sites. Because these impacts are relatively minor and abundant habitat similar to the grasslands to be removed would remain in the area, impacts to ferruginous hawk foraging habitat would be less than significant. Because this species is highly mobile, and the adults and fully fledged subadults potentially present would easily be able to avoid O&M activities, impacts to individual ferruginous hawks from injury or mortality of individuals would be less than significant.

Golden Eagle and Prairie Falcon

Non-breeding and dispersing golden eagles may occur in the study area on occasion. Additionally, prairie falcons have the potential to forage in the study area, especially during the non-nesting season. The proposed project has the potential to result in permanent impacts of up to 2,211.1 acres of suitable foraging habitat for golden eagle and prairie falcon. As noted in Section 4.3.2.1.1, golden eagle and prairie falcon have a low potential to nest in the project vicinity, meaning only

[4] Suitable habitat for burrowing owl was based on the known locations of burrowing owls and burrowing owl burrows with sign. Based on Gervais et al. (2008), as cited in the Staff Report on Burrowing Owl Mitigation (CDFG 2012), "foraging occurs primarily within 600 m of their nests (within approximately 300 acres, based on a circle with a 600 m radius) during the breeding season." Therefore, suitable habitat for burrowing owl was estimated by buffering the known locations of burrowing owl and burrowing owl burrows with sign by 600 meters and calculating the acreage.

non-nesting individuals are likely to forage. In addition, neither species was observed during surveys, including during Swainson's hawk surveys, which covered areas within 5.0 miles of the project site and gen-tie route. Finally, abundant similar habitat would remain available for these species in the vicinity after project development. Therefore, while the loss of 2,211.1 acres would lessen the available foraging habitat for golden eagle and prairie falcon in the region, this impact would be less than significant. Because these species are highly mobile, and the adults and fully fledged subadults potentially present would easily be able to avoid construction, impacts to individual golden eagles and prairie falcons from injury or mortality of individuals during operations would be less than significant.

Swainson's Hawk

The proposed project has the potential to result in permanent impacts of up to 2,211.1 acres of suitable foraging habitat for Swainson's hawk. The potential for Swainson's hawk to nest in the study area is low, and based on 2017 survey results, this species is currently absent as a breeder from the vicinity. Swainson's hawk has been observed in the study area and may occasionally use the area for foraging. However, the only individual observed in the study area was an adult migrating northward rather than foraging locally. The observation of a juvenile (1 year old) in Joshua tree woodland more than 5.0 miles from the gen-tie study area, in habitat similar to that occurring in parts of the study area, suggests this species may occasionally forage. But this individual was also present during the migratory period, was only observed once during surveys, and may also have been a migrant. Therefore, given the absence of nesting within 5 miles of the study area, the likelihood that the study area provides only occasionally foraging habitat for migrating or nonbreeding individuals, the loss of 2,211.1 acres of suitable foraging habitat unoccupied by nesting Swainson's hawks would be less than significant. Because this species is highly mobile, and the adults and fully fledged subadults potentially present would easily be able to avoid construction, impacts to individual Swainson's hawks from injury or mortality of individuals would be less than significant.

Lawrence's Goldfinch

Although suitable nesting habitat occurs adjacent to the study area, no vegetation communities occurring within the study area provide suitable nesting habitat. Lawrence's goldfinches nesting near the project site or gen-tie route, however, could forage in the study area in every community or land cover except developed areas. The proposed project has the potential to result in permanent impacts to 2,211.1 acres of suitable foraging habitat for this species, although very little of this habitat is likely occupied by foraging Lawrence's goldfinches, which are not likely to wander far from nesting sites to forage. Because no impacts would occur to nesting habitat, impacts to foraging habitat would be limited, and abundant suitable foraging habitat would remain in the

vicinity, permanent impacts to Lawrence's goldfinch would be less than significant. O&M impacts are unlikely to result in injury or mortality of Lawrence's goldfinch. As impacts from occasional grading are expected to remain within established roads or other disturbed area, no impacts are expected to nesting Lawrence's goldfinches. Adults and fledged juveniles would able to avoid machinery involved in grading. Therefore, direct permanent impacts to Lawrence's goldfinches would be less than significant.

LeConte's Thrasher

The proposed project could result in the loss of 2,144.7 acres of suitable breeding and foraging habitat for LeConte's thrasher. Because the species is relatively common in the area, and abundant suitable habitat would remain after project development, LeConte's thrasher would persist in the project vicinity. Therefore, direct permanent impacts to LeConte's thrasher habitat would be less than significant. O&M impacts are unlikely to result in injury or mortality of LeConte's thrashers. As impacts from occasional grading are expected to remain within established roads or other disturbed areas, no impacts are expected to nesting LeConte's thrashers. Adults and fledged juveniles would able to avoid machinery involved in grading. Therefore, direct permanent impacts to LeConte's thrashers would be less than significant.

Loggerhead Shrike

Loggerhead shrike has the potential to occur in all naturally occurring land covers on the project site except non-vegetated channel or floodway. The proposed project would result in direct permanent impacts to 2,142.5 acres of potentially suitable habitat for loggerhead shrike. Because loggerhead shrike is relatively common in the study area vicinity and because abundant similar habitat would remain available for this species in the vicinity after project development, the loss of suitable habitat for loggerhead shrike would be less than significant.

O&M impacts are unlikely to result in injury or mortality of loggerhead shrikes. As impacts from occasional grading are expected to remain within established roads or other disturbed areas, no impacts are expected to nesting loggerhead shrikes. Adults and fledged juveniles would able to avoid machinery involved in grading.

Mammals

American Badger

American badger has the potential to occur on all land covers occurring on the project site, except urban and developed lands. The project would result in direct permanent impacts to 2,211.1 acres of potentially suitable habitat for American badger. Because abundant similar habitat would remain

available for this species in the vicinity after project development, the loss of suitable habitat for American badger would be less than significant.

Most routine O&M activities are not likely to result in impacts to American badgers. Occasional grading of access roads is likely to occur, but these impacts would be limited to previously disturbed areas and are unlikely to affect American badgers. Therefore, permanent direct impacts to American badgers would be less than significant.

Desert Kit Fox

The proposed project has the potential to result in permanent impacts of up to 2,211.1 acres of suitable habitat on the project site for desert kit fox, which has the potential to occur in nearly all communities occurring on the project site. As noted in Section 3.5.3.2, a desert kit fox natal den was observed on the project site, and the species likely occurs over much of the study area. However, abundant suitable habitat for desert kit fox would remain in the project vicinity after development. Further, although take of desert kit fox is prohibited under Title 14, California Code of Regulations, Section 460, it is not technically a special-status species, and the loss of suitable habitat for desert kit fox is not a significant impact. Most routine O&M activities are not likely to result in impacts to desert kit foxes. Occasional grading of access roads is likely to occur, but these impacts would be limited to previously disturbed areas and are unlikely to affect desert kit foxes. Therefore, permanent direct impacts to desert kit foxes would be less than significant.

Mohave Ground Squirrel

There have been numerous trapping surveys in and around the solar sites and gen-tie study areas, with no Mohave ground squirrel captures. These survey data indicate that Mohave ground squirrels are either absent from the study area or occur there in low numbers. The rarity of Mohave ground squirrel occurrences may be due to the location of the study area on the western edge of the species' range. The habitat in the solar project study area is potentially suitable for Mohave ground squirrel, but occurrences in the vicinity of the proposed solar fields and gen-tie line suggest that Mohave ground squirrel has a low potential to occur in these areas (Brylski 2018).

Direct mortality or injury of Mohave ground squirrels during the operations period, such as from road grading, is relatively unlikely. Access road maintenance requirements in the desert region are relatively minor and usually are associated with washouts during severe seasonal flooding. Maintenance equipment moves slowly, so aboveground Mohave ground squirrels, if any are present, likely would be able to avoid collisions with the equipment. Burrows are typically located under large shrubs (MGSWG 2011). It is unlikely that maintenance of existing access and spur roads would directly affect an occupied burrow. Therefore, impacts from operations and

maintenance would be less than significant. Given that numerous trapping surveys in and around the solar sites and gen-tie study areas have not resulted in Mohave ground squirrel captures, and there is a low potential for Mohave ground squirrel to occur in these areas (Brylski 2018), impacts from loss of suitable habitat would be less than significant.

Tehachapi Pocket Mouse

Tehachapi pocket mouse is expected to be limited to a portion of the gen-tie route west of SR-14. Therefore, permanent, direct impacts to potentially suitable habitat for Tehachapi pocket mouse are limited. Because of the relatively limited extent of permanent impacts, direct impacts to Tehachapi pocket mouse habitat would be less than significant. Long-term direct impacts from occasional road grading are not likely to result in injury or mortality of individuals. Work is expected to occur only within previously disturbed and compacted areas that are not suitable for this species. Therefore, long-term direct impacts to Tehachapi pocket mouse would be less than significant.

Bats: Pallid Bat, Spotted Bat, Townsend's Big-Eared Bat

As noted above, roosting habitat for these species is absent from the study area. However, pallid bats, spotted bats, and Townsend's big-eared bats may forage over any land covers occurring in the study area. Development of the proposed project would result in direct permanent impacts to all 2,213.4 acres potentially suitable foraging habitat for these bat species. Pallid bat and Townsend's big-eared bat, which have been recorded at Soledad Mountain in the site vicinity, likely forage over parts of the study area, and spotted bat also has the potential to forage there. However, bat foraging likely occurs at low levels throughout the study area, due to the low insect production in the desert communities at most times of year. In addition, abundant habitat similar to any natural habitats removed would remain in the vicinity. Therefore, impacts to foraging habitat for special-status bat species would be less than significant. Project operations are not expected to result in any long-term direct impacts to bats. Should any such activities be conducted at night, when special-status bat species are active, these highly mobile and highly maneuverable species would be able to avoid loss or harm from O&M activities. Therefore, long-term direct impacts to special-status bats would be less than significant.

4.3.2.2.2 Indirect

Long-term indirect impacts to special-status wildlife species include impacts that could occur after construction is completed during O&M. These impacts occur because of the presence of O&M adjacent to areas occupied by special-status wildlife species. The primary potential long-term indirect impacts to special-status wildlife species from the proposed project are long-term habitat

degradation from temporary impacts, vehicle collisions, and collision and electrocution from power lines. Habitat degradation can occur because the introduction of non-native plant species affects aspects of habitat structure and food resources that are essential to some species. Vehicle collisions have the potential to occur along access roads. Although vehicle traffic is expected to be low, the presence of moving vehicles on roads through occupied habitat could pose a hazard to low and moderate mobility mammals and reptiles and even to some birds. Power lines also provide collision hazards to some birds, such as raptors, or they can be an electrocution hazard to special-status birds perching on the structures.

Reptiles

Desert Tortoise

Potential long-term indirect impacts that could result from development within or adjacent to desert tortoise habitat include vehicle collisions during the operations phase, degradation of habitat from habitat fragmentation, and increased invasive plant species that may degrade habitat. Construction of access roads could result in vehicular traffic in suitable desert tortoise habitat, leaving the species vulnerable to collisions with vehicles. Temporary habitat impacts could facilitate the long-term increase in invasive plant species and further habitat fragmentation. These potential long-term indirect impacts to desert tortoises would be significant absent mitigation.

MM-BIO-4 (restoration of temporary impacts) would help prevent adverse effects of invasive plant species and habitat fragmentation that may alter the composition of the habitat if allowed to passively colonize the area post-construction if these areas are not revegetated. Implementation of MM-BIO-14 (speed limits and sensitive resources signage) would result in the posting of speed limits and educational material along roads on the presence of desert tortoises and other sensitive species.

These potential long-term indirect impacts to desert tortoises would be less than significant with implementation of MM-BIO-4 and MM-BIO-14.

Northern California Legless Lizard

The project is unlikely to result in long-term indirect impacts to Northern California legless lizards. This species spends most of its time underground and is therefore unlikely to be vulnerable to vehicle collisions or night-time lighting impacts.

Birds

Burrowing Owl

Potential long-term indirect impacts that could result from development within or adjacent to burrowing owl habitat include vehicle collisions during the operations phase and increased invasive plant species that may degrade habitat. Construction of access roads could result in vehicular traffic in suitable burrowing owl habitat, leaving the species vulnerable to collisions with vehicles. Vehicle traffic is expected to be very sparse and slow-moving, limiting the likelihood of collisions with burrowing owls, but even a small loss of individuals of this SSC that has experienced declines in California could be considered a significant impact. In addition, temporary habitat impacts could facilitate the long-term increase in invasive plant species. Burrowing owls favor areas that include a substantial amount of bare ground, and increasing non-natives can lead to dense ground cover that constitutes a degradation of that habitat. These potential long-term indirect impacts to burrowing owls would be significant absent mitigation.

MM-BIO-4 (restoration of temporary impacts) would result in restoration of temporary impact areas that would limit the introduction of non-native species in burrowing owl habitat and avoid long-term habitat degradation. MM-BIO-14 (speed limits and sensitive species signage) would impose a 15 mph speed limit and require that this limit be posted along access roads and at the entrance to access roads, thus reducing the already low potential for vehicle collisions.

Potential long-term indirect impacts to burrowing owls would be reduced to less than significant with implementation of MM-BIO-4 and MM-BIO-14.

Foraging Raptors: Ferruginous Hawk, Golden Eagle, Prairie Falcon, Swainson's Hawk

Long-term indirect impacts to foraging raptors potentially include vehicle collisions and collisions and electrocution from power lines. Susceptibility to these impacts varies somewhat by species, but each species is at least somewhat subject to these impacts. Increased vehicle traffic has a minor potential to result in mortality to raptors, given traffic under any circumstances is likely to be very sparse and relatively slow. However, even the rare loss of one of these species due to vehicles traveling at an unexpectedly rapid rate could be considered a significant impact absent mitigation. Collisions with power lines and electrocution of birds perching on power lines is a substantial source of mortality for these species, if power lines are not designed to avoid these problems. Therefore, this would be a significant impact absent mitigation.

Implementation of MM-BIO-14 (speed limits and sensitive species signage) would require a speed limit of 15 mph and posting of this limit along and at the entrances to access roads, therefore further reducing the already low likelihood of vehicle collisions. MM-BIO-15 (Avian Power Line

Interaction Committee (APLIC) guidelines) would require that power lines be constructed to minimize avian collisions and electrocution from power lines.

These potential long-term indirect impacts to foraging raptors would be less than significant with implementation of MM-BIO-14 and MM-BIO-15.

Lawrence's Goldfinch

Lawrence's goldfinches are relatively mobile and are not especially susceptible to impacts from vehicle collisions. Traffic is expected to be very sparse and relatively slow-moving on project access roads, and Lawrence's goldfinches should be able to avoid colliding with vehicles. Although this species in known to perch on wires, it is not susceptible to electrocution because its small size precludes the effects of arcing, in which current from nearby wires may travel through larger birds perched below. This species is also very maneuverable and unlikely to collide with power lines. Therefore, long-term indirect impacts to this species are considered less than significant.

LeConte's Thrasher

LeConte's thrashers rarely perch on wires and are not likely to be susceptible to impacts from electrocution and collision due to power lines. However, the species is potentially subject to long-term indirect impacts from vehicle collisions. LeConte's thrashers typically stay low to the ground, and increased vehicle traffic has some potential to result in direct mortality to this species, which could be a significant impact.

Implementation of MM-BIO-14 (speed limits and sensitive species signage) would require a speed limit of 15 mph and posting of this limit along and at the entrances to access roads, therefore reducing the already low likelihood of vehicle collisions.

The potential long-term indirect impacts to LeConte's thrashers from vehicle collisions would be less than significant with implementation of MM-BIO-14.

Loggerhead Shrike

Loggerhead shrikes are relatively mobile and are not especially susceptible to impacts from vehicle collisions. Traffic is expected to be very sparse and relatively slow-moving on project access roads, and loggerhead shrikes should be able to avoid colliding with vehicles. Although loggerhead shrikes frequently perch on power lines, this species is small and not subject to electrocution because of arcing while perched on power lines. Therefore long-term indirect impacts to loggerhead shrikes would be less than significant.

Mammals

American Badger

Potential long-term indirect impacts that could result from development within or adjacent to American badger habitat include vehicle collisions. Construction of access roads could result in vehicular traffic in suitable American badger habitat, leaving the species vulnerable to collisions with vehicles. While traffic is expected to be very sparse and relatively slow-moving on project access roads, potential loss of American badgers from long-term indirect impacts due to vehicle collisions would be significant absent mitigation.

Implementation of MM-BIO-14 (speed limits and sensitive species signage) would require a speed limit of 15 mph and posting of this limit along and at the entrances to access roads, therefore further reducing the already low likelihood of vehicle collisions. The potential long-term indirect impacts to American badger would be less than significant with implementation of MM-BIO-14.

Desert Kit Fox

Potential long-term indirect impacts that could result from development within or adjacent to desert kit fox habitat include vehicle collisions. Construction of access roads could result in vehicular traffic in suitable desert kit fox habitat, leaving the species vulnerable to collisions with vehicles. While traffic is expected to be very sparse and relatively slow-moving on project access roads, any potential loss of desert kit foxes would be significant absent mitigation.

Implementation of MM-BIO-14 (speed limits and sensitive species signage) would require a speed limit of 15 mph and posting of this limit along and at the entrances to access roads, therefore further reducing the already low likelihood of vehicle collisions. The potential long-term indirect impacts to desert kit foxes would be less than significant with implementation of MM-BIO-14.

Mohave Ground Squirrel

Potential long-term indirect impacts that could result from development within or adjacent to Mohave ground squirrel habitat include vehicle collisions during the operations phase. While there is a low potential for Mohave ground squirrels to occur in the study area, construction of access roads could result in vehicular traffic in near suitable Mohave ground squirrel habitat, leaving the species vulnerable to collisions with vehicles. Even the rare loss of Mohave ground squirrels due to vehicles traveling at an unexpectedly rapid rate could be considered a significant impact absent mitigation. Therefore, this would be a significant impact absent mitigation.

Implementation of MM-BIO-14 (speed limits and sensitive resources signage) would result in the posting of speed limits and educational signage along roads on the presence of Mohave ground squirrels and other sensitive species.

These potential long-term indirect impacts to Mohave ground squirrels would be less than significant with implementation of MM-BIO-14.

Tehachapi Pocket Mouse

Long-term indirect impacts could result to Tehachapi pocket mouse from vehicle collisions after construction. Increased vehicle traffic has a minor potential to result in mortality to Tehachapi pocket mouse, given traffic under any circumstances is likely to be very sparse and relatively slow. However, even the rare loss of individuals of this rare species due to vehicle collisions could be considered a significant impact absent mitigation.

Implementation of MM-BIO-14 (speed limits and sensitive species signage) would require a speed limit of 15 mph and posting of this limit along and at the entrances to access roads, therefore further reducing the already low likelihood of vehicle collisions. The potential long-term indirect impacts to Tehachapi pocket mouse would be less than significant with implementation of MM-BIO-14.

Bats: Pallid Bat, Spotted Bat, Townsend's Big-Eared Bat

As these species are highly mobile and highly maneuverable, they are not susceptible to vehicle collisions or collisions with stationary power lines. Therefore, no long-term indirect impacts are expected to special-status bat species.

4.3.3 Mitigation Measures

The term "project biologist" refers to the qualified biologist (individual or firm) responsible for the oversight of the implementation of the biological resource protection measures included as Kern County mitigation measures. The project biologist would be hired and funded by the developer. The project biologist used to implement each mitigation measure must have experience implementing mitigation measures similar to the subject mitigation measure and have relevant experience with the relevant species.

MM-BIO-1 General Avoidance and Minimization Measures

The following avoidance and minimization measures shall be implemented during project construction and operations and maintenance (O&M). These measures have been organized into subcategories for ease of reading.

Lighting

- Construction of the project would generally occur during daytime hours and could occur as late as 6:00 p.m. in order to meet the construction schedule. No overnight construction is expected to occur. In the event that work is performed between dusk and 6:00 a.m. construction crews would use minimal illumination in order to perform the work safely. All lighting would be directed downward and shielded to focus illumination on the desired work areas only, and to prevent light spillage onto adjacent properties. As applicable, work in the solar field areas and on the transmission lines at night would be performed using battery or gas-powered light stands that would be directed to the active work area.

Debris/Non-native Vegetation/Pollution

- Fully covered trash receptacles that are animal-proof (e.g., raven-proof) will be installed and used during construction to contain all food, food scraps, food wrappers, beverage containers, and other miscellaneous trash. Trash contained within the receptacles will be removed at least once a week from the project site.
- No litter, construction materials, or debris will be discharged into state-jurisdictional waters.
- Construction work and O&M areas shall be kept clean of debris, such trash, and construction materials.

Vehicle and Equipment Restrictions and Maintenance

- Night-time construction should be minimized to the extent possible. However, if night-time activity (e.g., equipment maintenance) is necessary, then the speed limit shall be 10 mph.
- Vehicle operation within state-jurisdictional waters when surface water is present will be prohibited or at any time if such water features are being completely avoided. Any equipment or vehicles driven and/or operated within or adjacent to a state-jurisdictional channel will be checked and maintained by the operator daily to prevent leaks of oil or other petroleum products that could be deleterious to aquatic life if introduced to the watercourse.
- During construction, vehicles and equipment access will be limited to the identified impact areas, and ingress and egress will be limited to existing roads. During O&M, vehicles and equipment will be limited to maintenance access roads and the minimal area necessary to perform the work.

- Staging and storage areas for spoils, equipment, materials, fuels, lubricants, and solvents will be located outside the state-jurisdictional channels and within the designated impact area. Stationary equipment, such as motors, pumps, generators, compressors, and welders, located within or adjacent to state-jurisdictional waters shall be positioned over drip-pans or other containment. Prior to refueling and lubrication, vehicles and other equipment shall be moved away from the state-jurisdictional channels.

Other Restrictions on Activities and Personnel

- No pets, such as cats or dogs, should be permitted on the project site during construction or O&M.
- Any contractor, employee, or agency personnel who is responsible for inadvertently killing, injuring, or trapping a listed species shall immediately report the incident to his supervisor, the project biologist or the project manager during construction and the operations manager during O&M. The project biologist or operations manager shall contact the regional (Palm Springs) U.S. Fish and Wildlife Service (USFWS) (for federal Endangered Species Act species) and the regional (Fresno) California Department of Fish and Wildlife (CDFW) (for California Endangered Species Act species) immediately in the case of a dead, injured, or entrapped listed species. The Sacramento USFWS Office and CDFW Office shall be notified in writing within 3 working days of the accidental death or injury to a listed species during project-related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS office that covers the desert portions of Kern County is located at 777 E. Tahquitz Canyon Way, Suite 208, Palm Springs, California, 92262, 760.322.2070. The CDFW Central Region office is located at 1234 East Shaw Avenue, Fresno, California 93710, 559.243.4005.
- To prevent inadvertent entrapment of special-status wildlife during construction, all excavated, steep-walled holes or trenches more than 2 feet deep shall be covered with plywood or similar materials at the close of each working day, or be provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped wildlife. If trapped animals are observed, escape ramps or structures shall be installed immediately to allow escape.

- All pipes, culverts, or similar structures with a diameter of 4 inches or more that are stored at a construction site for one or more overnight periods shall be stored with caps or thoroughly inspected for special-status wildlife or nesting birds before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If an animal is discovered inside a pipe, that section of pipe shall not be moved until the project biologist has been consulted and the animal has either moved from the structure on its own accord or until the animal has been captured and relocated by the project biologist. If a federally or state-listed species is discovered, that section of pipe shall not be moved until the USFWS and/or CDFW has been consulted. If necessary, under the direct supervision of the project biologist, the pipe may be moved once to remove it from the path of construction activity until the species has escaped.

Restrictions on Rodenticides

- No rodenticides shall be used on the property. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and state and federal legislation.

Design Guidelines

- If applicable, all meteorological and communication towers shall be of monopole design to avoid the use of guy wires to reduce bird collision, injury, or death.
- All solar mount poles, fencing poles, or other hollow vertical structures shall be capped immediately after installation to prevent bird entrapment and death.
- If applicable, drainage facilities such as retention or detention basins, even if holding water for only a short term, shall be designed to prevent access by desert kit fox. A fence shall be constructed around permanent stormwater basins or temporary water holding basins to completely exclude desert tortoise. The fence shall be at least 6 feet tall and buried at least 3 feet deep. The design of the fencing shall incorporate a fine woven wire stainless steel mesh material for the base section that has openings no more than 0.25 inches in size. This bottom portion shall be buried below grade a minimum of 36 inches, and shall extend up above grade 36 inches. At the top of this portion of the fence, a jump and climb barrier shall be installed. The barrier shall be constructed of solid material sloped downward, out at least 12 inches from the vertical plane of the fence.

Above this fine mesh section, a standard chain-link fence shall complete the fence up to the required 6-foot height.

MM-BIO-2 Environmental Awareness Training, Biological Monitoring, and Compliance

Worker Environmental Awareness Program and Ongoing Training

Prior to the initiation of any ground disturbance, all construction/contractor personnel working on site must complete training through a Worker Environmental Awareness Program (WEAP). New construction workers engaged in construction activities (e.g., grading, utility installation) shall complete WEAP training within the first week of deployment on the site. Additionally, operational staff shall complete WEAP training prior to intial deployment on the site.

The training shall include the following:

- Provide the training materials for WEAP training. These materials shall include the measures and mitigation requirements for protected plant species and wildlife species (e.g., avoidance and buffer requirements, night-time construction limitations, etc.), and the location and mitigation requirements for waters of the state. WEAP training will also include classroom driver training to avoid and minimize collision risks with protected species, and reporting protocols in the event that any dead or injured wildlife are discovered.
- Copies of mitigation measures and permits from resource agencies, such as the CDFW and Regional Water Quality Control Board (RWQCB), if applicable, will be made available.

A training program, such as training video, coordinated by the project biologist, may also be used. The training program will also address special-status species where a significant impact has been identified during construction and/or operations and maintenance.

Species-specific WEAP training for desert tortoise is described in MM-BIO-8.

Biological Monitoring and Compliance Documentation

The project biologist shall perform the biological monitoring and compliance documentation for the project during construction, including the following:

- Prior to the initiation of any on-site grading, the project biologist will document that required pre-construction surveys and/or relocation efforts have been implemented.
- The project biologist will periodically monitor activities during initial grading.
- The project biologist will note any evidence of trash or microtrash and, if present, communicate the presence and requirement to remove the trash to the construction manager.

MM-BIO-3 Avoidance, Minimization, and Mitigation Measures for Special-Status Plant Species

With respect to the alkali mariposa lily known to occur in the impact area, if avoidance is not implemented, bulbs will be collected and stored in appropriate storage conditions (e.g., cool and dry), and transplanted following the construction activity. A transplantation plan for alkali mariposa lily will be prepared that includes the following:

1. The area of occupied habitat to be preserved and removed
2. Identification of on-site or off-site preservation, restoration, or enhancement locations
3. Methods for preservation, restoration, enhancement, and/or translocation
4. A replacement ratio and success standard of 1:1 for impacted individuals
5. A monitoring program to ensure mitigation success
6. Adaptive management and remedial measures in the event that performance stands are not achieved
7. Financial assurances and a mechanism for conservation of any mitigation lands required in perpetuity

MM-BIO-4 Restoration of Temporary Impacts to Uplands with Non-Invasive Species

Site construction areas subjected to temporary ground disturbance associated with the transmission line shall be recontoured to natural grade (if the grade was modified during the temporary disturbance activity), and revegetated with an application of a native seed mix, if necessary, prior to or during seasonal rains to

promote passive restoration of the area to pre-project conditions (except that no invasive plant species will be restored). An area subjected to "temporary" disturbance means any area that is disturbed but will not be subjected to further disturbance as part of the project. This measure does not apply to situations that are urban/developed that are temporarily impacted and will be returned to an urban/developed land use. Prior to seeding temporary ground disturbance areas, the project biologist will review the seeding palette to ensure that no seeding of invasive plant species, as identified in the most recent version of the California Invasive Plant Inventory for the region, will occur.

MM-BIO-5 Stormwater Pollution Prevention Plan

Prior to issuance of a grading permit for construction, the applicant shall submit a Stormwater Pollution Prevention Plan (SWPPP) to the Kern County Engineering, Surveying, and Permit Services Department that specifies best management practices to prevent all construction pollutants from contacting stormwater, with the intent of keeping sedimentation or any other pollutants from moving off site and into receiving waters. The requirements of the SWPPP shall be incorporated into design specifications and construction contracts. Best management practices categories employed on site would include erosion control, sediment control, and non-stormwater (good housekeeping). Best management practices recommended for the construction phase shall include, but not be limited to, the following:

- Limiting grading to the minimum area necessary for construction, operation, and decommissioning of the project
- Limiting vegetation disturbance/removal to the maximum extent practicable
- Implementing fiber rolls and sand bags around drainage areas and the site perimeter
- Stockpiling and disposing of demolition debris, concrete, and soil properly
- Installation of a stabilized construction entrance/exit and stabilization of disturbed areas
- Proper protections for fueling and maintenance of equipment and vehicles
- Managing waste, aggressively controlling litter, and implementing sediment controls
- Soil stabilization in disturbed areas by revegetation (see MM-BIO-4)

MM-BIO-6 Dust Control Plan

Prior to issuance of a grading or building permit, the project proponent shall submit the dust control plan to Eastern Kern Air Pollution Control District (EKAPCD) for review and approval, and shall provide the plan to Kern County, to demonstrate compliance with EKAPCD Rule 402. The plan shall address construction-related dust as required by EKAPCD.

MM-BIO-7 Off-Site Habitat Mitigation Lands

If live desert tortoise are observed within the study area or along the gen-tie route during pre-construction surveys (MM-BIO-8), or incidentally prior to or during construction activities, and cannot be avoided, the applicant shall implement habitat mitigation to ensure that no substantial adverse effects will occur to desert tortoise. Permanent impacts to desert habitat shall be quantified for the southern site and the gen-tie route, based on the final grading plan. Permanent impacts to desert habitat on the southern site and the gen-tie route, if live desert tortoise are found to be present in those locations and cannot be avoided, shall be compensated at a 1:1 ratio either through one or a combination of the following:

1. Purchase of off-site habitat mitigation lands that contain suitable habitat for desert tortoise (the off-site habitat mitigation lands would be conserved through a conservation easement, managed in perpetuity by a suitable management entity, and funded by a non-wasting endowment)
2. Payment of an in-lieu fee to acquire habitat mitigation lands for desert tortoise
3. Purchase of mitigation credits at a mitigation bank for desert tortoise

If desert tortoise are observed and this measure is implemented, the applicant shall submit a document outlining the permanent impacts to desert habitat on the southern site and gen-tie route, along with a compensatory mitigation plan, to the Kern County Planning and Natural Resources Department for review and approval.

MM-BIO-8 Desert Tortoise Pre-Construction Surveys and Monitoring

Relocation and/or take of a desert tortoise may not occur without consultation with the USFWS and CDFW. The phrases “authorized biologist” and “desert tortoise monitor,” as used herein, are taken from the most up-to-date USFWS guidance (USFWS 2009), and the definitions, roles, and responsibilities of each will be adhered to during construction. Also, in accordance with guidance in USFWS

(2018e), if tortoises or fresh sign are observed during implementation, all activities that could result in take of desert tortoise should cease immediately until an authorized biologist can confirm that no desert tortoise is present or the desert tortoise moves off site on its own.

Southern Site

For mitigation purposes, it assumed that desert tortoise could occur on the southern site only.

A desert tortoise exclusion fence shall be installed around all construction areas prior to the initiation of vegetation clearing. It is recommended that the fencing is installed outside of the nesting period (i.e., April to November). Once the area is fenced, desert tortoises shall be removed from the area or be allowed to move off site on their own by creating a gap in the fence. If the desert tortoise is allowed to move off site on its own, the gap in the exclusion fence will be closed once the tortoise has left the fenced area. After desert tortoise is no longer inside the fence, the fence shall be maintained in place until construction is completed. The purpose of the fence is to preclude all desert tortoises from the construction impact zone, including desert tortoises that may try to get back to their on-site burrow(s).

The fence shall be constructed of 0.5-inch mesh hardware cloth and extend 18 inches above ground and 12 inches below ground. Where burial of the fence is not possible, the lower 12 inches shall be folded outward against the ground and fastened to the ground so as to prevent desert tortoise entry. The fence shall be supported sufficiently to maintain its integrity, be checked at least weekly during construction, and maintained when necessary by the project proponent to ensure its integrity. Access points will be protected by installing the latest specification entrance gates/grates/etc. In all cases, the protection system will not include gaps sufficient for even the smallest hatchling to pass through. Common raven perching deterrents shall be installed as part of the fence construction.

All project-related facilities and construction-related areas, such as staging areas and personnel parking areas, shall occur within the fenced area. All related infrastructure shall also remain within the fenced area.

As part of the Worker Environmental Awareness Program (WEAP) training, all workers shall be informed to check beneath any parked vehicle immediately prior to moving the vehicle while in desert tortoise habitat outside fenced impact areas.

After the desert tortoise-exclusion fence has been installed, all personal vehicles and construction equipment shall be parked inside the fenced area. Cross-country vehicular travel outside fenced areas or inside the fenced area prior to removal of desert tortoises shall be prohibited. If a desert tortoise is found beneath a vehicle, the authorized biologist shall be contacted to move it from harm's way, if the appropriate state and federal permits have been obtained. Alternatively, the vehicle shall not be moved until the desert tortoise has left of its own accord. The authorized biologist shall be responsible for taking appropriate precautions to ensure that any desert tortoise moved in this manner is not exposed to temperature extremes that could be harmful to the animal.

The desert tortoise exclusion fence during construction shall have as part of its design either a desert-tortoise-proof cattle guard, desert tortoise exclusion gate, exclusion grate, or a breakaway portion of fence that can be opened and closed to allow vehicle access. The gate or modified fence shall remain closed at all times during construction except to allow vehicles to enter or leave the site. This measure may be modified if the biological monitor, based on his or her surveys of surrounding areas, determines that there is little or no likelihood of desert tortoises entering the site through the opening. If the authorized biologist determines that the gate may be left open and subsequently finds that a desert tortoise has entered the construction area through that opening, a gate or modified fence shall be installed and kept closed after desert tortoise has left the site.

Prior to installing the fence, the authorized biologist shall survey the area along which the fence will be installed. The fence line shall be moved when possible so that any desert tortoise burrows will remain on the outside of the fenced area. The authorized biologist shall consider the direction of the burrow and know that burrows may be 30 to 40 feet long. So, not only the burrow opening, but also the burrow's end, shall be considered and excluded if the fence line is to be altered. Any desert tortoise burrows found within the proposed fence line that cannot be avoided shall be hand excavated by the authorized biologist prior to clearing of the fence line or installation of the fence. Burrow excavation procedures are discussed in Desert Tortoise Council (1999). The authorized biologist or desert tortoise monitors shall remain on-site to monitor the installation of the fence.

After installing the fence, and before any other activities occur within the fenced area, the authorized biologist shall survey the site for desert tortoises. If possible, the surveys shall occur immediately after installation of the fence and several days prior to brushing or grading activities. The site shall be searched at least two

consecutive times with a negative survey result, meaning if the site is searched and desert tortoise are found, two additional surveys must be completed until the result is negative. Burrows shall either be excavated as they are found or flagged for excavation later. Each burrow shall also be carefully checked for viable desert tortoise eggs. If found, the authorized biologist shall have a plan for disposition of these eggs outside the impact zone but within the adjacent area, and move the eggs in such a way that the viability of the eggs is not adversely affected by their movement (Desert Tortoise Council 1999). Handling of desert tortoise eggs would require consultation with CDFW and the USFWS.

Security fencing shall be placed inside of the desert tortoise exclusion fencing unless the desert tortoise exclusion fencing is constructed to function as both the desert tortoise exclusion fencing and security fencing. The applicant (in coordination with the wildlife agencies) may choose whether to elevate the security fencing to allow other smaller wildlife (e.g., desert kit fox) to freely move through the solar facility. The applicant may also choose whether they want to remove the desert tortoise exclusion fencing after construction is completed to allow desert tortoise to move through the solar facility. This option should be discussed with the wildlife agencies and assurances made to the applicant by the agencies that they would not be subject to additional permitting or measures by allowing this.

Northern Site

Within 14 days prior to the commencement of any ground-disturbing activities, the project proponent shall conduct preconstruction surveys for desert tortoise within the project site. The surveys shall be conducted in accordance with the USFWS protocol (2010). If no burrows or tortoises are discovered during preconstruction surveys, no further mitigation is necessary. A survey report shall be submitted to Kern County with supporting evidence included such as photographs of areas/locations that may be suitable for this habitat, etc. If desert tortoise or burrows are discovered, then the measures outlined for the Southern Site, above, shall apply.

Gen-Tie and Access Roads

Outside fenced desert tortoise exclusion areas along the gen-tie and access roads, the applicant will limit the areas of disturbance in desert tortoise habitat. It is not anticipated that access roads will disturb desert tortoise habitat, but this measure is included in the event that it is required. Parking areas; new roads; pulling sites; and staging, storage, excavation, and disposal site locations shall be confined to the

smallest areas possible. These areas will be flagged, and disturbance activities, vehicles, and equipment will be confined to these flagged areas.

Prior to conducting vegetation clearing or grading activities in desert tortoise habitat outside of permanently fenced areas, the authorized biologist or desert tortoise monitor under the supervision of an authorized biologist will survey the area immediately prior to conducting these activities to ensure that no desert tortoises are present. Because of the linear nature of the gen-tie and access roads, the applicant may conduct surveys at any time of year, but shall avoid impacts to potential and known desert tortoise burrows, in addition to avoiding impacts to desert tortoises. Potential burrows will be buffered by 30 feet unless they can be shown to be unoccupied or the authorized biologist believes a smaller buffer is appropriate in order to protect underground burrows. Examples of situations where smaller buffers may be appropriate may include the following: burrow entrances are obviously oriented away from the impact area; the type of activity near the burrow is not likely to impact desert tortoise (e.g., the activity will not have the potential to crush a burrow); the burrow is adjacent to an existing thoroughfare that receives vehicle use already and the proposed activity is similar in nature; etc. Ongoing monitoring will be conducted in areas outside the desert tortoise fence by either an authorized biologist or a desert tortoise monitor.

No vehicle or equipment parked outside the fenced areas will be moved prior to inspecting the ground beneath the vehicle or equipment for the presence of desert tortoise. If present, the desert tortoise will be left to move on its own.

While not expected, if a temporary construction area is needed for more than 30 days at any one location along the gen-tie, temporary desert tortoise exclusion fencing will be installed as described above under the subheading “Southern Site.” Once construction in that specific location is completed, the desert tortoise exclusion fencing shall be removed.

In addition to the mitigation measures described above by project location, the following additional avoidance and minimization measures will be implemented for both sites and the gen-tie:

- Prior to initiation of construction activities, the applicant shall develop a WEAP, to be presented to all construction and contractor personnel, that includes the following information and requirements for desert tortoise:
    - A description of the desert tortoise, including adults and juveniles

  - Color photographs of desert tortoise
  - Protections to the desert tortoise under the federal and California Endangered Species Acts and potential penalties for violating the federal and California Endangered Species Acts
  - Measures implemented under the project to protect desert tortoises and to conserve their habitat
  - The requirement that all workers shall check beneath any parked vehicle immediately prior to moving the vehicle while in desert tortoise habitat outside fenced impact areas and what to do if a desert tortoise is found
  - Information for contacting the authorized biologist or desert tortoise monitor in case personnel observe one or more desert tortoises on the project site
- All trash that may attract desert tortoise predators shall be removed from the work site at the end of each day.
- If desert tortoises occur in a work area and will not leave of their own accord, then it will be necessary to coordinate with the USFWS and CDFW. Physical relocation of a desert tortoise may not occur unless approved by the wildlife agencies, and this may require authorizations pursuant to Incidental Take Permits from the USFWS and CDFW.
- The biological monitors shall have the authority to stop work at all times, if proper avoidance measures are not in place or project activities may potentially result in impacts to desert tortoises.
- A speed limit of 15 mph shall be maintained at all times except on county/state roads.
- Work shall be restricted to daylight hours at all times when working within or adjacent to desert tortoise habitat, except in an emergency, to avoid vehicle traffic when tortoise may be on access roads at times of poor visibility.

MM-BIO-9 Pre-Construction Clearance Surveys

Pre-construction clearance surveys for special-status wildlife shall be conducted by a qualified project biologist within 14 days of the initiation of ground disturbance or vegetation clearing, within and adjacent to construction areas. Surveys shall be appropriate for detecting potentially occurring species, such as Northern California legless lizard, Tehachapi pocket mouse, and desert kit fox. Surveys need not be conducted in all areas simultaneously, as long as they are conducted within 14 days

of the initiation of ground disturbance or vegetation clearing in each area individually. If special-status species are detected, appropriate buffers shall be established, as necessary and as appropriate for the species, unless it is not feasible to avoid the species. If possible, non-listed special-status wildlife species such as Northern California legless lizard and Tehachapi pocket mouse may be captured and relocated to suitable habitat nearby where they are safe from construction activities. Surveys and relocation of these species may only be conducted by the qualified project biologist.

If desert tortoise is detected during pre-construction clearance surveys, measures for avoidance outlined in MM-BIO-8 (desert tortoise pre-construction surveys and avoidance and monitoring plan) shall be implemented. If American badger dens are detected, measures for avoidance outlined in MM-BIO-12 (pre-construction surveys for American badger) shall be implemented. If Mohave ground squirrel is detected, measures for avoidance outlined in MM-BIO-13 (Mohave ground squirrel pre-construction surveys and avoidance and monitoring plan) shall be implemented. If burrowing owl is detected during pre-construction clearance surveys, measures for avoidance outlined in MM-BIO-10 (burrowing owl surveys and avoidance/relocation) shall be implemented.

Surveys for desert kit fox shall be conducted in areas of suitable desert scrub. If potential dens or occupied dens cannot be avoided, or if natal dens are found, buffers shall be established as follows:

- 30 feet for potential dens (dens that are suitable for these species)
- 100 feet for occupied dens (non-natal dens only)
- 500 feet for natal dens

Construction will be postponed or halted in the buffer of natal dens until it is determined by the project biologist that the young are no longer dependent on the natal den. If it is not possible to avoid a potential den, and the project biologist determines that the den is not occupied, the project biologist may excavate the den by hand. For an occupied den (non-natal dens only) or a potential den that may be occupied, the qualified project biologist may place a one-way door over all entrances to the den for 7 days to exclude desert kit fox from the den. At the end of this period, the qualified project biologist may excavate the burrow by hand to prevent future occupancy.

If non-listed special-status reptiles or small mammals are detected, they will be moved out of harm's way.

The project biologist shall remain available at all times after initiation of ground disturbance or vegetation clearing, in case special-status wildlife species enter the construction area. If non-listed special-status species are detected in the construction area after initiation of ground disturbance or vegetation clearing, the qualified project biologist shall take measures to move the species, or encourage it to move, to a safe place away from construction activities.

MM-BIO-10 Burrowing Owl Surveys and Avoidance/Relocation

No less than 14 days prior to ground-disturbing activities (vegetation clearance, grading), a qualified project biologist (i.e., a wildlife biologist with previous burrowing owl survey experience) shall conduct pre-construction take avoidance surveys on and within 200 meters (656 feet) of the construction zone to identify occupied breeding or wintering burrowing owl burrows. The take avoidance burrowing owl surveys shall be conducted in accordance with the Staff Report on Burrowing Owl Mitigation (2012 Staff Report; CDFG 2012) and shall consist of walking parallel transects 7 to 20 meters apart, adjusting for vegetation height and density as needed, and noting any burrows with fresh burrowing owl sign or presence of burrowing owls. As each burrow is investigated, project biologists shall also look for signs of American badger and desert kit fox. Surveys may also be combined with desert tortoise pre-construction surveys, if surveys satisfy guidelines for surveys of each species. Copies of the burrowing owl survey results shall be submitted to the CDFW and the Kern County Planning and Natural Resources Department.

If burrowing owls are detected on site, no ground-disturbing activities shall be permitted within 200 meters (656 feet) of an occupied burrow during the breeding season (February 1 to August 31), unless otherwise authorized by CDFW. During the nonbreeding season (September 1 to January 31), ground-disturbing work can proceed near active burrows as long as the work occurs no closer than 50 meters (165 feet) from the burrow. Depending on the level of disturbance, a smaller buffer may be established in consultation with CDFW.

If avoidance of active burrows is infeasible during the nonbreeding season, then, before breeding behavior is exhibited and after the burrow is confirmed empty by site surveillance and/or scoping, a qualified project biologist shall implement a

passive relocation program in accordance with Appendix E (i.e., Example Components for Burrowing Owl Artificial Burrow and Exclusion Plans) of the 2012 CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012). Passive relocation consists of excluding burrowing owls from occupied burrows and providing suitable artificial burrows nearby for the excluded burrowing owls.

MM-BIO-11 Nesting Bird Pre-Construction Surveys and Avoidance Plan

This measure would protect nesting special-status species and more common species protected under the Migratory Bird Treaty Act, which prohibits the "take" of any migratory bird or any part, nest, or eggs of any such bird. Burrowing owl is addressed separately in a species-specific biological resource protection measure (MM-BIO-10).

The project biologist shall conduct pre-construction surveys no earlier than 14 days prior to any on-site grading and construction activities within each construction area and a 500-foot buffer that occurs during the nesting/breeding season of special-status bird species potentially nesting on the site, with the exception of burrowing owl, which is addressed in MM-BIO-10. The pre-construction surveys shall be conducted between March and September, or as determined by the project biologist.

The purpose of the pre-construction surveys will be to determine whether occupied nests are present in the construction zone or within 500 feet of the construction zone boundary.

If occupied nests are found, then limits of construction to avoid occupied nests shall be established by the project biologist in the field with flagging, fencing, or other appropriate barriers (e.g., 250 feet around active passerine nests to 500 feet around active non-listed raptor nests), and construction personnel shall be instructed on the sensitivity of nest areas. The project biologist shall serve as a construction monitor during those periods when construction activities are to occur near active nest areas to avoid inadvertent impacts to these nests. The project biologist may adjust the 250-foot or 500-foot setback at his or her discretion depending on the species and the location of the nest (e.g., if the nest is well protected in an area buffered by dense vegetation). Once a qualified project biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival, construction may proceed in the setback areas.

MM-BIO-12 Pre-Construction Surveys for American Badger

Impacts to American badger individuals and wintering and natal dens shall be avoided and minimized during construction activities through the following measures.

Pre-Construction Surveys (Wintering)

During the colder months (generally between November 1 and February 15, when daily temperatures do not exceed 45°F), when American badgers may use winter dens during torpid periods, pre-construction surveys shall be conducted by the project biologist in suitable habitat no earlier than 14 days prior to construction activities to determine whether American badger winter dens are present within the construction zone or within 100 feet of the construction zone boundary.

Avoidance Measures (Wintering)

If an American badger winter den is occupied within the construction zone or within 100 feet of the construction zone, then the den location shall be clearly marked with fencing or flagging, in a manner that does not isolate the badger from intact adjacent habitat or prevent the badger from accessing the den, to avoid inadvertent impacts on the den. If it is not practicable to avoid the wintering den during construction activities, an attempt will be made to trap or flush the individual and relocate it to suitable open space habitat. Additionally, badgers can be relocated by slowly excavating the burrow, either by hand or mechanized equipment under the direct supervision of the project biologist, removing no more than 4 inches at a time. After necessary trapping, flushing, or burrow excavation is completed, construction may proceed and the vacated winter den may be collapsed. If trapping is required, trapping will be limited to November 16 through the last day of February in accordance with Section 461, Title 14 of the California Code of Regulations (14 CCR 461). A written report documenting the badger removal shall be provided to the CDFW within 30 days of relocation.

Pre-Construction Surveys (Natal Dens)

During the late winter and summer (generally from March 15 through July 31), when American badgers may use natal dens for birthing and pup rearing, pre-construction surveys shall be conducted by the project biologist no earlier than 14 days prior to ground-disturbing construction activities to determine whether American badger natal dens are present within the project construction zone or within 200 feet of the construction zone.

Avoidance Measures (Natal Dens)

If natal dens are detected during construction, construction activities shall be halted within 200 feet of the natal den. This buffer may be reduced based on the location of the den or type of construction activity, based on the direction of the project biologist. Construction activities shall not preclude the ability of the documented badgers to disperse to on-site open space or off-site habitat when the natal den is vacated (i.e., habitat suitable for dispersal must be maintained until dispersal occurs). Construction will be postponed or halted in these areas until it is determined by the project biologist that the young are no longer dependent on the natal den. To avoid inadvertent impacts during construction and to ensure that construction activities are at least 200 feet from active natal dens, any active natal dens within the survey area shall be clearly marked with fencing or flagging in a manner that will not inhibit normal behavioral activities (e.g., foraging and dispersing from the site) by the mother and pups.

MM-BIO-13 Mohave Ground Squirrel Pre-Construction Surveys and Avoidance and Monitoring Plan

Pre-construction surveys for the Mohave ground squirrel shall be conducted within all suitable habitat 14 days prior to initial ground-disturbing activities. If a Mohave ground squirrel is found on the construction site, work shall be halted and redirected to areas not supporting this species, and consultation with Kern County and CDFW shall occur. A written report shall be sent to CDFW within 5 calendar days of the sighting. The report shall include the date, time of the finding or incident (if known), and location of the animal. If a dead Mohave ground squirrel is encountered, the remains shall be collected, frozen as soon as possible, and CDFW shall be contacted to determine where the remains will be sent.

If Mohave ground squirrels are detected during any project surveys, the applicant shall prepare a Mohave Ground Squirrel Avoidance and Monitoring Plan. If it is determined from surveys that Mohave ground squirrels are not present, no further action is required.

The Mohave Ground Squirrel Avoidance and Monitoring Plan shall include, at a minimum:

- Specifications for designation of qualified project biologists for conducting surveys and monitoring

- Methods for excluding Mohave ground squirrels from the work area, such as fencing
- Measures and procedures related to monitoring of construction for presence of Mohave ground squirrels
- A requirement to cease work if a Mohave ground squirrel occurs in a work area
- Requirements for Worker Environmental Awareness Program training as it pertains to Mohave ground squirrels
- Reporting requirements

MM-BIO-14 Speed Limits and Sensitive Species Signage

The applicant shall post signs along project access roads designating speed limits and alerting drivers to the presence of sensitive species. Speed limit signs shall specify a limit of 15 mph. Signs shall include mention of the potential presence of sensitive wildlife species.

MM-BIO-15 Avian Power Line Interaction Committee (APLIC) Guidelines

The applicant shall install power lines in conformance with Avian Power Line Interaction Committee (APLIC) standards for electrocution-reducing techniques as outlined in *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (APLIC 2006), and for collision-reducing techniques as outlined in *Reducing Avian Collisions with Power Lines: The State of the Art in 2012* (APLIC 2012), or any superseding document issued by APLIC.

4.4 Threshold Bio-2

Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS?

Sensitive Vegetation Communities

There are no sensitive natural communities per CDFW (2018a) in the study area. Therefore, no impacts to sensitive natural communities would result from implementation of the proposed project.

State-Jurisdictional Waters

As discussed in Section 3.3.3, Summary, there are 5.1 acres of CDFW- and RWQCB-jurisdictional areas in the study area; specifically, there are 2.2 acres in the solar generation sites and 2.9 acres in the gen-tie study area.

4.4.1 Construction (Short-Term) Impacts

4.4.1.1 Direct

Absent the recommended mitigation measures, potential temporary direct impacts to CDFW- and RWQCB-jurisdictional areas could result from unintentional clearing, trampling, or grading outside of the proposed impact area during construction. Also, temporary ground-disturbing activities, such as pole placement, road maintenance, laydown/assembly areas, and string pulling sites, would occur from the proposed project. These temporary ground-disturbing activities could impact up to 2.9 acres of CDFW- and RWQCB-jurisdictional areas. Potential short-term or temporary direct impacts to CDFW- and RWQCB-jurisdictional areas are considered significant absent mitigation.

Construction mitigation measures MM-BIO-1 (general construction-related avoidance and minimization measures), MM-BIO-2 (WEAP training, biological monitoring, and compliance), and MM-BIO-16 (jurisdictional waters of the state mitigation) would apply. These measures would avoid and minimize potential temporary direct impacts to CDFW- and RWQCB-jurisdictional areas because they require the project biologist to conduct a WEAP for all construction/contractor personnel to ensure compliance with the mitigation measures and require ongoing biological construction monitoring. This includes demarcation of the construction area using highly visible materials in the field that minimize unintentional impacts to CDFW- and RWQCB-jurisdictional areas outside the designated construction area. Specifically, state-jurisdictional channels within 50 feet of the construction area would be demarcated in the field and avoided. Training and ongoing monitoring would aid in enforcing the requirements that construction must be restricted to designated areas and CDFW- and RWQCB-jurisdictional areas outside the designated proposed impact area would be avoided. Additionally, temporary impacts to CDFW- and RWQCB-jurisdictional areas will be restored on site.

Construction-related direct impacts to CDFW- and RWQCB-jurisdictional areas would be less than significant with incorporation of MM-BIO-1, MM-BIO-2, and MM-BIO-16. These biological mitigation measures are described in full in Sections 4.3.3 and 4.4.3.

4.4.1.2 Indirect

Construction-related indirect impacts could affect CDFW- and RWQCB-jurisdictional areas. Potential short-term or temporary indirect impacts to CDFW- and RWQCB-jurisdictional areas resulting from construction activities include: the generation of fugitive dust; changes in hydrology resulting from construction, including sedimentation and erosion; the release of chemical pollutants; and adverse effects of invasive plant species. Potential short-term or temporary indirect impacts to CDFW- and RWQCB-jurisdictional areas are considered significant absent mitigation.

MM-BIO-1 (general construction-related avoidance and minimization measures) would minimize the potential effects of construction-related impacts by requiring vehicle maintenance restrictions to avoid chemical spills. MM-BIO-2 (WEAP training, biological monitoring, and compliance) would minimize the potential effects of construction-related impacts by requiring all construction/contractor personnel to attend WEAP training, conducting biological monitoring during construction activities, and requiring compliance with all environmental documents and permits. MM-BIO-4 (restoration of temporary impacts) would help prevent future adverse effects associated with leaving bare ground, such as increased dust and erosion, and would help prevent adverse effects of invasive plant species that may alter the composition of the habitat if introduced during restoration or allowed to passively colonize the area post-construction. MM-BIO-5 (preparation and implementation of a SWPPP) would require the implementation of best management practices. MM-BIO-6 (preparation and implementation of a dust control plan) would minimize the effects of dust during construction by implementing a dust control plan, which would require that construction-related dust is suppressed in compliance with EKAPCD requirements.

These potential short-term or temporary indirect impacts to CDFW- and RWQCB-jurisdictional areas would be less than significant with implementation of MM-BIO-1, MM-BIO-2, MM-BIO-4, MM-BIO-5, and MM-BIO-6. These biological mitigation measures are described in full in Sections 4.3.3 and 4.4.3.

4.4.2 Operations (Long-Term) Impacts

4.4.2.1 Direct

As discussed in Section 4.1, Methods, the precise location of ground-disturbing impacts of the gen-tie route are not known at this time; however, all ground-disturbing impacts will occur in the study area. Up to 2.9 acres of CDFW- and RWQCB-jurisdictional area could be permanently impacted by the proposed gen-tie route. Up to 2.2 acres of CDFW- and RWQCB-jurisdictional areas could be permanently impacted in the solar generation sites. Therefore, the proposed project could potentially result in significant operations-related (permanent) direct impacts to CDFW- and RWQCB-jurisdictional areas absent mitigation.

To the extent practicable, the project shall be designed to avoid impacts to the jurisdictional waters of the state within the project site; however, MM-BIO-16 (Jurisdictional Waters of the State Mitigation) would include avoidance measures including locating all material/spoils away from jurisdictional areas, protection from stormwater runoff, storage of materials on impervious surfaces or use of plastic ground covers to prevent spills or leaks, and proper cleaning and disposal of contaminated materials for any spills. If jurisdictional areas cannot be avoided, necessary resource agency permits shall be obtained, and compensatory mitigation would occur off site at a ratio no less than 1:1 for the impacts to jurisdictional waters.

These potential long-term or permanent direct impacts to CDFW- and RWQCB-jurisdictional areas would be less than significant with implementation MM-BIO-16. These biological mitigation measures are described in full in Section 4.4.3.

4.4.2.2 Indirect

Potential long-term indirect impacts that could result from development near CDFW- and RWQCB-jurisdictional areas include impacts such as chemical releases such as oils and grease from vehicles that could degrade habitat; increased invasive plant species that may degrade habitat; and trampling of vegetation and soil compaction by humans, which could affect soil moisture, water penetration, surface flows, and erosion and increased fire risk that could degrade jurisdictional areas. These indirect impacts could degrade CDFW- and RWQCB-jurisdictional areas or sensitive vegetation communities over the long-term and would be avoided and minimized through implementation of the following measures.

MM-BIO-1 (general avoidance and minimization measures) requires that vehicles and equipment will be limited to maintenance access roads and the minimal area necessary to perform the work to minimize chemical releases and trampling of vegetation and soils compaction by humans. MM-BIO-4 (restoration of temporary impacts) would help prevent adverse effects of invasive plant species that may alter the composition of the habitat if introduced during restoration or allowed to passively colonize the area post-construction if these areas are not revegetated.

These potential long-term indirect impacts to CDFW- and RWQCB-jurisdictional areas would be less than significant with implementation of MM-BIO-1 and MM-BIO-4.

4.4.3 Mitigation Measures

MM-BIO-16 Jurisdictional Waters of the State Mitigation

Proof of compliance shall be submitted to the Kern County Planning and Natural Resources Department prior to issuance of building and grading permits and/or demonstration that avoidance of jurisdictional waters will occur during construction.

a. To the extent practicable, the project shall be designed to avoid impacts to the jurisdictional waters of the state within the project site, and the following avoidance/minimization measures shall be implemented:

   i. Any material/spoils from project activities shall be located away from jurisdictional areas and protected from stormwater runoff using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and straw bale barriers, as appropriate.

   ii. Materials shall be stored on impervious surfaces or plastic ground covers to prevent any spills or leakage from contaminating the ground and generally at least 50 feet from the top of bank.

   iii. Any spillage of material shall be stopped if it can be done safely. The contaminated area shall be cleaned and any contaminated materials properly disposed of. For all spills the project foreman or designated environmental representative shall be notified.

b. If jurisdictional waters cannot be avoided, minimization measures shall be applied and all necessary resource agency permits shall be obtained. This may include Individual or General Waste Discharge Requirements from the RWQCB and a Streambed Alteration Agreement from CDFW.

c. All temporary impacts to state-jurisdictional waters will be restored on site. Restoration will include recontouring and erosion control with a native seed mix. Prior to seeding temporary ground disturbance areas, the project biologist will review the seeding palette to ensure that no seeding of invasive plant species, as identified in the most recent version of the California Invasive Plant Inventory for the region, will occur.

d. Compensatory mitigation for permanent impacts shall occur off site, and would occur at a ratio no less than 1:1 for the impact to jurisdictional waters or at a ratio determined in the jurisdictional waters permits. A waters mitigation and monitoring plan shall be prepared that outlines the compensatory mitigation in coordination with the RWQCB and CDFW. Mitigation lands shall be

comprised of drainages similar to those impacted. Off-site mitigation lands shall be preserved through a conservation easement and the waters mitigation and monitoring plan shall identify an approach for funding assurance for the long-term management of the conserved land. Suitable mitigation lands provided for species may be used for jurisdictional waters of the state mitigation. The proposed 1:1 acreage ratio or at a rate determined in the jurisdictional waters permits is considered sufficient to reduce project effects to less than significant because the type of potentially affected jurisdictional features (i.e., ephemeral drainages) are relatively common in the context of desert region drainage. Furthermore, most effects would likely be temporary because jurisdictional features are anticipated to be relocated on site to maintain hydrology in the project area. It is noted that the final mitigation ratio required by the RWQCB and CDFW for acquisition of regulatory permits may differ.

4.5 Threshold Bio-3

Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

As discussed in Section 3.3.1, the study area does not contain waters, including wetlands, subject to federal jurisdiction under Section 404 of the Clean Water Act and, therefore, the proposed project would not impact or have a substantial adverse effect on federally protected wetland waters, as defined by Section 404 of the Clean Water Act.

4.6 Threshold Bio-4

Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

4.6.1 Construction (Short-Term) Impacts

Construction within the study area could have both a direct and indirect impact on wildlife movement within the study area. Wildlife may be deterred from the construction area due to increased human presence, loud noises, and physical disruptions of habitat. However, construction will be temporary at any location, and wildlife would be able to use temporary construction areas freely after work crews are gone. Also, the gen-tie route is generally along or adjacent to existing roads and adjacent to other existing development. Also, typical construction methods, including working in teams from one end of the gen-tie to the other, would not impede wildlife movement over

a large area at any one time. Therefore, short-term impacts to movement of native wildlife species and from impediments to use of native wildlife nursery sites would be less than significant.

4.6.2 Operations (Long-Term) Impacts

Based on the report, *A Linkage Network for the California Deserts* (Penrod et al. 2012), the closest linkage network is northeast of the study area and connects landscape blocks of Edwards AFB and the southern Sierra Nevada. Therefore, the study area is located adjacent to, but outside of, an identified essential regional wildlife linkage. The study area vicinity consists of a mix of agricultural grazing, undeveloped land, scattered single-family residences, several approved or proposed large-scale solar facilities located nearby, and commercial wind projects. Topography across the study area is relatively flat as the site is south of the Tehachapi Mountains on lands that gradually slope downward from the northwest to the southeast. The study area is dominated by desert vegetation that consists of open to intermittent shrub cover along with patches of non-native grassland. In addition to vegetated areas, the study area includes disturbed habitat (largely dirt roads) and urban/developed areas that include SR-14, other paved roads, substations, the BNSF, and rural residences.

The study area is largely undeveloped with an open landscape, and thus wildlife can move relatively freely throughout the area. In addition, wildlife can utilize dirt roads within the study area to move throughout the area. Constraints to wildlife movement include SR-14, Oak Creek Road, several other paved roads, an existing substation, wind turbines, the Southern Pacific Railroad, and scattered rural residential areas. While these features may constrain wildlife movement, the low traffic volume, along with light human presence, likely does not preclude wildlife from utilizing the study area and surrounding areas. Fencing along the boundary of Edwards AFB also provides a constraint south of the study area, although many species of wildlife may penetrate this barrier.

In summary, the study area is not located within a regional wildlife movement corridor or linkage planning area as identified in *A Linkage Network for the California Deserts* (Penrod et al. 2012). The study area is located within an open landscape where wildlife can freely move within and throughout the study area with little impediment.

Potential long-term direct and indirect impacts to wildlife movement corridors are not likely to be significant because abundant adjacent lands would remain available for wildlife movement after project development. Although access roads associated with the gen-tie would result in more vehicle use, wildlife would be able to pass across these roads freely, since traffic will still be sparse. No mitigation is required.

4.7 Threshold Bio-5

Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The Kern County General Plan Land Use, Open Space, and Conservation Element establishes policies related to the protection of threatened or endangered plant species and wildlife species and cooperation with federal, state, and local agencies. The project is consistent with the Kern County General Plan biological resource policies. Table 4-2 includes the policies and implementation measures related to biological resources, and describes how the project is consistent with the general plan.

Table 4-2
Kern County General Plan Consistency Analysis

General Plan Policies and Implementation Measures	Consistency	Analysis
Policies		
Policy 27. Threatened or endangered plant and wildlife species should be protected in accordance with State and federal laws.	Yes, with mitigation	MM-BIO-1 through MM-BIO-15 would reduce impacts to special-status species to a less-than-significant level. The proposed project would be in compliance with federal and state laws.
Policy 28. County should work closely with State and federal agencies to assure that discretionary projects avoid or minimize impacts to fish, wildlife, and botanical resources.	Yes, with mitigation.	MM-BIO-1 through MM-BIO-15 would reduce impacts to special-status species to a less-than-significant level. The proposed project would be in compliance with federal and state laws. The applicant has be in consultation with both state and federal resource agencies.
Policy 29. The County will seek cooperative efforts with local, State, and federal agencies to protect listed threatened and endangered plant and wildlife species through the use of conservation plans and other methods promoting management and conservation of habitat lands.	Yes, with mitigation	MM-BIO-1 through MM-BIO-15 would reduce impacts to special-status species to a less-than-significant level.
Policy 31. Under the provisions of CEQA, the County, as lead agency, will solicit comments from the California Department of Fish and Game and the U.S. Fish and Wildlife Service when an environmental document (Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report) is prepared.	Yes	The EIR will be sent to CDFW and USFWS for review and comment.
Policy 32. Riparian areas will be managed in accordance with United States Army Corps of Engineers, and the California Department of Fish and Game rules and regulations to enhance the drainage,	Yes	There are no ACOE-jurisdictional waters in the study area and, thus, there would be no impacts to ACOE-jurisdictional waters. There is a

Table 4-2
Kern County General Plan Consistency Analysis

General Plan Policies and Implementation Measures	Consistency	Analysis
flood control, biological, recreational, and other beneficial uses while acknowledging existing land use patterns.		potential that CDFW-jurisdictional waters would be impacted by the project. MM-BIO-1, MM-BIO-2, MM-BIO-4, MM-BIO-5, MM-BIO-6, and MM-BIO-16 would reduce potential impacts to CDFW-jurisdictional waters of the state to less-than-significant levels.
Implementation Measures		
Q. Discretionary projects shall consider effects to biological resources as required by the CEQA.		This biological resources technical report evaluates the effects of the proposed project on special-status biological resources in accordance with CEQA.
R. Consult and consider the comments from responsible and trustee wildlife agencies when reviewing a discretionary project subject to the CEQA.		Comments from the resource agencies will be evaluated and responded to during the CEQA process.
S. Pursue the development and implementation of conservation programs with State and federal wildlife agencies for property owners desiring streamlined endangered species mitigation programs.		Not applicable.

The Mojave Specific Plan requires biological surveys and evaluations be conducted in areas located outside of previously identified urbanized, non-sensitive areas. If rare, threatened, or endangered species are found during the surveys, the project biologist will consult with CDFW, USFWS, or other agencies and jurisdictions with authority to implement and enforce requirements of the California or federal Endangered Species Acts. As described in Section 2, surveys and assessments conducted in the project area include vegetation mapping, a jurisdictional delineation, focused surveys for special-status plant species, focused protocol-level desert tortoise surveys, focused protocol-level Swainson's hawk surveys, and a Mohave ground squirrel habitat assessment. In addition, recommended mitigation measures require pre-construction surveys for special-status species that could occur on site, including: MM-BIO-3 (avoidance, minimization, and mitigation measures for special-status plant species), MM-BIO-8 (desert tortoise surveys), MM-BIO-9 (special-status wildlife surveys), MM-BIO-10 (burrowing owl surveys), MM-BIO-11 (nesting bird surveys), MM-BIO-12 (American badger surveys), and MM-BIO-13 (Mohave ground squirrel surveys). If listed rare, threatened, or endangered species are found and cannot be avoided, the applicant would be required to consult with the appropriate resource agencies to ensure compliance with the California and federal Endangered Species Acts.

The Mojave Specific Plan establishes objectives and policies related to biological resources, such as to promote the retention of natural setting and use of native or adaptable vegetation, to reduce the impact of development on important ecological and biological resources, and to encourage the preservation of Joshua trees, Joshua tree woodlands, wildflower displays, or other biologically sensitive flora. There are no Joshua tree woodlands in the study area and, thus, no impacts to Joshua tree woodlands would result from implementation of the proposed project. MM-BIO-3 would mitigate for potential impacts to special-status plant species through avoidance, minimization, and mitigation measures. Implementation of the recommended mitigation measures would ensure compliance with the Mojave Specific Plan.

The Soledad Mountain—Elephant Butte Specific Plan states that the removal of native desert vegetation should be limited; stands of Joshua trees should be preserved; and utilities along roadways should be placed underground to protect scenic values. The plan also states that adherence to the guidelines identified in the plan will produce the least negative effect on wildlife, other than no development at all. The Soledad Mountain–Elephant Buttes Specific Plan has limited language addressing non-residential/commercial developments and their potential impacts to biological resources. However, it does state that all possible safeguards shall be initiated to prevent destruction of Joshua trees. There are no Joshua tree woodlands in the study area and, thus, no impacts to Joshua tree woodlands would result from implementation of the proposed project.

While the California Desert Native Plant Act is a state act, the Kern County administers the permit program for removal of the species covered in the act. The applicant will pay the required fee to remove Wiggins' cholla, beavertail pricklypear, and Joshua tree.

The project would be constructed and operated in compliance with the requirements of the Kern County General Plan and Zoning Ordinance and the Mojave and Soledad Mountain–Elephant Butte Specific Plans. Impacts to biological resources would be less than significant or mitigated to a less-than-significant level. The project would comply with requirements of local policies and ordinances protecting biological resources through the implementation of the recommended mitigation measures. Additionally, the applicant would pay the required fees to the County to remove species covered in the California Desert Native Plant Act. Therefore, the project would not conflict with local policies or ordinances protecting biological resources.

4.8 Threshold Bio-6

Would the project conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state HCP?

The proposed project is located within the boundaries of the West Mojave Plan, which was originally envisioned as a Multiple Species Habitat Conservation Plan, and a land use plan amendment for BLM-administered lands. The HCP component of the plan was not approved as part of this planning effort, but the West Mojave Plan does serve as a land use plan amendment under the California Desert Conservation Area Plan for BLM lands. Additionally, the proposed project lies within the boundaries of the Desert Renewable Energy Conservation Plan (DRECP). The Draft DRECP was originally developed as an HCP/Natural Community Conservation Plan (NCCP) and a BLM Land Use Plan Amendment covering both public and private lands across seven counties, including the Mojave Desert in Kern County. In October 2015, the DRECP BLM Land Use Plan Amendment and Final Environmental Impact Statement, which addresses renewable energy, land use, and conservation on BLM lands only, was released (BLM 2015). The DRECP does not provide HCP/NCCP coverage for private lands in Kern County.

Both the West Mojave Plan and the DRECP apply to BLM lands only. The proposed project is not located in BLM lands. Additionally, the proposed project is not located within any other local, regional, or state conservation planning areas. Impacts of the project on an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan would be less than significant.

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5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

All direct and indirect impacts to special-status biological resources that would result from implementation of the proposed project would be either less than significant or less than signification after mitigation.

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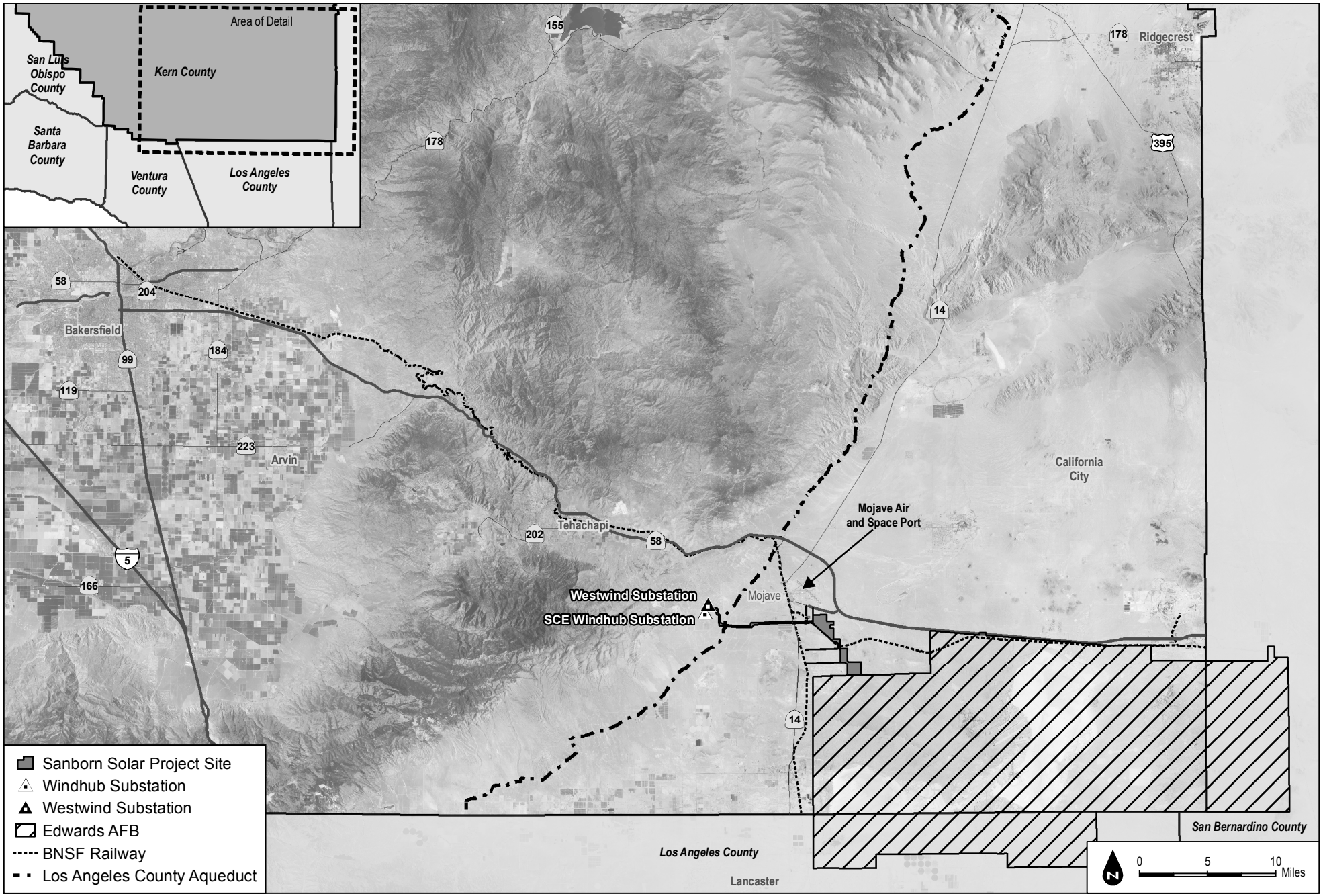

Figure 1-1: PROJECT VICINITY

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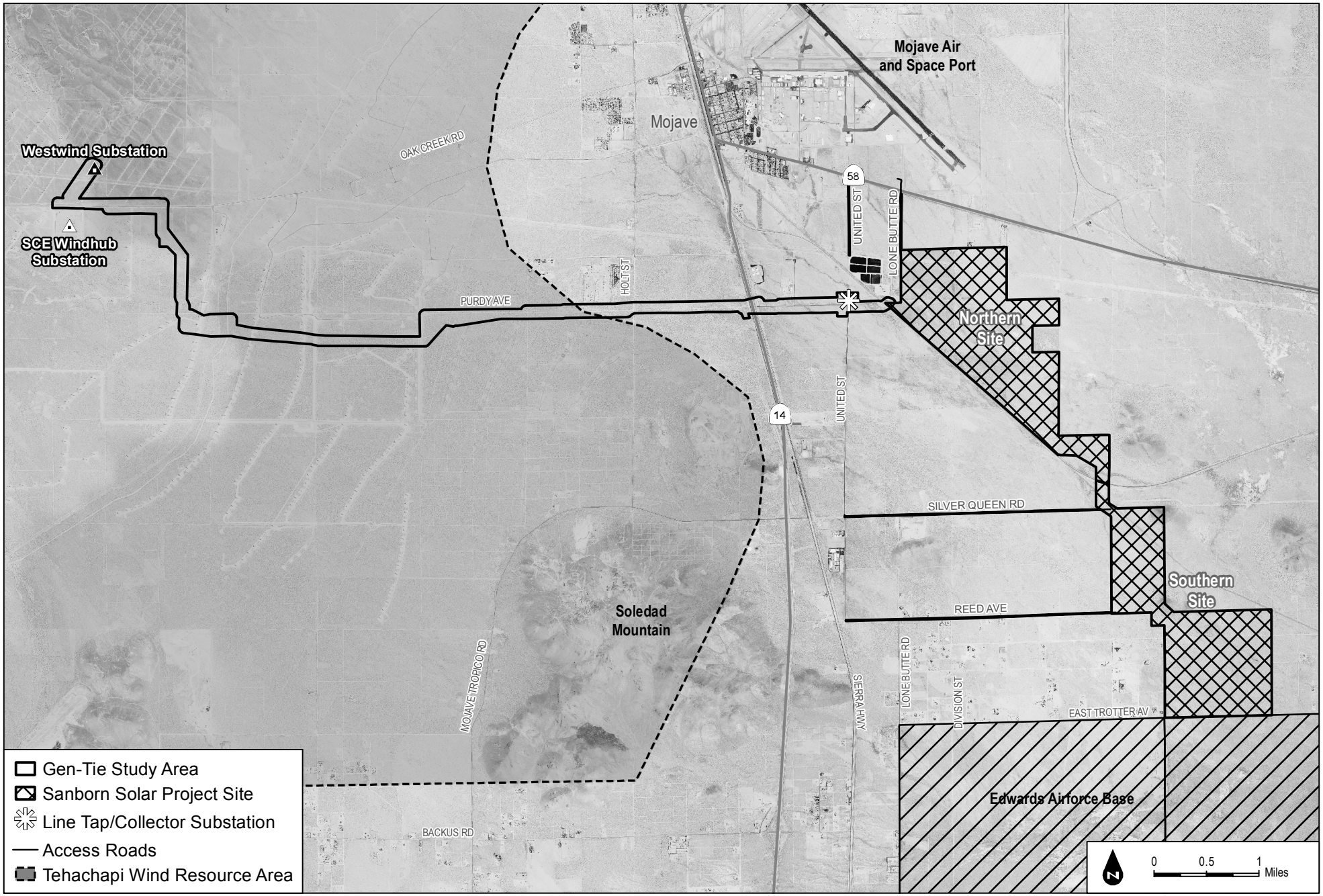

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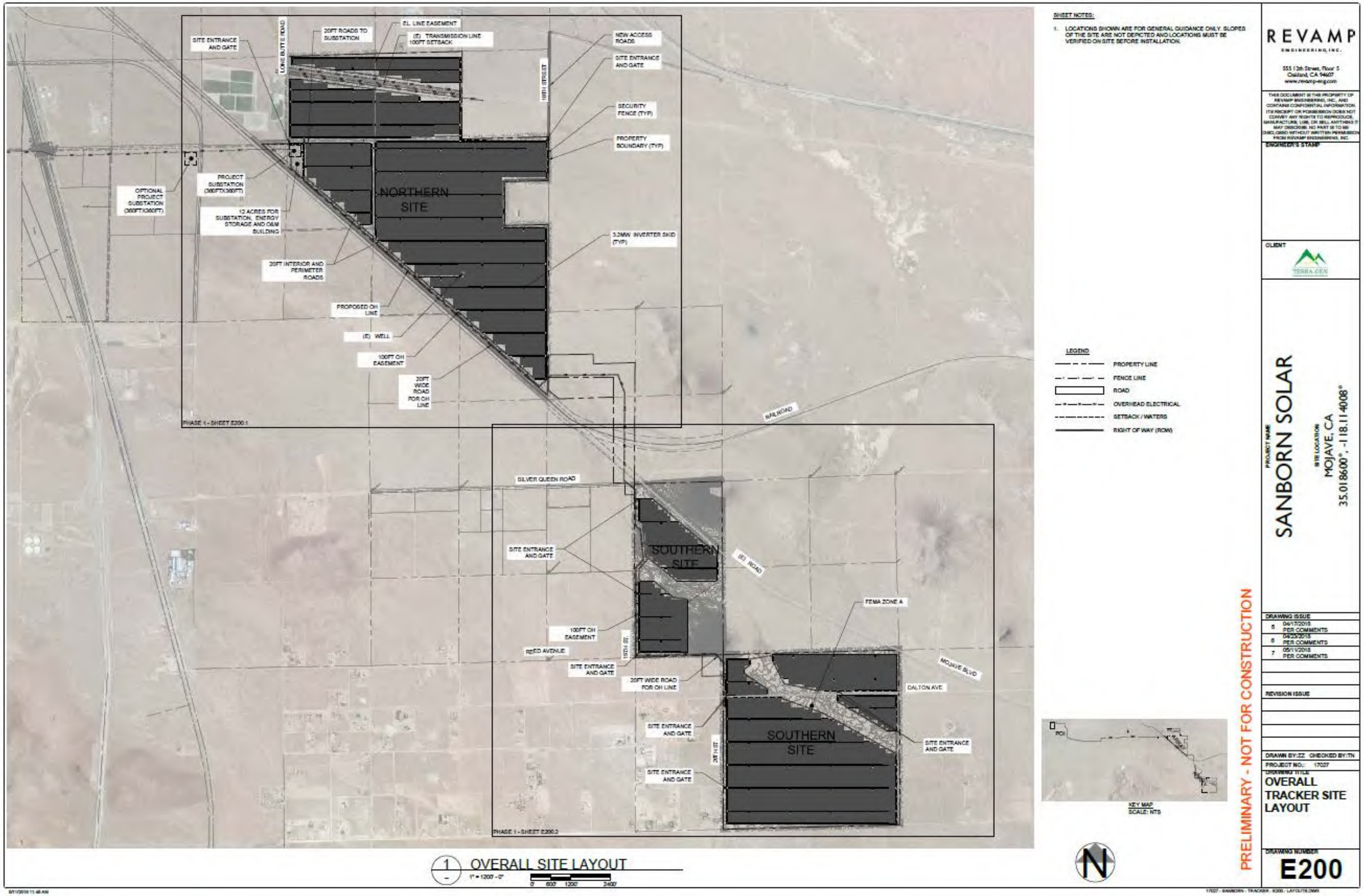

Figure 1-3: SITE PLAN

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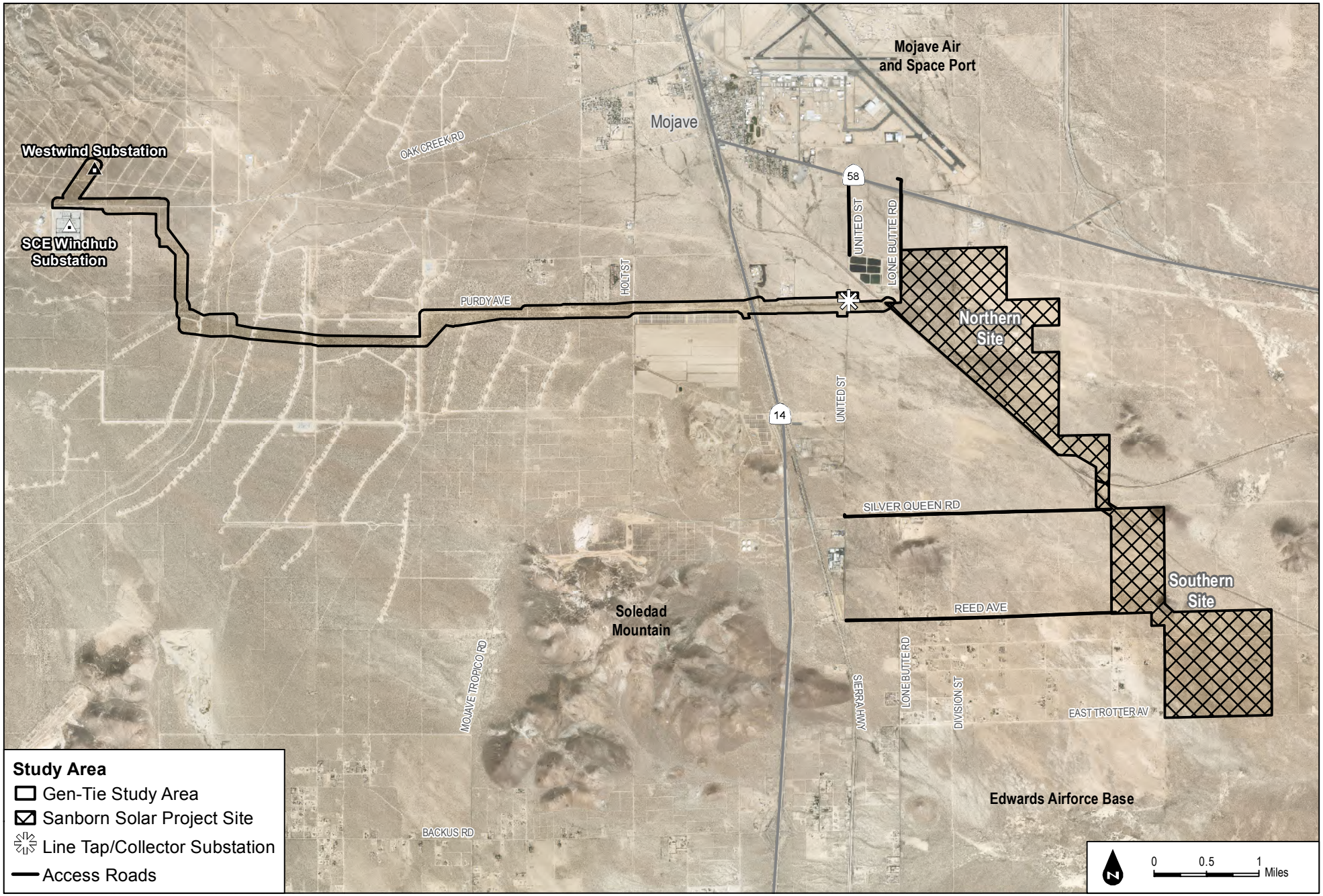

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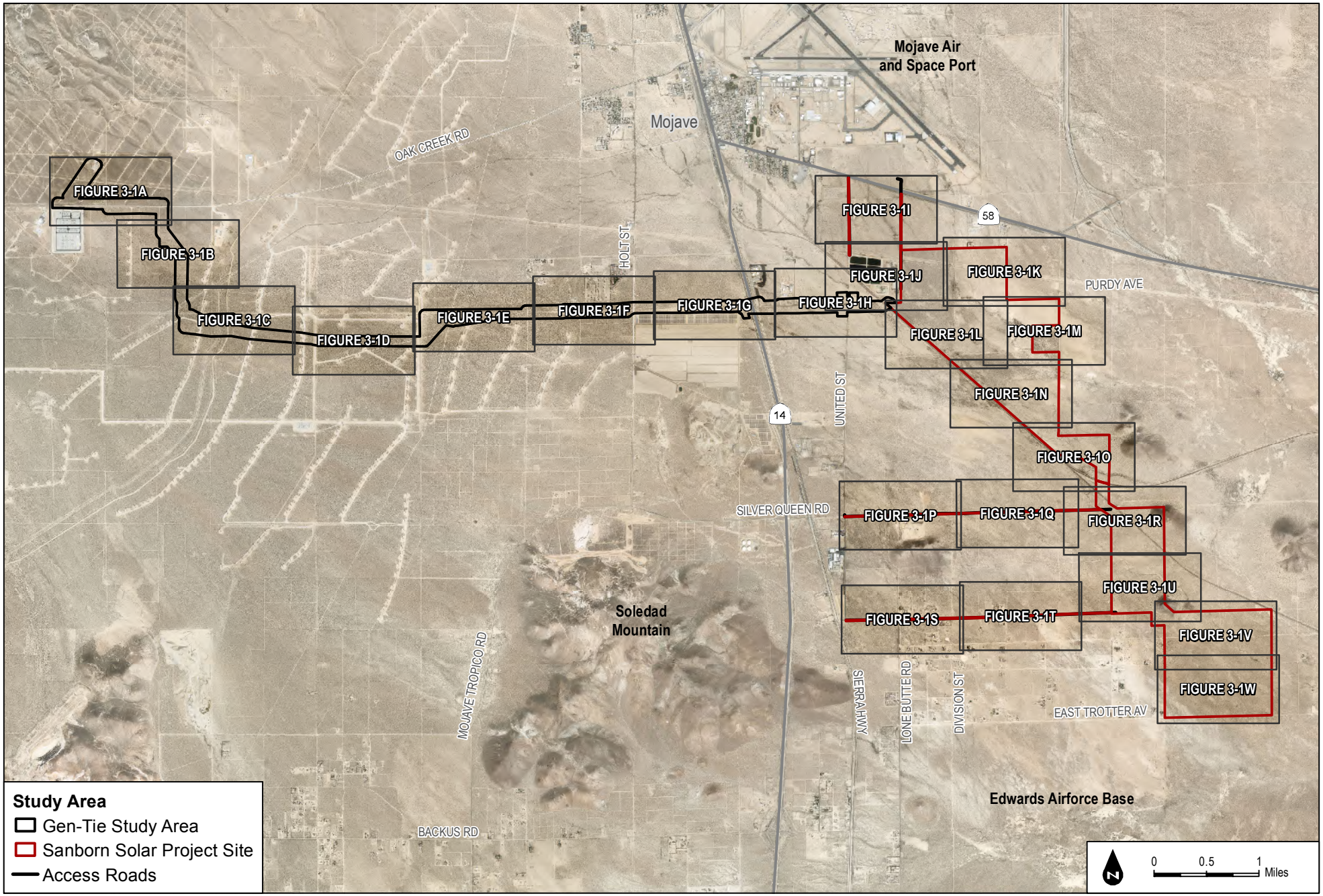

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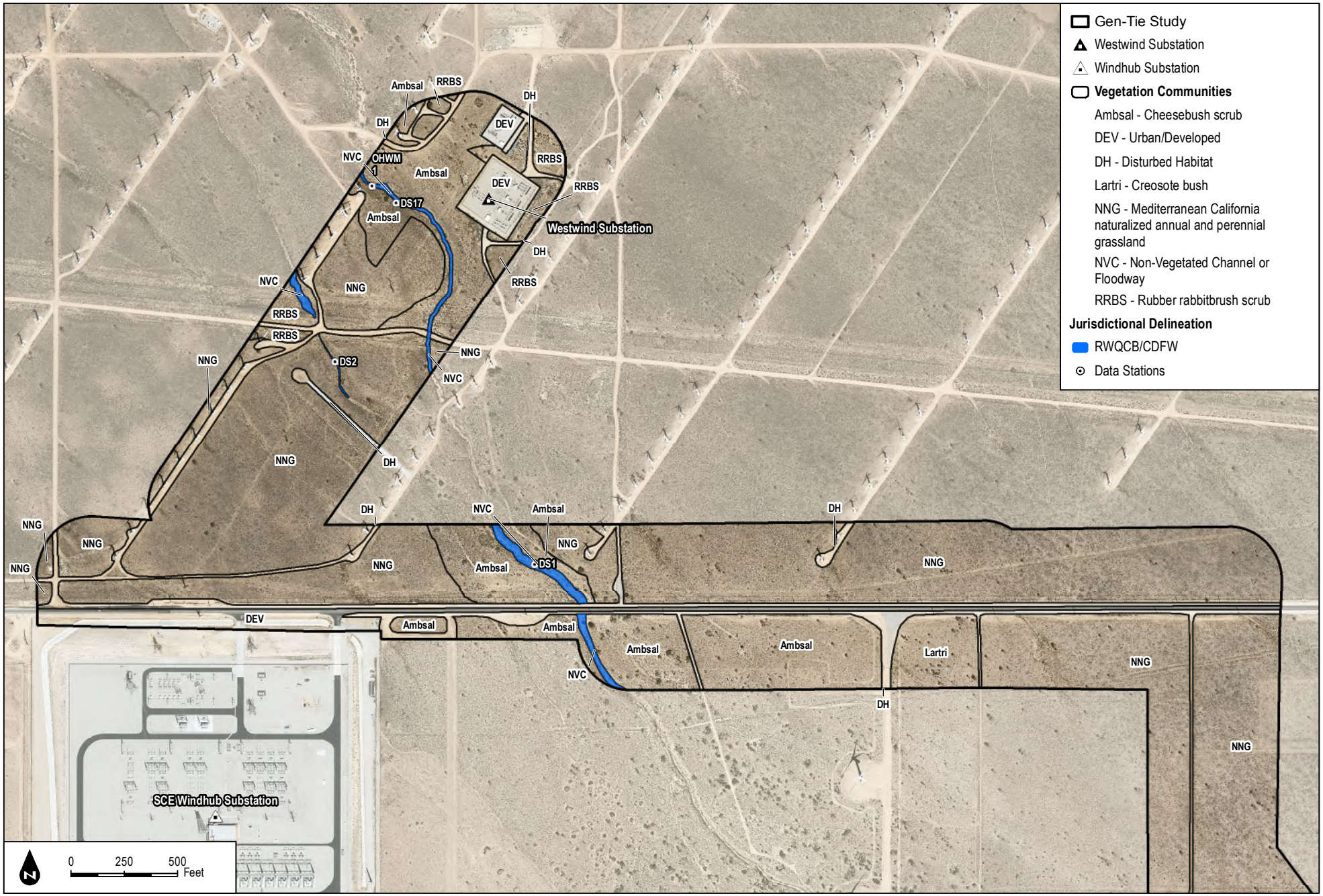

3-1A: VEGETATION COMMUNITIES AND JURISDICTIONAL DELINEATION

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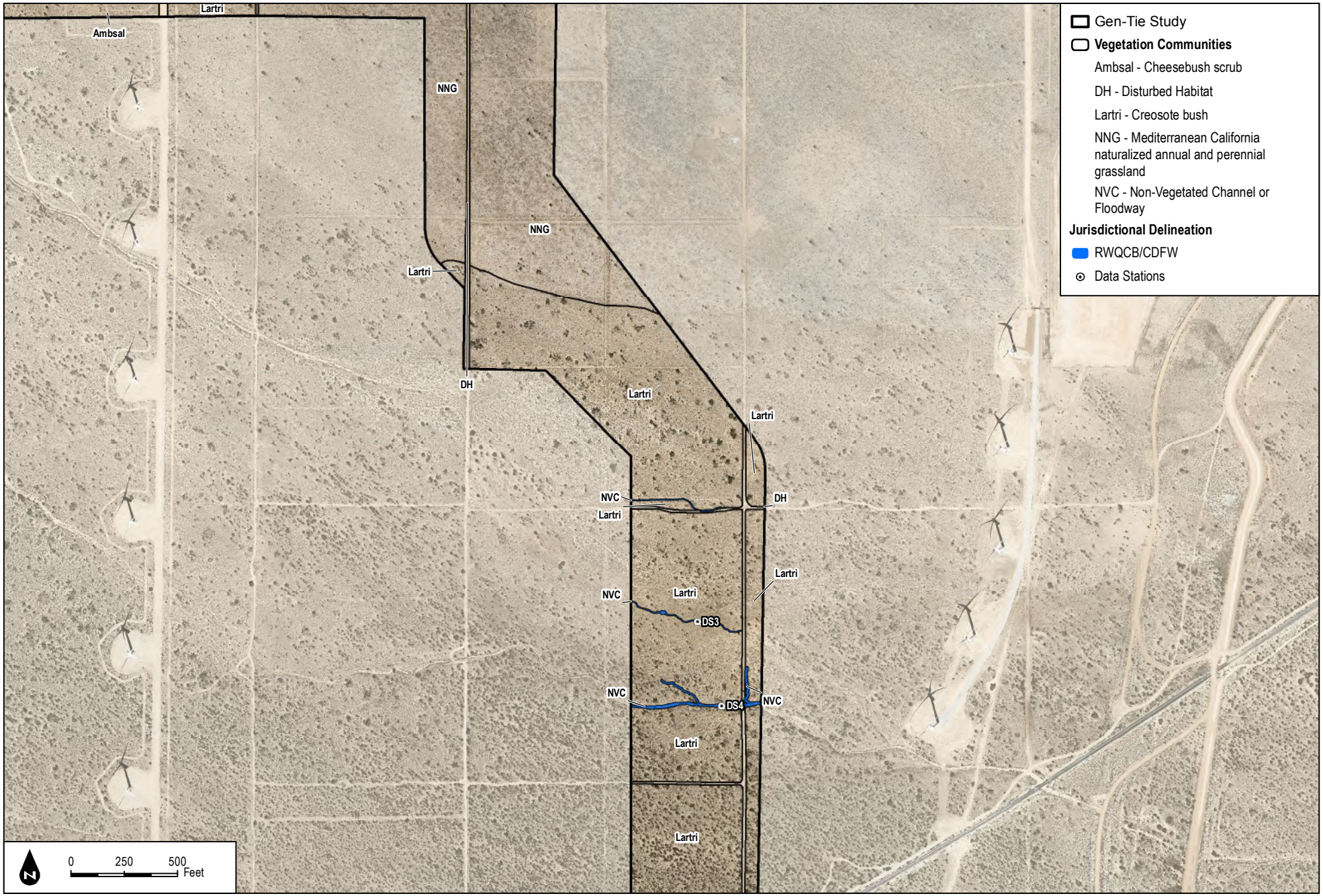

3-1B: VEGETATION COMMUNITIES AND JURISDICTIONAL DELINEATION

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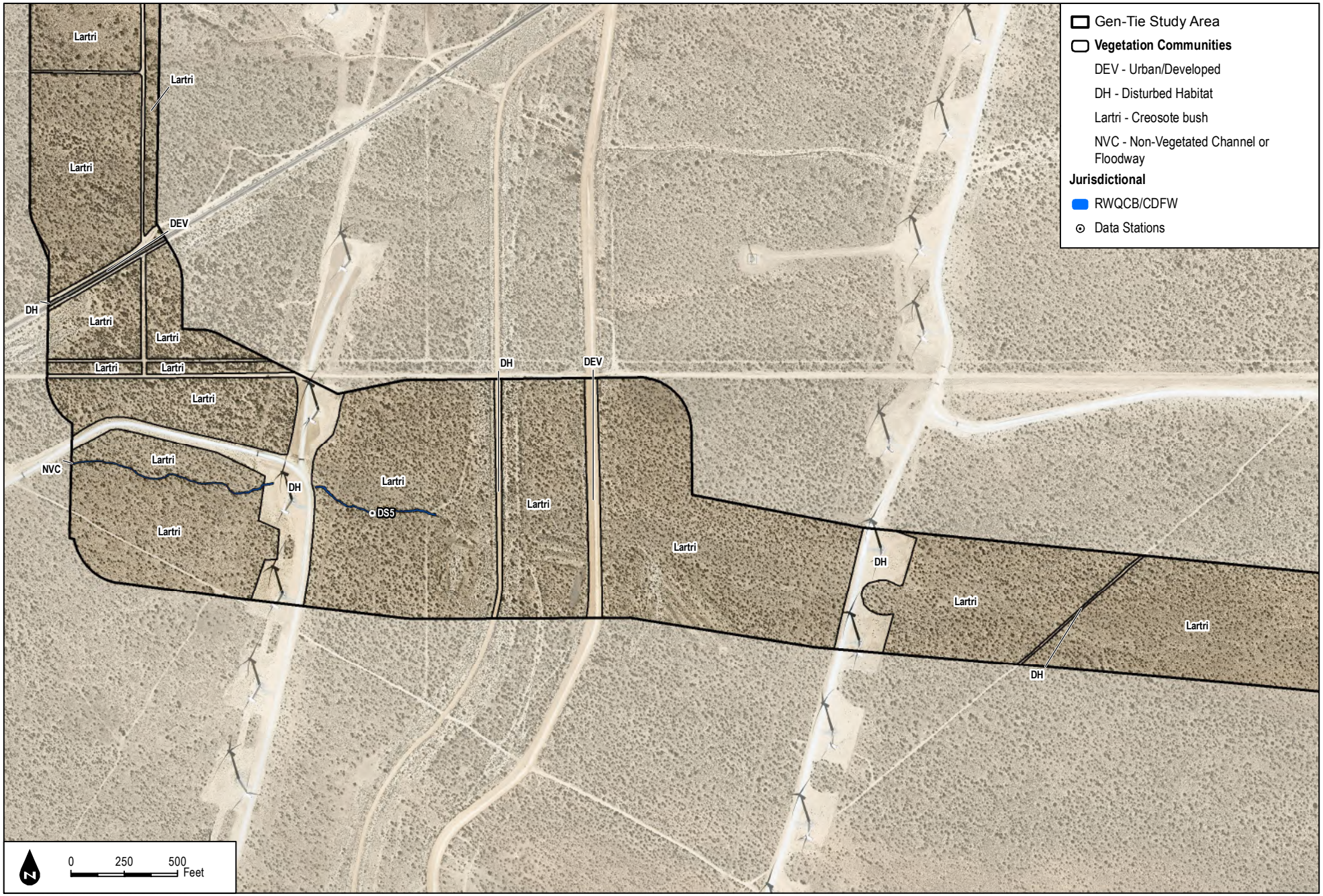

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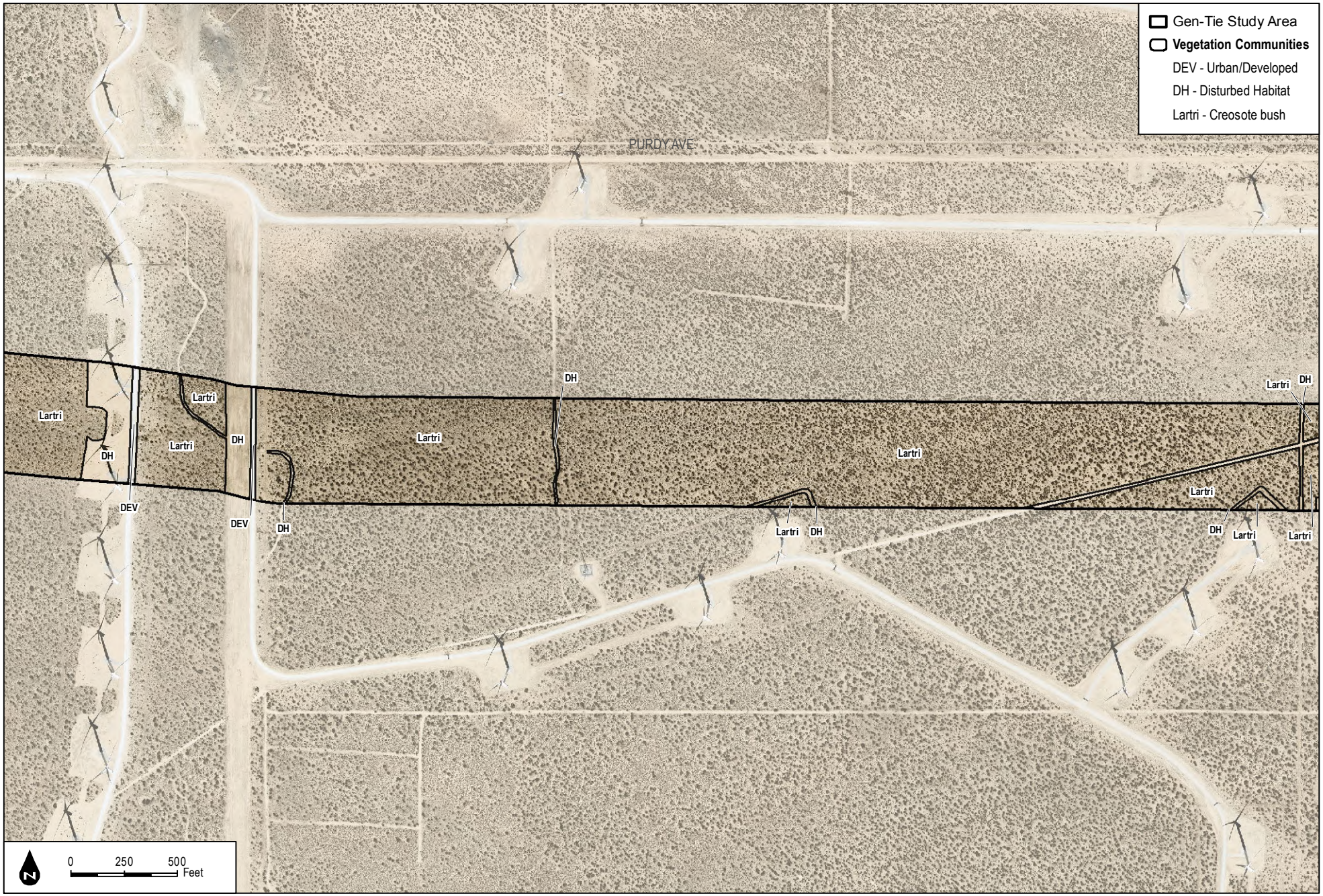

3-1D: VEGETATION COMMUNITIES AND JURISDICTIONAL DELINEATION

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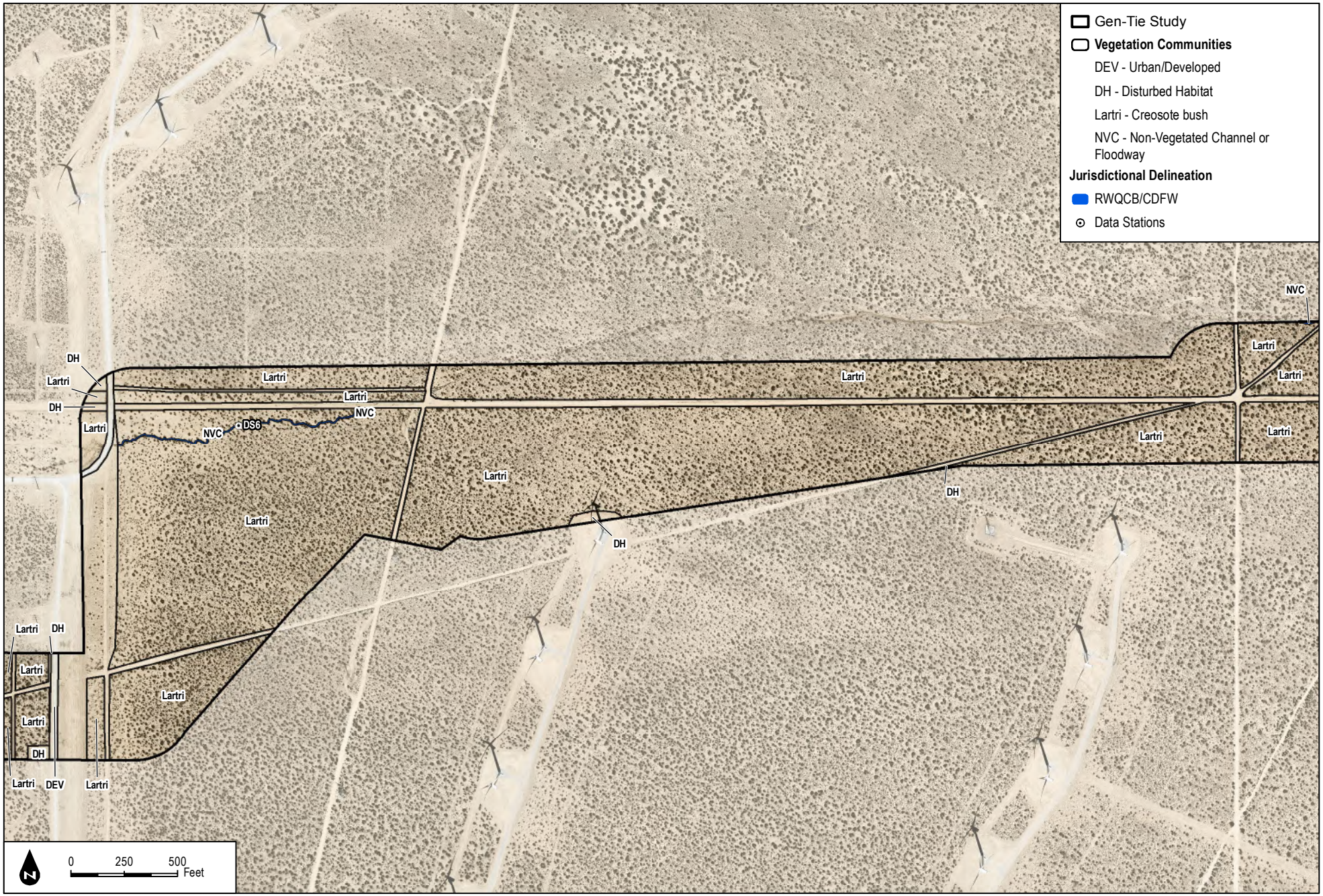

3-1E: VEGETATION COMMUNITIES AND JURISDICTIONAL DELINEATION

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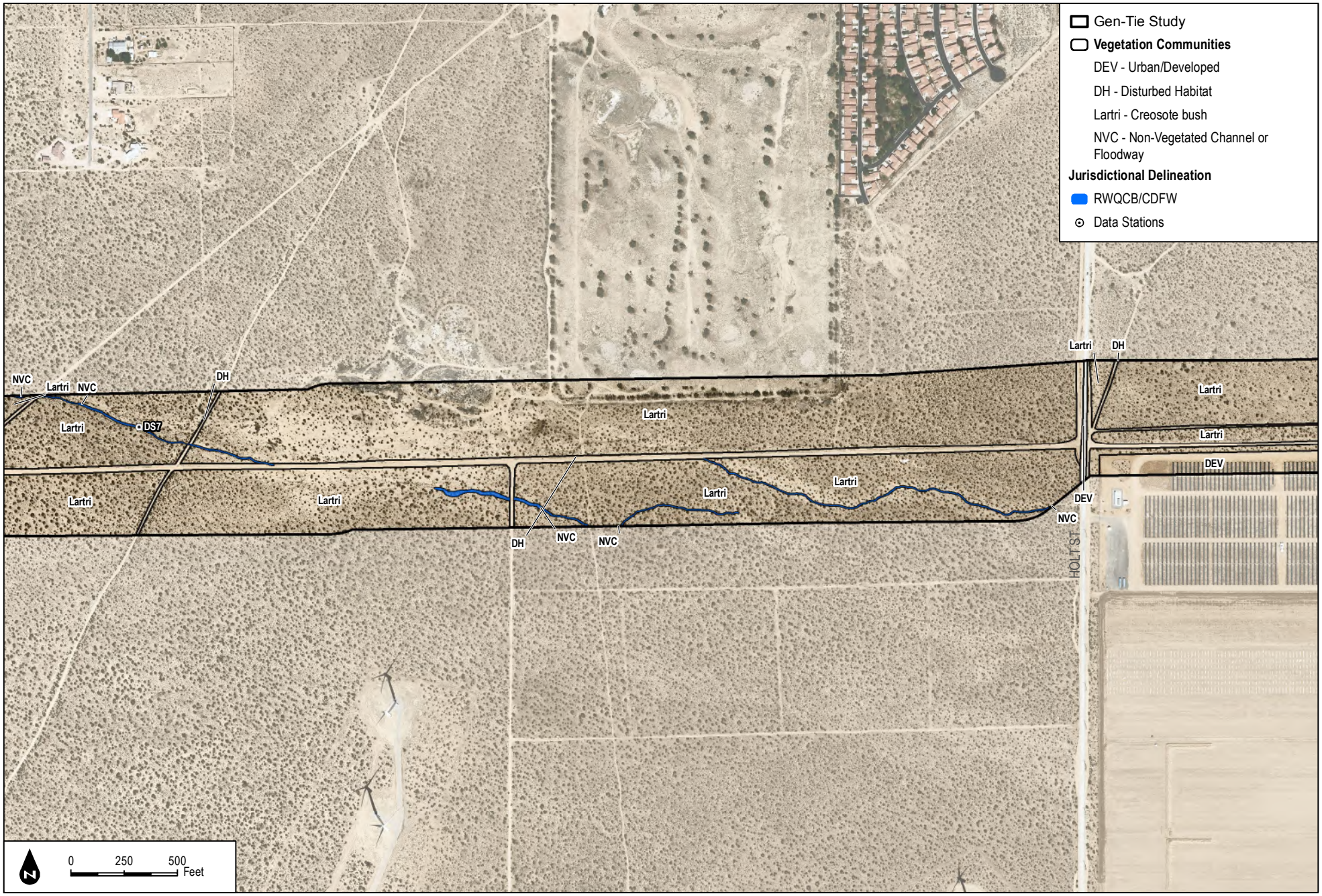

3-1F: VEGETATION COMMUNITIES AND JURISDICTIONAL DELINEATION

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3-1G: VEGETATION COMMUNITIES AND JURISDICTIONAL DELINEATION

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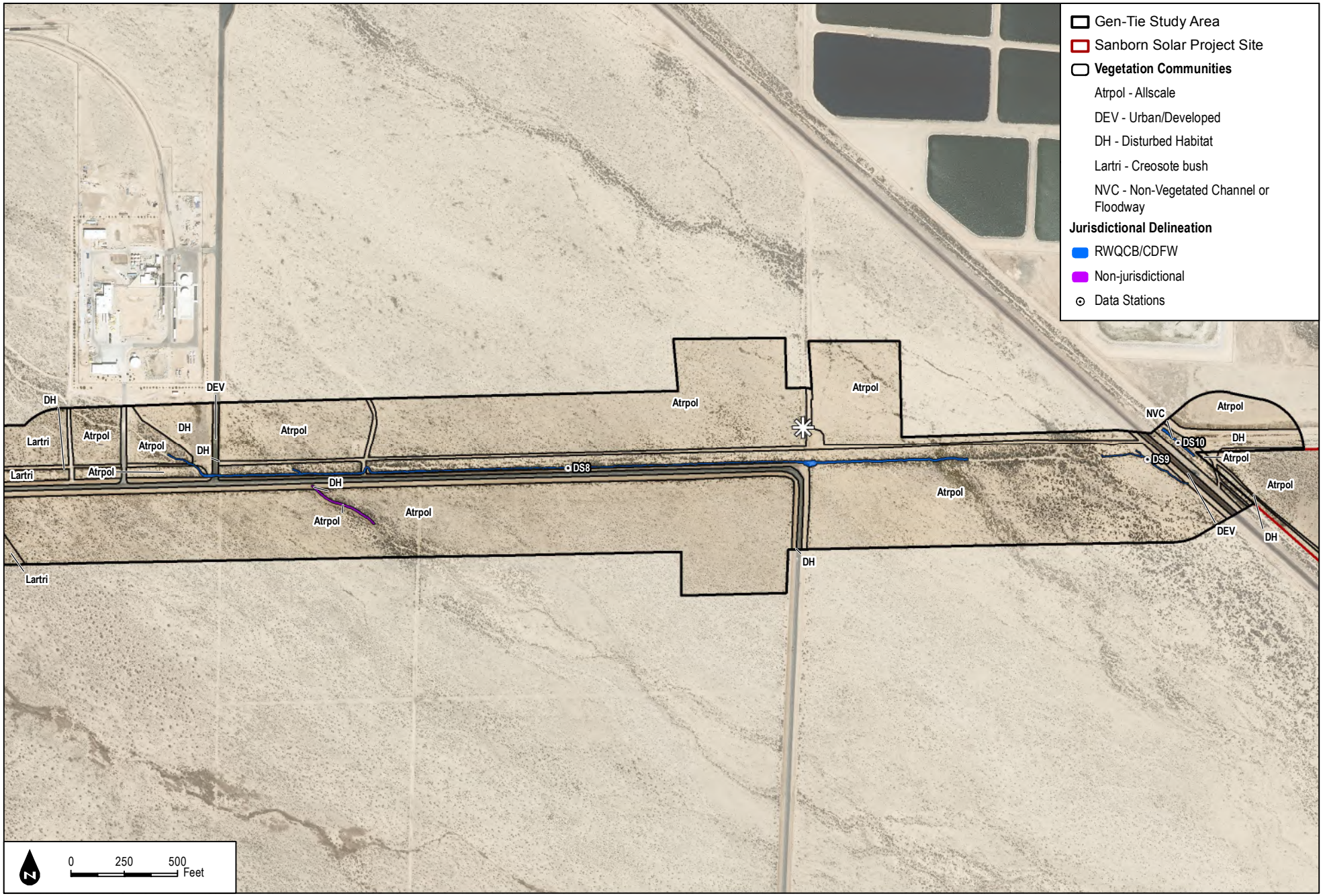

3-1H: VEGETATION COMMUNITIES AND JURISDICTIONAL DELINEATION

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3-1I: VEGETATION COMMUNITIES AND JURISDICTIONAL DELINEATION

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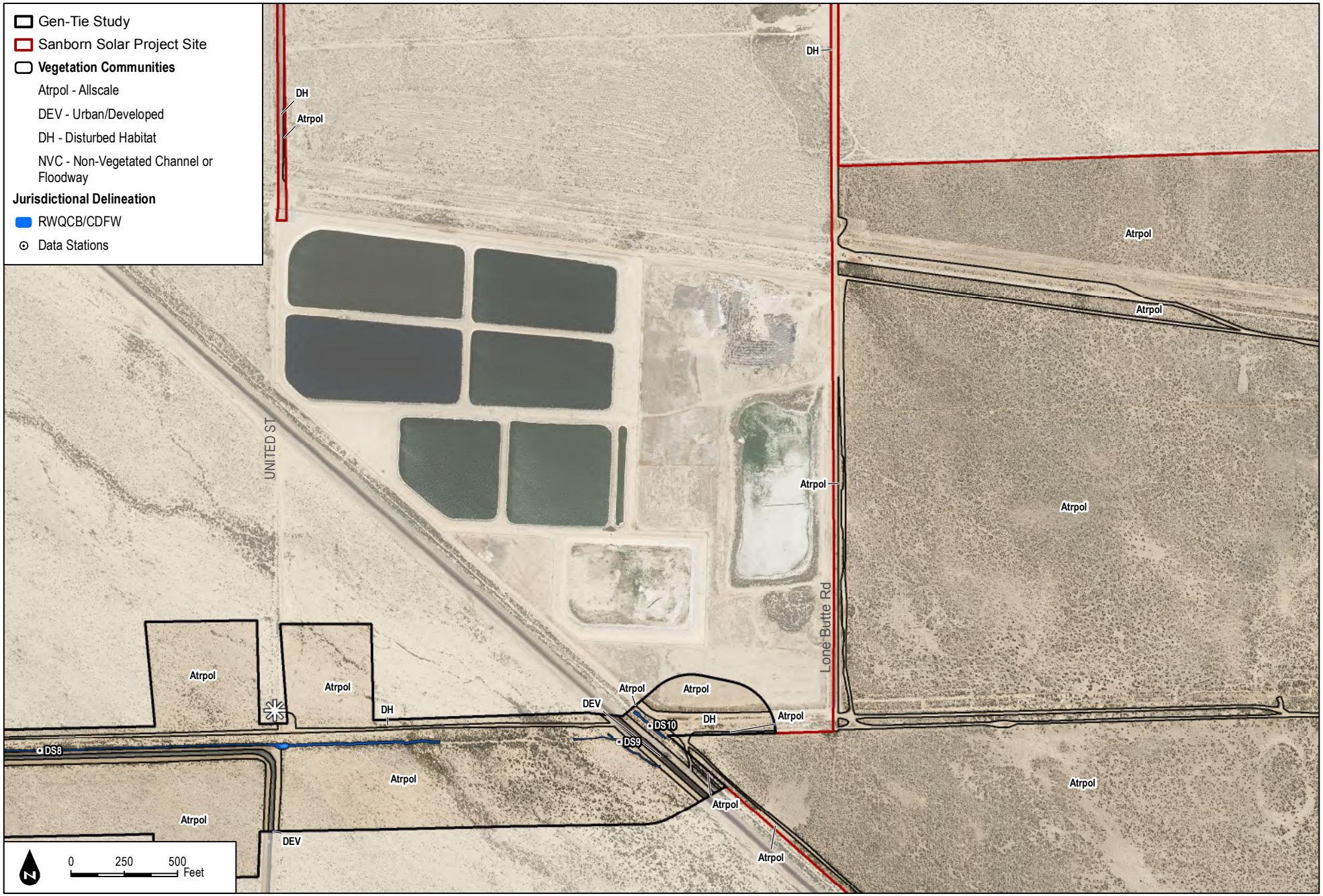

3-1J: VEGETATION COMMUNITIES AND JURISDICTIONAL DELINEATION

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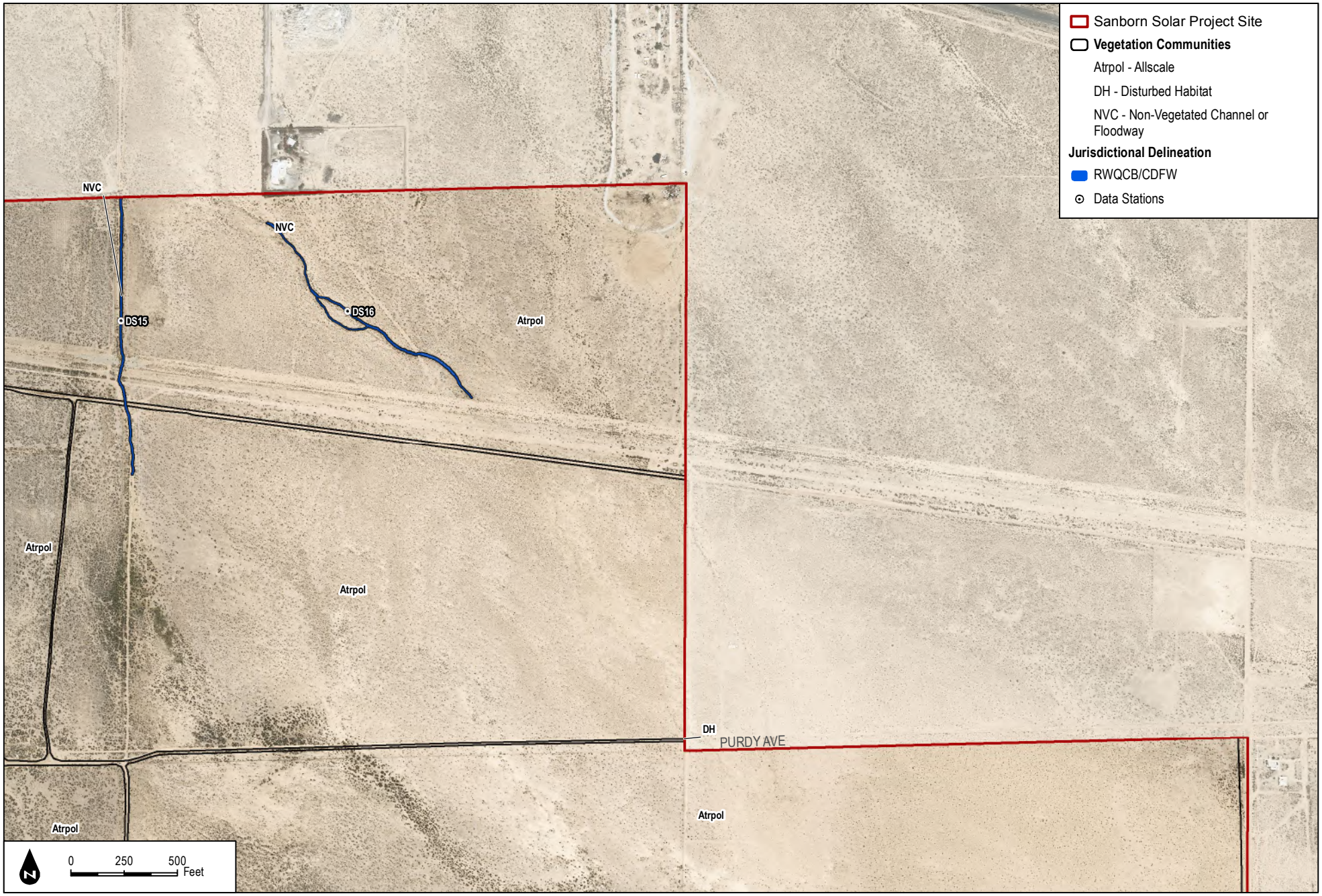

3-1K: VEGETATION COMMUNITIES AND JURISDICTIONAL DELINEATION

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3-1L: VEGETATION COMMUNITIES AND JURISDICTIONAL DELINEATION

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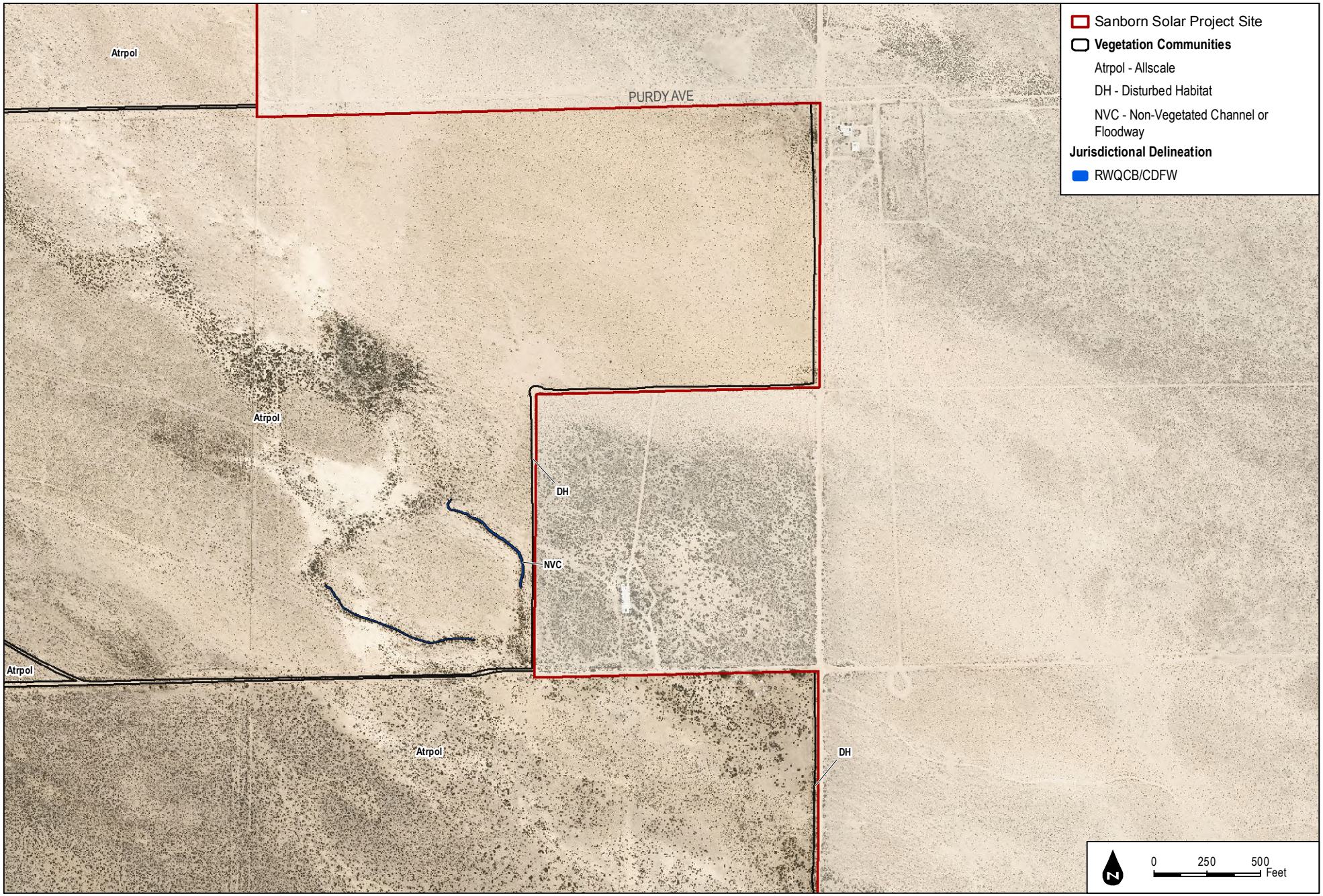

3-1M: VEGETATION COMMUNITIES AND JURISDICTIONAL DELINEATION

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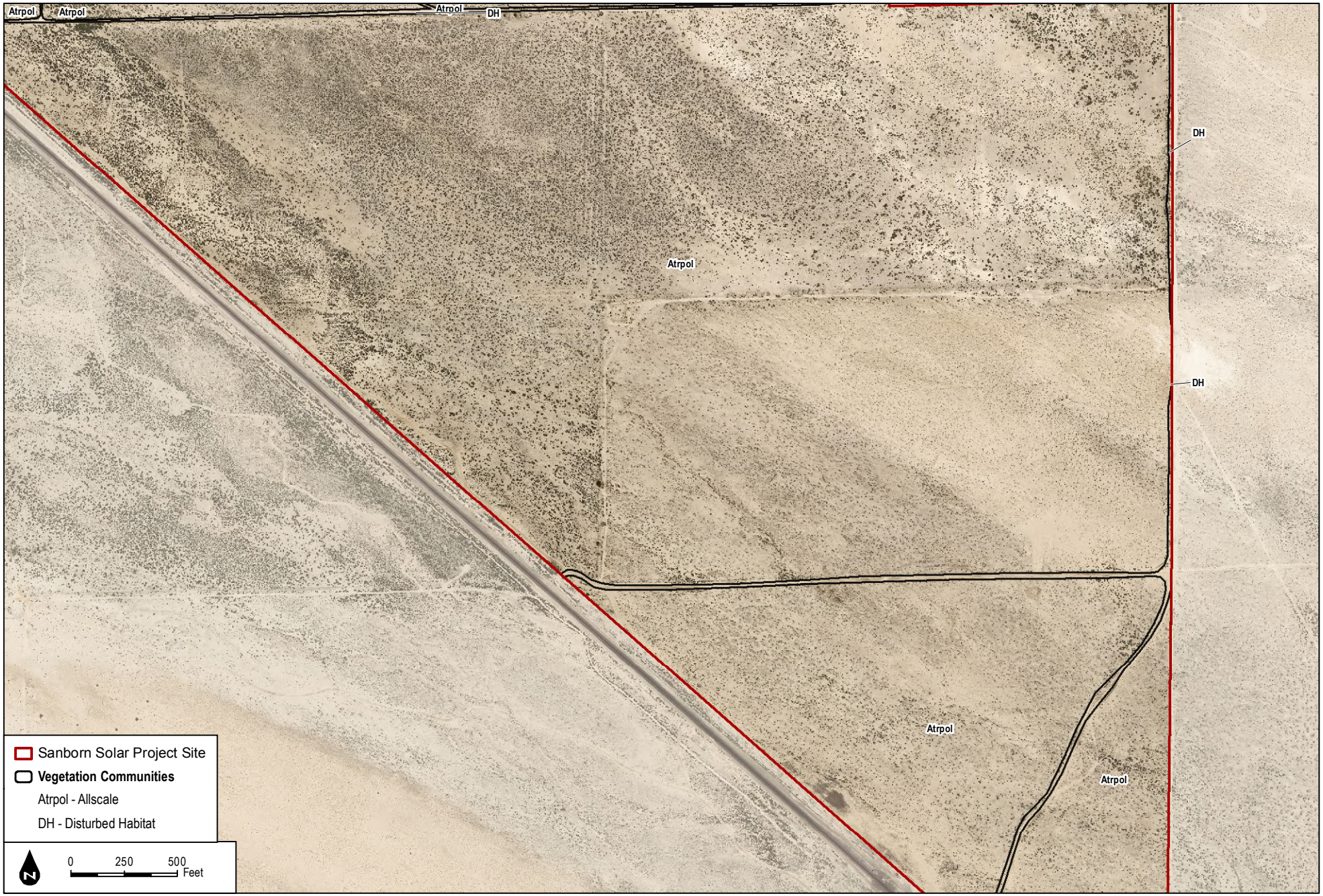

3-1N: VEGETATION COMMUNITIES AND JURISDICTIONAL DELINEATION

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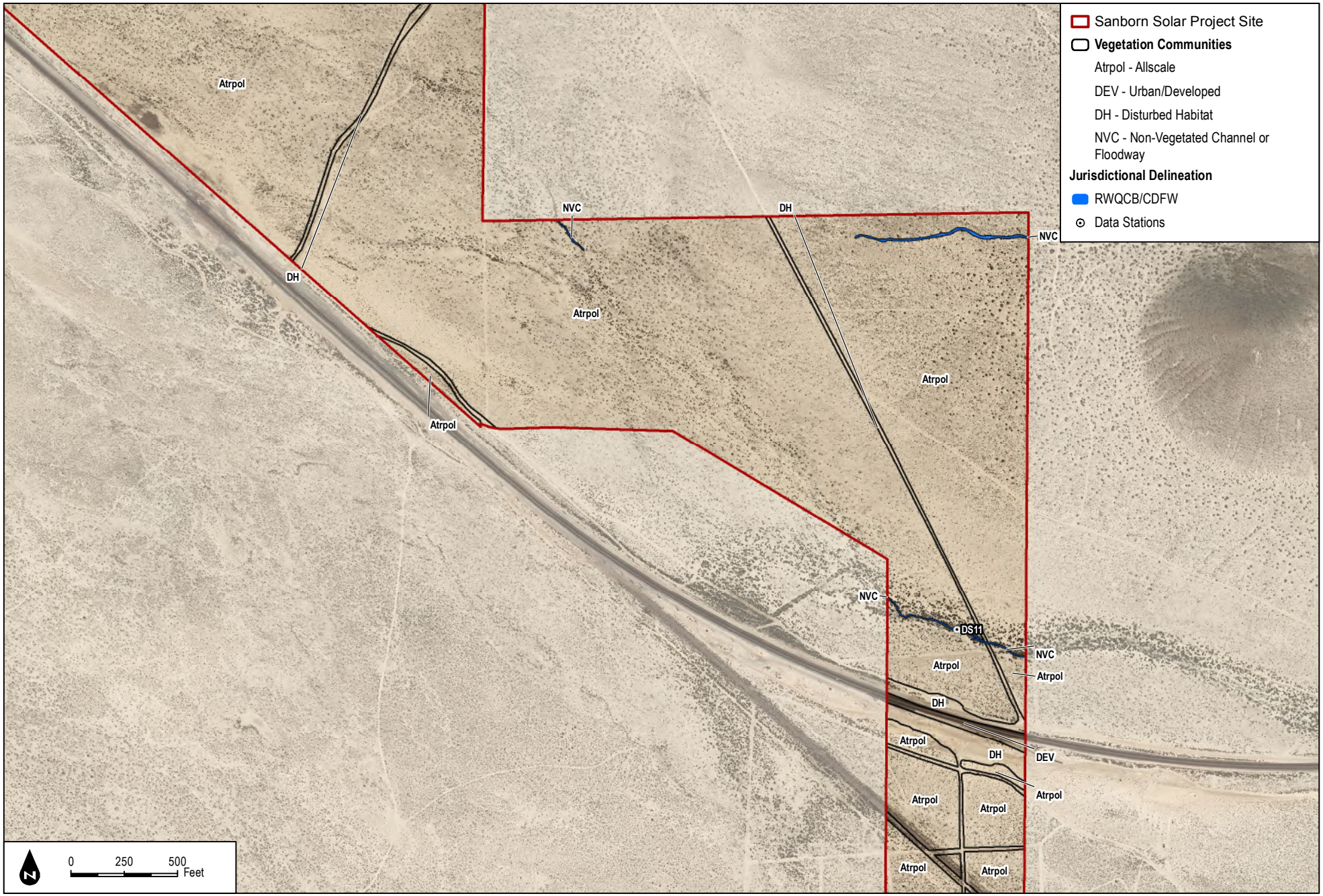

3-1O: VEGETATION COMMUNITIES AND JURISDICTIONAL DELINEATION

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3-1P: VEGETATION COMMUNITIES AND JURISDICTIONAL DELINEATION

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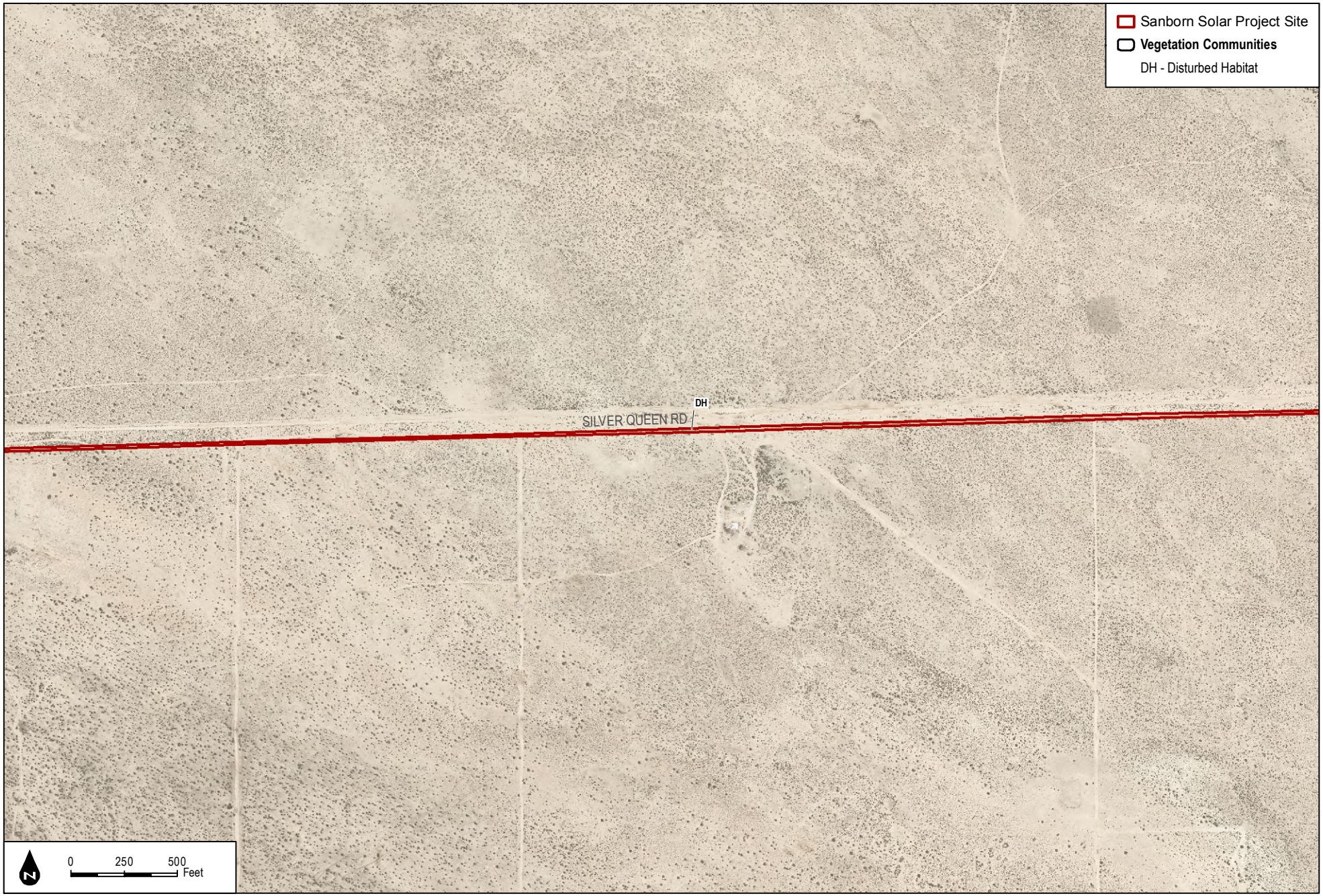

3-1Q: VEGETATION COMMUNITIES AND JURISDICTIONAL DELINEATION

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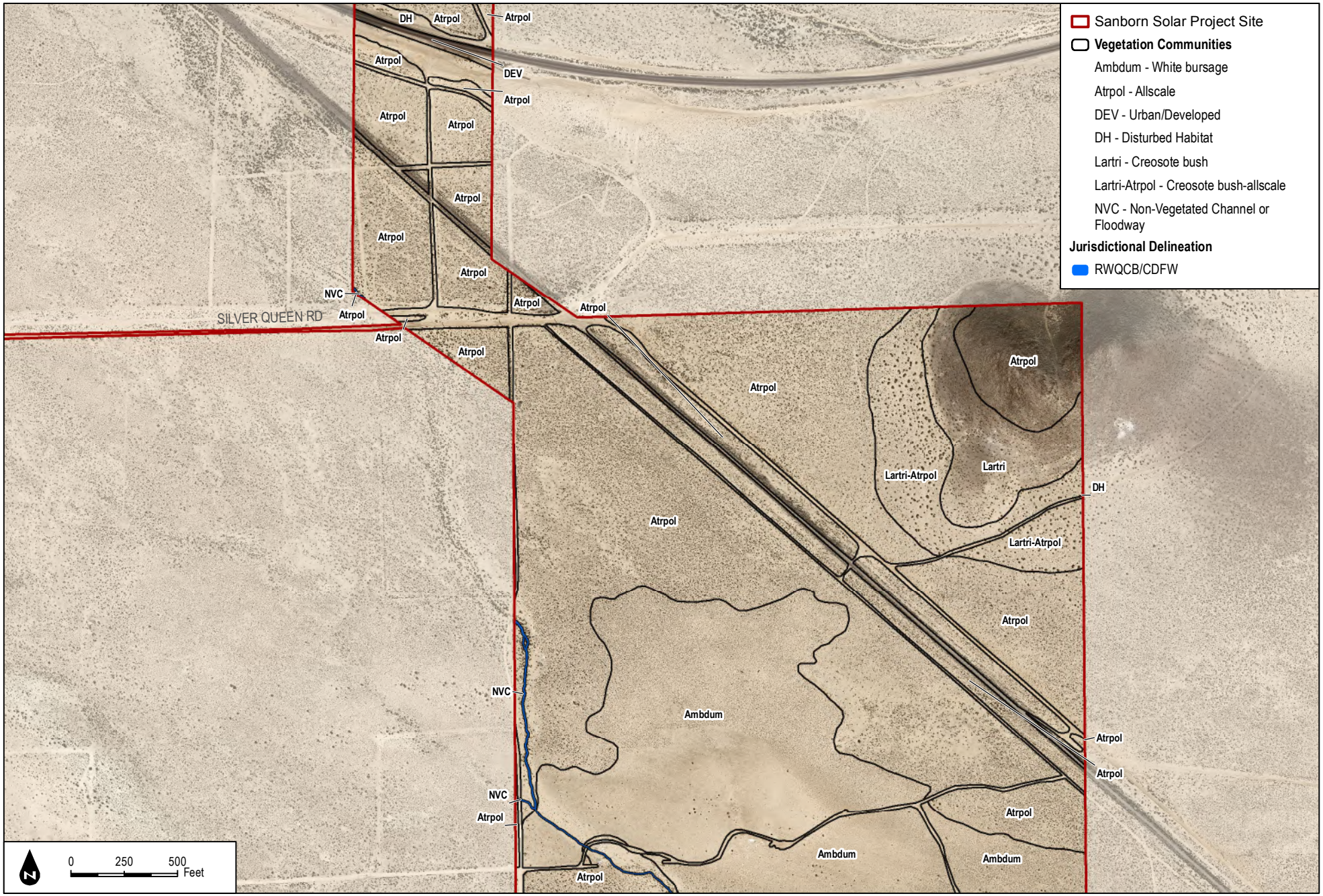

3-1R: VEGETATION COMMUNITIES AND JURISDICTIONAL DELINEATION

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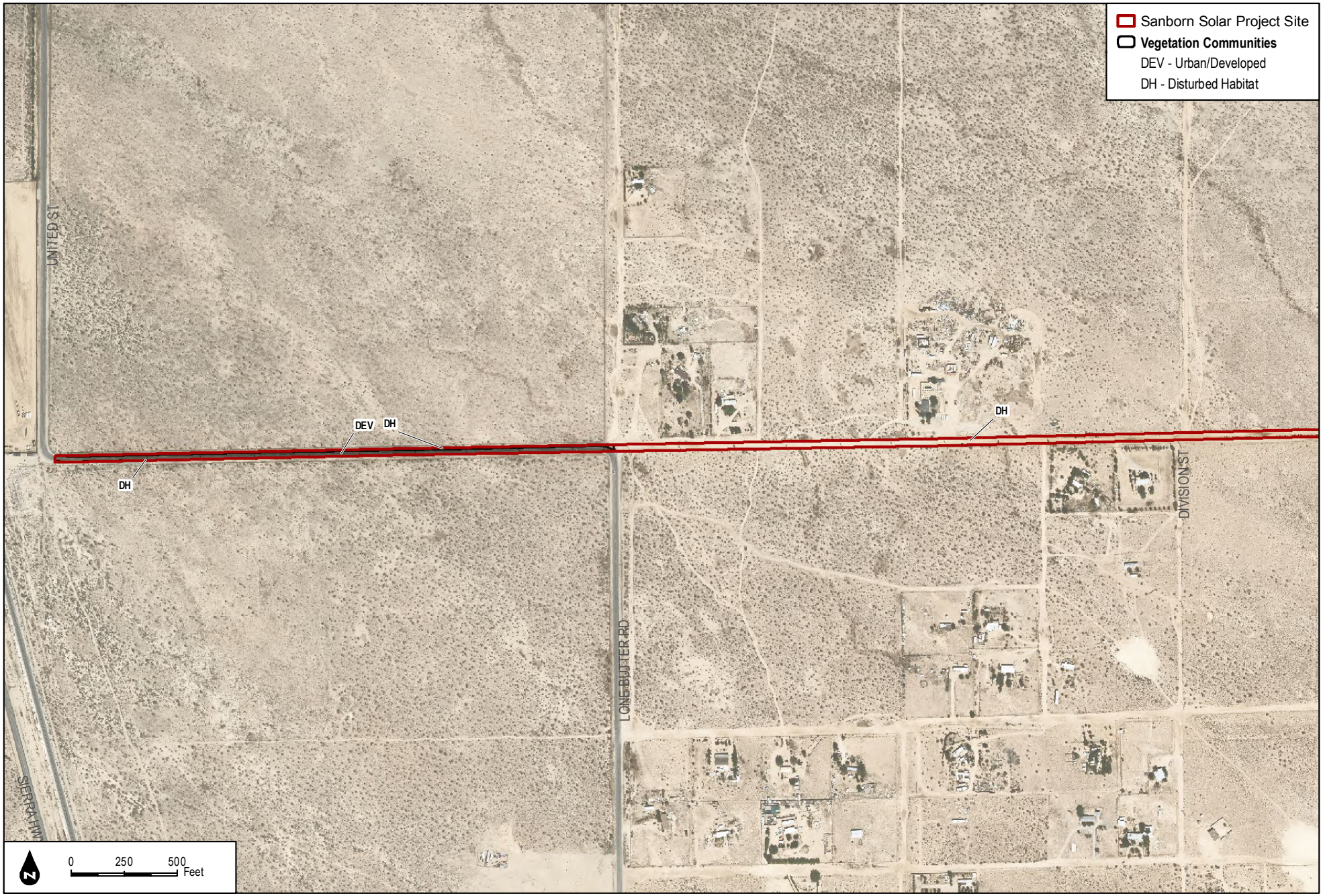

3-1S: VEGETATION COMMUNITIES AND JURISDICTIONAL DELINEATION

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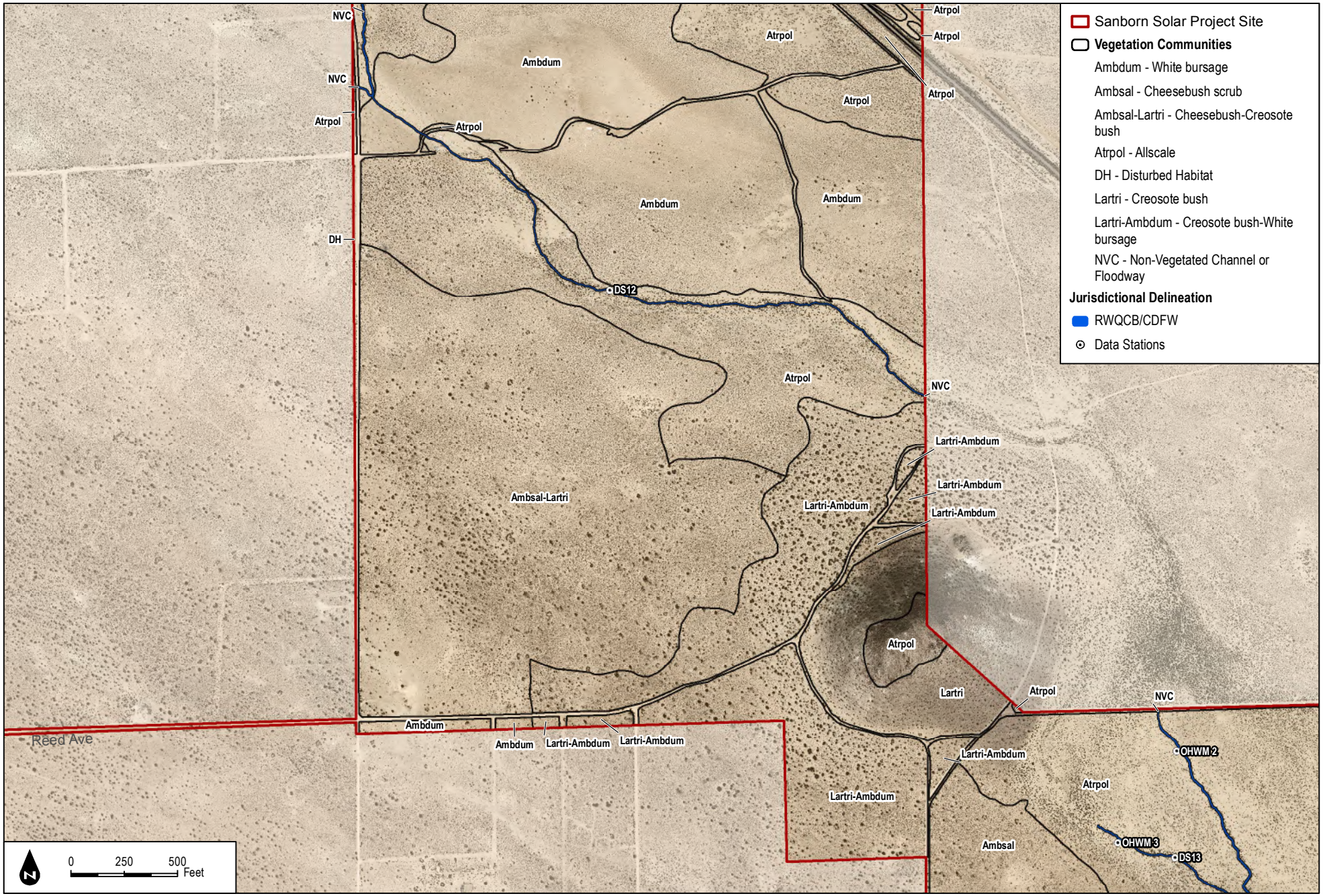
3-1T: VEGETATION COMMUNITIES AND JURISDICTIONAL DELINEATION

INTENTIONALLY LEFT BLANK



3-1U: VEGETATION COMMUNITIES AND JURISDICTIONAL DELINEATION

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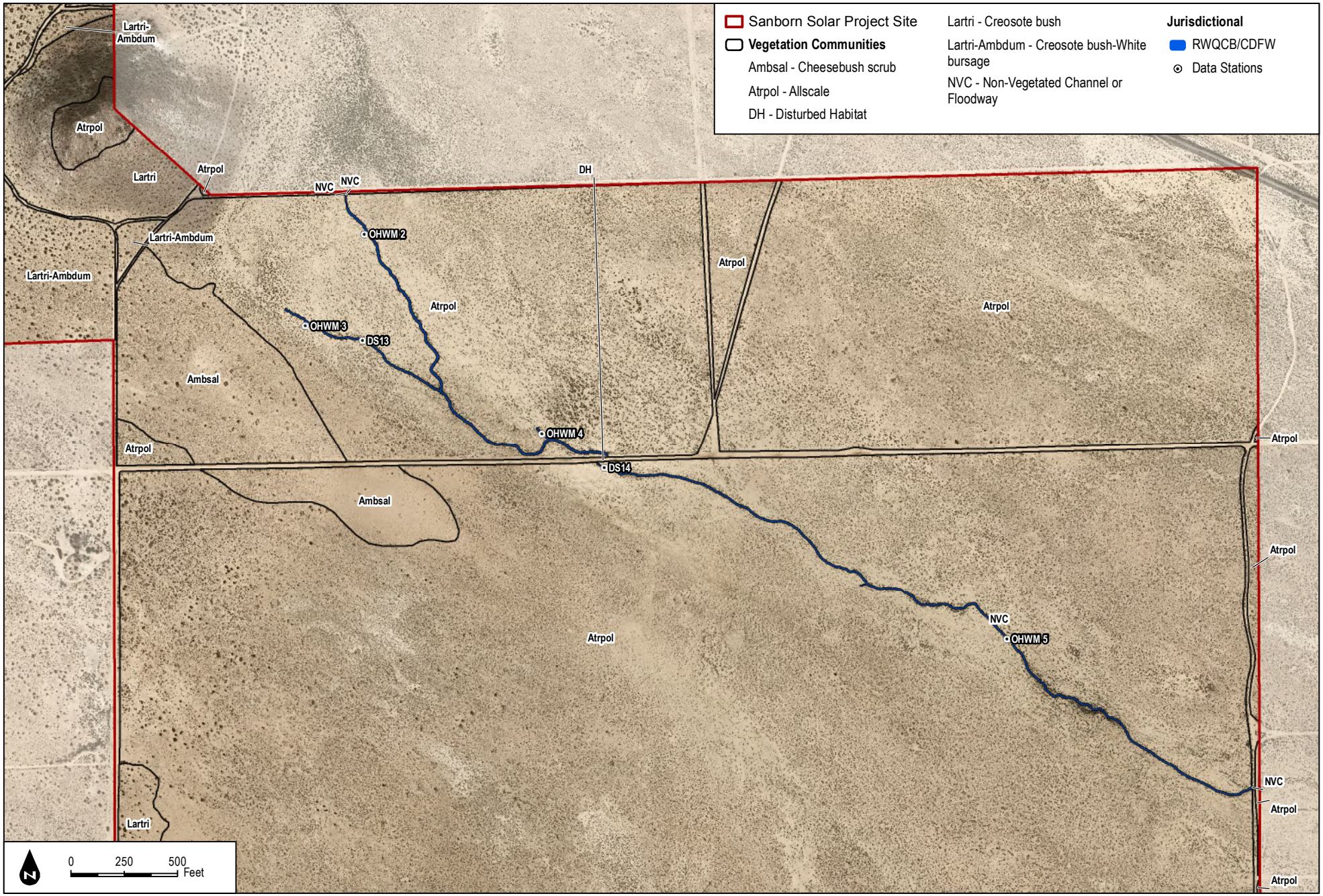
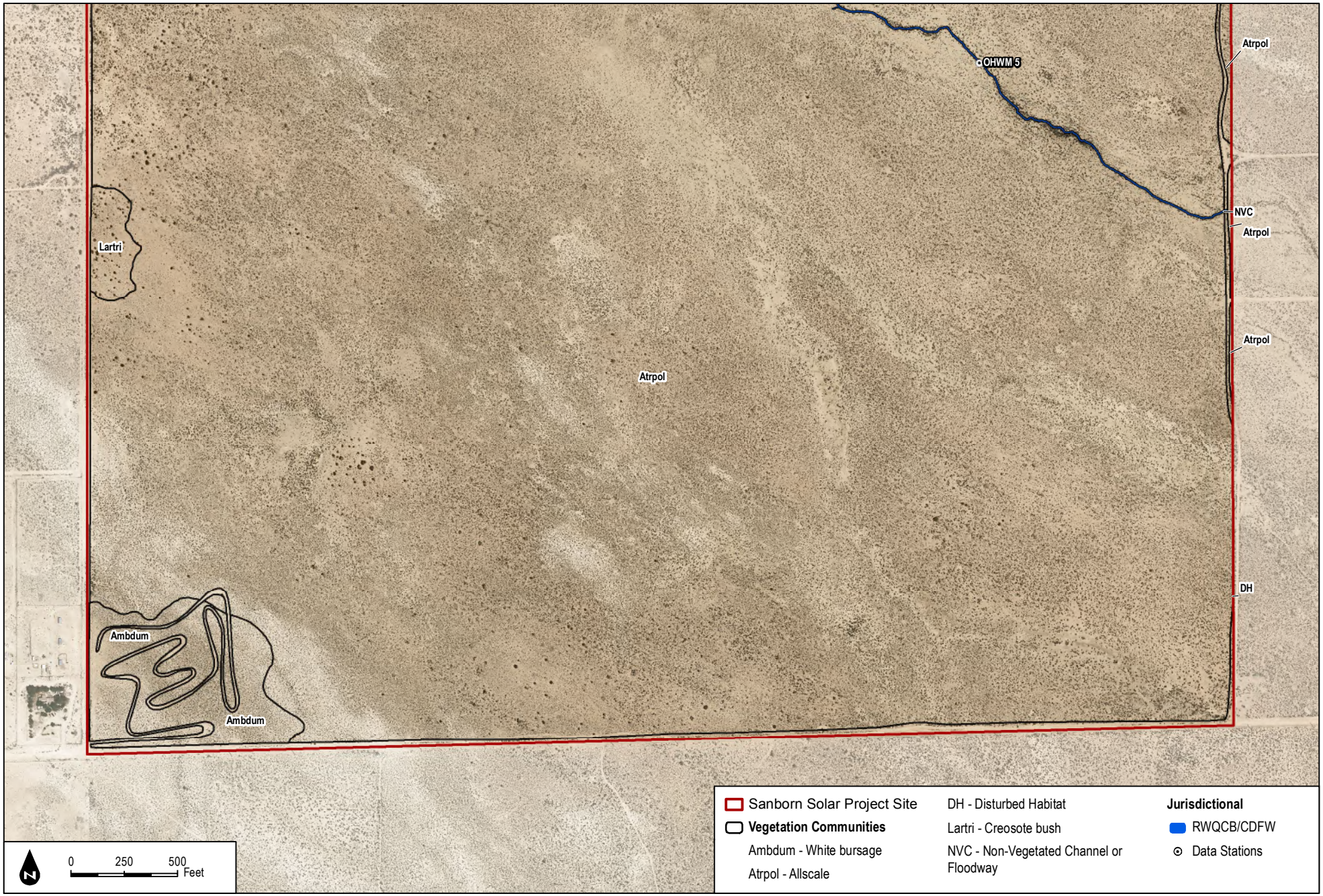


3-1V: VEGETATION COMMUNITIES AND JURISDICTIONAL DELINEATION

INTENTIONALLY LEFT BLANK



3-1W: VEGETATION COMMUNITIES AND JURISDICTIONAL DELINEATION

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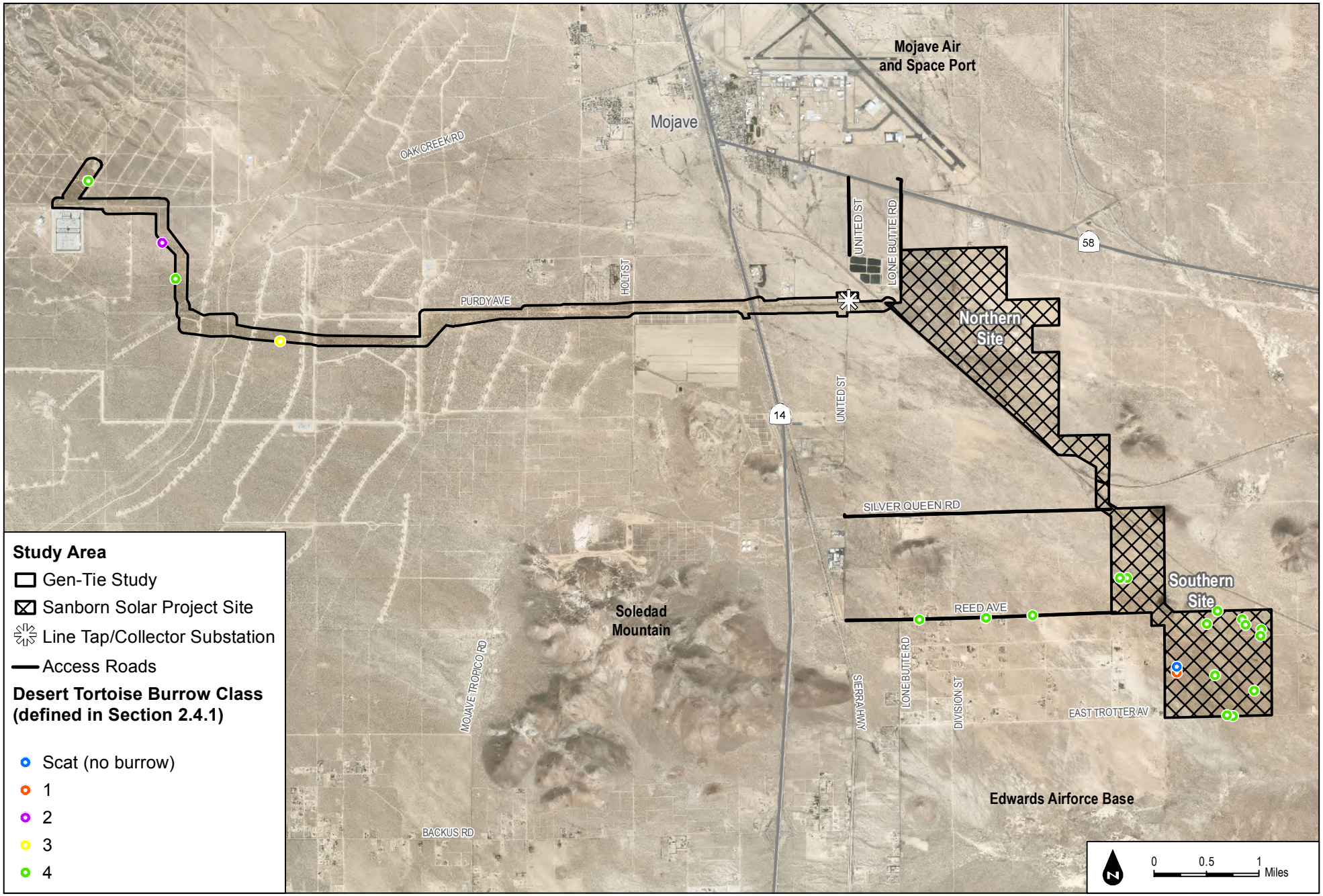

Figure 3-2: DESERT TORTOISE SURVEY RESULTS

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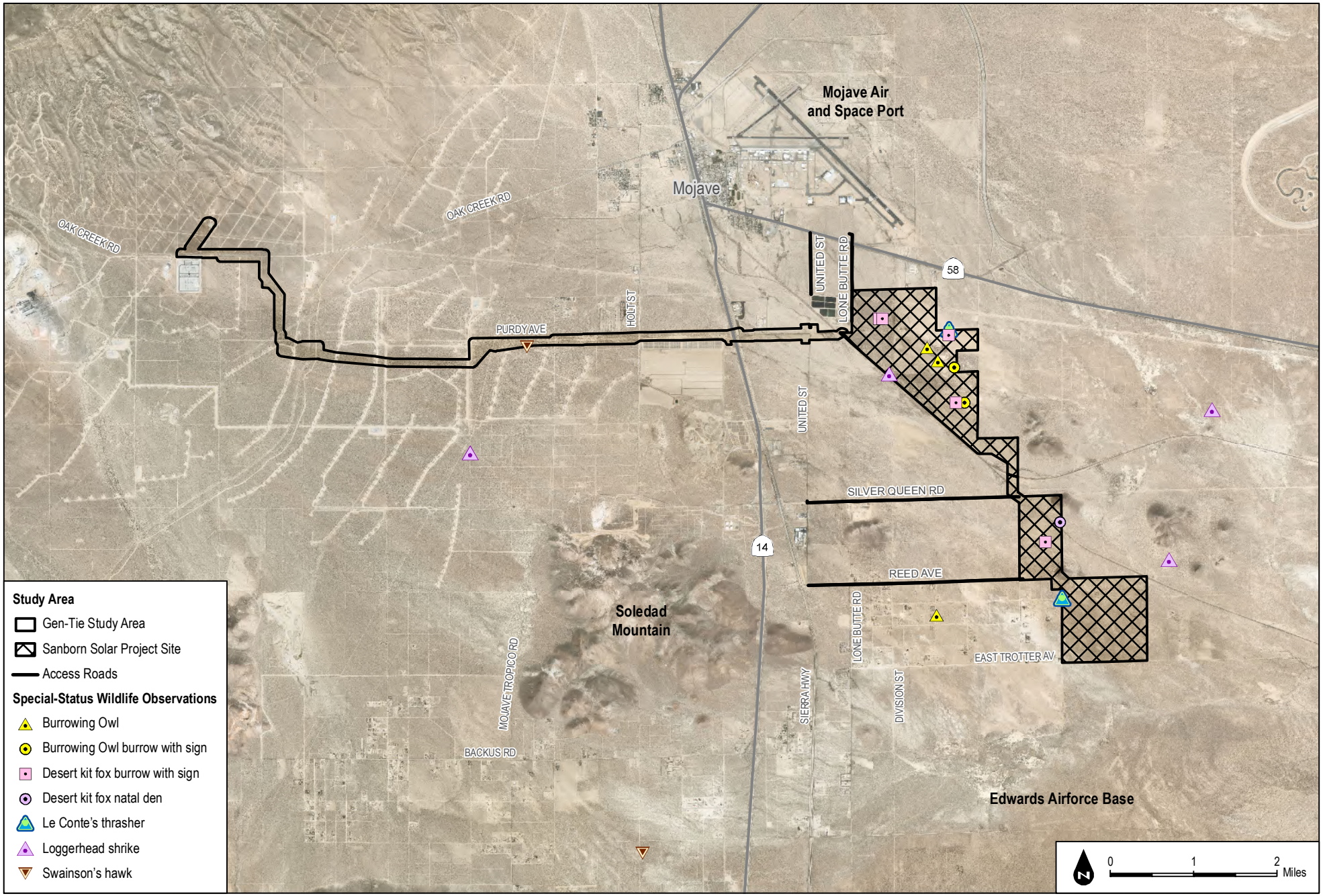

Figure 3-3: OTHER SPECIAL-STATUS WILDLIFE OBSERVATIONS

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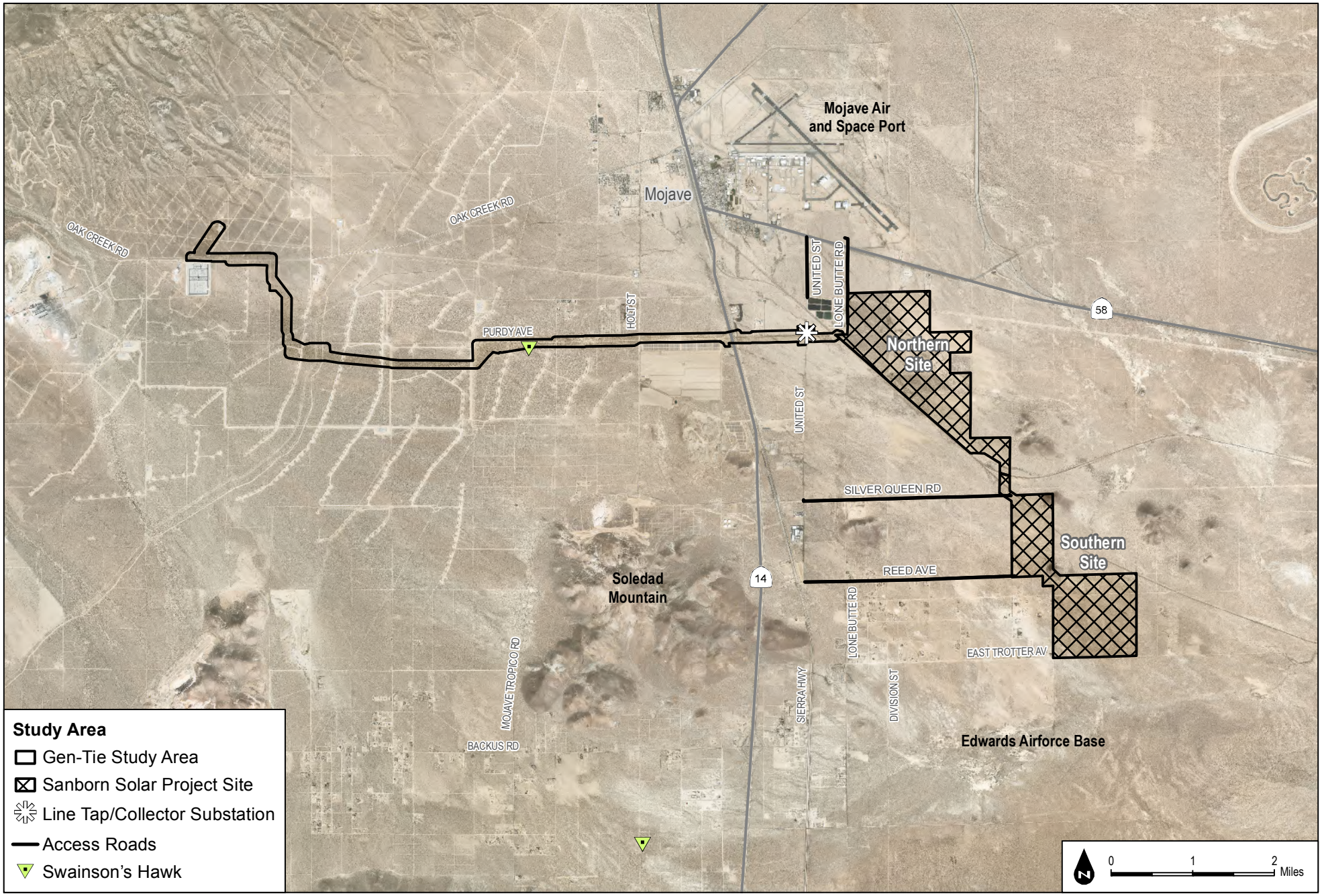

Figure 3-4: SWAINSON'S HAWK SURVEY RESULTS

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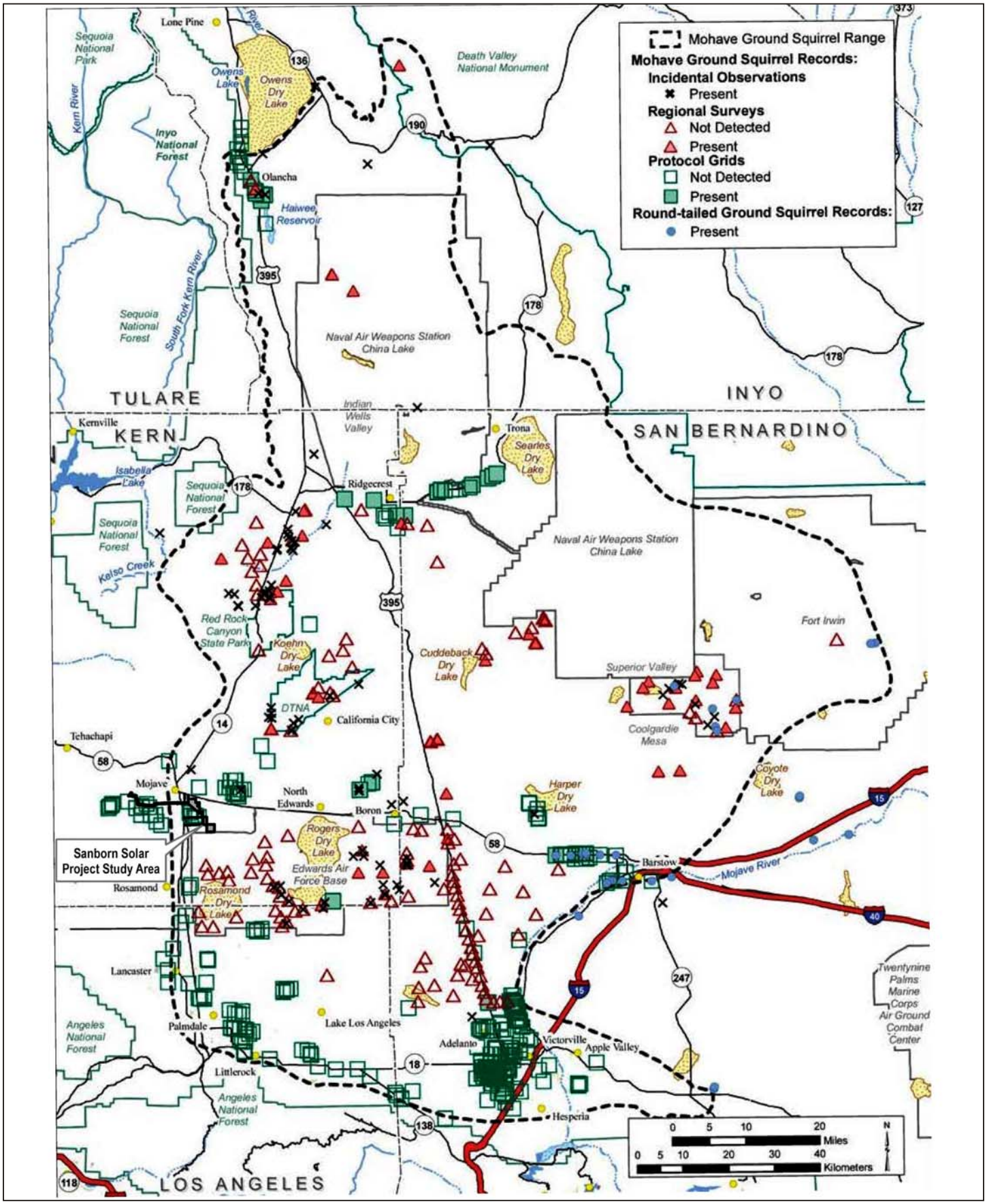

SOURCE: Lietner (2015)

Figure 3-5: MOHAVE GROUND SQUIRREL SURVEY RESULTS FOR THE PERIOD 1998-2007

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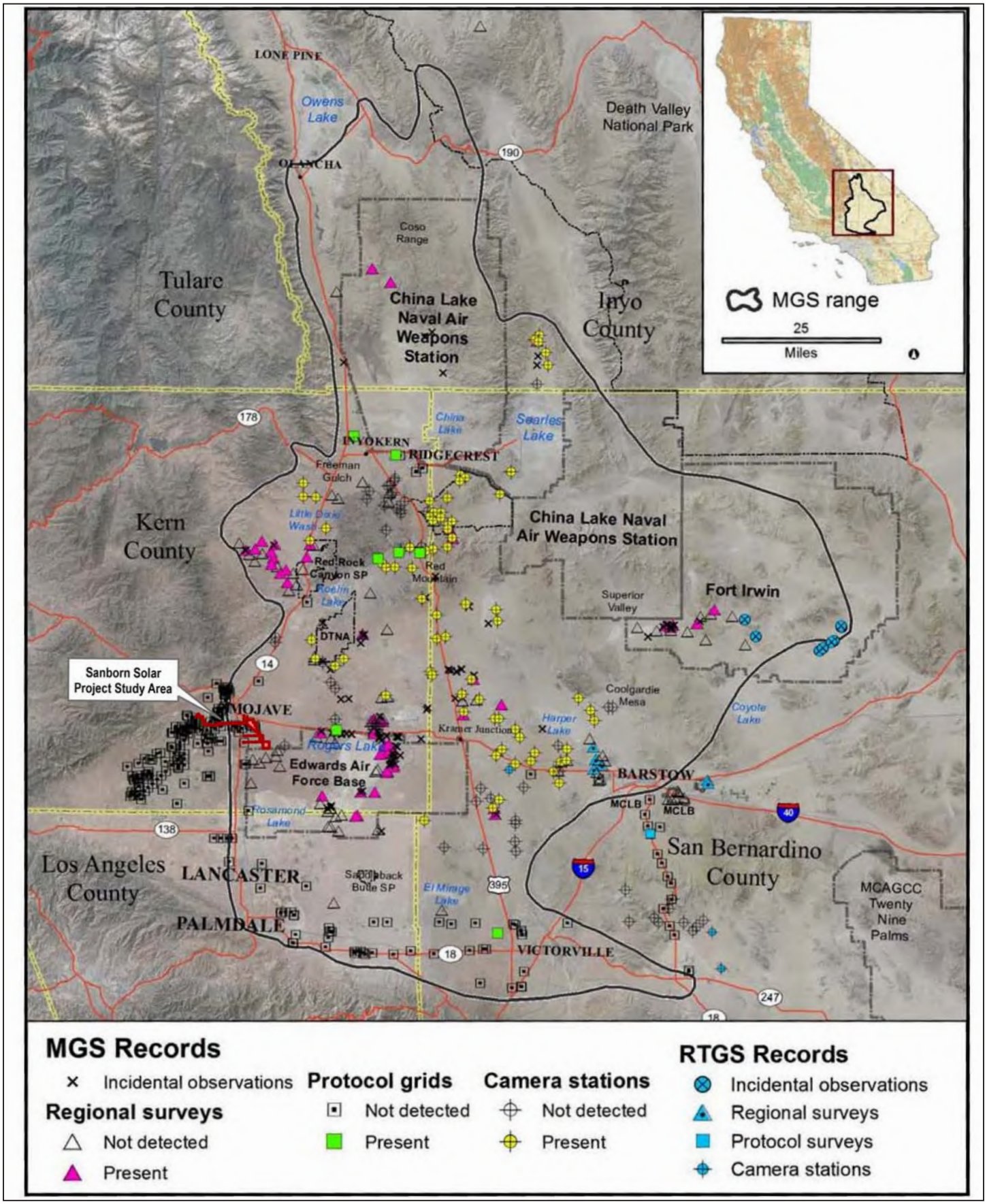

SOURCE: Lietner (2008)

Figure 3-6: MOHAVE GROUND SQUIRREL SURVEY RESULTS FOR THE PERIOD 2008-2012

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APPENDIX A-1

Arid West Ephemeral and Intermittent Streams OHWM Datasheets

OHWM 1

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Sanborn Solar
Project Number: 10303.0002
Stream: 2018 0302-01
Investigator(s): CJA

Date: 3/2/18
Town:
Photo begin file#: 6

Time:
State:
Photo end file#: 7

Y ☐ / N ☑ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details:

Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:
dirt roads

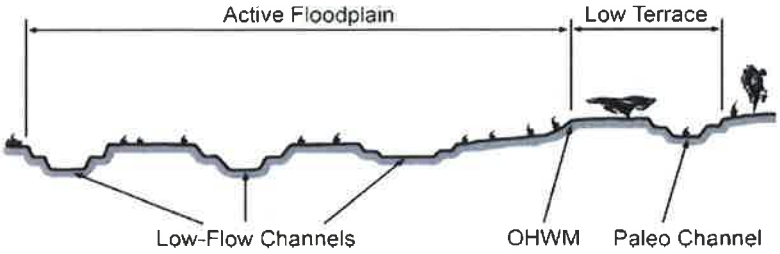
Brief site description:
wind turbine area w/ native vegetation and stream channels. No culverts @ road crossings

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☐ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

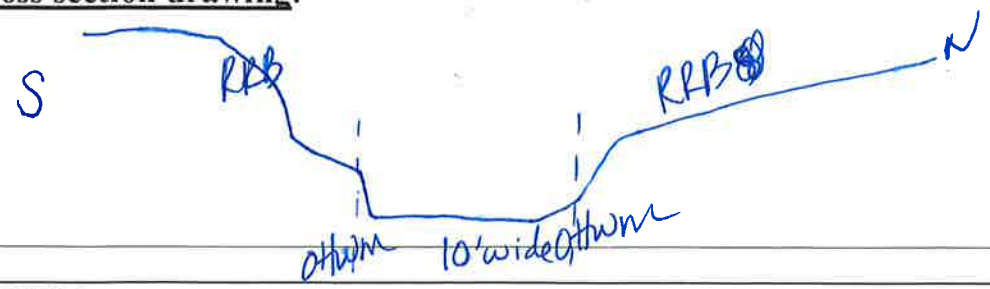


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☐ Digitized on computer
   - ☑ GPS
   - ☐ Other:

Project ID: 10303 **Cross section ID:** 20180302-01 **Date:** 3/2/18 **Time:**

Cross section drawing:



OHWM

GPS point: yes

Indicators:

- [ ] Change in average sediment texture
- [ ] Change in vegetation species
- [ ] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Floodplain unit:

- [x] Low-Flow Channel
- [ ] Active Floodplain
- [ ] Low Terrace

GPS point: yes

Characteristics of the floodplain unit:

Average sediment texture: loamy sand

Total veg cover: Ø % Tree: Ø % Shrub: ____ % Herb: ____ %

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [x] Ripples
- [x] Drift and/or debris
- [x] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [x] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

OHWM 2

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Sanborn
Project Number: 10303
Stream: CJA-20170425-01
Investigator(s): Callie, Britney

Date: 4/25/17
Town:
Photo begin file#:

Time:
State:
Photo end file#:

Y ☐ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☐ Is the site significantly disturbed?

Location Details:

Projection: **Datum:**
Coordinates:

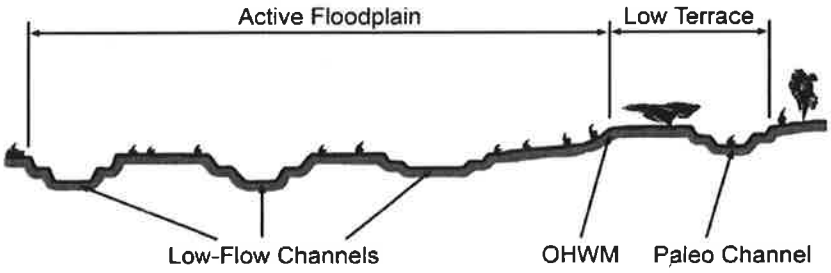
Potential anthropogenic influences on the channel system:
Roads, trash/debris in feature

Brief site description:

Checklist of resources (if available):

- ☐ Aerial photography
  Dates:
- ☐ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ☐ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☐ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

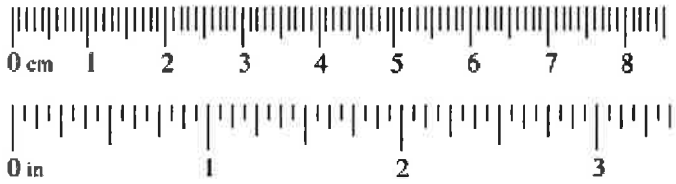


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☐ Digitized on computer
   - ☑ GPS
   - ☐ Other:

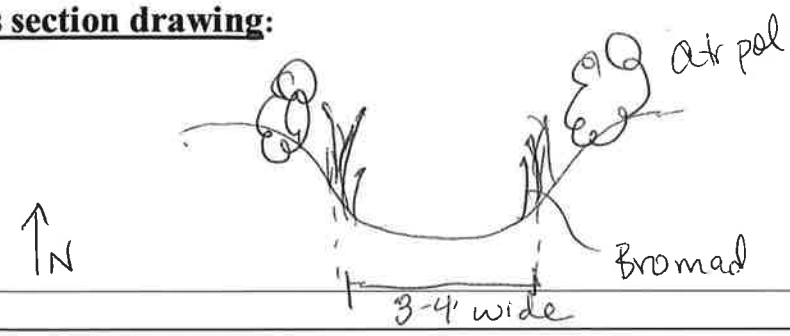
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	Gravel
2.56	64	Cobble	
0.157	4	Pebble	
0.079	2.00	Granule	
0.039	1.00	Very coarse sand	Sand
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	Silt
1/32 0.00061	0.0156	Medium silt	
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



Project ID: **Cross section ID:** CJA-20170425-01 **Date:** 4/25/17 **Time:**

Cross section drawing:



OHWM

GPS point: yes

Indicators:

- ☐ Change in average sediment texture
- ☑ Change in vegetation species
- ☐ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Swales often were lined w/ Bromus madritensis ~~...~~ denser than other areas onsite.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Clay

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☑ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

CJA-20170425-01

Project ID: **Cross section ID:** **Date:** 4/25/17 **Time:**

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

OHWM 3

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Sanborn
Project Number: 10303
Stream: CJA-20170425-02
Investigator(s): Callie, Britney

Date: 4/25/17
Town:
Photo begin file#:

Time:
State:
Photo end file#:

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☐ Is the site significantly disturbed? Mod.

Location Details:

Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:

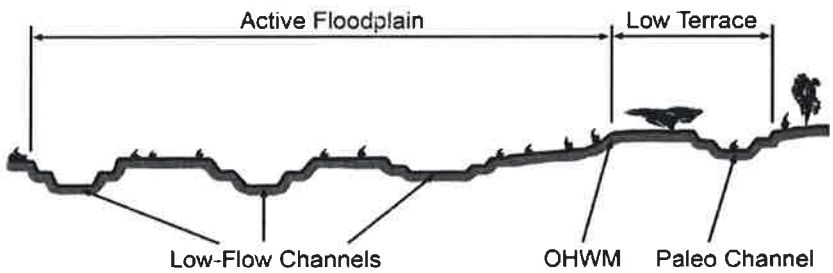
Brief site description:

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☑ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

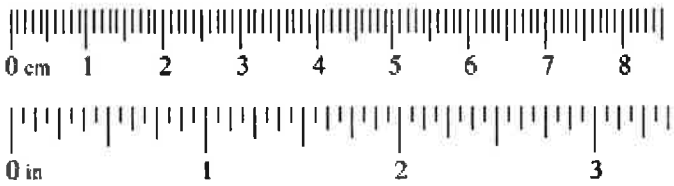


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☐ Digitized on computer
   - ☑ GPS
   - ☐ Other:

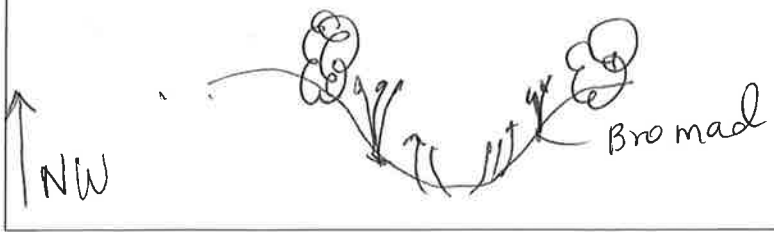
Wentworth Size Classes

Inches (in)		Millimeters (mm)	Wentworth size class	
	10.08	256	Boulder	Gravel
	2.56	64	Cobble	
	0.157	4	Pebble	
	0.079	2.00	Granule	
	0.039	1.00	Very coarse sand	Sand
	0.020	0.50	Coarse sand	
1/2	0.0098	0.25	Medium sand	
1/4	0.005	0.125	Fine sand	
1/8	0.0025	0.0625	Very fine sand	
1/16	0.0012	0.031	Coarse silt	Silt
1/32	0.00061	0.0156	Medium silt	
1/64	0.00031	0.0078	Fine silt	
1/128	0.00015	0.0039	Very fine silt	
			Clay	Mud



Project ID: **Cross section ID:** CJA-20170425-02 **Date:** 4/25/17 **Time:**

Cross section drawing:



OHWM

GPS point: yes

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☑ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Project ID: **Cross section ID:** **Date:** **Time:**

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

OHWM 4

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Sanborn
Project Number: 10303
Stream: CJA-20170425-03
Investigator(s): CJA, BAS

Date: 4/25/17
Town:
Photo begin file#:

Time:
State:
Photo end file#:

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details:

Projection:
Datum:
Coordinates:

Potential anthropogenic influences on the channel system:

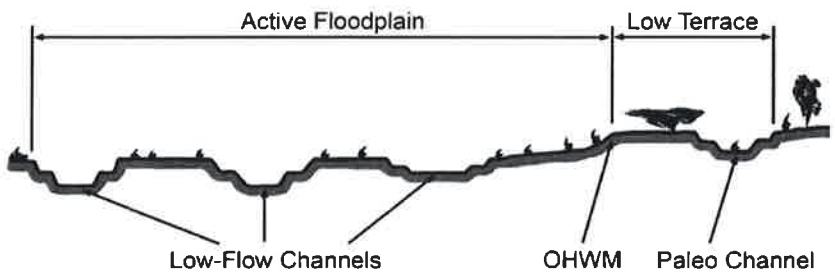
Brief site description:

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

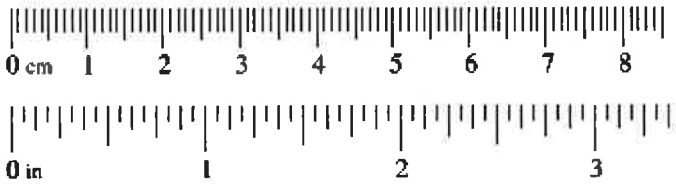


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☐ Digitized on computer
   - ☑ GPS
   - ☐ Other:

Wentworth Size Classes

Inches (in)		Millimeters (mm)	Wentworth size class	
	10.08	256	Boulder	Gravel
	2.56	64	Cobble	
	0.157	4	Pebble	
			Granule	
	0.079	2.00		
	0.039	1.00	Very coarse sand	Sand
	0.020	0.50	Coarse sand	
1/2	0.0098	0.25	Medium sand	
1/4	0.005	0.125	Fine sand	
1/8	0.0025	0.0625	Very fine sand	
1/16	0.0012	0.031	Coarse silt	Silt
1/32	0.00061	0.0156	Medium silt	
1/64	0.00031	0.0078	Fine silt	
1/128	0.00015	0.0039	Very fine silt	
			Clay	Mud



Project ID: **Cross section ID:** CJA-20170425-03 **Date:** 4/25/17 **Time:**

Cross section drawing:

OHWM

GPS point: yes

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

very short portion has surface relief. area "upstrm" of GPS line is flat.

Project ID: **Cross section ID:** **Date:** **Time:**

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

OHWM 5

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Sanborn
Project Number: 10303
Stream: BAS-20170425-01
Investigator(s): BAS, CJA

Date: 4/25/17 **Time:**
Town: **State:**
Photo begin file#: **Photo end file#:**

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☐ Is the site significantly disturbed? mod

Location Details:

Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:

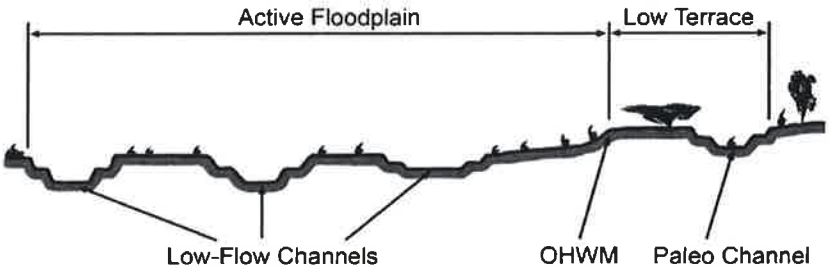
Brief site description:

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

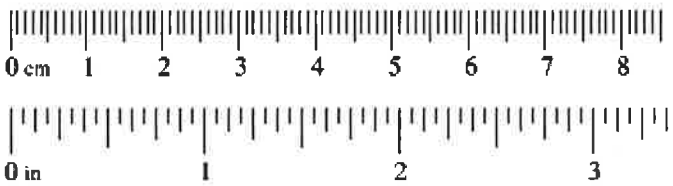


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☐ Digitized on computer
   - ☑ GPS
   - ☐ Other:

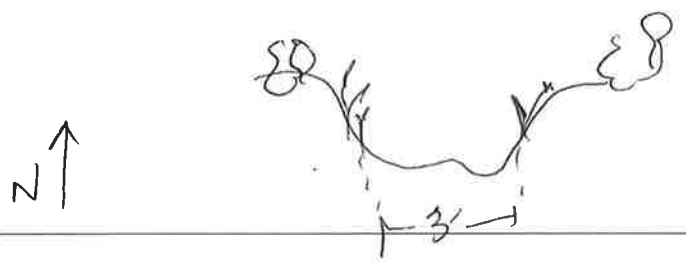
Wentworth Size Classes

Inches (in)		Millimeters (mm)	Wentworth size class	
	10.08	256	Boulder	Gravel
	2.56	64	Cobble	
	0.157	4	Pebble	
	0.079	2.00	Granule	
	0.039	1.00	Very coarse sand	Sand
	0.020	0.50	Coarse sand	
1/2	0.0098	0.25	Medium sand	
1/4	0.005	0.125	Fine sand	
1/8	0.0025	0.0625	Very fine sand	
1/16	0.0012	0.031	Coarse silt	Silt
1/32	0.00061	0.0156	Medium silt	
1/64	0.00031	0.0078	Fine silt	
1/128	0.00015	0.0039	Very fine silt	
			Clay	Mud



Project ID: **Cross section ID:** BAS-20170425-01 **Date:** 4/25/17 **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☑ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Project ID: **Cross section ID:** **Date:** **Time:**

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

APPENDIX A-2

Episodic Stream Indicator Data Sheet

Episodic Stream Indicator Data Sheet			page 1 of 4
Site ID: Edwards Gentle	Stream ID: Data station 1		Date: 5/31/17
Nearest Town: Mojave		County: Kern	
Investigators: Callie Amoaku, Patricia Schuyler			

Base Map

Aerial Photo #:	Date:	Topographic Map Name:	Date:

GPS Data

GPS Name:	Datum:	Transect Elevation:	Zone 10 / 11	GPS Error: ± ft / m
GPS co-ords start of transect:		GPS co-ords end of transect:		

Geomorphic Province (✓one)	✓ Mojave	Sonoran/Colorado	Great Basin	Other:

Landform (✓ all that apply)

	Headwater		Upper fan		Middle fan		Lower fan		Alluvial plain		Axial valley		Playa

Channel Form (✓ one)

✓	Single thread		Braided		Compound		Distributary		Discontinuous	Other:

Transect was selected to:

✓	Document fluvial activity & boundaries		Document channel elevations & boundaries
	Document habitat associations		Document a change in watercourse morphology
	Other:		

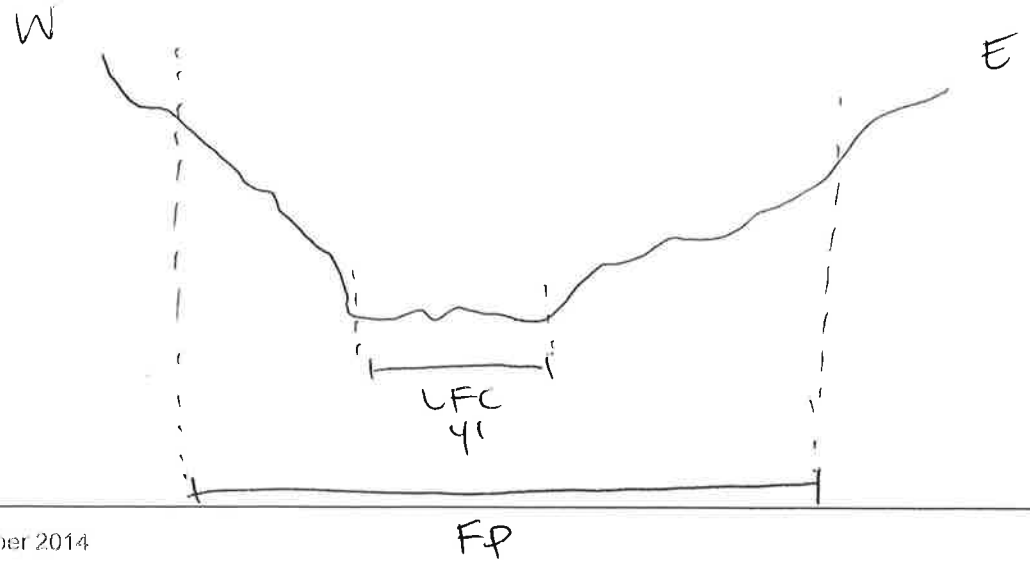
Date of most recent runoff event (if known):

Physical Setting: Briefly describe geomorphic processes and surficial materials and conditions, including the degree of disturbance relative to an intact dryland stream ecosystem, and any anthropogenic influences on the channel form and function:

Ephemeral, single-thread channel

Summary Site Description and Cross-section Sketch: View across the channel from watercourse-edge to watercourse-edge. Identify channel(s), banks, islands, interfluves, floodplains, terraces, and uplands where present. Note approximate width and elevation differences between features indicated.

Left _____ Right



Site ID: Edwards Gen-Tie	Stream ID: Data Station 1	page 2 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of the representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for indicators not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

UPLAND

Terrestrial Indicators				Substrate Particle Size	
	Av soil horizon		Relict bars & swales	Estimated percentages	
	Biotic soil crusts		Rock fractured in place	% Bedrock / Cemented substrate	
✓	Bioturbation		Rock varnish	% Boulder	≥ 256 mm
	Caliche: coatings / layers / rubble		Rock weathering	% Cobble	≥ 64 – 256mm
	Carbonate etching		Rubified rock undersides	% Pebble	≥ 4 – 64 mm
	Coppice dunes: active / relict		Soil development	✓ % Granule	≥ 2 – 4 mm
	Deflated surface		Surface rounding of landform	✓ % Sand	≤ 2 mm
	Pavement		Woody debris in place	% Silt/Clay	Fines
	Other:				

Fluvial Indicators					
	Bars: sand / gravel		Mud: cracks / curls / drapes		Sediment tails: sand / gravel
✓	Cut banks	✓	Organic drift		Vegetation-channel alignment
	Drainage swales		Overturned rocks		Water-cut benches
	Exposed roots		Scour	✓	Wrack
	First-order streams		Sediment ramps: sand / gravel		Wrinkle marks
	Flow lineations	✓	Sediment sorting		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
FP: 5% LFC: <1%	Hir inc Erinau <1%	LFC = 0.5-2' tall

Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):

Annual herbs and <1% small shrubs in LFC; ~5% shrub in FP.

Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):

shrubs mostly absent from LFC and low % in FP compared to upland.

Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences)

creosote absent from FP & LFC

Site ID: Edwards Gen-Tie	Stream ID: Data station 1	page 3 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of a representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for those not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

WATERCOURSE or WATERCOURSE COMPLEX

Transportation, Deposition & Flow Transition Indicators				Substrate Particle Size		
	Bar forms: sand / gravel		Secondary channels		Estimated percentages	
	Bifurcated flow		Sediment plastering		% Bedrock / Cemented substrate	
	Drainage swales		Sediment ramps: sand / gravel		% Boulder	≥ 256 mm
	Flow lineations		Sediment sheets: sand / gravel		% Cobble	≥ 64 – 256 mm
	Imbricated gravel	✓	Sediment sorting		% Pebble	≥ 4 – 64 mm
	Levee ridges: sand / gravel		Sediment tails: sand / gravel		% Granule	≥ 2 – 4 mm
	Mud: cracks / curls / drapes		Vegetation-channel alignments	✓	% Sand	≤ 2 mm
✓	Organic drift	✓	Wrack	✓	% Silt/Clay	Fines
	Overturned rocks		Wrinkle marks			
	Out-of-channel flow: Lateral floodplain / Terminal floodplain					
	Ripples					
	Other:					

Erosion Indicators

✓	Cut banks		Rills	✓	Water-cut benches
	Exposed roots		Scour		Water level mark
	Headcuts		Secondary channels		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
<1%	NA	NA

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):

See previous veg section

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):

See previous veg section

Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences)

See previous veg section

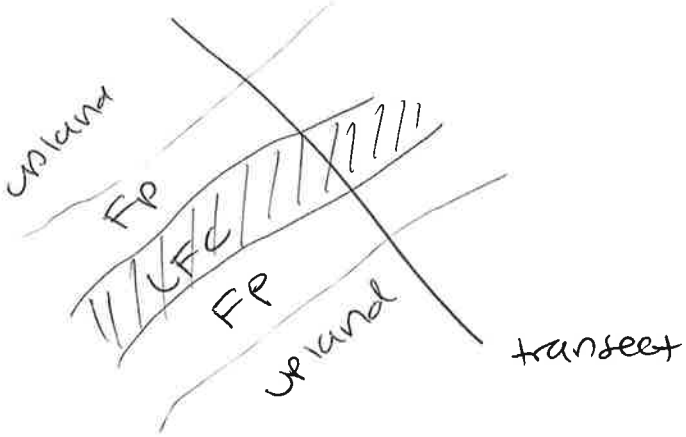
Site ID Edwards Gen-tie	Stream ID Data station 1	page 4 of 4

INDICATORS of PONDING & EVAPORATION and EOLIAN TRANSPORT & DEPOSITION

	Algal crusts	✓	Sand-filled channels		
	Beach ridges		Springs		
	Coppice dunes: active / relict		Substrate staining		
	Crusts: carbonate / salt / soda		Vegetation-landscape alignments		
	Mud: cracks / curls / polygons				
	Other:				

Additional Diagrams and Notes

Vegetation cross-section diagram: Draw a cross-section that identifies the approximate locations along the transect or diagram of geomorphic units (see page 1 of data sheet) where there are changes in vegetation characteristics, as summarized in the vegetation subsections under "Upland" and "Watercourse Complex".



Photographs

Photographs should document the representative landscape units, vegetation, and the presence or absence of representative stream indicators.

Photo ID #	Description	GPS location	
1	upstream		
2	downstream, facing East		
3	downstream, facing west		
4	downstream		
5			
6			

Episodic Stream Indicator Data Sheet			page 1 of 4
Site ID: Edwards Gen-Tie	Stream ID: Data Station 2		Date: 5/31/17
Nearest Town: Mojave		County: Kern	
Investigators: Callie Amoaku, Patricia Schuyler			

Base Map

Aerial Photo #:	Date:	Topographic Map Name:	Date:

GPS Data

GPS Name:	Datum:	Transect Elevation:	Zone 10 / 11	GPS Error: ± ft / m
GPS co-ords start of transect:		GPS co-ords end of transect:		

Geomorphic Province (✓one)	✓ Mojave	Sonoran/Colorado	Great Basin	Other:

Landform (✓ all that apply)

	Headwater		Upper fan		Middle fan		Lower fan		Alluvial plain		Axial valley		Playa

Channel Form (✓ one)

✓	Single thread		Braided		Compound		Distributary		Discontinuous	Other:

Transect was selected to:

✓	Document fluvial activity & boundaries		Document channel elevations & boundaries
	Document habitat associations		Document a change in watercourse morphology
	Other:		

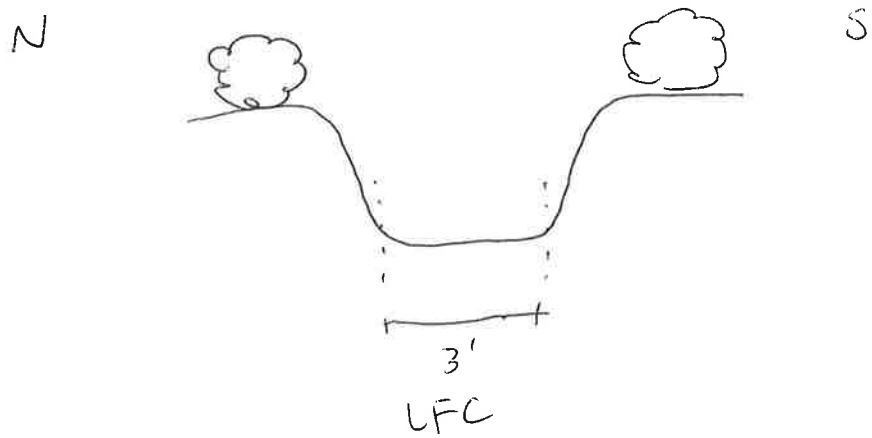
Date of most recent runoff event (if known):

Physical Setting: Briefly describe geomorphic processes and surficial materials and conditions, including the degree of disturbance relative to an intact dryland stream ecosystem, and any anthropogenic influences on the channel form and function:

Drainage feature that continues along side road and eventually sheet-flows before dissipating.

Summary Site Description and Cross-section Sketch: View across the channel from watercourse-edge to watercourse-edge. Identify channel(s), banks, islands, interfluves, floodplains, terraces, and uplands where present. Note approximate width and elevation differences between features indicated.

Left _____ Right



Site ID: Edwards Gen-Tie	Stream ID: Data Station 2	page 2 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of the representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for indicators not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

UPLAND

Terrestrial Indicators

	Av soil horizon		Relict bars & swales
	Biotic soil crusts		Rock fractured in place
✓	Bioturbation		Rock varnish
	Caliche: coatings / layers / rubble		Rock weathering
	Carbonate etching		Rubified rock undersides
	Coppice dunes: active / relict		Soil development
	Deflated surface		Surface rounding of landform
	Pavement		Woody debris in place
	Other:		

Substrate Particle Size

	Estimated percentages	
	% Bedrock / Cemented substrate	
	% Boulder	≥ 256 mm
	% Cobble	≥ 64 – 256mm
	% Pebble	≥ 4 – 64 mm
✓	% Granule	≥ 2 – 4 mm
✓	% Sand	≤ 2 mm
	% Silt/Clay	Fines

Fluvial Indicators

	Bars: sand / gravel		Mud: cracks / curls / drapes		Sediment tails: sand / gravel
	Cut banks		Organic drift		Vegetation-channel alignment
	Drainage swales		Overturned rocks		Water-cut benches
	Exposed roots		Scour		Wrack
	First-order streams		Sediment ramps: sand / gravel		Wrinkle marks
	Flow lineations		Sediment sorting		
	Other:				

NA

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
Upland: 7%	Yucca brev 1% Upland: Erinau 6% Bromus sp.	Upland: 0.5-2' tall

Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):

shrubs and annual grasses in uplands. Herb/sandy bottom in watercourse complex.

Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):

Erinau and Bromus sp. in upland. Herb/sandy bottom in watercourse complex.

Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences)

Bromus sp. & Erinau in uplands with primarily unvegetated (<1%) watercourse

Site ID: Edwards Gen-Tie	Stream ID: Data Station 2	page 3 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of a representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for those not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

WATERCOURSE or WATERCOURSE COMPLEX

Transportation, Deposition & Flow Transition Indicators			
	Bar forms: sand / gravel		Secondary channels
	Bifurcated flow		Sediment plastering
✓	Drainage swales		Sediment ramps: sand / gravel
	Flow lineations		Sediment sheets: sand / gravel
	Imbricated gravel		Sediment sorting
	Levee ridges: sand / gravel		Sediment tails: sand / gravel
	Mud: cracks / curls / drapes		Vegetation-channel alignments
	Organic drift		Wrack
	Overturned rocks		Wrinkle marks
	Out-of-channel flow: Lateral floodplain / Terminal floodplain		
	Ripples		
	Other:		

Substrate Particle Size		
	Estimated percentages	
	% Bedrock / Cemented substrate	
	% Boulder	≥ 256 mm
	% Cobble	≥ 64 – 256 mm
	% Pebble	≥ 4 – 64 mm
	% Granule	≥ 2 – 4 mm
✓	% Sand	≤ 2 mm
	% Silt/Clay	Fines

Erosion Indicators

✓	Cut banks		Rills		Water-cut benches
	Exposed roots		Scour		Water level mark
	Headcuts		Secondary channels		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
<1%	NA	NA

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):

See previous veg section

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):

See previous veg section

Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences)

See previous veg section

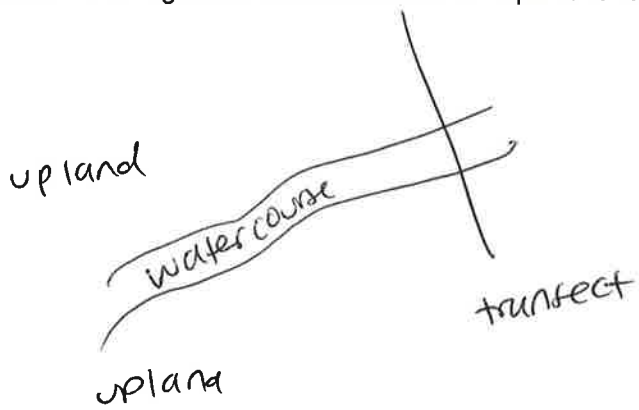
Site ID Edwards Gentle	Stream ID Data Station 2	page 4 of 4

INDICATORS of PONDING & EVAPORATION and EOLIAN TRANSPORT & DEPOSITION

	Algal crusts		Sand-filled channels		
	Beach ridges		Springs		
	Coppice dunes: active / relict		Substrate staining		
	Crusts: carbonate / salt / soda		Vegetation-landscape alignments		
	Mud: cracks / curls / polygons				
	Other:				

Additional Diagrams and Notes

Vegetation cross-section diagram: Draw a cross-section that identifies the approximate locations along the transect or diagram of geomorphic units (see page 1 of data sheet) where there are changes in vegetation characteristics, as summarized in the vegetation subsections under "Upland" and "Watercourse Complex".



Photographs

Photographs should document the representative landscape units, vegetation, and the presence or absence of representative stream indicators.

Photo ID #	Description	GPS location	
7	Upstream		
8	Downstream		

Episodic Stream Indicator Data Sheet						page 1 of 4
Site ID: Edwards Gen-Tie	Stream ID: Data Station 3					Date: 5/31/17
Nearest Town: Mojave				County: Kern		
Investigators: Callie Amoaku & Patricia Schuyler						
Base Map						
Aerial Photo #:	Date:	Topographic Map Name:				Date:
GPS Data						
GPS Name:	Datum:	Transect Elevation:		Zone 10 / 11	GPS Error: ±	ft / m
GPS co-ords start of transect:			GPS co-ords end of transect:			

Geomorphic Province (✓one)	✓ Mojave	Sonoran/Colorado	Great Basin	Other:

Landform (✓ all that apply)

	Headwater		Upper fan		Middle fan		Lower fan		Alluvial plain		Axial valley		Playa

Channel Form (✓ one)

✓	Single thread		Braided		Compound		Distributary		Discontinuous	Other:

Transect was selected to:

✓	Document fluvial activity & boundaries		Document channel elevations & boundaries
	Document habitat associations		Document a change in watercourse morphology
	Other:		

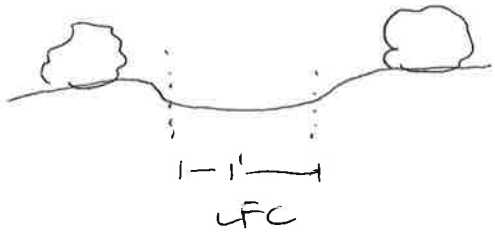
Date of most recent runoff event (if known):

Physical Setting: Briefly describe geomorphic processes and surficial materials and conditions, including the degree of disturbance relative to an intact dryland stream ecosystem, and any anthropogenic influences on the channel form and function:

Narrow ephemeral channel with incised, minimal bank.
Feature eventually sheetflows and dissipates.

Summary Site Description and Cross-section Sketch: View across the channel from watercourse-edge to watercourse-edge. Identify channel(s), banks, islands, interfluves, floodplains, terraces, and uplands where present. Note approximate width and elevation differences between features indicated.

Left _____ Right



Site ID: Edwards Gen-Tie	Stream ID: Data Station 3	page 2 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of the representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for indicators not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

UPLAND

Terrestrial Indicators

	Av soil horizon		Relict bars & swales
✓	Biotic soil crusts		Rock fractured in place
✓	Bioturbation		Rock varnish
	Caliche: coatings / layers / rubble		Rock weathering
	Carbonate etching		Rubified rock undersides
	Coppice dunes: active / relict		Soil development
	Deflated surface		Surface rounding of landform
	Pavement		Woody debris in place
	Other:		

Substrate Particle Size

	Estimated percentages	
	% Bedrock / Cemented substrate	
	% Boulder	≥ 256 mm
	% Cobble	≥ 64 – 256mm
	% Pebble	≥ 4 – 64 mm
	% Granule	≥ 2 – 4 mm
✓	% Sand	≤ 2 mm
	% Silt/Clay	Fines

Fluvial Indicators

	Bars: sand / gravel		Mud: cracks / curls / drapes		Sediment tails: sand / gravel
	Cut banks		Organic drift		Vegetation-channel alignment
	Drainage swales		Overturned rocks		Water-cut benches
	Exposed roots		Scour		Wrack
	First-order streams		Sediment ramps: sand / gravel		Wrinkle marks
	Flow lineations		Sediment sorting		
	Other:				

NA

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
15%	Lartri Erifasfol Yucbre Kralan	0.5 – 3.5'

Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):

shrubs and grasses in upland. watercourse primarily unvegetated (2%)

Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):

upland has Lartri, Yucbre, Erifasfol, and Kralan. LFC has brome.

Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences)

Upland has more abundant shrubs.

Site ID: Edwards Gen-Tie	Stream ID: Data station 3	page 3 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of a representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for those not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

WATERCOURSE or WATERCOURSE COMPLEX

Transportation, Deposition & Flow Transition Indicators

	Bar forms: sand / gravel		Secondary channels
	Bifurcated flow		Sediment plastering
✓	Drainage swales		Sediment ramps: sand / gravel
	Flow lineations		Sediment sheets: sand / gravel
	Imbricated gravel		Sediment sorting
	Levee ridges: sand / gravel		Sediment tails: sand / gravel
	Mud: cracks / curls / drapes		Vegetation-channel alignments
	Organic drift		Wrack
	Overturned rocks		Wrinkle marks
	Out-of-channel flow: Lateral floodplain / Terminal floodplain		
	Ripples		
	Other:		

Substrate Particle Size

	Estimated percentages	
	% Bedrock / Cemented substrate	
	% Boulder	≥ 256 mm
	% Cobble	≥ 64 – 256 mm
	% Pebble	≥ 4 – 64 mm
	% Granule	≥ 2 – 4 mm
✓	% Sand	≤ 2 mm
	% Silt/Clay	Fines

Erosion Indicators

✓	Cut banks		Rills		Water-cut benches
	Exposed roots		Scour		Water level mark
	Headcuts		Secondary channels		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
2%	Bro mad mo	0.5-1'

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):

LFC mostly unvegetated.

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):

LFC mostly unvegetated

Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences)

LFC has less bromes than surrounding upland

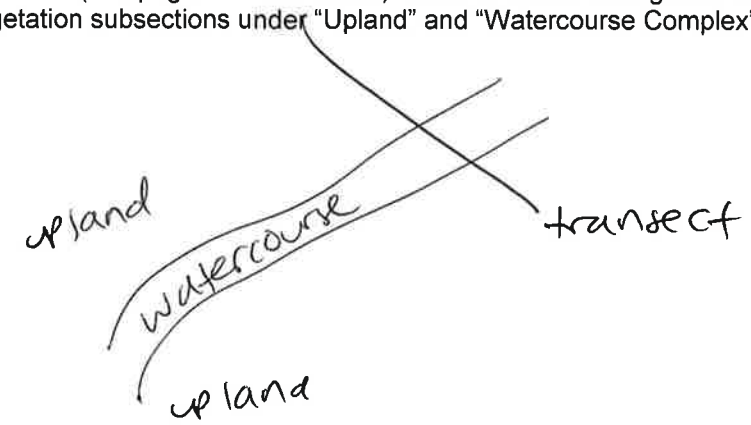
Site ID Edwards Gen-Tie	Stream ID Delta Station 3	page 4 of 4

INDICATORS of PONDING & EVAPORATION and EOLIAN TRANSPORT & DEPOSITION

	Algal crusts		Sand-filled channels		
	Beach ridges		Springs		
	Coppice dunes: active / relict		Substrate staining		
	Crusts: carbonate / salt / soda		Vegetation-landscape alignments		
	Mud: cracks / curls / polygons				
	Other:				

Additional Diagrams and Notes

Vegetation cross-section diagram: Draw a cross-section that identifies the approximate locations along the transect or diagram of geomorphic units (see page 1 of data sheet) where there are changes in vegetation characteristics, as summarized in the vegetation subsections under "Upland" and "Watercourse Complex".



Photographs

Photographs should document the representative landscape units, vegetation, and the presence or absence of representative stream indicators.

Photo ID #	Description	GPS location	
9	upstream		
10	upstream		
11	Downstream		

Episodic Stream Indicator Data Sheet			page 1 of 4
Site ID: Edwards Gen-Tie	Stream ID: Data station 4		Date: 5/31/17
Nearest Town:		County:	
Investigators: Callie Amoaku, Patricia Schuyler			

Base Map

Aerial Photo #:	Date:	Topographic Map Name:	Date:

GPS Data

GPS Name:	Datum:	Transect Elevation:	Zone 10 / 11	GPS Error: ± ft / m
GPS co-ords start of transect:		GPS co-ords end of transect:		

Geomorphic Province (✓one)	✓ Mojave	Sonoran/Colorado	Great Basin	Other:

Landform (✓ all that apply)

	Headwater		Upper fan		Middle fan		Lower fan		Alluvial plain		Axial valley		Playa

Channel Form (✓ one)

✓	Single thread		Braided		Compound		Distributary		Discontinuous	Other:

Transect was selected to:

✓	Document fluvial activity & boundaries		Document channel elevations & boundaries
	Document habitat associations		Document a change in watercourse morphology
	Other:		

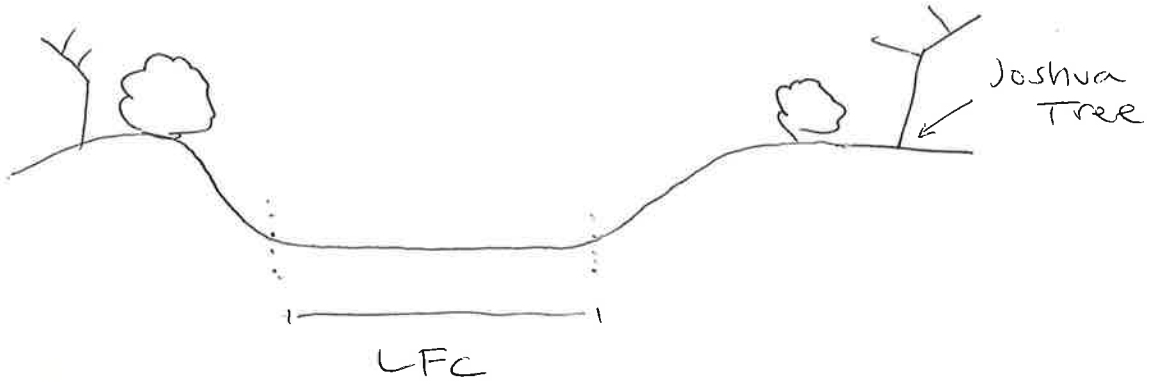
Date of most recent runoff event (if known):

Physical Setting: Briefly describe geomorphic processes and surficial materials and conditions, including the degree of disturbance relative to an intact dryland stream ecosystem, and any anthropogenic influences on the channel form and function:

Wide, deep sandy bottom epnemeral channel. Includes an erosional feature that was previously part of road.

Summary Site Description and Cross-section Sketch: View across the channel from watercourse-edge to watercourse-edge. Identify channel(s), banks, islands, interfluves, floodplains, terraces, and uplands where present. Note approximate width and elevation differences between features indicated.

Left _____ Right



Site ID: Edwards Gen-Tie	Stream ID: Data Station 4	page 2 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of the representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for indicators not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

UPLAND

Terrestrial Indicators				Substrate Particle Size	
	Av soil horizon		Relict bars & swales	Estimated percentages	
	Biotic soil crusts		Rock fractured in place	% Bedrock / Cemented substrate	
✓	Bioturbation		Rock varnish	% Boulder	≥ 256 mm
	Caliche: coatings / layers / rubble		Rock weathering	% Cobble	≥ 64 – 256mm
	Carbonate etching		Rubified rock undersides	% Pebble	≥ 4 – 64 mm
	Coppice dunes: active / relict		Soil development	✓ % Granule	≥ 2 – 4 mm
	Deflated surface		Surface rounding of landform	✓ % Sand	≤ 2 mm
	Pavement		Woody debris in place	% Silt/Clay	Fines
	Other:				

Fluvial Indicators

	Bars: sand / gravel		Mud: cracks / curls / drapes		Sediment tails: sand / gravel
	Cut banks		Organic drift		Vegetation-channel alignment
✓	Drainage swales		Overturned rocks		Water-cut benches
	Exposed roots		Scour		Wrack
	First-order streams		Sediment ramps: sand / gravel		Wrinkle marks
	Flow lineations		Sediment sorting		
	Other:				

Two sub-tributaries flow into main channel: one swale and one erosional feature that was previously part of road.

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
Upland: 40%	Upland: Yuc bre Lartri Erinau Erifasfol	3-7'

Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):

Shrubs & trees in upland. watercourse mostly unvegetated (<1%)

Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):

upland has Yuc bre, Erinau, Lartri, and Erifasfol

Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences)

LFC mostly unvegetated. upland has trees/shrubs.

Site ID: Edwards Gentle	Stream ID: Data Station 4	page 3 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of a representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for those not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

WATERCOURSE or WATERCOURSE COMPLEX

Transportation, Deposition & Flow Transition Indicators				Substrate Particle Size		
	Bar forms: sand / gravel		Secondary channels		Estimated percentages	
	Bifurcated flow		Sediment plastering		% Bedrock / Cemented substrate	
✓	Drainage swales		Sediment ramps: sand / gravel		% Boulder	≥ 256 mm
	Flow lineations		Sediment sheets: sand / gravel		% Cobble	≥ 64 – 256 mm
	Imbricated gravel		Sediment sorting		% Pebble	≥ 4 – 64 mm
	Levee ridges: sand / gravel		Sediment tails: sand / gravel		% Granule	≥ 2 – 4 mm
	Mud: cracks / curls / drapes		Vegetation-channel alignments	✓	% Sand	≤ 2 mm
✓	Organic drift	✓	Wrack		% Silt/Clay	Fines
	Overturned rocks		Wrinkle marks			
	Out-of-channel flow: Lateral floodplain / Terminal floodplain					
	Ripples					
	Other:					

Erosion Indicators

✓	Cut banks		Rills		Water-cut benches
	Exposed roots	✓	Scour		Water level mark
	Headcuts		Secondary channels		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
<1%	NA	NA

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):

See previous veg section

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):

see previous veg section

Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences)

See previous veg section

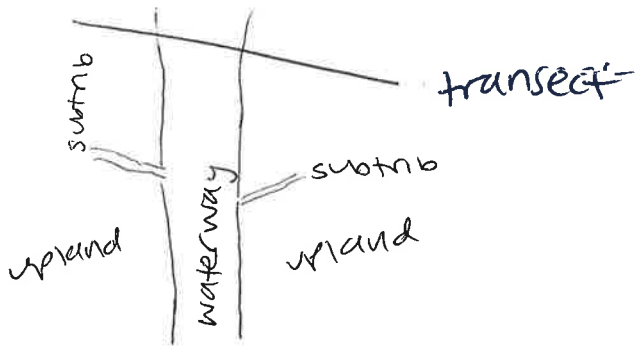
Site ID Edwards Gen-Tie	Stream ID Data Station 4	page 4 of 4

INDICATORS of PONDING & EVAPORATION and EOLIAN TRANSPORT & DEPOSITION

	Algal crusts		Sand-filled channels		
	Beach ridges		Springs		
	Coppice dunes: active / relict		Substrate staining		
	Crusts: carbonate / salt / soda		Vegetation-landscape alignments		
	Mud: cracks / curls / polygons				
	Other:				

Additional Diagrams and Notes

Vegetation cross-section diagram: Draw a cross-section that identifies the approximate locations along the transect or diagram of geomorphic units (see page 1 of data sheet) where there are changes in vegetation characteristics, as summarized in the vegetation subsections under "Upland" and "Watercourse Complex".



Photographs

Photographs should document the representative landscape units, vegetation, and the presence or absence of representative stream indicators.

Photo ID #	Description	GPS location	
12	upstream		
13	main channel		
14	scour evidence		
15	erosional feature		
16	erosional feature		
17	main channel		
18	main channel		

Episodic Stream Indicator Data Sheet			page 1 of 4
Site ID: Edwards Gen-Tie	Stream ID: Data Station 5		Date: 5/31/17
Nearest Town: Mojave		County: Kern	
Investigators: Callie Amoaku, Patricia Schuyler			

Base Map

Aerial Photo #:	Date:	Topographic Map Name:	Date:

GPS Data

GPS Name:	Datum:	Transect Elevation:	Zone 10 / 11	GPS Error: ± ft / m
GPS co-ords start of transect:		GPS co-ords end of transect:		

Geomorphic Province (✓one)		✓ Mojave		Sonoran/Colorado		Great Basin	Other:

Landform (✓ all that apply)

	Headwater		Upper fan		Middle fan		Lower fan		Alluvial plain		Axial valley		Playa

Channel Form (✓ one)

✓	Single thread		Braided		Compound		Distributary		Discontinuous	Other:

Transect was selected to:

✓	Document fluvial activity & boundaries		Document channel elevations & boundaries
	Document habitat associations		Document a change in watercourse morphology
	Other:		

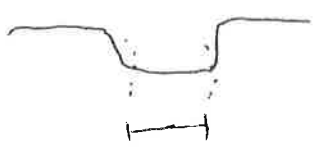
Date of most recent runoff event (if known):

Physical Setting: Briefly describe geomorphic processes and surficial materials and conditions, including the degree of disturbance relative to an intact dryland stream ecosystem, and any anthropogenic influences on the channel form and function:

Narrow, deep ephemeral channel that connects to larger channel downstream, but outside study area

Summary Site Description and Cross-section Sketch: View across the channel from watercourse-edge to watercourse-edge. Identify channel(s), banks, islands, interfluves, floodplains, terraces, and uplands where present. Note approximate width and elevation differences between features indicated.

Left _____ Right



LFC
0.5-1'

Site ID: Edwards Gen-Tie	Stream ID: Data Station 5	page 2 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of the representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for indicators not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

UPLAND

Terrestrial Indicators

	Av soil horizon		Relict bars & swales
	Biotic soil crusts		Rock fractured in place
✓	Bioturbation		Rock varnish
	Caliche: coatings / layers / rubble		Rock weathering
	Carbonate etching		Rubified rock undersides
	Coppice dunes: active / relict		Soil development
	Deflated surface		Surface rounding of landform
	Pavement		Woody debris in place
	Other:		

Substrate Particle Size

Estimated percentages	
% Bedrock / Cemented substrate	
% Boulder	≥ 256 mm
% Cobble	≥ 64 – 256mm
✓ % Pebble	≥ 4 – 64 mm
✓ % Granule	≥ 2 – 4 mm
✓ % Sand	≤ 2 mm
% Silt/Clay	Fines

Fluvial Indicators

	Bars: sand / gravel		Mud: cracks / curls / drapes		Sediment tails: sand / gravel
	Cut banks		Organic drift		Vegetation-channel alignment
	Drainage swales		Overturned rocks		Water-cut benches
	Exposed roots		Scour		Wrack
	First-order streams		Sediment ramps: sand / gravel		Wrinkle marks
	Flow lineations		Sediment sorting		
	Other:				

NA

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
Upland: 30%	Lar tri Bromes Ambdum	0.5–3.5'

Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):

shrubs and grasses in upland with watercourse primarily unvegetated but with some herbs.

Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):

Watercourse primarily unvegetated. Upland has Lar tri, Yuc. ione and Bromus sp.

Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences)

Watercourse primarily unvegetated (<1%) of Bromes.

Site ID: Edwards Gen-Tie	Stream ID: Data Station 5	page 3 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of a representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for those not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

WATERCOURSE or WATERCOURSE COMPLEX

Transportation, Deposition & Flow Transition Indicators

	Bar forms: sand / gravel		Secondary channels
	Bifurcated flow		Sediment plastering
✓	Drainage swales		Sediment ramps: sand / gravel
	Flow lineations		Sediment sheets: sand / gravel
	Imbricated gravel		Sediment sorting
	Levee ridges: sand / gravel		Sediment tails: sand / gravel
	Mud: cracks / curls / drapes		Vegetation-channel alignments
	Organic drift		Wrack
	Overturned rocks		Wrinkle marks
	Out-of-channel flow: Lateral floodplain / Terminal floodplain		
	Ripples		
	Other:		

Substrate Particle Size

	Estimated percentages	
	% Bedrock / Cemented substrate	
	% Boulder	≥ 256 mm
	% Cobble	≥ 64 – 256 mm
	% Pebble	≥ 4 – 64 mm
	% Granule	≥ 2 – 4 mm
✓	% Sand	≤ 2 mm
	% Silt/Clay	Fines

Erosion Indicators

✓	Cut banks		Rills		Water-cut benches
	Exposed roots		Scour		Water level mark
	Headcuts		Secondary channels		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
< 1%	NA	NA

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):

LFC primarily unvegetated. Shrubs in upland

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):

See previous veg section

Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences)

See previous veg section

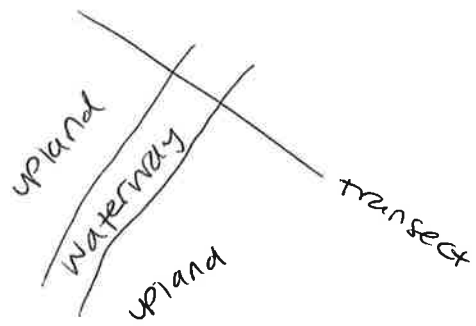
Site ID Edwards Gen-Tie	Stream ID Data Station 5	page 4 of 4

INDICATORS of PONDING & EVAPORATION and EOLIAN TRANSPORT & DEPOSITION

	Algal crusts		Sand-filled channels		
	Beach ridges		Springs		
	Coppice dunes: active / relict		Substrate staining		
	Crusts: carbonate / salt / soda		Vegetation-landscape alignments		
	Mud: cracks / curls / polygons				
	Other:				

Additional Diagrams and Notes

Vegetation cross-section diagram: Draw a cross-section that identifies the approximate locations along the transect or diagram of geomorphic units (see page 1 of data sheet) where there are changes in vegetation characteristics, as summarized in the vegetation subsections under "Upland" and "Watercourse Complex".



Photographs

Photographs should document the representative landscape units, vegetation, and the presence or absence of representative stream indicators.

Photo ID #	Description	GPS location	
19			
20			

Episodic Stream Indicator Data Sheet			page 1 of 4
Site ID: Edwards Gen-Tie	Stream ID: Data station 6		Date: 5/30/17
Nearest Town: Mojave		County: Kern	
Investigators: Callie Amoaku, Patricia Schuyler			

Base Map

Aerial Photo #:	Date:	Topographic Map Name:	Date:

GPS Data

GPS Name:	Datum:	Transect Elevation:	Zone 10 / 11	GPS Error: ± ft / m
GPS co-ords start of transect:		GPS co-ords end of transect:		

Geomorphic Province (✓one)	✓ Mojave	Sonoran/Colorado	Great Basin	Other:

Landform (✓ all that apply)

	Headwater		Upper fan		Middle fan		Lower fan		Alluvial plain		Axial valley		Playa

Channel Form (✓ one)

✓	Single thread		Braided		Compound		Distributary		Discontinuous	Other:

Transect was selected to:

✓	Document fluvial activity & boundaries		Document channel elevations & boundaries
	Document habitat associations		Document a change in watercourse morphology
	Other:		

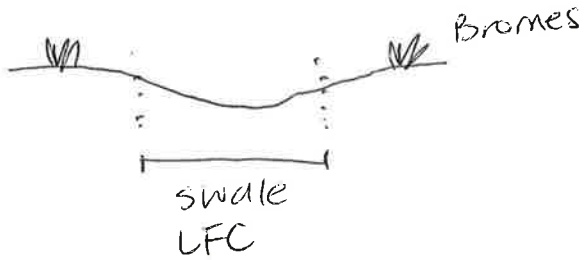
Date of most recent runoff event (if known):

Physical Setting: Briefly describe geomorphic processes and surficial materials and conditions, including the degree of disturbance relative to an intact dryland stream ecosystem, and any anthropogenic influences on the channel form and function:

Swale that appears to convey water from uplands and road runoff from gravel road west/northwest to dirt road.

Summary Site Description and Cross-section Sketch: View across the channel from watercourse-edge to watercourse-edge. Identify channel(s), banks, islands, interfluves, floodplains, terraces, and uplands where present. Note approximate width and elevation differences between features indicated.

Left _____ Right



Site ID: Edwards Gen-Tie	Stream ID: Data station 6	page 2 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of the representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for indicators not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

UPLAND

Terrestrial Indicators

	Av soil horizon		Relict bars & swales		**Substrate Particle Size**	
					Estimated percentages	
	Biotic soil crusts		Rock fractured in place		% Bedrock / Cemented substrate	
✓	Bioturbation		Rock varnish		% Boulder	≥ 256 mm
	Caliche: coatings / layers / rubble		Rock weathering		% Cobble	≥ 64 – 256mm
	Carbonate etching		Rubified rock undersides		% Pebble	≥ 4 – 64 mm
	Coppice dunes: active / relict		Soil development	✓	% Granule	≥ 2 – 4 mm
	Deflated surface		Surface rounding of landform	✓	% Sand	≤ 2 mm
	Pavement		Woody debris in place		% Silt/Clay	Fines
	Other:					

Fluvial Indicators

	Bars: sand / gravel		Mud: cracks / curls / drapes		Sediment tails: sand / gravel
	Cut banks		Organic drift		Vegetation-channel alignment
	Drainage swales		Overturned rocks		Water-cut benches
	Exposed roots		Scour		Wrack
	First-order streams		Sediment ramps: sand / gravel		Wrinkle marks
	Flow lineations		Sediment sorting		
	Other:				

NA

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
5%	Lar tri Bromus sp.	0.5 – 4.5'

Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):

swale made up of grasses while upland made up of grasses and shrubs.

Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):

Lar tri comprises the uplands.

Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences)

Lar tri more abundant in uplands.

Site ID: Edwards Gen-Tie	Stream ID: Data Station 6	page 3 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of a representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for those not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

WATERCOURSE or WATERCOURSE COMPLEX

Transportation, Deposition & Flow Transition Indicators

	Bar forms: sand / gravel		Secondary channels
	Bifurcated flow		Sediment plastering
✓	Drainage swales		Sediment ramps: sand / gravel
	Flow lineations		Sediment sheets: sand / gravel
	Imbricated gravel		Sediment sorting
	Levee ridges: sand / gravel		Sediment tails: sand / gravel
	Mud: cracks / curls / drapes		Vegetation-channel alignments
✓	Organic drift	✓	Wrack
	Overturned rocks		Wrinkle marks
	Out-of-channel flow: Lateral floodplain / Terminal floodplain		
	Ripples		
	Other:		

Substrate Particle Size

	Estimated percentages	
	% Bedrock / Cemented substrate	
	% Boulder	≥ 256 mm
	% Cobble	≥ 64 – 256 mm
	% Pebble	≥ 4 – 64 mm
✓	% Granule	≥ 2 – 4 mm
✓	% Sand	≤ 2 mm
	% Silt/Clay	Fines

Erosion Indicators

	Cut banks		Rills		Water-cut benches
	Exposed roots		Scour		Water level mark
	Headcuts		Secondary channels		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
5%	Bromus sp.	0.5 – 1'

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):

No shrubs in LFC. Shrubs in upland. Grasses throughout.

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):

Bromes in both LFC and upland. LFC has no shrubs.

Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences)

upland has shrub species.

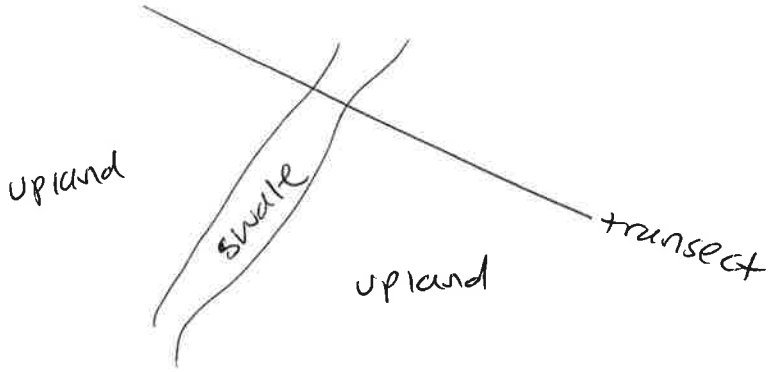
Site ID Edwards Gen-Tie	Stream ID Data Station 6	page 4 of 4

INDICATORS of PONDING & EVAPORATION and EOLIAN TRANSPORT & DEPOSITION

	Algal crusts		Sand-filled channels		
	Beach ridges		Springs		
	Coppice dunes: active / relict		Substrate staining		
	Crusts: carbonate / salt / soda		Vegetation-landscape alignments		
	Mud: cracks / curls / polygons				
	Other:				

Additional Diagrams and Notes

Vegetation cross-section diagram: Draw a cross-section that identifies the approximate locations along the transect or diagram of geomorphic units (see page 1 of data sheet) where there are changes in vegetation characteristics, as summarized in the vegetation subsections under "Upland" and "Watercourse Complex".



Photographs

Photographs should document the representative landscape units, vegetation, and the presence or absence of representative stream indicators.

Photo ID #	Description	GPS location	
21	upstream; swale start		
22	downstream		
23	upstream		
24	downstream; swale end		
25	evidence of debris wracking		

Episodic Stream Indicator Data Sheet			page 1 of 4
Site ID: Edwards Gentle	Stream ID: Data Station 7		Date: 5/30/17
Nearest Town: Mojave		County: Kern	
Investigators: Callie Amoaku, Patricia Schuyler			

Base Map			
Aerial Photo #:	Date:	Topographic Map Name:	Date:

GPS Data				
GPS Name:	Datum:	Transect Elevation:	Zone 10 / 11	GPS Error: ± ft / m
GPS co-ords start of transect:		GPS co-ords end of transect:		

Geomorphic Province (✓one)	✓ Mojave	Sonoran/Colorado	Great Basin	Other:

Landform (✓ all that apply)

	Headwater		Upper fan		Middle fan		Lower fan		Alluvial plain		Axial valley		Playa

Channel Form (✓ one)

✓	Single thread		Braided		Compound		Distributary		Discontinuous	Other:

Transect was selected to:

✓	Document fluvial activity & boundaries		Document channel elevations & boundaries
	Document habitat associations		Document a change in watercourse morphology
	Other:		

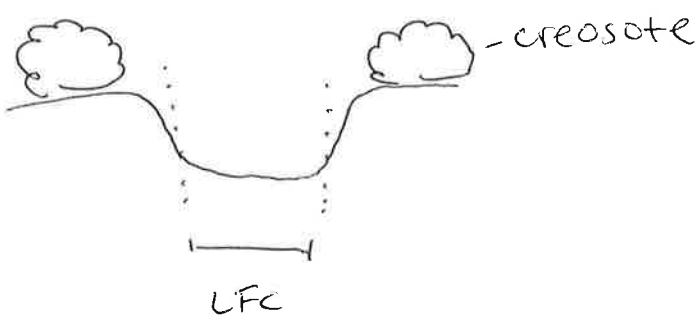
Date of most recent runoff event (if known):

Physical Setting: Briefly describe geomorphic processes and surficial materials and conditions, including the degree of disturbance relative to an intact dryland stream ecosystem, and any anthropogenic influences on the channel form and function:

Sandy bottom channel with cut banks flows to road and continues alongside road.

Summary Site Description and Cross-section Sketch: View across the channel from watercourse-edge to watercourse-edge. Identify channel(s), banks, islands, interfluves, floodplains, terraces, and uplands where present. Note approximate width and elevation differences between features indicated.

Left _____ Right



Site ID: Edwards Gen-Tie	Stream ID: Data station 7	page 2 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of the representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for indicators not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

UPLAND

Terrestrial Indicators				Substrate Particle Size	
				Estimated percentages	
	Av soil horizon		Relict bars & swales		
	Biotic soil crusts		Rock fractured in place		% Bedrock / Cemented substrate
✓	Bioturbation		Rock varnish		% Boulder ≥ 256 mm
	Caliche: coatings / layers / rubble		Rock weathering		% Cobble ≥ 64 – 256mm
	Carbonate etching		Rubified rock undersides		% Pebble ≥ 4 – 64 mm
	Coppice dunes: active / relict		Soil development	✓	% Granule ≥ 2 – 4 mm
	Deflated surface		Surface rounding of landform	✓	% Sand ≤ 2 mm
	Pavement		Woody debris in place		% Silt/Clay Fines
	Other:				

Fluvial Indicators					
	Bars: sand / gravel		Mud: cracks / curls / drapes		Sediment tails: sand / gravel
	Cut banks		Organic drift		Vegetation-channel alignment
	Drainage swales		Overturned rocks		Water-cut benches
	Exposed roots		Scour		Wrack
	First-order streams		Sediment ramps: sand / gravel		Wrinkle marks
	Flow lineations		Sediment sorting		
	Other:				

N.A

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
10%	Lar tri Bromus sp.	0.5–4'

Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):

uplands has 10% density of shrub with understory of annual grasses. watercourse largely unvegetated (<1%)

Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):

Watercourse unvegetated (<1%); upland has Lar tri w/ Brome understory.

Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences)

waterway does not have Lar tri or Bromus sp. Only in uplands.

Site ID: Edwards Gen-Tie	Stream ID: Data station 7	page 3 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of a representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for those not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

WATERCOURSE or WATERCOURSE COMPLEX

Transportation, Deposition & Flow Transition Indicators				Substrate Particle Size		
	Bar forms: sand / gravel		Secondary channels		Estimated percentages	
	Bifurcated flow		Sediment plastering		% Bedrock / Cemented substrate	
	Drainage swales		Sediment ramps: sand / gravel		% Boulder	≥ 256 mm
	Flow lineations		Sediment sheets: sand / gravel		% Cobble	≥ 64 – 256 mm
	Imbricated gravel		Sediment sorting		% Pebble	≥ 4 – 64 mm
	Levee ridges: sand / gravel		Sediment tails: sand / gravel		% Granule	≥ 2 – 4 mm
	Mud: cracks / curls / drapes		Vegetation-channel alignments	✓	% Sand	≤ 2 mm
	Organic drift	✓	Wrack	✓	% Silt/Clay	Fines
	Overturned rocks		Wrinkle marks			
	Out-of-channel flow: Lateral floodplain / Terminal floodplain					
	Ripples					
	Other:					

Erosion Indicators

✓	Cut banks		Rills		Water-cut benches
	Exposed roots		Scour		Water level mark
	Headcuts		Secondary channels		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
>1%	NA	NA

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):

LFC not vegetated (<1%); upland has shrubs/grasses (10%)

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):

LFC not vegetated; upland has lartri and bromes.

Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences)

LFC not vegetated.

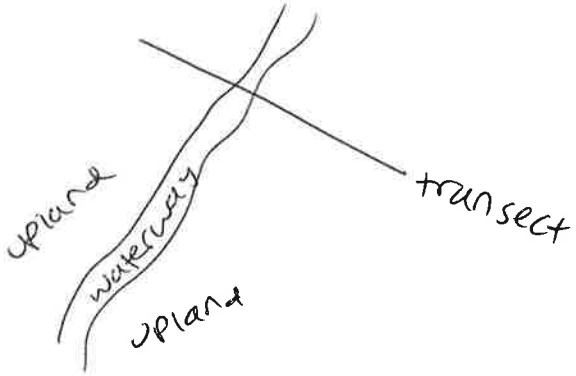
Site ID Edwards Gen-Tie	Stream ID Data Station 7	page 4 of 4

INDICATORS of PONDING & EVAPORATION and EOLIAN TRANSPORT & DEPOSITION

	Algal crusts		Sand-filled channels		
	Beach ridges		Springs		
	Coppice dunes: active / relict		Substrate staining		
	Crusts: carbonate / salt / soda		Vegetation-landscape alignments		
	Mud: cracks / curls / polygons				
	Other:				

Additional Diagrams and Notes

Vegetation cross-section diagram: Draw a cross-section that identifies the approximate locations along the transect or diagram of geomorphic units (see page 1 of data sheet) where there are changes in vegetation characteristics, as summarized in the vegetation subsections under "Upland" and "Watercourse Complex".



Photographs

Photographs should document the representative landscape units, vegetation, and the presence or absence of representative stream indicators.

Photo ID #	Description	GPS location	
26	Downstream		
27	Upstream		

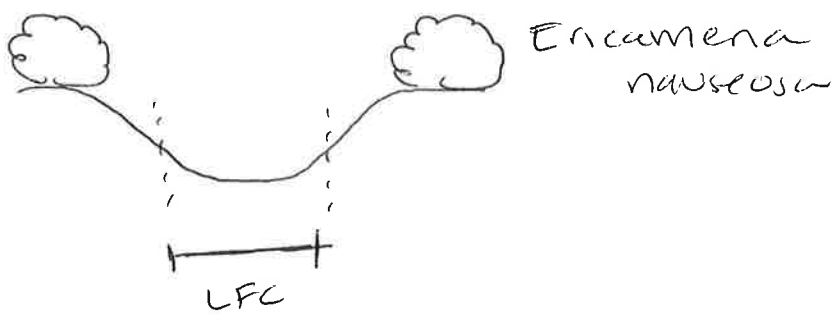
Episodic Stream Indicator Data Sheet					page 1 of 4
Site ID: Edwards Gen Tie	Stream ID: Data station 8				Date: 5/30/17
Nearest Town: Mojave			County: Kern		
Investigators: Callie Amoaku; Patricia Schuyler					
Base Map					
Aerial Photo #:	Date:	Topographic Map Name:			Date:
GPS Data					
GPS Name:	Datum:	Transect Elevation:	Zone 10 / 11	GPS Error: ±	ft / m
GPS co-ords start of transect:		GPS co-ords end of transect:			
Geomorphic Province (✓one)	✓ Mojave	Sonoran/Colorado	Great Basin	Other:	
Landform (✓ all that apply)					
Headwater	Upper fan	Middle fan	Lower fan	Alluvial plain	Axial valley	Playa
Channel Form (✓ one)					
✓ Single thread	Braided	Compound	Distributary	Discontinuous	Other:
Transect was selected to:					
✓ Document fluvial activity & boundaries		Document channel elevations & boundaries			
Document habitat associations		Document a change in watercourse morphology			
Other:					
Date of most recent runoff event (if known):					

Physical Setting: Briefly describe geomorphic processes and surficial materials and conditions, including the degree of disturbance relative to an intact dryland stream ecosystem, and any anthropogenic influences on the channel form and function:

Ephemeral drainage channel flowing parallel to Purdy Ave. and towards rail road before dissipating into uplands.

Summary Site Description and Cross-section Sketch: View across the channel from watercourse-edge to watercourse-edge. Identify channel(s), banks, islands, interfluves, floodplains, terraces, and uplands where present. Note approximate width and elevation differences between features indicated.

Left _____ Right



Site ID: Edwards Gen-Tie	Stream ID: Dutch Station X	page 2 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of the representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for indicators not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

UPLAND

	Terrestrial Indicators				Substrate Particle Size	
					Estimated percentages	
	Av soil horizon		Relict bars & swales		% Bedrock / Cemented substrate	
	Biotic soil crusts		Rock fractured in place		% Boulder	≥ 256 mm
✓	Bioturbation		Rock varnish		% Cobble	≥ 64 – 256mm
	Caliche: coatings / layers / rubble		Rock weathering		% Pebble	≥ 4 – 64 mm
	Carbonate etching		Rubified rock undersides		% Granule	≥ 2 – 4 mm
	Coppice dunes: active / relict		Soil development	✓	% Sand	≤ 2 mm
	Deflated surface		Surface rounding of landform	✓	% Silt/Clay	Fines
	Pavement		Woody debris in place			
	Other:					

	Fluvial Indicators				
	Bars: sand / gravel		Mud: cracks / curls / drapes		Sediment tails: sand / gravel
	Cut banks		Organic drift		Vegetation-channel alignment
	Drainage swales		Overturned rocks		Water-cut benches
	Exposed roots		Scour		Wrack
	First-order streams		Sediment ramps: sand / gravel		Wrinkle marks
	Flow lineations		Sediment sorting		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
20% upland	Eri nau Atr pol	0.5 – 2.5'

Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):

watercourse unvegetated. upland 20% vegetated.

Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):

upland has Eri nau, Atr pol and Brome understory.

Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences)

watercourse unvegetated

Site ID: Edwards Gen-Tie	Stream ID: Data station 8	page 3 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of a representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for those not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

WATERCOURSE or WATERCOURSE COMPLEX

Transportation, Deposition & Flow Transition Indicators				Substrate Particle Size		
	Bar forms: sand / gravel		Secondary channels		Estimated percentages	
	Bifurcated flow		Sediment plastering		% Bedrock / Cemented substrate	
	Drainage swales		Sediment ramps: sand / gravel		% Boulder	≥ 256 mm
	Flow lineations		Sediment sheets: sand / gravel		% Cobble	≥ 64 – 256 mm
	Imbricated gravel	✓	Sediment sorting		% Pebble	≥ 4 – 64 mm
	Levee ridges: sand / gravel		Sediment tails: sand / gravel		% Granule	≥ 2 – 4 mm
	Mud: cracks / curls / drapes		Vegetation-channel alignments	✓	% Sand	≤ 2 mm
	Organic drift		Wrack		% Silt/Clay	Fines
	Overturned rocks		Wrinkle marks			
	Out-of-channel flow: Lateral floodplain / Terminal floodplain					
	Ripples					
	Other:					

Erosion Indicators

✓	Cut banks		Rills		Water-cut benches
	Exposed roots		Scour		Water level mark
	Headcuts		Secondary channels		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
<1%	NA	NA

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):

see previous veg section

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):

see previous veg section

Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences)

see previous veg section

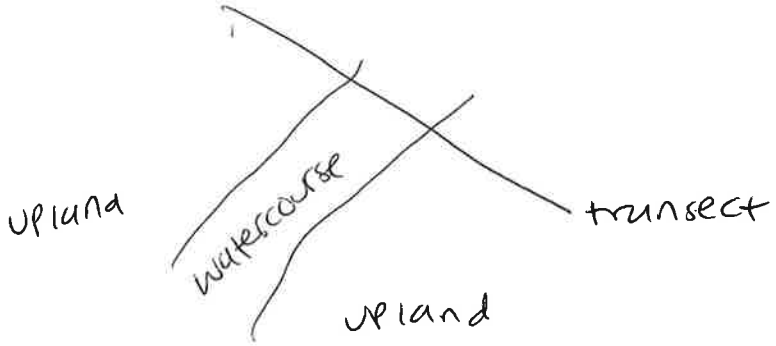
Site ID Edwards Gen-Tie	Stream ID Data station 8	page 4 of 4

INDICATORS of PONDING & EVAPORATION and EOLIAN TRANSPORT & DEPOSITION

	Algal crusts		Sand-filled channels		
	Beach ridges		Springs		
	Coppice dunes: active / relict		Substrate staining		
	Crusts: carbonate / salt / soda		Vegetation-landscape alignments		
	Mud: cracks / curls / polygons				
	Other:				

Additional Diagrams and Notes

Vegetation cross-section diagram: Draw a cross-section that identifies the approximate locations along the transect or diagram of geomorphic units (see page 1 of data sheet) where there are changes in vegetation characteristics, as summarized in the vegetation subsections under "Upland" and "Watercourse Complex".



Photographs

Photographs should document the representative landscape units, vegetation, and the presence or absence of representative stream indicators.

Photo ID #	Description	GPS location	
28	Downstream		
29	Downstream		
30	Upstream		
31	Upstream		

Episodic Stream Indicator Data Sheet			page 1 of 4
Site ID: Edwards Gen-Tie	Stream ID: Data Station 9		Date: 5/30/17
Nearest Town: Mojave		County: Kern	
Investigators: Callie Amoaku ; Patricia Schuyler			

Base Map

Aerial Photo #:	Date:	Topographic Map Name:	Date:

GPS Data

GPS Name:	Datum:	Transect Elevation:	Zone 10 / 11	GPS Error: ± ft / m
GPS co-ords start of transect:		GPS co-ords end of transect:		

Geomorphic Province (✓one)	✓ Mojave	Sonoran/Colorado	Great Basin	Other:

Landform (✓ all that apply)

	Headwater		Upper fan		Middle fan		Lower fan		Alluvial plain		Axial valley		Playa

Channel Form (✓ one)

✓	Single thread		Braided		Compound		Distributary		Discontinuous	Other:

Transect was selected to:

✓	Document fluvial activity & boundaries		Document channel elevations & boundaries
	Document habitat associations		Document a change in watercourse morphology
	Other:		

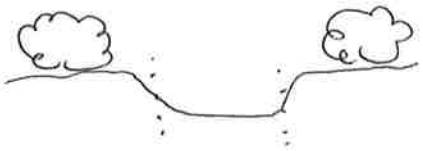
Date of most recent runoff event (if known):

Physical Setting: Briefly describe geomorphic processes and surficial materials and conditions, including the degree of disturbance relative to an intact dryland stream ecosystem, and any anthropogenic influences on the channel form and function:

Erosional feature/swale with sandy bottom that terminates at railroad

Summary Site Description and Cross-section Sketch: View across the channel from watercourse-edge to watercourse-edge. Identify channel(s), banks, islands, interfluves, floodplains, terraces, and uplands where present. Note approximate width and elevation differences between features indicated.

Left _____ Right



LFC

Site ID: Edwards Gen-Tie	Stream ID: Data station 9	page 2 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of the representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for indicators not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

UPLAND

Terrestrial Indicators				Substrate Particle Size	
				Estimated percentages	
	Av soil horizon		Relict bars & swales		
	Biotic soil crusts		Rock fractured in place		% Bedrock / Cemented substrate
✓	Bioturbation		Rock varnish		% Boulder ≥ 256 mm
	Caliche: coatings / layers / rubble		Rock weathering	✓	% Cobble ≥ 64 – 256mm
	Carbonate etching		Rubified rock undersides	✓	% Pebble ≥ 4 – 64 mm
	Coppice dunes: active / relict		Soil development		% Granule ≥ 2 – 4 mm
	Deflated surface		Surface rounding of landform	✓	% Sand ≤ 2 mm
	Pavement		Woody debris in place		% Silt/Clay Fines
	Other:				

Fluvial Indicators					
	Bars: sand / gravel		Mud: cracks / curls / drapes		Sediment tails: sand / gravel
	Cut banks		Organic drift		Vegetation-channel alignment
	Drainage swales		Overturned rocks		Water-cut benches
	Exposed roots		Scour		Wrack
	First-order streams		Sediment ramps: sand / gravel		Wrinkle marks
	Flow lineations		Sediment sorting		
	Other:				

NA

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
upland 25%	Erinau Hir inc Atr pol Bromus	0.5 - 3' tall

Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):

upland has shrubs (25%) and annuals while watercourse is unvegetated.

Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):

Uplands have Erinau, Atr pol, Hir inc with Bromus understory

Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences)

watercourse is unvegetated

Site ID: Edwards Gen-Tie	Stream ID: Data station 9	page 3 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of a representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for those not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

WATERCOURSE or WATERCOURSE COMPLEX

Transportation, Deposition & Flow Transition Indicators

	Bar forms: sand / gravel		Secondary channels
	Bifurcated flow		Sediment plastering
	Drainage swales		Sediment ramps: sand / gravel
	Flow lineations		Sediment sheets: sand / gravel
	Imbricated gravel		Sediment sorting
	Levee ridges: sand / gravel		Sediment tails: sand / gravel
	Mud: cracks / curls / drapes		Vegetation-channel alignments
	Organic drift		Wrack
	Overturned rocks		Wrinkle marks
	Out-of-channel flow: Lateral floodplain / Terminal floodplain		
	Ripples		
	Other:		

Substrate Particle Size

	Estimated percentages	
	% Bedrock / Cemented substrate	
	% Boulder	≥ 256 mm
	% Cobble	≥ 64 – 256 mm
✓	% Pebble	≥ 4 – 64 mm
✓	% Granule	≥ 2 – 4 mm
✓	% Sand	≤ 2 mm
	% Silt/Clay	Fines

Erosion Indicators

✓	Cut banks		Rills		Water-cut benches
	Exposed roots		Scour		Water level mark
	Headcuts		Secondary channels		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
<1%	NA	NA

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):

LFC unvegetated. Uplands have shrubs.

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):

See previous veg section

Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences)

See previous veg section

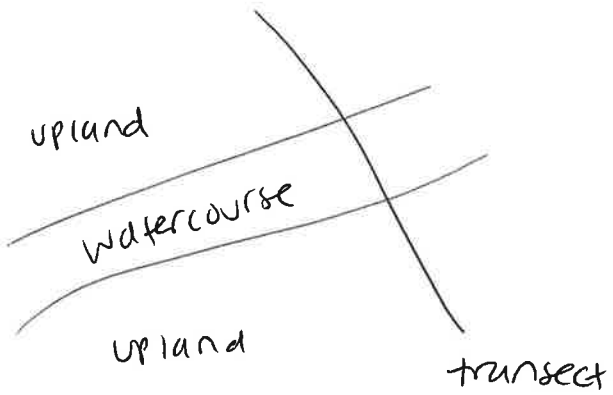
Site ID Edwards Gen-Tie	Stream ID Data station 9	page 4 of 4

INDICATORS of PONDING & EVAPORATION and EOLIAN TRANSPORT & DEPOSITION

	Algal crusts		Sand-filled channels		
	Beach ridges		Springs		
	Coppice dunes: active / relict		Substrate staining		
	Crusts: carbonate / salt / soda		Vegetation-landscape alignments		
	Mud: cracks / curls / polygons				
	Other:				

Additional Diagrams and Notes

Vegetation cross-section diagram: Draw a cross-section that identifies the approximate locations along the transect or diagram of geomorphic units (see page 1 of data sheet) where there are changes in vegetation characteristics, as summarized in the vegetation subsections under "Upland" and "Watercourse Complex".



Photographs

Photographs should document the representative landscape units, vegetation, and the presence or absence of representative stream indicators.

Photo ID #	Description	GPS location	
32	Downstream		
33	upstream		

Episodic Stream Indicator Data Sheet					page 1 of 4
Site ID: Edwards Gentle	Stream ID: Data Station 10				Date: 5/30/17
Nearest Town: Mojave			County: Kern		
Investigators: Callie Amoako, Patricia Schuyler					
Base Map					
Aerial Photo #:	Date:	Topographic Map Name:			Date:
GPS Data					
GPS Name:	Datum:	Transect Elevation:	Zone 10 / 11	GPS Error: ±	ft / m
GPS co-ords start of transect:		GPS co-ords end of transect:			

Geomorphic Province (✓one)	✓ Mojave	Sonoran/Colorado	Great Basin	Other:

Landform (✓ all that apply)

	Headwater		Upper fan		Middle fan		Lower fan		Alluvial plain		Axial valley		Playa

Channel Form (✓ one)

✓	Single thread		Braided		Compound		Distributary		Discontinuous	Other:

Transect was selected to:

✓	Document fluvial activity & boundaries		Document channel elevations & boundaries
	Document habitat associations		Document a change in watercourse morphology
	Other:		

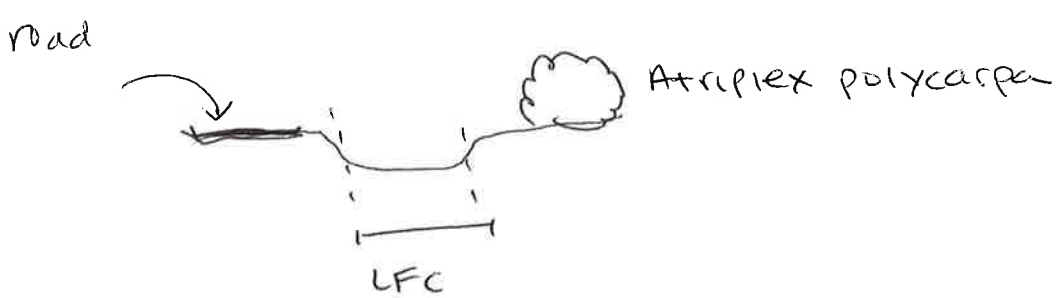
Date of most recent runoff event (if known):

Physical Setting: Briefly describe geomorphic processes and surficial materials and conditions, including the degree of disturbance relative to an intact dryland stream ecosystem, and any anthropogenic influences on the channel form and function:

Ephemeral drainage parallel to road

Summary Site Description and Cross-section Sketch: View across the channel from watercourse-edge to watercourse-edge. Identify channel(s), banks, islands, interfluves, floodplains, terraces, and uplands where present. Note approximate width and elevation differences between features indicated.

Left _____ Right



Site ID: Edwards Gen-Tie	Stream ID: Data station 10	page 2 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of the representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for indicators not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

UPLAND

Terrestrial Indicators

	Av soil horizon		Relict bars & swales
	Biotic soil crusts		Rock fractured in place
✓	Bioturbation		Rock varnish
	Caliche: coatings / layers / rubble		Rock weathering
	Carbonate etching		Rubified rock undersides
	Coppice dunes: active / relict		Soil development
	Deflated surface		Surface rounding of landform
	Pavement		Woody debris in place
	Other:		

Substrate Particle Size

	Estimated percentages	
	% Bedrock / Cemented substrate	
	% Boulder	≥ 256 mm
	% Cobble	≥ 64 – 256mm
✓	% Pebble	≥ 4 – 64 mm
✓	% Granule	≥ 2 – 4 mm
✓	% Sand	≤ 2 mm
	% Silt/Clay	Fines

Fluvial Indicators

	Bars: sand / gravel		Mud: cracks / curls / drapes		Sediment tails: sand / gravel
	Cut banks		Organic drift		Vegetation-channel alignment
	Drainage swales		Overturned rocks		Water-cut benches
	Exposed roots		Scour		Wrack
	First-order streams		Sediment ramps: sand / gravel		Wrinkle marks
	Flow lineations		Sediment sorting		
	Other:				

NA

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
40%	Atr pol 40% Schismus sp.	0.5 – 3' tall

Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):

watercourse unvegetated; upland 40% shrubs with schismus understory

Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):

Watercourse is unvegetated.

Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences)

Watercourse is unvegetated. Upland has Atr pol with schismus understory

Site ID: Edwards Gen-Tie	Stream ID: Data station 10	page 3 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of a representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for those not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

WATERCOURSE or WATERCOURSE COMPLEX

Transportation, Deposition & Flow Transition Indicators

	Bar forms: sand / gravel		Secondary channels
	Bifurcated flow		Sediment plastering
	Drainage swales		Sediment ramps: sand / gravel
	Flow lineations		Sediment sheets: sand / gravel
	Imbricated gravel	✓	Sediment sorting
	Levee ridges: sand / gravel		Sediment tails: sand / gravel
	Mud: cracks / curls / drapes		Vegetation-channel alignments
	Organic drift	✓	Wrack
	Overturned rocks		Wrinkle marks
	Out-of-channel flow: Lateral floodplain / Terminal floodplain		
	Ripples		
	Other:		

Substrate Particle Size

	Estimated percentages	
	% Bedrock / Cemented substrate	
	% Boulder	≥ 256 mm
	% Cobble	≥ 64 – 256 mm
	% Pebble	≥ 4 – 64 mm
	% Granule	≥ 2 – 4 mm
	% Sand	≤ 2 mm
	% Silt/Clay	Fines

Erosion Indicators

	Cut banks		Rills		Water-cut benches
	Exposed roots		Scour		Water level mark
	Headcuts		Secondary channels		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
<1%	NA	NA

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):

Watercourse unvegetated. Upland has shrubs and grass understory.

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):

See previous veg section

Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences)

See previous veg section

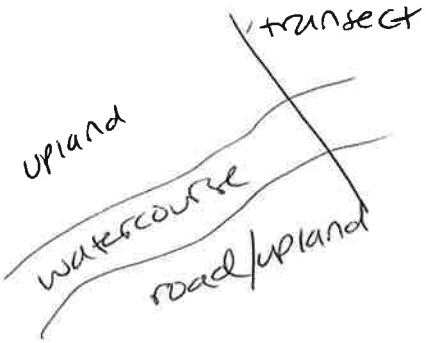
Site ID Edwards Gen-Tie	Stream ID Data station 10	page 4 of 4

INDICATORS of PONDING & EVAPORATION and EOLIAN TRANSPORT & DEPOSITION

	Algal crusts		Sand-filled channels		
	Beach ridges		Springs		
	Coppice dunes: active / relict		Substrate staining		
	Crusts: carbonate / salt / soda		Vegetation-landscape alignments		
	Mud: cracks / curls / polygons				
	Other:				

Additional Diagrams and Notes

Vegetation cross-section diagram: Draw a cross-section that identifies the approximate locations along the transect or diagram of geomorphic units (see page 1 of data sheet) where there are changes in vegetation characteristics, as summarized in the vegetation subsections under "Upland" and "Watercourse Complex".



Photographs

Photographs should document the representative landscape units, vegetation, and the presence or absence of representative stream indicators.

Photo ID #	Description	GPS location	
34	Downstream		
35	upstream		

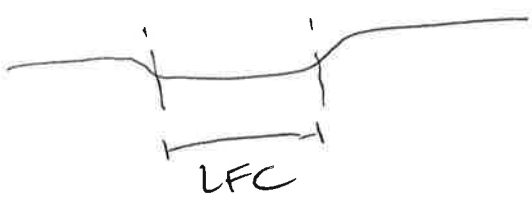
Episodic Stream Indicator Data Sheet					page 1 of 4
Site ID: Edwards Gen-Tie	Stream ID: Data Station 11				Date: 5/30/17
Nearest Town: Mojave			County: Kern		
Investigators: Callie Amoaku, Patricia Schuyler					
Base Map					
Aerial Photo #:	Date:	Topographic Map Name:			Date:
GPS Data					
GPS Name:	Datum:	Transect Elevation:	Zone 10 / 11	GPS Error: ±	ft / m
GPS co-ords start of transect:		GPS co-ords end of transect:			
Geomorphic Province (✓one)	✓ Mojave	Sonoran/Colorado	Great Basin	Other:	
Landform (✓ all that apply)					
Headwater	Upper fan	Middle fan	Lower fan	Alluvial plain	Axial valley	Playa
Channel Form (✓ one)					
✓ Single thread	Braided	Compound	Distributary	Discontinuous	Other:
Transect was selected to:					
✓ Document fluvial activity & boundaries		Document channel elevations & boundaries			
Document habitat associations		Document a change in watercourse morphology			
Other:					
Date of most recent runoff event (if known):					

Physical Setting: Briefly describe geomorphic processes and surficial materials and conditions, including the degree of disturbance relative to an intact dryland stream ecosystem, and any anthropogenic influences on the channel form and function:

Swale drainage

Summary Site Description and Cross-section Sketch: View across the channel from watercourse-edge to watercourse-edge. Identify channel(s), banks, islands, interfluves, floodplains, terraces, and uplands where present. Note approximate width and elevation differences between features indicated.

Left _____ Right



Site ID: Edwards Gen-Tie	Stream ID: Data station 11	page 2 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of the representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for indicators not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

UPLAND

Terrestrial Indicators

	Av soil horizon		Relict bars & swales
	Biotic soil crusts		Rock fractured in place
✓	Bioturbation		Rock varnish
	Caliche: coatings / layers / rubble		Rock weathering
	Carbonate etching		Rubified rock undersides
	Coppice dunes: active / relict		Soil development
	Deflated surface		Surface rounding of landform
	Pavement		Woody debris in place
	Other:		

Substrate Particle Size

	Estimated percentages	
	% Bedrock / Cemented substrate	
	% Boulder	≥ 256 mm
	% Cobble	≥ 64 – 256mm
	% Pebble	≥ 4 – 64 mm
✓	% Granule	≥ 2 – 4 mm
✓	% Sand	≤ 2 mm
	% Silt/Clay	Fines

Fluvial Indicators

	Bars: sand / gravel		Mud: cracks / curls / drapes		Sediment tails: sand / gravel
	Cut banks		Organic drift		Vegetation-channel alignment
	Drainage swales		Overturned rocks		Water-cut benches
	Exposed roots		Scour		Wrack
	First-order streams		Sediment ramps: sand / gravel		Wrinkle marks
	Flow lineations		Sediment sorting		
	Other:				

NA

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
20%	Atr pol Bromus sp. Sisymbrium sp.	0.5 – 3.5' tall

Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):

Upland has shrubs and annuals with grass understory. Watercourse has less vegetation with some grass

Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):

watercourse does not have Atr pol

Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences)

Upland has more abundant Atr pol, Sisymbrium sp. and Bromus sp.

Site ID: Edwards Gen-Tie	Stream ID: Park Station 11	page 3 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of a representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for those not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

WATERCOURSE or WATERCOURSE COMPLEX

Transportation, Deposition & Flow Transition Indicators				Substrate Particle Size	
	Bar forms: sand / gravel		Secondary channels	Estimated percentages	
	Bifurcated flow		Sediment plastering	% Bedrock / Cemented substrate	
✓	Drainage swales		Sediment ramps: sand / gravel	% Boulder	≥ 256 mm
	Flow lineations		Sediment sheets: sand / gravel	% Cobble	≥ 64 – 256 mm
	Imbricated gravel		Sediment sorting	% Pebble	≥ 4 – 64 mm
	Levee ridges: sand / gravel		Sediment tails: sand / gravel	% Granule	≥ 2 – 4 mm
✓	Mud: cracks / curls / drapes		Vegetation-channel alignments	% Sand	≤ 2 mm
	Organic drift	✓	Wrack	✓ % Silt/Clay	Fines
	Overturned rocks		Wrinkle marks		
	Out-of-channel flow: Lateral floodplain / Terminal floodplain				
	Ripples				
	Other:				

Erosion Indicators

	Cut banks		Rills		Water-cut benches
	Exposed roots		Scour		Water level mark
	Headcuts		Secondary channels		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
2%	Bromus sp.	0.5'

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):

Upland has shrubs; watercourse has Bromes.

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):

See previous veg section

Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences)

See previous veg section

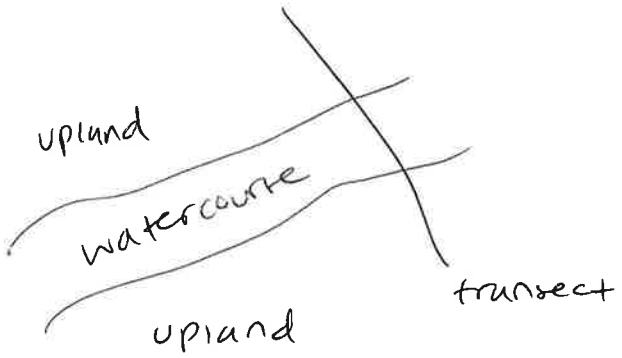
Site ID Edwards Gen-Tie	Stream ID Data station 11	page 4 of 4

INDICATORS of PONDING & EVAPORATION and EOLIAN TRANSPORT & DEPOSITION

	Algal crusts		Sand-filled channels		
	Beach ridges		Springs		
	Coppice dunes: active / relict		Substrate staining		
	Crusts: carbonate / salt / soda		Vegetation-landscape alignments		
	Mud: cracks / curls / polygons				
	Other:				

Additional Diagrams and Notes

Vegetation cross-section diagram: Draw a cross-section that identifies the approximate locations along the transect or diagram of geomorphic units (see page 1 of data sheet) where there are changes in vegetation characteristics, as summarized in the vegetation subsections under "Upland" and "Watercourse Complex".



Photographs

Photographs should document the representative landscape units, vegetation, and the presence or absence of representative stream indicators.

Photo ID #	Description	GPS location	
36	Downstream		
37	upstream		
38	Downstream		
39	upstream		

Episodic Stream Indicator Data Sheet			page 1 of 4
Site ID: Edwards Gen-Tie	Stream ID: Data Station 12		Date: 4/25/17
Nearest Town: Mojave		County: Kern	
Investigators: Callie Amoaku; Britney Strittmater			

Base Map			
Aerial Photo #:	Date:	Topographic Map Name:	Date:

GPS Data				
GPS Name:	Datum:	Transect Elevation:	Zone 10 / 11	GPS Error: ± ft / m
GPS co-ords start of transect:		GPS co-ords end of transect:		

Geomorphic Province (✓one)	✓ Mojave	Sonoran/Colorado	Great Basin	Other:

Landform (✓ all that apply)

	Headwater		Upper fan		Middle fan		Lower fan		Alluvial plain		Axial valley		Playa

Channel Form (✓ one)

✓	Single thread		Braided		Compound		Distributary		Discontinuous	Other:

Transect was selected to:

✓	Document fluvial activity & boundaries		Document channel elevations & boundaries
	Document habitat associations		Document a change in watercourse morphology
	Other:		

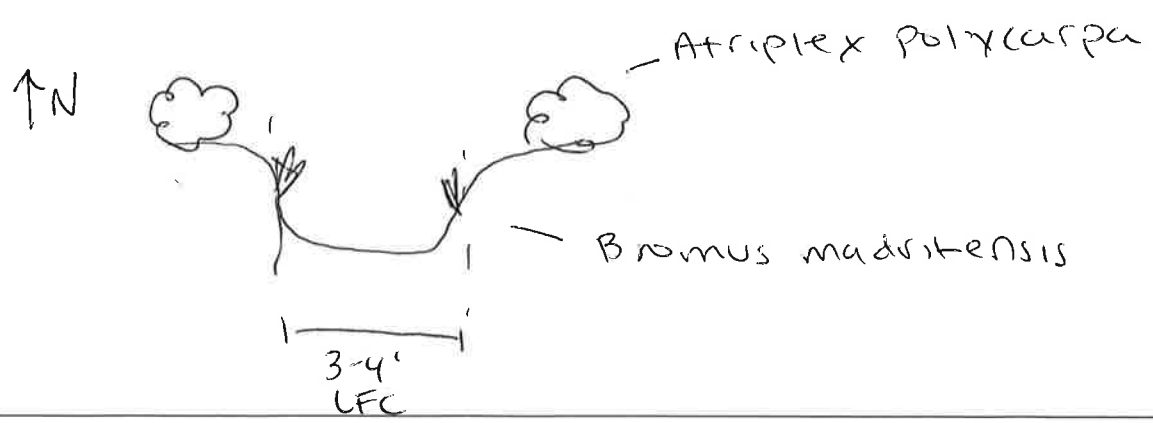
Date of most recent runoff event (if known):

Physical Setting: Briefly describe geomorphic processes and surficial materials and conditions, including the degree of disturbance relative to an intact dryland stream ecosystem, and any anthropogenic influences on the channel form and function:

Swale with surface relief

Summary Site Description and Cross-section Sketch: View across the channel from watercourse-edge to watercourse-edge. Identify channel(s), banks, islands, interfluves, floodplains, terraces, and uplands where present. Note approximate width and elevation differences between features indicated.

Left _____ Right



Site ID: Edwards Gentle	Stream ID: Data station 12	page 2 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of the representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for indicators not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

UPLAND

Terrestrial Indicators				Substrate Particle Size	
	Av soil horizon		Relict bars & swales	Estimated percentages	
	Biotic soil crusts		Rock fractured in place	% Bedrock / Cemented substrate	
✓	Bioturbation		Rock varnish	% Boulder	≥ 256 mm
	Caliche: coatings / layers / rubble		Rock weathering	% Cobble	≥ 64 – 256mm
	Carbonate etching		Rubified rock undersides	% Pebble	≥ 4 – 64 mm
	Coppice dunes: active / relict		Soil development	✓ % Granule	≥ 2 – 4 mm
	Deflated surface		Surface rounding of landform	✓ % Sand	≤ 2 mm
	Pavement		Woody debris in place	% Silt/Clay	Fines
	Other:				

Fluvial Indicators					
	Bars: sand / gravel		Mud: cracks / curls / drapes		Sediment tails: sand / gravel
	Cut banks		Organic drift		Vegetation-channel alignment
	Drainage swales		Overturned rocks		Water-cut benches
	Exposed roots		Scour		Wrack
	First-order streams		Sediment ramps: sand / gravel		Wrinkle marks
	Flow lineations		Sediment sorting		
	Other:				

NA

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
30%	Atr poly (15%) Eup alb (10%) Bro mud (30%)	0.25 – 3.5'

Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):

watercourse unvegetated with grass on sides. upland has shrubs & grasses

Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):

uplands have more Atr pol and Eup alb while watercourse has more Bro mad.

Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences)

Higher density of Bro mad in watercourse compared to uplands.

Site ID: Edwards Gen-Tie	Stream ID: Data Station 12	page 3 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of a representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for those not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

WATERCOURSE or WATERCOURSE COMPLEX

Transportation, Deposition & Flow Transition Indicators				Substrate Particle Size	
	Bar forms: sand / gravel		Secondary channels	Estimated percentages	
	Bifurcated flow		Sediment plastering	% Bedrock / Cemented substrate	
✓	Drainage swales		Sediment ramps: sand / gravel	% Boulder	≥ 256 mm
	Flow lineations		Sediment sheets: sand / gravel	% Cobble	≥ 64 – 256 mm
	Imbricated gravel		Sediment sorting	% Pebble	≥ 4 – 64 mm
	Levee ridges: sand / gravel		Sediment tails: sand / gravel	% Granule	≥ 2 – 4 mm
✓	Mud: cracks / curls / drapes		Vegetation-channel alignments	✓ % Sand	≤ 2 mm
✓	Organic drift		Wrack	✓ % Silt/Clay	Fines
	Overturned rocks		Wrinkle marks		
	Out-of-channel flow: Lateral floodplain / Terminal floodplain				
	Ripples				
	Other:				

Erosion Indicators

	Cut banks		Rills		Water-cut benches
	Exposed roots		Scour		Water level mark
	Headcuts		Secondary channels		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
90% (herb)	Bro mad	0.5-1'

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):

LFC has 5% grass while upland has shrub/grass

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):

upland has Atr pol and Ely alb.

Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences)

LFC has more abundant Bro mad than uplands.

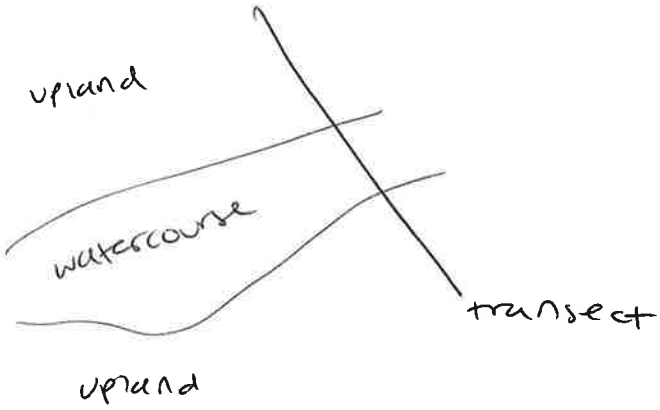
Site ID Edwards Gen-Tie	Stream ID Data station 12	page 4 of 4

INDICATORS of PONDING & EVAPORATION and EOLIAN TRANSPORT & DEPOSITION

	Algal crusts		Sand-filled channels		
	Beach ridges		Springs		
	Coppice dunes: active / relict		Substrate staining		
	Crusts: carbonate / salt / soda		Vegetation-landscape alignments		
	Mud: cracks / curls / polygons				
	Other:				

Additional Diagrams and Notes

Vegetation cross-section diagram: Draw a cross-section that identifies the approximate locations along the transect or diagram of geomorphic units (see page 1 of data sheet) where there are changes in vegetation characteristics, as summarized in the vegetation subsections under "Upland" and "Watercourse Complex".



Photographs

Photographs should document the representative landscape units, vegetation, and the presence or absence of representative stream indicators.

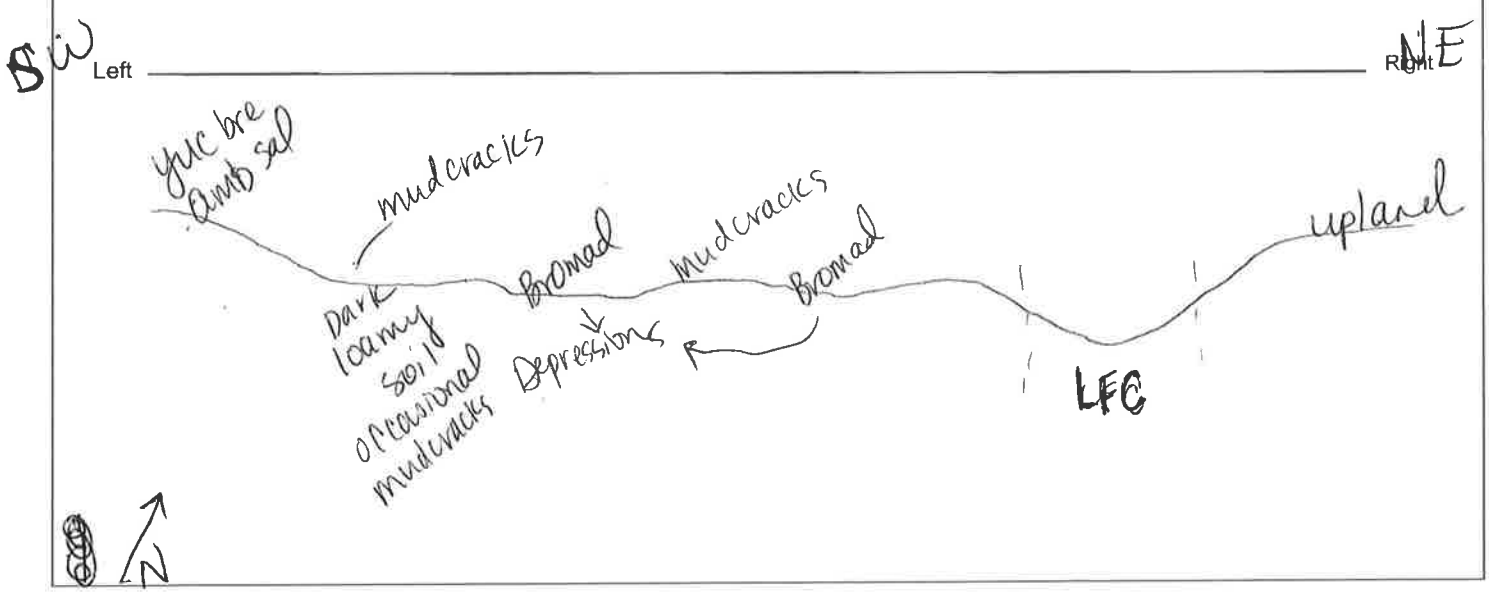
Photo ID #	Description	GPS location	
40	Downstream		
41	Upstream		

Data Station 13

Episodic Stream Indicator Data Sheet					page 1 of 4
Site ID: Sanborn	Stream ID: CJA 20170425-01B				Date: 4/25/17
Nearest Town:		County:			
Investigators: Callie Amoaku, Britney Strittmater					
Base Map					
Aerial Photo #:	Date:	Topographic Map Name:			Date:
GPS Data					
GPS Name:	Datum:	Transect Elevation:	Zone 10 / 11	GPS Error: ±	ft / m
GPS co-ords start of transect:		GPS co-ords end of transect:			
Geomorphic Province (✓one)	✓ Mojave	Sonoran/Colorado	Great Basin	Other:	
Landform (✓ all that apply)					
Headwater	Upper fan	Middle fan	Lower fan	Alluvial plain	Axial valley	Playa
Channel Form (✓ one)					
✓ Single thread	Braided	Compound	Distributary	Discontinuous	Other:
Transect was selected to:					
✓ Document fluvial activity & boundaries	✓ Document channel elevations & boundaries				
✓ Document habitat associations	✓ Document a change in watercourse morphology				
Other:					
Date of most recent runoff event (if known):					

Physical Setting: Briefly describe geomorphic processes and surficial materials and conditions, including the degree of disturbance relative to an intact dryland stream ecosystem, and any anthropogenic influences on the channel form and function:

Summary Site Description and Cross-section Sketch: View across the channel from watercourse-edge to watercourse-edge. Identify channel(s), banks, islands, interfluves, floodplains, terraces, and uplands where present. Note approximate width and elevation differences between features indicated.



Site ID:	Stream ID: CJA - 20170425 01B	page 2 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of the representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for indicators not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

UPLAND

	Terrestrial Indicators				**Substrate Particle Size**	
					Estimated percentages	
	Av soil horizon		Relict bars & swales			
	Biotic soil crusts		Rock fractured in place		% Bedrock / Cemented substrate	
+	Bioturbation		Rock varnish		% Boulder	≥ 256 mm
	Caliche: coatings / layers / rubble		Rock weathering		% Cobble	≥ 64 – 256mm
	Carbonate etching		Rubified rock undersides		% Pebble	≥ 4 – 64 mm
	Coppice dunes: active / relict		Soil development		% Granule	≥ 2 – 4 mm
	Deflated surface		Surface rounding of landform		% Sand	≤ 2 mm
	Pavement		Woody debris in place		% Silt/Clay	Fines
	Other:					

	Fluvial Indicators				
	Bars: sand / gravel	+	Mud: cracks / curls / drapes		Sediment tails: sand / gravel
	Cut banks		Organic drift	+	Vegetation-channel alignment
+	Drainage swales		Overturned rocks		Water-cut benches
	Exposed roots		Scour		Wrack
	First-order streams		Sediment ramps: sand / gravel		Wrinkle marks
	Flow lineations		Sediment sorting		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:

Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):

Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):

Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences)

Bromad concentrated in depressions. and along swales.

Site ID:	Stream ID: BJA - 20170425 - 01 B	page 3 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of a representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for those not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

WATERCOURSE or WATERCOURSE COMPLEX

Transportation, Deposition & Flow Transition Indicators

	Bar forms: sand / gravel		Secondary channels
	Bifurcated flow		Sediment plastering
+	Drainage swales		Sediment ramps: sand / gravel
	Flow lineations		Sediment sheets: sand / gravel
	Imbricated gravel		Sediment sorting
	Levee ridges: sand / gravel		Sediment tails: sand / gravel
+	Mud: cracks / curls / drapes	+	Vegetation-channel alignments
	Organic drift		Wrack
	Overturned rocks		Wrinkle marks
	Out-of-channel flow: Lateral floodplain / Terminal floodplain		
	Ripples		
	Other:		

Substrate Particle Size

Estimated percentages	
% Bedrock / Cemented substrate	
% Boulder	≥ 256 mm
% Cobble	≥ 64 – 256 mm
% Pebble	≥ 4 – 64 mm
% Granule	≥ 2 – 4 mm
% Sand	≤ 2 mm
% Silt/Clay	Fines

Erosion Indicators

	Cut banks		Rills		Water-cut benches
	Exposed roots		Scour		Water level mark
	Headcuts		Secondary channels		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):

Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences)

Site ID	Stream ID CJA-20170425-01B	page 4 of 4

INDICATORS of PONDING & EVAPORATION and EOLIAN TRANSPORT & DEPOSITION

	Algal crusts		Sand-filled channels		
	Beach ridges		Springs		
	Coppice dunes: active / relict		Substrate staining		
	Crusts: carbonate / salt / soda	+	Vegetation-landscape alignments		
+	Mud: cracks / curls / polygons				
	Other:				

Additional Diagrams and Notes

Vegetation cross-section diagram: Draw a cross-section that identifies the approximate locations along the transect or diagram of geomorphic units (see page 1 of data sheet) where there are changes in vegetation characteristics, as summarized in the vegetation subsections under "Upland" and "Watercourse Complex".

Photographs

Photographs should document the representative landscape units, vegetation, and the presence or absence of representative stream indicators.

Photo ID #	Description	GPS location	

Data Station 14

Episodic Stream Indicator Data Sheet			page 1 of 4
Site ID: Sanborn	Stream ID: CJA-20170425-01A		Date: 4/25/17
Nearest Town: Mojave		County: Kern	
Investigators: Calle Amoaku, Britney Strittmater			

Base Map

Aerial Photo #:	Date:	Topographic Map Name:	Date:

GPS Data

GPS Name:	Datum:	Transect Elevation:	Zone 10 / 11	GPS Error: ± ft / m
GPS co-ords start of transect:		GPS co-ords end of transect:		

Geomorphic Province (✓one)	✓ Mojave	Sonoran/Colorado	Great Basin	Other:

Landform (✓ all that apply)

Headwater	Upper fan	Middle fan	Lower fan	Alluvial plain	Axial valley	Playa

Channel Form (✓ one)

Single thread	✓ Braided	Compound	Distributary	Discontinuous	Other:

Transect was selected to:

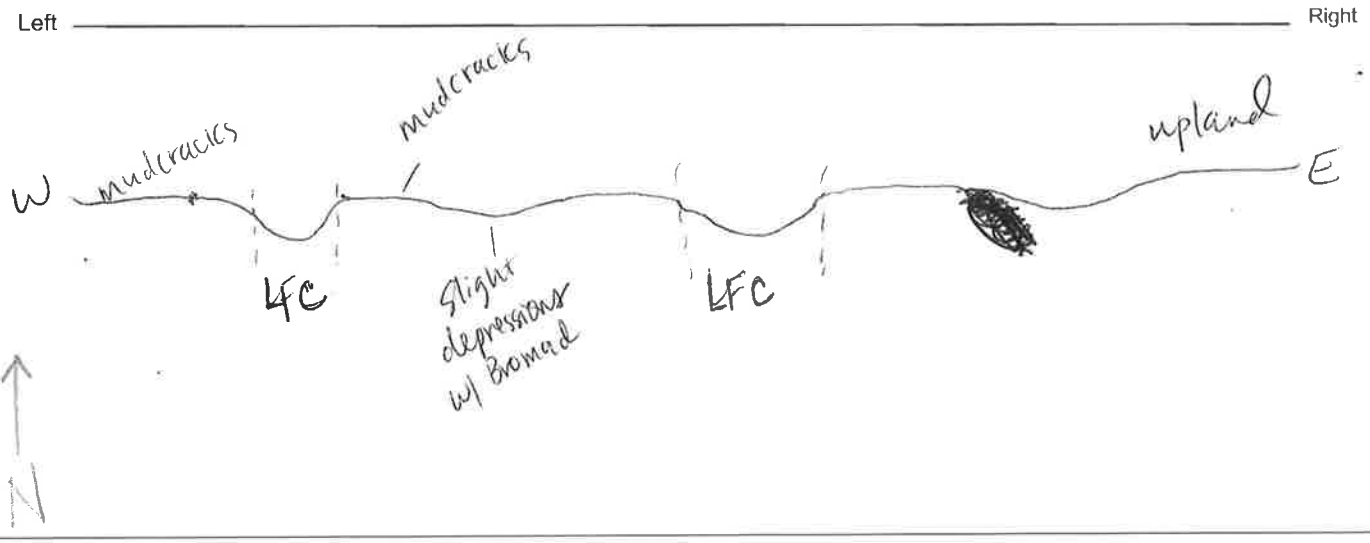
✓ Document fluvial activity & boundaries	✓ Document channel elevations & boundaries
✓ Document habitat associations	✓ Document a change in watercourse morphology
Other:	

Date of most recent runoff event (if known):

Physical Setting: Briefly describe geomorphic processes and surficial materials and conditions, including the degree of disturbance relative to an intact dryland stream ecosystem, and any anthropogenic influences on the channel form and function:

The site is disturbed by dirt roads, railroad tracks to the north and trash dumps.

Summary Site Description and Cross-section Sketch: View across the channel from watercourse-edge to watercourse-edge. Identify channel(s), banks, islands, interfluves, floodplains, terraces, and uplands where present. Note approximate width and elevation differences between features indicated.



Site ID: Sanborn	Stream ID: CJA-20170425-01	page 2 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of the representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for indicators not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

UPLAND

	Terrestrial Indicators				**Substrate Particle Size**	
	Av soil horizon		Relict bars & swales		Estimated percentages	
	Biotic soil crusts		Rock fractured in place	/	% Bedrock / Cemented substrate	
+	Bioturbation		Rock varnish	/	% Boulder	≥ 256 mm
	Caliche: coatings / layers / rubble		Rock weathering		% Cobble	≥ 64 – 256mm
	Carbonate etching		Rubified rock undersides		% Pebble	≥ 4 – 64 mm
	Coppice dunes: active / relict		Soil development		% Granule	≥ 2 – 4 mm
	Deflated surface		Surface rounding of landform		% Sand	≤ 2 mm
	Pavement	+	Woody debris in place		% Silt/Clay	Fines
	Other:					

	Fluvial Indicators				
	Bars: sand / gravel	+	Mud: cracks / curls / drapes		Sediment tails: sand / gravel
	Cut banks		Organic drift	+	Vegetation-channel alignment
+	Drainage swales		Overturned rocks		Water-cut benches
	Exposed roots		Scour		Wrack
	First-order streams		Sediment ramps: sand / gravel		Wrinkle marks
	Flow lineations		Sediment sorting		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
25%	atrpol, Bromad.	Atrpol ~ 2'-3' Bromad ~ 1/2'-1'

Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):

Height/density of shrubs is the same, only veg changes are Bromad is more concentrated along the swales & depressions.

Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):

See above.

Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences)

See above

Site ID:	Stream ID: CJA-20170425-01	page 3 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of a representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for those not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

WATERCOURSE or WATERCOURSE COMPLEX

	Transportation, Deposition & Flow Transition Indicators			**Substrate Particle Size**	
	Bar forms: sand / gravel		Secondary channels	Estimated percentages	
	Bifurcated flow		Sediment plastering	% Bedrock / Cemented substrate	
+	Drainage swales		Sediment ramps: sand / gravel	% Boulder	≥ 256 mm
	Flow lineations		Sediment sheets: sand / gravel	% Cobble	≥ 64 – 256 mm
	Imbricated gravel		Sediment sorting	% Pebble	≥ 4 – 64 mm
	Levee ridges: sand / gravel		Sediment tails: sand / gravel	% Granule	≥ 2 – 4 mm
+	Mud: cracks / curls / drapes	+	Vegetation-channel alignments	% Sand	≤ 2 mm
+	Organic drift	+	Wrack	% Silt/Clay	Fines
	Overturned rocks		Wrinkle marks		
	Out-of-channel flow: Lateral floodplain / Terminal floodplain				
	Ripples				
	Other:				

wracking only on downstream portion of CJA-20170425-01.

Erosion Indicators

	Cut banks		Rills		Water-cut benches
	Exposed roots		Scour		Water level mark
	Headcuts		Secondary channels		
	Other:				

none

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):

Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences)

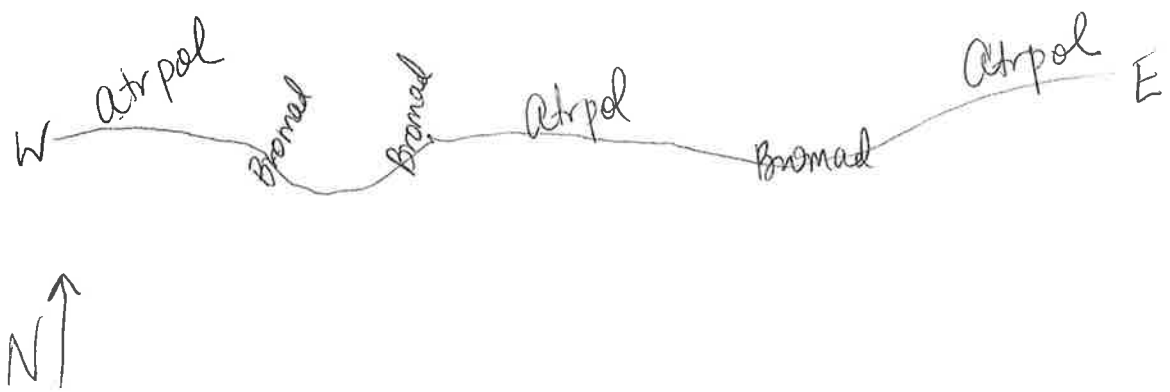
Site ID	Stream ID ZJA-20170425-01A	page 4 of 4

INDICATORS of PONDING & EVAPORATION and EOLIAN TRANSPORT & DEPOSITION

	Algal crusts		Sand-filled channels		
	Beach ridges		Springs		
	Coppice dunes: active / relict		Substrate staining		
	Crusts: carbonate / salt / soda		Vegetation-landscape alignments		
+	Mud: cracks / curls / polygons				
	Other:				

Additional Diagrams and Notes

Vegetation cross-section diagram: Draw a cross-section that identifies the approximate locations along the transect or diagram of geomorphic units (see page 1 of data sheet) where there are changes in vegetation characteristics, as summarized in the vegetation subsections under "Upland" and "Watercourse Complex".



Photographs

Photographs should document the representative landscape units, vegetation, and the presence or absence of representative stream indicators.

Photo ID #	Description	GPS location	

Data Station 15

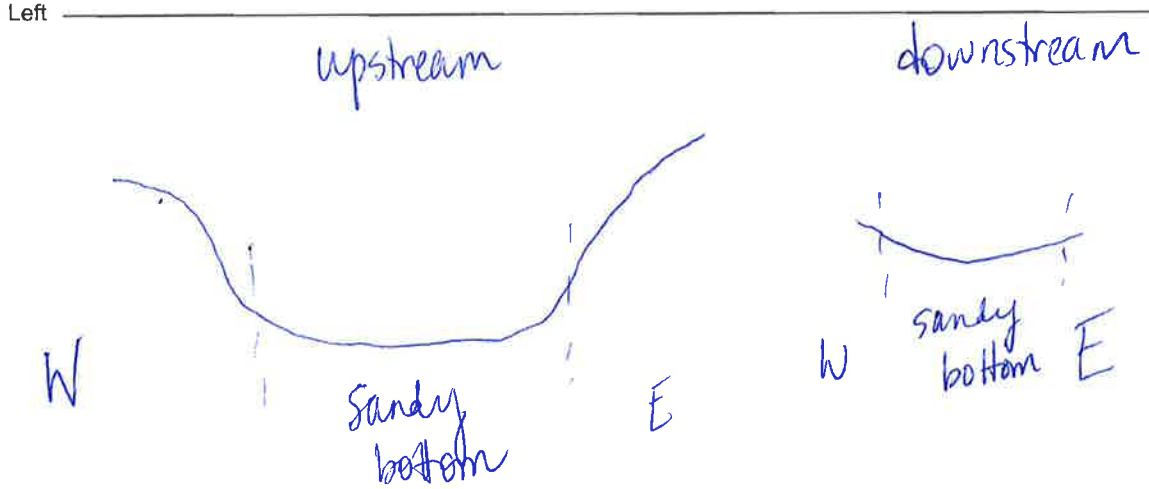
Episodic Stream Indicator Data Sheet						page 1 of 4
Site ID:	Stream ID: CJA-20170530-01				Date: 5/30/17	
Nearest Town: Mojave			County:			
Investigators: Calle Amoaku, Tish Schuyler						
Base Map						
Aerial Photo #:	Date:	Topographic Map Name:			Date:	
GPS Data						
GPS Name:	Datum:	Transect Elevation:	Zone 10 / 11	GPS Error: ± ft / m		
GPS co-ords start of transect:		GPS co-ords end of transect:				
Geomorphic Province (✓one)	✓ Mojave	Sonoran/Colorado	Great Basin	Other:		
Landform (✓ all that apply)						
Headwater	Upper fan	Middle fan	Lower fan	Alluvial plain	Axial valley	Playa
Channel Form (✓ one)						
✓ Single thread	Braided	Compound	Distributary	Discontinuous	Other:	
Transect was selected to:						
✓ Document fluvial activity & boundaries		Document channel elevations & boundaries				
Document habitat associations		Document a change in watercourse morphology				
Other:						
Date of most recent runoff event (if known):						

Physical Setting: Briefly describe geomorphic processes and surficial materials and conditions, including the degree of disturbance relative to an intact dryland stream ecosystem, and any anthropogenic influences on the channel form and function:

Single channel drainage with defined bed + bank in upper portions that flattens out as it continues south and eventually dissipates into the ground and signs of hydrology disapear.

Summary Site Description and Cross-section Sketch: View across the channel from watercourse-edge to watercourse-edge. Identify channel(s), banks, islands, interfluves, floodplains, terraces, and uplands where present. Note approximate width and elevation differences between features indicated.

Left _____ Right



Site ID:	Stream ID: CJA-20170530-01	page 2 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of the representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for indicators not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

UPLAND

Terrestrial Indicators				**Substrate Particle Size**	
	Av soil horizon		Relict bars & swales	Estimated percentages	
	Biotic soil crusts		Rock fractured in place	% Bedrock / Cemented substrate	
✓	Bioturbation		Rock varnish	% Boulder	≥ 256 mm
	Caliche: coatings / layers / rubble		Rock weathering	% Cobble	≥ 64 – 256mm
	Carbonate etching		Rubified rock undersides	% Pebble	≥ 4 – 64 mm
	Coppice dunes: active / relict	✓	Soil development	% Granule	≥ 2 – 4 mm
	Deflated surface		Surface rounding of landform	% Sand	≤ 2 mm
	Pavement	✓	Woody debris in place	% Silt/Clay	Fines
	Other:				

Fluvial Indicators					
	Bars: sand / gravel		Mud: cracks / curls / drapes		Sediment tails: sand / gravel
✓	Cut banks	✓	Organic drift		Vegetation-channel alignment
	Drainage swales		Overturned rocks		Water-cut benches
	Exposed roots		Scour		Wrack
	First-order streams		Sediment ramps: sand / gravel		Wrinkle marks
	Flow lineations	✓	Sediment sorting		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:

Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):

drainage unvegetated; upland vegetated, shrub dominated

Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):

yes, present

Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences)

yes, more abundant

Site ID:	Stream ID: CJA-20170530-01	page 3 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of a representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for those not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

WATERCOURSE or WATERCOURSE COMPLEX

Transportation, Deposition & Flow Transition Indicators				Substrate Particle Size	
	Bar forms: sand / gravel		Secondary channels	Estimated percentages	
	Bifurcated flow		Sediment plastering	% Bedrock / Cemented substrate	
✓	Drainage swales		Sediment ramps: sand / gravel	% Boulder	≥ 256 mm
	Flow lineations		Sediment sheets: sand / gravel	% Cobble	≥ 64 – 256 mm
	Imbricated gravel		Sediment sorting	% Pebble	≥ 4 – 64 mm
	Levee ridges: sand / gravel		Sediment tails: sand / gravel	% Granule	≥ 2 – 4 mm
	Mud: cracks / curls / drapes		Vegetation-channel alignments	% Sand	≤ 2 mm
✓	Organic drift		Wrack	% Silt/Clay	Fines
	Overturned rocks		Wrinkle marks		
	Out-of-channel flow: Lateral floodplain / Terminal floodplain				
	Ripples				
	Other:				

Erosion Indicators

✓	Cut banks		Rills		Water-cut benches
	Exposed roots	✓	Scour		Water level mark
	Headcuts		Secondary channels		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):

Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences)

Site ID	Stream ID CJA-20170530-01	page 4 of 4

INDICATORS of PONDING & EVAPORATION and EOLIAN TRANSPORT & DEPOSITION

	Algal crusts	✓	Sand-filled channels		
	Beach ridges		Springs		
	Coppice dunes: active / relict		Substrate staining		
	Crusts: carbonate / salt / soda		Vegetation-landscape alignments		
	Mud: cracks / curls / polygons				
	Other:				

Additional Diagrams and Notes

Vegetation cross-section diagram: Draw a cross-section that identifies the approximate locations along the transect or diagram of geomorphic units (see page 1 of data sheet) where there are changes in vegetation characteristics, as summarized in the vegetation subsections under "Upland" and "Watercourse Complex".

Photographs

Photographs should document the representative landscape units, vegetation, and the presence or absence of representative stream indicators.

Photo ID #	Description	GPS location	
a	upstream portion entering project site, upstream photo		collector
b	" " downstream photo		
c	downstream, dissipates, upstream photo		
d	" " , downstream photo		

Data Station 16

Episodic Stream Indicator Data Sheet			page 1 of 4
Site ID:	Stream ID: CJA - 20170530-02		Date: 5/30/17
Nearest Town: Mojave		County: Kern	
Investigators: Callie Amoaku, Tish Schuyler			

Base Map

Aerial Photo #:	Date:	Topographic Map Name:	Date:

GPS Data

GPS Name:	Datum:	Transect Elevation:	Zone 10 / 11	GPS Error: ± ft / m
GPS co-ords start of transect:		GPS co-ords end of transect:		

Geomorphic Province (✓one)	✓ Mojave	Sonoran/Colorado	Great Basin	Other:

Landform (✓ all that apply)

	Headwater		Upper fan		Middle fan		Lower fan		Alluvial plain		Axial valley		Playa

Channel Form (✓ one)

✓	Single thread		Braided		Compound		Distributary		Discontinuous	Other:

Transect was selected to:

✓	Document fluvial activity & boundaries		Document channel elevations & boundaries
	Document habitat associations		Document a change in watercourse morphology
	Other:		

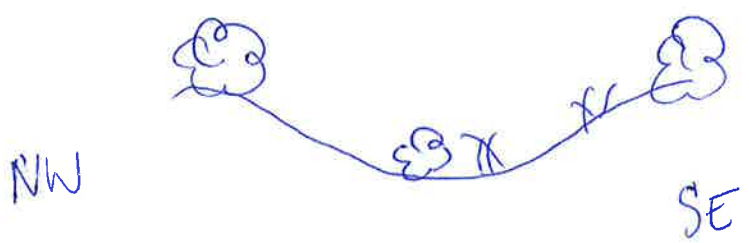
Date of most recent runoff event (if known):

Physical Setting: Briefly describe geomorphic processes and surficial materials and conditions, including the degree of disturbance relative to an intact dryland stream ecosystem, and any anthropogenic influences on the channel form and function:

Swale feature. NO bed or bank.

Summary Site Description and Cross-section Sketch: View across the channel from watercourse-edge to watercourse-edge. Identify channel(s), banks, islands, interfluves, floodplains, terraces, and uplands where present. Note approximate width and elevation differences between features indicated.

Left _____ Right



Site ID:	Stream ID: CJA-20170530-02	page 2 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of the representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for indicators not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

UPLAND

Terrestrial Indicators				**Substrate Particle Size**	
	Av soil horizon		Relict bars & swales	Estimated percentages	
	Biotic soil crusts		Rock fractured in place	% Bedrock / Cemented substrate	
✓	Bioturbation		Rock varnish	% Boulder	≥ 256 mm
	Caliche: coatings / layers / rubble		Rock weathering	% Cobble	≥ 64 – 256mm
	Carbonate etching		Rubified rock undersides	% Pebble	≥ 4 – 64 mm
	Coppice dunes: active / relict		Soil development	% Granule	≥ 2 – 4 mm
	Deflated surface		Surface rounding of landform	% Sand	≤ 2 mm
	Pavement	✓	Woody debris in place	% Silt/Clay	Fines
	Other:				

Fluvial Indicators					
	Bars: sand / gravel		Mud: cracks / curls / drapes		Sediment tails: sand / gravel
	Cut banks		Organic drift		Vegetation-channel alignment
✓	Drainage swales		Overturned rocks		Water-cut benches
	Exposed roots		Scour		Wrack
	First-order streams		Sediment ramps: sand / gravel		Wrinkle marks
	Flow lineations		Sediment sorting		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
5-~~10~~%	Atrpol - 3% Ambsal - 2%	H = 2' W = 2'

Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):

none

Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):

no

Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences)

no

Site ID:	Stream ID: CJA-20170530-02	page 3 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of a representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for those not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

WATERCOURSE or WATERCOURSE COMPLEX

Transportation, Deposition & Flow Transition Indicators

	Bar forms: sand / gravel		Secondary channels
	Bifurcated flow		Sediment plastering
✓	Drainage swales		Sediment ramps: sand / gravel
	Flow lineations		Sediment sheets: sand / gravel
	Imbricated gravel		Sediment sorting
	Levee ridges: sand / gravel		Sediment tails: sand / gravel
	Mud: cracks / curls / drapes		Vegetation-channel alignments
	Organic drift		Wrack
	Overturned rocks		Wrinkle marks
	Out-of-channel flow: Lateral floodplain / Terminal floodplain		
	Ripples		
	Other:		

Substrate Particle Size

Estimated percentages

% Bedrock / Cemented substrate	
% Boulder	≥ 256 mm
% Cobble	≥ 64 – 256 mm
% Pebble	≥ 4 – 64 mm
% Granule	≥ 2 – 4 mm
% Sand	≤ 2 mm
% Silt/Clay	Fines

Erosion Indicators

	Cut banks		Rills		Water-cut benches
	Exposed roots		Scour		Water level mark
	Headcuts		Secondary channels		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):

Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences)

Site ID	Stream ID QJA-20170530-02	page 4 of 4

INDICATORS of PONDING & EVAPORATION and EOLIAN TRANSPORT & DEPOSITION

	Algal crusts		Sand-filled channels		
	Beach ridges		Springs		
	Coppice dunes: active / relict		Substrate staining		
	Crusts: carbonate / salt / soda		Vegetation-landscape alignments		
	Mud: cracks / curls / polygons				
	Other:				

Additional Diagrams and Notes

Vegetation cross-section diagram: Draw a cross-section that identifies the approximate locations along the transect or diagram of geomorphic units (see page 1 of data sheet) where there are changes in vegetation characteristics, as summarized in the vegetation subsections under "Upland" and "Watercourse Complex".

Photographs

Photographs should document the representative landscape units, vegetation, and the presence or absence of representative stream indicators.

Photo ID #	Description	GPS location	
e	upstrm photo @ split		
f	downstream " "		
g	end of swale, upstrm photo		
h	" " , downstrm photo		

collector

Data Station 17

Episodic Stream Indicator Data Sheet			page 1 of 4
Site ID: Sanborn	Stream ID: 20180302-02		Date: 3/2/18
Nearest Town: Tehachapi		County: Kern	
Investigators: Callie Amoaku			

Base Map

Aerial Photo #:	Date:	Topographic Map Name:	Date:

GPS Data

GPS Name:	Datum:	Transect Elevation:	Zone 10 / 11	GPS Error: ± ft / m
GPS co-ords start of transect:		GPS co-ords end of transect:		

Geomorphic Province (✓one)		Mojave		Sonoran/Colorado		Great Basin	Other:

Landform (✓ all that apply)

	Headwater		Upper fan		Middle fan		Lower fan		Alluvial plain		Axial valley		Playa

Channel Form (✓ one)

	Single thread		Braided		Compound		Distributary		Discontinuous	Other:

Transect was selected to:

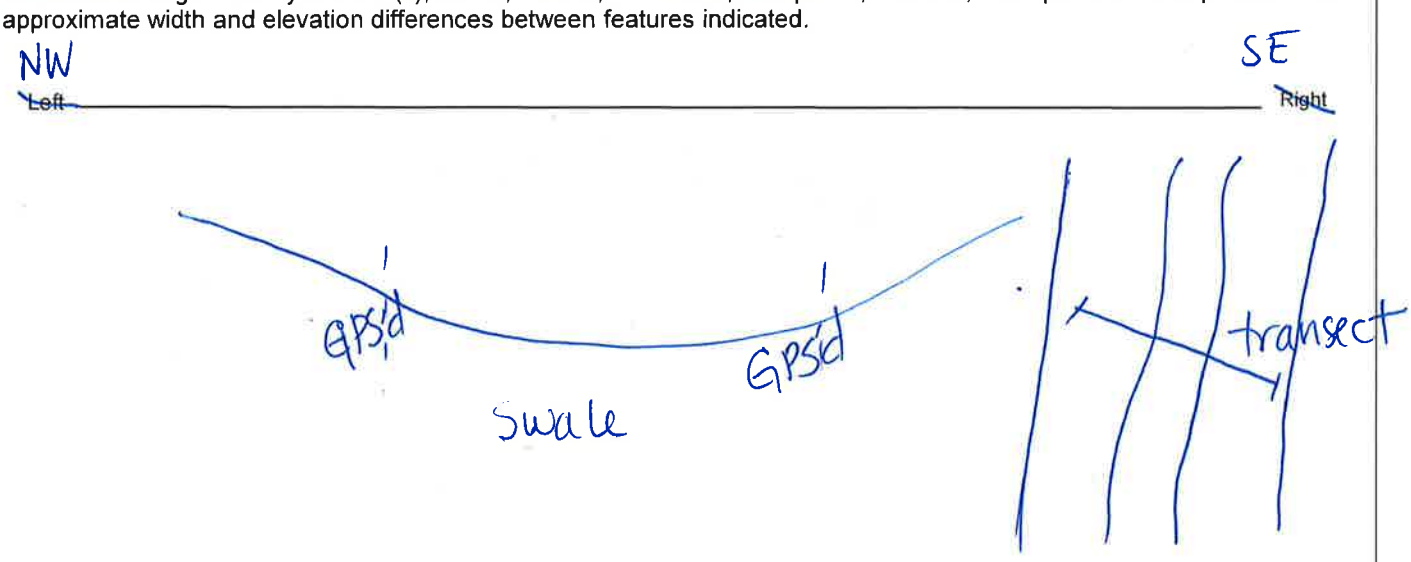
	Document fluvial activity & boundaries		Document channel elevations & boundaries
	Document habitat associations		Document a change in watercourse morphology
	Other:		

Date of most recent runoff event (if known):

Physical Setting: Briefly describe geomorphic processes and surficial materials and conditions, including the degree of disturbance relative to an intact dryland stream ecosystem, and any anthropogenic influences on the channel form and function:

Sheetflow from topography coalesces into swale w/ no discernible bed + bank, but less vegetation compared to adjacent areas. Connects to jurisdictional channel downstream.

Summary Site Description and Cross-section Sketch: View across the channel from watercourse-edge to watercourse-edge. Identify channel(s), banks, islands, interfluves, floodplains, terraces, and uplands where present. Note approximate width and elevation differences between features indicated.



Site ID: Sanborn	Stream ID: 20180302-02	page 2 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of the representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for indicators not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

UPLAND

Terrestrial Indicators				Substrate Particle Size	
	Av soil horizon		Relict bars & swales	Estimated percentages	
	Biotic soil crusts		Rock fractured in place	% Bedrock / Cemented substrate	
	Bioturbation		Rock varnish	% Boulder	≥ 256 mm
	Caliche: coatings / layers / rubble		Rock weathering	% Cobble	≥ 64 – 256mm
	Carbonate etching		Rubified rock undersides	% Pebble	≥ 4 – 64 mm
	Coppice dunes: active / relict		Soil development	% Granule	≥ 2 – 4 mm
	Deflated surface		Surface rounding of landform	% Sand	≤ 2 mm
	Pavement		Woody debris in place	% Silt/Clay	Fines
	Other:				

Fluvial Indicators					
	Bars: sand / gravel		Mud: cracks / curls / drapes		Sediment tails: sand / gravel
	Cut banks	✓	Organic drift		Vegetation-channel alignment
✓	Drainage swales		Overturned rocks		Water-cut benches
	Exposed roots		Scour		Wrack
	First-order streams		Sediment ramps: sand / gravel		Wrinkle marks
	Flow lineations		Sediment sorting		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
10 – 15%	Erinau -5% Eriog. + Oschara -5% Enctar=5%	

Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):

less dense in swale

Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):

Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences)

Site ID:	Stream ID:	page 3 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of a representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for those not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

WATERCOURSE or WATERCOURSE COMPLEX

	Transportation, Deposition & Flow Transition Indicators				**Substrate Particle Size**	
	Bar forms: sand / gravel		Secondary channels		Estimated percentages	
	Bifurcated flow		Sediment plastering		% Bedrock / Cemented substrate	
✓	Drainage swales		Sediment ramps: sand / gravel		% Boulder	≥ 256 mm
	Flow lineations		Sediment sheets: sand / gravel		% Cobble	≥ 64 – 256 mm
	Imbricated gravel		Sediment sorting		% Pebble	≥ 4 – 64 mm
	Levee ridges: sand / gravel		Sediment tails: sand / gravel		% Granule	≥ 2 – 4 mm
	Mud: cracks / curls / drapes		Vegetation-channel alignments		% Sand	≤ 2 mm
✓	Organic drift	✓	Wrack		% Silt/Clay	Fines
	Overturned rocks		Wrinkle marks			
	Out-of-channel flow: Lateral floodplain / Terminal floodplain					
	Ripples					
	Other:					

Erosion Indicators

	Cut banks		Rills		Water-cut benches
	Exposed roots	✓	Scour		Water level mark
	Headcuts		Secondary channels		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):

Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences)

Site ID	Stream ID	page 4 of 4

INDICATORS of PONDING & EVAPORATION and EOLIAN TRANSPORT & DEPOSITION

	Algal crusts		Sand-filled channels		
	Beach ridges		Springs		
	Coppice dunes: active / relict		Substrate staining		
	Crusts: carbonate / salt / soda		Vegetation-landscape alignments		
	Mud: cracks / curls / polygons				
	Other:				

Additional Diagrams and Notes

Vegetation cross-section diagram: Draw a cross-section that identifies the approximate locations along the transect or diagram of geomorphic units (see page 1 of data sheet) where there are changes in vegetation characteristics, as summarized in the vegetation subsections under "Upland" and "Watercourse Complex".

Photographs

Photographs should document the representative landscape units, vegetation, and the presence or absence of representative stream indicators.

Photo ID #	Description	GPS location	

APPENDIX B

Jurisdictional Delineation Photos

APPENDIX B
Jurisdictional Delineation Photos

Data Station No. 1	Data Station No. 2
Data Station No. 3	Data Station No. 4

Data Station No. 5	Data Station No. 6
Data Station No. 7	Data Station No. 8

Data Station No. 9	Data Station No. 10
Data Station No. 11	Data Station No. 12

Data Station No. 13	Data Station No. 14
Data Station No. 15	Data Station No. 16

Data Station No. 17	OHWM Data Station No. 1
OHWM Data Station No. 2	OHWM Data Station No. 3

OHWM Data Station No. 4	OHWM Data Station No. 5

APPENDIX C

Compendium of Plant Species Observed in the Study Area

APPENDIX C
Plant Species Compendium

VASCULAR SPECIES

EUDICOTS

AMARANTHACEAE—AMARANTH FAMILY

* *Amaranthus albus*—prostrate pigweed

APIACEAE—CARROT FAMILY

Lomatium mohavense—Mojave desertparsley

APOCYNACEAE—DOGBANE FAMILY

* *Nerium oleander*—oleander

ASTERACEAE—SUNFLOWER FAMILY

Acamptopappus sphaerocephalus—rayless goldenhead
* *Acroptilon repens*—hardheads
Ambrosia acanthicarpa—flatspine bur ragweed
Ambrosia dumosa—white bursage
Ambrosia salsola—cheesebush
Chaenactis fremontii—pincushion flower
Chaenactis glabriuscula—yellow pincushion
Encelia farinosa—brittle bush
Ericameria cooperi var. *cooperi*—Cooper's goldenbush
Ericameria nauseosa—rubber rabbitbrush
Eriophyllum wallacei—woolly easterbonnets
* *Lactuca serriola*—prickly lettuce
Lasthenia californica—California goldfields
Layia glandulosa—whitedaisy tidytips
Leptosyne californica—California tickseed
Leptosyne calliopsidea—leafstem tickseed
Malacothrix coulteri—snake's head
Malacothrix glabrata—smooth desertdandelion
* *Matricaria discoidea*—disc mayweed
* *Sonchus asper*—spiny sowthistle
Stephanomeria exigua ssp. *exigua*—small wirelettuce
Stephanomeria parryi—Parry's wirelettuce
Stephanomeria pauciflora—brownplume wirelettuce
Syntrichopappus fremontii—yellowray Fremont's-gold
* *Taraxacum officinale*—common dandelion

Tetradymia axillaris—longspine horsebrush
Tetradymia stenolepis—Mojave cottonthorn
Uropappus lindleyi—Lindley's silverpuffs
Xylorhiza tortifolia var. *tortifolia*—Mojave woodyaster

BORAGINACEAE—BORAGE FAMILY

Amsinckia menziesii—Menzies' fiddleneck
Amsinckia tessellata—bristly fiddleneck
Cryptantha circumscissa var. *circumscissa*—cushion cryptantha
Cryptantha micrantha—redroot cryptantha
Cryptantha pterocarya var. *cycloptera*—wingnut cryptantha
Nama demissa var. *demissa*—no common name
Pectocarya penicillata—sleeping combseed
Phacelia cicutaria—caterpillar phacelia
Phacelia tanacetifolia—lacy phacelia
Plagiobothrys arizonicus—Arizona popcornflower

BRASSICACEAE—MUSTARD FAMILY

* *Brassica nigra*—black mustard
* *Brassica tournefortii*—Asian mustard
Descurainia pinnata—western tansymustard
* *Hirschfeldia incana*—shortpod mustard
Lepidium flavum—yellow pepperweed
Lepidium fremontii—desert pepperweed
* *Lepidium latifolium*—perennial pepper weed
Lepidium nitidum—shining pepperweed
* *Sisymbrium altissimum*—tall tumblemustard
* *Sisymbrium irio*—London rocket
* *Sisymbrium orientale*—Indian hedgemustard
Stanleya elata—Panamint princesplume
Stanleya pinnata—desert princesplume
Tropidocarpum gracile—dobie pod

CACTACEAE—CACTUS FAMILY

Cylindropuntia echinocarpa—Wiggins' cholla
Opuntia basilaris var. *basilaris*—beavertail pricklypear

CHENOPODIACEAE—GOOSEFOOT FAMILY

Atriplex confertifolia—shadscale
Atriplex polycarpa—allscale

* *Atriplex prostrata*—fat hen
* *Atriplex semibaccata*—Australian saltbush
Atriplex spinifera—spinescale
* *Bassia hyssopifolia*—fivehorn smotherweed
Chenopodium fremontii—Fremont's goosefoot
Grayia spinosa—spiny hop sage
Krascheninnikovia lanata—winterfat
* *Salsola tragus*—prickly Russian thistle

CUCURBITACEAE—GOURD FAMILY

Cucurbita palmata—coyote gourd
Marah fabacea—California man-root

EUPHORBIACEAE—SPURGE FAMILY

Croton setiger—dove weed
Euphorbia albomarginata—whitemargin sandmat
Stillingia linearifolia—queen's-root
Stillingia paucidentata—Mojave toothleaf

FABACEAE—LEGUME FAMILY

Acmispon strigosus—strigose bird's-foot trefoil
Astragalus didymocarpus—dwarf white milkvetch
Astragalus layneae—widow's milkvetch
Astragalus lentiginosus var. *variabilis*—freckled milkvetch
Lupinus arizonicus—Arizona lupine
Lupinus bicolor—miniature lupine
* *Melilotus indicus*—annual yellow sweetclover

GERANIACEAE—GERANIUM FAMILY

* *Erodium brachycarpum*—shortfruit stork's bill
* *Erodium cicutarium*—redstem stork's bill

LAMIACEAE—MINT FAMILY

* *Marrubium vulgare*—horehound
Salvia carduacea—thistle sage
Salvia columbariae—chia

LOASACEAE—LOASA FAMILY

Mentzelia albicaulis—whitestem blazingstar

MALVACEAE—MALLOW FAMILY

Eremalche exilis—white mallow
* *Malva parviflora*—cheeseweed mallow
Sphaeralcea ambigua—desert globemallow

MONTIACEAE—MONTIA FAMILY

Calyptridium monandrum—common pussypaws

NYCTAGINACEAE—FOUR O'CLOCK FAMILY

Abronia pogonantha—Mojave sand verbena
Mirabilis laevis var. *retrorsa*—wishbone-bush
Mirabilis multiflora var. *glandulosa*—Colorado four o'clock

ONAGRACEAE—EVENING PRIMROSE FAMILY

Camissonia campestris—Mojave suncup
Camissoniopsis bistorta—southern suncup
Chylismia claviformis ssp. *claviformis*—no common name
Eremothera boothii—Booth's evening primrose
Tetrapteron palmeri—Palmer evening primrose

PAPAVERACEAE—POPPY FAMILY

Eschscholzia californica—California poppy
Eschscholzia minutiflora—pygmy poppy
Platystemon californicus—creamcups

PHRYMACEAE—LOPSEED FAMILY

Diplacus bigelovii—Bigelow's monkeyflower

POLEMONIACEAE—PHLOX FAMILY

Eriastrum diffusum—miniature woollystar
Eriastrum sapphirinum ssp. *dasyanthum*—sapphire woollystar
Gilia latiflora—hollyleaf gilia
Gilia stellata—star gilia
Linanthus dichotomus—eveningsnow
Linanthus parryae—sandblossoms
Loeseliastrum matthewsii—desert calico

POLYGONACEAE—BUCKWHEAT FAMILY

Chorizanthe brevicornu—brittle spineflower
Eriogonum angulosum—anglestem buckwheat
Eriogonum fasciculatum var. *polifolium*—California buckwheat

Eriogonum reniforme—kidneyleaf buckwheat
Eriogonum wrightii var. *wrightii*—bastardsage
Oxytheca perfoliata—roundleaf oxytheca
* *Polygonum aviculare* ssp. *depressum*—prostrate knotweed
Rumex hymenosepalus—canaigre dock

SOLANACEAE—NIGHTSHADE FAMILY
Datura wrightii—sacred thorn-apple
Lycium andersonii—Anderson's boxthorn
Lycium cooperi—peach thorn

TAMARICACEAE—TAMARISK FAMILY
* *Tamarix ramosissima*—tamarisk

ZYGOPHYLLACEAE—CALTROP FAMILY
Larrea tridentata—creosote bush
* *Tribulus terrestris*—puncturevine

GYMNOSPERMS AND GNETOPHYTES

CUPRESSACEAE—CYPRESS FAMILY
Juniperus californica—California juniper

EPHEDRACEAE—EPHEDRA FAMILY
Ephedra nevadensis—Nevada joint fir

MONOCOTS

AGAVACEAE—AGAVE FAMILY
Yucca brevifolia—Joshua tree

ALLIACEAE—ONION FAMILY
Allium fimbriatum var. *mohavense*—Mojave fringed onion

LILIACEAE—LILY FAMILY
Calochortus striatus—alkali mariposa lily

POACEAE—GRASS FAMILY
* *Bromus diandrus*—ripgut brome
* *Bromus madritensis* ssp. *rubens*—red brome
* *Bromus tectorum*—cheatgrass
* *Cynodon dactylon*—Bermudagrass

Distichlis spicata—salt grass
Elymus elymoides—squirreltail
Festuca microstachys—six-weeks fescue
* *Festuca myuros*—rat-tail fescue
* *Hordeum murinum* ssp. *leporinum*—hare barley
Melica imperfecta—smallflower melicgrass
* *Schismus arabicus*—Arabian schismus
* *Schismus barbatus*—common Mediterranean grass
Stipa hymenoides—Indian rice grass
Stipa speciosa—desert needlegrass
* *Triticum aestivum*—common wheat

THEMIDACEAE—BRODIAEA FAMILY

Dichelostemma capitatum ssp. *capitatum*—bluedicks

* signifies introduced (non-native) species

APPENDIX D

Special-Status Plant Species Not Expected to Occur in the Study Area

APPENDIX D
Special-Status Plant Species Not Expected to Occur in the Study Area

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
Allium howellii var. *clokeyi*	Mt. Pinos onion	None/None/1B.3	Great Basin scrub, Meadows and seeps (edges), Pinyon and juniper woodland/perennial bulbiferous herb/Apr–June/4,265–6,070	Not expected to occur. The study area outside of the species' known elevation range.
Allium shevockii	Spanish needle onion	None/None/1B.3	Pinyon and juniper woodland, Upper montane coniferous forest; rocky/perennial bulbiferous herb/May–June/2,785–8,200	Not expected to occur. No suitable vegetation present.
Astragalus hornii var. *hornii*	Horn's milk-vetch	None/None/1B.1	Meadows and seeps, Playas; lake margins, alkaline/annual herb/May–Oct/195–2,790	Not expected to occur. No suitable vegetation present.
Calochortus palmeri var. *palmeri*	Palmer's mariposa lily	None/None/1B.2	Chaparral, Lower montane coniferous forest, Meadows and seeps; mesic/perennial bulbiferous herb/Apr–July/2,325–7,840	Not expected to occur. No suitable vegetation present.
Diplacus pictus	calico monkeyflower	None/None/1B.2	Broadleafed upland forest, Cismontane woodland; granitic, disturbed areas/annual herb/Mar–May/325–4,690	Not expected to occur. No suitable vegetation present.
Eriogonum kennedyi var. *pinicola*	Kern buckwheat	None/None/1B.1	Chaparral, Pinyon and juniper woodland; clay/perennial herb/May–June(July)/4,395–6,400	Not expected to occur. The study area is outside of the species' known elevation range, and there is no suitable vegetation present.
Fritillaria brandegeei	Greenhorn fritillary	None/None/1B.3	Lower montane coniferous forest (granitic)/perennial bulbiferous herb/Apr–June/4,360–6,890	Not expected to occur. The study area is outside of the species' known elevation range, and there is no suitable vegetation present.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	None/None/1B.1	Marshes and swamps (coastal salt), Playas, Vernal pools/annual herb/Feb–June/0–4,005	Not expected to occur. No suitable vegetation present.
Monardella linoides ssp. *oblonga*	Tehachapi monardella	None/None/1B.3	Lower montane coniferous forest, Pinyon and juniper woodland, Upper montane coniferous forest/perennial rhizomatous herb/(May)June–Aug/2,950–8,105	Not expected to occur. No suitable vegetation present.
Navarretia peninsularis	Baja navarretia	None/None/1B.2	Chaparral (openings), Lower montane coniferous forest, Meadows and seeps, Pinyon and juniper woodland; mesic/annual herb/(May)June–Aug/4,920–7,545	Not expected to occur. The study area is outside of the species' known elevation range, and there is no suitable vegetation present.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
Orthotrichum spjutii	Spjut's bristle moss	None/None/1B.3	Lower montane coniferous forest, Pinyon and juniper woodland, Subalpine coniferous forest, Upper montane coniferous forest; granitic, rock/moss/N.A./6,885–7,875	Not expected to occur. The study area is outside of the species' known elevation range, and there is no suitable vegetation present.
Opuntia basilaris var. *treleasei*	Bakersfield cactus	FE/CE/1B.1	Chenopod scrub, cismontane woodland, valley and foothill grassland; sandy or gravelly/perennial stem succulent/Apr–May/394–4,757	Not expected to occur. Species would have been observed during surveys if present. For additional 223 acres, species would have been observed if present during vegetation mapping. Also, closest known occurrence over 27 miles away.
Streptanthus cordatus var. *piutensis*	Piute Mountains jewelflower	None/None/1B.2	Broadleafed upland forest, Closed-cone coniferous forest, Pinyon and juniper woodland; clay or metamorphic/perennial herb/May–July/3,590–5,990	Not expected to occur. No suitable vegetation present.
Triteleia piutensis	Piute Mountains triteleia	None/None/1B.1	Pinyon and juniper woodland; Openings, fine volcanic soil throughout scattered boulders or heavy clay soil with volcanic hardpan/perennial bulbiferous herb/May–June/5,200–5,430	Not expected to occur. The study area is outside of the species' known elevation range, and there is no suitable vegetation present.
Viola pinetorum var. *grisea*	grey-leaved violet	None/None/1B.3	Meadows and seeps, subalpine coniferous forest, upper montane coniferous forest/perennial herb/Apr–July/4,921–11,155	Not expected to occur. The study area is outside of the species' known elevation range.
Viola purpurea *ssp.* aurea	golden violet	None/None/2B.2	Great Basin scrub, pinyon and juniper woodland; sandy/perennial herb/Apr–June/3281–8,202	Not expected to occur. The study area is outside of the species' known geographic range. The closest known occurrence is approximately 180 miles north in the Sierra Nevada Mountains.

Status Legend:
FE: Federally listed as threatened.
CE: State listed as threatened.
CRPR: California Rare Plant Rank
1B: Plants rare, threatened, or endangered in California and elsewhere
2B: Plants presumed extirpated in California, but more common elsewhere.

Threat Rank
0.1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
0.2 – Moderately threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)
0.3 – Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

APPENDIX E

Compendium of Wildlife Species Observed in the Study Area

APPENDIX E
Compendium of Wildlife Species Observed in the Study Area

BIRD

BLACKBIRDS, ORIOLES, AND ALLIES

ICTERIDAE—BLACKBIRDS

Sturnella neglecta—western meadowlark

FALCONS

FALCONIDAE—CARACARAS AND FALCONS

Falco sparverius—American kestrel

FINCHES

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Haemorhous mexicanus—house finch

FLYCATCHERS

TYRANNIDAE—TYRANT FLYCATCHERS

Myiarchus cinerascens—ash-throated flycatcher

Tyrannus verticalis—western kingbird

HAWKS

ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES

Buteo jamaicensis—red-tailed hawk

Buteo swainsoni—Swainson's hawk

JAYS, MAGPIES, AND CROWS

CORVIDAE—CROWS AND JAYS

Corvus corax—common raven

LARKS

ALAUDIDAE—LARKS

Eremophila alpestris—horned lark

MOCKINGBIRDS AND THRASHERS

MIMIDAE—MOCKINGBIRDS AND THRASHERS

Mimus polyglottos—northern mockingbird
Toxostoma lecontei—LeConte's thrasher

NEW WORLD QUAIL

ODONTOPHORIDAE—NEW WORLD QUAIL

Callipepla californica—California quail

OLD WORLD SPARROWS

PASSERIDAE—OLD WORLD SPARROWS

* *Passer domesticus*—house sparrow

OWLS

STRIGIDAE—TYPICAL OWLS

Athene cunicularia—burrowing owl

PIGEONS AND DOVES

COLUMBIDAE—PIGEONS AND DOVES

* *Columba livia*—rock pigeon (rock dove)
* *Streptopelia decaocto*—Eurasian collared-dove
Zenaida macroura—mourning dove

ROADRUNNERS AND CUCKOOS

CUCULIDAE—CUCKOOS, ROADRUNNERS, AND ANIS

Geococcyx californianus—greater roadrunner

SHRIKES

LANIIDAE—SHRIKES

Lanius ludovicianus—loggerhead shrike

STARLINGS AND ALLIES

STURNIDAE—STARLINGS

* *Sturnus vulgaris*—European starling

WRENS

TROGLODYTIDAE—WRENS

Campylorhynchus brunneicapillus—cactus wren

NEW WORLD SPARROWS

PASSERELLIDAE—NEW WORLD SPARROWS

Artemisiospiza belli—Bell's sparrow
Junco hyemalis—dark-eyed junco
Zonotrichia leucophrys—white-crowned sparrow

MAMMAL

CANIDS

CANIDAE—WOLVES AND FOXES

Canis latrans—coyote
Vulpes macrotis arsipus—desert kit fox

CATS

FELIDAE—CATS

Lynx rufus—bobcat

HARES AND RABBITS

LEPORIDAE—HARES AND RABBITS

Lepus californicus—black-tailed jackrabbit
Sylvilagus audubonii—desert cottontail

SQUIRRELS

SCIURIDAE—SQUIRRELS

Ammospermophilus leucurus—white-tailed antelope squirrel
Spermophilus (Otospermophilus) beecheyi—California ground squirrel

REPTILE

LIZARDS

PHRYNOSOMATIDAE—IGUANID LIZARDS

Uta stansburiana—common side-blotched lizard

TEIIDAE—WHIPTAIL LIZARDS

Aspidoscelis tigris—tiger whiptail

CROTAPHYTIDAE—COLLARED LIZARDS

Gambelia wislizenii—long-nosed leopard lizard

SNAKES

VIPERIDAE—VIPERS

Crotalus scutulatus—Mohave rattlesnake

TURTLES

TESTUDINIDAE—TRUE LAND TORTOISES

** *Gopherus agassizii*—Mohave Desert tortoise

* signifies introduced (non-native) species
**detected by sign only.

APPENDIX F

Special-Status Wildlife Species Not Expected to Occur in the Study Area

APPENDIX F
Special-Status Wildlife Species Not Expected to Occur in the Study Area

Scientific Name	Common Name	Status (Federal/ State)	Primary Habitat Associations	Potential to Occur
Amphibians				
Batrachoseps stebbinsi	Tehachapi slender salamander	None/ST	North-facing talus slopes in moist canyons supporting oak and mixed woodlands and/or yuccas in arid and semi-arid locations.	Not expected to occur. Suitable habitat is absent in the study area. Although the CNDDB query identified occurrences of this species, the nearest is not within 10 miles of the study area (CDFW 2019), which is outside the species' range.
Reptiles				
Phrynosoma blainvillii	Blainville's horned lizard	None/SSC	Open areas of sandy soil in valleys, foothills, and semi-arid mountains including coastal scrub, chaparral, valley–foothill hardwood, conifer, riparian, pine–cypress, juniper, and annual grassland habitats.	Not expected to occur. Although the CNDDB query identified occurrences of this species as close 3.9 miles west of the study area (CDFW 2019), in the Tehachapi Mountains, the study area is outside the known range and within the range of the desert horned lizard (*Phrynosoma platyrhinos*).
Birds				
Agelaius tricolor (nesting colony)	tricolored blackbird	BCC/ST, SSC	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberry, other dense forbs, and in some agricultural crops, such as triticale; forages in grasslands, woodland, and agriculture.	Not expected to nest, unlikely to forage. The nearest occurrences in CNDDB are more than 10.0 miles from the study area (CDFW 2019). Breeding habitat is absent in the study area, which is also poor foraging habitat.
Asio flammeus (nesting)	short-eared owl	None/SSC	Grassland, prairies, dunes, meadows, irrigated lands, and saline and freshwater emergent wetlands.	Not expected to occur. Although CNDDB includes an occurrence approximately 12.0 miles to the south (CDFW 2019), suitable habitat is absent in the study area.
Asio otus (nesting)	long-eared owl	None/SSC	Nests in riparian habitat, live oak thickets, other dense stands of trees, edges of coniferous forest; forages in nearby open habitats.	Not expected to occur. No occurrences in CNDDB (CDFW 2019). Although the study area is within the range of the species, suitable nesting habitat is absent in the study area.
Charadrius (alexandrinus) nivosus (nesting)	(western) snowy plover	FT/SSC	On coasts nests on sandy marine and estuarine shores; in the interior nests on sandy, barren or sparsely vegetated flats near saline or alkaline lakes, reservoirs, and ponds.	Not expected to occur. Although CNDDB includes an occurrence approximately 7.0 miles to the south southeast (CDFW 2019), suitable unvegetated flats and water sources are absent from the study area.

Scientific Name	Common Name	Status (Federal/ State)	Primary Habitat Associations	Potential to Occur
Circus hudsonius (nesting)	northern harrier	None/SSC	Nests in open wetlands (marshy meadows, wet lightly-grazed pastures, old fields, freshwater and brackish marshes); also in drier habitats (grassland and grain fields); forages in grassland, scrubs, rangelands, emergent wetlands, and other open habitats.	Not expected to occur. No occurrences in CNDDB (CDFW 2019). Although the study area is within the range of the species, suitable nesting habitat is absent in the study area.
Vireo vicinior (nesting)	gray vireo	BCC/SSC	Nests and forages in pinyon–juniper woodland, oak, and chamise and redshank chaparral.	Not expected to occur. Although CNDDB includes an occurrence approximately 16 miles to the northeast (CDFW 2019), suitable habitat is absent from the study area.
Xanthocephalus xanthocephalus (nesting)	yellow-headed blackbird	None/SSC	Nests in marshes with tall emergent vegetation, often along borders of lakes and ponds; forages in emergent wetlands, open areas, croplands, and muddy shores of lacustrine habitat.	Not expected to occur. No occurrences in CNDDB (CDFW 2019). Although the study area is within the range of the species, suitable emergent wetland nesting habitat is absent in the study area.
Mammals				
Onychomys torridus tularensis	Tulare grasshopper mouse	None/SSC	Low, open scrub, and semi-scrub habitats in arid Lower Sonoran associations.	Not expected to occur. Although the nearest CNDDB occurrence is from approximately 2.5 miles to the north northwest of the gen-tie study area (CDFW 2019), the study area is outside the known range of the species.

Status Key:
Federal: BCC = USFWS bird of conservation concern
FT = federal threatened
State: SSC = California species of special concern
ST = state threatened

Source: CDFW (California Department of Fish and Wildlife). 2017c. Element Occurrence Query. California Natural Diversity Database (CNDDB). RareFind, Version 5 (Commercial Subscription). Sacramento, California: CDFW, Biogeographic Data Branch. https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data.

Appendix E
Cultural Resources Reports

ESA

Appendix E1

Cultural Resources Inventory and Evaluation for the Sanborn Solar Project

ESA

FINAL

CULTURAL RESOURCES INVENTORY AND EVALUATION FOR THE SANBORN SOLAR PROJECT, KERN COUNTY, CALIFORNIA

Prepared for:

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JANUARY 2019

Printed on 30% post-consumer recycled material.

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
CCS	cryptocrystalline silicate
cmbs	centimeters below surface
CRHR	California Register of Historical Resources
CSC	controlled surface collection
CU	control unit
DPR	Department of Parks and Recreation
FAR	fire-affected rock
gen-tie	generator tie-in
HPRD	historic period refuse deposit
MLD	Most Likely Descendant
NAHC	Native American Heritage Commission
NRHP	National Register of Historic Places
SBBM	San Bernardino Base and Meridian
SCE	Southern California Edison
SHPO	State Historic Preservation Officer
SR-	State Route
SSJVIC	Southern San Joaquin Valley Information Center
SSU	surface scrape unit
STP	shovel test pit
STU	shovel test unit
USGS	U.S. Geological Survey

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1 INTRODUCTION

This project description has been prepared by Dudek on behalf of Sanborn Solar, LLC (Applicant), for submittal to Kern County (County), the lead agency, for the approximately 2,102-acre Sanborn Solar Project (project) proposed by the Applicant. The proposed project consists of the development of a photovoltaic solar facility and associated infrastructure necessary to generate up to a combined 300 megawatts of renewable electrical energy and/or energy storage capacity.

The proposed project would consists of two discontinuous sites (northern site and southern site), each of which would contain solar and energy storage facilities, which together would compose the project site. The northern site is approximately 1,118 acres and the southern site is approximately 983 acres. The northern site is directly east of the BNSF Railway, south of State Route (SR-) 58, and west of southern 10th Street. The southern site is directly north of Edwards Air Force Base, east of 15th Street, and 0.2 miles south of the BNSF Railway; its eastern edge generally follows an unnamed dirt road. A generator tie-in line (gen-tie) line would connect the energy generated on site to either the Windhub Substation, which is owned and operated by Southern California Edison, and/or the privately owned Westwind Substation. The northern site would be accessed by Lone Butte Road or 10th Street from SR-58 and the southern site would be accessed by Silver Queen Road or Reed Avenue from United Street.

1.1 Project Location

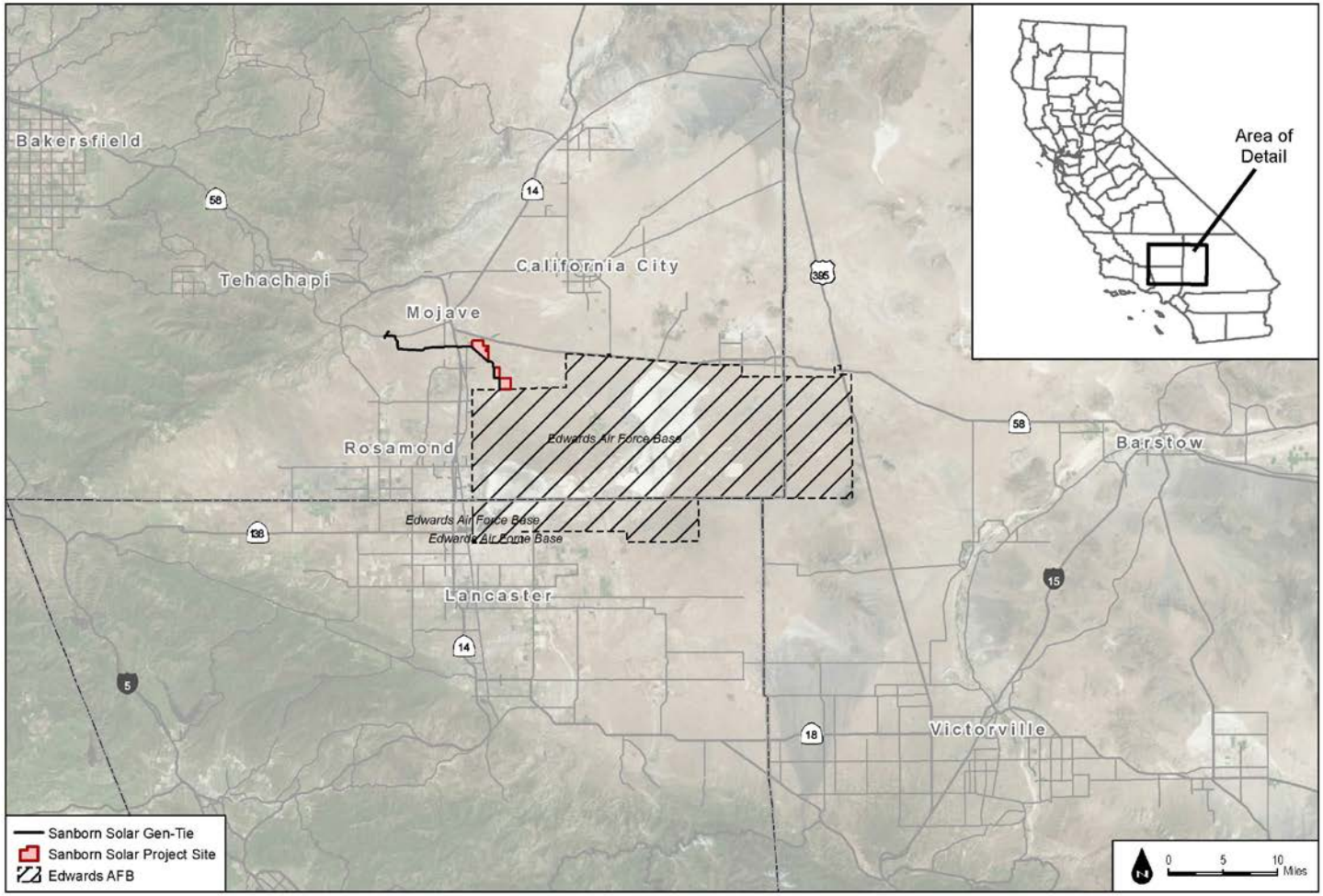
The project site is located in the southern portion of Kern County, in central California, as shown on Figure 1-1, Regional Map. The project site is located at the western edge of the Antelope Valley, directly south of the community of Mojave. The solar generation sites and 1.3 miles of the gen-tie line are east of SR-14 (Antelope Valley Freeway) and the remainder of the gen-tie line is west of SR-14. The northern site is less than 1 mile southwest of SR-58 (West Avenue D) and south of the Mojave Air and Space Port. The BNSF Railway forms the western edge of the northern site and the gen-tie line crosses the BNSF Railway in two locations. The western extent of the gen-tie line is approximately 38 miles east of Interstate 5. The gen-tine line crosses the Los Angeles Aqueduct approximately 1.5 miles east of the Windhub Substation. The southern site is directly north of Edwards Air Force Base. The northern site lies in the Sanborn and Mojave, California, U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle maps, Sections 22, 23, 26, 27, 34, and 35, Township 11 North, Range 12 West, San Bernardino Base and Meridian (SBBM). The southern site is in the Bissell, California, USGS 7.5-minute quadrangle, Sections 1, 6, 7, and 12, Township 10 North, Ranges 12 West and 11 West, SBBM. Figure 1-2, Vicinity Map Overview, and Figures 1-2A through 1-2D depict the project boundaries.

1.2 Definition of the Project Area

The cultural resources project area is defined as the gen-tie line along with a 50-foot-wide (15.4-meter-wide) buffer on either side, the approximately 1,118-acre northern site, and the approximately 983-acre southern site. The entirety of the gen-tie line and 270 acres of the northern site were previously surveyed (Hudlow 2010; Lawson and Helton 2009). These areas were not resurveyed during the current investigation, but rather spot-checked, confirming the previously recorded conditions via reconnaissance survey. As a result, a total area of 1,831 acres was intensively surveyed.

1.3 Report Structure

Several chapters follow this introductory chapter. Chapter 2 outlines the regulations to which the project adheres. Chapter 3 references existing environmental and cultural setting information and research design. Chapter 4 is a description of the methods used to accomplish this study. The results are summarized in Chapter 5, followed by the significance evaluations in Chapter 6. Findings and recommendations are presented in Chapter 7. All references cited are provided in the bibliography in Chapter 8, along with selected references for further reading and guidance. Confidential appendices include location maps for sites and isolates (Appendix A), site forms (Appendix B), records search results (Appendix C), special studies (Appendix D), and collected artifact catalog (Appendix E).



Terra Gen, 2017; Edwards AFB; Bing Maps

Figure 1-1: REGIONAL MAP

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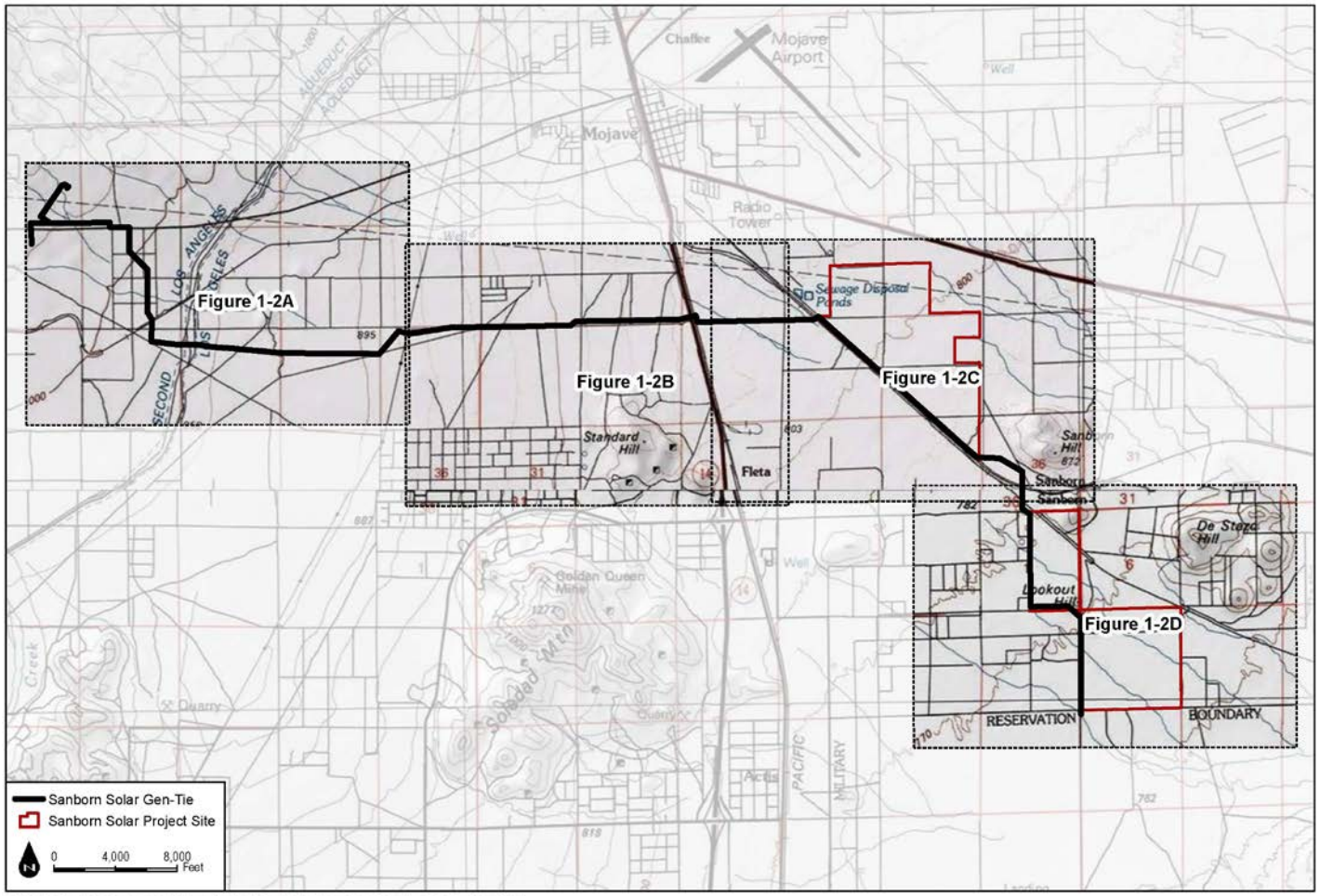

USGS 7.5-Minute Series Monolith, Mojave, Soledad Mountain Sanborn, Bissell Quadrangles; Terra Gen, 2017

Figure 1-2: VICINITY MAP OVERVIEW

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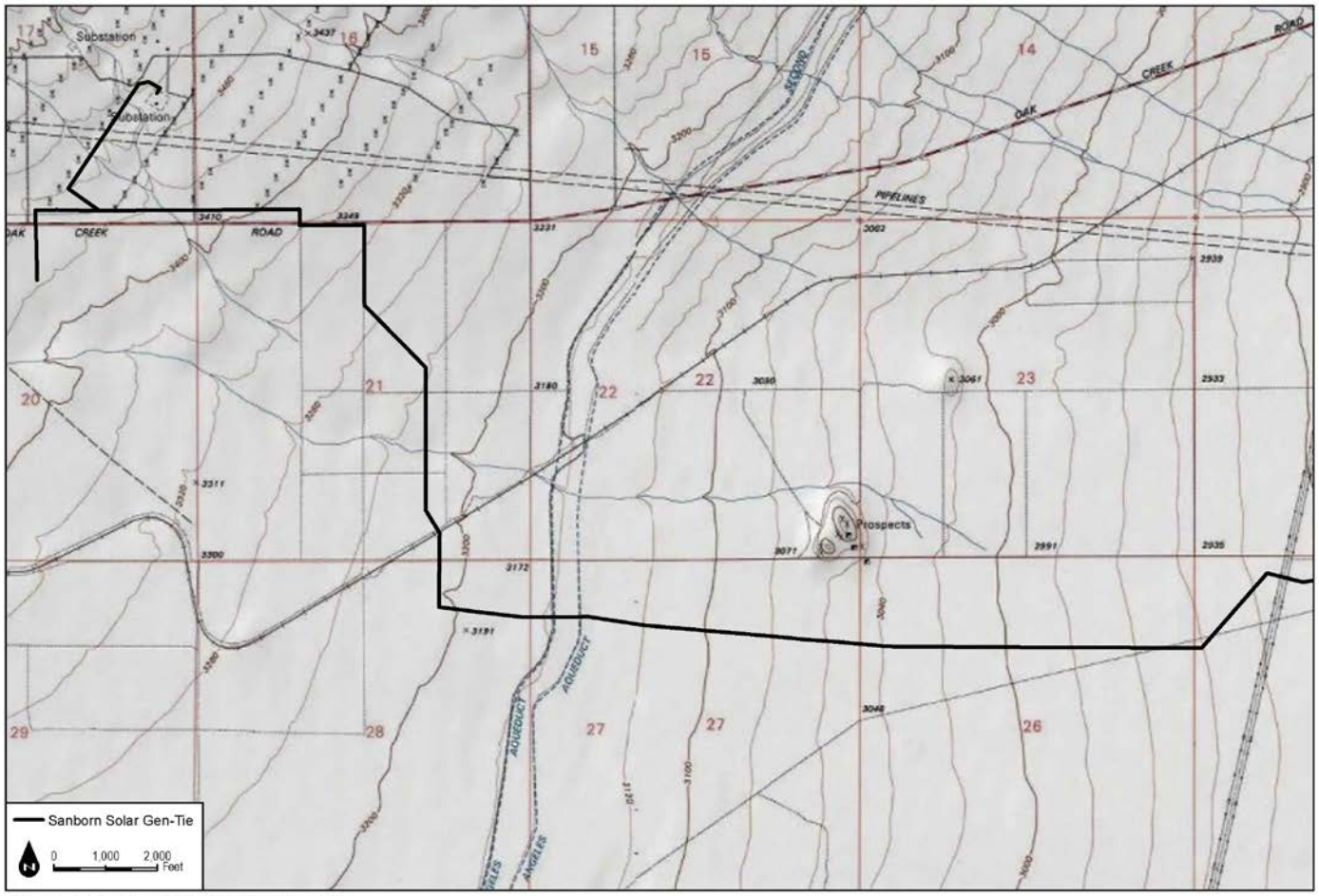
CULTURAL RESOURCES INVENTORY AND EVALUATION FOR THE SANBORN SOLAR PROJECT



USGS 7.5-Minute Series Monolith, Mojave Quadrangles; Terra Gen, 2017

Figure 1-2A: VICINITY MAP

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CULTURAL RESOURCES INVENTORY AND EVALUATION FOR THE SANBORN SOLAR PROJECT

USGS 7.5-Minute Series Mojave Quadrangle; Terra Gen, 2017

Figure 1-2B: VICINITY MAP

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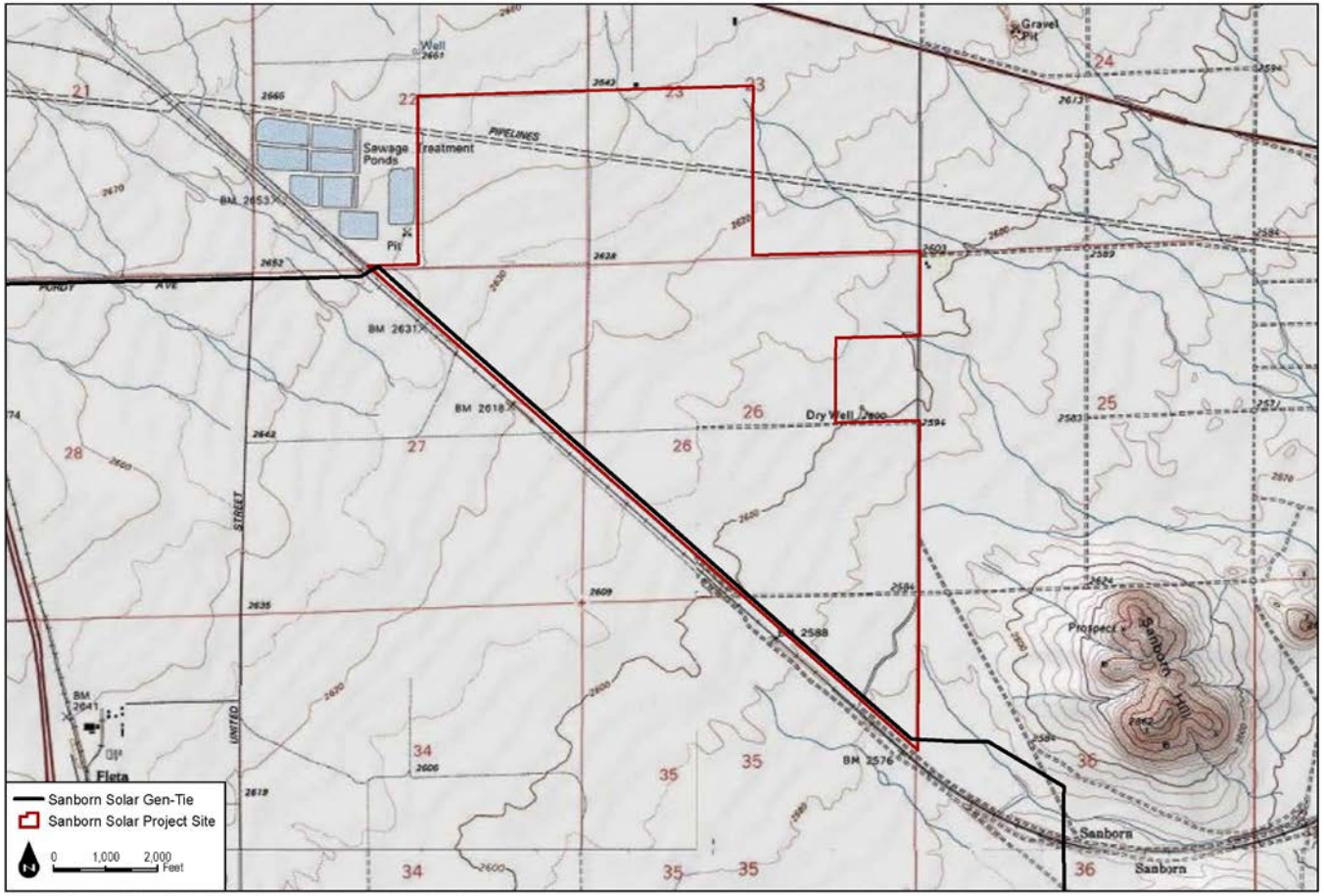
CULTURAL RESOURCES INVENTORY AND EVALUATION FOR THE SANBORN SOLAR PROJECT



USGS 7.5-Minute Series Mojave, Sanborn, Soledad Mountain, Bissell Quadrangles; Terra Gen, 2017

Figure 1-2C: VICINITY MAP

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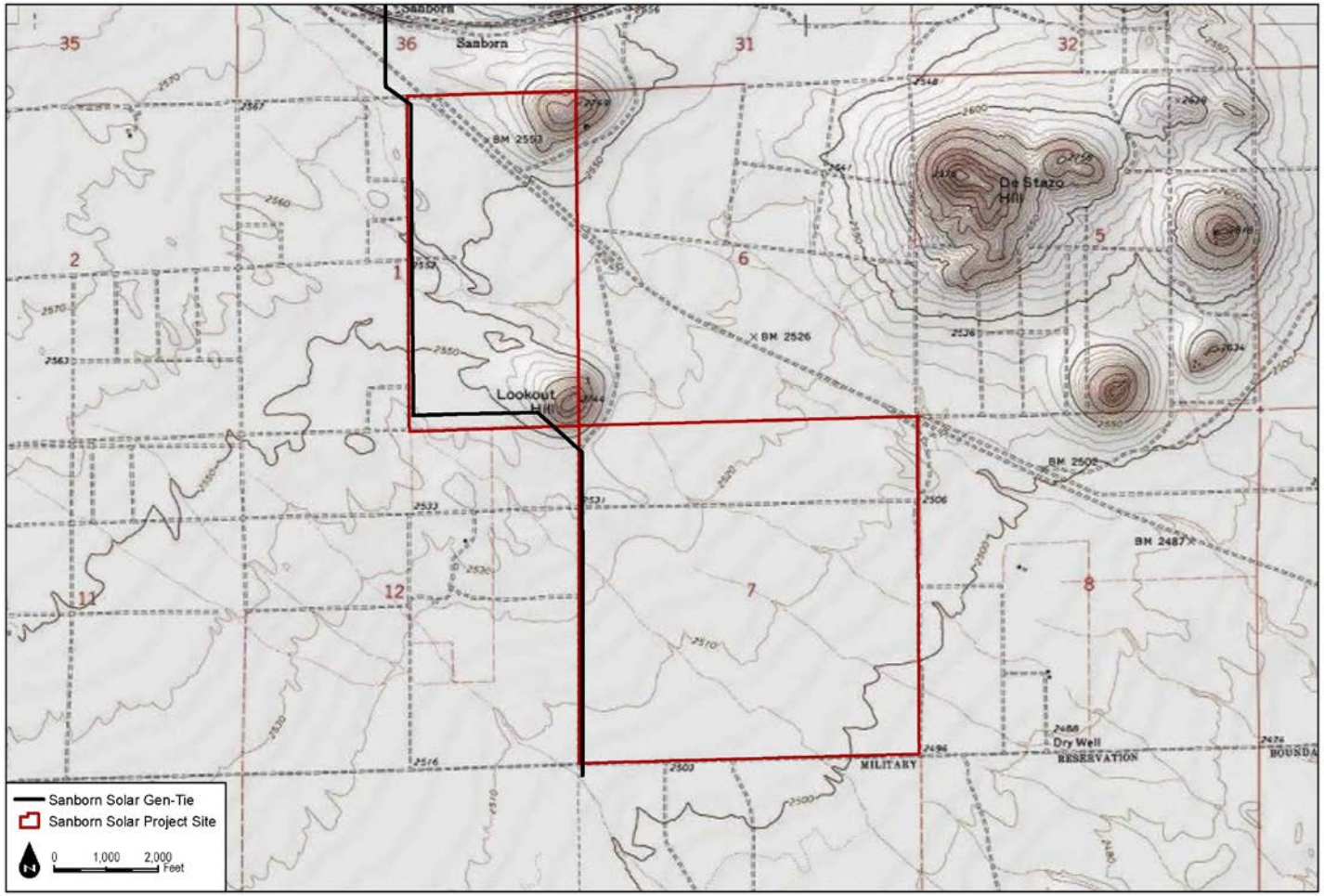

USGS 7.5-Minute Series Bissell Quadrangle; Terra Gen, 2017

Figure 1-2D: VICINITY MAP

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2 REGULATORY SETTING

The treatment of cultural resources located on the project site is governed by state and local laws and regulations. There are specific criteria for determining whether prehistoric and historic sites or objects are significant and/or protected by law. For instance, state significance criteria generally focus on the resource's integrity and uniqueness, its relationship to similar resources, and its potential to contribute important information to scholarly research. As a whole, the laws and regulations seek to avoid impacts to significant prehistoric or historic resources, and, when avoidance is not feasible, to mitigate those impacts to less than significant levels. In some cases, mitigation can be achieved through "preservation in place" techniques; but when such techniques are infeasible, mitigation can be accomplished via data recovery.

2.1 State

2.1.1 California Environmental Quality Act

2.1.1.1 The California Register of Historic Resources (Public Resources Code section 5020 et seq.)

In California, the term "historical resource" includes but is not limited to "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (California Public Resources Code, Section 5020.1(j)). In 1992, the California legislature established the California Register of Historical Resources (CRHR) "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (California Public Resources Code, Section 5024.1(a)). A resource is eligible for listing in the CRHR if the State Historical Resources Commission determines that it is a significant resource and that it meets any of the following National Register of Historic Places (NRHP) criteria (California Public Resources Code, Section 5024.1(c)):

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
2. Is associated with the lives of persons important in our past.
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

4. Has yielded, or may be likely to yield, information important in prehistory or history.

Resources less than 50 years old are not considered for listing in the CRHR, but may be considered if it can be demonstrated that sufficient time has passed to understand the historical importance of the resource (14 CCR 4852(d)(2)).

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP, and properties listed or formally designated as eligible for listing on the NRHP are automatically listed on the CRHR, as are the state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys. The State Historic Preservation Officer (SHPO) maintains the CRHR.

2.1.1.2 Native American Historic Cultural Sites

The Native American Historic Resources Protection Act (California Public Resources Code, Section 5097 et seq.) addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and establishes the Native American Heritage Commission (NAHC) to resolve disputes regarding the disposition of such remains. In addition, the Native American Historic Resource Protection Act makes it a misdemeanor punishable by up to 1 year in jail to deface or destroy a Native American historic or cultural site that is listed or may be eligible for listing in the CRHR.

2.1.1.3 California Native American Graves Protection and Repatriation Act

The California Native American Graves Protection and Repatriation Act (California Repatriation Act), enacted in 2001, requires all state agencies and museums that receive state funding and that have possession or control over collections of human remains or cultural items, as defined, to complete an inventory and summary of these remains and items on or before January 1, 2003, with certain exceptions. The California Repatriation Act also provides a process for the identification and repatriation of these items to the appropriate tribes.

2.1.1.4 California Environmental Quality Act Statutes and Guidelines

As described further below, the following California Environmental Quality Act (CEQA) statutes (California Public Resources Code, Section 21000 et seq.) and CEQA Guidelines (14 CCR 15000 et seq.) are relevant to the analysis of archaeological and historic resources:

1. California Public Resources Code, Section 21083.2(g): Defines "unique archaeological resource."
2. California Public Resources Code, Section 21084.1, and CEQA Guidelines, Section 15064.5(a): Defines historical resources. In addition, CEQA Guidelines, Section 15064.5(b), defines the phrase "substantial adverse change" in the significance of a historical resource. It also defines the circumstances when a project would materially impair the significance of a historical resource.
3. California Public Resources Code, Section 5097.98, and CEQA Guidelines, Section 15064.5(e): These statutes set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated cemetery.
4. California Public Resources Code, Sections 21083.2(b)–21083.2(c), and CEQA Guidelines, Section 15126.4: These statutes and regulations provide information regarding the mitigation framework for archaeological and historic resources, including options of preservation-in-place mitigation measures, and identify preservation in place as the preferred manner of mitigating impacts to significant archaeological sites.

Under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (California Public Resources Code, Section 21084.1; 14 CCR 15064.5(b)). A "historical resource" is any site listed or eligible for listing in the CRHR. The CRHR listing criteria are intended to examine whether the resource in question: (a) is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; (b) is associated with the lives of persons important in our past; (c) embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or (d) has yielded, or may be likely to yield, information important in prehistory or history.

The term "historical resource" also includes any site described in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of California Public Resources Code, Section 5024.1(q)).

CEQA also applies to "unique archaeological resources." California Public Resources Code, Section 21083.2(g), defines a "unique archaeological resource" as any archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

In 2014, CEQA was amended to apply to "tribal culture resources" as well, but the amendment did not provide a definition for such resources or identify how they were to be evaluated or mitigated (California Public Resources Code, Sections 21084.2 and 21084.3). Instead, California Public Resources Code, Section 21083.09, required that the Office of Planning and Resources develop and adopt guidelines for analyzing "tribal cultural resources" by July 1, 2016. As of the date of this report, however, those guidelines have not been finalized or adopted. Consequently, this report addresses only historic resources and unique archaeological resources.

All historical resources and unique archaeological resources – as defined by statute – are presumed to be historically or culturally significant for purposes of CEQA (California Public Resources Code, Section 21084.1; 14 CCR 15064.5(a)). The lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption (California Public Resources Code, Section 21084.1; 14 CCR 15064.5(a)). A site or resource that does not meet the definition of "historical resource" or "unique archaeological resource" is not considered significant under CEQA and need not be analyzed further (California Public Resources Code, Section 21083.2(a); 14 CCR 15064.5(c)(4)).

Under CEQA, a significant cultural impact results from a "substantial adverse change in the significance of an historical resource [including a unique archaeological resource]" due to the "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (14 CCR 15064.5(b)(1); California Public Resources Code, Section 5020.1(q)). In turn, the significance of a historical resource is materially impaired when a project (14 CCR 15064.5(b)(2)):

(A) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance

and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or

(B) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

(C) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

CEQA Guidelines, Section 15064.5(b)(2)

Pursuant to this section, the CEQA document for a proposed project first evaluates whether a project site contains any "historical resources," then assesses whether that project will cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance is materially impaired.

When a project significantly affects a unique archaeological resource, CEQA imposes special mitigation requirements. Specifically (California Public Resources Code, Section 21083.2(b)):

> If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts to be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. Examples of that treatment, in no order of preference, may include, but are not limited to, any of the following:
>
> 1. Planning construction to avoid archaeological sites.
> 2. Deeding archaeological sites into permanent conservation easements.
> 3. Capping or covering archaeological sites with a layer of soil before building on the sites.
> 4. Planning parks, greenspace, or other open space to incorporate archaeological sites.

California Public Resources Code, Section 21083.2(b)(1)–21083.2(b)(4)

If these "preservation in place" options are not feasible, mitigation may be accomplished through data recovery (California Public Resources Code, Section 21083.2(d); 14 CCR 15126.4(b)(3)(C)). California Public Resources Code, Section 21083.2(d), states:

> Excavation as mitigation shall be restricted to those parts of the unique archaeological resource that would be damaged or destroyed by the project. Excavation as mitigation shall not be required for a unique archaeological resource if the lead agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the resource, if this determination is documented in the environmental impact report.

These same requirements are set forth in slightly greater detail in the CEQA Guidelines, Section 15126.4(b)(3), as follows:

> (A) Preservation in place is the preferred manner of mitigating impacts to archaeological sites. Preservation in place maintains the relationship between artifacts and the archaeological context. Preservation may also avoid conflict with religious or cultural values of groups associated with the site.
>
> (B) Preservation in place may be accomplished by, but is not limited to, the following:
>
> 1. Planning construction to avoid archaeological sites;
> 2. Incorporation of sites within parks, greenspace, or other open space;
> 3. Covering the archaeological sites with a layer of chemically stable soil before building tennis courts, parking lots, or similar facilities on the site[; and]
> 4. Deeding the site into a permanent conservation easement.
>
> (C) When data recovery through excavation is the only feasible mitigation, a data recovery plan, which makes provision for adequately recovering the scientifically consequential information from and about the historical resource, shall be prepared and adopted prior to any excavation being undertaken. Such studies shall be deposited with the California Historical Resources Regional Information Center. Archaeological sites known to contain human remains shall be treated in accordance with the provisions of Section 7050.5 Health and Safety Code. If an artifact must be removed during project excavation or testing, curation may be an appropriate mitigation.

Note that, when conducting data recovery, "[i]f an artifact must be removed during project excavation or testing, curation may be an appropriate mitigation" (14 CCR 15126.4(b)(3)(C)). However, "[d]ata recovery shall not be required for an historical resource if the lead agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the archaeological or historical resource, provided that determination is documented in the EIR and that the studies are deposited with the California Historical Resources Regional Information Center" (14 CCR 15126.4(b)(3)(D)).

2.1.2 California Health and Safety Code

CEQA Guidelines, Section 15064.5, assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described below, these procedures are detailed in California Public Resources Code, Section 5097.98.

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. Health and Safety Code, Section 7050.5, requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains shall occur until the County coroner has examined the remains (Section 7050.5b). California Public Resources Code, Section 5097.98, also outlines the process to be followed in the event that remains are discovered. If the coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact the NAHC within 24 hours (Section 7050.5c). The NAHC will notify the Most Likely Descendant (MLD). With the permission of the landowner, the MLD may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the MLD by the NAHC. The MLD may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

2.2 Local

2.2.1 Kern County General Plan: Land Use, Open Space, and Conservation Element

Section 1.10.3 of the Land Use, Open Space, and Conservation Element of the Kern County General Plan (General Plan; County of Kern 2009a) identifies policy and implementation measures that guide the preservation of cultural resources in Kern County. These measures are provided below.

Policy

25. The County will promote the preservation of cultural and historic resources which provide ties with the past and constitute a heritage value to residents and visitors.

Implementation Measure

K. Coordinate with the California State University, Bakersfield's Archaeology Inventory Center.

L. The County shall address archaeological and historical resources for discretionary projects in accordance with the California Environmental Quality Act (CEQA).

M. In areas of known paleontological resources, the County should address the preservation of these resources where feasible.

N. The County shall develop a list of Native American organizations and individuals who desire to be notified of proposed discretionary projects. This notification will be accomplished through the established procedures for discretionary projects and CEQA documents.

O. On a project specific basis, the County Planning Department shall evaluate the necessity for the involvement of a qualified Native American monitor for grading or other construction activities on discretionary projects that are subject to a CEQA document.

2.2.2 Kern County General Plan: Energy Element

Section 5.4.7 of the Energy Element of the General Plan (County of Kern 2009b) encourages development of transmission lines in urban areas to limit impacts, and identifies the following policies with respect to transmission line development:

Policies

1. The County should encourage the development and upgrading of transmission lines and associated facilities (e.g., substations) as needed to serve Kern County's residents and access the County's generating resources, insofar as transmission lines do not create significant environmental or public health and safety hazards.
2. The County shall review all proposed transmission lines and their alignments for conformity with the Land Use, Conservation, and Open Space Element of this General Plan.
3. In reviewing proposals for new transmission lines and/or capacity, the County should assert a preference for upgrade of existing lines and use of existing corridors where feasible.

4. The County should work with other agencies in establishing routes for proposed transmission lines.
5. The County should discourage the siting of above-ground transmission lines in visually sensitive areas.
6. The County should encourage new transmission lines to be sited/configured to avoid or minimize collision and electrocution hazards to raptors.

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3 PROJECT SETTING

The natural and cultural setting for the Mojave Desert in general has been extensively documented in several key monographs. Several research designs have also been completed for both general and specific research topics spanning the entire range of human occupation of the local area and general region.

Refer to the documents listed below, which contain detailed information on the natural and cultural setting, as well as research designs and interpretive summaries. These documents served as the primary source of information guiding this inventory.

Key Source Documents

- Edwards AFB Integrated Cultural Resources Management Plan (Loechl et al. 2012)
- Standards and Procedures Manual for the Archaeological Data Center and Curatorial Functions of the Curation Facility at Edwards Air Force Base (Crosby 2010)
- Cultural Resources Overview and Management Plan for Edwards AFB, Volume 1, Overview of Prehistoric Cultural Resources (Earle et al. 1997)
- Cultural Resources Overview and Management Plan for Edwards AFB, Volume 2, Overview of Historic Cultural Resources (Earle et al. 1998)

In addition to the documents listed above, other relevant cultural resources investigation monographs were also obtained and reviewed. A complete list of references is provided in Chapter 8.

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4 METHODS

Dudek reviewed the previous survey work and associated reports completed in the project area, and conducted an intensive-level pedestrian survey of the southern site and a portion of the northern site.

4.1 Records Search and Archival Research

On April 21 and May 15, 2017, Dudek completed a search of the California Historical Resources Information System at the Southern San Joaquin Valley Information Center (SSJVIC), located on the campus of California State University, Bakersfield. This search included mapped prehistoric, historical, and built-environment resources; Department of Parks and Recreation (DPR) site records; technical reports; archival resources; and ethnographic references. Additional consulted sources included historical maps of the project site, the NRHP, the CRHR, the California Historic Property Data File, and the lists of California State Historical Landmarks, California Points of Historical Interest, and Archaeological Determinations of Eligibility.

4.2 Cultural Resources Pedestrian Survey

Dudek archaeologists conducted an intensive-level survey of the northern and southern sites in May of 2017 and February and March of 2018. Part of this survey included the proposed gen-tie routes; the gen-tie route inventory and evaluation was documented in a separate report by Hale et al. (2018). All field practices met the Secretary of Interior's standards and guidelines for a cultural resources inventory. The intensive-level survey methods consisted of a pedestrian survey conducted in parallel transects spaced no more than 15 m apart over the entire survey area. Deviations from transects only occurred in areas containing steep slopes, dense vegetation, or impassable natural features. Within each transect, the ground surface was examined for prehistoric artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, ceramics, fire-affected rock), soil discoloration that might indicate the presence of a cultural midden, soil depressions, features indicative of the current or former presence of structures or buildings (e.g., standing exterior walls, post holes, foundations), and historic artifacts (e.g., metal, glass, ceramics, building materials). Ground disturbances such as burrows, cut banks, and drainages were also visually inspected for exposed subsurface materials. No artifacts were collected during the surveys.

Where cultural materials were encountered, Dudek collected all data necessary to complete the appropriate DPR 523 series forms. Following California Office of Historic Preservation guidelines (1995), any cultural material more than 45 years old was recorded as an archaeological site, built environment resource, or isolate, as appropriate. All fieldwork was documented using field notes and iPad technology with close-scale field maps, and aerial photographs. Location-specific photographs were taken using an Apple 3rd Generation iPad equipped with 8 megapixel resolution

and georeferenced PDF maps of the project site. Accuracy of this device ranged between 3 and 10 m. All field notes, photographs, and records related to the current study are on file at Dudek's Pasadena, California, office. These locations are presented in Confidential Appendix A. Groups of three or more artifacts in a 50 m diameter area were classified as prehistoric or historic period sites. Finds of one or two artifacts were recorded as isolates. Generally, archaeological sites in the study area include non-military historic period sites (refuse deposits, homesites, agricultural features, ranching features, mining-related sites, and other miscellaneous types) and prehistoric sites (temporary camps and lithic deposits).

Sites and isolates were given temporary field numbers using the prefix "SS" along with the designation "S" for site and "I" for isolate. The numbering system is continuous for the archaeological sites and isolates, with assignment of field numbers as the survey progressed.

Following fieldwork, DPR 523 series forms were prepared for all newly recorded resources, including primary record, archaeological site record, location map, sketch map forms, and additional forms as needed. All completed DPR forms are presented herein as Confidential Appendix B. DPR forms for all newly recorded archaeological resources will be submitted to the SSJVIC, which will issue primary numbers for all newly recorded resources and trinomials for all newly recorded archaeological sites.

4.3 Cultural Resources Significance Evaluations

Dudek archaeologists conducted significance evaluations based on archaeological testing where sites were identified that could not be avoided through project design changes or other means. Archaeological significance evaluations were completed to understand the significance of the impacted resources under CEQA, and to provide appropriate management recommendations for further treatment. Site testing was completed from October 8 through 26, 2018.

Evaluation methods were designed to be consistent with the goals and directives for fieldwork used on various local projects, including those for the gen-tie line (Hale et al. 2018). The primary goal of field and analytical methods is to generate data relevant for evaluating historical significance and eligibility for CRHR listing of prehistoric and historic cultural resources. Notwithstanding modifications of terminology, the field and lab methods have been developed and honed over decades of study in the Mojave Desert (see Basgall 1993; Basgall and Giambastiani 2000; Giambastiani and Basgall 1999; Hall 1993; McGuire and Hall 1988). In general, the methods derive from prehistoric research but the theoretical underpinnings are flexible enough to have been adapted for historic site evaluation. A heavy emphasis on surface inventories is well suited to desert cultural deposits that are commonly aggregated in surface or near-surface contexts due to prolonged or accelerated erosion. Subsurface methods—while standard practice for CRHR

evaluations—were designed to accommodate the range of depositional variability that can be encountered in desert contexts. In all, the methods employed herein achieved data requirements for CRHR evaluations while affording a kind of flexibility that allowed for reactionary allocation of field effort to maximize data potential of unanticipated deposits or assemblage constituents.

Within the confines of available field methodologies, none were necessarily excluded as possibilities for use at historic period sites. However, in keeping with the evaluation by Hale et al. (2010), fieldwork levels for evaluated historic period refuse deposits (HPRDs) were limited to surface analysis and the collection of unique diagnostic artifacts. Excavations at HPRDs were limited to sites with the potential for buried deposits, or that appeared to have overlapping dumping episodes. HPRDs were sparse accumulations of historic debris with limited diversity and little to no potential for subsurface deposits. More intensive excavations would have generated redundant data and would not likely have discovered unique artifacts or changed significance evaluations. The surface analysis focused on recording morphology, condition, technology, and function of each artifact class. Interpretations of the analytical data derived from a functional perspective; one that considered the economics of consumption through patterns of artifact discard. This is not dissimilar to the interpretation of prehistoric artifacts, keeping in mind the idea that socioeconomic adaptation was built on utilitarian technologies.

The basic laboratory and analytical methods used to treat project site collections include post-field processing, cataloging, standard artifact analysis, artifact-specific analysis, and special studies. The analysis of historical artifacts was directed toward placing artifacts into broad functional and temporal classes. This was accomplished using classificatory and dating schemes contained in the Intermountain Antiquities Computer System (IMACS) Guide (University of Utah et al. 1984) and in various other references concerning the identification, manufacture, and dating of historical artifacts (e.g., Fike 1987; Godden 1964; Newman 1970; Rock 1987; Toulouse 1971; Wilson and Wilson 1968). Bottle websites (such as that of the Bureau of Land Management) and other online resources were also used to identify maker's marks and manufacturing styles. While artifact recovery generally focused on the collection of diagnostic items, other small refuse such as glass, nails, and ceramics was recovered, identified, classified, and analyzed either individually or in batches as deemed appropriate. Such bulk refuse was not curated unless it represented a unique artifact class.

Upon arriving at each tested site, the first task was to relocate the site datum in order to confirm that survey crews were on the correct site, and to relocate any items, deposits, or features identified during survey. Next, a systematic surface inspection was performed to relocate artifacts and features identified during the survey and to delineate site boundaries. This was completed by a thorough traversal of the site and by marking artifacts and features with pin-flags. Formed artifacts (e.g., flaked and groundstone tools, pottery, beads) were double-flagged with a blue flag;

unmodified flakes were flagged with single flags of any color other than blue. Any concentrations of artifacts or features were triple-flagged in multiple colors. Pin-flags were also used to denote the edges of lithic concentrations and occupational loci within site boundaries.

Once a prehistoric site was adequately flagged, it was subjected to some form of surface collection and/or inspection. Sites containing some minimum density of surface artifacts in a concentrated area were sampled with controlled surface collection (CSC) units. The minimum size of a CSC collection cell is 5 × 5 m; additional or adjacent cells were typically labeled with a letter (e.g., A, B) under the same CSC number while discontiguous cells were given a new CSC number. CSCs are flexible units, allowing for detailed mapping or collection depending on field conditions and constraints. Controlled inventory using CSCs was intended to supplement the collection of all artifacts located outside these units. Where artifact densities were too low to warrant a CSC, general "grab sample" collections were made to supplement individually collected piece plots. Grab samples are simply general surface collections that do not record individual artifact provenience. Given the nature of both evaluated prehistoric sites, the number of CSCs was low, as were the numbers of collected artifacts in general.

Excavations generally proceeded in two stages. First, where cultural deposits were expected to have at least moderate depth, a series of exploratory shovel test pits (STPs) was allocated to better gauge the horizontal extent of buried deposits, to identify any zones of artifact density, and to expose and compare depositional strata across and between sites. From one to a few of these units, each measuring 0.5 × 0.25 m in size, were allocated according to the size of each site, the presence of sedimentary depth, and overall artifact yields. All STPs were excavated in arbitrary 20 cm levels to minimum depths of 40 cm, or until culturally sterile strata were encountered. STPs were also used to test sites boundaries providing a better understanding of subsurface distribution from a management perspective. Where STPs showed the presence of relatively dense artifact deposits, shovel test units (STUs) were excavated adjacent to or near productive STPs in order to continue investigations in those areas. These were 1 × 0.5 m units, excavated in arbitrary 10 cm levels, to depths varying between 10 and 120 centimeters below surface (cmbs), depending on rates of artifact recovery. At sites where cultural deposits were obviously surficial, larger surface scrape units (SSUs) measuring anywhere from 1 × 1 m to 2 × 2 m in size were excavated in order to augment artifact recovery by removing greater volumes of shallow cultural matrix. All excavated deposit soils, regardless of unit size or depth, was screened through 1/8-inch (3 mm) mesh. Typically, most of the excavated sites were terminated between 20 and 40 cmbs, when either a hardpan surface or a calcareous B-horizon was encountered. Unit sidewall profiles were drawn and photographed where appropriate, with small soil samples being taken for Munsell color comparisons and constituent classification. All recovered cultural materials were collected and returned to the Dudek laboratory for processing and analysis.

Each site was also mapped using a Trimble Pathfinder GPS receiver to plot all formed artifacts, surface collection units, excavation units, and the boundaries of any defined loci and features. GPS was also used to record site boundaries, landform edges, drainages, roads, and areas demonstrating civilian impacts. In addition to mapping, a series of overview photographs was taken to show the site landscape setting. Detail photographs were also taken of features or other site attributes when appropriate.

HPRDs were evaluated with a mixed approach. As was obvious from the geologic setting, historic period sites lacked subsurface deposits and have small to moderate quantities of redundant surface artifacts, often occurring as singular, well-defined artifact concentrations. The extensive collection of these artifacts was neither desirable nor necessary, and in-field recording was used instead to recover functional and temporal data from surface scatters. In rare circumstances, the excavation of an STP was required to determine the presence of buried artifacts from possible overlapping dump events. The limited nature and obvious geologic setting at the current set of historic sites warranted reduced levels of work, similar to those evaluated by Hale et al. (2009) but unlike evaluation programs by Giambastiani et al. (2007, 2008).

CSCs were not used at HPRDs because they would generate too many items of a redundant nature. For this reason, surface collections at historical sites were limited to piece-plot recovery. It was also possible to obtain needed functional and temporal data through detailed surface inventories for glass, cans, ceramics, and other kinds of artifacts. These inventories included the documentation of legible maker's marks, counts of specific artifact types, and functional assessments where warranted.

As for excavation procedures, STPs were rarely used at historical sites because they were all sparse, surficial artifact deposits. One reason for this is because most historical refuse deposits are relatively rich in surface artifacts, particularly small constituents like glass shards, nails, wood, bits of metal, charcoal, and other similar remains. In most cases, surface inventories and piece-plot collection sufficed. Where excavation was necessary at a specific resource, only STPs were needed to test for buried materials not identified on the surface. For the most part, the use of in-field inventories reduced the overall need for artifact recovery, in that many items (like cans) were of the same manufacturing type and age and others (like glass or ceramic body shards) provide comparatively little data by themselves.

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5 INVENTORY RESULTS

5.1 Background Research

5.1.1 Previously Conducted Cultural Resource Studies

The SSJVIC records indicate that 26 previous cultural resources technical investigations have been conducted between 1976 and 2015 that are within or immediately adjacent to the study area or that cross the study area (Confidential Appendix C). Of these 26, 11 previous studies were completed since 2009. Nineteen of these overlap the gen-tie, one overlaps the Gen-Tie Route and the northern site, two overlap the northern site, and three overlap the southern site. All 26 technical investigations are summarized in Table 5-1.

Table 5-1
Previous Technical Studies within the Project Study Area

Report Number (KE-)	Authors	Date	Title	Study Area Component
423	Garfinkel, A.P., and J. Kerbavaz	1983	Negative archaeological survey report DOT- 09-KER-14, PM 12.6/16.1, Charge Unit 09-	Gen-tie line
470	Hanna, D.C., and D.M. Cheever	1990	An Archaeological Survey of the Camelot Specific Plan Amendment, a 160-Acre Property in Mojave, Kern County, California	Gen-tie line
633	Macko, M.E., J.D. Binning, D.D. Earle, and P.E. Langenwalter	1993	National Register Eligibility Determinations for Historic Resources Along the Proposed AT&T Lightguide System, Victorville to Bakersfield, California	Gen-tie line; north site
641	McGuire, K.	1990	A cultural resources inventory and limited evaluation of the proposed Mojave Pipeline Corridor in California and Arizona	North site
804	Parr, R.E.	1989	Archaeological Assessment of a Proposed Residential and Commercial Center Near the City of Mojave, Kern County, California	North site
819	Parr, R.E.	1990	Archaeological Assessment of 400 Acres of Land Near Mojave, Kern County, California	Gen-tie line
888	Proctor, M., and J. Edell	1986	Negative Archaeological Survey Report for Widening Route 14 from P.M. 12.6 to 16.1- Also Water Line Easement	Gen-tie line
1028	Unknown	1996	Cultural Resources Investigation Pacific Pipeline Emidio Route (Including West Liebre Gulch Ridge Alignment and Mojave Alternatives) L.A. and Kern Counties, CA	Gen-tie line
1592	Sutton, M.Q.	1983	An Archaeological Survey of the Camelot Specific Plan Site	Gen-tie line

Table 5-1
Previous Technical Studies within the Project Study Area

Report Number (KE-)	Authors	Date	Title	Study Area Component
2012	Clelow, C.W.	1976	Archaeological Resources Along the Proposed LNG Gas Transmission Pipeline from Point Conception to Arvin, and Arvin to El Cajon, CA	South site
2323	Demos-Petropoulous, F., D. McGowan, B. Scott, T. O'Brien, B. Norton, and W. Rause		Cultural Resources Inventory Report for the AT&T Corp. Cable Upgrade Project, Los Angeles, Kern, and San Luis Obispo Counties, California	South site
3387	Schiffman, R.A., and A.P. Gold	2006	Cultural Resource Survey for a 310 Acre Parcel Near the Intersection of Purdy Avenue and United Street Near the City of Mojave, Eastern Kern County, California	Gen-tie line
3490	Hudlow, S.M.	2007	A Phase I Cultural Resource Survey for AERO Energy Wind Power Project, Application 4, Kern County, California	Gen-tie line
3534	Nilsson, Elena, Bevill, Russel, Kelly, Michael S., and Dwyer, Erin	2006	Archaeological Inventory of the First and Second Los Angeles Aqueducts and Selected Access Roads, Kern, Inyo, and Los Angeles Counties, CA	Gen-tie line
3600	Pruett, C.L.	2009	A Cultural Resources Assessment of Approximately 40 Acres Southwest of Mojave, Kern County, California	Gen-tie line
3746	Schmidt, J.J.	2009	SCE Conley, Caliente, and Cuddleback 12 kV, Deteriorated Pole Replacement Project, Kern County, California	Southern Solar Field
3777	Palm-Leach, L., P. Brandy, J. King, P. Mikkelsen, L. Seil, L. Hartman, J. Bradeen, B. Larson, J. Freeman, J. Costello, J. Rosenthal, and D. Jones	2010	Cultural Resources Inventory of Caltrans District 6 Rural Conventional Highways in Fresno, Western Kern, Kings, Madera, and Tulare Counties Summary of Methods and Findings	Gen-tie line
4053	Lawson, N.	2009	Cultural Resources Inventory Report for the Alta Oak Creek Mojave Wind Project, Kern County, California	Gen-tie line
4159	Cardenas, G.	2011	Cultural Resources Inventory Report for the Alta Infill II Wind Energy Project, Kern County, California	Gen-tie line
4247	Lawson, N., and G. Cardenas	2010	Class III Cultural Resources Survey of the North Sky River Wind Energy Project, Kern County, California.	Gen-tie line

Table 5-1
Previous Technical Studies within the Project Study Area

Report Number (KE-)	Authors	Date	Title	Study Area Component
4260	Hudlow, S.M.	2011	A Phase I Cultural Resource Survey for Seven Kern Desert Solar Farm Sites, Kern County, California	Gen-tie line
4359	Ramirez, R., K. Hunt, and H. Haas	2013	Addendum Report: Phase I Cultural Resources Survey for the RE Columbia Two Solar Project, Mojave, Kern County, California	Gen-tie line
4633	Hoffman, L., and L. Denniston	2013	Cultural and Paleontological Resources Monitoring and Discovery Report for the RE Columbia 3, LLC Solar Facility Project, Kern County, California	Gen-tie line
4633	Walsh, M.R., and C.W. Clewlow	1988	Phase I Cultural Resource Inventory Along 30 Selected Utility/Power Line Corridors, Edwards AFB, California	Gen-tie line
4649	Ramirez, R., D. Daitch, and K. Hunt	2015	Archaeological and Paleontological Monitoring Report for the Camelot Solar Project, Mojave, Kern County, California	Gen-tie line
N/A	Lawson, N., and C. Helton	2009	Cultural Resources Inventory Report for the Monte Vista Solar Project, PV 12, Kern County, California.	Gen-tie line

5.1.2 Previously Recorded Cultural Resources

The SSJVIC records indicate that 43 cultural resources have been recorded within, immediately adjacent to, or intersecting the project site (see Confidential Appendix C). These 43 consist of 22 historic-era resources (9 archaeological sites, 8 historic built environment resources, and 5 historic isolates), 15 prehistoric resources (7 prehistoric sites and 8 prehistoric isolates), 2 multi-component sites, and 4 that were missing site records (no additional information was obtained for these 4 resources). Details pertaining to all 43 resources, including current conditions, are provided in Table 5-2.

The 9 historic-era archaeological sites consist of 6 historic trash scatters, 1 survey marker, 1 homesite and 1 borrow pit with structural remains. Historic built environment resources (n = 8) include 5 road segments, 1 transmission line, 1 railroad segment, and the Los Angeles Aqueduct. Prehistoric sites identified consist of 6 lithic scatters and 1 quarry site.

Of the 43 resources previously recorded, one (P-15-003549/CA-KER-3549H: Los Angeles Aqueduct) has been determined eligible for listing in the NRHP with concurrence from the SHPO and two (P-15-003929/CA-KER-3929H: LA–Owens River Road, and P-15-002050/P-15-003366/ P-15-000560/CA-KER-2050H: Union Pacific Railroad) appear eligible for the CRHR and NRHP

through survey evaluation, although no formal evaluation has been made. The 14 isolated finds are not eligible for the CRHR by definition, and 18 resources have not been evaluated for the CRHR. The eligibility status of the 4 missing resource records could not be obtained. Details pertaining to the remaining 37 resources (excluding eligible and likely eligible sites previously mentioned), including current conditions, are provided in Table 5-2.

Table 5-2
Previously Recorded Cultural Resources within the Project Study Area

Primary Number (P-15-)	Trinomial (CA-KER-)	Period	NRHP/CRHR Status	Year Recorded (Authors)	Description	Study Area Component
000472	000472/H	Multi-Component	7R (Identified in survey; not evaluated)	1976 (Clewlow/ Huberman); 1995 (Hayden, W., N. Rhodes, and G. Zanelli); 1996 (Kimball, M.)	Lithic flakes with tools and a placer mine	Southern site
000473	000473	Prehistoric	6Z (Found ineligible through survey evaluation)	1976 (Moore/Drews)	Isolate: flake	Southern site
002015	002015H	Historic	6Z (Found ineligible through survey evaluation)	1985 (Norwood, R. H.); 2002 (Puckett, H., et al); 2002 (Parker et al.)	homesite	Southern site
002050/003366/000560/01733	2050H	Historic	3CD (Appears eligible for CR as contributor)	2009 (Calicher, H., R. Rolston, N. Lawson)	Union Pacific Railroad and spurs	Gen-tie line
003528	3528H	Historic	7R (Identified in survey; not evaluated)	2014 (Ramirez, R., H. Haas, and K. Hunt); 2012 (Ramirez, R., H. Haas, and K. Hunt); 2010 (Hudlow, S.M.); 1993 (Macko, M.)	Wagon Road	Gen-tie line
003534	3534H	Historic	7R (Identified in survey; not evaluated)	C. Higgins et al., 2013; Macko, 1993	Unnamed road	Gen-tie line
003537	3537	Historic	6Z (Found ineligible through survey evaluation)	2010 (Lawson, N.); 1993 (Macko, M.)	Oak Creek Road	Gen-tie line

Table 5-2
Previously Recorded Cultural Resources within the Project Study Area

Primary Number (P-15-)	Trinomial (CA-KER-)	Period	NRHP/CRHR Status	Year Recorded (Authors)	Description	Study Area Component
003549	3549H	Historic	2B (Determined eligible)	2015 (Newcomb, A., and R. Knierim); 2013 (Kellawan, R., D. Martinez, and C. Connolly); 2010 (Fergusson, A., H., Calicher, R. Rolston, and N. Lannon); 2009 (Helvin, S., and R. Flores)	Los Angeles Aqueduct	Gen-tie line
003929	3929H	Historic	3D (Appears eligible as contributor)	1999 (Byrd, D.); 1997 (Van Bueren, T.); 1993 (Costello, J., J. Marvin, and C. Brownson); 2000 (Underwood, J.); 1993 (Costello, J., and J. Marvin); 1993 (Macko, M.)	Freighter route/LA-Owens River Road	Gen-tie line
005793	4918	Prehistoric	7R (Identified in survey; not evaluated)	1996 (Hangan, M., et al.)	Large, light temporary camp	Northern site
007592		Prehistoric	6Z (Found ineligible through survey evaluation)	1989 (Parr et al.)	Isolate: core	Northern site
007595		Prehistoric	6Z (Found ineligible through survey evaluation)	1989 (Parr et al.)	Isolate: flake	Northern site
011768	6823H	Historic	6Z (Found ineligible through survey evaluation)	2005 (Giambatiani, M., et al.)	Refuse deposit	Southern site
012716	7174H	Historic	7R (Identified in survey; not evaluated)	2002 (Brown, B.)	Borrow pit and structural remains	Gen-tie line
013683	N/A	Prehistoric	6Z (Found ineligible through survey evaluation)	2008 (McCormick, S.)	Isolated flake	Gen-tie line

Table 5-2
Previously Recorded Cultural Resources within the Project Study Area

Primary Number (P-15-)	Trinomial (CA-KER-)	Period	NRHP/CRHR Status	Year Recorded (Authors)	Description	Study Area Component
013814		Historic	6Z (Found ineligible through survey evaluation)	2010 (Smolik, K.)	Isolate: can	Gen-tie line
013963		Historic	6Z (Found ineligible through survey evaluation)	2009 (Lawson, N., H. Calicher, R. Harmon, E. Peters, and R. Rolston)	Isolate: can and steel bucket	Gen-tie line
014700	8266	Prehistoric	6Z (Found ineligible through survey evaluation)	2009 (Harmon et al.)	Lithic scatter	Gen-tie line
014701	8267	Prehistoric	7R (Identified in survey; not evaluated)	2009 (Ineligible on record)	Quarry or prospect site	Gen-tie line
014704	8270	Prehistoric	6Z (Found ineligible through survey evaluation)	2009 (Harmon et al.)	Lithic scatter	Gen-tie line
015544		Historic	7R (Identified in survey; not evaluated)	2011 (Cardenas, G.)	1934 survey marker	Gen-tie line
015814	8696	Prehistoric	7R (Identified in survey; not evaluated)	2010 (Rosenberg)	Lithic scatter	Southern site
015815		Prehistoric	6Z (Found ineligible through survey evaluation)	2010 (Rosenberg)	Isolate: flake	Southern site
015816		Prehistoric	6Z (Found ineligible through survey evaluation)	2010 (Rosenberg)	Isolate: flake	Southern site
015817		Prehistoric	6Z (Found ineligible through survey evaluation)	2010 (Rosenberg)	Isolate: flake	Southern site
015873		Unknown	Unknown	Unknown	Unknown	Southern site
017096		Historic	7R (Identified in survey; not evaluated)	2011 (Maier, E., and K. Lambert)	Trash scatter of cans and glass	Gen-tie line

Table 5-2
Previously Recorded Cultural Resources within the Project Study Area

Primary Number (P-15-)	Trinomial (CA-KER-)	Period	NRHP/CRHR Status	Year Recorded (Authors)	Description	Study Area Component
017097		Historic	7R (Identified in survey; not evaluated)	2011 (Maier, E., and K. Lambert)	Trash scatter of cans and glass	Gen-tie line
017098		Historic	7R (Identified in survey; not evaluated)	2011 (Maier, E., and K. Lambert)	Trash scatter of cans and glass	Gen-tie line
017119		Historic	6Z (Found ineligible through survey evaluation)	2011 (Rolston, R., J. McDermott, and K. Lambert)	Isolate: can	Gen-tie line
017121		Historic	6Z (Found ineligible through survey evaluation)	2011 (Rolston, R., J. McDermott, and K. Lambert)	Isolate: can	Gen-tie line
017297	9487H	Multi-component	7R (Identified in survey; not evaluated)	2013 (Tingey et al.)	Historic refuse scatter with one isolated flake	Northern site
017305		Historic	7R (Identified in Survey; Not evaluated)	2013 (Lucas, T. and C. Higgins)	SR-14/Aerospace Highway	Gen-tie line
017333		Unknown	Unknown	Unknown	Unknown	Gen-tie line; southern site
018681	10204H	Historic	2S2 (Determined eligible through Section 106 process)	2014 (Dice, M.)	LADWP Owens Gorge 230 kV transmission line	Gen-tie line
019121		Unknown	Unknown	Unknown	Unknown	Gen-tie line
019353		Unknown	Unknown	Unknown	Unknown	Gen-tie line
SS-S-010		Prehistoric	3CS (Appears eligible as an individual property through survey evaluation)	2018 (Hale, M., J.S. Wolf, and E. Denniston)	Lithic scatter	Southern site
SS-S-011		Historic	7R (Identified in survey; not evaluated)	2018 (Hale, M., J.S. Wolf, and E. Denniston)	Trash scatter of cans	E-W
SS-S-023		Historic	6Z (Found ineligible through evaluation)	2018 (Hale, M., J.S. Wolf, and E. Denniston)	Trash scatter of cans	Southern site

Table 5-2
Previously Recorded Cultural Resources within the Project Study Area

Primary Number (P-15-)	Trinomial (CA-KER-)	Period	NRHP/CRHR Status	Year Recorded (Authors)	Description	Study Area Component
SS-S-030		Prehistoric	6Z (Found ineligible through evaluation)	2018 (Hale, M., J.S. Wolf, and E. Denniston)	Lithic scatter	Southern site
SS-I-004		Prehistoric	6Z (Found ineligible through survey evaluation)	2018 (Hale, M., J.S. Wolf, and E. Denniston)	Isolate: flake	E-W
SS-I-014		Historic	6Z (Found ineligible through survey evaluation)	2018 (Hale, M., J.S. Wolf, and E. Denniston)	Isolate: glass	E-W

NRHP = National Register of Historic Places; CRHR = California Register of Historical Resources.

5.1.2.1 Resources Determined Significant

Los Angeles Aqueduct (P-15-003549/CA-KER-3549H)

Intersecting the western end of the gen-tie line, the Los Angeles Aqueduct is listed in the CRHR and has previously been determined eligible for listing in the NRHP with concurrence from the SHPO. The entire length of the aqueduct was found eligible under Criterion 1/A, and some segments were found eligible under Criterion 3/C (Costello and Marvin 1992, as cited in Panich et al. 2010, p. 33).

5.1.2.2 Resources Likely Significant

Los Angeles–Owens River Road (P-15-003929/CA-KER-3929H)

Intersecting the western end of the gen-tie line, the Los Angeles–Owens River Road was established as a freighter route in the late 1860s and was graded in the early twentieth century (Byrd 1999). A 1994 evaluation of the road determined that the road appears eligible for listing at a local level under Criterion 1/A; however, visits in 1997 (Van Bueren) and 1999 (Byrd 1999) indicate that the road segments they consider do not appear to be eligible for listing due to a lack of integrity.

Union Pacific Railroad Line (P-15-002050/P-15-003366/P-15-000560/ CA-KER-2050H)

Intersecting the eastern portion of the east–west alignment, and the southern portion of North–South Gen-Tie Route Options 1 and 3, this railroad alignment was originally constructed as part of the Southern Pacific Railroad line in 1882. In 1884, Atchison, Topeka & Santa Fe (later Union Pacific Railroad) purchased the line, extending it through the Antelope Valley. Running from Mojave, California, to Topock, Arizona, the line is still in use and has been maintained and improved over the decades. Several segments of the line have been recorded, indicating that the Union Pacific Railroad line appears eligible for listing in the NRHP as a separate listing and/or a contributor to an existing District (Kellawan et al. 2014; Puckett 2007).

5.1.3 Previously Conducted Survey and Evaluation Results

As a result of the 2017 field efforts, 38 resources were either newly recorded or updated. Of these 38 resources, 2 could not be avoided and were tested and evaluated by Dudek: 1 historic period refuse deposit (P-15-017096) and 1 borrow pit and structural remains (P-15-012716) (Hale et al. 2018). As a result of the testing, both were recommended as not significant and not eligible for CRHR listing under any significance criteria, and no further work was recommended for these resources.

Six newly recorded resources were identified within the current project area (isolates SS-I-004 and SS-I-014 and sites SS-S-010, SS-S-011, SS-S-023, and SS-S-030). The four sites (SS-S-010, SS-S-011, SS-S-023, and SS-S-030) were tested and evaluated for inclusion in the CRHR. Of these, three (SS-S-011, SS-S-023, and SS-S-030) were found ineligible, and the fourth (SS-S-010) was recommended as eligible for CRHR listing (Hale et al. 2018). This report refers to these sites with the addition of 100 to their temporary numbers (SS-S-010 is referred to herein as SS-S-110, SS-S-023 as SS-S-123, etc.).

5.1.4 Map and Historic Aerial Photography Research

Additional archival research for this project included review of plat maps (California Surveyor's General Office 1856, 1899, 1901, 1935) and historic topographic maps. Historic topographic maps consulted include USGS 1915, 1943, 1947, 1954, 1957, and 1964 (Historic Aerials 2016).

Plat maps indicate early land surveys and transportation routes throughout the region (California Surveyor's General Office 1856, 1899, 1901). The 1935 Dependent Resurvey plat map depicts a number of roads and railroad lines crossing the study area (California Surveyor's General Office 1935).

Historic maps show that the study area and vicinity were only sparsely developed in the first decades of the twentieth century. A 1908 topographic map of the Los Angeles Aqueduct shows that the study area fell within the Mojave Division (Division Number 8) for the construction of the aqueduct, which extended from Pinto Station to the north end of A.V. Cottonwood Siphon (City of Los Angeles Water Department 1908). Railroad stations are indicated at Chaffee, Gloster, and Mojave on this map.

By 1915, the Los Angeles Aqueduct was fully constructed and mining activity is visible at Willow Springs, Rosamond, and Treasure Mine (Historic Aerials 2016). At this time, the community of Mojave served as aqueduct construction headquarters, and the community was fully surveyed and mapped by the 1943 map. Gold Town is visible in 1943 to the south of the project site, with the majority of structures having dissipated by 1957 (Historic Aerials 2016).

5.2 Pedestrian Survey

Dudek conducted intensive-level pedestrian surveys of 1,831 acres of the project site. Transects were spaced 15 m (45 ft) apart. Visits to previously recorded sites exhibited little to no change in existing conditions. Visibility was excellent, averaging over 90% (Figures 5-1 through 5-4, Project Overview). Archaeologists generally had excellent visual access to the study area. In many cases, artifacts found were partially buried as a result of natural alluvial and aeolian processes. Shallowly and partially buried surface deposits are anticipated because of the relatively active nature of this alluvial plain. The very dry sediments and frequent high winds indicate the possible, though unlikely, presence of substantial intact subsurface archaeological resources in the study area. However, intentionally buried deposits (such as refuse dumps) associated with identified historic archaeological sites in the general vicinity may be present.

During the current field efforts, Dudek archaeologists identified and recorded 54 cultural resources, including 25 isolates, 28 sites, and 1 previously recorded resource that was revisited by Dudek. California DPR 523 Series forms for all recorded resources are included with this report as Appendix B. The following sections summarize all resources identified during survey.

Figure 5-1 Project Overview. View to Northeast.

Figure 5-2 Project Overview. View to Southeast.

Figure 5-3 Project Overview. View to Northwest.

Figure 5-4 Project Overview. View to South.

5.2.1 Newly Identified Isolates

In total, 25 new isolates were recorded during the intensive pedestrian survey, all of which are prehistoric. Isolates are ineligible for the CRHR by definition and no further work is necessary in regard to these resources. Table 5-3 summarizes all isolates identified during survey.

Table 5-3
Newly Recorded Isolates

Primary Number	Description	Time Range	Significance	Impact
SS-I-105	Flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.
SS-I-106	Flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.
SS-I-107	Flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.
SS-I-108	Flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.
SS-I-109	Flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.
SS-I-110	Flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.
SS-I-111	Flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.
SS-I-115	Flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.
SS-I-116	Flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.
SS-I-117	Flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.
SS-I-118	Flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.
SS-I-120	Flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.
SS-I-121	Flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.
SS-I-122	Handstone	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.
SS-I-123	Flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.
SS-I-124	Flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.
SS-I-125	Flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.

Table 5-3
Newly Recorded Isolates

Primary Number	Description	Time Range	Significance	Impact
SS-I-126	Flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.
SS-I-127	Flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.
SS-I-128	Flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.
SS-I-129	Flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.
SS-I-130	Flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.
SS-I-131	Flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.
SS-I-132	Flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.
SS-I-133	Flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.

One previously identified prehistoric resource was found to include more cultural materials than originally recorded. This resource is briefly described below.

P-15-15816

Site P-15-15816 was originally recorded as an isolated beige and tan chert flake in 2010. Dudek revisited the area during the current field efforts and found the original flake as well as five other flakes nearby. As such the isolate updated, with all materials located in a 32 × 77 m area. The isolate consists of six tertiary flakes. Lithic material within the site is grey and tan chert and chalcedony. There were no flaked stone tools identified within the site. Soil is light tan yellowish-brown coarse sand with granitic inclusions. Vegetation consists of sparse Joshua trees and juniper with native and invasive species of grasses and brush. There are no disturbances in the immediate area.

5.2.2 Newly Identified Sites

A total of 28 newly recorded cultural resources were identified in the project area, including 17 prehistoric sites, 6 HPRDs, and 5 multi-component sites. Each site is individually summarized in Table 5-4. Evaluation summaries for each of the sites are provided in Chapter 6.

Table 5-4
Newly Identified Archaeological Sites

Number	Age	Type	Size (Meters)	Constituent Types	Mapping Features
SS-S-101	Prehistoric	Temp habitation	110 × 160	Debitage, tools, groundstone, FAR,	FAR features, concentration
SS-S-102	Prehistoric	Lithic scatter	18 × 44	Debitage	—
SS-S-103	Prehistoric	Lithic scatter	162 × 80	Debitage, tools, groundstone	Concentrations, thermal features
SS-S-104	Prehistoric	Lithic scatter	104 × 78	Debitage	—
SS-S-105	Prehistoric	Lithic scatter	57 × 37	Debitage	—
SS-S-106	Prehistoric	Lithic scatter	120 × 65	Debitage, tools, FAR	Concentrations
SS-S-107	Multi-component	HPRD, lithic scatter	155 × 95	Debitage, tools, cans	Loci
SS-S-109	Multi-component	HPRD, lithic scatter	130 × 175	Debitage, cans	Loci
SS-S-110*	Multi-component	Temporary habitation	410 × 222	Debitage, FAR, features, cans	Combined SS-S-108, -131, -132, -133
SS-S-112	Historic	HPRD	28 × 18	Cans, ceramic, glass	—
SS-S-113	Multicomponent	HPRD, lithic scatter	60 × 30	Debitage, cans, faunal bone	—
SS-S-114	Prehistoric	Lithic scatter	55 × 36	Debitage, FAR	Concentration
SS-S-115	Historic	HPRD	240 × 109	Cans, glass	—
SS-S-116	Multi-component	HPRD, lithic scatter	250 × 55	Debitage, tools, glass, cans	Loci, concentration
SS-S-117	Prehistoric	Lithic scatter	22 × 30	Debitage, FAR	Feature
SS-S-118	Prehistoric	Lithic scatter	150 × 65	Debitage, FAR	Loci, concentration
SS-S-119	Prehistoric	Habitation site	125 × 75	Debitage, FAR, tools, groundstone	—
SS-S-120	Prehistoric	Lithic scatter	120 × 60	Debitage, FAR, faunal bone	—
SS-S-121	Historic	HPRD	150 × 30	Cans, glass	—
SS-S-122	Historic	HPRD	109 × 51	Cans, glass	—
SS-S-123*	Historic	HPRD	85 × 51	Cans, glass	—
SS-S-124	Prehistoric	Lithic scatter	105 × 80	Debitage, FAR, tools	—
SS-S-125	Historic	HPRD	218 × 78	Cans, glass	—
SS-S-126	Prehistoric	Artifact scatter	75 × 85	Debitage, tools, FAR	—
SS-S-127	Prehistoric	Lithic scatter	68 × 25	Debitage, tool, FAR	Concentration
SS-S-128	Prehistoric	Temporary habitation	165 × 90	Debitage, tools, faunal bone, beads	Loci, concentration, feature

Table 5-4
Newly Identified Archaeological Sites

Number	Age	Type	Size (Meters)	Constituent Types	Mapping Features
SS-S-129	Prehistoric	Artifact scatter	68 × 45	Debitage, FAR, faunal bone	—
SS-S-130*	Prehistoric	Lithic scatter	115 × 115	Debitage, FAR, tools	—

Notes: FAR = fire-affected rock; HPRD = historic period refuse deposit.
* These sites were evaluated separately (Hale et al. 2018) and are not included in Chapter 6, Significance Evaluations.

6 SIGNIFICANCE EVALUATIONS

Dudek archaeologists conducted significance evaluation through archaeological testing where archaeological sites were identified that could not be avoided. Archaeological sites exhibited little to no change in existing environmental conditions from when first recorded during survey until the testing phase, other than slight boundary expansions. Visibility in the study area was typically excellent, averaging more than 90%. Archaeologists generally had excellent visual access to the study area. In many cases, additional artifacts and features found were partially buried as a result of natural processes. Shallowly and partially buried surface deposits were encountered in both prehistoric and historic sites which demonstrated strong evidence of the active nature of this alluvial plain. All intact or partially identified subsurface features uncovered during evaluations were identified from just below the ground surface to a maximum depth of 40 centimeters below surface (cmbs). The deepest deposit of prehistoric materials was confirmed at 80 cmbs, although rodent krotovina (soil features consisting of animal burrows filled with soil or sediment that is often different from the surrounding material and is derived from overlying soil horizons or sediment strata) most likely influenced these results. Often subsurface units were terminated at variable depths between 20 and 40 cmbs due to sterile and/or hardpan sediments.

During the current field efforts, Dudek archaeologists evaluated 28 cultural resources, including 17 prehistoric, 5 multi-component, and 6 historic sites. Additionally, Dudek revisited but was unable to relocate 2 previously recorded resources (P-15-015873 and P-15-005793). Several sites were combined during the evaluation phase: SS-S-110 includes previously identified sites SS-S-131, SS-S-132, SS-S-133, SS-S-108, and P-15-015814.

Site SS-S-110 was evaluated separately (Hale et al. 2018) under the temporary ID of SS-S-010. This site was recommended as eligible for the CRHR. The project was able to avoid this site by project design, thereby making no impact. The California DPR 523 Series forms for all evaluated resources are included as Appendix B to this report. The following sections summarize all resources identified during the survey.

P-15-000472 Lookout Hill

Site P-15-000472 is a multiple component prehistoric chert quarry and historic refuse scatter. Locally referred to as “Lookout Hill” or “Lookout Knob,” this prehistoric quarry is an outcrop of rhyolite and chalcedony. A sparse surface scatter of historic refuse and mining tailings is also present on the northern face of the outcrop.

In 1996, Marcia Kimball performed an evaluation for a Bureau of Land Management land exchange. Kimball’s evaluation concluded that the majority of the site occupied the northern face

of Lookout Hill, extending equally to the east and west from that slope, and concluded the site was not eligible for the NRHP (or, by extension, the CRHR).

The quarry itself, as well as the majority of site P-15-000472, is outside the project site. With no new features identified during resurvey in 2017, there is no new evidence to support changing the NRHP determination.

P-15-005793/CA-KER-4918

Site P-15-005793 was previously recorded as a large temporary camp. Unsuccessful relocation efforts occurred in June 2018, when the area was found to have been disturbed recently by grading and installation of underground utilities. The previously recorded area and the area outside of the disturbance was surveyed with 5 m transects. No prehistoric artifacts were observed.

P-15-015873

This site lacked a DPR form and polygon mapping. The 2017 and 2018 survey attempts to relocate this site, using 15 and 5 m transects respectively, failed to relocate any cultural materials within at least 50 m of the given location. The area appeared to be a very flat gravel field, with pebbles reaching a maximum size of 2 cm.

Site P-15-017297/CA-KER-9487H

Site P-15-017297 consists of one isolated prehistoric flake within a historic refuse deposit, measuring 197 × 61 m. Site records were updated in 2013 by Far Western archaeologists A. Tingey, M. Rich, E. Mike, and L. Daub to include the modern era beer bottles, wine bottles, a bed frame, a car muffler, and beer cans. A single prehistoric rhyolite core reduction flake was observed on the surface.

A total of 84 historic artifacts were observed. The specific quantities of artifacts were detailed in the 2013 recordation. In general, the artifact types observed were as follows:

- Sanitary cans
- Hole-in-cap cans
- A rectangular gallon/fuel can
- Oil cans
- A scrap metal fragment with rivet
- Amethyst glass jar/bottle fragments

- Liquor bottle fragments
- Glass insulator fragments

No evidence for subsurface deposits of artifacts was observed. All artifacts were on the surface or lightly embedded (1–3 cm) into the surface sands.

P-15-017297/CA-KER-9487H Results and Recommendations

The site is situated along a Pacific Gas & Electric Company (PG&E) access road that crosses the northern third of the project site.

No information was obtained that would contribute value under any of the significance criteria. For this reason, the site is not recommended as significant for archaeological values or as eligible for CRHR listing under Criterion 4.

Site SS-S-101

Located in the northeastern edge of the southern site, SS-S-101 is a prehistoric temporary habitation site. The 110 m (N/S) × 160 m (E/W) site is located on a gently north-to-south-sloping desert alluvial environment covered in moderate vegetation. The vegetation in the vicinity consists of the typical high desert vegetation communities, including Joshua trees, tamarisk trees, and creosote with native and invasive species of grasses. Disturbances in the area appear to consist of only natural alluvial processes.

Testing within site SS-S-101 consisted of a surface inventory, surface collection, two CSCs, and the excavation of 14 STPs and two SSUs.

Surface Inventory

Site SS-S-101 site was divided into quadrants, using the site datum as the center, for the surface inventory. The combined quads, excluding surface collection of CSC units and feature, yielded a total of 329 artifacts, including FAR. Collected artifacts include 1 chert biface, 11 simple flake tools, 138 pieces of flakes, 5 indeterminate groundstone fragments, 4 millingstone fragments, 1 handstone, and 168 rhyolite FAR fragments. Of the 138 flakes collected, 14 are rhyolite debitage and the remaining 124 are cryptocrystalline silicates (CCS), which include variously colored fine-grained chert and chalcedonies.

Concentrations

Two concentrations were recorded. Concentration 1 measured 32 m (NW/SE) × 18 m (NE/SW) and is located on the small sandy knoll in the central portion of the site, extending loosely west and south from the site datum. Compared to the rest of the site, Concentration 1 contains a significantly higher density of artifacts. CSC-1 was conducted within Concentration 1 and will be discussed in more detail below.

Concentration 2 is west of Concentration 1 and is a relatively dense, 15 m (N/S) ×15 m (E/W) lithic scatter consisting of CCS debitage and rhyolite FAR.

Features

A total of two prehistoric thermal features were identified during the surface inventory. Located near the western edge of the site, Feature 1 is an ovate 6 to 8 m diameter concentration of rhyolite FAR. The clusters range in size from 2 to 5 cm sub-rounded rocks and gravels to 15 to 20 cm diameter angular cobbles. Rhyolite flake and core fragments were also noted within Feature 1. Feature 2 is located immediately to the northwest of Feature 2, and is also an ovate, 5 m diameter association of FAR. The FAR range in size from 2 to 5 cm sub-rounded rocks and gravels to 15 to 20 cm diameter angular cobbles. Feature 2 contains rhyolite flake. Evidence of post-depositional environmental processes, including wind and soil erosion, was evident at both features.

Shovel Test Pits

Fourteen individual STPs were excavated at Site SS-S-101. All 14 of the STPs exhibited loose to moderately compact well-sorted brown sands (Munsell 10YR 7/3). Sediments are consistent from the ground surface to approximately 40 cmbs. From 40 to 60 cmbs, the sand becomes more compact and contains small rounded to sub-rounded gravels.

Of the 14 STPs excavated, numbers 1–4, 6–8, and 10–14 were negative. STP-5 and STP-9 contained cultural materials. A total of 5 artifacts, all CCS interior flakes, were recovered from the STP excavations (Table 6-1).

Table 6-1
Shovel Test Pit Results from SS-S-101

STP	Level (cmbs)	Artifacts Recovered	Count
5	0–20	Chert (CCS) flake	2
	20–40	Chert (CCS) flake	1
9	0–20	Chert (CCS) flake	2
		STP total	5

STP = shovel test pit; cmbs = centimeters below surface; CCS = cryptocrystalline silicate.

Controlled Surface Collections

Two CSCs were conducted. CSC-1 measured 10 × 25 m (split into two rows of 5 × 5 m cells, with the cells labeled A–J) and was situated to collect materials from Concentration 1. A total of 173 CCS flakes and 60 rhyolite FAR fragments were collected from CSC-1. CSC-2 measured 5 × 5 m and was placed on the western portion of the site to capture the materials from Feature 2. A total of 38 rhyolite FAR fragments and 1 groundstone fragment were collected from CSC-2.

Surface Scrape Units

Two SSUs were excavated at this site, in conjunction with the CSCs. SSU-1 was placed within the northeast corner of CSC-2, and measured 2 × 2 m. Sediments from the surface to a depth of approximately 5 cmbs consisted of loosely compacted, unsorted light yellowish-brown sand (Munsell 10YR 7/3) with roots and krotovina noted. Materials recovered from SSU-1 consist of 46 fragments of rhyolite FAR.

SSU-2 was a 2 × 2 m scrape unit within CSC-1, Cell C, to collect data from Concentration 1. Sediments encountered consisted of loosely compacted unsorted light yellowish-brown sand (Munsell 10YR 7/3). Materials recovered from SSU-2 consist of 1 fragment of rhyolite FAR and 1 CCS flake.

SS-S-101 Results and Recommendations

Evaluation fieldwork at site SS-S-101 identified two rock features, one concentration, and a light scatter of prehistoric lithic artifacts and FAR fragments. Surface collections and the 16 various subsurface excavation units produced a total of 655 individual artifacts and cultural materials. The 655 items collected include 315 rhyolite FAR fragments, 329 flaked stone artifacts (317 debitage and 12 tools), and 11 groundstone fragments (1 handstone, 4 millingstones, and 5 indeterminate). Out of the 317 total fragments of debitage collected, 14 are rhyolite and 303 are various CCS.

Test excavations at site SS-S-101 indicate that the area saw transient occupation focused on use of locally abundant rhyolite for cooking and limited tool production.

Sediment profiles in excavated units demonstrate that the cultural materials derive from near surface and shallow contexts with no evidence of substantial buried deposits. The two excavated thermal features (Features 1 and 2) contained no retrievable charcoal or other datable materials.

No substantial or significant deposits were identified that would qualify SS-S-101 for CRHR listing under any significance criteria, including scientific research potential (Criterion 4). For these reasons, SS-S-101 is recommended as not significant and as not eligible for CRHR.

Site SS-S-102

Site SS-S-102, a prehistoric lithic scatter, is situated in the southeasternmost portion of the southern site. Testing within site SS-S-102 consisted of a surface inventory and limited subsurface test excavations. The subsurface evaluations at SS-S-102 consisted of two STPs.

The site is located on a flat desert plain and measures 18 m (N/S) × 44 m (E/W). The vegetation noted at this site consists of high desert vegetation communities, including Joshua and tamarisk trees, saltbush, creosote, and both native and invasive grass species. Disturbances in the immediate area include natural alluvial and aeolian processes.

Surface Inventory

A total of 13 flakes (2 rhyolite and 11 CCS) were identified during the surface inventory. Lithic material found at the site consists of a range of dark-brown and mottled-gray chert interior flakes. No flaked stone tools, groundstone, ceramics, or features were identified within the site.

Shovel Test Pits

Two individual STPs were excavated at SS-S-102. Both STPs exhibited a loosely compact brown sandy clay loam (Munsell 10YR 6/4). Large amounts of round to sub-round gravels were noted in the upper two centimeters of both STPs and both were terminated at 20 cmbs due to encountering hardpan clay loam sediments. No artifacts were recovered from STP excavation.

SS-S-102 Results and Recommendations

The surface inventory of the site identified 13 flakes. Two STPs were excavated at the site and both contained no artifacts. Sediment profiles from the subsurface excavation demonstrate that the cultural materials confined to the surface. The site showed no evidence of a subsurface component.

SS-S-102 represents a limited lithic retooling event. The presence of solely interior CCS flakes suggests that the lithic artifact was in the later stages of tool production.

Evaluation of the site failed to identify substantial or significant deposits. No information was obtained that would contribute value under any of the other significance criteria. For these reasons, SS-S-102 is recommended as not significant under any of the four CEQA significance criteria and as not eligible for CRHR listing.

Site SS-S-103

Situated at the northeastern portion of the southern site, SS-S-103 is a prehistoric lithic tool production site. The site measures 162 m (NW/SE) × 80 m (NE/SW) and is located on a gently sloping alluvial plain. Ponding has occurred in the past in an area in the center of the site measuring approximately 90 m (NW/SE) × 35 m (SW/NE).

Testing consisted of 1 surface inventory, 1 CSC, and the excavation of 15 STPs and 3 SSUs. During the surface inventory, previously unidentified prehistoric features were found outside of the original site boundary, prompting minor boundary expansion.

Surface Inventory

The general surface collection of the site was performed in quadrants centered on the datum. The surface inventory produced a total of 25 prehistoric tools, 454 flakes, 5 groundstone fragments, and 3 scatters of FAR. The prehistoric tools include 1 obsidian projectile point, 1 CCS retouched flake tool, and 1 obsidian retouched flake tool. Of the total 454 flakes collected during the general surface collection, 19 are rhyolite debitage and the remaining 435 are CCS.

A high volume of lithic flaked stone and groundstone tools (n = 20) were identified and recovered from various proveniences across this site. These artifacts were recorded by individual point provenience recording and are listed in Table 6-2.

Table 6-2
Individually Collected Artifacts from the Surface of SS-S-103

Artifact Number	Description	Location
A1	Obsidian projectile point fragment	General surface collection Quad A
A2	CCS retouched flake tool	Concentration 1
A3	Obsidian retouched flake tool	Concentration 1
A4	CCS simple flake tool	Concentration 1
A5	CCS biface	Concentration 1

Table 6-2
Individually Collected Artifacts from the Surface of SS-S-103

Artifact Number	Description	Location
A6	CCS simple flake tool	Concentration 1
A7	Rhyolite flaked stone core	Concentration 2
A8	CCS simple flake tool	Concentration 2
A9	Rhyolite groundstone fragment	Concentration 2, Feature 2
A10	CCS flaked stone core	Concentration 1
A11	CCS simple flake tool	Concentration 1
A12	CCS simple flake tool	Concentration 1
A13	CCS biface fragment	Concentration 1
A14	CCS simple flake tool	Concentration 1
A15	CCS simple flake tool	Concentration 1
A16	CCS retouched flake tool	Concentration 2
A17	Rhyolite groundstone fragment	Concentration 1
A18	CCS simple flake tool	General surface collection Quad A
A19	CCS biface fragment	General surface collection Quad A
A20	Rhyolite groundstone fragment	General surface collection Quad D

CCS = cryptocrystalline silicate.

Concentrations

Two surface concentrations were identified at SS-S-103. Concentration 1 is located adjacent to the site datum in the center of the site and oriented northwest–southeasterly along the southern bank of a seasonal drainage. Concentration 1 measured approximately 32 m (NW/SE) × 16 m (NE/SW) and contained several flaked lithic tools, CCS flakes, and scattered rhyolite FAR. The majority (12 out of 20) of the tools from the site were collected from Concentration 1.

Concentration 2 is located to the northwest of Concentration 1, and occupies the majority of the northern extent of the updated site boundary. It measures approximately 30 m (N/S) × 42 m (E/W) and included 4 tools (see Table 6-2: Artifacts A7 through A9 and A16), debitage, and thermal features 1, 2, and 3.

Features

A total of three thermal features were identified during the surface inventory. Located in the southeastern corner of Concentration 2, Feature 1 is a concentration of FAR and scattered artifacts covering 6 m^2. The rhyolite FAR constituting Feature 1 ranged in size from 1 to 2 cm sub-rounded gravels to 15 to 20 cm diameter angular cobbles. Feature 1 also included 3 groundstone fragments

(see Table 6-2: Artifact A9; two others were generally collected). Also noted within Feature 1 were 1 rhyolite and 4 CCS flakes.

Also covering 6 m^2, Feature 2 is an aggregation of rhyolite FAR and artifacts. Feature 2 is located 6 m north from Feature 1 and included FAR ranging in size from 1 to 2 cm sub-rounded gravels to 15 to 20 cm diameter angular cobbles.

Feature 3 is located along the southern edge of Concentration 2 and covers 7 m^2. Feature 3 is a diffuse concentration of rhyolite FAR. The FAR fragments ranged in size from 1 to 2 cm sub-rounded gravels to 15 to 20 cm diameter angular cobbles. All features appear to be composed of locally sourced rhyolite rock and had no discernible structure.

Controlled Surface Collections

CSC-1 measured 5 × 20 m (divided into discontiguous 5 × 5 m cells, labeled A through D) and was placed to collect materials from Concentration 1. The cells were not fully contiguous. Cell A was approximately 3 m to the northwest of the contiguous cells B, C, and D. A total of 7 rhyolite FAR fragments, 4 rhyolite flakes, 97 CCS flakes, and 1 groundstone fragment were recovered from CSC-1.

Surface Scrape Units

Three SSUs were excavated at this site, in conjunction with the CSC. SSU-1 was a 2 × 2 m square situated to capture any subsurface component of Feature 1 in Concentration 2. Sediments from the surface to a depth of approximately 5 cmbs consisted of loosely compacted unsorted brown sand (Munsell 10YR 7/3) with roots and krotovina noted. Materials recovered from SSU-1 consist of 2 rhyolite groundstone fragments, 1 rhyolite flake, 4 CCS flakes, and 2 rhyolite FAR fragments.

SSU-2 was a 2 × 2 m scrape unit within Cell A of CSC-1. Sediments encountered consisted of loosely compacted unsorted brown sand (Munsell 10YR 7/3). Materials recovered from SSU-2 consist of 3 fragments of rhyolite FAR and 3 CCS flakes.

SSU-3 was a 2 × 2 m square in Cell B of CSC-1. SSU-3 yielded 33 CCS flakes, 7 rhyolite flakes, and 1 CCS simple flake tool.

Shovel Test Pits

Fifteen individual STPs were excavated at SS-S-103. All of the STPs exhibited a consistent sediment profile consisting of loose to moderately compact well-sorted sands. The sand color was a relatively consistent range from very pale brown (Munsell 10YR 7/3), to pale brown (10YR 6/3),

to brown (10YR 5/3). The sediments are consistent from the ground surface to approximately 20 cmbs. Around 20 to 40 cmbs, sediments become more compact sandy clay loam or hardpan.

Of the 15 STPs excavated, numbers 1, 3, 6 through 12, 14, and 15 were negative. STP-2, STP-4, STP-5, and STP-13 were positive and contained cultural materials. A total of 6 artifacts, 5 CCS flakes and 1 rhyolite flake, were recovered from the STP excavations (Table 6-3).

Table 6-3
Shovel Test Pit Results from SS-S-103

STP	Level (cmbs)	Artifacts Recovered	Count
2	0–10	CCS flakes	2
4	0–20	Rhyolite flake	1
	20–40	CCS flake	1
5	0–20	CCS flake	1
13	0–20	CCS flake	1
		STP total	6

STP = shovel test pit; cmbs = centimeters below surface; CCS = cryptocrystalline silicate.

SS-S-103 Results and Recommendations

Site SS-S-103 is a prehistoric lithic production area that saw transient occupation. The surface inventory of the site identified 3 thermal features and 2 light scatters of concentrated prehistoric lithic artifacts and FAR fragments. Surface collections and the 14 various subsurface excavation units produced a total of 751 individual artifacts and cultural materials. The 751 items collected include 632 flaked stone artifacts (611 debitage, 19 tools, 2 cores), 111 rhyolite FAR fragments, and 8 groundstone fragments. Out of the 611 total debitage collected, 32 are rhyolite and 579 are various CCS.

Sediment profiles recorded from the subsurface excavation demonstrate that the majority of the artifacts and cultural materials derive from a shallow context to depths of approximately 20 to 30 cmbs. The excavation units demonstrate that the FAR features have no depth, but are generally near surface exposures. No charcoal or ash staining was identified, likely due to the shifting sands composing the depositional environment.

No substantial or significant deposits were identified at SS-S-103. No information was obtained that would contribute value under any of the other significance criteria. For these reasons, the SS-S-103 is not recommended as significant and as not eligible for CRHR listing under any of the four CEQA significance criteria.

Site SS-S-104

Situated at the northeastern portion of the southern site, SS-S-104 is a prehistoric lithic scatter. Site SS-S-104 measures 78 m (NE/SW) × 15 m (NW/SE) and is located on a flat alluvial desert plain covered in sparse to moderate vegetation. The local vegetation consists of sparse Joshua trees, tamarisk trees, and creosote with native and invasive species of grasses, typical of high desert vegetation communities. Disturbances in the immediate area include mainly alluvial processes.

Testing within site SS-S-104 consisted of a surface inventory and the excavation of 3 STPs.

Surface Inventory

A total of 5 flakes were identified during the surface inventory. No prehistoric flake tools or groundstone artifacts were identified during the surface inventory. All flaked material was CCS.

Shovel Test Pits

Three individual STPs were excavated at SS-S-104. All three of the STPs exhibited loosely to moderately compacted light yellowish-brown silty sandy loam (Munsell 10YR 7/3). The sediments are generally consistent from ground surface to 25 cmbs; however, the sediments become more compact with increased depth. All of the three STPs were negative.

SS-S-104 Results and Recommendations

The surface inventory of the site identified 5 CCS flakes. Three STPs were excavated at the site and all were devoid of cultural material. Sediment profiles from STPs demonstrate that all identified artifacts were encountered on the surface. The site showed no trace of a subsurface component.

Evaluation of the site failed to identify substantial or significant deposits. No information was obtained that would contribute value under any of the other significance criteria. For this reason, SS-S-104 is recommended as not significant under any of the four CEQA significance criteria and as not eligible for CRHR listing.

Site SS-S-105

Site SS-S-105 is a prehistoric lithic scatter situated at the northeastern portion of the southern site, and measures 57 m × 37 m (NW/SE). Site SS-S-105 is located on a flat alluvial desert plain covered in light to moderate vegetation. The local vegetation consists of sparse Joshua trees, tamarisk trees, and creosote with native and invasive species of grasses, typical of high desert vegetation

communities. Disturbances in the immediate area include mainly alluvial processes and the dirt access road located immediately to the north.

Testing within site SS-S-105 consisted of a surface inventory and the excavation of three STPs.

Surface Inventory

A total of 18 flakes were identified during the surface inventory. No prehistoric flake tools, groundstone, or ceramic artifacts were identified during the surface inventory. All flaked material was CCS. No features were identified during the inventory.

Shovel Test Pits

Three individual STPs were excavated at SS-S-105. All three of the STPs exhibited loosely to moderately compacted light yellowish-brown silty sandy loam (Munsell 10YR 7/3). The sediments are generally consistent from ground surface to 25 cmbs; however, the soil does become more compact with increased depth. All three STPs were negative for cultural materials.

SS-S-105 Results and Recommendations

The surface inventory of the site identified 18 CCS flakes. Three STPs were excavated at the site and all were sterile. Sediment profiles from the subsurface excavation demonstrate that all of the artifacts were encountered on the surface. The site showed no trace of a subsurface component.

Evaluation of the site failed to identify substantial or significant deposits. No information was obtained that would contribute value under any of the other significance criteria. For this reason, SS-S-105 is recommended as not significant under any of the four CEQA significance criteria and as not eligible for CRHR listing.

Site SS-S-106

Site SS-S-106 is a prehistoric lithic scatter situated in the southeastern portion of the southern site. SS-S-106 measures 120 m (NE/SW) × 65 m (NW/SE) and is located on a gently sloping alluvial desert hill covered in sparse to moderate vegetation, overlooking a large dry alluvial wash immediately to the northeast. The local vegetation consists of high desert vegetation communities, including Joshua trees, tamarisk trees, creosote, and saltbush with native and invasive species of grasses. Disturbances in the immediate area include natural alluvial erosion and Dalton Avenue, located immediately to the south.

Testing within site SS-S-106 consisted of a surface inventory and the excavation of three STPs.

Surface Inventory

Surface inspection revealed 1 prehistoric CCS simple flake tool, 61 flakes, and 6 fragments of rhyolite FAR. Of the total 61 flakes collected from the surface collection, 46 are rhyolite debitage and the remaining 15 are CCSs.

Concentrations

Two prehistoric artifact concentrations were identified during the surface inventory. Concentration 1 measured 30 m (NE/SW) × 22 m (NW/SE) and was located to the southwest of the datum, and contained 20 rhyolite flakes, 6 CCS flakes, and 6 fragments of rhyolite FAR.

Concentration 2 measured 24 m (NE/SW) × 36 m (NW/SE) and was located to the northeast of the site datum. It contained 14 rhyolite flakes and 5 CCS flakes. One CCS simple flake tool was recovered from Concentration 2.

Shovel Test Pits

Three individual STPs were excavated at SS-S-106. All three of the STPs exhibited loose to moderately compact well-sorted pale-brown sands (Munsell 10YR 6/3). The sediments are consistent from the ground surface to approximately 40 cmbs. From 40 cmbs to 60 cmbs the sand remains the same color but becomes more compact and contains small rounded to sub-rounded gravels.

Of the three STPs excavated, STP-1 and STP-3 were positive and STP-2 was negative. A total of 36 artifacts, including 10 flakes and 26 fragments of rhyolite FAR, were recovered from the STP excavations. The materials and artifacts recovered by STP are listed in Table 6-4. STP excavations revealed that natural processes (rodent burrows, erosion, and deposition) slightly obscured some artifacts, but that all derive from near-surface contexts. No substantial subsurface deposits were identified, nor were any organic residues (i.e., charcoal) found that could be dated.

Table 6-4
Shovel Test Pit Results from SS-S-106

STP	Level (cmbs)	Artifacts Recovered	Count
1	0–20	CCS debitage	3
		Rhyolite FAR	16
	20–40	Rhyolite debitage	6
		Rhyolite FAR	10
3	0–20	CCS debitage	1
		STP total	36

STP = shovel test pit; cmbs = centimeters below surface; CCS = cryptocrystalline silicate; FAR = fire-affected rock.

SS-S-106 Results and Recommendations

The surface inventory of SS-S-106 identified a light-density scatter of prehistoric lithic artifacts and FAR generally confined to the surface. The site represents transient lithic tool production with some heat treatment of locally abundant rhyolite and CCS stone. Excavations revealed that no significant subsurface deposits are present that would qualify the site under any of the four CEQA significance criteria. Thus, the site is recommended as not significant and as not eligible for CRHR listing.

Site SS-S-107

Site SS-S-107 is a multi-component site with a prehistoric lithic scatter and a historic refuse scatter located in the central portion of the southern site. SS-S-107 measures 155 m (N/S) × 95 m (E/W) and is located on a flat desert and ancient alluvial desert washout/flood environment covered in sparse to moderate vegetation. The vegetation is typical of high desert vegetation communities of sparse Joshua trees, tamarisk trees, saltbush, and creosote with native and invasive species of grasses. Disturbances in the area include natural alluvial erosion and Dalton Avenue, which bisects the northern portion of the site. Testing evaluations at site SS-S-107 included a surface inventory and the excavation of four STPs.

Surface Inventory

During the surface inventory of SS-S-107, three artifact concentrations were identified among a sparse scatter of prehistoric and historic artifacts. The concentrations were labeled Loci A, B, and C and were recorded and surface collected individually. Outside of the loci, a general surface collection was conducted of the site area that did not include the individual loci and recovered a total of 2 biface flake tools (Artifacts A1 and A2) and 20 flakes. The flake tools were dark-gray and white CCS, while the debitage were flakes of a reddish-orange CCS. The historic refuse scatter included 1 knife-opened, hole-in-cap can measuring 4.5 inches (L) × 3.25 inches (W) × 1.81 inches (cap); 1 knife-opened, hole-in-cap can measuring 2.5 inches (L) × 2.25 inches (W) × 1 inch (cap); 4 metal stove/heater parts; and 1 crushed hole-in-cap can with a 2.5-inch cap. During the surface inventory, previously unidentified prehistoric artifacts were noted beyond the previously mapped site boundaries.

SS-S-107 Loci

Locus A was a 19 m (NE/SW) × 7 m (NW/SE) flake scatter of debitage and FAR located in the southern portion of the site. A total of 82 artifacts were collected from the ground surface of

Locus A, including 55 CCS flakes, 12 rhyolite flakes, and 15 rhyolite FAR fragments. STP-1 was excavated near the approximate center of the surface scatter and recovered 11 CCS flakes, 1 rhyolite FAR, and 1 faunal bone fragment from a depth from 0 to 60 cmbs.

Locus B is a sparse flake scatter with a small amount of FAR. The locus measured 30 m (N/S) × 75 m (E/W) and was situated in the central southern portion of the site south of Dalton Avenue. A total of 83 artifacts were collected from the ground surface of Locus B, which included 72 CCS flakes, 9 rhyolite FAR fragments, and 2 CCS biface flake tool fragments (Artifacts A1 and A2). STP-2 and STP-3 were excavated within Locus B; STP-2 was positive and recovered one CCS flake from a depth from 0 to 20 cmbs; STP-3 was negative and sterile.

Locus C is a debitage scatter with a small amount of FAR measuring 15 m (N/S) × 18 m (E/W) and is located in the northern portion of the site, along the northern edge of Dalton Avenue. A total of 10 CCS flakes and 3 rhyolite FAR fragments were collected from the ground surface of Locus C. STP-4 was excavated near the approximate center of the surface scatter and was negative for cultural materials.

Shovel Test Pits

Four individual STPs were excavated at SS-S-107. All four of the STPs exhibited a range of very pale moderately compacted very pale brown to brown (10YR 7/3 to 7.5YR 5/3) sandy loam. Typically most of the sediments are consistent from the ground surface to approximately 20 cmbs. From approximately 20 to 60 cmbs the sediments become compact light yellowish-brown (10YR 6/4) sandy clay loam. As briefly mentioned in with the individual Loci, STP-1 was placed in Locus A, STP-2 and STP-3 were placed in Locus B, and STP-4 was placed in Locus C.

Of the 4 STPs excavated, STP-1 and STP-2 were positive and contained small amounts of cultural material; STP-3 and STP-4 contained no artifacts. A total of 14 artifacts were collected from STP-1 and STP-2, including 12 CCS flakes, 1 fragment of non-human faunal bone, and 1 rhyolite FAR fragment. The materials and artifacts recovered by STP are listed in Table 6-5.

Table 6-5
Shovel Test Pit Results from SS-S-107

STP	Level (cmbs)	Artifacts Recovered	Count
1	0–20	CCS flake	1
	20–40	CCS flakes	4
		Faunal bone fragment	1
	40–60	CCS flakes	6
		Rhyolite FAR	1

Table 6-5
Shovel Test Pit Results from SS-S-107

STP	Level (cmbs)	Artifacts Recovered	Count
2	0–20	CCS flake	1
		STP total	14

STP = shovel test pit; cmbs = centimeters below surface; CCS = cryptocrystalline silicate.

SS-S-107 Results and Recommendations

The evaluation of SS-S-107 identified a sparse scatter of prehistoric lithic artifacts with minimal amounts of FAR and a very diffuse mid to late twentieth century historic refuse scatter. The historic refuse scatter is clearly associated with the proximity of Dalton Avenue and historic occupation and utilization of the area; however, the displaced trash has little cultural significance and almost no data potential and is mainly representative of historic intrusive refuse in a larger prehistoric lithic workshop and production site.

Lithic tool production waste is the most represented item identified at this site, representing 77% of the entire collection, with FAR representing 23% of the entire collection. Almost all of the material suggests raw lithic material refinement and lithic tool production. CCS materials are the dominant debitage material, representing 100% of the debitage material type. No groundstone or ceramic artifacts were identified at this site. These materials are consistent with transient site occupation for lithic tool production.

The sediment profiles recorded from the subsurface excavations demonstrate in general, that the majority of the artifacts and cultural materials were encountered from a shallow context. No significant or substantial cultural deposits were identified. SS-S-107 is recommended as not significant under any CEQA criteria and as not eligible for CRHR listing.

Site SS-S-109

Site SS-S-109 is a multi-component site consisting of a prehistoric lithic scatter and a diffuse historic refuse scatter, situated near the southern site. Site SS-S-109, measures 130 m (N/S) × 175 m (E/W) and is located on a flat desert alluvial plain covered in moderate vegetation. The vegetation in the immediate vicinity consists of sparse Joshua trees, tamarisk trees, creosote with native and invasive species of grasses, typical of high desert vegetation communities. Disturbances in the area include Dalton Avenue, which bisects the northern portion of site SS-S-109.

Testing within site SS-S-109 consisted of a surface inventory and the excavation of four STPs. During the surface inventory, previously unidentified prehistoric features and artifacts were

found to extend beyond the previously mapped site boundaries, and adjustments to site area were incorporated.

Surface Inventory

During the surface inventory of SS-S-109, five loci were identified that had slightly elevated densities of cultural material on the surface. Outside of loci, a general surface collection was conducted, recovering a total of 10 (6 CCS and 4 rhyolite) flakes. Additionally, five rotary opened sanitary cans; two hole-punched, hole-in-cap cans measuring 4.25 inches (L) × 2.94 inches (W) × 1 inch (Cap); one knife-opened, hole-in-cap can measuring 2.5 inches (L) × 2.5 inches (W); one steel beverage can with interlocking side seams; five milk glass fragments; and two ceramic white-ware dish fragments were inventoried but not collected.

Loci

Five separate loci were identified during the site evaluation surface inventory. These Loci were labeled A through E and were recorded and collected individually. Locus A, located in the southeastern corner of the site, measured 30 m (NE/SW) × 12.5 m (NW/SE), is a scatter of debitage and FAR, consisting of one area of concentrated of FAR and debitage (Concentration 1), surrounded by a diffuse scatter of rhyolite FAR fragments. Concentration 1 consisted of a 6 m (N/S) × 6 m (E/W) roughly circular area, containing 4 pieces of rhyolite debitage, and one rhyolite core (collected) and a total of 36 fragments (490g) of rhyolite FAR (counted and weighed but not collected). A total of 43 fragments (900g) of rhyolite FAR were counted and weighed (but not collected) from within Locus A scattered outside of Concentration 1. The combined total of rhyolite FAR recorded at Locus A equals 79 fragments with a total weight of 1,390g. STP 2 was excavated in Locus A, within the southwestern corner of Concentration 1. This shovel test was negative, yielding no subsurface artifacts or FAR fragments below the ground surface.

Locus B was a 19 m (NE/SW) × 7 m (NW/SE) CCS debitage scatter, located near the southern and central portion of the site. A total of 18 CCS flakes were identified and collected from the ground surface of Locus B. STP 1 was excavated near the approximate center of the surface scatter and recovered a total of 6 CCS flakes and 6 fragments of non-human vertebrate faunal bone from a depth from 0 to a maximum depth of 60 cmbs.

Locus C is a debitage scatter, measuring 24 m (N/S) × 44 m (E/W), located near the southwestern portion of site SS-S-109. A total of 31 CCS flakes, one white/grey CCS biface tip fragment (artifact A1) and one rhyolite FAR fragment was collected from the ground surface of Locus C. STP 3 was excavated near the approximate center of the densest area of the surface scatter and a total of 12

rhyolite flakes, 7 CCS flakes, and 12 fragments of rhyolite FAR were recovered from a depth from 0 to a maximum depth of 80 cmbs.

Locus D is a deflated thermal feature which consists of scattered rhyolite FAR fragments with a small number of flakes. This locus is located immediately adjacent to Dalton Ave and measures approximately 12.5 m (N/S) × 14 m (E/W). The installation of an AT&T fiber optic communication line and the northern edge of Dalton road has created a subsurface disturbance in this specific area, redistributing cultural material. A small amount of rhyolite FAR was collected from within the disturbed (active) limits of Dalton Ave. The FAR and the sandstone fragments were mixed on the surface of loose to loosely compact light yellowish-brown (Munsell 10YR 6/4) sandy loam. A total of 75 fragments of rhyolite FAR weighing 450 g and 47 fragments of sandstone weighing 410 g were counted and weighed but not collected from Locus D. A limited sample of sandstone was collected for possible analysis. Along with the sandstone and rhyolite FAR, 1 CCS and 2 rhyolite flakes were identified and collected from the surface of Locus D.

Locus E is a 12.5 m (N/S) × 9 m (E/W) CCS debitage and FAR scatter, located near the northern corner of the site. A total of 9 CCS flakes and 3 rhyolite FAR fragments were identified and collected from the ground surface at Locus E. No intact features or other artifacts were noted associated this small locus.

Shovel Test Pits

Four individual STPs were excavated at SS-S-109. All four of the STPs exhibited a range of very pale moderately compacted very pale brown to brown (Munsell 10YR 7/3 to 7.5YR 5/3) sandy loam. Typically most of the sediments are consistent from the ground surface to approximately 40 cmbs. From approximately 40 to 80 cmbs the sediments become a moderately compact light yellowish-brown (Munsell 10YR 6/4) sandy clay loam. As briefly mentioned in connection with the individual loci, STP-1 was placed in Locus B, STP-2 was placed in Concentration 1 within Locus A, STP-3 was placed in Locus C, and STP-4 was placed within Locus E.

Of the four STPs excavated, only STP-2 was negative; STP-1, STP-3, and STP-4 were positive and contained cultural materials. From the three positive STPs excavated, a total of 45 artifacts, including 6 fragments of non-human faunal bone and 26 pieces of FAR, were recovered from the STP excavations. The materials and artifacts recovered by STP are listed in Table 6-6.

Table 6-6
Shovel Test Pit Results from SS-S-109

STP	Level (cmbs)	Artifacts Recovered	Count
1	0–20	Faunal bone fragments	6
		CCS flakes	3
	20–40	CCS flakes	2
	40–60	CCS flakes	1
3	0–20	Rhyolite FAR	9
		CCS flakes	3
	20–40	CCS flakes	1
	40–60	Rhyolite flakes	12
		CCS flakes	1
	60–80	CCS flakes	2
		Rhyolite FAR	3
4	20–40	CCS flakes	2
		STP total	45

STP = shovel test pit; cmbs = centimeters below surface; CCS = cryptocrystalline silicate; FAR = fire-affected rock.

SS-S-109 Results and Recommendations

Evaluation efforts at SS-S-109 identified a low density scatter of prehistoric lithic artifacts and FAR fragments and a diffuse mid to late twentieth century historic refuse scatter. The historic refuse scatter is clearly associated with the proximity of Dalton Avenue and historic occupation and utilization of the area; however, the displaced trash has little cultural significance, has even less data potential, and is mainly representative of historic intrusive refuse in a larger prehistoric lithic workshop and production site. Prehistoric materials were also found primarily in near-surface contexts, although rodent burrowing and depositional processes transported a handful of flakes and FAR to depths of up to 80 cm. No significant or substantial cultural deposits were identified, however.

The site is consistent with others in the region, having an assemblage dominated by lithic production waste and burned rhyolite, presumably used in thermal treatment of locally abundant CCS and rhyolite to improve lithic reduction. The sparse assemblage did not produce information that could convey significance under any of the four CEQA significance criteria; therefore, site SS-S-109 is recommended as not significant and not eligible for CRHR listing.

Site SS-S-112

Site SS-S-112 measures 18 m (NW/SE) × 18 m (N/S) and is a historic refuse scatter. The site sits on a low rise in a high desert plain with saltbush, sagebrush, Joshua trees, and various native and invasive grasses.

Surface Inventory

During the surface inventory a total of 23 historic era artifacts were identified. These artifacts include the following:

- 14 fragments of amethyst glass
- 1 colorless bottle base
- 2 white-ware ceramic vase bottle base fragment, one printed with a "Warranted" maker's mark
- 3 white-ware ceramic rim fragments
- 1 ceramic white-ware plate with green transfer-printed design broken into 9 sherds
- 1 smashed hole-in-cap can
- 1 smashed can

SS-S-112 Results and Recommendations

These historic materials date primarily to the mid-to-late twentieth century. Hole-in-top cans are similar in morphology to hole-in-cap cans but do not have filler holes and lack the solder ring, and were introduced for evaporated milk in the 1900s through the 1990s. Hole-in-cap cans were generally used in the late nineteenth and early twentieth century and were replaced by sanitary cans by 1914. Sanitary cans, however, were the primary type of can used from 1914 and are still the most common can used today (Horn and McDougall 2005). Amethyst glass was most common between 1885 and 1920 (Horn and McDougall 2005).

No evidence for subsurface deposits of artifacts were observed. All artifacts were on the surface or embedded 1 to 2 cm into the surface sands. Soil at the site is light tan yellowish-brown (Munsell 10YR 7/3) sand with granitic inclusions.

No information was obtained that would contribute value under any of the significance criteria. For this reason, site SS-S-112 is not recommended as significant for archaeological values or as eligible for CRHR listing under Criterion 4.

Site SS-S-113

Site SS-S-113 measures 60 m (N/S) × 30 m (E/W) in a roughly north–south orientation. Situated in the central portion of the southern site, SS-S-113 is a prehistoric lithic scatter. The site is in a gently sloping alluvial desert environment with local vegetation consisting of sparse Joshua trees, tamarisk trees, saltbush, and creosote scrub bushes with native and invasive species of grasses, typical of high desert vegetation communities.

Testing within site SS-S-113 consisted of a surface inventory and the excavation of one CSC, eight STPs, and one SSU.

Surface Inventory

During the surface inventory, previously unidentified prehistoric artifacts were found to extend slightly beyond the previously mapped site boundaries. The general surface collection of the site produced a total of 42 flakes and 1 faunal bone fragment that was consistent with a small mammal. Only one of the flakes was obsidian, with the remaining 41 being various CCS, ranging from grey, to tan, to brown.

Shovel Test Pits

Eight individual STPs were excavated at SS-S-113. Despite minor variances, all eight of the STPs exhibited loose to moderately compact well-sorted light yellowish-brown sandy loam (Munsell 10YR 7/3). The sediments are consistent from the ground surface to approximately 40 cmbs. From 40 to 60 cmbs the sands become brown (Munsell 10YR 6/4) and more compact and contain small rounded to sub-rounded gravels.

Of the eight STPs excavated, numbers 1, 3–5, 7, and 8 were negative and STP-2 and STP-6 were positive. A total of 3 artifacts (all CCS flakes) were recovered from the two positive STPs: 2 CCS flakes were recovered in STP-2 from 20 to 40 cmbs, and 1 CCS flake was recovered in STP-6 from 0 to 20 cmbs.

Surface Scrape Units

One 2 × 2 m square SSU was excavated in conjunction with the location of the obsidian flake. Sediments from the surface to a depth of approximately 5 cmbs consisted of loosely compacted unsorted brown sand (Munsell 10YR 5/3). No artifacts or other cultural material was recovered from this subsurface unit.

SS-S-113 Results and Recommendations

The evaluation surface inventory of the site identified a light lithic scatter. Surface collections and the nine various subsurface excavation units produced a total of 46 individual artifacts and cultural materials. The 46 items collected include 45 flaked stone artifacts (all flakes) and 1 faunal bone fragment. Out of the 45 total debitage collected, only one was obsidian, with the rest being various CCS. Neither groundstone remains nor ceramic artifact types were identified.

The evaluation of SS-S-113 demonstrates evidence of an extremely short-term or limited lithic refinement and/or tool production utilization of the area.

Sediment profiles recorded from the subsurface excavation demonstrate that the artifacts were encountered from a shallow context from the ground surface to a maximum depth of 40 cmbs. The excavation units demonstrate a low probability, most likely nonexistent, that any subsurface deposit would have significant depth. The subsurface recovery at this site can easily be attributed to the alluvial sediments and bioturbation, such as roots and rodent krotovina.

Within the study area, no substantial or significant deposits were identified. Implementation of the project within the study area at this site would not have a significant impact on the site's archaeological values. No information was obtained that would contribute value under any of the other significance criteria, and as such SS-S-113 is recommended as not eligible for CRHR listing.

Site SS-S-114

Situated in the central portion of the southern site, SS-S-114 is a prehistoric lithic deposit. The site measures 55 m (NW/SE) × 35 m (NE/SW) in a roughly oval shape. This site is located on a gently sloping desert alluvial environment covered in moderate vegetation. The vegetation in the vicinity consists of the typical high desert vegetation communities, including Joshua trees, tamarisk trees, and creosote with native and invasive species of grasses. Disturbances in the area appear to consist mainly of natural alluvial processes.

Testing within site SS-S-114 consisted of a surface inventory and conducting subsurface test excavations of nine STPs, one CSC, and two SSUs. During the surface inventory, previously unidentified prehistoric artifacts were found to extend slightly beyond the previously mapped site boundaries.

Surface Inventory

The general surface inventory of the site identified one area of more concentrated lithic artifacts, Concentration 1. The general surface collection, excluding Concentration 1, produced a total of 47 flakes, all CCS.

Concentrations

Concentration 1 was identified in the central northwestern portion of the site. It measures approximately 15 × 10 m, in a roughly oval shape, characterized by a (visually) greater density of lithic debitage when compared to the rest of the site. CSC-1 was placed to recover this concentration.

Controlled Surface Collections

CSC-1 was conducted to collect Concentration 1. CSC-1 was placed as a 15 × 15 m grid, oriented to 330° for grid north, with nine individual 5 × 5 m square cells. The cells, labeled A–I, were recorded and collected individually in an effort to identify the densest areas and/or greatest potential for subsurface deposits. A total of 137 CCS flakes were collected from CSC-1.

Surface Scrape Units

Two SSUs were excavated at this site, in conjunction with the densest cells from CSC-1. Both SSUs were 2 × 2 m square. Sediments from the surface to a depth of approximately 5 cmbs consisted of loosely compacted unsorted brown sand (Munsell 10YR 5/3). A total of 10 CCS flakes were recovered from SSU-1, located in Cell C of CSC-1. SSU-2, located in Cell E of CSC-1, produced a total of 8 CCS flakes.

Shovel Test Pits

Nine individual STPs were excavated at SS-S-114. Most of the nine STPs exhibited loose to moderately compact well-sorted light yellowish-brown sands (Munsell 10YR 7/3). The sediments are consistent from the surface to approximately 40 cmbs. From 40 to 60 cmbs the sand becomes more compact, contains small rounded to sub-rounded gravels, and is a darker shade of brown (Munsell 10YR 6/4). STP-6 through STP-9, all excavated near the eastern edge of the site, all encountered a range of extremely compact light brownish-gray (10YR 6/2) sand-clay loam, most likely representative of an ancient alluvial or flooring event/lakebed at various depths from 30 to 45 cmbs and deeper.

Of the nine STPs excavated, Numbers 1 and 3–9 were negative. Only STP-2 was positive, containing cultural materials. A total of 18 artifacts were recovered; all were CCS flakes. Level 0 to 20 cmbs had 3 CCS flakes, level 20 to 40 cmbs had 6 CCS flakes, and level 40 to 60 cmbs had 9 CCS flakes. Krotovina and roots were noted adjacent to and throughout the unit.

SS-S-114 Results and Recommendations

The testing evaluations of site SS-S-114 demonstrate strong evidence of a prehistoric lithic tool production waste scatter. Surface collections and the 11 various subsurface excavation units produced a total of 221 individual artifacts. The 221 items collected were all flaked stone artifacts, which consist of 99% debitage (n = 219) and 2 projectile point fragments. All flaked stone materials were various colored CCS, extremely consistent with all of the sites tested in the immediate vicinity, including SS-S-101, SS-S-113, SS-S-124, and SS-S-126, to name a few.

Test excavations at site SS-S-114 indicate prehistoric lithic tool production relating to refinement of local materials into tools. Neither groundstone nor ceramic artifact types were identified.

Sediment profiles recorded from the subsurface excavation demonstrate that the majority of the artifacts and cultural materials were encountered from a relatively shallow context from the ground surface to approximately 40 to 60 cmbs. However, despite the noted depth, the distribution of identified subsurface artifacts appears limited to the approximate center of Concentration 1. Outside of this general provenience, all the subsurface excavations were negative. Excavation notes identify enough evidence of subsurface bioturbation disturbance from roots and rodent krotovina to reasonably support the volume of artifacts (8%, n = 18) recovered from the subsurface excavations at this site; 91% of the collected artifacts that were recovered at SS-S-114 were recovered from 0 to 5 cmbs.

Evaluation testing demonstrates limited subsurface deposits identified at SS-S-114. No information was obtained that would contribute value under any of the significance criteria; therefore, SS-S-114 is recommended as not significant and not eligible under any criteria for CRHR listing.

Site SS-S-116

Site SS-S-116 is a multi-component site with a prehistoric lithic scatter and a diffuse historic refuse scatter located in the northern portion of the southern site. It is approximately 250 m (NW/SE) × 55 m (NE/SW) and is located on a flat desert and ancient alluvial desert environment covered in sparse to moderate vegetation. The vegetation is typical of high desert vegetation communities of sparse Joshua trees, tamarisk trees, saltbush, and creosote with native and invasive species of grasses.

Disturbances in the area are significant and include natural alluvial erosion and the different historic to modern linear roads/access routes that bound and intersect this surface scattered mix of prehistoric and historic artifacts. In fact, 20th Street, also identified as Mojave Avenue, bisects the length of this site and individual dirt access roads are located on both the northeast and southwest lengths of the artifact scatter.

Testing evaluations included a surface inventory and excavations of three STPs and one SSU.

Surface Inventory

During the surface inventory of SS-S-116, one distinct area of prehistoric artifacts was delineated as Locus A. Within the general scatter of prehistoric artifacts, one location was more concentrated, delineated as Concentration 1. The rest of the site consisted of a very sparse scattering of

prehistoric tools/tool fragments and scattered historic refuse artifacts along the length of the disturbed edges of 20th Street.

A general surface collection was conducted at the site that did not include Locus A or Concentration 1, and recovered a total of 3 prehistoric tools/tool fragments (A1, A2, and A3) and inventoried a total of 35 historic cans, 33 glass fragments, 1 historic bottle base, and 1 ceramic white-ware fragment.

The 3 isolated prehistoric tools include 1 CCS simple flake tool (A1) and 2 groundstone handstones, 1 granitic (A2) and 1 rhyolite (A3). The CCS simple flake tool is located just northwest of Locus A, in the approximate middle of the site. The surface context of the flake tool was along the southwestern edge of the heavily (and apparently repetitively) disturbed right-of-way of 20th Street. A2, the granite groundstone handstone, was recovered 60 m northwest of A1, along the northeastern edge of the disturbed 20th Street right-of-way. A3, the rhyolite handstone, was located on the edge of the dirt access route parallel to the north of 20th Street. The historic refuse scatter includes the following:

- 12 sanitary cans
- 13 knife-opened, hole-in-top cans measuring 3 14/15 inches (L) × 2 15/16 inches (W)
- 1 smashed, external friction cigarette tin
- 1 smashed sanitary paint can
- Approximately 30 clear glass body fragments
- 1 interlocking side-seam sanitary can
- 1 smashed hole-in-cap can measuring 4 3/8 inches (L) × 2 7/8 inches (W) × 1 1/2 inches (cap)
- 1 aqua glass body fragment
- 4 key-strip-opened, hole-in-top cans measuring 2 15/16 inches (L) × 2 15/16 inches (W)
- 1 brick fragment with a partial maker’s mark (“…Rona”)
- 2 pieces of amethyst glass
- 2 hinged tobacco tins
- 1 hinged sanitary can
- 1 bottle base fragment with an Owens Illinois maker’s mark
- 1 white-ware fragment

Historic materials at the site date primarily to the mid to late twentieth century. Hole-in-cap cans were generally used in the late nineteenth and early twentieth century and were replaced by sanitary cans by 1914. Hole-in-top cans are similar in morphology to hole-in-cap cans but do not have filler holes and lack the solder ring, and were introduced for evaporated milk in the 1900s through the 1990s. Sanitary cans, however, were the primary type of can used from 1914 and are still the most common can used today (Horn and McDougall 2005). Amethyst glass was most common between 1885 and 1920 (Horn and McDougall 2005).

Locus A

Locus A was a 60 m (NW/SE) × 45 m (NE/SW) prehistoric flake scatter with small amounts of FAR, located in the central portion of site SS-S-116. A total of 28 artifacts were collected from the ground surface of Locus A (excluding Concentration 1), which included 26 CCS flakes, 1 rhyolite flake and 1 additional CCS simple flake tool.

Concentration 1

Concentration 1 consisted of a 30 m (NW/SE) × 15 m (NE/SW) oval-shaped surface scatter of more concentrated prehistoric artifacts. A total of 48 artifacts were collected from the ground surface of Concentration 1, which included 47 CCS flakes and 1 rhyolite FAR fragment. Due to the relatively dense volume of artifacts collected in Concentration 1, SSU-1 was conducted to determine any potential for associated subsurface deposits.

Surface Scrape Unit

A single 2 × 2 m surface scrape unit was excavated at this site within the southwestern edge of Concentration 1. Sediments from the surface to a depth of approximately 5 cmbs consisted of loosely compacted brown sandy gravels (Munsell 7.5YR 5/3). Materials recovered from SSU-1 consisted of 19 CCS flakes, 10 historic colorless bottle body glass fragments, and 1 piece of unidentified metal slag. Hardpan silt sandy loam sediments were encountered at approximately 5 cmbs and there was no evidence of a possible subsurface deposit.

Shovel Test Pits

Three individual STPs were excavated along the length of the relative center of site SS-S-116. All three of the STPs exhibited moderately compact brown silty sandy loam (Munsell 7.5YR 5/3). The sediments are consistent from the ground surface to approximately 30 cmbs. All three STPs were abandoned between 25 and 30 cmbs due to hardpan. All three STPs were negative for cultural material.

SS-S-116 Results and Recommendations

The evaluation of site SS-S-116 identified a moderate scatter of prehistoric lithic artifacts and a diffuse scatter of mid to late twentieth century historic refuse artifacts. Surface collections and the four various subsurface excavation units recovered a total of 111 individual artifacts and cultural materials. All of the materials suggest that the prehistoric habitation site has been heavily disturbed by multiple historic and modern travel routes. The historic refuse scattered along the length of 20th Street either is from the creation and subsequent utilization of the street itself or the refuse is present today because the access route was created, maintained, and upgraded, a very common refuse dumping pattern. Sediment profiles from the subsurface excavation demonstrate that the majority, if not all, of the artifacts and cultural materials were encountered on the surface. The site is extremely disturbed; furthermore, it showed little to no trace of a subsurface component.

Evaluation of the site failed to identify substantial or significant deposits. For this reason, SS-S-116 is not recommended as significant for archaeological values and is not recommended as eligible for CRHR listing.

Site SS-S-117

Site SS-S-117 is a prehistoric lithic scatter site located in the central portion of the southern site. SS-S-117 measures 22 m (N/S) × 30 (E/W) in a roughly north–south orientation. It is located on a relatively flat alluvial desert plain covered in sparse to moderate vegetation. The local vegetation consists of sparse Joshua trees, tamarisk trees, and creosote with native and invasive species of grasses, typical of high desert vegetation communities. Disturbances in the immediate area include natural erosion and alluvial processes; 20th Street is located approximately 60 m west of this site. Testing within site SS-S-117 consisted of a surface inventory and subsurface test excavations.

The subsurface evaluations at SS-S-117 consisted of the excavation of two STPs, and a total of three excavation units (two control units (CUs) and one non-standard excavation unit). During the surface inventory, previously unidentified prehistoric artifacts were found to extend beyond the initially mapped site boundaries.

Surface Inventory

The surface inventory produced a total of 13 flakes and 21 rhyolite FAR fragments. Of the total 13 flakes collected from the general surface collection, 7 are CCS such as variously colored fine-grain chert and chalcedonies, and 6 are rhyolite. No features were identified during the surface inventory.

Shovel Test Pits

Two individual STPs were excavated at SS-S-117; both exhibited loose to moderately compact well-sorted light yellowish-brown sands (Munsell 10YR 7/3). The sediments are consistent from the ground surface to approximately 40 cmbs. Hardpan was present variably from 30 to 40 cmbs.

STP-1, excavated near the center of the artifacts identified on the ground surface, encountered a subsurface deposit of FAR at approximately 4 cmbs. As STP-1 was excavated further, it became evident that the FAR deposit was potentially an intact subsurface feature, Feature 1. Once the identification of the subsurface feature was determined, STP-1 was halted and excavators expanded the original 25 × 50 cm STP into CU-1, which will be discussed in detail below. STP-1 recovered a total of 3 rhyolite flakes in 0 to 20 cmbs before being terminated.

STP-2 was excavated in the southwestern corner of CU-2. This 25 × 35 cm STP was placed within CU-2, immediately adjacent to an apparent edge of Feature 1, in order investigate the potential profile and depth of the feature. STP-2 was excavated initially into the floor of CU-2, starting at an initial depth of 20 cmbs, and was excavated to a terminal depth of 40 cmbs. A total of 3 fragments of rhyolite FAR were recovered from STP-2.

Excavation Units

Three excavation units (CU-1, CU-2, and Unit 3) were excavated at this site, in conjunction with the identification of Feature 1. STP-1 was expanded from an initial 25 × 50 cm STP unit to a 1 × 1 m control unit, CU-1, in an effort to define the limits of the subsurface FAR feature initially identified in STP-1. CU-1 was extended from STP-1 an additional 75 cm to the west and 50 cm to the south to cover a 1 × 1 m area. Sediments from the surface to a depth of approximately 10 cmbs consisted of loosely compacted unsorted brown sand (Munsell 10YR 6/4) with a moderate volume of FAR fragments. Sediments from 10 to 20 cmbs consisted of a slightly more compact brown sand (Munsell 10YR 6/4) with an increasing volume of FAR. The excavation of CU-1 was temporarily halted at this point (near the approximate top of the intact feature) as it was immediately clear that Feature 1 extended beyond the limits of CU-1.

After additional units (CU-2 and Unit 3) were initiated in an attempt to define the edges of the FAR feature, CU-1 was excavated further down, below 20 cm and the top of the FAR in the northeastern corner. This non-standard excavation encompasses an additional 50 cm west from the original STP-1 location and extends to the northwestern corner of CU-1, an area slightly less than 50 × 50 cm. This continued 10 cm level was excavated to bisect the northern corner of the feature and to explore the actual terminal depth of the intact portion of Feature 1.

CU-1 yielded a total of 45 rhyolite FAR fragments, 2 CCS flakes, and 23 rhyolite flakes from level 10 to 20 cmbs. A single 0.22 caliber bullet casing was also recovered from 0 to 10 cmbs; however, this (historic to modern era) artifact represents an intrusive item. Artifacts recovered from 10 to 20 cmbs include 7 rhyolite flakes and 5 rhyolite FAR fragments. Fifteen rhyolite FAR fragments (with a weight of 40.4 g) were excavated but not collected from level 20 to 30 cmbs. Hardpan sterile sediments were encountered at 30 cmbs and this bisection excavation of CU-1 was then terminated.

CU-2, measuring 1 × 1 m, was placed immediately along the eastern side of CU-1 in an attempt to further define the extent of Feature 1. Sediments encountered in CU-2 are completely consistent with what was encountered in the adjacent CU-1: a moderate volume of loose FAR dispersed in a loosely compact brown sand matrix from 0 to 10 cmbs. Sediments below 10 cmbs consist of a slightly more compact brown (Munsell 10YR 6/4) sand matrix with a minimal volume of loose FAR coming down to the top of the apparently intact, and relatively undisturbed, feature at a depth of 20 cmbs.

A total of 53 fragments of rhyolite FAR were recovered from 0 to 10 cmbs, while only 19 fragments of FAR were collected from 10 to 20 cmbs. CU-2 was terminated at approximately 20 cmbs, roughly level with the surface of Feature 1.

One final excavation unit, Unit 3, was excavated in one final attempt to define some horizontal limits to Feature 1. This unit, unlike the standard 1 × 1 m Cus, was a non-standard excavation unit that measured 0.5 × 2 m. Unit 3 was excavated immediately adjacent to the south walls of both CU-1 and CU-2. Sediments encountered in Unit 3 were relatively consistent with sediments identified in CU-1 and CU-2; however, there was (in contrast with CU-1) noticeably less FAR recovered from 0 to 10 cmbs, and an increased volume of FAR from 10 to 20 cmbs. A total of 16 rhyolite FAR fragments were recovered from 0 to 10 cmbs, while 15 rhyolite flakes and a total of 39 rhyolite FAR fragments were recovered from 10 to 20 cmbs. Unit 3 did not demonstrate evidence of the feature limits; in fact, additional FAR fragments were identified extending into the southern wall of Unit 3, providing evidence the feature extends beyond our current investigations.

Features

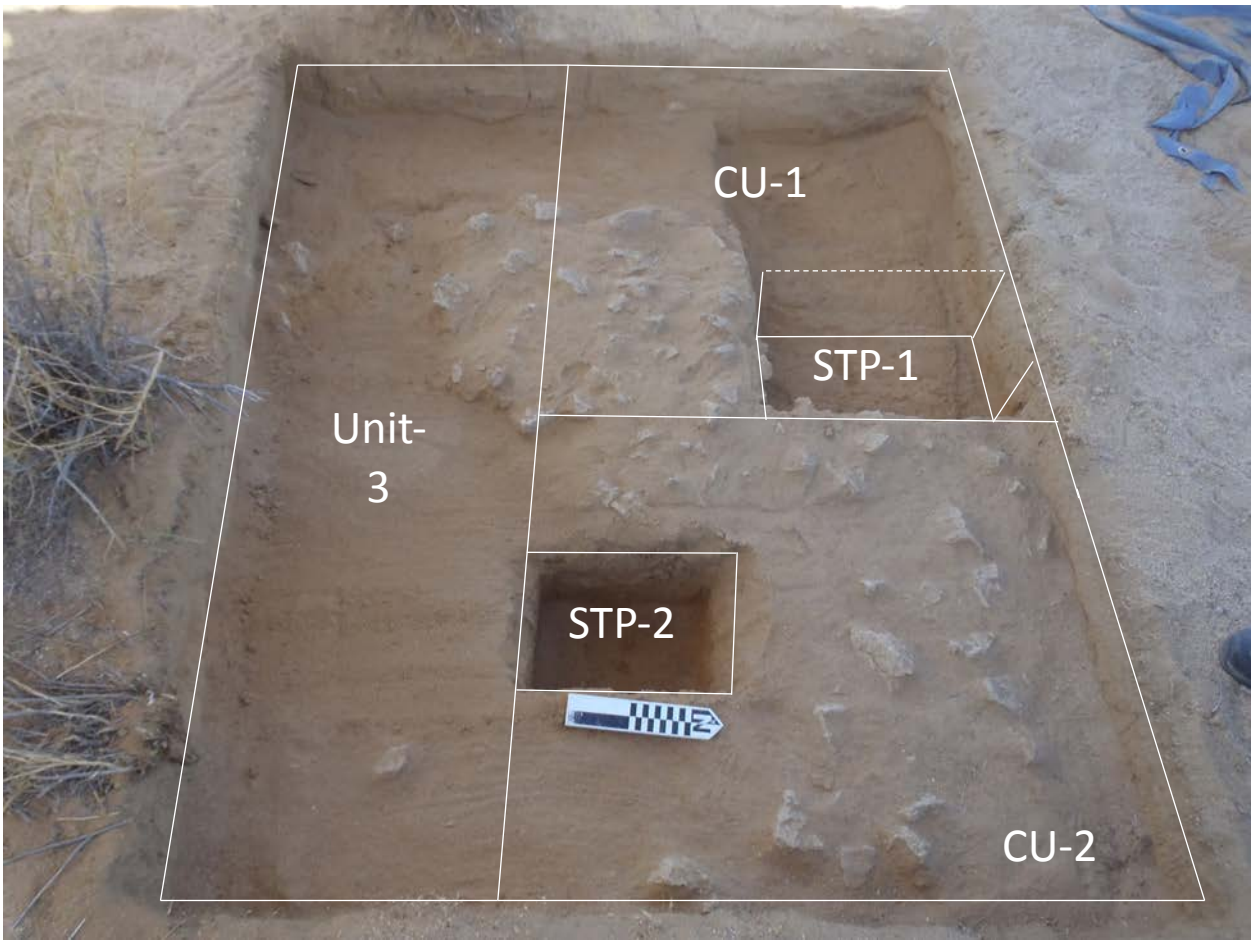
As mentioned above, a subsurface FAR feature, Feature 1, was initially exposed in the excavation of STP-1. The feature most likely represents the remains of a prehistoric hearth, consisting of two rough, unevenly distributed courses of rhyolite FAR cobbles. The top layer of the feature consists of loose and unevenly distributed sub-angular to angular rhyolite FAR cobbles, measuring on average from 6 to 12 cm, that have been mottled with the surrounding sand sediments, from 4 to 10 cmbs. This top layer most likely represents a slightly but naturally disturbed exposed top of the feature, which would be gradually mixed and covered by surrounding surface sands after this

feature was abandoned, a typical post-depositional occurrence. The single course of uneven rhyolite FAR encountered from approximately 10 to 25 cmbs appears to be less disturbed and may represent a portion of the feature that was only adjusted or altered by the original prehistoric occupants who created this feature. In fact, the recovery of debitage from 10 to 20 cmbs demonstrates that this level was once exposed (and level ground surface) and was used as a working area for the production of flaked stone tools. The feature appears to have been constructed directly on top of the hardpan, with the most closely grouped cobbles found in CU-1; the association loosens in CU-2 and in Unit 3 (Figure 6-1).

While the majority of the feature appears exposed, the horizontal dimensions are currently undetermined, as there was evidence of FAR cobbles extending into both the eastern wall of CU-2 and the southern wall of Unit 3. The FAR occupies portions of the all the units, and the exposed portion appears to be roughly semi-circular, with an approximate width of 45 to 50 cm, trending from the northeastern corner of CU-2 to the southwestern portion of Unit 3.

Between the combined STPs and the three excavation units, Feature 1 can be associated with a total of 230 artifacts: 180 rhyolite FAR fragments, 48 rhyolite flakes, and 2 CCS flakes.

Figure 6-1 Feature 1 (STP-1, STP-2, CU-1, CU-2, and Unit 3). Plan View, Facing West.



SS-S-117 Results and Recommendations

The site was initially identified as a lithic deposit, and the surface inventory of the site did not alter this distinction. Collections from the entire site, all units, produced a total of 265 individual artifacts and cultural materials. A total of 201 rhyolite FAR fragments, 63 flaked stone artifacts, and one historic bullet casing were collected; as noted above, 87% of the total assemblage collected from this site (n=230) was recovered associated with subsurface Feature 1, leaving 13% of materials recovered from the surface of this site. The flaked stone artifacts were all lithic debitage, which composes 24% of the total collection; 86% of the debitage consists of rhyolite flakes (n=54) and 14% of the debitage is made up of CCS flakes (n=9). The remaining 76% of the cultural material collected, a large majority, consists of only rhyolite FAR fragments.

Sediment profiles recorded from the subsurface excavation demonstrate that the majority of the artifacts and cultural materials were encountered from a shallow context from the ground surface to approximately 30 cmbs. No charcoal or ash staining was identified; furthermore, no ceramic artifacts were associated with this site.

There was no evidence to suggest habitation at this site, long or short term; rather, this site demonstrates a rhyolite raw material manipulation and lithic tool production workshop.

No substantial or significant deposits were identified. Implementation of the project within the study area at this site would not have a significant impact on the site's archaeological values. No information was obtained that would contribute value under any of the other significance criteria. For this reason, SS-S-117 is not recommended as significant for any archaeological values or as eligible for CRHR listing.

Site SS-S-118

Situated in the central portion of the southern site, in an open, gently sloping alluvial desert environment, is site SS-S-118. This site is a prehistoric lithic scatter that measures 150 m (NW/SE) × 65 m (NE/SW). The local vegetation consists of moderately sparse high desert vegetation communities. Disturbances in the immediate area include only natural erosion and alluvial processes.

Testing at site SS-S-118 consisted of a surface inventory and conducting subsurface test excavations of five STPs and one SSU.

Surface Inventory

During the surface inventory, previously unidentified prehistoric artifacts were identified slightly beyond the previously mapped site boundaries. Additionally, two distinct areas of surface artifacts

were identified where artifacts were more concentrated, with the rest of the site consisting of a very sparse scattering of isolated artifacts. These two areas were designated as loci (Locus A and Locus B) and each was recorded and collected individually. The loci's details and associated artifacts will be discussed further below. A general surface collection that did not include the individual loci was conducted and recovered a total of only 10 rhyolite FAR fragments.

Loci

Two loci, Locus A and Locus B, were identified through the surface investigation. Locus A is located on the northern portion of the site and measures approximately 65 m (NE/SW) × 25 m (NW/SE). It is characterized by a density of flaked stone debitage. The total collected artifacts consisted of 54 flakes (39 CCS and 15 rhyolite) and 75 rhyolite FAR fragments, weighing 920 g. The FAR was collected and recorded in the field and left on site after documentation. STP-1 through STP-3 were excavated within Locus A; STP-1 and STP-3 were positive and STP-2 was negative. STP-1 through STP-3 will be discussed in more detail below.

Locus B is in the southeastern corner of the site, measuring 52 m (NW/SE) × 17 m (NE/SW). Locus B is a scatter of debitage and FAR, consisting of one area of concentrated FAR and debitage (Concentration 1) surrounded by a diffuse scatter of rhyolite FAR fragments. A total of 15 fragments (100 g) of rhyolite FAR were counted and weighed (but not collected) from the rest of the locus, scattered outside of Concentration 1. The combined total of rhyolite FAR recorded at Locus B equals 45 fragments with a total weight of 250 g. STP-4 and STP-5 were excavated in Locus B. STP-4 was excavated near the center of the concentration and was positive, containing loose rhyolite FAR fragments from 0 to 40 cmbs. STP-5 was excavated near the south end of Locus B and was negative. STP-4 and STP-5 will be discussed in more detail below.

Concentrations

Concentration 1 (located at the north end of Locus B) appears to be a possible hearth/thermal feature, expressed through a light concentration of rhyolite FAR and a few scattered CCS flakes. It is ovate in shape, tapering to the south. The concentration lies in a slight depression with slope rising gradually to the north. Concentration 1 consisted of a 15 m (N/S) × 10 m (E/W), roughly circular area, containing 18 rhyolite flakes, 2 CCS flakes, and a total of 40 fragments (150 g) of rhyolite FAR (counted and weighed but not collected). None of the FAR fragments were embedded in the sandy sediment.

Shovel Test Pits

Five individual STPs were excavated at SS-S-118. STP-1 through STP-3 were in Locus A and STP-4 and STP-5 were in Locus B. All of the STPs exhibited loose to moderately compact well-

sorted brown sands (Munsell 10YR 6/4). The sediments are consistent from the ground surface to approximately 20 cmbs. From 20 to 40 cmbs, the sandy loam becomes more compacted and is of a slightly darker color (Munsell 10YR 5/6).

Of the five STPs excavated, numbers 2 and 5 were negative. STP-1, STP-3, and STP-4 contained cultural materials. A total of 13 artifacts, including 6 rhyolite FAR fragments and 7 flakes, were recovered from the STP excavations. The materials and artifacts recovered by STP are listed in Table 6-7.

Table 6-7
Shovel Test Pit Recovery from SS-S-118

STP	Level (cmbs)	Artifacts Recovered	Count
1	20–40	CCS flakes	3
	40–60	CCS flakes	3
3	0–20	Rhyolite flake	1
		Rhyolite FAR	1
4	0–20	Rhyolite FAR	4
	20–40	Rhyolite FAR	1
		STP total	13

STP = shovel test pit; cmbs = centimeters below surface; CCS = cryptocrystalline silicate; FAR = fire-affected rock.

Surface Scrape Units

One SSU was excavated at this site, located southeast of Concentration 1, inside of Locus B. It was placed immediately between 2 CCS flakes to test for any evidence of a possible subsurface feature in this vicinity. Sediments from the surface to a depth of approximately 5 cmbs consisted of loosely compacted unsorted brown sand (Munsell 10YR 6/4) with roots and krotovina noted. Materials recovered from SSU-1 consist of 1 fragment of rhyolite FAR.

SS-S-118 Results and Recommendations

Surface collections and the 14 various subsurface excavation units produced a total of 104 individual artifacts and cultural materials. The 104 items collected from the site include 83 flakes (49 CCS and 34 rhyolite) and 21 rhyolite FAR fragments.

Excavations on site show no intact cultural deposits associated with surface artifacts. No charcoal or ash staining was identified, likely due to the shifting sand depositional environment. Sediment profiles recorded from the subsurface excavation demonstrate that the majority of the artifacts and cultural materials were encountered from a shallow context from the ground surface to

approximately 40 cmbs. Therefore, the site is not recommended as significant for archaeological values or as eligible for CRHR listing under Criterion 4.

No substantial or significant deposits were identified. Implementation of the project within the study area at this site would not have a significant impact on the site's archaeological values. No information was obtained that would contribute value under any of the other significance criteria.

Site SS-S-119

Site SS-S-119 is a prehistoric habitation site with limited lithic tool production, situated near the southern portion of the southern site. SS-S-119 measures 125 m (N/S) × 75 m (E/W) and is located on a flat alluvial desert plain covered in light to moderate vegetation. The local vegetation consists of sparse Joshua trees, tamarisk trees, and creosote with native and invasive species of grasses, typical of high desert vegetation communities. Disturbances in the immediate area include East Trotter Road, which is located immediately to the south of the site. Evaluation testing at site SS-S-119 consisted of a surface inventory and conducting limited subsurface test excavations.

The subsurface evaluations at SS-S-119 consisted of the excavation of 17 STPs, 2 CSC units, 1 SSU, and 1 CU. During the surface inventory, previously unidentified prehistoric features and artifacts were found to extend beyond the previously mapped site boundaries.

Surface Inventory

A total of 3 prehistoric tool artifacts, 1 fragment of rhyolite FAR, and 123 flakes were identified and collected during the evaluation surface inventory. The prehistoric tool artifacts include 2 CCS flake tools/scrapers (A1 and A2) and 3 articulating fragments of a single rhyolite millingstone (A3). Of the total 123 flakes collected from the general surface collection, 4 flakes (3%) are rhyolite and the remaining 119 (97%) flakes are CCS, such as variously colored fine-grain chert and chalcedonies. No prehistoric features were identified at this site.

Shovel Test Pits

Seventeen individual STPs were excavated at SS-S-119. All 17 of the STPs exhibited a consistent sediment profile consisting of loose to moderately compact well-sorted sands. The sand color was a relatively consistent range of brown, very pale brown (Munsell 10YR 7/3), pale brown (10YR 6/3), and brown (10YR 5/3). The sediments are consistent from the ground surface to approximately 40 cmbs. From 40 to 80 cmbs, the sand becomes more compact and contains small rounded to sub-rounded gravels.

Of the 17 STPs excavated, numbers 2, 3, 5, 6, 8, 9, 12–15, and 17 were negative. STP-1, STP-4, STP-7, STP-10, STP-11, and STP-16 were positive and contained cultural materials. A total of 30 artifacts, including 22 CCS flakes and 8 fragments of non-human vertebrate faunal bone, were recovered from the STP excavations. The materials and artifacts recovered by STP are listed in Table 6-8.

Table 6-8
Shovel Test Pit Recovery from SS-S-119

STP	Level (cmbs)	Artifacts Recovered	Count
1	20–40	CCS flake	1
		Faunal bone fragment	1
	40–60	CCS flake	1
4	20–40	CCS flake	1
7	0–20	CCS flakes	4
	20–40	CCS flake	1
	40–60	CCS flakes	6
	60–80	CCS flakes	2
		Faunal bone fragments	7
10	0–20	CCS flake	1
	20–40	CCS flakes	2
11	20–40	CCS flakes	2
16	20–40	CCS flake	1
		STP total	30

STP = shovel test pit; cmbs = centimeters below surface; CCS = cryptocrystalline silicate.

Controlled Surface Collections

One CSC unit, CSC-1, was conducted at SS-S-119. CSC-1 measured 10 × 5 m (Cells A and B, 5 × 5 m each cell) and was placed to collect materials from the densest area of identified surface artifacts. A total of 1 rhyolite flake and 22 CCS flakes were collected from CSC-1.

Surface Scrape Units

One surface scrape unit, SSU-1, was excavated at this site, in conjunction with CSC-1, Cell A. SSU-1 was placed within the southwestern corner of Cell A. Sediments from the surface to a depth of approximately 5 cmbs consisted of loosely compacted unsorted brown sand (Munsell 10YR 5/3) with roots and krotovina noted. No cultural materials were recovered from SSU-1; this unit was culturally sterile.

Control Units

One control unit, CU-1, measuring 1 × 1 m, was excavated near the location of STP-7, which easily demonstrated the deepest potential cultural deposit. CU-1 was excavated to a terminal depth of 80 cmbs. The sediments consisted of loosely compacted very pale brown sand (Munsell 10YR 7/4), consistent from the ground surface to approximately 30 cmbs. From 30 to 80 cmbs the sand becomes light yellowish-brown (Munsell 10YR 6/4), more compact, and contains small rounded to sub-rounded gravels. Moderate amounts of roots were noted in the upper levels and some minor krotovina disturbances were noted throughout all the levels. The artifact distribution in CU-1 is summarized in Table 6-9.

Table 6-9
Control Unit 1 Recovery from SS-S-119

CU	Level (cmbs)	Artifacts Recovered	Count
1	0–10	CCS flakes	9
	10–20	CCS flakes	12
		Rhyolite flakes	2
		Rhyolite FAR	1
	20–30	CCS flakes	14
		Rhyolite FAR	4
		Faunal bone fragments	2
	30–40	CCS flakes	15
		Rhyolite FAR	1
	40–50	CCS flakes	17
		Rhyolite FAR	2
		Faunal bone fragments	2
	50–60	CCS flakes	10
	60–70	CCS flakes	2
	70–80	CCS flakes	2
		CU total	95

CU = control unit; cmbs = centimeters below surface; CCS = cryptocrystalline silicate; FAR = fire-affected rock.

SS-S-119 Results and Recommendations

The surface inventory of the site identified a moderate scatter of prehistoric lithic artifacts, with limited amounts of groundstone and FAR fragments. Surface collections and the 19 various subsurface excavation units produced a total of 275 individual artifacts and cultural materials. The 275 items collected include 9 rhyolite FAR fragments, 253 flaked stone artifacts (251 debitage and 2 flaked stone tools), 1 millingstone groundstone artifact, and 12 non-human faunal bone fragments. Flaked stone artifacts dominate the artifacts assemblage, with debitage composing 92%

of the total collection. Non-human vertebrate bone fragments equal 4% of the total, FAR equals 3% of the collection, and groundstone makes up only 1% of the total assemblage collected. Thus, analysis of the artifact classes from this collection strongly suggests that production and utilization of lithic resources was the dominant activity occurring at SS-S-119. Furthermore, out of the 251 total debitage collected, 3% (n = 7) are rhyolite, while 97% (n = 246) are various CCS materials.

The artifacts recovered demonstrate an even distribution of collection from the surface and subsurface excavations across the site. A total of 125 various artifacts (45% of total collection) were recovered from the 19 subsurface units excavated, while 150 artifacts (55% of the total) were recovered from the ground surface inventory and surface collection units. No ceramic artifacts types or charcoal (or ash-stained sediments) were identified at this site.

Sediment profiles recorded from the subsurface excavation demonstrate that the majority of the artifacts and cultural materials were encountered from a moderately shallow context from the ground surface to approximately 50 cmbs. The excavation units demonstrate a low probability that this site could have significant depth. Only two units excavated (STP-7 and CU-1) showed moderate evidence of a subsurface component; additionally, these units both represent a similar location within the site.

The densest part of the site and the area with artifacts recovered from the deepest proveniences are located within a rather limited area; both are located near the approximate center of the area where artifacts are distributed across the site (surface and subsurface distributions). The various surface collections and other subsurface excavations demonstrate very little subsurface material recovered outside of this central location, with a general average of one or two artifacts recovered in any of the other positive excavations around the site. Thus, similar to the surface distribution of cultural materials, the potential subsurface cultural deposit appears to be very limited in size, area, and/or volume.

The evaluation of SS-S-119 demonstrates that while there is evidence of limited subsurface deposits, no substantial or culturally significant deposits were identified from the excavations. Implementation of the project at this site would not have a significant impact on the site's archaeological values. No information was obtained that would contribute value under any of the other archaeological significance or CEQA criteria. Site SS-S-119 is recommended as not eligible for CRHR listing.

Site SS-S-120

Situated at the southern portion of the southern site, SS-S-120 is a prehistoric lithic scatter. Site SS-S-120 measures 60 m (N/S) × 110 m (E/W), and is located on a gently sloping alluvial desert

environment covered in moderate high desert vegetation communities vegetation. Disturbances in the immediate area appear to consist of natural erosional processes.

Testing within site SS-S-120 consisted of a surface inventory and one CSC unit, two SSUs, and excavations of four STPs and two STUs.

Surface Inventory

During the surface inventory, previously unidentified cultural resources were found to extend beyond the previously mapped site boundaries, and were mapped at the time of the survey. One CSC unit was conducted in an area that visually appeared to have the highest volume of surface artifacts; however, it was felt that the relative density was not enough to warrant a designation of "concentration." A total of 90 flakes and 2 rhyolite FAR fragments were identified during the surface collection that excluded the CSC unit. Of the total 90 flakes collected from the general surface collection, 2 are rhyolite material and the remaining 88 flakes are CCS materials.

Controlled Surface Collections

One CSC unit was conducted at SS-S-120. CSC-1 measured 15 m (N/S) × 10 m (E/W) and was divided into individual 5 × 5 m cells labeled A through E. A total of 134 CCS flakes, 1 CCS simple flake tool (A1), 1 obsidian flake, and 1 fragment of rhyolite FAR were collected from the combined cells of CSC-1.

Surface Scrape Units

Two SSUs were excavated at this site, in conjunction with CSC-1. SSU-1 was a 2 × 2 m scrape unit and was placed within the northwestern corner of Cell D, CSC-1. Sediments from the surface to a depth of approximately 5 cmbs consisted of loosely compacted unsorted brown sand (Munsell 10YR 4/3) with roots and krotovina noted. Artifacts recovered from SSU-1 consist of 16 CCS flakes.

The second surface scrape, SSU-2, was a 2 × 2 m scrape unit within the southwestern corner of Cell C, CSC-1. Sediments encountered consisted of loosely compacted unsorted brown sand (Munsell 10YR 4/3). Materials recovered from SSU-2 consist of 14 CCS flakes.

Shovel Test Pits

Four individual STPs were excavated at SS-S-120. All four of the STPs exhibited loose to moderately compact well-sorted brown sands (Munsell 10YR 6/3). The sediments are consistent

from the ground surface to approximately 40 cmbs. From 40 to 60 cmbs the sand becomes more compact and contains small rounded to sub-rounded gravels.

Of the four STPs excavated, STP-1 and STP-4 were negative and STP-2 and STP-3 were positive. A total of 19 artifacts, including 17 flakes, 1 rhyolite FAR, and 1 fragment of non-human faunal bone, were recovered from the STP excavations. The materials and artifacts recovered by STP are listed in Table 6-10.

Table 6-10
Shovel Test Pit Recovery from SS-S-120

STP	Level (cmbs)	Artifacts Recovered	Count
2	0–20	CCS flakes	13
		Rhyolite FAR	1
	20–40	CCS flakes	3
3	0–20	CCS flakes	1
		Faunal bone fragment	1
		STP total	19

STP = shovel test pit; cmbs = centimeters below surface; CCS = cryptocrystalline silicate; FAR = fire-affected rock.

Shovel Test Units

Two STUs measuring 0.5 × 1m were excavated at site SS-S-120 in order to investigate subsurface deposits. STU-1 was excavated near a small scatter of CCS thinning flakes and was excavated to a terminal depth of 40 cmbs. The sediments consisted of moderately compacted to very compact brown silty-sand loam (Munsell 10YR 5/3) consistent from the ground surface to approximately 20 cmbs. From 20 to 40 cmbs the silty-sand loam becomes more compact and contains a high volume of small rounded to sub-rounded gravels.

STU-2 was placed approximately 3 m east of CSC-1, Cell A, and was excavated to a terminal depth of 20 cmbs. The sediments consisted of loosely compacted to very compacted brown silty-sand loam (Munsell 10YR 5/3). The artifact distribution in STU-1 and STU-2 is summarized in Table 6-11.

Table 6-11
Shovel Test Units 1 and 2 Recovery from SS-S-120

STU	Level (cmbs)	Artifacts Recovered	Count
1	0–20	CCS flakes	9
2	0–20	CCS flakes	13
		STU total	22

STU = shovel test unit; cmbs = centimeters below surface; CCS = cryptocrystalline silicate.

SS-S-120 Results and Recommendations

The surface inventory of site SS-S-120 identified a light to moderate scatter of prehistoric lithic artifacts and FAR fragments. Surface collections and the eight various subsurface excavation units produced a total of 299 individual artifacts and cultural materials. The 299 items collected include 294 flaked stone artifacts (debitage = 293), 4 fragments of rhyolite FAR, and 1 faunal bone fragment. Out of the 293 total debitage collected, 1 is obsidian, 1 is rhyolite, and the remaining 291 are various CCS material. CCS debitage composes 97% of the total assemblage, suggesting principally limited lithic tool production/refinement at this location, as opposed to habitation and tool production. Sediment profiles recorded from the subsurface excavation demonstrate that the majority of the artifacts and cultural materials were encountered from a shallow context from the ground surface to approximately 40 cmbs. No groundstone, ceramic artifacts, charcoal, or ash staining was identified on the ground surface of this site or in any of the subsurface units.

The evaluation of SS-S-120 demonstrates that no substantial or culturally significant deposits were identified from the excavations. Therefore, the implementation of the project at this site would not have a significant impact on the site's archaeological values. No information was obtained that would contribute value under any of the other archaeological significance or CEQA criteria. Site SS-S-120 is recommended as not eligible for CRHR listing.

Site SS-S-121

Site SS-S-121, located in the central portion of the southern site, is a historic trash deposit and scatter, measuring roughly 150 m (NW/SE) × 30 m (NE/SW). The site is situated on a flat alluvial desert environment with local vegetation consisting of sparse Joshua trees, tamarisk trees, moderately thick saltbush, and creosote scrub bushes with native and invasive species of grasses. Testing within site SS-S-121 consisted of a surface inventory and re-mapping of the extent of the refuse scatter.

Surface Inventory

During the surface inventory, previously unidentified historic artifacts were found to extend slightly beyond the previously mapped site boundaries. Additionally it was noted that this site actually consisted of one small trash deposit, designated Feature 1, which has been scattered by erosion over time to spread across the landscape in a southeasterly trending direction. One area of slightly more concentrated refuse was identified as Concentration 1, immediately adjacent to the limits of Feature 1.

All of the artifacts represent the same historic refuse deposit, and a total of 108 cans, 4 shotgun shells, 1 metal pipe, and 2 amethyst bottles were inventoried at site SS-S-121. Historic artifacts include the following:

- 80 hole-in-top cans measuring 4 1/4 inches (L) × 3 inches (W)
- 3 hole-in-cap cans measuring 4 3/8 inches (L) × 2 15/16 inches (W) × 1/2 inch (cap)
- 13 sanitary cans of assorted sizes; rotary and knife-opened present
- 3 fuel cans
- 1 oil can
- 6 paint cans
- 1 spice tin
- 1 rectangular can with a crimped side
- 1 Western Record 12 gauge shotgun shell
- 1 unknown brand of shotgun shell
- 1 REM-UMC Nitro Club 12 gauge shotgun shell
- 1 Winchester Leader 12 gauge shotgun shell
- 1 metal pipe
- 1 complete amethyst bottle with embossing: "Dr. Price's Delicious Flavoring Extracts"; Owens Illinois makers mark
- 1 partial amethyst bottle with "Burnett's Standard Flavoring Extracts" embossed on body

Concentrations

One concentration was recorded during testing. Concentration 1 measured 25 m (NW/SE) × 15 m (NE/SW) and is located extending southeast and away from the actual refuse deposit, Feature 1. Compared to the rest of the site, Concentration 1 contains a significantly higher density of artifacts; however, all of the materials in this loose concentration have shifted from the initial deposit location, Feature 1.

Features

One feature representing a mid-to-late twentieth century historic trash deposit was identified during the surface inventory. Located near the northwestern edge of the site, Feature 1 is an ovate, roughly 6 m in diameter deposit of slightly embedded historic cans and refuse. Extreme evidence

of post-depositional environmental processes, including extreme wind and moderate soil erosion, was evident at this feature.

SS-S-121 Results and Recommendations

The testing evaluation of the site SS-S-121 inventoried 116 historic artifacts (108 cans, 2 bottles, 1 metal pipe, and 5 shotgun shells). From the inventories and re-mapping of the site, it is clear that this site represents a limited (one-time event) mid-to-late twentieth century refuse dumping that has been scattered (literally) to the wind. Since the site showed no trace of a subsurface component, no subsurface investigations were conducted.

Evaluation of the site failed to identify substantial or significant deposits or features. Implementation of the project within the study area at this site would not have a significant impact on the site's archaeological values. No information was obtained that would contribute value under any of the other significance criteria. For this reason, SS-S-121 is not recommended as significant for archaeological values and is recommended as not eligible for CRHR listing under any criteria.

Site SS-S-122

Site SS-S-122 consists of a 109 m (NW/SE) × 51 m (NE/SW) historic refuse scatter within the southern site. SS-S-122 is located on a flat desert plain with chaparral consisting of saltbush, Joshua trees, sagebrush, and small native and invasive grasses.

Surface Inventory

The surface inventory of the site documented the historic refuse deposit. Historic materials found at the site include the following:

- 1 smashed tobacco tin
- 3 knife-opened, hole-in-cap cans measuring 4 1/2 inches (L) × 2 15/16 inches (W) × 1/2 inch (cap)
- 15 white-ware cup fragments with flower print
- 7 sanitary cans, rotary-opened
- 2 sardine cans, knife-opened
- 2 hole-in-top cans
- 1 complete amethyst bottle
- 1 paint can (2 pint)

- 1 knife-opened meat tin
- 1 external friction coffee tin

SS-S-122 Results and Recommendations

The historic materials at the site date primarily to the twentieth century (Horn and McDougall 2005) and are consistent with other historic refuse deposit sites in the area.

No evidence for subsurface deposits of artifacts were observed; thus, no subsurface investigations were initiated. All artifacts were on the surface or lightly embedded (1–3 cm) in surface sands. Soil at the site is light tan yellowish-brown sand with granitic inclusions. Disturbances in the immediate area include East Trotter Road immediately to the south.

No information was obtained that would contribute value under any of the significance criteria. For this reason, site SS-S-122 is not recommended as significant for archaeological values or as eligible for CRHR listing under Criterion 4.

Site SS-S-124

Located in the central portion of the southern site, SS-S-124 is a prehistoric lithic deposit measuring 105 m (N/S) × 80 m in a roughly north–south orientation. This site is located in a gently sloping desert alluvial environment covered in moderate vegetation. The vegetation in the vicinity consists of the typical high desert vegetation communities, including Joshua trees, tamarisk trees, and creosote with native and invasive species of grasses. Disturbances in the area appear to consist mainly of natural alluvial processes.

Testing within site SS-S-124 consisted of a surface inventory, one CSC, and subsurface test excavations including the installation of nine STPs and one SSU.

Surface Inventory

During the surface inventory and previously mapped site boundary relocation, deposits of previously unidentified prehistoric artifacts were noted beyond the initial site boundaries. Surface collection at the site was performed in four quadrants (A, B, C, and D), cardinally oriented and originating at the datum. There was no major increase in any one quadrant. The inventory produced a total of 65 flakes, 5 FAR fragments, 1 chalcedony biface fragment (point provenience as A1), 1 CCS simple flake tool (A2), and 1 indeterminate groundstone fragment (A3). Of the total 65 flakes collected from the general surface collection, 64 are CCS, such as variously colored fine-grain chert and chalcedonies, and 1 is a rhyolite flake.

Controlled Surface Scrape

The CSC was placed in quadrant A, in the northwest portion of the site. The CSC measured a total of 10 × 5 m and was broken into two 5 × 5 m cells (A and B). A total of 32 CCS flakes were recovered (7 from Cell A and 25 from Cell B).

Surface Scrape Units

One SSU was excavated at site SS-S-124, a 2 × 2 m square positioned over the highest-density portion of the CSC-1 Cell B. Sediments from the surface to a depth of approximately 5 cmbs consisted of loosely compacted unsorted yellowish-brown sand (Munsell 10YR 7/3). Ten CCS flakes were recovered by excavation of the SSU-1.

Shovel Test Pits

Nine individual STPs were excavated at SS-S-124. All STPs exhibited loose to moderately compact well-sorted light yellowish-brown sands (Munsell 10YR 7/3). Sediments are consistent from the ground surface to approximately 20 cmbs. From 20 cmbs to 40 cmbs, the sand becomes more compact and contains small (<1 cm) rounded to sub-rounded gravels, and is a darker shade of brown (Munsell 10YR 6/4).

STP-1 and STP-3 through STP-9 were negative. STP-2 was positive and contained cultural materials. One CCS flake was found in level 0 to 20 cmbs. The unit terminated at hardpan at 40 cmbs.

SS-S-124 Results and Recommendations

Surface inventory of the site identified a large light lithic deposit. Surface collections and the 10 various subsurface excavation units produced a total of 116 individual artifacts and cultural materials. The 116 items collected include 5 fragments of rhyolite FAR, 110 flaked stone artifacts (108 debitage, 1 biface, and 1 simple flake tool), and one indeterminate groundstone fragment. Out of the 108 total debitage fragments collected, 1 was rhyolite and the rest were various CCS.

Evaluation of the site identified the presence of prehistoric subsurface deposits but failed to identify significant deposits. The materials here, despite potentially undiscovered subsurface deposits of features, clearly represent the same artifact classes, material types, and feature functions that have been recorded at almost every prehistoric site in the local vicinity. Beyond a potential for additional data redundancy, this site does not offer any additional insight, queries, or quandaries to the established understanding of local and/or regional prehistoric life.

Implementation of the project within the study area at this site would not have a significant impact on the site's archaeological values. No information was obtained that would contribute value under any of the other significance criteria. For this reason, site SS-S-124 is not recommended as significant for archaeological values and is not recommended as eligible for CRHR listing.

Site SS-S-125

Site SS-S-125 is a historic refuse scatter made up of various types of cans and glass fragments. SS-S-125 is located in the southern site on a flat desert plain measuring 218 m (NW/SE) × 78 m (NE/SW). The site evaluation consisted of a surface inventory and examination of nearby subsurface exposures.

Surface Inventory

The surface inventory for this site yielded a total of 20 historic era cans and bottles. The historic materials found at the site include the following:

- 5 sanitary cans
- 4 knife-opened, hole-in-cap cans measuring 4 3/7 inches (L) × 3 15/16 inches (W) × 1/2 inch (cap)
- 1 knife-opened, hole-in-top can measuring 2 3/7 inches (L) × 2 1/2 inches (W)
- 5 knife-opened, hole-in-top can measuring 4 3/7 inches × 2 15/16 inches (W)
- 1 knife-opened, hole-in-cap can measuring 4 3/7 inches (L) × 3 3/7 inches (W) × 1 1/2 inches (cap)
- 2 steel beverage cans
- 1 hole-in-cap can measuring 2 1/2 inches (L) × 2 1/2 inches (W) × 1/2 inch (cap)
- 1 gallon fuel can

SS-S-125 Results and Recommendations

The historic materials at the site date primarily to the twentieth century. Hole-in-cap cans were generally used in the late nineteenth and early twentieth century and were replaced by sanitary cans by 1914. Hole-in-top cans are similar in morphology to hole-in-cap cans but do not have filler holes and lack the solder ring. Hole-in-top cans were introduced for evaporated milk in the 1900s and were used until the 1990s. Sanitary cans, however, were the primary type of can used from 1914 and are still the most common can used today (Horn and McDougall 2005).

Evaluation of the site failed to identify substantial or significant deposits. No information was obtained that would contribute value under any of the other significance criteria. For this reason, site SS-S-125 is not recommended as significant for archaeological values and is not recommended as eligible for CRHR listing.

Site SS-S-126

Located in the southwestern portion of the southern site, SS-S-126 is a prehistoric artifact scatter. The 75 m (N/S) × 85 m (E/W) site is located on a on a flat desert alluvial environment covered in moderate vegetation, which consists of the typical high desert communities, including few Joshua trees and tamarisk trees mixed with moderately dense creosote, saltbush, and scrub brush with native and invasive species of grasses. Disturbances in the area appear to consist mainly of natural alluvial processes.

Test evaluations at site SS-S-126 consisted of a surface inventory, surface collection, one CSC, and subsurface test excavations that consisted of the excavation of nine STPs.

Surface Inventory

A total of 94 artifacts were identified and collected during the surface inventory. Of these artifacts, 63 are debitage (61 CCS flakes and 2 rhyolite flakes), 29 are rhyolite FAR, and 2 are CCS simple flake tools (A1 and A2).

Shovel Test Pits

Nine individual STPs were excavated at site SS-S-126. Each STP exhibited loose to moderately compact brown sandy loam (Munsell 10YR 7/3). Sediments are consistent from the ground surface to approximately 20 cmbs. From 20 cmbs to 40 cmbs, sediments becomes more compact.

Of the nine STPs excavated, numbers 1–7 and 9 were negative. One CCS flake was recovered in STP-8 from 0 to 20 cmbs.

SS-S-126 Results and Recommendations

Surface inventory of site SS-S-126 identified a light to moderate surface scatter of prehistoric lithic artifacts representing an area of lithic tool production similar to the majority of prehistoric sites with the local area. Sediment profiles recorded from the subsurface excavation demonstrate that the majority of the artifacts and cultural materials were encountered from a shallow context near the ground surface. The excavation units demonstrate an extremely low probability for subsurface deposits.

Evaluation of the site failed to identify substantial or significant deposits. Implementation of the project within the study area at this site would not have a significant impact on the site's archaeological value. No information was obtained that would contribute value under any of the other significance criteria. For this reason, site SS-S-126 is not recommended as significant for archaeological values and is not recommended as eligible for CRHR listing.

Site SS-S-127

Site SS-S-127 is a prehistoric lithic scatter measuring 68 m (NW/SE) × 25 m (NE/SW), located in the central portion of the southern site. SS-S-127 is located in a gently sloping hilly desert environment with local vegetation that consists of moderately sparse high desert vegetation communities. Disturbances in the immediate area include only natural erosion and alluvial processes.

Testing at site SS-S-127 consisted of a surface inventory, surface collections, and subsurface test excavations consisting of the excavation of two STPs.

Surface Inventory

A total of 1 prehistoric simple tool artifact (A1), 16 CCS flakes, 9 rhyolite FAR fragments, and 1 concentration of FAR, Concentration 1, were identified during the surface inventory and all of the artifacts were collected.

Concentrations

One small surface concentration was identified during site evaluation. Concentration 1 is located on a south-facing slope and measures approximately 5 × 5 m. The concentration was characterized by 25 pieces of rhyolite FAR. STP-1 was excavated to test for the potential for associated subsurface deposits or features and is described below.

Shovel Test Pits

Two individual STPs were excavated at SS-S-127. Both of the STPs exhibited moderately compact brown sandy loam (Munsell 10YR 6/3). Sediments are consistent from the ground surface to approximately 20 cmbs. From 20 to 40 cmbs, sediments become more compact and slightly more yellow (Munsell 10YR 5/6).

Both STPs were positive and had cultural resources. The materials and artifacts recovered by the STPs are listed in Table 6-12.

Table 6-12
Shovel Test Pit Recovery from SS-S-127

STP	Level (cmbs)	Artifacts Recovered	Count
1	0–20	Rhyolite FAR	2
2	20–40	CCS flake	1
		STP total	3

STU = shovel test unit; cmbs = centimeters below surface; FAR = fire-affected rock; CCS = cryptocrystalline silicate.

SS-S-127 Results and Recommendations

Surface inventory of Site SS-S-127 identified a light to moderate scatter of prehistoric lithic artifacts. Surface collections and the two subsurface excavation units produced a total of 45 individual artifacts and cultural materials. The 30 items collected include 19 flaked stone artifacts (18 debitage and 1 tool) and 11 pieces of FAR. Everything collected represents a prehistoric lithic tool production, or perhaps refinement, and limited utilization of the site.

Evaluation of the site failed to identify substantial or significant cultural deposits. Implementation of the project within the study area at this site would not have a significant impact on the site's archaeological value. No information was obtained that would contribute value under any of the other significance criteria. As such, site SS-S-127 is not recommended as significant for any archaeological values or as eligible for CRHR listing.

Site SS-S-128

Site SS-S-128 is located in the southeastern portion of the southern site and is described as a prehistoric large lithic deposit. The site measures 165 m (NE/SW) × 90 m (NW/SE) with a roughly northeast–southwest orientation. The site is located in a gently northeast to southwest sloping desert environment with local vegetation that consists of moderately sparse high desert vegetation communities. Disturbances in the immediate area include only natural erosion and alluvial processes.

Testing within site SS-S-128 consisted of a surface inventory, one CSC, and subsurface test excavations. The subsurface evaluations consisted of five STPs, one CU, and one SSU.

Surface Inventory

During the surface inventory and site boundary relocation, previously unidentified prehistoric artifacts were found to extend beyond the previously mapped site boundaries. The site is primarily composed of three loci, which are loosely connected with a sparse lithic scatter. The multiple loci were documented and will be discussed in the Loci section. The following documents all the surface artifacts that lay outside of the concentration or locus.

The general surface inventory produced a total of 5 CCS flakes, 211 rhyolite FAR fragments (200 of which were identified, quantified, and left in the field), and 1 white chert leaf projectile point fragment (A1). The projectile point is mostly complete with only a small fragment at the tip possibly missing.

Loci

Three loci were documented during surface investigations. The loci were labeled A, B, and C. Each locus was designated in an area of increased artifact density.

Locus A was located in the northwestern portion of the site, and measured approximately 30 m (NE/SW) × 18 m (NW/SE). It contained 20 flakes, 6 of which were rhyolite and 14 of which were various CCS.

Locus B was delineated by three closely associated concentrations of "blown-out" FAR. Each of the concentrations was delineated and documented separately. No artifacts were collected from within Locus B that were not associated with the concentrations.

Locus C was identified during surface inventory as having a higher density of lithic debitage. It produced 8 rhyolite flakes, 11 CCS flakes, and 2 small mammal faunal bone fragments.

Concentrations

Three concentrations were noted in Locus B. These were each concentrations of rhyolite FAR fragments. Concentration 1 contained 34 rhyolite FAR fragments, 1 conglomerate FAR fragment, and 1 granitic FAR fragment. The combined weight was 250 g as measured by hanging scale. Concentration 2 contained 44 rhyolite FAR fragments and 1 conglomerate fragment, weighing a combined total of 270 g. Concentration 3 contained 58 rhyolite FAR fragments and weighed 250 g. The FAR was counted, weighed, and left on site after a thorough examination for milling activity or other modification.

Controlled Surface Collection

The CSC was placed in Locus B, in the northwestern portion of the site. The CSC measured a total of 5 × 5 m. A total of 8 rhyolite flakes, 3 CCS flakes, 7 rhyolite FAR fragments, and 5 small-mammal faunal remains were recovered.

Surface Scrape Unit

One SSU was excavated at this site, in conjunction with highest-density faunal bone area in Locus B. It was a 2 × 2 m square. Sediments from the surface to a depth of approximately 5 cmbs

consisted of loosely compacted unsorted yellowish brown sand (Munsell 10YR 7/3). The unit produced a total of 201 fragments of rhyolite FAR. Debitage was limited to rhyolite as a material type, with a total of 215 rhyolite flakes. During the screening process, 2 shell beads were recovered, at which point the field method shifted to allow for the field collection of the full 1/8-inch fraction, with artifact class analysis in the lab. A total of 3 shell beads were recovered, for which measurements are provided in Table 6-13.

Table 6-13
***Olivella* sp. Shell Bead Metrics from SS-S-128**

Cat No.	Type	Description	Sub-Type	Diameter Min. (mm)	Diameter Max. (mm)	Thickness Min (mm)	Thickness Max (mm)	Average Diameter (mm)	Average Thickness (mm)	Notes
538	G	Small normal saucer	G2a	5.89	5.91	0.8	1.2	5.9	1	Dorsal cone
576a	K	Callus	K1	5.56	6.71	2.4	2.45	6.13	2.43	Ventral cone
576b	K	Callus	K1	6.13	6.16	2.28	2.35	6.15	2.32	Ventral cone

The SSU was placed to capture the density of burned faunal bone. The unit produced a total of 948 faunal bone fragments were recovered. Identifiable elements of bird and rabbit long bones were present. No bone exhibited any characteristics/features or fit within human metric ranges. The majority of the bone fragments were long bone fragments. Burning was a major modification on the majority of the elements. Only 17.9% (n = 170) were unburned fragments, with 39.6% (n = 375) were burned/charred either partially or fully, with the majority of the material being calcined to some degree, with 42.5% (n = 403). Lastly, a single fragment of historic scrap ferrous metal was recovered, with no identifiable or distinguishing markings.

Shovel Test Pits

A total of five individual STPs were excavated at SS-S-128. All five of the STPs exhibited loose to moderately compact well-sorted light yellowish-brown sands (Munsell 10YR 6/4). The sediments are consistent from the ground surface to approximately 40 cmbs. From 40 to 60 cmbs the sand becomes more compact and contains small (<1 cm) rounded to sub-rounded gravels and is a darker shade of brown (Munsell 10YR 5/6).

STP-2 and STP-4 were negative, with STP-1, STP-3, and STP-5 producing cultural materials. The summary of the findings is provided in Table 6-14.

Table 6-14
Shovel Test Pit Recovery from SS-S-128

STP	Level (cmbs)	Artifacts Recovered	Count
1	0–20	CCS flake	1
		Rhyolite flakes	12
		Rhyolite FAR	13
3	20–40	CCS flake	1
	40–60	Rhyolite flake	1
		Faunal bone fragment	1
	60–62	Faunal bone fragment	1
5	0–20	Faunal bone fragments	15
		CCS flakes	3
	20–40	Faunal bone fragments	25
		Rhyolite flake	1
	40–60	Faunal bone fragments	7
		STP total	81

STP = shovel test pit; cmbs = centimeters below surface; CCS = cryptocrystalline silicate; FAR = fire-affected rock.

STP-5 was placed next to SSU-1. It exhibited cultural materials all the way down to hardpan at 60 cmbs; however, there was heavy krotovina and root disturbance in the area.

Notably, STP-1 was located at the northern end of Locus A. In level 20 to 40 cmbs, a layer of rhyolite FAR was observed in the southern and western sidewalls. A CU was excavated around the STP location to identify the presence and extent of a possible FAR feature.

Excavation Units

One CU, measuring 1 × 1 m, was placed over STP-1's location, with the STP occupying the northeastern corner. The sediment exhibited minor krotovina disturbances and was placed within a low wash. Stratum 1 consisted of a lightly compacted yellowish-brown sediment (Munsell 10YR 7/3) and occupied depths from 0 cmbs to approximately 30 cmbs. The soil transitioned into stratum 2, at a depth of 30 to 40 cmbs. This was characterized by becoming more compacted and exhibiting a slight color shift towards a more reddish hue (Munsell 10YR 6/4). The unit was excavated in 10 cm increments and produced a total of 474 artifacts. A subsurface feature was exposed from level 20 to 30 cmbs and will be further described in the next section. Materials excavated from Feature 1 are briefly summarized in conjunction with the rest of the unit in Table 6-15.

Table 6-15
Control Unit 1 Recovery from SS-S-128

Stratum	Level (cmbs)	Artifacts Recovered	Count
1	0–10	CCS flake	2
		Indeterminate groundstone	1
		Rhyolite flake	39
		Rhyolite FAR	44
		Historic metal fragment	1
	10–20	Chert (CCS) flake	2
		Rhyolite FAR	49
		Rhyolite flake	20
Feature 1	20–30	Rhyolite flake	30
		Rhyolite FAR	~150
2	30–40	Rhyolite FAR	37
		Rhyolite flake	79
		Faunal bone fragments	20
		CU total	474

cmbs = centimeters below surface; CCS = cryptocrystalline silicate; FAR = fire-affected rock; CU = control unit.

Features

As mentioned above, a subsurface FAR feature, Feature 1, was initially exposed in the excavation of STP-1. The feature possibly represents the remains of a prehistoric hearth, consisting of one rough, unevenly distributed course of rhyolite FAR cobbles. The feature consisted of loose and unevenly distributed sub-angular to angular rhyolite FAR cobbles, measuring on average between 4 and 15 cm, that have been mottled with the surrounding sand sediments, from 4 to 10 cmbs. This feature exhibited a loose concentration of the FAR and appeared to be slightly but naturally disturbed due to surface exposure and infill by aeolian sands, as is the typical post-depositional process. The feature encompasses the materials recovered from CU-1 and STP-1's respective recovery from the depth of 20 to 30 cmbs. This accounts for a total of approximately 150 rhyolite FAR fragments, 42 rhyolite flakes, and 1 CCS flake.

The single course of uneven rhyolite FAR encountered from approximately 20 to 30 cmbs appears to be relatively flat, horizontally. Given the recovery of debitage from 20 to 30 cmbs, this level was likely the ground surface for flaked stone production and the heat treatment of locally sourced rhyolite.

The majority of the feature appears exposed, but the horizontal dimensions are currently undetermined, as there was evidence of FAR cobbles extending into both the western wall and the

southern wall. The FAR occupies the western half of the unit, and the exposed portion appears to be too loosely associated to clearly identify any curve or intended form.

SS-S-128 Results and Recommendations

The surface inventory of the site identified a large light lithic deposit. Surface collections and the seven various subsurface excavation units produced a total of 2,335 individual artifacts and cultural materials. Approximately 200 rhyolite FAR fragments were left on site after metrics had been gathered, leaving a total of 2,135 items collected. These collected items include 398 fragments of rhyolite FAR, 483 flaked stone artifacts (debitage = 482, projectile point = 1), 1,248 faunal bone fragments, 3 shell beads, 2 historic metal fragments, and 1 indeterminate groundstone fragment. Of the debitage only 48 were CCS, with the majority consisting of rhyolite (n = 434).

Shell bead types found at this site include G2a and K1 types, which date to the Early/Middle Transition and throughout the Middle Period for the G2a bead, with the K1 types dating to Phase 1 (ca. AD 1150–1500) in Southern California (Milliken and Schwitalla 2009). The site produced strong evidence for locally sourced lithic production, and is consistent with trends seen in the region. No ceramic artifact types were identified.

Sediment profiles recorded from the subsurface excavation demonstrate that the majority of the artifacts and cultural materials were encountered from a shallow context from the ground surface to approximately 40 cmbs. The excavation units demonstrate a low probability that the FAR features have significant depth. There was no charcoal or ash observed in the units.

No substantial or significant deposits were identified. Implementation of the project within the study area at this site would not have a significant impact on the site's archaeological value. No information was obtained that would contribute value under any of the other significance criteria. For this reason, SS-S-128 is not recommended as significant for archaeological values or as eligible for CRHR listing under Criterion 4.

Site SS-S-129

Located in the central portion of the southern site, SS-S-129 is a prehistoric artifact scatter. The 68 m (N/S) × 45 m (E/W) site is located on a low area on a gently north to south sloping desert alluvial environment covered in moderate vegetation. The vegetation in the vicinity consists of the typical high desert vegetation communities, including Joshua trees, tamarisk trees, and creosote with native and invasive species of grasses. Disturbances in the area appear to consist mainly of only natural alluvial processes, however an unnamed dirt access road that runs northeast to southwest from the intersection of East Reed Avenue and Mary Street runs along the southern boundary.

Testing within site SS-S-129 consisted of a surface inventory; surface collection; two CSCs and subsurface test excavations, which consisted of the excavation of 14 STPs; and two SSUs.

Surface Inventory

A total of 62 lithic flakes and 87 rhyolite FAR fragments were observed during the surface inventory. The FAR was identified, documented, weighed, and then left on site. Of the flakes, 57 were rhyolite debitage and the remaining 5 were CCS such as variously colored, fine-grain chert and chalcedonies. Additional, previously unidentified artifacts were noted beyond the site boundaries originally mapped.

Features

One prehistoric feature that appears to represent fire-treating/heating local rhyolite rock was identified during the surface inventory. Feature-1 is ovate, is approximately 3 m in diameter, and consists of clusters of rock as well as "blow-out" from post-depositional processes and activities. The rhyolite FAR ranged in size from 1 to 2 cm sub-rounded gravels to 15 to 20 cm in diameter angular cobbles. Cultural material collected from the surface of Feature-1 included four fragments of rhyolite FAR, 23 flakes, and eight non-human vertebrate faunal remains. Of the 23 flakes collected, 13 were rhyolite and the remaining 10 were CCS. While most of the bone fragments were heavily deteriorated and possessed few diagnostic elements, the bones most likely represent small and large vertebrates. Evidence of post-depositional environmental processes, such as wind and soil erosion, was evident.

Shovel Test Pits

Three individual STPs were excavated at SS-S-129. All STPs exhibited loose to moderately compact, well-sorted brown sands (Munsell 10YR 4/6). Sediments were consistent from the ground surface to approximately 40 cmbs. From 40 to 60 cmbs, the sand became more compact and contained small rounded to sub-rounded gravels.

Of the three STPs excavated, number 2 was negative and numbers 1 and 3 contained cultural materials. A total of 6 artifacts, including 2 fragments of non-human faunal bone and 4 fragments of FAR, were recovered from the STP excavations (Table 6-16). Units were terminated due to hardpan.

Table 6-16
Shovel Test Pit Recovery from SS-S-129

STP	Level (cmbs)	Artifacts Recovered	Count
1	20–40	Vertebrate faunal fragments	2
		Rhyolite FAR	3
3	0–20	Rhyolite FAR	1
		STP total	6

STP = shovel test pit; cmbs = centimeters below surface; FAR = fire-affected rock.

Surface Scrape Units

One SSU was excavated at this site. SSU-1 was placed over Feature 1. Sediments from the surface to a depth of approximately 5 cmbs consisted of loosely compacted unsorted brown sand (Munsell 10YR 4/6) with roots and krotovina noted. Materials recovered from SSU-1 include 5 fragments of non-human, small-animal bone; 1 obsidian projectile point fragment; and 63 lithic flakes. Of the 63 flakes recovered, 61 were rhyolite and the remaining 2 were CCS.

Shovel Test Units

One STU was excavated at the site. STU-1 measured 0.5 × 1 m and was placed in the southwestern corner of SSU-1, within Feature 1. STU-1was excavated from the terminal depth of SSU-1 at 5 cmbs and terminated at 45 cmbs. Sediments consisted of loosely compacted brown sand (Munsell 10YR 4/3), which is consistent from the ground surface to approximately 40 cmbs. From 40 to 45 cmbs, the sand becomes more compact and contains small rounded to sub-rounded gravels. Moderate amounts of root material were noted in the upper levels and some minor krotovina disturbances were noted throughout all the levels. The artifact distribution in STU-1 by level is summarized in Table 6-17.

Table 6-17
Shovel Test Unit 1 Recovery from SS-S-129

STU	Level (cmbs)	Artifacts Recovered	Count
1	5–15	CCS Flakes	6
	15–25	CCS Flakes	5
		Rhyolite flakes	17
		Faunal bone fragments	127
	25–35	Rhyolite flakes	2
		Faunal bone fragments	12
		Rhyolite FAR	2
	35–45	Faunal bone fragments	5

Table 6-17
Shovel Test Unit 1 Recovery from SS-S-129

STU	Level (cmbs)	Artifacts Recovered	Count
		Rhyolite flakes	1
		STU total	177

STU = shovel test unit; cmbs = centimeters below surface; CCS = cryptocrystalline silicate; FAR = fire-affected rock.

SS-S-129 Results and Recommendations

Surface inventory of site SS-S-129 identified one rock feature and a light to moderate scatter of prehistoric lithic artifacts and FAR fragments. Surface collections and five subsurface excavation units produced a total of 451 individual artifacts and cultural materials. The 451 artifacts recovered include 102 rhyolite FAR fragments, 178 flaked stone artifacts (176 debitage and 2 tools), and 172 faunal bone fragments. Out of the 176 total debitage collected, 157 are rhyolite and 19 are various CCS.

Test excavations at site SS-S-129 indicate prehistoric lithic production occurred at the site, from material locally sourced within the immediate vicinity, specifically the rhyolite butte (Lookout Knob) overlooking the site to the north. Neither groundstone nor ceramic artifact types were identified.

Sediment profiles recorded from the subsurface excavation demonstrate that the majority of the artifacts and cultural materials were encountered from a shallow context from the ground surface to approximately 40 cmbs. The excavation units demonstrate a low probability that the FAR features have significant depth. The feature excavated (Feature 1) showed little to no trace of a subsurface component. No charcoal or ash staining was identified, likely due to a depositional environment of shifting sands

Within the study area, no substantial or significant deposits were identified. Implementation of the project within the study area at this site would not have a significant impact on the site's archaeological value. No information was obtained that would contribute value under any of the other significance criteria. Site SS-S-129 is not recommended as significant for archaeological values and is not recommended as eligible for CRHR listing.

7 FINDINGS AND RECOMMENDATIONS

7.1 Summary of Findings

A total of 66 resources (35 sites, 30 isolates, and 1 unknown) have been identified in the solar generation fields. Of these, 31 sites were evaluated for significance, 30 of which were found ineligible for CRHR listing. A portion of SS-S-110 was recommended as eligible for CRHR listing. This site is being avoided through site plan design, and the proposed project would have not have a significant

impact on the site. The same is true for site P-15-002050/003366/000560/017333, the Union Pacific Railroad and associated spurs.

7.2 Recommendations

Of the total 35 sites within the solar generation fields, the aforementioned two potentially eligible sites are being avoided through project design. The remaining 33 sites are not recommended as eligible for the CRHR through testing or previous evaluation. Two sites, P-15-005793 and P-15-015873, were not relocated (listed as unknown). These sites are not recommended as eligible for the CRHR. Isolated finds, by definition, are not sites and therefore are not eligible for inclusion in the CRHR. Table 7-1 provides an overview of all identified impacts to resources and any associated mitigation measures necessary to reduce impacts.

Table 7-1
Archaeological Site Management Recommendations

Option	Primary Number	Site Type	Time Range	Significance	Impact	Recommendation/Mitigation Measures
Southern Solar Field	P-15-000472	Site	Multi-component	6Z (Found ineligible through survey evaluation)	No significant impact would occur.	No impact/adverse effects would occur if avoided; if avoidance is not feasible, complete evaluation of the resource will be required.
Southern Solar Field	P-15-000473	Isolate	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effects would occur; no mitigation required.
Southern Solar Field	P-15-002015	Site	Historic	6Z (Found ineligible through survey evaluation)	The site has not been fully evaluated; however, the project will not impact this resource.	No impact would occur because resource would be avoided; if avoidance is not feasible, complete evaluation of the resource would be required.
Northern Solar Field	P-15-007592	Isolate	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact would occur; no mitigation required.
Northern Solar Field	P-15-007595	Isolate	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effects would occur; no mitigation required.
Southern Solar Field	P-15-011768	Site	Historic	6Z (Found ineligible through survey evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact will occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 200 ft of this resource to provide treatment of inadvertent discoveries.

Table 7-1
Archaeological Site Management Recommendations

Option	Primary Number	Site Type	Time Range	Significance	Impact	Recommendation/Mitigation Measures
Southern Solar Field	P-15-015815	Isolate	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effects would occur; no mitigation required.
Southern Solar Field	P-15-015817	Isolate	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effects would occur; no mitigation required.
Northern Solar Field	P-15-017297	Site	Multi-component	6Z (Found ineligible through survey evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 200 ft of this resource to provide treatment of inadvertent discoveries.
Solar Field	SS-I-105	Isolate: flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effects would occur; no mitigation required.
Solar Field	SS-I-106	Isolate: flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effects would occur; no mitigation required.
Solar Field	SS-I-107	Isolate: flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effects would occur; no mitigation required.
Solar Field	SS-I-108	Isolate: flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effects would occur; no mitigation required.

Table 7-1
Archaeological Site Management Recommendations

Option	Primary Number	Site Type	Time Range	Significance	Impact	Recommendation/Mitigation Measures
Solar Field	SS-I-109	Isolate: flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effects would occur; no mitigation required.
Solar Field	SS-I-110	Isolate: flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effectsv; no mitigation required.
Solar Field	SS-I-111	Isolate: flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effects would occur; no mitigation required.
Solar Field	SS-I-115	Isolate: flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effects would occur; no mitigation required.
Solar Field	SS-I-116	Isolate: flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effects would occur; no mitigation required.
Solar Field	SS-I-117	Isolate: flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effects would occur; no mitigation required.
Solar Field	SS-I-118	Isolate: flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effects would occur; no mitigation required.
Solar, Field	SS-I-120	Isolate: flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effects would occur; no mitigation required.
Solar Field	SS-I-121	Isolate: flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effects would occur; no mitigation required.
Solar Field	SS-I-122	Isolate: handstone	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effects would occur; no mitigation required.

Table 7-1
Archaeological Site Management Recommendations

Option	Primary Number	Site Type	Time Range	Significance	Impact	Recommendation/Mitigation Measures
Solar Field	SS-I-123	Isolate: flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effects would occur; no mitigation required.
Solar Field	SS-I-124	Isolate: flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore no impact would occur.	No impact/adverse effects would occur; no mitigation required.
Solar Field	SS-I-125	Isolate: flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effects would occur; no mitigation required.
Solar Field	SS-I-126	Isolate: flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur,	No impact/adverse effects would occur; no mitigation required.
Solar Field	SS-I-127	Isolate: flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effects would occur; no mitigation required.
Solar Field	SS-I-128	Isolate: flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effects would occur; no mitigation required.
Solar Field	SS-I-129	Isolate: flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effects would occur; no mitigation required.
Solar Field	SS-I-130	Isolate: flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effects would occur; no mitigation required.
Solar Field	SS-I-131	Isolate: flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effects would occur; no mitigation required.
Solar Field	SS-I-132	Isolate: flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effects would occur; no mitigation required.

Table 7-1
Archaeological Site Management Recommendations

Option	Primary Number	Site Type	Time Range	Significance	Impact	Recommendation/Mitigation Measures
Solar Field	SS-I-133	Isolate: flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore, no impact would occur.	No impact/adverse effects would occur; no mitigation required.
Southern Solar Field	SS-S-110	Site	Multi-component	3CS (Portions of this site appear eligible as an individual property through testing evaluation)	The significant portions of this site would be avoided through project design. The project would not have a significant impact on this resource.	Archaeological monitoring is recommended within 200 ft of this site during initial ground disturbance to provide treatment for inadvertent discoveries.
Southern Solar Field	SS-S-123	Site	Historic	6Z (Found ineligible through evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance during construction within 50 ft of this resource to provide treatment of inadvertent discoveries.
Southern Solar Field	SS-S-130	Site	Prehistoric	6Z (Found ineligible through evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 200 ft of this resource to provide treatment of inadvertent discoveries.

Table 7-1
Archaeological Site Management Recommendations

Option	Primary Number	Site Type	Time Range	Significance	Impact	Recommendation/Mitigation Measures
Solar Field	SS-S-101	Lithic scatter	Prehistoric	6Z (Found ineligible through testing evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 200 ft of this resource to provide treatment of inadvertent discoveries.
Solar Field	SS-S-102	Lithic scatter	Prehistoric	6Z (Found ineligible through testing evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 200 ft of this resource to provide treatment of inadvertent discoveries.
Solar Field	SS-S-103	Lithic scatter	Prehistoric	6Z (Found ineligible through testing evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 200 ft of this resource to provide treatment of inadvertent discoveries.

Table 7-1
Archaeological Site Management Recommendations

Option	Primary Number	Site Type	Time Range	Significance	Impact	Recommendation/Mitigation Measures
Solar Field	SS-S-104	Lithic scatter	Prehistoric	6Z (Found ineligible through testing evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 200 ft of this resource to provide treatment of inadvertent discoveries.
Solar Field	SS-S-105	Lithic scatter	Prehistoric	6Z (Found ineligible through testing evaluation))	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 200 ft of this resource to provide treatment of inadvertent discoveries.
Solar Field	SS-S-106	Lithic scatter	Prehistoric	6Z (Found ineligible through testing evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 200 ft of this resource to provide treatment of inadvertent discoveries.

Table 7-1
Archaeological Site Management Recommendations

Option	Primary Number	Site Type	Time Range	Significance	Impact	Recommendation/Mitigation Measures
Solar Field	SS-S-107	Lithic scatter	Prehistoric	6Z (Found ineligible through testing evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 200 ft of this resource to provide treatment of inadvertent discoveries.
Solar Field	SS-S-109	Lithic scatter and Trash scatter of cans and glass	Multi-component	6Z (Found ineligible through testing evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 200 ft of this resource to provide treatment of inadvertent discoveries.
Solar Field	SS-S-112	Trash scatter of cans and glass	Historic	6Z (Found ineligible through testing evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 200 ft of this resource to provide treatment of inadvertent discoveries.

Table 7-1
Archaeological Site Management Recommendations

Option	Primary Number	Site Type	Time Range	Significance	Impact	Recommendation/Mitigation Measures
Solar Field	SS-S-113	Lithic scatter	Prehistoric	6Z (Found ineligible through testing evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 200 ft of this resource to provide treatment of inadvertent discoveries.
Solar Field	SS-S-114	Lithic scatter	Prehistoric	6Z (Found ineligible through testing evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 200 ft of this resource to provide treatment of inadvertent discoveries.
Solar Field	SS-S-115	Trash scatter of cans and glass	Historic	6Z (Found ineligible through testing evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 50 ft of this resource to provide treatment of inadvertent discoveries.

Table 7-1
Archaeological Site Management Recommendations

Option	Primary Number	Site Type	Time Range	Significance	Impact	Recommendation/Mitigation Measures
Solar Field	SS-S-116	Lithic scatter and trash scatter of cans and glass	Multi-component	6Z (Found ineligible through testing evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 200 ft of this resource to provide treatment of inadvertent discoveries.
Solar Field	SS-S-117	Lithic scatter	Prehistoric	6Z (Found ineligible through testing evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 200 ft of this resource to provide treatment of inadvertent discoveries.
Solar Field	SS-S-118	Lithic scatter	Prehistoric	6Z (Found ineligible through testing evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 200 ft of this resource to provide treatment of inadvertent discoveries.

Table 7-1
Archaeological Site Management Recommendations

Option	Primary Number	Site Type	Time Range	Significance	Impact	Recommendation/Mitigation Measures
Solar Field	SS-S-119	Lithic scatter	Prehistoric	6Z (Found ineligible through testing evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 200 ft of this resource to provide treatment of inadvertent discoveries.
Solar Field	SS-S-120	Lithic scatter	Prehistoric	6Z (Found ineligible through testing evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 200 ft of this resource to provide treatment of inadvertent discoveries.
Solar Field	SS-S-121	Trash scatter of cans and glass	Historic	6Z (Found ineligible through testing evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 50 ft of this resource to provide treatment of inadvertent discoveries.

Table 7-1
Archaeological Site Management Recommendations

Option	Primary Number	Site Type	Time Range	Significance	Impact	Recommendation/Mitigation Measures
Solar Field	SS-S-122	Trash scatter of cans and glass	Historic	6Z (Found ineligible through testing evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 50 ft of this resource to provide treatment of inadvertent discoveries.
Solar Field	SS-S-124	Lithic scatter	Prehistoric	6Z (Found ineligible through testing evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 200 ft of this resource to provide treatment of inadvertent discoveries.
Solar Field	SS-S-125	Trash scatter of cans and glass	Historic	6Z (Found ineligible through testing evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 50 ft of this resource to provide treatment of inadvertent discoveries.

Table 7-1
Archaeological Site Management Recommendations

Option	Primary Number	Site Type	Time Range	Significance	Impact	Recommendation/Mitigation Measures
Solar Field	SS-S-126	Lithic scatter	Prehistoric	6Z (Found ineligible through testing evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 200 ft of this resource to provide treatment of inadvertent discoveries.
Solar Field	SS-S-127	Lithic scatter	Prehistoric	6Z (Found ineligible through testing evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 200 ft of this resource to provide treatment of inadvertent discoveries.
Solar Field	SS-S-128	Lithic scatter	Prehistoric	6Z (Found ineligible through testing evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 200 ft of this resource to provide treatment of inadvertent discoveries.

Table 7-1
Archaeological Site Management Recommendations

Option	Primary Number	Site Type	Time Range	Significance	Impact	Recommendation/Mitigation Measures
Solar Field	SS-S-129	Lithic scatter	Prehistoric	6Z (Found ineligible through testing evaluation)	This resource is recommended as not significant and not eligible for CRHR listing, and it does not meet the criteria to be considered a unique archaeological resource; therefore, it is not considered a historical resource under CEQA. No significant impact would occur to this resource.	Archaeological monitoring is recommended for initial ground disturbance within 200 ft of this resource to provide treatment of inadvertent discoveries.

7.3 Impact Analysis/Project Effects

As stated above, a total of 66 resources (35 sites, 30 isolates, and 1 unknown) have been identified in the project area. Of these, 31 sites were evaluated for significance, and 30 of these were found ineligible for CRHR listing and do not meet the criteria to be considered unique archaeological resources under CEQA. A portion of SS-S-110 was recommended as eligible for CRHR listing; however, this site is being avoided and the project would have not have a significant impact on the site. Sites P-15-002050/003366/000560/017333, the Union Pacific Railroad and associated spurs, would also be avoided with no project impacts.

7.3.1 Unavoidable Impacts

No unavoidable significant impacts would result from project implementation.

7.3.2 No Significant Impact

The proposed project would have no significant impacts to cultural resources. Of those sites located on the project site that could not be avoided, none are considered significant historical resources under CEQA; all significant cultural resources would be avoided. Therefore, no historical resources, as that term is defined under CEQA, would be significantly impacted.

7.4 Management Recommendations

Archaeological monitoring is recommended during earthmoving activities associated with project implementation within 200 feet of prehistoric archaeological resources (regardless of eligibility), within 50 feet of historic period archaeological resources, and on an occasional (spot check) basis throughout the project site to ensure that inadvertent discoveries are properly treated. A cultural resources monitoring plan should be developed in conjunction with the project proponent to guide monitoring activities, provide treatment measures for inadvertent discoveries, and delineate the locations and intensity of monitoring.

In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found, the County coroner shall be immediately notified of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County coroner has determined, within two working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the County coroner determines that the remains are, or are believed to be, Native American, the coroner shall notify the Native American Heritage Commission (NAHC) in Sacramento within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the Most Likely Descendant (MLD) of the deceased Native

American. The MLD shall complete their inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains.

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Appendix E2

Cultural Resources Inventory and Evaluation for the Gen-Tie Routes for Edwards Air Force Base (AFB) Solar Project

ESA

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CULTURAL RESOURCES INVENTORY AND EVALUATION FOR THE GEN-TIE ROUTES FOR EDWARDS AIR FORCE BASE (AFB) SOLAR PROJECT, KERN COUNTY, CALIFORNIA

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MARCH 2018

Printed on 30% post-consumer recycled material.

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1 INTRODUCTION

A Draft Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) is being prepared by the U.S. Air Force (USAF) and the County of Kern, California (County) to evaluate, at a project level, the impacts of the Edwards Air Force Base (AFB) Solar Enhanced Use Lease (EUL) Project (formerly known as Oro Verde Solar Project). A Request for Qualifications was issued on February 3, 2017, by the USAF for solar development through the EUL program. Edwards AFB Solar, LLC has been selected by the USAF as the Highest Rate Offeror. Edwards AFB Solar, LLC will construct, operate, and maintain a utility-scale solar photovoltaic (PV) energy-generating facility on the Edwards AFB property. Edwards AFB Solar, LLC will file an application with the County for a franchise agreement and/or Conditional Use Permit (CUP) for routing a generation tie (gen-tie) transmission line from the proposed solar facility to the privately owned Westwind Substation in the first phase of the project and to Southern California Edison Windhub Substation in subsequent phases. For purposes of this report, the project only addresses the proposed gen-tie routes extending from Edwards AFB to the Windhub Substation and is referred to as the Gen-Tie Routes for Edwards AFB Solar EUL Project or proposed project.

In general, the gen-tie route can be broken down into two categories based on the direction of the corridor—a north–south connection and an east-west connection. There were originally three options for the north–south gen-tie connection (North–South Gen-Tie Route Option 1, North–South Gen-Tie Route Option 2, and North–South Gen-Tie Route Option 3) and two options for the east–west gen-tie connection (East-West Gen-Tie Route Option 1-A and East-West Gen-Tie Route Option 1-B). North–South Gen-Tie Route Option 3 was later removed from consideration, resulting in the consideration of two north-south connection corridors (Options 1 and 2). The proposed project would include only one of these two north-south route options and one of the two east–west route options.

Dudek was retained by Edwards AFB Solar, LLC to conduct a cultural resources study in support of the gen-tie transmission lines for proposed project. In February 2017, four of the five route options (North–South Gen-Tie Route Option 1, North–South Gen-Tie Route Option 2, East-West Gen-Tie Route Option 1-A and East-West Gen-Tie Route Option 1-B) were examined to characterize and describe cultural resources within the potential gen-tine transmission line area of potential effects (APE) that could be affected by ground-disturbing activities.

The February 2017 investigation reviewed previous survey work and associated reports completed within the APE for all five gen-tie connection options, and conducted an intensive-level pedestrian survey of North–South Gen-Tie Route Options 1 and 2 (Denniston and Hale 2017a). The East-West Gen-Tie Route was shown to be recently surveyed, therefore resources

along the alignment were spot-checked to assess current conditions. A cursory analysis, limited to all previously-conducted research, was completed for North–South Gen-Tie Route Option 3 during the February 2017 investigation. In November 2017, an intensive-level pedestrian survey of North–South Gen-Tie Route Option 3, which was later removed from consideration, was completed and the results were presented separately (Denniston and Hale 2017b). Although North–South Gen-tie Route Option 3 is no longer under consideration, the results of the investigation are included for the purpose of providing a complete cultural inventory for the proposed project.

As a result of the February and November, 2017 investigations, a total of 49 previously and newly recorded resources were identified within the project APE. These resources included 18 isolates, 22 archaeological resources, and 9 built environment resource. It was determined that 7 of these 49 resources would potentially be impacted by the proposed project. The current report details the testing and analysis of the 7 potentially impacted resources.

This study is compliant with provisions of local regulations, the California Environmental Quality Act (CEQA), and Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and its implementing regulation, 36 Code of Federal Regulations (CFR) 800. While the transmission line corridors studied herein are located on lands under the jurisdiction of Kern County, Edwards AFB has federal Section 106 consultation obligations for the Edwards Solar generation plant located on federal lands. The transmission lines are a connected action for the purposes of Edwards AFB Section 106 consultation, and this study complies with federal regulations to assist in the federal consultation process.

Public Resources Code (PRC) Section 5024.1, Title 14 California Code of Regulations (CCR) Section 15064.5 of the CEQA Guidelines, and PRC Sections 21083.2 and 21084.1 were also used as basic guidelines for this cultural resources study (Governor's Office of Planning and Research 1998). PRC Section 5024.1 requires the identification and evaluation of cultural resources to determine their eligibility for the California Register of Historical Resources (CRHR). The CRHR is a listing of the state's historical resources, and it indicates which properties are to be protected from substantial adverse change, as defined in CEQA, to the extent prudent and feasible.

1.1 Project Location

The project is located in the southern portion of Kern County, in central California, directly south of the community of Mojave, approximately 11 miles southeast of the City of Tehachapi, approximately 3 miles southwest of California City, and approximately 47 miles southeast of the City of Bakersfield (Figure 1). Locational information for the project is provided in Table 1, below and on Figures 2, 2A through 2E.

Table 1
Locational Information

Quadrangle (7.5')	Township	Range	Sections
Monolith	11N	13W	16, 17, 20, 21, 27, 28
Mojave	11N	13W	22, 24, 25, 27, 27
Mojave	11N	12W	19, 20, 21, 26, 27, 28, 29, 30, 31, 32, 33
Sanborn	11N	12W	26, 36, 36
Bissell	10N	12W	1, 7, 12
Soledad Mountain	10N	12W	3, 4, 5, 10, 15

1.2 Proposed Gen-Tie Line Corridor

A 230 kV gen-tie would connect the Edwards AFB solar generation site with the existing and privately owned electrical substation, the Westwind Substation, in the first phase of the project, and to the Southern California Edison Windhub Substation in subsequent phases of the project. The proposed gen-tie may be a shared facility with other solar projects in the future. In general, the gen-tie route can be broken down in to two categories based on the direction of the corridor—a north–south connection and an east-west connection. There were originally three options for the north–south gen-tie connection and the project would include only one of these. There are two options for the east–west gen-tie connection and the proposed project would include only one of the two east–west route options. The options for the north–south gen-tie routes are described first, and the options for the east–west gen-tie routes are described second.

Figures 2 through 2E show the proposed location of each of the gen-tie route options; the North–South Gen-Tie Route Option 1 is shown in yellow; the North–South Gen-Tie Route Option 2 is shown in blue; North–South Gen-Tie Route Option 3 (removed from consideration) is shown in red; and East-West Gen-Tie Route Options 1-A and 1-B in black.

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1.2.1 North-South Gen-Tie Routes

From the proposed solar generation site to the approximate intersection of Purdy Avenue and United Street, there are two gen-tie route options. These north–south route options include the following: (1) North–South Gen-Tie Route Option 1: an approximately 5.6-mile-long gen-tie route on the east that generally runs from the Edwards AFB solar generation site north adjacent to 20th Street, west adjacent to East Reed Avenue, north adjacent to 15th Street, then generally follows the north side of the Burlington Northern Santa Fe (BNSF) Railway and finally runs west to the intersection of Purdy Avenue and the BNSF; (2) North–South Gen-tie Route Option 2: an approximately 4.5-mile-long gen-tie route that generally runs from the northwestern edge of the Edwards AFB solar generation site north on Lone Butte Road, west on West Reed Avenue, and north on United Street where it intersects with Purdy Avenue; and (3) North–South Gen-tie Route Option 3. Option 3 was removed from consideration, but was approximately 6-mile-long gen-tie route that generally runs from the northwestern edge of the Edwards AFB solar generation site directly west to Sierra Highway and runs along Sierra Highway to the intersection with Silver Queen Road; the gen-tie route runs directly west along Silver Queen Road for 1.8 miles and heads north of Gold Town Road, which turns into Holt Street, where the route intersects with Purdy Avenue.

1.2.2 East-West Gen-Tie Routes

Figure 2 shows the approximate location of the east–west gen-tie route in black and includes two route options, Options A and B, along Oak Creek Road. The proposed project would include only one of these options for the east-west gen-tie route. More specifically, from the intersection of the North–South Gen-Tie Option 1 and Purdy Avenue, the east–west gen-tie is approximately 9.8 miles, in length and would run west along Purdy Avenue for approximately 5.5 miles and then would run south of Purdy Avenue, but north of Decatur Avenue for approximately 2.9 miles and then turn north back to Purdy Avenue. From Purdy Avenue, the east–west gen-tine line would run north and northwest for approximately 1.3 miles to Oak Creek Road. Along Oak Creek Road for 0.6 mile there are two options for the east–west gen-tie route—Option A would run north of Oak Creek Road and Option B would run south of Oak Creek Road. From these two options, the east–west gen-tie route would run 0.4 miles before jogging northwest for 0.4 miles and connecting to the Westwind Substation or Windhub Substation. Table 2 provides a brief description of the three north-south route options and the two east-west route options.

Table 2
Proposed Gen-Tie Route Options

Option	Description
1	5.6-mile-long gen-tie route; runs from the AFB solar generation site north to the intersection of Purdy Avenue and the BNSF.
2	4.5-mile-long gen-tie route; runs from the northwestern edge of the AFB solar generation site to the intersection of United Street and Purdy Avenue.
3 (Removed from Consideration)	6-mile-long gen-tie route; runs from the northwestern edge of the AFB solar generation site to the intersection of Holt Street and Purdy Avenue.
1-A	9.8-mile-long gen-tie route; runs from the intersection of Purdy Avenue and the BNSF west to the Westwind Substation and the Windhub Substation. Along Oak Creek Road for 0.6 mile there are two options for the east–west gen-tie route—Option A would run north of Oak Creek Road.
1-B	9.8-mile-long gen-tie route; runs from the intersection of Purdy Avenue and the BNSF west to the Westwind Substation and the Windhub Substation. Along Oak Creek Road for 0.6 mile there are two options for the east–west gen-tie route—Option B would run south of Oak Creek Road

1.3 Definition of Area of Potential Effect

The cultural resources APE is defined as all five potential gen-tie transmission line routes along with a 50-foot (15.4 meters [m]) buffer on either side of the line. Although North–South Gen-tie Route Option 3 is no longer under consideration, the alignment is included in the defined APE for the purposes of providing a complete cultural inventory for the proposed project. In total, the five lines total approximately 25.9 miles (41.7 kilometers [km]) in length, and the APE covers approximately 313.9 acres. One previous survey, conducted in 2010, covered both of the east-west alignment Options 1-A and 1-B (Hudlow 2010). This area, measuring 9.5 miles (15.3 km) and 115.2 acres, was not resurveyed, but spot-checked, confirming the 2010 existing conditions. As a result, of the 313.9-acre APE, 115.2 acres were spot-checked and 198.7 acres were intensively surveyed.

1.4 Report Structure

Several chapters follow this introductory Chapter 1. Chapter 2 outlines the regulations to which the project adheres. Chapter 3 references existing environmental and cultural setting information and research design. Chapter 4 is a description of the methods used to accomplish this study. The results are summarized in Chapter 5, followed by the significance evaluations in Chapter 6. Findings and recommendations are presented in Chapter 7. All references cited are provided in a bibliography, along with selected references for further reading and guidance. Confidential appendices include location maps for sites and isolates (Appendix A) and site forms (Appendix B).

2 REGULATORY SETTING

The treatment of cultural resources located on the project site is governed by federal, state and local laws and regulations. There are specific criteria for determining whether prehistoric and historic sites or objects are significant and/or protected by law. For instance, federal and state significance criteria generally focus on the resource's integrity and uniqueness, its relationship to similar resources, and its potential to contribute important information to scholarly research. As a whole, the laws and regulations seek to avoid impacts to significant prehistoric or historic resources, and, when avoidance is not feasible, to mitigate those impacts to less than significant levels. In some cases, mitigation can be achieved through "preservation in place" techniques; but when such techniques are infeasible, mitigation can be accomplished via data recovery. While the transmission line corridors studied herein are located on lands under the jurisdiction of Kern County, Edwards AFB has federal Section 106 consultation obligations for the Edwards Solar generation plant located on federal lands. The transmission lines are a connected action for the purposes of Edwards AFB Section 106 consultation, and this study complies with federal regulations to assist in the federal consultation process.

2.1 Federal

2.1.1 36 CFR 800 and Section 106 of the NHPA

The National Historic Preservation Act (NHPA) established the National Register of Historic Places (NRHP) and the President's Advisory Council on Historic Preservation (ACHP), and provided that states may establish State Historic Preservation Officers (SHPOs) to carry out some of the functions of the NHPA. Most significantly for federal agencies responsible for managing cultural resources, Section 106 of the NHPA directs that "[t]he head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or federally assisted undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking shall, prior to the approval of the expenditure of any Federal funds on the undertaking or prior to the issuance of any license, as the case may be, take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the NRHP." Section 106 also affords the ACHP a reasonable opportunity to comment on the undertaking (16 U.S.C. 470f).

36 Code of Federal Regulations, Part 800 (36 CFR 800) implements Section 106 of the NHPA. It defines the steps necessary to identify historic properties (those cultural resources listed in or eligible for listing in the NRHP), including: consultation with federally recognized Native American tribes to identify resources with important cultural values; determine whether or not they may be adversely affected by a proposed undertaking; and outline the process for eliminating, reducing, or mitigating the adverse effects.

The content of 36 CFR 60.4 defines criteria for determining eligibility for listing in the NRHP. The significance of cultural resources identified during an inventory must be formally evaluated for historical significance in consultation with the California SHPO to determine if the resources are eligible for inclusion in the NRHP. Cultural resources may be considered eligible for listing if they possess integrity of location, design, setting, materials, workmanship, feeling, and association. The criteria for determining eligibility are essentially the same in content and order as those outlined under the California Environmental Quality Act (CEQA), but the criteria under NHPA are labeled A through D (rather than 1–4 under CEQA).

Regarding criteria A through D of Section 106, the quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, cultural resources, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that:

A. Are associated with events that have made a significant contribution to the broad patterns of our history; or

B. Are associated with the lives of persons significant in our past; or

C. Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. Have yielded or may be likely to yield, information important in prehistory or history [36 CFR 60.4].

The current evaluation of prehistoric cultural resources was performed with the intent of assessing historical significance under Criterion D. The ability of an archaeological site to yield important information to history or prehistory is based upon the site's ability to address specific research themes. The research themes addressed in this study are presented in Chapter 3, and these derive from the cultural resources overview presented in this chapter, above.

The ACHP provides methodological and conceptual guidance for identifying historic properties. In 36 CFR 800.4, the steps necessary for identifying historic properties include:

- Determine and document the APE (36 CFR 800.16(d)
- Review existing information on historic properties within the APE, including preliminary data
- Confer with consulting parties to obtain additional information on historic properties or concerns about effects to these

- Consult with Native American tribes (36 CFR 800.3(f)) to obtain knowledge on resources that are identified with places which they attach cultural or religious significance
- Appropriate fieldwork (including phased identification and evaluation)
- Apply NRHP criteria to determine a resource eligibility for NRHP listing

Fulfilling these steps is generally thought to constitute a reasonable effort to identify historic properties within the APE for an undertaking. The obligations of a federal agency must also assess whether an undertaking will have an adverse effect on cultural resources. An undertaking will have an adverse effect when:

> "an undertaking may alter, directly or indirectly, any of the characteristics of a historic property hat qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative" (36 CFR Part 800.5(1)).

The process of determining whether an undertaking may have an adverse effect requires the federal agency to confer with consulting parties in order to appropriately consider all relevant stakeholder concerns and values. Consultation regarding the treatment of a historic property may result in a Programmatic Agreement (PA) and/or Memorandum of Agreement (MOA) between consulting parties that typically include the lead federal agency, State Historic Preservation Officer (SHPO), and Native American tribes if they agree to be signatories to these documents. Treatment documents—whether resource-specific or generalized—provide guidance for resolving potential or realized adverse effects to known historic properties or to those that may be discovered during implementation of the undertaking. In all cases, avoidance of adverse effects to historic properties is the preferred treatment measure and it is generally the burden of the federal agency to demonstrate why avoidance may not be feasible. Avoidance of adverse effects may not be feasible if it would compromise the objectives of an undertaking that can be reasonably said to have public benefit. Other non-archaeological considerations about the benefit of an undertaking may also apply, resulting in the determination that avoidance is not feasible. In general, avoidance of adverse effects is most difficult when a permitted undertaking is being implemented, such as identification of an NRHP-eligible archaeological resource during earthmoving.

2.2 State

2.2.1 California Environmental Quality Act

The California Register of Historic Resources (Public Resources Code section 5020 et seq.)

In California, the term "historical resource" includes but is not limited to "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (California Public Resources Code section 5020.1(j)). In 1992, the California legislature established CRHR "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (California Public Resources Code section 5024.1(a)). A resource is eligible for listing in the CRHR if the State Historical Resources Commission determines that it is a significant resource and that it meets any of the following National Register of Historic Places (NRHP) criteria:

1. Associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
2. Associated with the lives of persons important in our past.
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
4. Has yielded, or may be likely to yield, information important in prehistory or history.

(California Public Resources Code section 5024.1(c).) Resources less than 50 years old are not considered for listing in the CRHR, but may be considered if it can be demonstrated that sufficient time has passed to understand the historical importance of the resource (see 14 CCR, section 4852(d)(2)).

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP, and properties listed or formally designated as eligible for listing on the NRHP are automatically listed on the CRHR, as are the state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys. The State Historic Preservation Officer maintains the CRHR.

2.2.1.1 Native American Historic Cultural Sites (California Public Resources Code section 5097 et seq.)

The Native American Historic Resources Protection Act (Public Resources Code section 5097, et seq.) addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and establishes the NRHC to resolve disputes regarding the disposition of such remains. In addition, the Native American Historic Resource Protection Act makes it a misdemeanor punishable by up to 1 year in jail to deface or destroy an Indian historic or cultural site that is listed or may be eligible for listing in the CRHR.

2.2.1.2 California Native American Graves Protection and Repatriation Act

The California Native American Graves Protection and Repatriation Act (California Repatriation Act), enacted in 2001, requires all state agencies and museums that receive state funding and that have possession or control over collections of human remains or cultural items, as defined, to complete an inventory and summary of these remains and items on or before January 1, 2003, with certain exceptions. The California Repatriation Act also provides a process for the identification and repatriation of these items to the appropriate tribes.

2.2.1.3 California Environmental Quality Act Statues and Guidelines

As described further below, the following CEQA statutes and CEQA Guidelines are relevant to the analysis of archaeological and historic resources:

1. California Public Resources Code section 21083.2(g): Defines "unique archaeological resource."
2. California Public Resources Code section 21084.1 and CEQA Guidelines section 15064.5(a): Defines historical resources. In addition, CEQA Guidelines section 15064.5(b) defines the phrase "substantial adverse change in the significance of an historical resource. It also defines the circumstances when a project would materially impair the significance of a historical resource.
3. California Public Resources Code section 5097.98 and CEQA Guidelines section 15064.5(e): These statutes sets forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.
4. California Public Resources Code sections 21083.2(b)-(c) and CEQA Guidelines section 15126.4: These statutes and regulations provide information regarding the mitigation

framework for archaeological and historic resources, including options of preservation-in-place mitigation measures; identifies preservation-in-place as the preferred manner of mitigating impacts to significant archaeological sites.

Under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (California Public Resources Code section 21084.1; CEQA Guidelines section 15064.5(b)). An "historical resource" is any site listed or eligible for listing in the CRHR. The CRHR listing criteria are intended to examine whether the resource in question: (a) is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; (b) is associated with the lives of persons important in our past; (c) embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or (d) has yielded, or may be likely to yield, information important in pre-history or history.

The term "historical resource" also includes any site described in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of California Public Resources Code section 5024.1(q)).

CEQA also applies to "unique archaeological resources". Public Resources Code section 21083.2(g) defines a "unique archaeological resource" as any archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

In 2014, CEQA was amended to applies to "tribal culture resources" as well, but the amendment did not provide a definition for such resources or identify how they were to be evaluated or mitigated. (Pub.Res.Code §§ 21084.2 and 21084.3.) Instead, Public Resources Code section 21083.09 required that the Office of Planning and Resource develop and adopt guidelines for analyzing "tribal cultural resources" by July 1, 2016. As of the effective date of this Draft EIR, however, those guidelines have not been finalized or adopted. Consequently, this EIR addresses only historic resources and unique archaeological resources.

All historical resources and unique archaeological resources – as defined by statute – are presumed to be historically or culturally significant for purposes of CEQA (California Public Resources Code section 21084.1; CEQA Guidelines section 15064.5(a)). The lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption (California Public Resources Code section 21084.1; CEQA Guidelines section 15064.5(a)). A site or resource that does not meet the definition of "historical resource" or "unique archaeological resource" is not considered significant under CEQA and need not be analyzed further. (Public Resources Code section 21083.2(a); CEQA Guidelines section 15064.5(c)(4)).

Under CEQA and significant cultural impact results from a "substantial adverse change in the significance of an historical resource [including a unique archaeological resource]" due to the "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines section 15064.5(b)(1); California Public Resources Code section 5020.1(q)). In turn, the significance of a historical resource is materially impaired when a project:

1. Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or
2. Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
3. Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA.

CEQA Guidelines section 15064.5(b)(2).

Pursuant to these sections, the CEQA first evaluates evaluating whether a project site contains any "historical resources," then assesses whether that project will cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance is materially impaired.

When a project significantly affects a unique archeological resources, CEQA imposes special mitigation requirements. Specifically, "[i]f it can be demonstrated that a project will cause damage to a unique archeological resource, the lead agency may require reasonable efforts to be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. Examples of that treatment, in no order of preference, may include, but are not limited to, any of the following:"

1. "Planning construction to avoid archeological sites."
2. "Deeding archeological sites into permanent conservation easements."
3. "Capping or covering archeological sites with a layer of soil before building on the sites."
4. "Planning parks, greenspace, or other open space to incorporate archeological sites."

Pub. Resources Code section 21083.2(b)(1)-(4).

If these "preservation in place" options are not feasible, mitigation may be accomplished through data recovery. (Pub.Res. Code § 21083.2(d); CEQA Guidelines § 15126.4(b)(3)(C).) Public Resources Code section 21083.2(d) states that "[e]xcavation as mitigation shall be restricted to those parts of the unique archeological resource that would be damaged or destroyed by the project. Excavation as mitigation shall not be required for a unique archeological resource if the lead agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the resource, if this determination is documented in the environmental impact report."

These same requirements are set forth in slightly greater detail in CEQA Guidelines section 15126.4(b)(3), as follows:

(A) Preservation in place is the preferred manner of mitigating impacts to archeological sites. Preservation in place maintains the relationship between artifacts and the archeological context. Preservation may also avoid conflict with religious or cultural values of groups associated with the site.

(B) Preservation in place may be accomplished by, but is not limited to, the following:

1. Planning construction to avoid archeological sites;
2. Incorporation of sites within parks, greenspace, or other open space;
3. Covering the archeological sites with a layer of chemically stable soil before building tennis courts, parking lots, or similar facilities on the site[; and]

4. Deeding the site into a permanent conservation easement.

(C) When data recovery through excavation is the only feasible mitigation, a data recovery plan, which makes provision for adequately recovering the scientifically consequential information from and about the historical resource, shall be prepared and adopted prior to any excavation being undertaken.

Note that, when conducting data recovery, "[i]f an artifact must be removed during project excavation or testing, curation may be an appropriate mitigation." (Ibid.) However, "[d]ata recovery shall not be required for an historical resource if the lead agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the archeological or historic resource, provided that determination is documented in the EIR and that the studies are deposited with the California Historical Resources Regional Information Center." (CEQA Guidelines section 15126.4(b)(3)(D).)

2.2.2 California Health and Safety Code

CEQA Guidelines section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described below, these procedures are detailed in PRC section 5097.98.

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. Health and Safety Code section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains shall occur until the County coroner has examined the remains (section 7050.5b). PRC Section 5097.98 also outlines the process to be followed in the event that remains are discovered. If the coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact the Native American Heritage Commission (NAHC) within 24 hours (section 7050.5c). The NAHC will notify the Most Likely Descendant (MLD). With the permission of the landowner, the MLD may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the MLD by the NAHC. The MLD may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

2.3 Local

2.3.1 Kern County General Plan

2.3.1.1 Kern County Land Use, Conservation, Open Space Element of the General Plan

Section 1.10.3 of the Land Use, Conservation, Open Space Element of the Kern County General Plan (General Plan) identifies the county's policy and implementation measures that guide the preservation of cultural resources in Kern County. These measures are provided below:

Policy 25.

The County will promote the preservation of cultural and historic resources which provide ties with the past and constitute a heritage value to residents and visitors.

Implementation Measure K.

Coordinate with the California State University, Bakersfield's Archaeology Inventory Center.

Implementation Measure L.

The County shall address archaeological and historical resources for discretionary projects in accordance with CEQA.

Implementation Measure M.

In areas of known paleontological resources, the County should address the preservation of these resources where feasible.

Implementation Measure N.

The County shall develop a list of Native American organizations and individuals who desire to be notified of proposed discretionary projects. This notification will be accomplished through the established procedures for discretionary projects and CEQA documents.

Implementation Measure O.

On a project specific basis, the County Planning Department shall evaluate the necessity for the involvement of a qualified Native American monitor for grading or other construction activities on discretionary projects that are subject to a CEQA document. (Kern County Planning Department 2009)

2.3.1.2 2.3.1.2 Kern County Energy Element of the General Plan

Section 5.4.7 of the Energy Element of the General Plan encourages development of transmission lines in urban areas to limit impacts, and identifies the following policies with respect to transmission line development:

1. The County should encourage the development and upgrading of transmission lines and associated facilities (e.g., substations) as needed to serve Kern County's residents and access the County's generating resources, insofar as transmission lines do not create significant environmental or public health and safety hazards.
2. The County shall review all proposed transmission lines and their alignments for conformity with the Land Use, Conservation, and Open Space Element of this General Plan.
3. In reviewing proposals for new transmission lines and/or capacity, the County should assert a preference for upgrade of existing lines and use of existing corridors where feasible.
4. The County should work with other agencies in establishing routes for proposed transmission lines.
5. The County should discourage the siting of above-ground transmission lines in visually sensitive areas.
6. The County should encourage new transmission lines to be sited/configured to avoid or minimize collision and electrocution hazards to raptors. (Kern County Planning Department 2009).

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3 PROJECT SETTING

The natural and cultural setting for Edwards AFB and the Mojave Desert in general has been extensively documented in several key monographs. Several research designs have also been completed for both general and specific research topics spanning the entire range of human occupation of the local area and general region.

Refer to the documents listed in Section 3.1 that contain detailed information on the natural and cultural setting, as well as broader research designs and interpretive summaries. These documents served as the primary source of information guiding this inventory and evaluation.

3.1 Key Source Documents

- Edwards AFB Integrated Cultural Resources Management Plan (Loechl et al. 2012)
- Standards and Procedures Manual for the Archaeological Data Center and Curatorial Functions of the Curation Facility at Edwards Air Force Base (Crosby 2010)
- Cultural Resources Overview and Management Plan for Edwards AFB, Volume 1, Overview of Prehistoric Cultural Resources (Earle et. al. 1997)
- Cultural Resources Overview and Management Plan for Edwards AFB, Volume 2, Overview of Historic Cultural Resources (Earle et. al. 1998)

In addition to the documents listed above any other relevant cultural resources investigation monographs were also obtained and reviewed. A complete list of references is located in the Section 7.

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4 RESEARCH METHODS AND DESIGN

4.1 Project Research Design

This research design was adapted from Hale et al. (2010) for a similar evaluation program that focused on a mixed set of prehistoric archaeological sites and historic period refuse deposits (HPRDs) in similar geologic settings. Minor revisions have been made to this research design to accommodate variation in site type and data potential. Archaeological sites evaluated as part of the Edwards Gentie study have much lower data potential those identified by Hale et al. (2010), and thus very little project-specific alterations to the research design are warranted.

Given that broader, base-wide research themes have been outlined in the recent EAFB ICRMP and in other associated documents (Earle 1997; Earle et al. 1997; Greene 2000), the following discussions will focus on themes pertinent to prehistoric and historical resources. Relevant overviews (Budinger and Spinney 2004; Computer Sciences Corporation 2001; McGetrick et al. 2002, McGetrick et al. 2003), as well as other project-specific reports, were consulted as necessary regarding research issues. Clearly, this research design relies heavily on the volume of archaeological literature from Edwards AFB given the proximity of the current Edwards Gentie alignment to the installation, and association with the proposed Edwards Solar energy generation facility onboard.

4.1.1 Prehistoric Archaeological Sites

4.1.1.1 Kern County Energy Element of the General Plan Early and Middle Holocene Occupations in the Antelope Valley

Early and middle H**o**locene occupations on EAFB are largely inferred from small numbers of time sensitive artifacts. However, results of previous research in and around the Bissell Basin (Giambastiani and Basgall 2000; Giambastiani et al. 2007) and around Rosamond Dry Lake (Basgall and Overly 2004) indicate that sites dating to the Lake Mohave (10,000-7000 B.P.) and Pinto (7000-4000 B.P.) period are present on the installation. Although the ages and nature of such occupations continue to be debated, the artifact deposits that were left behind are normally sparse, dominated by flaked stone tools and debris that were manufactured from a wide variety of lithic materials. These occupations represent short-term camps by groups of highly mobile hunter-gatherers taking advantage of seasonal resource abundances that were encountered during long-distance settlement shifts. In general, sites of Lake Mohave age are rare at EAFB, although Holmes (2004) and Budinger and Spinney (2004) note that eight sites on Edwards AFB have yielded Lake Mohave and/or Silver Lake points. Indeed, a recent evaluation at EAFB-2290, a site that extends more than 4 kilometers (km) along the eastern shoreline of Rosamond Dry Lake and contains multiple depositional loci,

identified six Lake Mohave points and one Silver Lake point (Basgall and Overly 2004). The points were obtained from several disparate locations across the site, but most Lake Mohave specimens were found in association with flaked stone assemblages that contained crescents, bifaces, retouched flakes, and debitage. Other sites in the vicinity noted by Holmes (2004) and Budinger and Spinney (2004) manifest similar lithic assemblages.

McGetrick et al. (2003:Table 9) report 15 projectile points from another part of Edwards AFB: three Lake Mojave points, two Silver Lake, three Pinto, two Elko, one Cottonwood arrow point, and four non-diagnostic points. More than half of these points date to the early and middle Holocene (Lake Mojave, Silver Lake, and Pinto). The presence of the older point forms is not unexpected given that old Quaternary landforms characterize surface deposits in the area (see McGetrick et al. 2003). Additional evidence for early and middle Holocene occupations comes from obsidian hydration readings on Coso obsidian. McGetrick et al. (2003:Table 8, Figure 7) report 40 obsidian hydration readings with a rind of 7.1 microns or greater, consistent with Pinto and older occupations (see Hale et al. 2009). Within this sample, 16 specimens have hydration rinds greater than 10.1, implying Silver Lake, Lake Mojave, and possibly earlier occupations.

In another study, McGetrick et al. (2002:Table 15, Figure 7) report 193 obsidian hydration readings (essentially all Coso obsidian) that are greater than 7.1 microns—i.e., Pinto-age or older. More than one quarter ($n = 51$) of these specimens have hydration readings of 10.1 microns or greater, implying Silver Lake or Lake Mojave occupations. In addition, of the 231 projectile points, 54 may date to the Lake Mojave period (including six Silver Lake points and four as Great Basined Stemmed points). Nineteen others are ascribed to the Pinto period (see McGetrick et al. 2002:Table 17). Thus, taken together, chronometric data from across the installation show ample evidence of early and middle Holocene occupation. The nature of these occupations on the installation is less understood, however, given the low proportion of datable habitation sites in relation to lithic deposits and other low density sites.

Considering just Pinto period sites, the long-standing notion that such deposits are relatively few and far between in the Antelope Valley (e.g., Earle et al. 1997; Sutton 1988, 1993) is gradually being eliminated from contemporary overviews of EAFB prehistory (Greene 2000; Horne and McDougall 2005; Loechl et al. 2002). At least 11 sites have yielded Pinto points, and Greene (2000:163) noted that "Pinto sites are concentrated on the west shore of Rosamond Dry Lake." Although some (e.g., Byrd 1996) have maintained that the lack of radiocarbon dates of Pinto age at EAFB continues to limit evidence for such occupations, the composite of obsidian hydration data from the base clearly indicates a substantial Pinto presence (Basgall and Overly 2004; Giambastiani and Basgall 2000). Indeed, hydration composites presented by Basgall and Overly (2004:61) indicate a peak in obsidian discard during the Pinto period. Horne and McDougall (2005) have noted the recovery of a Pinto point from EAFB-313 on the southern side of Rogers

Dry Lake (EAFB-313), but appear to have misclassified a Pinto point as a Humboldt form at EAFB-380 on the northeastern side of the lake, and have claimed Pinto-age obsidian hydration measurements from EAFB-894 and EAFB-2118, which are also located northeast of Rogers Dry Lake. As previously discussed regarding early and middle Holocene obsidian hydration readings, obsidian use is quite robust during Pinto times.

In general, Pinto lithic assemblages are similar to Lake Mohave assemblages, being composed of bifaces, retouched flakes, and debitage, but with increasing and regular numbers of millingstones and handstones. Flaked stone assemblages are usually represented by a wide variety of lithic types. Volcanic stones, such as basalt, rhyolite, and felsite, and other tough materials like quartz, were evidently preferred for use in manufacturing projectile points and bifaces. Rhyolite in particular seems to have been important to Pinto technology in the Antelope Valley, so much so that Glennan (1970, 1971) proposed a "Rhyolite Tradition" that was central to Pinto-age adaptations. Undoubtedly, the abundance of toolstone-quality rhyolite at EAFB, particularly in the western half of the base, was a key factor promoting its frequent and preferential use during Pinto times.

As for milling tools, Loechl et al. (2002:III-8H) pointed out that ground stone artifacts appear to be relatively scarce at Pinto sites found in the western Mojave Desert as compared to sites in the eastern Mojave. Evidence for this is meager at best. In fact, data from Fort Irwin (Basgall 1993; Basgall and Hall 1993, 1994a), Twentynine Palms (Basgall and Giambastiani 2000; Basgall et al. 2002; Hall 2002), and EAFB (Giambastiani and Basgall 2000) show that Pinto sites situated outside of the eastern Mojave do contain substantial amounts of milling equipment. At the Goldstone site in particular (located at Fort Irwin), no less than 191 milling stones and 36 hand stones were recovered from eight habitation loci dating primarily to the Pinto period (Basgall and Hall 1994a). In a summary of Fort Irwin milling technology, Basgall and Hall (1994b) also suggested that Pinto assemblages contain a greater ratio of milling tools to flaked stone tools (1:4) than those of any other time period. It is not clear yet whether this pattern is evident at Pinto sites aboard EAFB. It is likely that at least some of the numerous large habitation sites situated along the shorelines of Rosamond and Rogers lakes contain datable Pinto age deposits, but test excavations have not been focused at these encampments.

4.1.1.2 Late Holocene Occupations at Edwards AFB in the Antelope Valley

On the opposite end of the temporal spectrum, late Holocene sites, especially those that postdate 1500 B.P. are quite common throughout the western Mojave, in Antelope Valley (Robinson 1987; Sutton 1988, 1993), Fremont Valley (Sutton 1991), and especially at EAFB (Alcock and Torres 1995; Bupp et al. 1998; Byrd 1996; Byrd et al. 1994; Giambastiani and Basgall 1999; Taşkiran et al. 1997; Titus et al. 1997). Some late prehistoric sites at EAFB are actually

composed of multiple activity loci and artifact concentrations. For example, nine sites examined by Byrd (1996) west of Rogers Dry Lake consisted of some 39 individual loci. In the southern part of Rogers Lake, Taşkiran et al. (1997) identified 16 loci at site LAN-863; seven were tested, at least half of which are undoubtedly late Holocene manifestations. Elsewhere, two sites located in the Farm Drop Zone, LAN-1158 and LAN-1296, contain 11 loci altogether (Gross 1990), and KER-1922 at Buckhorn Springs contains 36 separate loci (Bupp et al. 1998). Many loci at late Holocene sites show considerable functional variation, with assemblages that demonstrate a focus on milling activities or stoneworking (and sometimes both) or with the presence of a light midden (Byrd 1996; Byrd et al. 1994; Taşkiran et al. 1997). Other late Holocene sites, including many with single components, are clustered around dry lakebeds, at major springs, and in upland areas where rock outcrops suitable for milling are present (Basgall and Overly 2004; Bupp et al. 1998; Byrd 1996; Byrd et al. 1994; Johnson et al. 1996). Still others are small lithic deposits left over from opportunistic lithic manufacturing or individual roasting pits; these are quite common throughout the installation (Giambastiani et al. 2006; Hale et al. 2009).

Late Holocene campsites appear to be abundant around Rogers Dry Lake (Byrd 1996; Byrd et al. 1994; Giambastiani et al. 2006; Horne and McDougall 2005; Pritchard-Parker and Puckett 2002; Pritchard-Parker et al. 1999). Numerous short-term encampments are distributed at varying distances from the current, contiguous playa shoreline, their locations presumed to reflect horizontal shifts in the lake margin and/or the former presence of temporary but productive habitats alongside interior pans and drainages. Added to the fact that many late Holocene sites contain multiple components, the late prehistoric record around Rogers Dry Lake is one that was likely generated by the regular use of lakeshore areas during seasonal abundances of plant and animal resources. This land-use pattern appears to have started sometime during the Gypsum period (4000-1500 B.P.) but peaked after 1500 B.P. Byrd et al. (1994) noted the relative dearth of known Gypsum period sites at EAFB beyond Rogers Dry Lake, citing KER-526 as evidence of an early Gypsum logistical settlement where two phases of occupation document repeated use over an extended period of time. This site is comparable to others in the area (e.g., EAFB-310; Giambastiani et al. 2008); as a group, such deposits testify to a strategy of regional settlement mobility that was perhaps tethered to fluctuations in resource productivity along the margins of the lake.

Also of interest is evidence in site assemblages for long-distance trade and/or mobility during late Holocene times. Various marine shell beads and other fragments of marine shell are common at many sites, with represented taxa including the olive snail (*Olivella biplicata*), Pismo clam (*Tivela stultorum*), abalone (*Haliotis* spp.), cockles (*Clinocardium nutallii*, *Laevicardium elatum*), and mussel (*Mytilus* spp.). Obsidian artifacts from project sites derive exclusively from the Coso Volcanic Field in eastern California, attesting to regular contact with areas to the north. The presence of many different cryptocrystalline (chert) and rhyolite materials in site

assemblages (Byrd et al. 1994) reflects a sphere of local toolstone procurement that extended up to 50 km from the eastern shore of Rogers Dry Lake. The regular occurrence of these artifacts in late Holocene sites at EAFB affords much promise for reconstructions of post-Gypsum settlement adaptations and patterns of residential mobility in the Antelope Valley.

The apparent drop in obsidian use on EAFB, implied by a decline in hydration rim readings that postdate the arrival of the bow and arrow after about 1500 B.P., is not well understood. Given the strong presence of Coso obsidian on EAFB throughout the Holocene, it is perplexing that such a quality toolstone material would be supplanted by lower quality local raw materials. It may be that the small size of most arrow points recovered in the Mojave requires much smaller raw material masses than darts, with arrow points able to be manufactured from small, non-uniform flakes (see Basgall and Giambastiani 1999, Yohe 1993). This being true, local cherts, basalts, and other materials may have been just as suitable for arrow point manufacture, especially if it avoided some possible costs associated with procuring Coso obsidian. Another contributing factor may be that the increased average success of hunters using bow and arrow technology resulted in smaller foraging radii overall, thereby decreasing annual ranges and direct access to Coso obsidian (see also Delacorte 1990). Recently, Bark (2017) sampled obsidian artifacts for sourcing and hydration analysis from multiple curated collections across Edwards AFB, finding no apparent gap in obsidian hydration readings. Bark (2017) concluded that sampling bias created a false impression of hunter-gatherer obsidian use over time and emphasized broader sampling over theoretical exploration. It remains to be seen whether Bark's (2017) study applies to a broader region than just that surrounding Edwards AFB; that is, whether or not decrease in access to Coso obsidian actually occurred in the Mojave Desert.

Finally, the effects of environmental change on prehistoric adaptations are not well understood. Gardner (2007) presented a strong case for environmental sensitivity of Mojave Desert populations, suggesting that several punctuated droughts between 1200 and 650 B.P. were sufficient to generate socioeconomic change among western Mojave aboriginal groups. Drawing on an extensive database of well-dated deposits, several technological and social shifts appear to be strongly correlated with these environmental shifts. In particular, rather than abandoning desert environments, populations intensified the exploitation of higher-cost resources and were subsequently able to support larger aggregates of people.

4.2 Historic Chronology and Refuse Disposal

Issues regarding the chronology of historical resources involve different and typically more robust datasets than for prehistoric resources, given the availability of various forms of documentation, the commonality of certain time-sensitive artifacts, and the relative ease with which such artifacts can be ascribed an age. Moreover, questions regarding the chronology and

deposition of refuse deposits can be applied to various other kinds of historical archaeological sites, given that homesites and other such resources are typically dated by refuse (EAFB 2010:C-16). Refuse deposits can also be good indicators of financial disposition, etc. The Antelope Valley witnessed various waves of settlement in the first half of the 1900's motivated by different factors, such as the availability of water (or lack thereof), transportation routes, access to supplies, etc. These waves of settlement have been thoroughly documented (see EAFB 2010; Pucket and Peyton 2008; Tetra Tech and Jones and Stokes 2004). Early settlements in the late 1800's and early 1900's were negatively affected by fluctuations in the availability of water. The next wave of settlement was truncated by the Great Depression, causing many homesteads and land patent claims to fail. Large scale regional influences, such as environment and economy, had profound effects at the household level in the Antelope Valley and creative solutions were often sought by individuals struggling for success in the Mojave Desert. Examples of such creativity include homesteaders turning to mining or mining labor, or a turn to dry-farming. Another good example is the success of illegal distilleries operating in the Antelope Valley during the Prohibition era. The relatively rich historical record provides an opportunity to understand ordinary historic period refuse deposits in a greater regional context, provided they contain sufficient data. While the composition of refuse deposits generally points to household consumption, spatial patterning of these sites across the landscape can inform on both local and non-local refuse disposal.

Despite the richness of the historical record, it is difficult to associate historic period refuse deposits to specific individuals, homesteads, land patent claims, or desert land entries because of the general lack of artifacts or features that are personalized, or that are noted in documents (see Parker 2004; Tetra Tech and Jones and Stokes 2004). As a result, the main challenge with refuse deposits is to assess the earliest possible date for deposition (based on the latest artifact for single dump points), and to determine if the location of the deposit is meaningfully associated with nearby homesites or land claims. Such information gives more interpretive potential to the assemblage in terms of composition. These kinds of data are relevant when considering changes in patterns of refuse disposal over time and whether there are differences in disposal between the different waves of settlement. In particular, if certain refuse deposits are not associated with homesites in their immediate vicinity, what motivated individuals to dispose of refuse in that particular location? More generally, what were the primary factors used to select areas for refuse disposal (i.e., ease of access, concealment, removal of waste to distant locations)? Certainly, introduction and widespread use of automobiles affected refuse disposal patterns as individuals were better able to travel greater distances to remove rubbish from homesites. The automobile probably factored large along the west shore of Rosamond Lake where individuals seeking to avoid refuse disposal fees at the municipal landfill transported rubbish to relatively distant locations (see Giambastiani et al. 2006). For the current study, emphasis is placed on the few

historic period refuse deposits that could not be avoided; unfortunately, none of these are associated with notable homesite or land patent claims and none embody a level of diversity that could enable detailed investigation.

4.3 Site-Specific Research Questions

Beyond the broader topics already touched on, evaluation data can be used to address a range of questions specific to individual sites. Many such questions can be divided into several main themes that are relevant to prehistoric and/or historic archaeological sites.

4.3.1 Chronology

Judging by the size and diversity of their assemblages, both of the prehistoric sites tested during the current project appear to represent relatively short-term occupations. Chronological indicators were provisional, limited to inferences about technological attributes, and perhaps evidence of artifact weathering; though a few radiocarbon dates were obtained but have not been processed yet. Evaluated historical sites (all refuse deposits) contain artifacts that together represent broad time frames indicating the dump events were composed of materials from mixed occupations. Because chronological controls are essential to any archaeological investigation, it is important to ask a few basic questions concerning the temporal data potential of evaluated sites:

- Can the chronological placement of project sites be determined with Phase I or II data?
- What kinds of chronometric data can project sites provide? Of those obtained during survey and testing, how well do they correlate in terms of the age estimates they provide (e.g., projectile point types versus obsidian hydration dates)?
- Are there data indicating the presence of multiple occupation episodes at project sites?
- Do marker artifacts appear to fit with temporal patterns recognized in the region? Are there any unique diagnostic items present?
- Can chronometric data from project sites help to refine local dating schemes?

4.3.2 Technology, Subsistence, and Settlement Organization

In examining prehistoric sites, the study of lithic technologies (flaked and ground stone) often provides clues to the placement of sites within associated subsistence-settlement regimes and offers insight to the various functions and emphases of site occupations. At historical sites, the kinds of artifacts present, the activities they represent, and their overall proportions can give some indication of where refuse originated, by whom it was generated, and why it was abandoned at its place of discard. Among many others, the following questions apply:

- What kinds of manufacturing and tool use activities are represented at the prehistoric sites in the project area?
- What can be inferred from the composition of lithic assemblages about the kinds of resources and habitats exploited by the site inhabitants?
- Do observed lithic technologies at prehistoric sites have any implications for residential mobility and settlement ranges? What does the lithic material profile indicate about the source origins and how raw materials might have arrived at the project sites?
- What is the nature of refuse at historic sites? Are proportions of consumptive, household, industrial, and other artifacts substantial enough to derive context of origin(s)?
- Are any maker's marks on historical artifacts indicative of specific places of manufacture? Do they provide any information about where particular goods might have been purchased or otherwise obtained?

4.3.3 Structure and Integrity of Cultural Deposits

Data bearing on the temporal and physical integrity of project sites are critical to assessments of significance, data potential, and management needs. The degree to which temporally discrete components remain, in accordance with their structural integrity, must be considered in making recommendations for future investigations and/or resource protection. To the extent that site integrity enhances or devalues the interpretive potential of a cultural deposit, it may contribute to or detract from its scientific value:

- Do inclusive chronometric data from the project sites permit the identification and definition of temporally and/or spatially discrete prehistoric occupations or historic dumps?
- Are the definitions of discrete components supported by multiple, independent chronological controls, and if so, how similar are their age estimates?
- Is there substantial evidence of occupational "overprinting"? How has this affected the temporal integrity of habitation components or refuse deposits?

4.4 Inventory Methods

Dudek reviewed the previous survey work and associated reports completed in the APE, and conducted an intensive-level pedestrian survey of the five gen-tie connection options (North–South Gen-Tie Route Option 1, North–South Gen-Tie Route Option 2, East-West Gen-Tie Route Option 1-A and East-West Gen-Tie Route Option 1-B). North–South Gen-Tie Route Options 1 and 2. The East-West Gen-Tie Route was shown to be recently surveyed, so resources along the alignment were spot-checked. Although North–South Gen-tie Route Option 3 is no longer under

consideration, the results of the investigation are included for the purpose of providing a complete cultural inventory for the proposed project.

4.4.1 Background Research

On April 21 and May 15, 2017, Dudek completed a search of the California Historical Resources Information System (CHRIS) at the Southern San Joaquin Valley Information Center (SSJVIC), located on the campus of California State University, Bakersfield. This search included mapped prehistoric, historical, and built-environment resources; Department of Parks and Recreation (DPR) site records; technical reports; archival resources; and ethnographic references. Additional consulted sources included historical maps of the project site, the NRHP, the CRHR, the California Historic Property Data File, and the lists of California State Historical Landmarks, California Points of Historical Interest, and the Archaeological Determinations of Eligibility.

4.4.2 Cultural Resources Pedestrian Survey

Dudek Archaeologists conducted the intensive-level pedestrian survey in February and November, 2017 using standard archaeological procedures and techniques. All field practices met the Secretary of Interior's standards and guidelines for a cultural resources inventory. The intensive-level survey methods consisted of a pedestrian survey conducted in parallel transects spaced no more than 15 meters apart over the entire project site. Deviations from transects only occurred in areas containing steep slopes, dense vegetation, or impassible natural features. Within each transect, the ground surface was examined for prehistoric artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, ceramics, fire- affected rock), soil discoloration that might indicate the presence of a cultural midden, soil depressions, features indicative of the current or former presence of structures or buildings (e.g., standing exterior walls, post holes, foundations), and historic artifacts (e.g., metal, glass, ceramics, building materials). Ground disturbances such as burrows, cut banks, and drainages were also visually inspected for exposed subsurface materials. No artifacts were collected during the surveys.

Where cultural materials were encountered, Dudek collected all data necessary to complete the appropriate State of California DPR 523 series forms. Following California Office of Historic Preservation (OHP) guidelines, any cultural material more than 45 years old was recorded as an archaeological site, built environment resource, or isolate, as appropriate. All fieldwork was documented using field notes and iPad technology with close-scale field maps, and aerial photographs. Location-specific photographs were taken using an Apple 3rd Generation IPad equipped with 8 mega-pixel (MP) resolution and georeferenced PDF maps of the project site. Accuracy of this device ranged between 3 and 10 meters. All field notes, photographs, and records related to the current study are on file at Dudek's Pasadena, California office. These locations are

presented in confidential Appendix A. Groups of three (3) or more artifacts in a 50-meter diameter area, as well as any solitary fence posts or other such markers, isolated hearths, rock cairns, rock rings, rock alignments, trails, rock art, bedrock milling features, and whole millingstones, were classified as prehistoric or historic period sites. Finds of one or two artifacts were recorded as isolates. Sites were classified according to the site type definitions contained in Appendix P of the Operations Manual. However, not all site types were identified during the inventory. Generally, archaeological sites within the study area include non-military historic period sites (refuse deposits, homesites, agricultural features, ranching features, mining-related sites, and other miscellaneous types), historic period military sites (aircraft crash sites, targets, encampments, non-aboriginal human remains, and other types), and prehistoric sites (temporary camps, lithic deposits, ceramic deposits, individual features such as cairns, and cremated human remains).

Sites and isolates were given temporary field numbers using the prefix "SS" along with the designation "S" for site and "I" for isolate. The numbering system is continuous for the archaeological sites and isolates, with assignment of field numbers as the survey progressed. Finds of one or two artifacts were recorded as isolates.

Following fieldwork, DPR 523 series forms were prepared for all newly recorded resources, including primary record, archaeological site record, location map, sketch map forms, and additional forms as needed. All completed DPR forms are presented herein as Appendix B. DPR forms for all newly recorded archaeological resources will be submitted to the SSJVIC, which will issue primary numbers for all newly recorded resources and trinomials for all newly recorded archaeological sites.

4.5 Evaluation Methods

Where archaeological sites were identified that could not be avoided through project design changes or other means, archaeological significance evaluation was completed to understand the significance of the impacted resources under CEQA and Section 106, and to provide appropriate management recommendations for further treatment. Site testing was completed from February 26 through March 2, 2018.

Evaluation methods were designed to be consistent with the goals and directives for fieldwork outlined in the EAFB ICRMP, which are also applicable to the overall Edwards Gentie project (EAFB 2009). The primary goal of field and analytical methods in the ICRMP is to generate data relevant for evaluating historical significance and eligibility for NRHP listing of prehistoric and historic cultural resources. Notwithstanding modifications of terminology to suit the ICRMP, the field and lab methods have been developed and honed over decades of study in the Mojave Desert (see Basgall 1993; Basgall and Giambastiani 2000; Giambastiani and Basgall 1999; Hall 1993,

McGuire and Hall 1988). In general, the methods derive from prehistoric research but the theoretical underpinnings are flexible enough to have been adapted for historic site evaluation. A heavy emphasis on surface inventories—also echoed in the ICRMP—is well suited to desert cultural deposits that are commonly aggregated in surface or near-surface contexts due to prolonged or accelerated erosion. Subsurface methods—while standard practice for NRHP evaluations—were designed to accommodate the range of depositional variability that can be encountered in desert contexts. In all, the methods employed herein achieved data requirements for CRHR and NRHP evaluations while affording a kind of flexibility that allowed for reactionary allocation of field effort to maximize data potential of unanticipated deposits or assemblage constituents.

Within the confines of available field methodologies, none were necessarily excluded as possibilities for use at historic period sites. However, in keeping with the evaluation by Hale et al. (2010), fieldwork levels for evaluated HPRDs were limited to surface analysis and the collection of unique diagnostic artifacts. Excavations at HPRDs were limited to sites with the potential for buried deposits, or that appeared to have overlapping dumping episodes. HPRDs were sparse accumulations of historic debris with limited diversity and little to no potential for subsurface deposits. More intensive excavations would have generated redundant data and would not likely have discovered unique artifacts or changed significance evaluations. The surface analysis focused on recording morphology, condition, technology, and function of each artifact class. Interpretations of the analytical data derived from a functional perspective; one that considered the economics of consumption through patterns of artifact discard. This is not dissimilar to the interpretation of prehistoric artifacts, keeping in mind the idea that socioeconomic adaptation was built on utilitarian technologies.

The basic laboratory and analytical methods used to treat project site collections include post-field processing, cataloging, standard artifact analysis, artifact-specific analysis, and special studies. The analysis of historical artifacts was directed toward placing artifacts into broad functional and temporal classes. This was accomplished using classificatory and dating schemes contained in the Intermountain Antiquities Computer System (IMACS) handbook and in various other references concerning the identification, manufacture, and dating of historical artifacts (e.g., Fike 1987; Godden 1964; Newman 1970; Rock 1987; Toulouse 1971; Wilson and Wilson 1968). Bottle websites (such as that of BLM) and other online resources were also used to identify maker's marks and manufacturing styles. While artifact recovery generally focused on the collection of diagnostic items, other small refuse such as glass, nails, and ceramics was recovered, identified, classified, and analyzed either individually or in batches as deemed appropriate. Such bulk refuse was not curated unless it represented a unique artifact class.

Upon arriving at each tested site, the first task was to relocate the site datum in order to confirm that survey crews were on the correct site, and to relocate any items, deposits, or features identified

during survey. Next, a systematic surface inspection was performed to relocate artifacts and features identified during the survey and to delineate site boundaries. This was completed by a thorough traverse of the site and by marking artifacts and features with pin-flags. Formed artifacts (e.g., flaked and ground stone tools, pottery, beads) were double flagged with a blue flag; unmodified flakes were flagged with single flags of any color other than blue. Any concentrations of artifacts or features were triple-flagged in multiple colors. Pin-flags were also used to denote the edges of lithic concentrations and occupational loci within site boundaries.

Once a prehistoric site was adequately flagged, it was subjected to some form of surface collection and/or inspection. Sites containing some minimum density of surface artifacts in a concentrated area were sampled with Controlled Surface Collection (CSC) units; also known as Surface Recovery Units (SRUs) on Edwards AFB. The minimum size of a CSC collection cell is 5-x-5-m; additional or adjacent cells were typically labeled with a letter (i.e., A, B, etc.) under the same CSC number while Discontiguous cells were given a new CSC number. CSCs are flexible units, allowing for detailed mapping, or collection depending on field conditions and constraints. Controlled inventory using CSCs was intended to supplement the collection of all artifacts located outside these units. Where artifact densities were too low to warrant a CSC, situations, general “grab sample” collections were made to supplement individually collected piece plots. Grab samples are simply general surface collections that do not record individual artifact provenience. Given the nature of both evaluated prehistoric sites, the number of CSCs was low, as were the numbers of collected artifacts in general.

Excavations generally proceeded in two stages. First, where cultural deposits were expected to have at least moderate depth, a series of exploratory shovel test pits (STPs) was allocated to better gauge the horizontal extent of buried deposits, to identify any zones of artifact density, and to expose and compare depositional strata across and between sites. From one to a few of these units, each measuring .5-x-.25-m in size, were allocated according to the size of each site, the presence of sedimentary depth, and overall artifact yields. All STPs were excavated in arbitrary 20-cm levels to minimum depths of 60 cm, or until culturally sterile strata were encountered. STPs were also used to test sites boundaries providing a better understanding of subsurface distribution from a management perspective. Where STPs showed the presence of relatively dense artifact deposits, standard Test Units (TUs) were excavated adjacent to or near productive STPs in order to continue investigations in those areas. These were 1-x-.5-m units, excavated in arbitrary 10-cm levels, to depths varying between 10 and 120 cm, depending on rates of artifact recovery. At sites where cultural deposits were obviously surficial, larger surface scrape units (SSUs) measuring anywhere from 1-x-1 to 2-x-2-m in size were excavated in order to augment artifact recovery by removing greater volumes of shallow cultural matrix. All excavated deposit soils, regardless of unit size or depth, was screened through 1/8-in. (3 mm) mesh. Typically, most of the excavated sites were terminated between 20 and 40 cm below the ground surface, when either a hard-pan surface or a calcareous B-horizon was

encountered. Unit sidewall profiles were drawn and photographed where appropriate, with small soil samples being taken for Munsell color comparisons and constituent classification. All recovered cultural materials were collected and returned to the Dudek laboratory for processing and analysis.

Each site was also mapped using a Trimble Pathfinder GPS receiver to plot all formed artifacts, surface collection units, excavation units, and the boundaries of any defined loci and features. GPS was also used to record site boundaries, landform edges, drainages, roads, and areas demonstrating civilian impacts. In addition to mapping, a series of overview photographs was taken to show the site landscape setting. Detail photographs were also taken of features or other site attributes when appropriate.

Historic period refuse deposits were evaluated with a mixed approach. As was obvious from the geologic setting, historic period sites lacked subsurface deposits and have small to moderate quantities of redundant surface artifacts, often occurring as singular, well-defined artifact concentrations. The extensive collection of these artifacts was neither desirable nor necessary, and in-field recording was used instead to recover functional and temporal data from surface scatters. In rare circumstances, the excavation of an STP was required to determine the presence of buried artifacts from possible overlapping dump events. The limited nature and obvious geologic setting at the current set of historic sites warranted reduced levels of work similar to those evaluated by Hale et al. (2009), but unlike evaluation programs by Giambastiani et al. (2007, 2008).

CSCs were not used at HPRDs because they would generate too many items of a redundant nature. For this reason, surface collections at historical sites were limited to piece-plot recovery. It was also possible to obtain needed functional and temporal data through detailed surface inventories for glass, cans, ceramics, and other kinds of artifacts. These inventories included the documentation of legible maker's marks, counts of specific artifact types, and functional assessments where warranted.

As for excavation procedures, STPs were rarely used at historical sites because they were all sparse, surficial artifact deposits. One reason for this is because most historical refuse deposits are relatively rich in surface artifacts, particularly small constituents like glass shards, nails, wood, bits of metal, charcoal, and other similar remains. In most cases, surface inventories and piece plot collection sufficed. Where excavation was necessary, only STPs were needed to test for buried materials not evident on the surface. For the most part, the use of in-field inventories reduced the overall need for artifact recovery, in that many items (like cans) were of the same manufacturing type and age and others (like glass shards) provide comparatively few data by themselves.

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5 RESULTS

5.1 Inventory Results

5.1.1 Background Research

5.1.1.1 Previously Conducted Cultural Resource Studies

The SSJVIC records indicate that between 1977 and 2013, 29 previous cultural resources technical investigations have been conducted that are within, immediately adjacent to, or cross the APE (Confidential Appendix C). Of these 29, nine previous studies have been completed since 2010 (KE-3777, -4247, -4159, -4260, -4276, -4359, -4633, -4648, and -4649). Two of these (KE-04276 and -04359) overlap the northwest third of North–South Gen-Tie Route Option 3 while the remaining seven (KE-3777, -4247, -4159, -4260, -4633, -4648, and -4649) intersect, or overlap, the East-West Gen-Tie Route (Options 1-A and 1-B). All 29 technical investigations are summarized in Table 3.

Table 3
Previous Technical Studies Within the Project APE

Report Number (KE-)	Authors	Date	Title	APE Component
KE-00276	Robinson, R. W.	1977	A Cultural Resources investigation associated with the Mojave Public Utility District's Sewage Treatment Facility	North-South (N-S) Option 1
KE-00423	Garfinkel, Alan P. and Kerbavaz, Joanne	1983	Negative archaeological survey report DOT- 09-KER-14, PM 12.6/16.1, Charge Unit 09-201, EA 204-300	East-West (E-W) and N-S Option 3*
KE-00888	Proctor, Martha and Edell, Jack	1986	Negative Archaeological Survey Report for Widening Route 14 from P.M. 12.6 to 16.1- Also Water Line Easement	E-W and N-S Option 3*
KE-01769	Weigel, Lawrence E., McManus, James, and Schuster, Terry	1986	Negative Archaeological Survey Report for Soil Removal	N-S Option 2
KE-01278	Schiffman, Robert A.	1987	Archaeological Investigation for Sea West's 427 Acre Wind Energy Farm Along Oak Creek Pass Road, Kern County, California	E-W
KE-00804	Parr, Robert E.	1989	Archaeological Assessment of a Proposed Residential and Commercial Center Near the City of Mojave, Kern County, California	N-S Option 1 and N-S Option 2
KE-00013	Schiffman, Robert A.	1990	Archaeological Investigation of Parcel Map #9486 and Parcel Map #9271 Section I, Township 10N, Range 12W. Kern County, California	N-S Option 1

Table 3
Previous Technical Studies Within the Project APE

Report Number (KE-)	Authors	Date	Title	APE Component
KE-00470	Hanna, David C. and Cheever, Dayle M.	1990	An Archaeological Survey of the Camelot Specific Plan Amendment, a 160-Acre Property in Mojave, Kern County, California	E-W
KE-00633	Macko, Michael E., Binning, Jeanne D., Earle, David D., and Langenwalter, Paul E.	1993	National Register Eligibility Determinations for Historic Resources Along the Proposed AT&T Lightguide System, Victorville to Bakersfield, California	E-W
KE-01028	Unknown	1996	Cultural Resources Investigation Pacific Pipeline Emidio Route (Including West Liebre Gulch Ridge Alignment and Mojave Alternatives) L.A. and Kern Counties, CA	E-W and N-S Option 3*
KE-01902	Whitley, David S. and Simon, Joseph M.	1996	Phase II Test Excavations and Determinations of Significance at CA-KER- 4693H and -4695H, Soledad Mountain, Mojave, Kern County, California	N-S Option 3*
KE-02323	Demos-Petropoulous, Francine, McGowan, Dana, Scott, Barry, O'Brien, Teresa, Norton, Bill, and Rause, Wendy	1999	Cultural Resources Inventory Report for the AT&T Corp. Cable Upgrade Project, Los Angeles, Kern, and San Luis Obispo Counties, California	N-S Option 1
KE-02678	Schiffman, Robert A.	2002	Archaeological Investigation for Parcel Map No. 10787, Kern County, California	N-S Option 2
KE-03085	Fleagle, Dorothy	2005	A Cultural Resources Assessment for Approximately 500 Acres for the Mojave/Rosamond Sanitary Landfill Addition Northeast of the Existing Landfill, South of Mojave, Kern County, California	N-S Option 1
KE-03387	Schiffman, Robert A. and Gold, Alan P.	2006	Cultural Resource Survey for a 310 Acre Parcel Near the Intersection of Purdy Avenue and United Street Near the City of Mojave, Eastern Kern County, California	E-W
KE-03387	Schiffman, Robert A. and Gold, Alan P.	2006	Cultural Resource Survey for a 310 Acre Parcel Near the Intersection of Purdy Avenue and United Street Near the City of Mojave, Eastern Kern County, California	N-S Option 2
KE-03534	Nilsson, Elena, Bevill, Russel, Kelly, Michael S., and Dwyer, Erin	2006	Archaeological Inventory of the First and Second Los Angeles Aqueducts and Selected Access Roads, Kern, Inyo, and Los Angeles Counties, CA	E-W
KE-03490	Hudlow, Scott M.	2007	A Phase I Cultural Resource Survey for AERO Energy Wind Power Project, Application 4, Kern County, California	E-W

Table 3
Previous Technical Studies Within the Project APE

Report Number (KE-)	Authors	Date	Title	APE Component
KE-03600	Pruett, Catherine Lewis	2009	A Cultural Resources Assessment of Approximately 40 Acres Southwest of Mojave, Kern County, California	E-W
KE-04053	Lawson, Natalie	2009	Cultural Resources Inventory Report for the Alta Oak Creek Mojave Wind Project, Kern County, California	E-W
KE-03777	Palm-Leach, Laura, Brandy, Paul, King, Jay, Mikkelsen, Pat, Seil, Libby, Hartman, Lindsay, Bradeen, Jill, Larson, Bryan, Freeman, Joseph, Costello, Julia, Rosenthal, Jeffrey, and Jones, Deborah	2010	Cultural Resources Inventory of Caltrans District 6 Rural Conventional Highways in Fresno, Western Kern, Kings, Madera, and Tulare Counties Summary of Methods and Findings	E-W
KE-04247	Lawson, Natalie and Cardenas, Gloriella	2010	Class III Cultural Resources Survey of the North Sky River Wind Energy Project, Kern County, California.	E-W
KE-04159	Cardenas, Gloriella	2011	Cultural Resources Inventory Report for the Alta Infill II Wind Energy Project Project, Kern County, California	E-W
KE-04260	Hudlow, Scott M.	2011	A Phase I Cultural Resource Survey for Seven Kern Desert Solar Farm Sites, Kern County, California	E-W
KE-04276	Schmidt, James	2012	Archaeological Survey Report for Southern California Edison Company's EKWRA Telecommunications Subtransmission Line Project Corridor on Bureau of Land Management Parcels Near Mojave, Kern County, California.	N-S Option 3*
KE-04359	Ramirez, Robert, Hunt, Kevin, and Haas, Hannah	2013	Addendum Report: Phase I Cultural Resources Survey for the RE Columbia Two Solar Project, Mojave, Kern County, California	E-W and N-S Option 3*
KE-04633	Hoffman, Laura and Denniston, Liz	2013	Cultural and Paleontological Resources Monitoring and Discovery Report for the RE Columbia 3 LLC Solar Facility Project, Kern County, California	E-W
KE-04648	Ramirez, Robert, Haas, Hannah, and Hunt, Kevin	2014	Cultural Resources Study for RE Clearwater Solar Project, Mojave, Kern County, California	E-W
KE-04649	Ramirez, Robert, Daitch, David, and Hunt, Kevin	2015	Archaeological and Paleontological Monitoring Report for the Camelot Solar Project, Mojave, Kern County, California	E-W

* Removed from consideration

5.1.1.2 Previously Recorded Cultural Resources

The SSJVIC records indicate that 33 cultural resources have been recorded within, immediately adjacent to, or intersecting the project APE (Confidential Appendix C). These 33 consist of 28 historic-era resources (7 archaeological sites, 9 historic built environment resources, and 12 historic isolates) and 5 prehistoric resources (3 prehistoric sites and 2 prehistoric isolates).

The 7 historic sites consist of 5 historic trash scatters, 1 survey marker, and 1 borrow pit with structural remains. Historic built environment resources (n=9) include 6 road segments, 1 transmission line, 1 railroad segment, and the Los Angeles Aqueduct. Prehistoric sites identified consist of 3 lithic scatters, and 1 quarry site.

Of the 33 resources previously recorded: one has been determined eligible for listing in the NRHP with concurrence from the SHPO (P-15-003549/CA-KER-3549H: Los Angeles Aqueduct) and two (P-15-003929/CA-KER-3929H: LA-Owens River Road and P-15-002050/P-15-003366/P-15-000560/ CA-KER-2050H: Union Pacific Railroad) appear eligible for the CRHR and NRHP through survey evaluation, although no formal evaluation has been made. The 14 isolated finds are not eligible for the CRHR or NRHP by definition, and the 16 remaining resources have not been evaluated for the CRHR or NRHP. Details pertaining to all 33 resources, including current conditions, are provided below in Table 4, organized by alignment option.

Table 4
Previously Recorded Cultural Resources Within the Project APE

Primary Number (P-15-)	Trinomial (CA-KER-)	Period	NRHP/CRHP Status	Recorded By/Year	Description	Current Condition	APE Component
003528	3528H	Historic	7R (Identified in Survey; Not evaluated)	2014 (Way, K. R., R. Dinarte, and A. Ginther); 2012 (Ineligible on site form); 2010 (Hudlow, Scott); 1993 (Macko, M.)	Unnamed road	No change from 2010 assessment	East-West (E-W)
003534	3534H	Historic	7R (Identified in Survey; Not evaluated)	2013 (C. Higgins et al.); 1993 (Macko, M)	Unnamed road	No change from 2010 assessment	E-W
003537	3537	Historic	7R (Identified in Survey; Not evaluated)	2010 (Lawson, N.); 1993 (Macko, M.)	Oak Creek Road	No change from 2010 assessment	E-W

Table 4
Previously Recorded Cultural Resources Within the Project APE

Primary Number (P-15-)	Trinomial (CA-KER-)	Period	NRHP/CRHP Status	Recorded By/Year	Description	Current Condition	APE Component
003549	3549H	Historic	2B (Determined eligible)	2015 (Newcomb, Alyssa and R. Knierim); 2013 (Kellawan, R., D. Martinez, and C. Connolly); 2010 (Fergusson, H. Calicher, R. rolston, N. Lannon); 2009 (Helvin, Steven, and Rebecca Flores)	Los Angeles Aqueduct	No change from 2010 assessment	E-W
003929	3929H	Historic	3D (Appears eligible as contributor)	1999 (Byrd, David); 1997 (Van Bueren, Thad); 1993 (Costello, J., J. Marvin, and C. Brownson); 2000 (Underwood, J.); 1993 (Costello, J. and J. Marvin); 1993 (Macko, M.)	Freighter route/LA-Owens River Road	No change from 2010 assessment	E-W
012716	7174H	Historic	7R (Identified in Survey; Not evaluated)	2002 (Brown, Brad)	Borrow pit and structural remains	No change from 2010 assessment	E-W
013683	--	Prehistoric	6Z (Found ineligible through survey evaluation)	2008 (McCormick, S.)	Isolate: flake	Could not be relocated	E-W
013814	--	Historic	6Z (Found ineligible through survey evaluation)	2010 (Smolik, K.)	Isolate: can	No change from 2010 assessment	E-W
013963	--	Historic	6Z (Found ineligible through survey evaluation)	2009 (Lawson, N., C. Calicher, R. Harmon, E. Peters, and R. Rolston)	Isolate: can and steel bucket	No change from 2010 assessment	E-W
014700	8266	Prehistoric	7R (Identified in Survey; Not evaluated)	2009 (Harmon, R., H. Calicher and E. Peters)	Lithic scatter	No change from 2010 assessment	E-W
014701	8267	Prehistoric	7R (Identified in Survey; Not evaluated)	2009 (Ineligible on record)	Quarry or prospect site	No change from 2010 assessment	E-W

Table 4
Previously Recorded Cultural Resources Within the Project APE

Primary Number (P-15-)	Trinomial (CA-KER-)	Period	NRHP/CRHP Status	Recorded By/Year	Description	Current Condition	APE Component
015544	--	Historic	7R (Identified in Survey; Not evaluated)	2011 (Candenas, Glonella)	1934 Survey Marker	No change from 2010 assessment	E-W
017096	--	Historic	7R (Identified in Survey; Not evaluated)	2011 (Maier, E. and Lambert, K.)	Trash scatter of cans and glass	No change from 2010 assessment	E-W
017097	--	Historic	7R (Identified in Survey; Not evaluated)	2011 (Maier, E. and Lambert, K.)	Trash scatter of cans and glass	No change from 2010 assessment	E-W
017098	--	Historic	7R (Identified in Survey; Not evaluated)	2011 (Maier, E. and Lambert, K.)	Trash scatter of cans and glass	No change from 2010 assessment	E-W
017119	--	Historic	6Z (Found ineligible through survey evaluation)	2011 (Rolston, R., J. McDermott, and K. Lambert)	Isolate: can	Could not be relocated	E-W
017121	--	Historic	6Z (Found ineligible through survey evaluation)	2011 (Rolston, R., J. McDermott, and K. Lambert)	Isolate: can	No change from 2010 assessment	E-W
017305	--	Historic	7R (Identified in Survey; Not evaluated)	2013 (Lucas, T. and C. Higgins)	State Route 14/ Aerospace Highway	No change from 2010 assessment	E-W
018681	10204H	Historic	7R (Identified in Survey; Not evaluated)	2014 (Dice, Michael)	LADWP Owens Gorge 230kV transmission line	No change from 2010 assessment	E-W
002050/003366/000560/017333	2050H	Historic	3CD (Appears eligible for CR as contributor)	2009 (Calicher, H., R. Rolston, N. Lawson)	Union Pacific Railroad and associated spurs	No change from 2010 assessment	E-W North-South (N-S) Option 1

Table 4
Previously Recorded Cultural Resources Within the Project APE

Primary Number (P-15-)	Trinomial (CA-KER-)	Period	NRHP/CRHP Status	Recorded By/Year	Description	Current Condition	APE Component
013801	7736H	Historic	7R (Identified in Survey; Not evaluated)	2010 (Blotner, N., K. Smolik, S. Clowery)	Trash scatter of metal, glass, butchered bone	No change from 2010 assessment	N-S Option 2
013802	--	Historic	7R (Identified in Survey; Not evaluated)	2010 (Blotner, N., K. Smolik, S. Clowery)	Trash scatter of glass	No change from 2010 assessment	N-S Option 2
013806	--	Historic	6Z (Found ineligible through survey evaluation)	2010 (Smolik, K., N. Blotner)	Isolate: can	Could not be relocated	N-S Option 2
013807	--	Historic	6Z (Found ineligible through survey evaluation)	2010 (Smolik, K., N. Blotner)	Isolate: can	No change from 2010 assessment	N-S Option 2
013808	--	Historic	6Z (Found ineligible through survey evaluation)	2010 (Smolik, K., N. Blotner)	Isolate: can	Could not be relocated	N-S Option 2
013809	--	Historic	6Z (Found ineligible through survey evaluation)	2010 (Smolik, K., N. Blotner)	Isolate: can	No change from 2010 assessment	N-S Option 2
013810	--	Historic	6Z (Found ineligible through survey evaluation)	2010 (Smolik, K., N. Blotner)	Isolate: bottle base	Could not be relocated	N-S Option 2
013811	--	Historic	6Z (Found ineligible through survey evaluation)	2010 (Smolik, K.)	Isolate: can	Could not be relocated	N-S Option 2
013812	--	Historic	6Z (Found ineligible through survey evaluation)	2010 (Smolik, K.)	Isolate: can	Could not be relocated	N-S Option 2
000807	--	Prehistoric	7R (Identified in Survey; Not evaluated)	1974 (Eggers, A.V.)	Lithic scatter	No change from 2010 assessment	N-S Option 3*
004763	--	Historic	7R (Identified in Survey; Not evaluated)	2001 (Glennon)	Sierra Highway	No change from 2010 assessment	N-S Option 3*

Table 4
Previously Recorded Cultural Resources Within the Project APE

Primary Number (P-15-)	Trinomial (CA-KER-)	Period	NRHP/CRHP Status	Recorded By/Year	Description	Current Condition	APE Component
004764	--	Prehistoric	6Z (Found ineligible through survey evaluation)	1995 (Samuelson, Ann, Bryan Mischke, John Yelding-Slone, and Charlene Gross)	Isolate: lithic core	Could not be relocated	N-S Option 3*
004765	--	Historic	6Z (Found ineligible through survey evaluation)	1995 (Samuelson, Ann, Bryan Mischke, John Yelding-Slone, and Charlene Gross)	Isolate: Glass insulator	No change from 2010 assessment	N-S Option 3*

* Removed from consideration

5.1.1.3 Cultural Resources Survey

Dudek conducted intensive-level pedestrian surveys of 241.2 acres of the APE. Visits to sites recorded during the 2010 field effort exhibited little to no change in existing conditions. Transects were spaced 15 meters (45 feet) apart. Visibility in the APE was excellent, averaging over 90%. Although some seasonal grasses were present and obscured the view slightly, archaeologists generally had excellent visual access to the APE. In many cases, artifacts found were partially buried as a result of natural alluvial and aeolian processes. Shallowly and partially buried surface deposits are anticipated because of the relatively active nature of this alluvial plain. The very dry sediments and frequent high winds indicate the possible, though unlikely, presence of substantial intact, subsurface archaeological resources in the APE. However, intentionally buried deposits (such as refuse dumps) associated with identified historic archaeological sites in the general vicinity may be present.

Of the 313.9-acre APE, 115.2 acres were spot-checked and 198.7 acres were intensively surveyed in February and November, 2017. Visits to sites recorded during the 2010 field effort exhibited little to no change in existing conditions. As a result of these investigations, a total of 49 resources (33 previously-recorded and 16 newly recorded) were identified within the project APE. These resources included 18 isolates, 22 archaeological resources, and 9 built environment resource. It was determined that 7 of these 49 resources would potentially be impacted by the proposed project. All 49 resources identified within the APE are detailed in Table 5.

Table 5
Archaeological Site Management Recommendations

APE Component	Temporary Number	Primary Number (P-15-)	Site Type	Time Range	Significance/ Eligibility Status	Impact
East-West (E-W)	--	003528	Unnamed road	Historic	7R (Identified in Survey; Not evaluated)	No Impact
E-W	--	003534	Unnamed road	Historic	7R (Identified in Survey; Not evaluated)	No Impact
E-W	--	003537	Oak Creek Road	Historic	7R (Identified in Survey; Not evaluated)	No Impact
E-W	--	003549	Los Angeles Aqueduct	Historic	2B (Determined eligible)	No Impact
E-W	--	003929	Los Angeles-Owens River Road	Historic	3D (Appears eligible as contributor)	No Impact
E-W	--	012716	Borrow pit and structural remains	Historic	7R (Identified in Survey; Not evaluated)	impacted
E-W	--	013683	Isolate: flake	Prehistoric	6Z (Found ineligible through survey evaluation)	No Impact
E-W	--	013814	Isolate: can	Historic	6Z (Found ineligible through survey evaluation)	No Impact
E-W	--	013963	Isolate: can and steel bucket	Historic	6Z (Found ineligible through survey evaluation)	No Impact
E-W	--	014700	Lithic scatter	Prehistoric	7R (Identified in Survey; Not evaluated)	No Impact
E-W	--	014701	Quarry or prospect site	Prehistoric	7R (Identified in Survey; Not evaluated)	No Impact
E-W	--	015544	1934 Survey Marker	Historic	7R (Identified in Survey; Not evaluated)	No Impact
E-W	--	017096	Trash scatter of cans and glass	Historic	7R (Identified in Survey; Not evaluated)	impacted
E-W	--	017097	Trash scatter of cans and glass	Historic	7R (Identified in Survey; Not evaluated)	No Impact
E-W	--	017098	Trash scatter of cans and glass	Historic	7R (Identified in Survey; Not evaluated)	No Impact
E-W	--	017119	Isolate: can	Historic	6Z (Found ineligible through survey evaluation)	No Impact
E-W	--	017121	Isolate: can	Historic	6Z (Found ineligible through survey evaluation)	No Impact

Table 5
Archaeological Site Management Recommendations

APE Component	Temporary Number	Primary Number (P-15-)	Site Type	Time Range	Significance/ Eligibility Status	Impact
E-W	--	017305	State Route 14/Aerospace Highway	Historic	7R (Identified in Survey; Not evaluated)	No Impact
E-W	--	018681	LADWP Owens Gorge 230kV transmission line	Historic	7R (Identified in Survey; Not evaluated)	No Impact
E-W	SS-I-04	--	Isolate: lithic	Prehistoric	6Z (Found ineligible through survey evaluation)	No Impact
E-W	SS-I-14	--	Isolate: glass	Historic	6Z (Found ineligible through survey evaluation)	No Impact
E-W	SS-S-11	--	Trash scatter of cans	Historic	7R (Identified in Survey; Not evaluated)	impacted
E-W, North-South (N-S) Option 1	--	002050/003366/000560/017333	Union Pacific Railroad and associated spurs	Historic	3CD (Appears eligible for CR as contributor)	No Impact
N-S Option 1	SS-S-10	--	Lithic scatter	Prehistoric	7R (Identified in Survey; Not evaluated)	Impacted
N-S Option 1	SS-S-23	--	Trash scatter of cans	Historic	7R (Identified in Survey; Not evaluated)	Impacted
N-S Option 1	SS-S-30	--	Lithic scatter	Prehistoric	7R (Identified in Survey; Not evaluated)	Impacted
N-S Option 2	--	013801	Trash scatter of metal, glass, bone	Historic	7R (Identified in Survey; Not evaluated)	Impacted
N-S Option 2	--	013802	Trash scatter of glass	Historic	7R (Identified in Survey; Not evaluated)	Impacted
N-S Option 2	--	013806	Isolate: can	Historic	6Z (Found ineligible through survey evaluation)	No Impact
N-S Option 2	--	013807	Isolate: can	Historic	6Z (Found ineligible through survey evaluation)	No Impact
N-S Option 2	--	013808	Isolate: can	Historic	6Z (Found ineligible through survey evaluation)	No Impact
N-S Option 2	--	013809	Isolate: can	Historic	6Z (Found ineligible through survey evaluation)	No Impact
N-S Option 2	--	013810	Isolate: bottle base	Historic	6Z (Found ineligible through survey evaluation)	No Impact

Table 5
Archaeological Site Management Recommendations

APE Component	Temporary Number	Primary Number (P-15-)	Site Type	Time Range	Significance/ Eligibility Status	Impact
N-S Option 2	--	013811	Isolate: can	Historic	6Z (Found ineligible through survey evaluation)	No Impact
N-S Option 2	--	013812	Isolate: can	Historic	6Z (Found ineligible through survey evaluation)	No Impact
N-S Option 3*	--	000807	Lithic scatter	Prehistoric	7R (Identified in Survey; Not evaluated)	No Impact
N-S Option 3*	--	004763	Sierra Highway	Historic	7R (Identified in Survey; Not evaluated)	No Impact
N-S Option 3*	--	004764	Isolate: lithic core	Prehistoric	6Z (Found ineligible through survey evaluation)	No Impact
N-S Option 3*	--	004765	Isolate: Glass insulator	Historic	6Z (Found ineligible through survey evaluation)	No Impact
N-S Option 3*	SS-I-15	--	Isolate: Can	Historic	6Z (Found ineligible through survey evaluation)	No Impact
N-S Option 3*	SS-I-16	--	Isolate: Can	Historic	6Z (Found ineligible through survey evaluation)	No Impact
N-S Option 3*	SS-S-31	--	Trash scatter of cans and glass	Historic	7R (Identified in Survey; Not evaluated)	No Impact
N-S Option 3*	SS-S-32	--	Trash scatter of cans and glass	Historic	7R (Identified in Survey; Not evaluated)	No Impact
N-S Option 3*	SS-S-33	--	Trash scatter of cans and glass	Historic	7R (Identified in Survey; Not evaluated)	No Impact
N-S Option 3*	SS-S-34	--	Trash scatter of cans and glass	Historic	7R (Identified in Survey; Not evaluated)	No Impact
N-S Option 3*	SS-S-35	--	Trash scatter of cans and glass	Historic	7R (Identified in Survey; Not evaluated)	No Impact
N-S Option 3*	SS-S-36	--	Trash scatter of cans and glass	Historic	7R (Identified in Survey; Not evaluated)	No Impact
N-S Option 3*	SS-S-37	--	Trash scatter of cans and glass	Historic	7R (Identified in Survey; Not evaluated)	No Impact
N-S Option 3*	SS-S-38	--	Trash scatter of cans and glass	Historic	7R (Identified in Survey; Not evaluated)	No Impact

* Removed from consideration

Following the inventory, it was determined that seven (7) cultural resources could not be avoided and would be impacted by project implementation. These seven sites included two prehistoric archaeological sites (SS-S-10 and SS-S-30) and six historic period refuse deposits (P-15-012716, P-15-013801, P-15-013802, P-15-013807, P-15-017096, SS-S-11, and SS-S-23). These resources were situated in areas that could not be avoided through reasonable design changes. Prehistoric site evaluations are discussed first, followed by historic period refuse deposits.

5.2 Testing and Evaluation Results

5.2.1 Site SS-S-10

Situated at the southeastern portion of North-South Gen-Tie Route Option 1, site SS-S-10 is a prehistoric lithic scatter. Testing within site SS-S-10 consisted of a surface inventory and conducting subsurface test excavations. The subsurface evaluations at SS-S-10 consisted of the excavation of eight STPs, three CSC units, two SSUs, and one CU. During the surface inventory previously unidentified prehistoric features extend beyond the previously mapped site boundaries.

Site SS-S-10 is situated on a low rise that trends north-south overlooking a west-facing playa shoreline known as Lake Thompson. While seasonal flooding of the lake basin is not uncommon, Lake Thompson was part of a post-Pleistocene lake system fed by desiccating glaciers. As discussed in Chapter 4, hunter-gatherer occupation debris commonly found on the margins of these now dry lakebeds. However, hunter-gatherers of the last 1000 years of prehistory frequented these lake basins during seasonal runoff that fed various seasonally abundant plants and small animals (see Hale et al. 2010).

5.2.1.1 Surface Inventory

A total of 3 prehistoric tool artifacts, 56 flakes, 3 faunal bone fragments and a minimum of 19 prehistoric rock features were identified during the surface inventory. The prehistoric tool artifacts include: one rhyolite flake tool/scraper (A1), one rhyolite flake tool (A2), and one chert retouched flake tool (A3). Of the total 56 flakes collected from the general surface collection, 23 are rhyolite debitage and the remaining 33 flakes are Cryptocrystalline Silicates (CCS) such as variously colored fine grain chert and chalcedonies. While most of the fragments were heavily deteriorated and show little diagnostic elements, the bones most likely represent both small and large vertebrates. Several of the fragments demonstrate artiodactyl (antelope/deer) characteristics.

5.2.1.2 Features

A total of 19 prehistoric features were identified during the surface inventory. All of the 19 features appear to represent fire-treating/heating local rhyolite rock. The individual rock features range in dimension from approximately 2 to 10 square meters (m^2). The features include concentrated clusters of rock as well as "blown-out" from post-depositional processes and activities. The feature shapes tended to be rounded or oval, although the horizontal shape of these burned rock features is not likely significant. Evidence of post-depositional environmental processes, such as wind and soil erosion, was evident. The rhyolite fire-affected rock (FAR) ranged in size from 1 to 2 cm sub-rounded gravels to 15 to 20 cm diameter angular cobbles. While some limited rhyolite flakes and core fragments were noted with the features, the majority of the rhyolite fragments were angular to sub-angular rocks and gravels. Several of the rhyolite features contained debitage of various stages but primarily limited to cortical flakes and early interior flakes.

5.2.1.3 Shovel Test Pits

Eight individual STPs were excavated at SS-S-10. All eight of the STPs exhibited loose to moderately compact well sorted brown sands (Munsell 10YR4/3). The sediments are consistent from the ground surface to approximately 40 cmbs. From 40 cmbs to 60 cmbs the sand became more compact and contains small rounded to sub-sounded gravels.

Of the 8 STPs excavated, Numbers 1, 3, and 7 were negative. STPs 2, 4, 5, 6, and 8 contained cultural materials. A total of 9 artifacts; including 8 flakes and 1 fragment of non-human faunal bone, were recovered from the STP excavations. The materials and artifacts recovered by STP are listed in Table 6, below:

Table 6
Shovel Test Pit Recovery from SS-S-10

Site SS-S-10			
STP	*Level cmbs*	*Artifacts Recovered*	*Count*
2	20 - 40	Chalcedony (CCS) flake	1
		Rhyolite flake	2
4	0 - 20	Rhyolite flake	1
5	0 - 20	Chert (CCS) flake	1
	20 - 40	Chert (CCS) flake	1
6	0 – 20	Faunal bone fragment	1
	20 - 40	Chert (CCS) flake	1
8	0 – 20	Chert (CCS) flake	1
		STP Total:	9

5.2.1.4 Controlled Surface Collections

Three various sized CSC units were conducted. CSC-1 measured 5 m x 5 m and was placed to collect materials from rhyolite rock Feature 1. A total of 220 rhyolite FAR fragments and a total of 72 rhyolite flakes were collected from CSC-1. CSC-2 measured 5 m x 5 m and was placed just east of CSC-1, to collect materials from Feature 2. A total of 184 rhyolite FAR fragments and a total of 5 rhyolite flakes were collected from CSC-2. The final CSC at this site, CSC-3 measured 15 m x 15 m (divided into cells A to I) and was placed to collect materials from Feature 5. A total of 110 rhyolite FAR fragments, 96 rhyolite flakes, 19 CCS flakes, 2 quartz flakes, 1 obsidian flake and 5 faunal bone fragments were recovered from CSC-3.

5.2.1.5 Surface Scrape Units

Two surface scrape units were excavated at this site, in conjunction with 2 of the 3 CSCs. SSU-1 was placed within the central portion of CSC-1. Sediments from the surface to a depth of approximately 0.5 centimeters below surface (cmbs) consisted of loosely compacted unsorted brown sand (Munsell: 10YR 4/3) with roots and krotovina noted. Materials recovered from SSU-1 consist of 7 fragments of rhyolite FAR.

The second surface scrape, SSU-2, was a 2 m x 2 m scrape unit within CSC-3, cell A, to collect data from Feature 5. Sediments encountered consisted of loosely compacted unsorted brown sand (Munsell: 10YR 4/3). Slight discoloration was noted near the FAR along the western edge of the unit. Materials recovered from SSU-2 consist of 83 fragments of rhyolite FAR, 82 rhyolite flakes, 3 CCS flakes, and 2 fragments of non-human, small animal bone.

5.2.1.6 Control Units

One control unit, CU-1, measuring 0.5 m x 1m was excavated within Feature 5. CU-1 was excavated to a terminal depth of 60 cmbs. The sediments consisted of loosely compacted brown sand (Munsell: 10YR 4/3) consistent from the ground surface to approximately 40 cmbs. From 40 to 60 cmbs the sand became more compact and contain small rounded to sub-sounded gravels. Moderate amounts of roots were noted in the upper levels and some minor krotovina disturbances were noted throughout all the levels. The artifact distribution in CU-1 is summarized in Table 7 below:

Table 7
Control Unit 1 Recovery from SS-S-10.

Site SS-S-10			
CU	*Level cmbs*	*Artifacts Recovered*	*Count*
1	0 - 10	Rhyolite FAR	22
		Rhyolite flakes	6
	10 - 20	Rhyolite FAR	5
	20 - 30	Rhyolite flakes	15
		Faunal bone fragments	2
	30 – 40	Rhyolite FAR	2
		Rhyolite flakes	7
		Faunal bone fragments	2
	40 – 50	Rhyolite FAR	2
		Rhyolite flakes	5
		Faunal bone fragments	3
		CU 1 Total:	71

5.2.1.7 Site Results

The surface inventory of the site identified 19 rock features and a light to moderate scatter of prehistoric lithic artifacts and FAR fragments. Surface collections and the 14 various subsurface excavation units produced a total of 1,052 individual artifacts and cultural materials. The 1,052 items collected include 640 rhyolite FAR fragments, 391 flakedstone artifacts (debitage = 385, tools = 5; core = 1), and 21 faunal bone fragments. Out of the 385 total debitage collected, 322 are rhyolite, 60 are various CCS, 1 is obsidian, and 2 are quartz. Rhyolite is the dominant material, with approximately 60 percent of the surface artifact assemblage and over 91 percent of that recovered during testing.

Test excavations at site SS-S-10 indicate prehistoric lithic production from material sourced within the immediate vicinity, specifically the rhyolite butte (Lookout Knob) overlooking the site to the north. Neither groundstone nor ceramic artifacts types were identified.

Sediment profiles recorded from the subsurface excavation demonstrate that the majority of the artifacts and cultural materials were encountered from a shallow context from the ground surface to approximately 40 cmbs. The excavation units demonstrate a low probability that the FAR features have significant depth. The three features excavated (Features 1, 2 and 5) showed little to no trace of a subsurface component. No charcoal or ash staining was identified, likely due to the shifting sands depositional environment.

Evaluation of SS-S-10 focused on the project APE, minimally touching on outlying regions and limited to basic surface recordation and observation. The majority of burned rock features are located to the east of the APE and some of these appear to have the potential for subsurface deposits that may contain charcoal suitable for dating. For this reason, the portion of SS-S-10 outside of the APE to the east is recommended as significant for archaeological values and eligible for CRHR listing under Criterion 4, and for NRHP listing under Criterion D.

Within the APE, no substantial or significant deposits were identified. Implementation of the project within the APE at this site would not have a significant impact on the site's archaeological values. No information was obtained that would contribute value under any of the other significance criteria.

5.2.2 Site SS-S-11

Site SS-S-11 is a historic can scatter along the eastern portion of the East-West Gen-Tie Route alignment, to the north side of Purdy Avenue to the west of Highway 14. Measuring 605 feet (east-west) x 223 feet (north-south), the site is composed of a light scatter of cans and appear to be a discrete single use dumping site. Testing methods at the site were constrained to surface inventory only.

5.2.2.1 Surface Inventory

An inventory of this site resulted in the identification of 88 varied historic cans scattered diffusely within the general confines of the area previously recorded. No features were noted during the inventory and all the artifacts appeared loose or minimally embedded in the surrounding sand sediments. None of the cans were in a depositional context that suggested subsurface deposits.

Of the total 88 cans identified, 19 cans were knife cut or hole punched beverage cans (1915 to 1930; Simonis 1997), 19 cans were rotary and P38 opened sanitary food cans (1904-on; Rock 1987), 15 were hole-in-cap (post-1901; Simonis 1997), knife punched and rotary opened food cans, 6 were large fruit and vegetable cans (post-1910; Clark 1977), and 4 were square meat tins. Also identified at this site were 4 bi-metal pull-tab beer cans (post -1962; Simonis 1997), 2 food pail cans, one oval ham tin, one square cooking oil can and a total of 17 unidentified smashed cans/can fragments.

5.2.2.2 Site Summary

Site SS-S-11 appears to be a mid- to late-Twentieth Century historic trash deposit representing basic food and beverage consumption. There was no evidence of subsurface deposits.

Considering this site's proximity to local roads, it is likely that this scatter is associated with domestic refuse disposal.

5.2.3 Site SS-S-23

Site SS-S-23 is a historic can scatter southeastern portion of North–South Gen-Tie Route Option 1. Measuring 260 feet (northwest-southeast) x 98 feet (northeast-southwest), the site is composed of a light scatter of sanitary and church-key opened beverage cans totaling approximately 20 rotary-opened sanitary food cans, and four church-key opened beverage cans. Testing of site SS-S-23 consisted of a surface inventory and the excavation of one STP.

5.2.3.1 Surface Inventory

The surface inventory resulted in the identification of 18 varied historic cans and 6 historic ceramic fragments scattered diffusely. No features were noted during the inventory and all the artifacts appeared loose or minimally embedded in the surrounding sand sediments. None of the artifacts suggest subsurface deposits.

Artifacts identified include 13 C-ration food cans measuring 2 ¾" x 4 ½", 5 C-ration food cans measuring 4 3/8" x 4", one fragment of historic whiteware ceramic and 5 fragments of a single lead-glazed earthenware ceramic plate.

5.2.3.2 Shovel Test Pit

One STP (STP-1) was excavated. Sediments observed STP encountered homogenous sediments which consisted of loose to moderately compact well sorted brown sands (Munsell: 10YR4/3). No cultural artifacts were recovered from STP1 and it was terminated at a depth of 40 cmbs.

5.2.3.3 Site Summary

All the data collected during the testing of site SS-S-23 suggests that this is a Twentieth Century historic trash deposit representing food consumption. The general can types represent C-ration cans which were in production from 1938 to 1945 (Mason et al 1982). Considering the type of cans identified and this site's proximity to Edward Air Force Base, it is possible that this trash deposit represents mid- to late- Twentieth Century military utilization of the general region surrounding the base. Nothing identified during the testing of this site suggests that any significant subsurface deposit is associated with the surface scatter.

5.2.4 Site SS-S-30

Situated at the southeastern portion of North–South Gen-Tie Route Option 1, site SS-S-30 is a sparse prehistoric lithic scatter measuring 75 meter (northeast-southwest) x 55 meter (northeast-southwest. Testing of site SS-S-30, consisted of a surface inventory and conducting subsurface test excavations. A total of 11 STPs, 2CSC units, 1 SS, 2 CUs, and the collection of one Column Sample. SS-S-30 is situated on the west side of Lookout Knob, on a relatively flat alluvial plain.

5.2.4.1 Surface Inventory

A total of three prehistoric tool artifacts (A1, A2, A3), 71 pieces of debitage, 21 fragments of rhyolite FAR, 4 faunal bone fragments and one prehistoric rock feature was identified during the surface inventory. The prehistoric tool artifacts collected during the inventory include: an indeterminate granitic groundstone fragment (A1), a simple rhyolite flake tool (A2), and, a rhyolite unidirectional core (A3). Of the total 71 flakes collected from the general surface collection 44 flakes are Cryptocrystalline Silicates (CCS) such as variously colored (white to brown) fine grain chert and chalcedonies, 26 are rhyolite, and one is obsidian.

5.2.4.2 Features

One prehistoric feature was identified during the surface inventory. Feature 1, a rhyolite rock/hearth feature, measuring approximately 12 m (N/S) x 8 m (E-W), is very diffuse and scattered but FAR is concentrated in the southern portion of the feature. Feature 1 has an apparent oval shape but the diffuse nature of the FAR toward the northern half of the feature obscures any obvious feature shape. The rhyolite FAR ranged in size from 10 to 15 cm diameter angular cobbles to 1 to 2 cm sub-rounded gravels. While some limited rhyolite flakes were noted on the surface, the majority of the rhyolite fragments of Feature 1 appeared to be angular to sub-angular burned rocks and gravels.

5.2.4.3 Shovel Test Pits

Eleven individual STPs were excavated at SS-S-30. While most of the sediments encountered in the STPs consisted of loosely compacted brown sands (Munsell: 10YR4/3-4/4), STPs excavated along the eastern most portion of the site encountered a deposit of extremely compact, slightly sand clay loam that was not excavated. The clay loam lens was typically encountered at depths of 20 cmbs but ranged in color from a brown (Munsell: 10YR4/3-4/4) to very pale brown (Munsell: 10YR8/3). STPs numbered 5 and 11 encountered this compact clay lens.

Of the total eleven STPs excavated, STP Numbers 1, 4 through 6, and 8 through 10 were negative with no artifacts or materials recovered. STPs 2, 3, 7, and 11 were positive and

contained artifacts or FAR. A total of five artifacts, consisting of 4 flakes and one fragment of non-human faunal bone were collected the STP excavations. The materials and artifacts recovered by STP are listed briefly below:

Table 8
Shovel Test Pit Recovery from SS-S-30

Site SS-S-30			
STP	*Level cmbs*	*Artifacts Recovered*	*Count*
2	0 - 20	Rhyolite flakes	3
	20 – 40	Rhyolite FAR	2
11	0 – 20	Chert (CCS) flake	1
		Faunal one fragment	1
		STP Total:	7

5.2.4.4 Controlled Surface Collections

Two CSC units were conducted. CSC-1 was placed to cover the most dense surface lithic artifact scatter identified during the surface inventory, and the second was placed to investigate Feature 1. CSC-1 measured 10 m (N/S) x 15 m (E/W), and was divided into four 5 m x 5 m cells (cells A through D). A total of 129 CCS (chert and chalcedony) flakes, 36 rhyolite flakes, 8 rhyolite FAR fragments, and 5 small animal bone fragments were recovered from CSC-1. This volume of CCS debitage represents the densest part of this site.

The second CSC, CSC-2, measured 5 m x 5 m and was placed to collect materials from the southern portion of Feature 1, the rhyolite FAR feature. A total of 53 rhyolite FAR fragments and 14 rhyolite flakes were collected from CSC-2.

5.2.4.5 Surface Scrape Units

One surface scrape unit, SSU-1, was excavated in conjunction with other control units (CSC-1 cell C). SSU-1 was placed within CSC-1 cell C, to recover materials from the densest scatter of lithic artifacts. Sediments from the surface to a depth of approximately 0.5 cmbs consisted of loosely compacted unsorted dark yellowish brown sand (Munsell: 10YR 4/4) with a light volume of roots and krotovina noted. Artifacts recovered from SSU-1 consist of 26 CCS (chert and chalcedony) flakes, 33 rhyolite flakes, one obsidian flake, and 2 faunal bone fragments. One of the 26 CCS flakes collected in SSU-1 consists of a fine-grain brown chert reduction flake that has the remains of a fossilized Ammonite/Ammonoid embedded into the matrix (Figure 3).

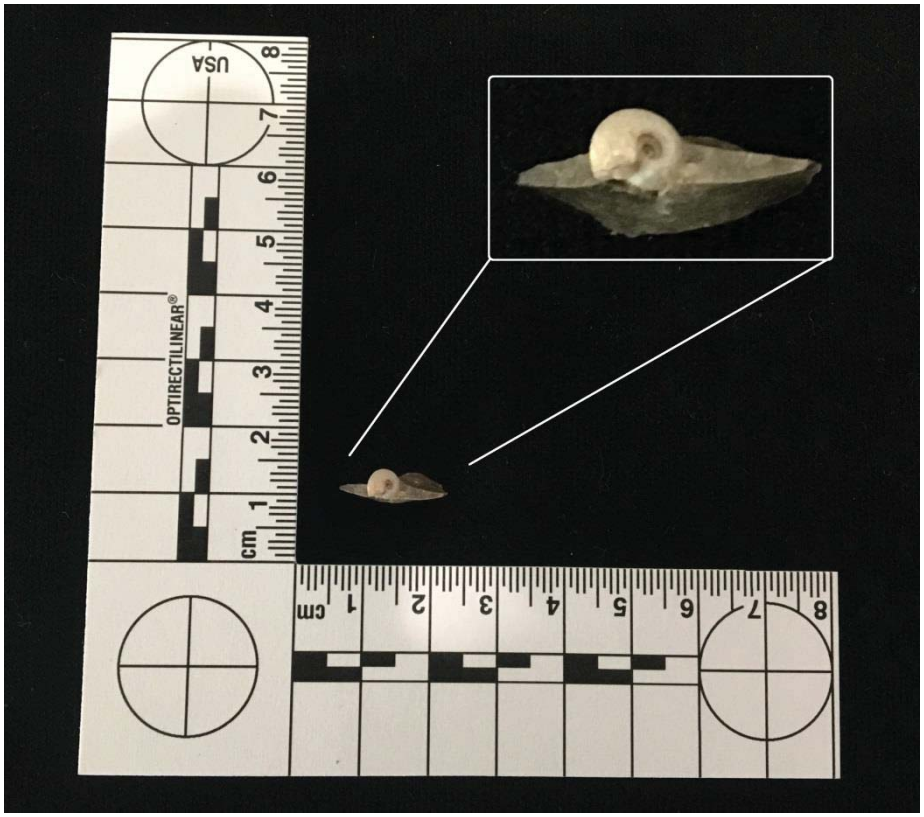

Figure 3 Chert flake with embedded Ammonoid fossil recovered from SSU-1, Site SS-S-30

5.2.4.6 Control Units

Two control units, both measuring 0.5 m x 1m were excavated in an attempt to delineate any subsurface elements of the dense lithic scatter (CU-1), and portions of the rhyolite FAR feature, Feature 1 (CU-2).

The first level of CU-1 was excavated to a terminal depth of 50 cmbs. The sediments were loosely compacted dark yellowish brown sand (Munsell: 10YR 4/4) consistent from the ground surface to approximately 40 cmbs. From approximately 40 cmbs to 60 cmbs the brown sands became slightly more compact and contain small rounded to sub-sounded gravels. Moderate amounts of roots were noted in the upper levels and some minor krotovina disturbances were noted throughout all the levels. The artifact distribution in CU-1 is summarized in below:

Table 9
Control Unit 1 Artifact Recovery from SS-S-30

Site SS-S-30			
CU	*Level cmbs*	*Artifacts Recovered*	*Count*
1	05 - 10	CCS flakes	6
		Faunal bone fragment	1
	20 - 30	CCS flakes	7
		Faunal bone fragment	1
	30 - 40	Rhyolite flakes	4
		Faunal bone fragment	3
	40 - 50	CCS flakes	6
		CU 1 Total:	28

CU-2 was placed to cover the center of the most dense portion of Feature 1, estimated from the field results of the collection of CSC-2. CU-2 was a 0.5 m x 1 m unit excavated in four 10 cm levels, down to a terminal depth of 40 cmbs. The sediments encountered were loosely compacted dark yellowish brown sand (Munsell: 10YR 4/4) consistent from the ground surface to approximately 40 cmbs. Fragments of rhyolite FAR were observed within sediments at depths from 0 to 20 cmbs. Consistent with all the subsurface units excavated, light amounts of roots were noted in the upper levels and some minor krotovina disturbances were noted throughout all the levels. The artifact distribution in CU-2 is summarized in Table 10 below.

Table 10
Control Unit 2 Artifact Recovery from SS-S-30

Site SS-S-30			
CU	*Level cmbs*	*Artifacts Recovered*	*Count*
2	0 - 10	Rhyolite FAR	20
		Rhyolite simple flake tool	1
	10 - 20	Rhyolite FAR	30
	20 - 30	Rhyolite flakes	5
		CU 2 Total:	56

CU-2 was terminated at 40 cmbs due to the diminishing volume data collected and lack of perceptible feature definitions in the unit sidewalls. Before this unit was backfilled, a single 20 cm x 20 cm column sample collection was excavated into the eastern sidewall.

5.2.4.7 Column Sample

One 20 cm x 20 cm column sample was collected from the east sidewall of CU-2, adjacent to the southern wall of the completed unit. The column sample was collected as four 10 cm deep levels, matching the levels excavated in CU-2. Each column sample level was not screened but collected as a complete level. The column sample was not processed as of the date of this report.

5.2.4.8 Site Summary

The surface inventory of the site identified one rock feature and a moderate to moderately-dense scatter of prehistoric lithic artifacts. Surface collections and the 16 different subsurface excavation units produced a total of 458 individual artifacts and cultural materials from site SS-SS-30. Of the total 458 items collected; 339 artifacts are flakedstone artifacts (debitage = 337, tools = 2; core = 1), 102 are rhyolite FAR fragments, one artifact is a granitic indeterminate groundstone fragment and 15 artifacts are faunal bone fragments. Thus, out of the total artifact assemblage, flakedstone artifacts (mainly debitage) makes up 74 percent of the collection, with rhyolite FAR making up 22 percent of the collection. Out of the 337 total debitage collected, 214 are various CCS (various fine grained chert and chalcedonies identified) debitage, 121 pieces of debitage are rhyolite, one is an obsidian flake, and one is quartz debitage. Just over 63 percent of the debitage collected is made up of varied CCS, while approximately 36 percent of the debitage materials consist of rhyolite.

The preliminary results of the test excavations at SS-S-30 suggest the site was used primarily rhyolite lithic production. With the largest volume of materials consisting of CCS materials and rhyolite FAR being secondary in volume, SS-S-30 reflects a simple encampment occupied for the purpose of lithic toolkit replenishment. The presence of one groundstone artifact implies some vegetal processing occurred. Addressing the makeup of debitage materials recovered at this site, while CCS materials are the most numerous, rhyolite debitage was still a significant portion of the debitage collection. Conversely, the amount of rhyolite FAR at this site is relatively light compared to the volume of rhyolite debitage collected (rhyolite FAR makes up 22 percent of the entire collection, while rhyolite debitage makes up 36 percent of the collection of debitage).

Finally, sediment profiles recorded from the subsurface excavation across SS-S-30 demonstrate that the majority of the artifacts and cultural materials were encountered from the surface, just below, or within a shallow context. The single FAR feature, Feature 1, showed little to no trace of discernable feature subsurface and no charcoal or ash staining was identified during the excavation.

Overall, SS-S-30 has a small assemblage that is limited in diversity, with no chronological indicators that would enable placement of this site in time. The patterns recognized at this site are common in

the region and better documented at other nearby resources outside of the project limits. For this reason, the site does not have enough information to contribute to regional trends in prehistory and is recommended as not eligible for CRHR listing under Criterion 4 or NRHP listing under Criterion D. No information was obtained that would contribute value under any of the other significance criteria.

5.2.5 Site P-15-012716

This site consists of a historic borrow pit that measures approximately 30 m (N/S) x 15 m (E/W). The sediments that were excavated from the pit appear to have been used to build a berm surrounding the pit. An inventory of this site resulted in the identification of 5 historic artifacts scattered diffusely within the site boundary. All the scattered artifacts identified were loose or minimally embedded in the surrounding sand sediments.

The surface inventory conducted at P-15-012716 identified a total 5 historic cans. Of the total 5 artifacts identified, one was a flat top beverage can (1935-1970s; Martels 1976), one was a sanitary food can (1904-on; Rock 1987), one was a cooking oil can, one artifact was an unidentified crushed can, and the final artifact was a tin enamel plate (postdate the early 1900s; Clark 1977; Rock 1987; Simonis 1997). The previous DPR site form mentions that there were wooden remains of a structure located along the northern portion of the site; however, during the current evaluation the wooden debris was noted to be scattered across the entire site. Additionally, the wooden remains noted on site are the remains of a wooden fence and possible gate. It is evident that the wood debris was not part of a structure.

5.2.5.1 Site Summary

Site P-15-012716 likely represents a Late Twentieth Century mining/industrial borrow pit. No artifacts or other cultural materials identified to suggest any additional utilization. No information was obtained that would warrant a significance finding and the site is recommended as not significant and not eligible for listing in the CRHR or NRHP under any significance criteria.

5.2.6 Site P-15-013801

Site P-15-13802 is an undifferentiated historic period refuse deposit. The evaluation of this site consisted of a surface inventory, one SSU and the excavation of one STP.

5.2.6.1 Surface Inventory

An inventory of this site was conducted resulted in the identification of 15 varied historic cans and one historic trash deposit feature (Feature 1). All artifacts that were outside of the Feature 1 appeared loose or minimally embedded in the surrounding sand sediments; none of the cans were in a depositional context that suggests they were associated subsurface deposits. It appears that

all of the cans (mostly bi-metal beverage cans) closest to the existing road and the Gen-Tie Route Option 2 appear to be of a later age than those noted with Feature 1.

The surface inventory conducted at P-15-013801 identified a total 15 historic cans. Of the total 15 cans identified, 7 were beverage cans, 3 sanitary food cans, one was a motor oil can and 4 were unidentified can fragments.

5.2.6.2 Feature

Feature 1, measures 10 m x 10 m and consists of a historic trash dump that has a rounded shape, is relatively concentrated in the approximate center and diffuse near the outer edges. While the majority of the metal cans, glass bottles and jars, ceramic vessel fragments and other miscellaneous item appear to be on or near the surface, some of the artifacts appear well embedded in the surrounding brown sands.

5.2.6.3 Surface Scrape Unit

After the surface inventory was conducted and it was determined that Feature 1 could extend below the current ground surface, the feature was split into quarters and one 5 m x 5 m Surface Scrape Unit was placed in the Northwest quarter of the feature. This SSU-1 was excavated and all materials were screened and inventoried but not collected.

The SSU inventoried a total 446 artifacts with a minimum number of items totaling140 different vessels. A total of 241 glass artifacts, 62 cans and can fragments, 18 ceramics fragments, and 95 other historic items were inventoried during the excavation of this surface scrape. All of the artifacts inventoried are included in Table 11 below.

Table 11
Historic Artifact Inventory from SSU-1, Feature 1, Site P-15-013801.

Artifact Type	Functional Area	Description	Count	MNI*
Bone	Faunal	Burnt and butchered food remains	30	-
Ceramic	Tableware	Ironstone whiteware bowl fragments	10	2
Ceramic	Tableware	Ironstone whiteware plate fragments	6	2
Ceramic	Tableware	Ironstone whiteware coffee cup handle fragment	1	1
Ceramic	Household	Stoneware vessel base fragment	1	1
Glass	Bottles	Brown glass bottle fragments	75	16
Glass	Bottles	Colorless glass bottle fragments	121	45
Glass	Bottle	Aqua-colored glass bottle fragments	6	1
Glass	Mason Jars	Colorless glass Mason Jar fragments	38	10
Glass	Can liner	Milk glass can liner	1	1
Metal	Cans/containers	Small aspirin tin	1	1
Metal	Cans/containers	Solder dot food cans	5	5

Table 11
Historic Artifact Inventory from SSU-1, Feature 1, Site P-15-013801.

Artifact Type	Functional Area	Description	Count	MNI*
Metal	Cans/containers	Sanitary food cans	12	12
Metal	Cans/containers	Sardine/fish tins "Packaged in Norway"	11	11
Metal	Cans/containers	Other meat tins	5	5
Metal	Cans/containers	Unspecified beverage cans	8	8
Metal	Cans/containers	Tobacco tins	11	11
Metal	Cans/containers	Pepper/spice	2	2
Metal	Cans/containers	Key-wound opened food tin keys	7	7
Metal	Unidentified	Unidentified metal fragments	80	-
Metal	Personal	Clothing buttons/hooks/clasps	5	-
Metal	Kitchen	Rotary can opener	1	-
Metal	Building Materials	Machine made wire nails	8	-
Metal	Building Materials	Electrical fuse	1	-
		Total	446	140

* MNI= Minimum Number of Items

5.2.6.4 Shovel Test Pit

One STP measuring .25 m x .50 m was placed within the southwestern corner of SSU-1. STP 1 was excavated down to a depth of 20 cmbs and encountered compact brown sands (Munsell: 10YR4/3). No cultural artifacts were recovered.

5.2.6.5 Site Summary

Site P-15-013801 is a Twentieth Century historic trash deposit representing general domestic consumption. There are no artifacts or other cultural materials identified to suggest that this scatter of cans is anything other than historic subsistence. The general contents of the trash deposit demonstrate typical food, beverage and tobacco consumption, but other items such as nails, electrical fuses, and various ceramic and household items suggest that this refuse represents habitation or minimally temporary domestic residence. No information was obtained that varies from well-documented regional trends in historic domestic consumption and refuse disposal. As such, the site is recommended as not eligible for CRHR or NRHP listing under any of the significance criteria.

5.2.7 Site P-15-013802

Site P-15-013802 is a late Twentieth Century historic trash scatter. During the current evaluation, the entire site was located outside of and away from the existing road and the proposed Gen-Tie Route Option 2 route. The site was photo-documented, however no additional testing was

conducted. While this site was not formally evaluated, the artifacts and conditions noted at this site strongly suggest that this scatter represents roadside trash dumped due to convenience more than a specific significant historic deposit representing local habitation.

6 ARCHAEOLOGICAL SIGNIFICANCE EVALUATIONS

Following the inventory, it was determined that seven (7) cultural resources could not be avoided and would be impacted by project implementation. These seven sites included two prehistoric archaeological sites (SS-S-10 and SS-S-30) and five historic period refuse deposits (P-15-012716, P-15-013801, P-15-013802, SS-S-11 and SS-S-23). These resources were situated in areas that could not be avoided through reasonable design changes. Prehistoric site evaluations are discussed first, followed by historic period refuse deposits.

The primary goals of this study were to identify cultural resources that have the potential to be significantly impacted by project implementation, to provide an evaluation of the resources to identify their historical significance, to identify resource-specific impacts, and to recommend mitigation that would reduce impacts to a level below significance.

Evaluation of significance requires the development of an understanding of each identified resource in such a way that its historical significance can be assessed. CEQA and Section 106 of the NHPA requires lead agencies to consider the historical significance of a resource so as to gauge whether it has the potential to be listed on the CRHR or NRHP. Criteria 1–4 of CEQA and criteria A-D of Section 106 are a set of standards for determining whether a particular resource is eligible for listing on the CRHR or NRHP. These criteria were discussed in Chapters 1 and 2.

The following eligibility determinations are based primarily on Criterion 4 of CEQA and Criterion D of Section 106 for archaeological values, since the data generated during the evaluation program can be used to judge whether a particular cultural resource has yielded or may be likely to yield information important in prehistory or history. Data potential is represented by general archaeological characteristics such as assemblage integrity, size, diversity, defined chronology, and the potential for buried deposits. Historic period refuse deposits do not contain any features, structures, or other constituents that could be used identify them through archival research in such a way that information could have been used to evaluate the sites under CEQA criteria 1-3 or Section 106 criteria A-C; instead these historic period refuse deposits could be evaluated only under Criterion 4/D.

Based on the results of the current investigation, all but one of the evaluated archaeological sites are recommended as not significant under CEQA and Section 106 of the NHPA, and as not eligible for listing in the CRHR or the NRHP. The single prehistoric site recommended as eligible for listing is SS-S-10.

Prehistoric site SS-S-10 has several concentrations of archaeological material, but most of these are located outside of the transmission line corridor. The current evaluation focused on areas

within the project impact area (APE), with only minimal exploration completed outside of the corridor to better understand the archaeological site. Within the corridor, no significant deposits were identified during archaeological testing. However, outside of the transmission line corridor, several thermal features were identified that have the potential to yield archaeological material important to prehistoric research themes. As such, prehistoric site SS-S-10 is recommended as eligible for listing in the CRHR under Criterion 4, and in the NRHP under Criterion D, for archaeological values. However, this significance recommendation does not apply to archaeological deposits within the APE; no significance-conveying aspects of the site were identified therein.

6.1 Integrity

Integrity is an important factor in the evaluation of archaeological resources. Integrity fundamentally affects associations that are critical for understanding behavioral relationships in site formation and design for prehistoric and historical archaeological sites. For the most part, evaluated prehistoric archaeological sites maintain good integrity, as the distribution of artifacts on the surface was generally good, with some areas more impacted by post depositional disturbance than others. Nearby exposures of rhyolite appear to have been exploited for production of flakedstone tools—the ample volcanic raw material erodes from the local buttes (such as Lookout Knob) with very little soil obscuring their presence. Impacts are generally minimal, consisting of dirt road travel, target shooting, refuse disposal, animal burrowing, and various other minimal modern activities. As these disturbances were constrained to small areas, wide swaths of the region remain relatively untouched. Soil deflation appears to be an old phenomenon here, and is currently most noticeable on nearby playa or small playettes that dot the landscape. Overall, however, cultural resources were demonstrated to be surficial deposits that retain horizontal integrity but lack substantial subsurface deposits.

Notably lacking from the majority of current evaluated sites (or portions thereof) are other forms of cultural deposits such as midden soils. Potential midden deposits are present at a few sites in the area, indicating some habitation did occur, however these are located outside the APE and were not investigated as part of this study. Thermal features were identified at both evaluated prehistoric archaeological sites, but these are consistent with other features in the region that reflect heat-treatment of local raw material to enhance flaking capabilities for production of stone tools. Hale et al. (2010) evaluated several similar features in the Bissell Hills located to the south on Edwards AFB. Thermal features used to heat-treat lithic material characteristically lack charcoal or other materials suitable for radiocarbon determinations.

Overall, the lack of buried deposits at the prehistoric archaeological sites reduces the opportunity for drawing more meaningful or data-laden associations between assemblage constituents,

despite relatively strong integrity of surface manifestations. Thus, integrity alone is not a determining factor when deciding historical significance of an archaeological resource.

Turning to historic period resources, these sites consisted of limited refuse deposits common in the area. In terms of structural integrity, most retained enough integrity to discern that they were generated as single dump events, sometimes of mixed-age materials. Indeed, historic refuse was dominated by sanitary cans and glass fragments that were generally consumed in between 1920 and 1960, or of military rations indicative of short term encampments associated with development of the military installation. Considering the generality of information on historic period resources and inability to contribute to research themes, they were all considered not significant and not eligible under CEQA criteria 1-4 or Section 106 criteria A-D.

6.2 Chronology

With strong integrity of archaeological deposits, chronological associations can add much value to archaeological interpretation. For this reason, archaeological sites that yield chronological information are typically deemed to hold higher scientific value. It is not uncommon for topical evaluations of prehistoric sites to conclude that a particular deposit could be considered significant because of the presence of time-sensitive artifacts or the presence of archaeological deposits that carry the promise of producing radiocarbon dates. The rarity of intact, datable archaeological deposits has somewhat inflated the importance of chronological data when evaluating the historical significance of an archaeological site. Such deposits are critical to evaluation efforts.

Unfortunately, no strong chronological information was obtained for prehistoric archaeological sites. Antiquity is implied at SS-S-10 by the predominance of rhyolite as a lithic raw material, and its spatial proximity to an ancient Late Pleistocene/Early Holocene lakeshore (locally known as Lake Thompson). Rhyolite is the dominant lithic raw material used during the Pinto period and locally, the Lake Mojave period (see Basgall and Overly 2004); both of these time periods predate 7,500 B.P. The association of early hunter-gatherer occupation with post-glacial lakeshores is well known in the Mojave and Great Basin. However, seasonal rains are known to temporarily flood old lake basins and it was not uncommon for hunter-gatherers in the last 1,000 years to exploit seasonally abundant vegetation and small animals that appear with the rains (see Hale et al. 2009; Hale et al. 2010). The thermal features from SS-S-10 and SS-S-30 may reflect at least an early Holocene (pre-7,500 B.P.) occupation, but only circumstantial evidence supports such a claim. The lack of chronological control at evaluated prehistoric archaeological sites further reduces their ability to contribute to regional themes and therefore reduce their value under CEQA Criterion 4 or Section 106 Criterion D.

Historic period refuse deposits, on the other hand, are rich in chronological information with many of the artifacts having datable maker's marks or are of a manufacturing style that dates to a specific period. Hole-in-top cans are one such example of a manufacturing method datable to specific periods. Despite the abundance of chronological information for HPRDs, the lack of diversity in these assemblages reveals little about the individuals who disposed of them. Equally mundane dumps can derive from complex homesites or transients. The matter is further complicated when considering homesite cleanup; subsequent home occupants often clean up and dispose of rubbish in locations distant to the home and this patter was exacerbated with the advent of the automobile (see Giambastiani et al. 2006). Without other identifying information, datable historical rubbish provides little more than face-value of the artifacts. Extending artifact manufacture dates to consumption dates and disposal dates is even more problematic. For these reasons, evaluated HPRDs did not have values consistent with significance under CEQA Criterion 4 or Section 106 Criterion D.

6.3 Settlement and Site Deposition

As with any archaeological evaluation, research issues postulated in advance of fieldwork have mixed success in their applicability to the recovered assemblage, particularly in terms of the kinds of data that could be generated and attendant questions that can be addressed. There is no departure from this pattern with current Proposed Project sites that yielded only a few handfuls of artifacts that can be leveraged to speak to major settlement and subsistence questions.

The prehistoric assemblage from evaluated prehistoric sites is dominated by lithic reduction debris (i.e., debitage and cores) with modest amounts of crude flakedstone tools (i.e., chopping/pounding core and flake tools). Locally abundant rhyolite stone is available on the surface of nearby buttes, which acted as incipient or opportunistic lithic raw material quarries. Within the APE, prehistoric stone quarrying is identifiable primarily by the appearance of local rhyolite cobbles quarried from nearby buttes.

Evaluation efforts were flexible, aimed at collecting a representative sample of flaked lithic debris. As it turned out, the amount of flaked lithic debris encountered was low, consisting only of several hundred pieces of debitage, and as a result, generating a large enough sample to speak to research issues was made difficult. The evaluation program resulted in the conclusion that the area was targeted for an unknown period of time by aboriginal occupants who opportunistically took rhyolite from nearby exposures, subject them to heat, split them to assay quality, and sometimes further reduced cobbles and flakes into cobble or flake-based tools, though not to any great degree. The analysis of debitage confirms this assertion, with large amounts of cortical and early interior debitage, and only trace amounts of debitage that could have resulted from tool edge finishing,

including late interior, biface thinning, and pressure flakes. Indeed, smaller flakes indicative of tool manufacture or repair were almost all cryptocrystalline silicate, rather than rhyolite.

The stone tool analysis indicates that discernable stone tools include unmodified flakes (simple flake tools) and minimally retouched flakes with essentially no formed flake tools. Cobble based chopping and hammering tools were used to reduce cobbles and small outcrops completing a picture of a lithic toolkit intended for the production of flakes either for immediate local use or for transport of smaller, more suitable raw material blanks to other locations. Expedient lithic tool production and use is a common pattern in the Mojave, and is a technique available to hunter-gatherers that balances access costs to high-quality raw materials with the efficiency of using lower-quality local raw materials (Basgall and Overly 2004; Hale et al. 2009).

In context of immediately local archaeological studies, the current prehistoric site evaluations did not result in the identification of any new archaeological patterns, but confirmed an existing understanding of local lithic reduction. That more variety is seen in adjacent areas is probably due to more regular aboriginal occupation of those areas.

Lithic quarrying evidenced at SS-S-10 and SS-S-30 contributes little more than confirmation of regional trends better documented at other local sites and in the western Mojave Desert in general. For this reason, there are no significant patterns identified at these sites that could lead to a recommendation of eligibility under CEQA Criterion 4 or Section 106 Criterion D.

6.4 Summary

The thematic considerations explored in this chapter indicate that archaeological sites within the project APE lack significant deposits for various reasons, but primarily due to low data potential; a factor affecting eligibility determinations under CEQA Criterion 4 and Section 106 Criterion D. Prehistoric sites notably lacked chronological control, diversity, and substantive archaeological deposits. Also sparse, historic period refuse deposits could be assigned to a range of manufacture dates but lacked enough variety to contribute to a regional understanding of material goods consumption and refuse disposal in the local area and broader region.

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7 FINDINGS AND RECOMMENDATIONS

A total a total of 49 resources (33 previously-recorded and 16 newly recorded) were identified within the project APE. These resources included 18 isolates, 22 archaeological resources, and 9 built environment resource. It was determined that 7 of these 49 resources would potentially be impacted by the proposed project. By definition, archaeological isolates are not eligible as significant resources under the CRHR or the NRHP and no further work is necessary in regards to these. Table 12 provides an overview of all identified impacts to resources and any associated mitigation measures necessary to reduce impacts.

Table 12
Archaeological Site Management Recommendations

APE Component	Primary Number (P-15-)	Site Type	Time Range	Significance/ Eligibility Status	Impact	Recommendation/ Mitigation Measures
East-West (E-W)	003528	Unnamed road	Historic	7R (Identified in Survey; Not evaluated)	The road has not been fully evaluated; however, all activities will be limited to crossing the road during construction and maintenance. Provided the road is not altered during these activities there are no impacts.	No impact No mitigation required
E-W	003534	Unnamed road	Historic	7R (Identified in Survey; Not evaluated)	The road has not been fully evaluated; however, all activities will be limited to crossing the road during construction and maintenance. Provided the road is not altered during these activities there are no impacts.	No impact No mitigation required
E-W	003537	Oak Creek Road	Historic	7R (Identified in Survey; Not evaluated)	Oak Creek Road has not been fully evaluated; however, all activities will be limited to crossing the road during	No impact/adverse effects No mitigation required

Table 12
Archaeological Site Management Recommendations

APE Component	Primary Number (P-15-)	Site Type	Time Range	Significance/ Eligibility Status	Impact	Recommendation/ Mitigation Measures
					construction and maintenance. Provided the road is not altered during these activities there are no impacts.	
E-W	003549	Los Angeles Aqueduct	Historic	2B (Determined eligible)	The Aqueduct was determined eligible listing in the NRHP with concurrence from the state historic preservation office; however, the construction of transmission towers will not impact the resource.	No impact/adverse effects No mitigation required
E-W	003929	Los Angeles-Owens River Road	Historic	3D (Appears eligible as contributor)	Los Angeles-Owens River Road has not been fully evaluated; however, all activities will be limited to crossing the road during construction and maintenance. Provided the road is not altered during these activities there are no impacts.	No impact/adverse effects No mitigation required
E-W	012716	Borrow pit and structural remains	Historic	7R (Identified in Survey; Not evaluated)	The site may be destroyed through ground disturbance during project implementation.	Impacts are not significant/ no adverse effects No mitigation required
E-W	013683	Isolate: flake	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore no impact	No impact/adverse effects No mitigation required
E-W	013814	Isolate: can	Historic	6Z (Found ineligible through survey	The isolate is ineligible by definition; therefore	No impact/adverse effects

Table 12
Archaeological Site Management Recommendations

APE Component	Primary Number (P-15-)	Site Type	Time Range	Significance/ Eligibility Status	Impact	Recommendation/ Mitigation Measures
				evaluation)	no impact	No mitigation required
E-W	013963	Isolate: can and steel bucket	Historic	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore no impact	No impact/adverse effects No mitigation required
E-W	014700	Lithic scatter	Prehistoric	7R (Identified in Survey; Not evaluated)	The site has not been fully evaluated; however, no impact would occur if the resources were fully avoided.	No impact/adverse effects if avoided. If avoidance is not feasible, complete evaluation of the resource will be required
E-W	014701	Quarry or prospect site	Prehistoric	7R (Identified in Survey; Not evaluated)	The site has not been fully evaluated; however, no impact would occur if the resources were fully avoided.	No impact/adverse effects if avoided. If avoidance is not feasible, complete evaluation of the resource will be required
E-W	015544	1934 Survey Marker	Historic	7R (Identified in Survey; Not evaluated)	The site has not been fully evaluated; however, no impact would occur if the resources were fully avoided.	No impact/adverse effects if avoided. If avoidance is not feasible, complete evaluation of the resource will be required
E-W	017096	Trash scatter of cans and glass	Historic	6Z (Found ineligible through evaluation)	The site may be destroyed during construction	No significant impacts/no adverse effects No mitigation is required

Table 12
Archaeological Site Management Recommendations

APE Component	Primary Number (P-15-)	Site Type	Time Range	Significance/ Eligibility Status	Impact	Recommendation/ Mitigation Measures
E-W	017097	Trash scatter of cans and glass	Historic	7R (Identified in Survey; Not evaluated)	The site has not been fully evaluated; however, no impact would occur if the resources were fully avoided.	No impact/adverse effects if avoided. If avoidance is not feasible, complete evaluation of the resource will be required
E-W	017098	Trash scatter of cans and glass	Historic	7R (Identified in Survey; Not evaluated)	The site has not been fully evaluated; however, no impact would occur if the resources were fully avoided.	No impact/adverse effects if avoided. If avoidance is not feasible, complete evaluation of the resource will be required
E-W	017119	Isolate: can	Historic	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore no impact	No impact/adverse effects No mitigation required
E-W	017121	Isolate: can	Historic	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore no impact	No impact/adverse effects No mitigation required
E-W	017305	State Route 14/Aerospace Highway	Historic	7R (Identified in Survey; Not evaluated)	State Route 14 has not been fully evaluated; however, all activities will be limited to crossing the road during construction and maintenance. Provided the road is not altered during these activities there are no impacts.	No impact/adverse effects No mitigation required
E-W	018681	LADWP Owens Gorge 230kV transmission line	Historic	7R (Identified in Survey; Not evaluated)	The site has not been fully evaluated; however, no impact would occur if the resources were fully	No impact/adverse effects if avoided. If avoidance is not feasible, complete evaluation of the

Table 12
Archaeological Site Management Recommendations

APE Component	Primary Number (P-15-)	Site Type	Time Range	Significance/ Eligibility Status	Impact	Recommendation/ Mitigation Measures
					avoided.	resource will be required
E-W	SS-I-04	Isolate: lithic	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore no impact	No impact/adverse effects No mitigation required
E-W	SS-S-11	Trash scatter of cans	Historic	7R (Identified in Survey; Not evaluated)	The site has not been fully evaluated; however, no impact would occur if the resources were fully avoided.	No impact/adverse effects if avoided. If avoidance is not feasible, complete evaluation of the resource will be required
E-W	SS-I-14	Isolate: glass	Historic	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore no impact	No impact/adverse effects No mitigation required
E-W, North-South (N-S) Option 1	002050/ 003366/ 000560/ 017333	Union Pacific Railroad and associated spurs	Historic	3CD (Appears eligible for CR as contributor)	The site has not been fully evaluated; however, the construction of transmission towers will not impact the resource.	No impact/adverse effects No mitigation required
N-S Option 1	SS-S-10	Lithic scatter	Prehistoric	Evaluated as eligible for CRHR listing under Criterion 4 and NRHP listing under Criterion D for archaeological values	Archaeological deposits from the site in the APE are not significant; Significant deposits at the site are located outside of the APE and will not be impacted. The project will disturb sediments within the portions of the site within the APE	No significant impacts/no adverse effects No mitigation is required because significant deposits are located outside of the APE
N-S Option 1	SS-S-23	Trash scatter of cans	Historic	6Z (Found ineligible through evaluation)	The site may be destroyed during construction	No significant impacts/no adverse effects No mitigation is required

Table 12
Archaeological Site Management Recommendations

APE Component	Primary Number (P-15-)	Site Type	Time Range	Significance/ Eligibility Status	Impact	Recommendation/ Mitigation Measures
N-S Option 1	SS-S-30	Lithic scatter	Prehistoric	6Z (Found ineligible through evaluation)	The site may be destroyed during construction	No significant impacts/no adverse effects No mitigation is required
N-S Option 2	013801	Trash scatter of metal, glass, butchered bone	Historic	6Z (Found ineligible through evaluation)	The site may be destroyed during construction	No significant impacts/no adverse effects No mitigation is required
N-S Option 2	013802	Trash scatter of glass	Historic	6Z (Found ineligible through evaluation)	The site may be destroyed during construction	No significant impacts/no adverse effects No mitigation is required
N-S Option 2	013806	Isolate: can	Historic	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore no impact	No impact/adverse effects No mitigation required
N-S Option 2	013807	Isolate: can	Historic	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore no impact	No impact/adverse effects No mitigation required
N-S Option 2	013808	Isolate: can	Historic	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore no impact	No impact/adverse effects No mitigation required
N-S Option 2	013809	Isolate: can	Historic	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore no impact	No impact/adverse effects No mitigation required
N-S Option 2	013810	Isolate: bottle base	Historic	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore no impact	No impact/adverse effects No mitigation required
N-S Option 2	013811	Isolate: can	Historic	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore no impact	No impact/adverse effects No mitigation required

Table 12
Archaeological Site Management Recommendations

APE Component	Primary Number (P-15-)	Site Type	Time Range	Significance/ Eligibility Status	Impact	Recommendation/ Mitigation Measures
N-S Option 2	013812	Isolate: can	Historic	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore no impact	No impact/adverse effects No mitigation required
N-S Option 3	000807	Lithic scatter	Prehistoric	7R (Identified in Survey; Not evaluated)	The site has not been fully evaluated; however, no impact would occur if the resources were fully avoided.	No impact/adverse effects if avoided. If avoidance is not feasible, complete evaluation of the resource will be required
N-S Option 3	004763	Sierra Highway	Historic	7R (Identified in Survey; Not evaluated)	Sierra Highway has not been fully evaluated; however, all activities will be limited to crossing the road during construction and maintenance. Provided the road is not altered during these activities there are no impacts.	No impact/adverse effects No mitigation required
N-S Option 3	004764	Isolate: lithic core	Prehistoric	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore no impact	No impact/adverse effects No mitigation required
N-S Option 3	004765	Isolate: Glass insulator	Historic	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore no impact	No impact/adverse effects No mitigation required
N-S Option 3*	SS-I-15	Isolate: Can	Historic	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore no impact	No impact/adverse effects No mitigation required
N-S Option 3*	SS-I-16	Isolate: Can	Historic	6Z (Found ineligible through survey evaluation)	The isolate is ineligible by definition; therefore no impact	No impact/adverse effects No mitigation required
N-S Option 3*	SS-S-31	Trash scatter of cans and	Historic	7R (Identified in Survey; Not	Trash scatter of cans and glass	Option removed from consideration

Table 12
Archaeological Site Management Recommendations

APE Component	Primary Number (P-15-)	Site Type	Time Range	Significance/ Eligibility Status	Impact	Recommendation/ Mitigation Measures
		glass		evaluated)		No impact/adverse effects No mitigation required
N-S Option 3*	SS-S-32	Trash scatter of cans and glass	Historic	7R (Identified in Survey; Not evaluated)	Trash scatter of cans and glass	Option removed from consideration No impact/adverse effects No mitigation required
N-S Option 3*	SS-S-33	Trash scatter of cans and glass	Historic	7R (Identified in Survey; Not evaluated)	Trash scatter of cans and glass	Option removed from consideration No impact/adverse effects No mitigation required
N-S Option 3*	SS-S-34	Trash scatter of cans and glass	Historic	7R (Identified in Survey; Not evaluated)	Trash scatter of cans and glass	Option removed from consideration No impact/adverse effects No mitigation required
N-S Option 3*	SS-S-35	Trash scatter of cans and glass	Historic	7R (Identified in Survey; Not evaluated)	Trash scatter of cans and glass	Option removed from consideration No impact/adverse effects No mitigation required
N-S Option 3*	SS-S-36	Trash scatter of cans and glass	Historic	7R (Identified in Survey; Not evaluated)	Trash scatter of cans and glass	Option removed from consideration No impact/adverse effects No mitigation required
N-S Option 3*	SS-S-37	Trash scatter of cans and	Historic	7R (Identified in Survey; Not	Trash scatter of cans and glass	Option removed from consideration

Table 12
Archaeological Site Management Recommendations

APE Component	Primary Number (P-15-)	Site Type	Time Range	Significance/ Eligibility Status	Impact	Recommendation/ Mitigation Measures
		glass		evaluated)		No impact/adverse effects No mitigation required
N-S Option 3*	SS-S-38	Trash scatter of cans and glass	Historic	7R (Identified in Survey; Not evaluated)	Trash scatter of cans and glass	Option removed from consideration No impact/adverse effects No mitigation required

7.1 Impact Analysis and Project Effects

Of the 31 archaeological or built environment resources that were identified within the APE, one (P-15-003549/CA-KER-3549H: Los Angeles Aqueduct) has been determined eligible for listing in the CRHR/NRHP and three (SS-S-10: prehistoric site; P-15-003929/CA-KER-3929H: LA-Owens River Road and P-15-002050/P-15-003366/P-15-000560/CA-KER-2050H: Union Pacific Railroad) appear eligible for the CRHR and NRHP through survey evaluation (see Table 12).

Implementation of any project option, however, would not result in significant impacts or adverse effects any of these CRHR or NRHP listed or eligible cultural resources. The gen-tie line would span the historic built environment resources, with towers placed systematically to ensure avoidance. At prehistoric site SS-S-10, no significant archaeological deposits were identified within the transmission line APE; all significant components of this site are located well outside of the limits of project disturbance. As a result, the construction of a gen-tie would not degrade the character-defining qualities of the significant resources or materially alter their physical components.

Isolated finds by definition; however, are not sites and therefore not eligible for inclusion in the CRHR or NRHP. As a result, no impacts will occur to the 16 isolated finds (14 previously recorded and 2 newly recorded).

7.1.1 Unavoidable Impacts/Effects

Implementation of the proposed project will result in unavoidable impacts to seven (7) archaeological resources: prehistoric sites SS-S-10 and SS-S-30, and historic period refuse

deposits (P-15-012716, P-15-013801, P-15-013802, P-15-013807, P-15-017096, SS-S-11, and SS-S-23). Each of these impacted sites was evaluated for significance and eligibility for listing in the CRHR and NRHP. SS-S-10 is recommended eligible under CEQA Criterion 4 and Section 106 Criterion D for archaeological deposits that hold scientific value. However, the significance-conveying deposits at SS-S-10 are located outside of the project APE and will not be impacted. Impacted portions of SS-S-10 do not contain significant deposits and therefore, there will be no significant impacts or adverse effects to SS-S-10.

The remaining six evaluated sites (SS-S-30, P-15-012716, P-15-013801, P-15-013802, P-15-013807, P-15-017096, SS-S-11, and SS-S-23) are recommended as not significant and not eligible for CRHR or NRHP listing under any significance criteria. Therefore, implementation of the project will not have a significant impact or adverse effect on these sites.

No other cultural resources will be impacted by implementation of the project and will be avoided in place. If changes to project design occur and avoidance is not feasible for any or all of the unevaluated resources, further work will need to be completed to determine the significance of the newly identified impacted resources and the significance of impacts.

7.1.2 Significant Impacts/ Adverse Effects

Implementation of the project will not have a significant impact or adverse effect on any of the cultural resources identified within the APE. Impacts to seven archaeological sites within the APE are not significant and do not constitute an adverse effect.

Avoidance of impacts is feasible for all other identified cultural resources within the APE. Should project implementation be unable to avoid these resources, the project would have the potential to significantly impact the resources under CEQA, and have the potential for an adverse effect under Section 106 of the NHPA. Under that scenario, newly identified impacts to unevaluated resources would require significance evaluation to determine the impacted resource's potential eligibility under CEQA and Section 106, prior to determining the significance of those impacts and proposing mitigation. Likewise, newly identified impacts to the significance-conveying elements of resources identified as eligible for CRHR or NRHP listing would require resource-specific mitigation.

7.1.3 Further Considerations

North–South Gen-Tie Route Options 1 and 3 traverse a depositional environment where the likelihood of encountering significant subsurface deposits is relatively higher than in neighboring areas. Therefore, there is a moderate potential for encountering significant buried archaeological deposits during earth-moving activities for project implementation. Such inadvertent discoveries

would result in a significant impact under CEQA or adverse effect under Section 106 of the NHPA if such resources were found to be significant due to damage incurred during the discovery and evaluation process.

Furthermore, there is always the potential to discovery human remains and grave goods during project implementation. Such discoveries would also be considered a significant impact under CEQA and an adverse effect under Section 106 of the NHPA.

7.2 Management Recommendations

Three resources that are eligible for or listed in the CRHR and NRHP are within the APE (P-15-003549/CA-KER-3549H/Los Angeles Aqueduct, P-15-003929/CA-KER-3929H/LA-Owens River Road, and P-15-002050/P-15-003366/P-15-000560/CA-KER-2050H/Union Pacific Railroad). The gen-tie line would span across these resources, with towers placed systematically to ensure avoidance. As a result, implementation of any project option would not result in significant impacts or adverse effects to any of these resources. No further work is warranted on these resources.

Prehistoric site SS-S-10 is recommended eligible for its scientific research value under CEQA Criterion 4 and Section 106 Criterion D. However, none of the significance-conveying deposits identified at this site are located within the project APE. Therefore, implementation of the project will not have a significant impact or adverse effect on SS-S-10. Should avoidance of the significant deposits at SS-S-10 become infeasible, impacts will be considered significant and mitigation in the form of archaeological data recovery is recommended.

The project avoids all other cultural resources identified in the APE. In the event that the project design changes and avoidance becomes infeasible, formal significance evaluation is recommended to determine the significance of newly impacted resources, and to determine appropriate mitigation for those found to be significant under CEQA or Section 106. .

Cultural resources monitoring is recommended during earth-moving activities associated with project implementation within 500 feet of known cultural resources, and on an occasional (spot check) basis to ensure that inadvertent discoveries are properly treated. A cultural resources monitoring plan should be developed in conjunction with the project proponent and lead agencies to guide monitoring activities and delineate the locations and intensity of monitoring.

In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found, the County coroner shall be immediately notified of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County coroner has determined, within two working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If

the County coroner determines that the remains are, or are believed to be, Native American, he or she shall notify the NAHC in Sacramento within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendant from the deceased Native American. The most likely descendant shall complete their inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains.

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APPENDIX A
Resource Location Maps

Redacted from Public Version

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APPENDIX B

Department of Parks and Recreation
Series 523 Forms

Redacted from Public Version

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APPENDIX C
Records Search Results

Redacted from Public Version

Appendix F

Energy Consumption Technical Report

ESA

Energy Consumption Technical Report for the Sanborn Solar Project, Kern County, California

Prepared for:

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AUGUST 2019

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
AB	Assembly Bill
AC	alternating current
CalEEMod	California Emissions Estimator Model
CALGreen	California's Green Building Standards
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CO_2	carbon dioxide
County	County of Kern
CPUC	California Public Utilities Commission
EKAPCD	Eastern Kern Air Pollution Control District
EO	Executive Order
EPA	U.S. Environmental Protection Agency
GHG	greenhouse gas
HAPs	hazardous air pollutants
HFC	hydrofluorocarbon
IPCC	Intergovernmental Panel on Climate Change
Kern COG	Kern County Council of Governments
KV	kilovolt
LCFS	Low Carbon Fuel Standard
LOS	level of service
MW	megawatt
MWh	megawatt-hour
MMT	million metric ton
MT CO_2e	metric tons of CO_2 equivalent
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen
O_3	ozone
ppb	parts per billion
ppm	parts per million
PV	photovoltaic
RCP	Regional Comprehensive Plan
RPS	Renewable Portfolio Standard
RTP	Regional Transportation Plan
SB	Senate Bill
SCS	Sustainable Communities Strategy

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EXECUTIVE SUMMARY

The purpose of this technical report is to assess the potential energy consumption impacts associated with implementation of the proposed Sanborn Solar Project (project). This assessment utilizes the significance thresholds in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.).

Project Overview

Sanborn Solar, LLC ("Applicant") proposes to construct and operate a 300-megawatt (MW) solar photovoltaic (PV) project in Kern County, near Mojave. The project would also include an energy storage facility, substations, and operations and maintenance building, electrical collector system and inverters, gen-tie power line and interconnection, and telecommunication facilities. The combined solar PV and energy storage components would enable the project to produce up to a combined 300 MW annually. Power generated by the proposed project would be transferred by a 230 kV gen-tie line to the shared switchyard, and ultimately to the existing SCE Windhub Substation and/or the privately owned Westwind Substation. The solar facilities would utilize PV technology and consist of solar arrays mounted on either fixed or tracking structures mounted to vertical posts. The solar facilities would operate year-round and would generate electricity during the daylight hours when electricity is at its peak.

Energy Consumption

The energy consumption analysis evaluated the potential for wasteful or inefficient use of energy due to the construction and operation of the project. At this time, neither Kern County nor the EKAPCD has developed numerical thresholds to evaluate energy consumption. Therefore, impacts were evaluated for their significance based on state and countywide energy consumption estimates.

Project-Generated Construction and Operational Energy Consumption

Construction of the project would result in energy consumption primarily associated with the use of petroleum products (gasoline and diesel) from off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. Total project-generated petroleum use during construction was estimated to be 1,075,974 gallons over the construction period (18 months). By comparison, Countywide total petroleum use by vehicles is expected to be 731 billion gallons per year by 2022 (CARB 2019). Therefore, because petroleum use during construction would be temporary and relatively minimal, and would not be wasteful or inefficient, impacts would be **less than significant**.

The project would result in petroleum consumption during operation from vehicular sources from routine maintenance of the site, and electricity and natural gas consumption from operation of the

operation and maintenance (O&M) building and solar equipment during non-generation hours (i.e. inverter cooling and racking motor movements into the stowed position). Estimated annual project-generated operational energy consumption would be approximately 2,816 megawatt-hours (MWh) of electricity, 11.8 thousand gallons of petroleum and 482,496 thousand British thermal units (kBtu) per year of natural gas. By comparison, Countywide total petroleum use by vehicles is expected to be 731 billion gallons per year by 2022 (CARB 2018). The non-residential electricity demand in 2018 was 13,429 GWh for Kern County (CEC 2019) and the non-residential natural gas consumption in 2018 was 2,334 million MMBtu for the County (CEC 2018). Therefore, the project's energy consumption would not be cumulatively considerable and is less than significant.

Energy Benefits

Renewable energy production would potentially offsets energy consumption required by the project. The project would provide a potential of 920,400 MWh per year. In comparison the project would require approximately 2,816 MWh per year to operate. Therefore the project would provide a net surplus of renewable energy. Additionally, it should be noted that due to the project featuring a battery storage facility, it is more likely to utilize all the generated electricity from the solar farm compared to projects without energy storage.

Consistency with Applicable Energy Reduction Plans

The project's consistency was evaluated against the KCOG SCS/RTP, CARB's Scoping Plan, and SB 32 and S-3-05. The project was found to be consistent with the underlying assumptions in the KCOG SCS/RTP. Similarly, the project was consistent with the goals and applicable measures in the Scoping Plan. The project would also contribute to and be consistent with SB 32 and S-3-05. This impact would be less than significant.

1 INTRODUCTION

1.1 Report Purpose and Scope

The purpose of this technical report is to assess the potential energy consumption impacts associated with implementation of the proposed Sanborn Solar Project (project). This assessment uses the significance thresholds in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.).

This introductory section provides a description of the project and the project location. Section 2, Energy Consumption, describes the energy–related environmental setting, regulatory setting, existing energy consumption, and thresholds of significance and analysis methodology and presents an energy consumption impact analysis per Appendix G of the CEQA Guidelines. Section 3, References Cited, includes a list of the references cited. Section 4, List of Preparers, includes a list of those who prepared this technical report.

1.2 Regional and Local Setting

1.2.1 Regional Location

The project is located at the western edge of the Antelope Valley, directly south of the community of Mojave. The solar generation sites and 1.3 miles of the gen-tie are located east of State Route (SR) 14 (Antelope Valley Freeway) and the remainder of the gen-tie is located west of SR 14. The northern site is less than 1 mile southwest of State Route (SR) 58 (West Avenue D) and south of the Mojave Air and Space Port. The Burlington Northern Santa Fe (BNSF) Railway forms the western edge of the northern site and the gen-tie line crosses the BNSF Railway in two locations. The western extent of the gen-tie line is approximately 38 miles east of Interstate-5 (I-5). The gen-tie line crosses the Los Angeles Aqueduct approximately 1.5 miles east of the Windhub Substation. The southern site is directly north of Edwards Air Force Base. The northern site lies in the Sanborn and Mojave U.S. Geological Survey (USGS) 7.5-minute quadrangles, Sections 22, 23, 26, 27, 34, and 35, Township 11 North, Range 12 West, San Bernardino Base and Meridian. The southern site lies in the Bissell USGS 7.5-minute quadrangles, Sections 1, 6, 7 and 12, Township 10 North, Ranges 12 West and 11 West, San Bernardino Base and Meridian (see Figure 2, Vicinity Map).

1.2.2 Project Setting

The project is located in the southern portion of Kern County, in central California as shown in Figure 2, Vicinity Map. The project site is located southeast of the Tehachapi Mountains and at the western edge of the Antelope Valley, in the southeastern portion of Kern County, approximately 10 miles north of Los Angeles County, and directly south of the community of Mojave.

The project is located directly south of the community of Mojave, approximately 9 miles southeast of the City of Tehachapi, approximately 6 miles southwest of California City, and approximately 40 miles southeast of the City of Bakersfield. Other communities within the vicinity include Rosamond in Kern County and the Cities of Lancaster and Palmdale in Los Angeles County, which are roughly 7 miles south, 18 miles south, and 25 miles south of the project site, respectively. Edwards Air Force Base is located directly south of the project site.

Land usages in the project area consist of a mix of agricultural grazing, undeveloped land, scattered single-family residences, and several approved or proposed large-scale solar facilities (RE Gaskell West Solar, RE Garland Solar, RE Astoria Solar, Antelope Valley Solar, Rosamond Solar, and Kingbird Solar). Topography across the project site is relatively flat as the site is south of the Tehachapi Mountains on lands that gradually slope downward from the northwest to the southeast. Desert vegetation dominates the region. The major north-south roadways in the region is SR 14, a four-lane highway that bi-sects the gen-tie line. SR 58 is north and northeast of the project site and is less than 1 mile from the northern site. The project site is located approximately 38 miles east of I-5 and 17 miles north of SR 138. The project area is primarily accessible by exiting SR 14. The project site would be accessed from gates off of use Silver Queen Road, Reed Avenue, Lone Butte Road, and 10th Street.

1.2.3 Surrounding Land Uses and Project Site Conditions

The project site is located in an area of low population density and scattered vacant land and is traversed by a network of dirt roads. However, the site is directly south of the community of Mojave, which has a population of 4,238. The project site consists largely of undeveloped lands, comprised of privately owned parcels. The project site is located on the northwestern end of the Antelope Valley. Existing development in the project vicinity includes rural access roads, scattered rural residences, producing and non-producing water wells, off-highway vehicle use, cattle ranching and maintenance facilities, mining, wind and solar energy, and planned/existing met towers. The community of Mojave is directly north of the site, which includes the Mojave Air and Space Port. The BNSF Railway forms the western edge of the northern site and the gen-tie line crosses the BNSF Railway in two locations. The southern site is directly north of Edwards Air Force Base.

Forest, parkland, and preserve areas in the vicinity of the project site include: the Tomo-Kahni State Historic Park approximately 7 miles northwest; the Angeles National Forest located approximately 25 miles southwest; the Desert Pines Wildlife Sanctuary and the Arthur B. Ripley Desert Woodland State Park located approximately 22 miles to the southwest; the Antelope Valley California Poppy Reserve located approximately 20 miles to the southwest; the Saddleback Butte State Park and the Antelope Valley Indian Museum approximately 24 miles southeast. The Pacific Crest National Scenic Trail (commonly known as the Pacific Crest Trail or PCT) passes approximately 4 miles northwest of the gen-tie line. The gen-tine line crosses the Los Angeles Aqueduct approximately 1.5 miles east of the Windhub Substation. The project site is not located within the boundaries of an adopted Habitat Conservation Plan.

1.3 Proposed Project Description

1.3.1 Project Characteristics

The proposed project would include the development of solar facilities and associated infrastructure with the capacity to generate up to 300 MW of renewable electric energy and/or energy storage capacity. Power generated by the proposed project would be transferred to the Windhub Substation and/or Westwind Substation within the gen-tie study area shown on Figure 1. The solar facilities would utilize PV technology and consist of solar arrays mounted on either fixed or tracking structures mounted to vertical posts. The solar facilities would operate year-round and would generate electricity during the daylight hours when electricity is at its peak. The site plan for the proposed project is shown in Figure 3, Project Site Plan.

The solar and/or energy storage facilities are intended to operate year-round, and would be designed to produce up to a combined 300 MW of solar power and/or energy storage capacity at the Point of Interconnection to the transmission grid.

Solar PV Generating Facilities and Solar Modules

The proposed project would utilize system blocks to convert solar energy directly to electrical power for export to the electrical grid. The proposed project would install PV modules that would be mounted on steel support posts that are placed pile driven into the ground and connected to inverters. The modules would be made of a thin film material or polycrystalline silicon material covering the glass panes, which would be dark in color, are highly absorptive, and have minimum reflectivity. The modules would be manufactured at an offsite location and transported to the project site.

Energy Storage Facility

The proposed project would install an energy storage facility and appurtenances that would provide energy storage capacity for the electric grid. The energy storage technology has not been determined at this time, but could include any commercially available battery technology, including but not limited to lithium iron, lead acid, sodium sulfur, and sodium or nickel hydride.

Substations

The proposed project would include construction of a substation to collect the power generated by the PV solar system blocks, transport the power via the underground/overhead power collection system, and then convert the energy generated by the solar facilities for transmission in a 230 kV line to the SCE Windhub Substation and/or the privately owned Westwind Substation.

Equipment at each of the substations would include a power transformer; foundations and oil containment system for the power transformer; concrete pad for the relay enclosure structure; a pre-fabricated relay enclosure to enclose the protection and control equipment; metering equipment; dead end structure; and high voltage step-up transformer, disconnect switches, circuit breakers and all associated equipment required to be compliant with utility grade interconnection services. The substation facilities would house the power generation control and relaying equipment, station batteries, SCADA and communication systems, and potentially housing with radio or microwave communication mounted on a transmission tower.

Operations and Maintenance Building

The O&M building would be up to approximately 8,000 square feet and is expected to be co-located with the proposed collector substation. It is anticipated that a maximum of six permanent staff employees would use the O&M building for ongoing facility monitoring, equipment storage, and repairs. The O&M building is expected to be a prefabricated commercial structure that measures up to 100 feet by 80 feet in area and 12 feet high. Permanent restroom facilities with septic tanks and/or portable toilets would be used for sanitary purposes at the O&M building, and a permanent water source in the form of trucked water, well water, or bottled water would be provided for the staff. The proposed building would include the requisite number of parking spaces for staff members' vehicles and O&M equipment.

Electrical Collection System and Inverters

The solar panels would be electrically connected to each other via aboveground wiring, and combiner boxes via underground wiring. Underground electrical cables (underground collection system) would be installed from groups of PV arrays that would be arranged into power blocks. The cables would convey direct current (DC) electricity to inverters, which convert the DC to alternating current (AC). All electrical inverters and the transformers would be installed on pre-fabricated metal skids that sit on steel pier foundations or concrete foundation, depending on the design. The inverter pad transformers would step up the voltage of the array output, which would be collected at the onsite circuit breakers or switchgear positions). From the circuit breakers or switchgear positions, the medium voltage collector lines would be routed to the onsite solar substations and transformed via high-voltage transformers to 230 kV and exported to the SCE Windhub Substation or the privately owned Westwind Substation.

1.3.2 Construction

Schedule and Workforce

The construction of the proposed project would last up to 30 months. However, for emissions modeling purposes it was conservatively assumed to require 18 months. Construction activities

for the proposed project generally fall into three main categories: (1) site preparation; (2) system installation; and (3) testing, commissioning, cleanup.

The onsite construction workforce is expected to peak at up to 300 individuals; however, the average daily workforce is expected to be 150 construction, supervisory, support, and construction management personnel onsite during construction. It is anticipated that the construction workforce would commute to the site each day from local communities and report to the designated construction staging yards prior to the beginning of each workday. Construction staff not drawn from the local labor pool would stay in local hotels in Rosamond, Mojave, Lancaster, or other local communities. One or more of the proposed laydown yards may be used as a parking and meeting area for the construction employees and would be reclaimed after substantial completion of the project is reached. It is anticipated that the employees would utilize Silver Queen Road, Reed Avenue, Lone Butte Road, and 10th Street as points of ingress/egress to the property and that, once on site, they would access various sections via the existing and improved network of dirt roads.

The proposed project would be constructed by several, specialized construction contractors. Construction would primarily occur during daylight hours, Monday through Friday, between 7:00 a.m. and 6:00 p.m., as required to meet the construction schedule. Any construction work performed outside of the normal work schedule would be coordinated with the appropriate agencies and would conform to the Kern County Noise Ordinance (Chapter 8.36).

Construction of the proposed project would also include the creation of access roads to the proposed panel locations, and construction of solar panels. In addition, the proposed project would require the installation of underground/overhead electricity lines, electrical transformers, laydown yards, as well as construction and installation of overhead electricity lines from the project site to the electrical interconnection point. Restoration of disturbed areas, temporary roadways, and equipment laydown sites that are not required as part of the ongoing operating of the facility would be reclaimed. Staging areas may be required for material handling, temporary storage, and other staging activities. In addition, a temporary concrete batch plant would be located within the project site during the construction phase, if required.

Site Grading and Earthwork

Construction activities would be expected to include mowing, excavation and grading of the project site. Site preparation and construction would occur in accordance with all federal, state, and Kern County zoning codes and requirements. Noise generating construction activities would be limited to the construction hours noted above. All stationary equipment and machines with the potential to generate a significant increase in noise or vibration levels would be located away from noise receptors to the extent feasible. The contractor would conduct construction activities in such a manner that the maximum noise levels at the affected buildings would not exceed established noise levels.

All applicable local, state, and federal requirements and best management practices (BMPs) would be incorporated into the construction activities for the project site. Beginning work on the project site would involve preparing the land for installation of arrays, energy storage facility, related infrastructure, access driveways, and temporary construction staging areas. The construction contractor would be required to incorporate BMPs consistent with the Kern County zoning ordinance and with guidelines provided in the California Storm Water Best Management Practice Handbooks: Construction, including the preparation of a Storm Water Pollution Prevention Plan (SWPPP) and a Soil Erosion and Sedimentation Control Plan in order to reduce potential impacts related to construction of the proposed project. Prior to initial construction mobilization, preconstruction surveys would be performed and sediment and erosion controls would be installed in accordance with the approved SWPPP. Stabilized construction entrance and exits would be installed at driveways to reduce tracking of sediment onto adjacent public roadways.

Site preparation would be consistent with Kern County's BMPs and Eastern Kern Air Pollution Control District rules for dust control. Site preparation would involve the removal and proper disposal of existing vegetation and debris that would unduly interfere with project construction or the health and safety of onsite personnel. Dust minimizing techniques would be employed, such as maintaining natural vegetation where possible, utilizing "mow-and-roll" vegetation clearance strategy, placement of wind control fencing, application of water, and application of dust suppressants. Conventional grading would be performed throughout the project site but minimized to the maximum extent possible to reduce unnecessary soil movement that may result in dust. Earthworks scrapers, excavators, dozers, water trucks, paddlewheels, haul vehicles, and graders may all be used to perform grading. Land-leveling equipment, such as a smooth steel drum roller, would be used to even the surface of the ground and to compact the upper layer of soil to a value recommended by a geotechnical engineer for structural support. Access roads may be additionally compacted to 90% or greater, as required, to support construction and emergency vehicles. Certain access roads may also require the use of aggregate of decomposed granite to meet emergency access requirements. Soil movement from grading would be balanced on the site, and no import or export of soils would occur.

When possible, grading activities would be undertaken outside the normal rainy season (i.e., October 15 to April 15 for most of Southern California), thus minimizing the potential for increased surface runoff and the associated potential for soil erosion. It is anticipated that the recommended construction period would begin in early January in order to minimize effects on sensitive species and habitats, and completed 22 months later. Any construction activities that should take place in the rainy season would require supplemental erosion measures to be implemented.

Trenching would be required for placement of underground electrical and communications lines, and may include the use of trenchers, backhoes, excavators, haul vehicles, compaction equipment, and water trucks. After preparation of the site, the pads for structures, equipment enclosures and

equipment vaults would be prepared per geotechnical engineer recommendations. The substations and switchyard areas would have a grounding grid installed and be covered with aggregate surfacing for safe operation. Collection and transmission structures from the substation and switchyard to the existing transmission line would require drilling for foundation support, and the soils removed would be spread across the project site.

Construction equipment would be turned off when not in use. The construction contractor would ensure that all construction and grading equipment is properly maintained. All vehicles and compressors would utilize exhaust mufflers and engine enclosure covers (as designed by the manufacturer) at all times.

Solar Array Assembly

Erection of the solar arrays would include support structures and associated electrical equipment and cabling. First, steel piles would be driven into the soil using pneumatic techniques, similar to a hydraulic rock hammer attachment on the boom of a rubber-tired backhoe excavator. The piles, or "standards," are typically spaced 10 feet apart and installed to a revealed height of approximately 4 feet above grade. Once the standards have been installed, the horizontal cross-members of the single-axle tracking system and associated motors would be placed and secured. A galvanized metal racking system, which holds the PV modules in the correct position for maximum capture of solar insulation would then be field assembled and attached to the horizontal cross members. The arrays would consist of either a fixed mount system or a single-axis tracking system.

Concrete would be required for the footings and pads for the substation transformers and equipment. Concrete may also be required for pile foundation support depending on the proposed mounting system chosen for installation. Final concrete specifications would be determined during detailed design engineering. Concrete will be purchased from an offsite supplier and trucked into the project site.

During this work, there would be multiple crews working on the site with various equipment and vehicles, including special vehicles for transporting the modules and other equipment. As the solar arrays are installed, the substations and shared solar switchyard would be constructed and the electrical collection and communication systems would be installed. Within the solar fields, the electrical and communication wiring would be installed in underground trenches, although some of the mid-voltage collection runs and communications may be on overhead lines. The wiring would connect to the appropriate electrical and communication terminations and the circuits would be checked and commissioned prior to operation.

Construction Water Use

During construction of the proposed project, water would be required for common construction-related purposes, including but not limited to: dust suppression, soil compaction, truck wheel

washing, and grading. Dust control water may be used for construction traffic ingress and egress of onsite construction vehicle equipment traffic, and for the construction of the solar equipment. A sanitary water supply would not be required during construction, as restroom facilities would be provided by portable units to be serviced by licensed providers. The overall construction water usage is anticipated to be approximately 200 acre-feet (AF) during the 18-month construction period. During construction the water used is anticipated to be supplied by an offsite source or onsite water wells to be purchased from a local water purveyor. Water demand during construction is expected to be the same if the project is constructed during a year with normal precipitation, a year with less-than-average precipitation, or a multi-year period of less than-average precipitation.

1.3.3 Operation

Typical O&M activities that would occur on the project site during operation include, but are not limited to: liaison and remote monitoring; administration and reporting; semi-annual and annual services; remote operations of inverters; site security and management; additional communication protocol; repair and maintenance of solar facilities, substations, electrical transmission lines, and other project facilities; and periodic panel washing.

Electrical Supply

Power for the O&M buildings and the project's associated structures would be provided by the project's electrical generation or supplied by the local power provider. The project would require power for the electrical enclosures, substation equipment, tracker motors, associated structures, and for plant lighting and security. The switchgear building battery room would supply DC power for the substation protection equipment.

Operations Water Use

During operation and maintenance of the Project, it is anticipated that water would be required for panel washing, equipment washing, non-sanitary uses, and other miscellaneous water uses, such as landscaping. It is anticipated that a total of approximately 30 acre feet per year (AFY) would be used for O&M activities on the project site. Water needed for ongoing operations and sanitary uses would be brought in by truck or procured from an onsite well. Bottled water for staff consumption would be provided. As noted above, water trucked in would be used to supply water for the O&M buildings and for ongoing maintenance activities during operations.

Solid Waste

The project would produce a small amount of waste associated with maintenance activities, which could include broken and rusted metal, defective or malfunctioning modules, electrical materials, empty containers, and other miscellaneous solid wastes, including the typical refuse generated by

workers. Most of these materials would be collected and delivered back to the manufacturer or to recyclers. Non- recyclable waste would be placed in covered dumpsters and removed on a regular basis by a certified waste-handling contractor for disposal at a Class III landfill.

Security and Lighting

The proposed project would be fenced to help prevent access by the public. Gates would be installed at the roads entering the project site. Limiting access to the project site would be necessary both to ensure the safety of the public and to protect the equipment from potential theft and vandalism.

There is minimal potential for wildfire in the vicinity. Vegetation is sparse with little potential for vegetative fuel buildup. Nevertheless, the project proponent would prepare a fire safety plan for the project in compliance with applicable Kern County regulations.

The project's lighting system would provide operation and maintenance personnel with illumination for both normal and emergency conditions. Lighting would be designed to provide the minimum illumination needed to achieve safety and security objectives. Additionally, lighting would be directed downward and shielded to focus illumination on the desired areas only and to minimize light trespass in accordance with applicable Kern County requirements.

Assumptions used to estimate project-generated operational energy consumption are discussed in Section 2.4.2, Approach and Methodology.

Decommissioning

At the end of the proposed project's operational term, the project proponent may determine that the project site should be decommissioned and deconstructed, or it may seek an extension of its Conditional Use Permit (CUP). Because the PV arrays supporting equipment sit on the surface of the land, when the arrays are removed after the proposed project's lifetime, the land would be largely unaltered from its natural state. The project proponent will work with the County to put an agreement in place that will ensure the decommissioning of the project site after its productive lifetime. The proposed project would utilize BMPs to ensure the collection and recycling of modules and to avoid the potential for modules to be disposed of as municipal waste.

The project has an anticipated operational life of up to 35 years, after which the project proponent may choose to update site technology and re-commission, or decommission and remove the systems and their components. All decommissioning and restoration activities would adhere to the requirements of the appropriate governing authorities and in accordance with all applicable federal, State, and county regulations. Following the expiration of a Power Purchase Agreement for the proposed project, the project proponent may, at its discretion, choose to enter into subsequent Power Purchase Agreements or decommission and remove the system and its components. The

project site could then be converted to other uses in accordance with the applicable land use regulations in effect at that time.

It is anticipated that during project decommissioning project structures would be removed from the ground on the project site. Above-ground equipment that would be removed would include module posts and support structures, onsite transmission poles that are not shared with third parties and the overhead collection system within the project site, inverters, transformers, electrical wiring, and equipment on the inverter pads. The substation would be removed if it is owned by the project, however if a public or private utility assumes ownership of the substation, the substation may remain onsite to be used as part of the utility service to supply other applications.

Equipment would be de-energized prior to removal, salvaged (where possible), placed in appropriate shipping containers, and secured in a truck transport trailer for shipment offsite to be recycled or disposed of at an appropriately licensed disposal facility. Removal of the solar modules would include removal of the racks on which the solar panels are attached, and their placement in secure transport crates and a trailer for storage, for ultimate transportation to another facility. Once the solar modules are removed, the racks would be disassembled, and the structures supporting the racks would be removed. Site infrastructure would be removed, including fences, and concrete pads that may support the inverters, transformers and related equipment. The demolition debris and removed equipment may be cut or dismantled into pieces that can be safely lifted or carried with the equipment being used. The fence and gates would be removed, and all materials would be recycled to the extent feasible. Project roads would be restored to their pre-construction condition unless the landowner elects to retain the improved roads for access throughout that landowner's property. The area would be thoroughly cleaned and all debris removed. A collection and recycling program would be executed to promote recycling of project components and minimize disposal in landfills.

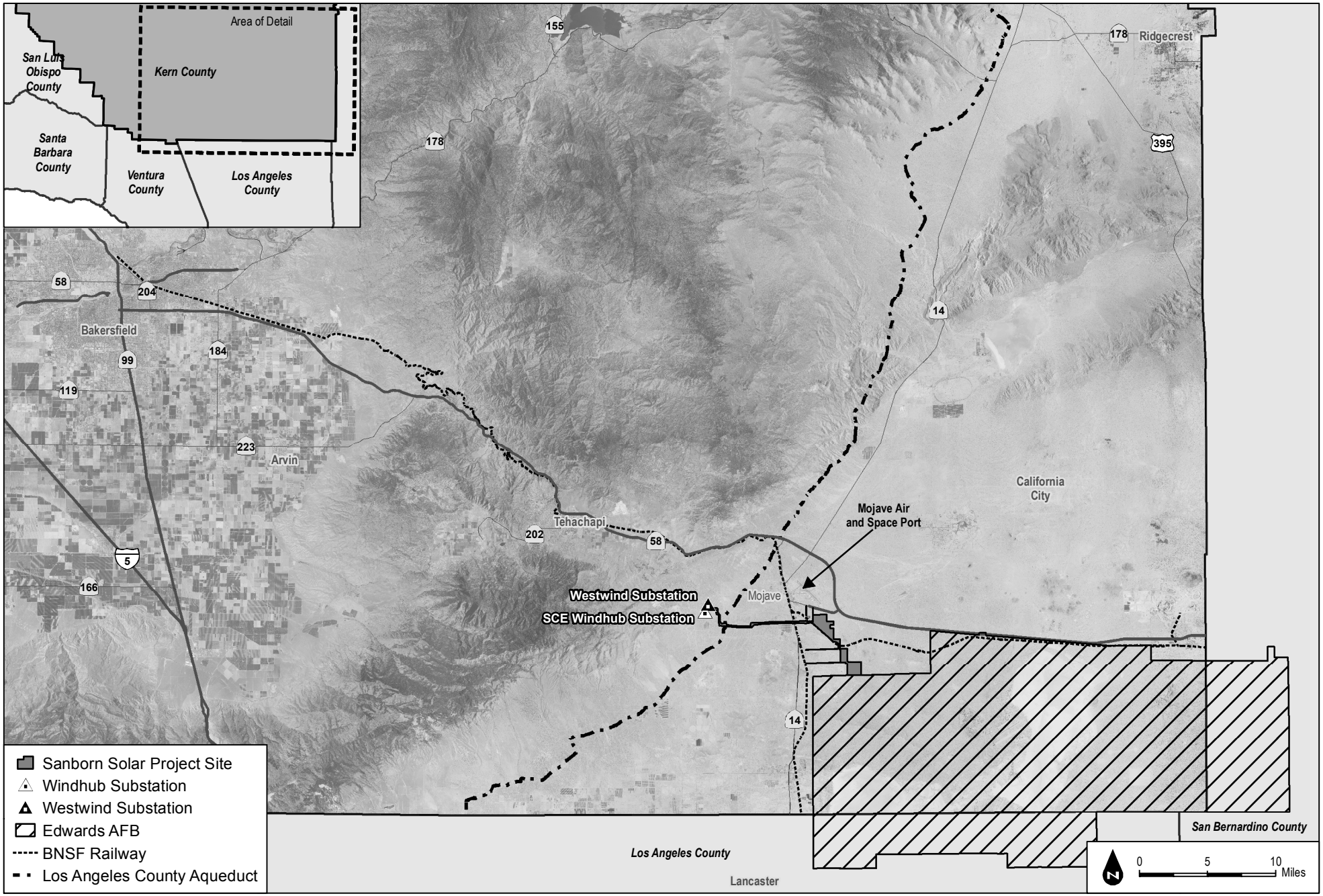

Figure 1-1: PROJECT VICINITY

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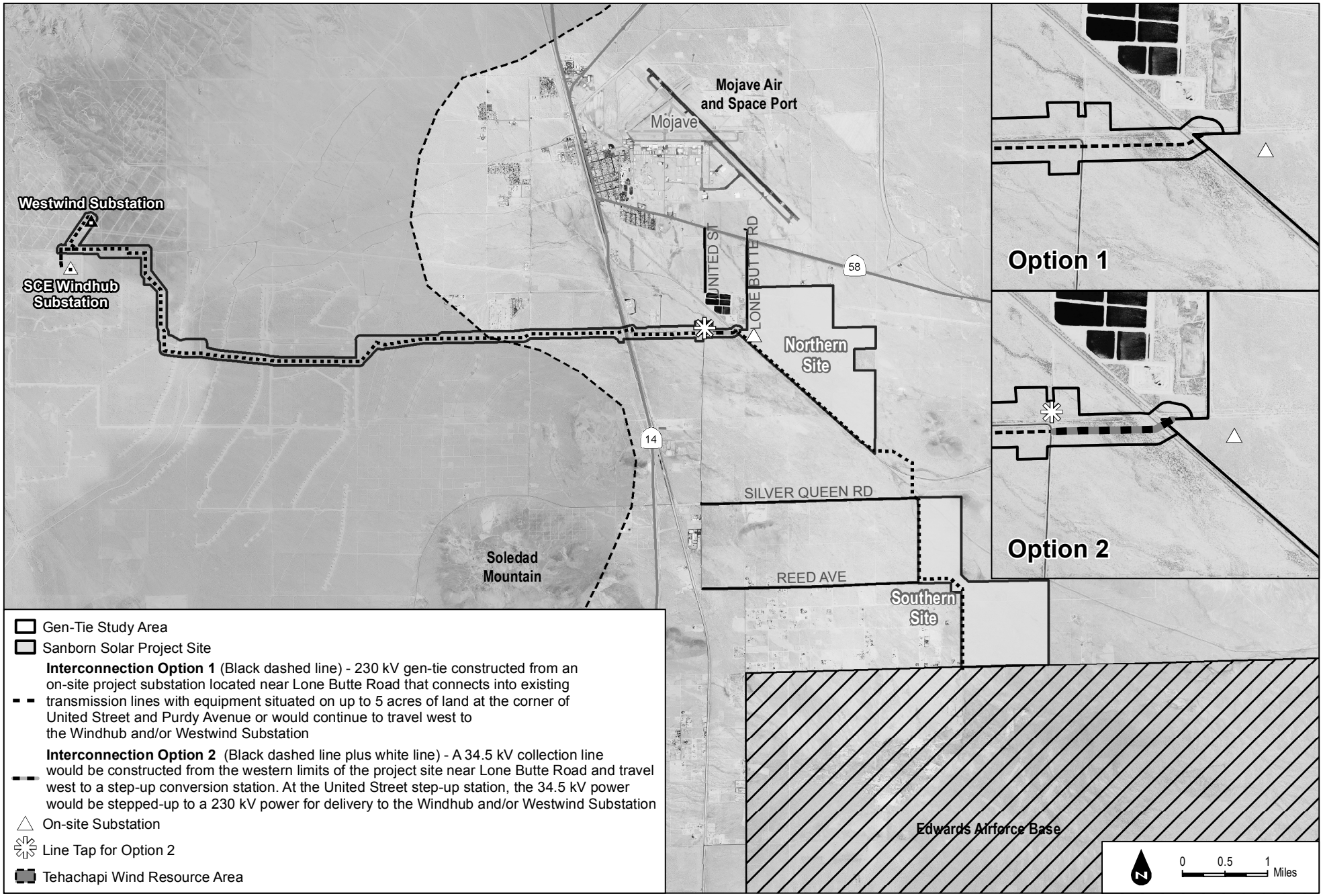

Figure 1-2: PROJECT SITE

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2 ENERGY CONSUMPTION

2.1 Environmental Setting

The environmental setting for the project, as it relates to electricity, natural gas, and petroleum, including associated service providers, supply sources, and estimated consumption, is discussed below

2.1.1 Existing Conditions

Electricity

According to the U.S. Energy Information Administration (EIA), California used approximately 257,268 gigawatt hours of electricity in 2017 (EIA 2019a). The sector-specific breakdown for energy consumption in 2017 indicates that commercial uses utilized 46% of the state's electricity, followed by 35% for residential uses, and 19% for industrial uses (EIA 2019a). Electricity usage in California for differing land uses varies substantially by the type of uses in a building, type of construction materials used in a building, and the efficiency of all electricity-consuming devices within a building. Due to the state's energy efficiency building standards and efficiency and conservation programs, California's electricity use per capita in the residential sector is lower than any other state except Hawaii (EIA 2018a).

Southern California Edison (SCE) provides electricity to the project site. SCE, a subsidiary of Edison International, serves approximately 180 cities in 11 counties across Central and Southern California. According to the California Public Utilities Commission (CPUC), approximately 84 billion kilowatt-hours (kWh) of electricity were used in SCE's service area in 2017. Demand forecasts anticipate that approximately 75 billion kWh of electricity will be used in SCE's service area in 2020 (CPUC 2018).

SCE receives electric power from a variety of sources. According to CPUC's 2018 California Renewables Portfolio Standard Annual Report, 32% of SCE's power came from eligible renewables, such as biomass/waste, geothermal, small hydroelectric, solar, and wind sources (CPUC 2018).

Natural Gas

According to the EIA, California used approximately 2,110,829 million cubic feet of natural gas in 2017 (EIA 2019b). The majority of California's natural gas customers are residential and small commercial customers (core customers). These customers accounted for approximately 30% of the natural gas delivered by California utilities in 2017. Large consumers, such as electric generators and industrial customers (noncore customers), accounted for approximately 70% of the natural gas delivered by California utilities in 2017 (EIA 2019b). While the supply of natural gas in

the United States and production in the lower 48 states has increased greatly since 2008, California produces little, and imports 90% of its supply of natural gas (EIA 2019b).

The Southern California Gas Company (SoCalGas) provides the project with natural gas service. SoCalGas' service territory encompasses approximately 20,000 square miles and more than 500 communities. In the California Energy Demand mid-energy demand scenario, natural gas demand is projected to have an annual growth rate of 0.03% in SoCalGas' service territory. As of 2017, approximately 7,206 million therms[1] were used in SoCalGas' service area per year. Around the estimated time of project completion in 2020, natural gas demand is anticipated to be approximately 7,388 million therms per year in SoCalGas' service area (CEC 2014). The total capacity of natural gas available to SoCalGas in 2016 is estimated to be 3.9 billion cubic feet per day. In 2020, the total capacity available is also estimated to be 3.9 billion cubic feet per day[2] (California Gas and Electric Utilities 2016). This amount is approximately equivalent to 3.98 billion thousand British thermal units (kBtu) per day or 39.8 million therms per day. Over the course of a year, the available capacity would therefore be 14.5 billion therms per year, which is well above the existing and future anticipated natural gas demand in SoCalGas' service area.

Petroleum

California used approximately 18.6 billion gallons of petroleum in 2017 (EIA 2019c). The majority of California's natural gas customers are residential and small commercial customers (core customers). This equates to a daily use of approximately 51 million gallons of petroleum. By sector, transportation uses utilize approximately 85.5% of the state's petroleum, followed by 11.1% from industrial, 2.5% from commercial, 0.9% from residential, and 0.01% from electric power uses (EIA 2018b). In California, petroleum fuels refined from crude oil are the dominant source of energy for transportation sources. Petroleum usage in California includes petroleum products such as motor gasoline, distillate fuel, liquefied petroleum gases, and jet fuel. California has implemented policies to improve vehicle efficiency and to support use of alternative transportation, which are described in Section 4.11.2, below. As such, the California Energy Commission (CEC) anticipates an overall decrease of gasoline demand in the state over the next decade.

[1] One therm is equal to 100,000 Btu or 100 kBtu.
[2] One cubic foot of natural gas has approximately 1,020 Btu of natural gas or 1.02 kBtu of natural gas.

2.2 Regulatory Setting

2.2.1 Federal Regulations

Federal Energy Policy and Conservation Act

In 1975, Congress enacted the Federal Energy Policy and Conservation Act, which established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the act, the National Highway Traffic Safety Administration is responsible for establishing additional vehicle standards. In 2012, new fuel economy standards for passenger cars and light trucks were approved for model years 2017 through 2021 (77 FR 62624–63200). Fuel economy is determined based on each manufacturer's average fuel economy for the fleet of vehicles available for sale in the United States.

Energy Independence and Security Act of 2007

On December 19, 2007, the Energy Independence and Security Act of 2007 (EISA) was signed into law. In addition to setting increased Corporate Average Fuel Economy standards for motor vehicles, the EISA includes the following other provisions related to energy efficiency:

- Renewable Fuel Standard (RFS) (Section 202)
- Appliance and Lighting Efficiency Standards (Sections 301–325)
- Building Energy Efficiency (Sections 411–441)

This federal legislation requires ever-increasing levels of renewable fuels (the RFS) to replace petroleum (EPA 2015). The U.S. Environmental Protection Agency is responsible for developing and implementing regulations to ensure that transportation fuel sold in the United States contains a minimum volume of renewable fuel. The RFS program regulations were developed in collaboration with refiners, renewable fuel producers, and many other stakeholders.

The RFS program was created under the Energy Policy Act of 2005 and established the first renewable fuel volume mandate in the United States. As required under the act, the original RFS program (RFS1) required 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012. Under the EISA, the RFS program was expanded in several key ways that lay the foundation for achieving significant reductions in greenhouse gas (GHG) emissions from the use of renewable fuels, reducing imported petroleum, and encouraging the development and expansion of the renewable fuels sector in the United States. The updated program is referred to as "RFS2" and includes the following:

- EISA expanded the RFS program to include diesel, in addition to gasoline.
- EISA increased the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022.

- EISA established new categories of renewable fuel, and set separate volume requirements for each one.
- EISA required the U.S. Environmental Protection Agency to apply lifecycle GHG performance threshold standards to ensure that each category of renewable fuel emits fewer GHGs than the petroleum fuel it replaces.

Additional provisions of the EISA address energy savings in government and public institutions, research for alternative energy, additional research in carbon capture, international energy programs, and the creation of "green" jobs.

2.2.2 State Regulations

The federal Clean Air Act delegates the regulation of air pollution control and the enforcement of Warren-Alquist Act

The California Legislature passed the Warren-Alquist Act in 1974. The Warren-Alquist Act created the CEC. The legislation also incorporated the following three key provisions designed to address the demand side of the energy equation:

- It directed the CEC to formulate and adopt the nation's first energy conservation standards for both buildings constructed and appliances sold in California.
- The act removed the responsibility of electricity demand forecasting from the utilities, which had a financial interest in high-demand projections, and transferred it to a more impartial CEC.
- The CEC was directed to embark on an ambitious research and development program, with a particular focus on fostering what were characterized as non-conventional energy sources.

State of California Energy Action Plan

The CEC and CPUC approved the first State of California Energy Action Plan in 2003. The plan established shared goals and specific actions to ensure that adequate, reliable, and reasonably priced electrical power and natural gas supplies are provided, and identified policies, strategies, and actions that are cost-effective and environmentally sound for California's consumers and taxpayers. In 2005, a second Energy Action Plan was adopted by the CEC and CPUC to reflect various policy changes and actions of the prior 2 years.

At the beginning of 2008, the CEC and CPUC determined that it was not necessary or productive to prepare a new energy action plan. This determination was based, in part, on a finding that the state's energy policies have been significantly influenced by the passage of Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006 (discussed below). Rather than produce

a new energy action plan, the CEC and CPUC prepared an "update" that examines the state's ongoing actions in the context of global climate change.

Senate Bills 1078 (2002), 107 (2006), X1-2 (2011), 350 (2015) and 100 (2018)

Senate Bill (SB) 1078 established the California Renewables Portfolio Standard (RPS) Program and required that a retail seller of electricity purchase a specified minimum percentage of electricity generated by eligible renewable energy resources as defined in any given year, culminating in a 20% standard by December 31, 2017. These retail sellers include electrical corporations, community choice aggregators, and electric service providers. The bill relatedly required the CEC to certify eligible renewable energy resources, design and implement an accounting system to verify compliance with the RPS by retail sellers, and allocate and award supplemental energy payments to cover above-market costs of renewable energy.SB 107 (2006) accelerated the RPS established by SB 1078 by requiring that 20% of electricity retail sales be served by renewable energy resources by 2010 (not 2017). Additionally, SB X1-2 (2011) requires all California utilities to generate 33% of their electricity from eligible renewable energy resources by 2020. Specifically, SB X1-2 sets a three-stage compliance period: by December 31, 2013, 20% had to come from renewables; by December 31, 2016, 25% had to come from renewables; and by December 31, 2020, 33% will come from renewables.

SB 350 (2015) expanded the RPS because it requires retail seller and publicly owned utilities to procure 50% of their electricity from eligible renewable energy resources by 2030, with interim goals of 40% by 2024 and 45% by 2027.

SB 100 (2018) accelerated and expanded the standards set forth in SB 350 by establishing that 44% of the total electricity sold to retail customers in California per year by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030 be secured from qualifying renewable energy sources. SB 100 also states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California. This bill requires that the achievement of 100% zero-carbon electricity resources does not increase the carbon emissions elsewhere in the western grid and that the achievement not be achieved through resource shuffling.

Consequently, utility energy generation from non-renewable resources is expected to be reduced based on implementation of the 60% RPS in 2030. As the proposed project is a solar energy project, it would help the state in meeting these goals.

Assembly Bill 1007 (2005)

AB 1007 (2005) required the CEC to prepare a statewide plan to increase the use of alternative fuels in California (State Alternative Fuels Plan). The CEC prepared the plan in partnership with

the California Air Resources Board (CARB) and in consultation with other state agencies, plus federal and local agencies. The State Alternative Fuels Plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuels use, reduce GHG emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality.

Assembly Bill 32 (2006) and Senate Bill 32 (2016)

In 2006, the State Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020. In 2016, the Legislature enacted SB 32, which extended the horizon year of the state's codified GHG reduction planning targets from 2020 to 2030, requiring California to reduce its GHG emissions to 40% below 1990 levels by 2030. In accordance with AB 32 and SB 32, CARB prepares scoping plans to guide the development of statewide policies and regulations for the reduction of GHG emissions. Many of the policy and regulatory concepts identified in the scoping plans focused on increasing energy efficiencies, using renewable resources, and reducing the consumption of petroleum-based fuels (such as gasoline and diesel). As such, the state's GHG emissions reduction planning framework creates co-benefits for energy-related resources.

California Building Standards

Part 6 of Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. Part 6 establishes energy efficiency standards for residential and non-residential buildings constructed in California to reduce energy demand and consumption. Part 6 is updated periodically to incorporate and consider new energy efficiency technologies and methodologies. The 2016 Title 24 building energy efficiency standards, which became effective on January 1, 2017, further reduce energy used in the state. In general, single-family homes built to the 2016 standards are anticipated to use approximately 28% less energy for lighting, heating, cooling, ventilation, and water heating than those built to the 2013 standards, and non-residential buildings built to the 2016 standards will use an estimated 5% less energy than those built to the 2013 standards (CEC 2015). The 2016 Title 24 standards are the current applicable building energy efficiency standards, and became effective on January 1, 2017. The 2019 Title 24 standards will continue to improve upon the 2016 standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The 2019 standards will go into effect on January 1, 2020.

Title 24 also includes Part 11, the California's Green Building Standards (CALGreen). The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise

residential, and state-owned buildings, as well as schools and hospitals. The 2016 CALGreen standards became effective on January 1, 2017. The mandatory standards require the following:

- 20% mandatory reduction in indoor water use
- 50% diversion of construction and demolition waste from landfills
- Mandatory inspections of energy systems to ensure optimal working efficiency

Integrated Energy Policy Report

The CEC is responsible for preparing integrated energy policy reports that identify emerging trends related to energy supply, demand, conservation, public health and safety, and maintenance of a healthy economy. The CEC's 2018 Integrated Energy Policy Report discusses the state's policy goals of decarbonizing buildings, doubling energy efficiency savings and increasing flexibility in the electricity grid system to integrate more of renewable energy. Specifically for the decarbonizing of building energy, the goal would be achieved by designing future commercial and residential buildings to have their energy sourced almost entirely from electricity in place of natural gas. Regarding the increase in renewable energy flexibility, the goal would be achieved through increases in energy storage capacity within the state, increases in energy efficiency, and adjusting energy use to the time of day when the most amount of renewable energy is being generated. Over time these policies and trends would serve to beneficially reduce the project's energy consumption as they are implemented.

State Vehicle Standards

In response to the transportation sector accounting for more than half of California's carbon dioxide (CO_2) emissions, AB 1493 was enacted in 2002. AB 1493 required CARB to set GHG emissions standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles whose primary use is noncommercial personal transportation in the state. The bill required that CARB set GHG emissions standards for motor vehicles manufactured in 2009 and all subsequent model years. The 2009–2012 standards resulted in a reduction in approximately 22% of GHG emissions compared to emissions from the 2002 fleet, and the 2013–2016 standards resulted in a reduction of approximately 30%.

In 2012, CARB approved a new emissions-control program for model years 2017 through 2025. The program combines the control of smog, soot, and global-warming gases with requirements for greater numbers of zero-emissions vehicles into a single package of standards called Advanced Clean Cars. By 2025, when the rules would be fully implemented, new automobiles would emit 34% fewer global-warming gases and 75% fewer smog-forming emissions (CARB 2011).

Although the focus of the state's vehicle standards is on the reduction of air pollutants and GHG emissions, one co-benefit of implementation of these standards is a reduced demand for petroleum-based fuels.

Sustainable Communities Strategy

The Sustainable Communities and Climate Protection Act of 2008, or SB 375, coordinates land use planning, regional transportation plans, and funding priorities to help California meet its GHG emissions reduction mandates established in AB 32. As codified in California Government Code Section 65080, SB 375 requires Metropolitan Planning Organizations (e.g., the Southern California Association of Governments) to include a Sustainable Communities Strategy (SCS) in their Regional Transportation Plan (RTP). The main focus of the SCS is to plan for growth in a fashion that will ultimately reduce GHG emissions, but the strategy is also part of a bigger effort to address other development issues, including transit and vehicle miles traveled (VMT), which influence the consumption of petroleum-based fuels.

2.2.3 Local Regulations

2.2.3.1 Kern Council of Governments

2018 Regional Transportation Plan/Sustainable Communities Strategy

The KCOG is the regional planning agency for Kern County and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. KCOG serves as the federally designated metropolitan planning organization for Kern County. With respect to air quality planning and other regional issues, KCOG has prepared the 2018 Regional Comprehensive Plan for the region (Kern COG 2018). The 2018 RCP is a long-term (24 year) general plan for the region's transportation network, and encompasses projects for all types of travel, including aviation and freight movement. The plan assesses environmental impacts of proposed projects.

The Kern COG 2018 RTP includes an SCS component in accordance with SB 375, the Sustainable Communities and Climate Protection Act of 2008. The Kern COG board of directors adopted its first SCS on June 19, 2014, and made a determination that, if implemented, the SCS would achieve the per capita passenger vehicle GHG emissions targets established by the board of directors. The 2020 target is a 5% per capita reduction and the 2035 target is a 10% per capita reduction from the 2005 base year. Kern COG submitted its adopted SCS and GHG determination to CARB for review on June 4, 2015. On July 24, 2015, CARB accepted the determination that the Kern COG 2014 SCS, if implemented, would achieve the region's per capita GHG emission reduction targets for 2020 and 2035.

The SCS strives to reduce air emissions from passenger vehicle and light-duty truck travel by better coordinating transportation expenditures with forecasted development patterns and, if feasible, help meet CARB GHG targets for the region. As explained in the Kern COG 2018 RTP EIR, the key purpose of SB 375[3] and the Kern COG SCS is to reduce per capita emissions originating from passenger vehicles and light-duty trucks. Accordingly, the 2018 RTP:

- Describes sources of emissions in the Kern region, 2020 and 2035 emission reduction targets established by CARB for the San Joaquin Valley, and modeling techniques used to estimate and forecast emissions
- Identifies statewide strategies to reduce transportation-related emissions and their anticipated effect within the Kern region
- Identifies regional strategies that complement the SCS by reducing emissions in other sectors (e.g., energy consumption)
- Quantifies the effect of policies and programs in the RTP that reduce transportation-related emissions in the region and
- Compares the emissions reductions anticipated with implementation of the SCS with the regional targets (Kern COG 2018).

The GHG emission targets for lowering emissions in the San Joaquin Valley, as set by CARB and approved by the Kern COG board of directors, call for a 5% reduction in per capita emissions from passenger vehicles and light trucks by 2020 and a 10% reduction by 2035 through land use and transportation planning. Based on the analysis of strategies included in the SCS, CO_2 emissions are anticipated to be 14.1% lower than 2005 levels by 2020 and 16.6% lower by 2035, exceeding the targets established by CARB in 2010 (Kern COG 2018).

2.3 Significance Criteria and Methodology

2.3.1 Thresholds of Significance

The significance criteria used to evaluate the project impacts to energy are based on Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.). According to Appendix G, a significant impact related to energy would occur if the project would:

1. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy.

[3] SB 375 requires CARB to develop regional GHG emission reduction targets for passenger vehicles. CARB is to establish targets for the automobile and light-duty truck sector for 2020 and 2035 for each region covered by one of the state's 18 metropolitan planning organizations. Regional metropolitan planning organizations are responsible for preparing an SCS within their RTP.

2. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

2.3.2 Approach and Methodology

2.3.2.1 Construction

The California Emissions Estimator Model (CalEEMod) Version 2016.3.2 was used to estimate energy consumption from construction of the proposed project. CalEEMod is a statewide computer model developed in cooperation with air districts throughout the state to quantify criteria air pollutant and GHG emissions associated with construction activities from a variety of land use projects, such as residential, commercial, and industrial facilities. CalEEMod input parameters, including the land use type used to represent the project and size, construction schedule, and anticipated construction equipment utilization, were based on information provided by project applicant, or default model assumptions if project specifics were unavailable. Fuel consumption from construction equipment was estimated by converting the total CO_2 emissions from each construction phase to gallons using conversion factors for CO_2 to gallons of gasoline or diesel. The conversion factor for gasoline is 8.78 kilograms per metric ton CO_2 per gallon, and the conversion factor for diesel is 10.21 kilograms per metric ton CO_2 per gallon (The Climate Registry 2018).

Construction scenario assumptions, including phasing, equipment mix, and vehicle trips, were based on information provided by the project applicant. For purposes of estimating project energy consumption, and based on information provided by the project applicant, it is assumed that construction of the project would commence in February 2020[4] and would last approximately 18 months, ending in August 2021. The analysis contained herein is based on the following assumptions (duration of phases is approximate):

- Perimeter Fence Installation: 5.5 months (February 2020–July 2020)
- Site Preparation and Grading: 4 months (January 2020–April 2020)
- Trenching: 15 months (February 2020-–April 2021)
- Solar PV System Installation: 15 months (February 2020–April 2021)
- Generation Tie-In Installation: 4 months (September 2020-December 2020)
- Energy Storage System: 8.5 months (September 2020– April 2021)

[4] The analysis assumes a construction start date of February 2020, which represents the earliest date construction would initiate. Assuming the earliest start date for construction represents the worst-case scenario for energy consumption because equipment and vehicle fuel efficiency for later years would be slightly higher due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years.

- Testing and Commissioning: 4 months (May 2021–August 2021)
- Site Clean-up and Restoration: 1 month (July 2021)

As shown above, several of the construction phases will run concurrently. The commissioning of the solar PV system is not dependent on the energy storage system being built; therefore, the energy storage system can be constructed along a concurrent schedule. For the analysis, it was generally assumed that heavy construction equipment would be operating at the site for approximately 8 hours per day, 5 days per week (22 days per month), during project construction. Because the site has a very low slope, mass grading is not proposed under this project. There will be minor grading associated with the energy storage and on-site substation phases.

Peak daily construction employees would be approximately 475 (generating 950 one-ways trips) with an average of 300 workers daily. As shown in Table 4, in addition to the 475 maximum daily workers traveling to the site there would be up to 80 truck trips per day at peak construction activity (trenching and system installation phases overlap). A total of up to 160 trips per day are anticipated during peak construction activities. Delivery of material and supplies would reach the site via on-road truck delivery via SR-14 or SR-58. The majority of the truck deliveries would be for the PV system installation, as well as any aggregate material that may be required for road base.

The construction equipment mix and vehicle trips used for estimating the project-generated construction energy consumption are shown in Table 1.

Table 1
Construction Scenario Assumptions

Construction Phase	One-way Vehicle Trips			Equipment		
	Average Daily Worker Trips	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Perimeter Fence Installation	100	32	4	Skid Loader	1	8
Site Preparation and Grading	160	0	32	Graders	2	8
				Dozers	1	8
				Scraper	1	8
				Roller	1	8
				Sheepfoot Roller	1	8
				Tractor/Loader/Backhoe	1	8
Underground Work	90	2	4	Excavator	2	8
				Sheepfoot Roller	1	8
				5kW generator	1	8
				Aussie Padder	1	8
				4x4 Forklift	1	8
System Installation	300	96	32	4x4 forklift	8	8
				Crane	1	8

Table 1
Construction Scenario Assumptions

Construction Phase	One-way Vehicle Trips			Equipment		
	Average Daily Worker Trips	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
				Pile Driver	4	8
				5 kW generator	2	8
Gen-tie Installation	120	2	4	Crane	1	8
Testing, Commissioning Site Cleanup and Restoration	120	16	16	Grader	1	8
				Skid loader	1	8

See Appendix A for details.

Water consumption during construction is estimated to be approximately 200 acre-feet (AF) for dust suppression and earthwork over an approximately 18-month period. Panel rinsing is expected to be conducted up to four times annually as performance testing and weather and site conditions dictate. Construction as well as operational water for panel rinsing would be provided by on-site groundwater through an improved existing well or a new well permitted and drilled (if necessary).

2.3.2.2 Operation

Energy consumption from the operational phase of the Project were estimated using the CalEEMod version 2016.3.2 and include, electricity, natural gas and petroleum use. The following paragraphs describe these sources in detail.

Electricity & Natural Gas Sources

Electricity and natural gas would be required for multiples including but not limited to operation of HVAC equipment, inverters, storage equipment and the O&M building. The groundwater well pumps are operated by a diesel generator. The generator emits criteria pollutants from the combustion of diesel fuel. The generator will be regulated by an operating permit under the EKAPCD's Rule 1160 for Internal Combustion Engines. Energy use was provided by the applicant for security lighting and any ancillary use for the energy storage structure.

Petroleum Sources

Petroleum fuel consumption for the Project would primarily associated with be motor vehicles (automobiles and light-duty trucks) traveling to and from the Project site. Motor vehicles may be fueled with gasoline, diesel, or alternative fuels. Based on conservative estimates for vehicular travel, the

Project is anticipated to have up to 5,326 trips per year during operation, accounting for the commutes and performance of regular inspection and maintenance activities by ten full-time-equivalent staff.

2.4 Impact Analysis

Implementation of the project would increase the demand for electricity and natural gas at the project site and gasoline consumption in the region during construction and operation.

2.4.1 Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy?

Electricity

Construction Use

Temporary electric power for as-necessary lighting and electronic equipment (such as computers inside temporary construction trailers, and heating, ventilation, and air conditioning) would be provided by SCE. The amount of electricity used during construction would be minimal; typical demand would stem from the use of electrically powered hand tools and several construction trailers by managerial staff during the hours of construction activities. The majority of the energy used during construction would be from petroleum. The electricity used for construction activities would be temporary and minimal; therefore, impacts would be **less than significant**.

Operational Use

The operational phase would require electricity for multiple purposes including, but not limited to, building heating and cooling, lighting, appliances, and electronics and night time power consumption (i.e. inverter cooling). The California Emissions Estimator Model (CalEEMod), version 2016.3.2, provides default values for electricity consumption for warehouse land uses that were applied to the project (California Air Pollution Control Officers Association (CAPCOA) 2017). The electricity use for non-residential buildings was calculated in CalEEMod using energy intensity value (electricity use per square foot per year) assumptions, which were based on the California Commercial End-Use Survey database (CEC 2006) and information provided by the project applicant.

The project is estimated to have a total electrical demand of 2,816 megawatt-hours per year (or 2.82 gigawatt-hours ((GWh)) per year). The non-residential electricity demand in 2018 was 13,429 GWh for Kern County (County) (CEC 2019). The project would be built in accordance with the current Title 24 standards at the time of construction and CALGreen. Additionally, as a renewable energy project, it would provide a net increase in energy available for use within the state.

Therefore, due to the limited amount of electricity use compared to that generated by the project, and the inherent nature of the project as a renewable energy development, the project would not result in a wasteful use of energy. Impacts related to operational electricity use would be **less than significant**.

Natural Gas

Construction Use

Natural gas is not anticipated to be required during construction of the project. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed under the subsection "Petroleum," below. Any minor amounts of natural gas that may be consumed as a result of project construction would be temporary and negligible, and would not have an adverse effect; therefore, impacts would be **less than significant**.

Operational Use

Natural gas consumption during operation would be required for various purposes, including, but not limited to, building heating and cooling. Default natural gas generation rates in CalEEMod for the proposed land use and climate zone were used. According to these estimations, the project would consume approximately 482,496 thousand British thermal units (kBtu) per year. The non-residential natural gas consumption in 2018 was 2,334 million MMBtu for the County (CEC 2019).

The project is subject to statewide mandatory energy requirements as outlined in Title 24, Part 6, of the California Code of Regulations. Title 24, Part 11, contains additional energy measures that are applicable to project under CALGreen. Prior to project approval, the applicant would ensure that the project would meet Title 24 requirements applicable at that time, as required by state regulations through their plan review process. Thus, the natural gas consumption of the project would not be considered inefficient or wasteful, and impacts would be **less than significant**.

Petroleum

Construction Use

Petroleum would be consumed throughout construction of the project. Fuel consumed by construction equipment would be the primary energy resource expended over the course of construction, and VMT associated with the transportation of construction materials and construction worker commutes would also result in petroleum consumption. Heavy-duty construction equipment associated with construction activities, and on-site haul trucks involved in relocating dirt around the project site would rely on diesel fuel. Construction workers would travel to and from the project site throughout the duration of construction. It is assumed that construction workers would travel to and from the project site in gasoline-powered vehicles.

Heavy-duty construction equipment of various types would be used during construction. CalEEMod was used to estimate construction equipment usage; results are included in Appendix A. Based on that analysis, diesel-fueled construction equipment would operate for an estimated 52,880 hours, as summarized in Table 2, Hours of Operation for Construction Equipment.

Table 2
Hours of Operation for Construction Equipment

Phase	Hours of Equipment Use
Site Preparation 1 - Perimeter Fence Installation	640
Building Construction 1 – System Installation	28,800
Site Preparation 2 – Clearing and Grubbing	6,160
Trenching – Underground Work	14,400
Building Construction 2 – Gen-tie Construction	1,760
Site Preparation 3 – Testing, Commission, Site Clearing	1,120
Total	52,880

Note: See Appendix A.

Fuel consumption from construction equipment was estimated by converting the total CO_2 emissions from each construction phase to gallons using conversion factors for CO_2 to gallons of gasoline or diesel. The conversion factor for gasoline is 8.78 kilograms per metric ton CO_2 per gallon, and the conversion factor for diesel is 10.21 kilograms per metric ton CO_2 per gallon (The Climate Registry 2018). The estimated diesel fuel use from construction equipment is shown in Table 3, Construction Equipment Diesel Demand.

Table 3
Construction Equipment Diesel Demand

Phase	Pieces of Equipment	Equipment CO_2 (MT)	kg CO_2/Gallon[a]	Gallons
Site Preparation 1 - Perimeter Fence Installation	1	9.95	10.21	974.24
Building Construction 1 – System Installation	12	440.67	10.21	43,160.39
Site Preparation 2 – Clearing and Grubbing	7	159.14	10.21	15,586.65
Trenching – Underground Work	6	356.54	10.21	34,920.66
Building Construction 2 – Gen-tie Construction	3	39.38	10.21	3,856.68
Site Preparation 3 – Testing, Commission, Site Clearing	2	26.64	10.21	2,609.27
			Total	101,107.88

Sources:
[a] The Climate Registry 2018.
Notes: See Appendix A, CO_2 = carbon dioxide; kg = kilogram; MT = metric ton

Fuel consumption from worker and vendor trips was estimated by converting the total CO_2 emissions from the construction phase to gallons using the conversion factors for CO_2 to gallons

of gasoline or diesel. Worker vehicles are assumed to be gasoline fueled, and vendor vehicles are assumed to be diesel fueled.

Calculations for total worker and vendor fuel consumption are provided in Table 4, Construction Worker Vehicle Gasoline Demand, Table 5, Construction Vendor Truck Diesel Demand and Table 6 Construction Haul Truck Diesel Demand, respectively.

Table 4
Construction Worker Vehicle Gasoline Demand

Phase	Trips	Vehicle CO_2 (MT)	kg CO_2/Gallon[a]	Gallons
Site Preparation 1 - Perimeter Fence Installation	8,320.00	246.86	8.78	28,116.25
Building Construction 1 - System installation	184,800.00	3959.22	8.78	450,936.63
Site Preparation 2 - Clearing and Grubbing	17,600.00	276.21	8.78	31,458.75
Trenching - Underground work	27,000.00	577.83	8.78	65,811.67
Building Construction 2 - Gen-tie Construction	9,920.00	214.06	8.78	24,380.52
Site Preparation 3- Testing, Commissioning, Site Clearing	8,960.00	187.06	8.78	21,305.09
			Total	622,008.92

Sources:
[a] The Climate Registry 2018.
Notes:
CO_2 = carbon dioxide; kg = kilogram; MT = metric ton.
See Appendix A.

Table 5
Construction Vendor Truck Diesel Demand

Phase	Trips	Vehicle CO_2 (MT)[a]	kg/CO_2/Gallon[a]	Gallons
Site Preparation 1 - Perimeter Fence Installation	2,560	358.68	10.21	35,130.48
Building Construction 1 - System installation	28,800	2928.99	10.21	286,875.10
Site Preparation 2 - Clearing and Grubbing	660	48.91	10.21	4,790.52
Trenching - Underground work	1,200	122.01	10.21	11,949.62
Building Construction 2 - Gen-tie Construction	160	16.30	10.21	1,596.84
Site Preparation 3- Testing, Commissioning, Site Clearing	1,120	113.12	10.21	11,079.58
			Total	**6,875.20**

Source:
[a] The Climate Registry 2018.
Notes:
CO_2 = carbon dioxide; kg = kilogram; MT = metric ton.
See Appendix A.

Table 6
Construction Haul Truck Diesel Demand

Phase	Trips	Vehicle CO_2 (MT)[a]	kg/CO_2/Gallon[a]	Gallons
Site Preparation 1 - Perimeter Fence Installation	4	0.47	10.21	46.43
Building Construction 1 - System installation	64	7.57	10.21	740.97
Site Preparation 2 - Clearing and Grubbing	32	3.79	10.21	371.48
Trenching - Underground work	4	0.47	10.21	46.30
Building Construction 2 - Gen-tie Construction	4	0.47	10.21	46.43
Site Preparation 3- Testing, Commissioning, Site Clearing	16	1.87	10.21	183.49
			Total	**1,435.10**

Source:
[a] The Climate Registry 2018.
Notes:
CO_2 = carbon dioxide; kg = kilogram; MT = metric ton.
See Appendix A.

As shown in Tables 4 through 6, the project is estimated to consume 1,075,974 gallons of petroleum during the construction phase (18 months). By comparison, approximately 22.1 billion gallons of petroleum would be consumed in California over the course of the project's construction phase based on the California daily petroleum consumption estimate of approximately 52.9 million gallons per day (CEC 2016b). By comparison, Countywide total petroleum use by vehicles is expected to be 731 billion gallons per year by 2022 (CARB 2019). The project would be required to comply with CARB's Airborne Toxics Control Measure, which restricts heavy-duty diesel vehicle idling time to 5 minutes. Additionally, the project is anticipated to be balanced on-site and not require intensive use of haul trucks for the import or export of earthwork material. Therefore, because petroleum use during construction would be temporary and relatively minimal, and would not be wasteful or inefficient, impacts would be **less than significant**.

Operational Use

The fuel consumption resulting from the project's operational phase would be attributable to employees and visitors traveling to and from the project site. Petroleum fuel consumption associated with motor vehicles traveling to and from the project site during operation is a function of VMT. As shown in Appendix A, the annual VMT attributable to the project is expected to be 166 thousand VMT per year.

Similar to construction worker and vendor trips, fuel consumption for operation was estimated by converting the total CO_2 emissions from warehouse land use type to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. The employee vehicles were assumed to be 92% gasoline powered and 8% diesel powered.

Calculations for annual mobile-source fuel consumption are provided in Table 7, Mobile Source Fuel Consumption – Operation. Mobile sources from the project would result in approximately 11.8 thousand gallons of petroleum per year beginning in 2022.

Table 7
Petroleum Consumption – Operation

Fuel	Vehicle MT CO_2	kg CO_2/Gallon[a]	Gallons
Gasoline	97.28	8.78	11,079.65
Diesel	7.91	10.21	774.61

Source:
[a] The Climate Registry 2018.
Notes:
CO_2 = carbon dioxide; kg = kilogram; MT = metric ton.
See Appendix A.

By comparison, California as a whole consumes approximately 19.3 billion gallons of petroleum per year (CEC 2016b). Countywide total petroleum use by vehicles is expected to be 731billion gallons per year by 2022 (CARB 2018).

Over the lifetime of the project, the fuel efficiency of the vehicles being used by the employees and visitors is expected to increase. As such, the amount of petroleum consumed as a result of vehicular trips to and from the project site during operation would decrease over time. There are numerous regulations in place that require and encourage increased fuel efficiency. For example, CARB has adopted an approach to passenger vehicles by combining the control of smog-causing pollutants and GHG emissions into a single, coordinated package of standards. The approach also includes efforts to support and accelerate the number of plug-in hybrids and zero-emissions vehicles in California (CARB 2013). As such, operation of the project is expected to use decreasing amounts of petroleum over time due to advances in fuel economy.

In summary, although the project would increase petroleum use during operation as a result of employees and visitors traveling to and from the project site, the use would be a small fraction of the statewide use and, due to efficiency increases, would diminish over time. Given these considerations, petroleum consumption associated with the project would not be considered inefficient or wasteful and would result in a **less than significant impact.**

Operational Mitigation Measures

No operational mitigation measures required.

Operational Level of Significance After Mitigation

Operational impacts would be less than significant without mitigation.

2.4.2 Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy?

Title 24 of the California Code of Regulations contains energy efficiency standards for residential and non-residential buildings based on a state mandate to reduce California's energy demand. Specifically, Title 24 addresses a number of energy efficiency measures that impact energy used for lighting, water heating, heating, and air conditioning, including the energy impact of the building envelope such as windows, doors, wall/floor/ceiling assemblies, and roofs.

Part 6 of Title 24 specifically establishes energy efficiency standards for residential and non-residential buildings constructed in the State of California in order to reduce energy demand and consumption. The project would comply with Title 24, Part 6, per state regulations. Based on the foregoing, the proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency; therefore, impacts during construction and operation of the proposed project would be less than significant.

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4 LIST OF PREPARERS

Nicholas Lorenzen, Technical Analyst
Adam Poll, Technical Specialist

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APPENDIX A

Detailed Calculation Tables

Sanborn Solar

Kern County APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	28.72	1000sqft	2,021.00	28,720.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Operational year 2022.

Land Use - 2,101 acre project site.

Construction Phase - Construction schedule provided by project applicant.

Off-road Equipment - Equipment specified by the project applicant. ATVs and Pickup trucks were accounted for in the Trips and VMT tab as worker vehicles. (4 ATVs and 4 pick-up trucks = 16 additional worker trips). Other general industrial equipment = pile driver.

Off-road Equipment - Equipment specified by the project applicant. (trucks were accounted for as worker vehicles in the trips and VMT tab.

Off-road Equipment - Equipment specified by the project applicant. Pick up trucks and flatbed trucks were accounted for in the worker trip estimate under the Trips and VMT tab. 1 pick-up truck and 1 flatbed truck = 4 additional worker trips.

Off-road Equipment - Equipment specified by the project applicant. Water trucks were accounted for in the Trips and VMT tab under vendor trucks. (3 water trucks = 6 additional vendor truck trips)

Off-road Equipment - Equipment specified by the project applicant. Pickup trucks were accounted for in the Trips and VMT tab as worker vehicles. (4 pick-up trucks = 8 additional worker vehicles)

Off-road Equipment - Equipment specified by the project applicant. Other construction equipment = Aussie padder. Water trucks were accounted in the Trips and VMT tab under vendor trucks. (1 water truck = 2 additional vendor truck trips)

Trips and VMT - Trip values and lengths are based on information provided by the project applicant.

On-road Fugitive Dust - Distance on unpaved roads is based on information provided by the project applicant.

Grading - CalEEMod default values.

Vehicle Trips - Operational trip values are based on information provided by the project applicant.

Water And Wastewater - 9,770,000 gallons (30 acre feet) for panel washing. 19,511 gallons (0.6 acre feet) for interior use.

Construction Off-road Equipment Mitigation - Assumed compliance with EKAPCD Rule 402: vehicle speed limited to 15 miles per hour and watering 2x daily.

Mobile Commute Mitigation - No mitigation was applied.

Operational Off-Road Equipment - Two forklifts and two tractor/loader/backhoes for 8 hours a day 12x a year.

Energy Use - Antisipated energy use is approximately 2,186 megawatt hours per year.

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tblConstructionPhase	NumDays	6,000.00	70.00
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tblLandUse	LotAcreage	0.66	2,021.00
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tblTripsAndVMT	WorkerTripNumber	3.00	104.00
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tblTripsAndVMT	WorkerTripNumber	12.00	124.00
tblTripsAndVMT	WorkerTripNumber	5.00	128.00
tblWater	IndoorWaterUseRate	6,641,500.00	19,511.00
tblWater	OutdoorWaterUseRate	0.00	9,770,000.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	2.7602	15.5583	21.2657	0.0864	96.8903	0.4680	97.3583	10.4723	0.4383	10.9105	0.0000	7,916.6929	7,916.6929	0.3931	0.0000	7,926.5201
2021	0.6862	3.6267	5.5065	0.0238	27.4808	0.0967	27.5775	2.9398	0.0906	3.0305	0.0000	2,180.1538	2,180.1538	0.0994	0.0000	2,182.6391
Maximum	**2.7602**	**15.5583**	**21.2657**	**0.0864**	**96.8903**	**0.4680**	**97.3583**	**10.4723**	**0.4383**	**10.9105**	**0.0000**	**7,916.6929**	**7,916.6929**	**0.3931**	**0.0000**	**7,926.5201**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	2.7602	15.5583	21.2657	0.0864	25.5968	0.4680	26.0648	3.1193	0.4383	3.5576	0.0000	7,916.6919	7,916.6919	0.3931	0.0000	7,926.5191
2021	0.6862	3.6267	5.5065	0.0238	7.2502	0.0967	7.3470	0.8720	0.0906	0.9626	0.0000	2,180.1536	2,180.1536	0.0994	0.0000	2,182.6389
Maximum	**2.7602**	**15.5583**	**21.2657**	**0.0864**	**25.5968**	**0.4680**	**26.0648**	**3.1193**	**0.4383**	**3.5576**	**0.0000**	**7,916.6919**	**7,916.6919**	**0.3931**	**0.0000**	**7,926.5191**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.01**	**73.59**	**0.00**	**73.26**	**70.24**	**0.00**	**67.58**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	**Start Date**	**End Date**	**Maximum Unmitigated ROG + NOX (tons/quarter)**	**Maximum Mitigated ROG + NOX (tons/quarter)**
1	**1-2-2020**	**4-1-2020**	4.2464	4.2464

2	**4-2-2020**	**7-1-2020**	4.9961	4.9961
3	**7-2-2020**	**10-1-2020**	4.2953	4.2953
4	**10-2-2020**	**1-1-2021**	4.5018	4.5018
5	**1-2-2021**	**4-1-2021**	3.4680	3.4680
6	**4-2-2021**	**7-1-2021**	0.6383	0.6383
7	**7-2-2021**	**9-30-2021**	0.1887	0.1887
		Highest	4.9961	4.9961

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1455	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.1000e-004	5.1000e-004	0.0000	0.0000	5.5000e-004
Energy	2.6000e-003	0.0237	0.0199	1.4000e-004		1.8000e-003	1.8000e-003		1.8000e-003	1.8000e-003	0.0000	922.9845	922.9845	0.0375	8.1400e-003	926.3474
Mobile	0.0198	0.2378	0.2062	1.1300e-003	0.0641	7.4000e-004	0.0648	0.0172	7.0000e-004	0.0179	0.0000	105.1881	105.1881	9.1000e-003	0.0000	105.4155
Offroad	3.3400e-003	0.0328	0.0407	6.0000e-005		1.9200e-003	1.9200e-003		1.7700e-003	1.7700e-003	0.0000	4.8909	4.8909	1.5800e-003	0.0000	4.9304
Waste						0.0000	0.0000		0.0000	0.0000	7.2285	0.0000	7.2285	0.4272	0.0000	17.9083
Water						0.0000	0.0000		0.0000	0.0000	6.1900e-003	34.6656	34.6718	2.0700e-003	3.1000e-004	34.8162
Total	**0.1712**	**0.2942**	**0.2670**	**1.3300e-003**	**0.0641**	**4.4600e-003**	**0.0686**	**0.0172**	**4.2700e-003**	**0.0215**	**7.2347**	**1,067.7296**	**1,074.9643**	**0.4775**	**8.4500e-003**	**1,089.4183**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Area	0.1455	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.1000e-004	5.1000e-004	0.0000	0.0000	5.5000e-004
Energy	2.6000e-003	0.0237	0.0199	1.4000e-004		1.8000e-003	1.8000e-003		1.8000e-003	1.8000e-003	0.0000	922.9845	922.9845	0.0375	8.1400e-003	926.3474
Mobile	0.0198	0.2378	0.2062	1.1300e-003	0.0641	7.4000e-004	0.0648	0.0172	7.0000e-004	0.0179	0.0000	105.1881	105.1881	9.1000e-003	0.0000	105.4155
Offroad	3.3400e-003	0.0328	0.0407	6.0000e-005		1.9200e-003	1.9200e-003		1.7700e-003	1.7700e-003	0.0000	4.8909	4.8909	1.5800e-003	0.0000	4.9304
Waste						0.0000	0.0000		0.0000	0.0000	7.2285	0.0000	7.2285	0.4272	0.0000	17.9083
Water						0.0000	0.0000		0.0000	0.0000	6.1900e-003	34.6656	34.6718	2.0700e-003	3.1000e-004	34.8162
Total	**0.1712**	**0.2942**	**0.2670**	**1.3300e-003**	**0.0641**	**4.4600e-003**	**0.0686**	**0.0172**	**4.2700e-003**	**0.0215**	**7.2347**	**1,067.7296**	**1,074.9643**	**0.4775**	**8.4500e-003**	**1,089.4183**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation 2 - Clearing and Grubbing	Site Preparation	1/2/2020	4/22/2020	5	80	
2	Building Construction 1 - System Installation	Building Construction	2/10/2020	4/4/2021	5	300	
3	Site Preparation 1 - Perimeter Fence Installation	Site Preparation	2/24/2020	7/24/2020	5	110	
4	Trenching - Underground work	Trenching	2/24/2020	4/16/2021	5	300	
5	Building Construction 2 - Gen-tie Construction	Building Construction	9/1/2020	12/21/2020	5	80	
6	Site Preparation 3 - Testing, Commissioning, Site Clearning	Site Preparation	4/26/2021	7/30/2021	5	70	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation 1 - Perimeter Fence Installation	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation 1 - Perimeter Fence Installation	Skid Steer Loaders	1	8.00	65	0.37
Site Preparation 1 - Perimeter Fence Installation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Building Construction 1 - System Installation	Cranes	1	8.00	231	0.29
Building Construction 1 - System Installation	Forklifts	8	8.00	89	0.20
Building Construction 1 - System Installation	Generator Sets	2	8.00	84	0.74
Building Construction 1 - System Installation	Other General Industrial Equipment	1	8.00	88	0.34
Building Construction 1 - System Installation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Building Construction 1 - System Installation	Welders	0	0.00	46	0.45
Site Preparation 2 - Clearing and Grubbing	Graders	2	8.00	187	0.41
Site Preparation 2 - Clearing and Grubbing	Rollers	2	8.00	80	0.38
Site Preparation 2 - Clearing and Grubbing	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation 2 - Clearing and Grubbing	Scrapers	1	8.00	367	0.48
Site Preparation 2 - Clearing and Grubbing	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching - Underground work	Excavators	2	8.00	158	0.38
Trenching - Underground work	Forklifts	1	8.00	89	0.20
Trenching - Underground work	Generator Sets	1	8.00	84	0.74
Trenching - Underground work	Other Construction Equipment	1	8.00	172	0.42
Trenching - Underground work	Rollers	1	8.00	80	0.38
Building Construction 2 - Gen-tie Construction	Cranes	1	8.00	231	0.29
Building Construction 2 - Gen-tie Construction	Forklifts	0	0.00	89	0.20
Building Construction 2 - Gen-tie Construction	Generator Sets	0	0.00	84	0.74
Building Construction 2 - Gen-tie Construction	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction 2 - Gen-tie Construction	Welders	0	0.00	46	0.45
Site Preparation 3 - Testing, Commissioning, Site Clearning and	Graders	1	8.00	187	0.41
Site Preparation 3 - Testing, Commissioning, Site Clearning and	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation 3 - Testing, Commissioning, Site Clearning and	Skid Steer Loaders	1	8.00	65	0.37

Site Preparation 3 - Testing, Commissioning, Site Clearning and	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Site Preparation 3 - Testing, Commissioning, Site Clearning and	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Site Preparation 3 - Testing, Commissioning, Site Clearning and	Tractors/Loaders/Backhoes	0	0.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation 1 - Perimeter Fence	1	104.00	32.00	4.00	70.00	70.00	70.00	LD_Mix	HDT_Mix	HHDT
Building Construction 1 - System Installation	12	616.00	96.00	64.00	70.00	70.00	70.00	LD_Mix	HDT_Mix	HHDT
Site Preparation 2 - Clearing and Grubbing	7	160.00	6.00	32.00	70.00	70.00	70.00	LD_Mix	HDT_Mix	HHDT
Trenching - Underground work	6	90.00	4.00	4.00	70.00	70.00	70.00	LD_Mix	HDT_Mix	HHDT
Building Construction 2 - Gen-tie	3	124.00	2.00	4.00	70.00	70.00	70.00	LD_Mix	HDT_Mix	HHDT
Site Preparation 3 - Testing	2	128.00	16.00	16.00	70.00	70.00	70.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation 2 - Clearing and Grubbing - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3257	0.0000	0.3257	0.1416	0.0000	0.1416	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1460	1.6801	0.8514	1.8100e-003		0.0727	0.0727		0.0668	0.0668	0.0000	159.2543	159.2543	0.0515	0.0000	160.5420
Total	**0.1460**	**1.6801**	**0.8514**	**1.8100e-003**	**0.3257**	**0.0727**	**0.3984**	**0.1416**	**0.0668**	**0.2084**	**0.0000**	**159.2543**	**159.2543**	**0.0515**	**0.0000**	**160.5420**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.3000e-004	0.0103	1.7000e-003	4.0000e-005	0.0138	4.0000e-005	0.0138	1.5000e-003	3.0000e-005	1.5300e-003	0.0000	3.7928	3.7928	1.3000e-004	0.0000	3.7960
Vendor	5.3900e-003	0.1214	0.0298	5.2000e-004	0.2075	1.0600e-003	0.2085	0.0229	1.0100e-003	0.0239	0.0000	48.9112	48.9112	1.2000e-003	0.0000	48.9411
Worker	0.1138	0.1071	0.9013	3.0500e-003	5.4578	1.8400e-003	5.4597	0.5813	1.6900e-003	0.5830	0.0000	276.2078	276.2078	7.1900e-003	0.0000	276.3876
Total	**0.1195**	**0.2388**	**0.9328**	**3.6100e-003**	**5.6791**	**2.9400e-003**	**5.6820**	**0.6057**	**2.7300e-003**	**0.6084**	**0.0000**	**328.9118**	**328.9118**	**8.5200e-003**	**0.0000**	**329.1247**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1270	0.0000	0.1270	0.0552	0.0000	0.0552	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1460	1.6801	0.8514	1.8100e-003		0.0727	0.0727		0.0668	0.0668	0.0000	159.2541	159.2541	0.0515	0.0000	160.5418
Total	**0.1460**	**1.6801**	**0.8514**	**1.8100e-003**	**0.1270**	**0.0727**	**0.1997**	**0.0552**	**0.0668**	**0.1221**	**0.0000**	**159.2541**	**159.2541**	**0.0515**	**0.0000**	**160.5418**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.3000e-004	0.0103	1.7000e-003	4.0000e-005	3.7100e-003	4.0000e-005	3.7500e-003	4.7000e-004	3.0000e-005	5.0000e-004	0.0000	3.7928	3.7928	1.3000e-004	0.0000	3.7960
Vendor	5.3900e-003	0.1214	0.0298	5.2000e-004	0.0565	1.0600e-003	0.0576	7.4600e-003	1.0100e-003	8.4700e-003	0.0000	48.9112	48.9112	1.2000e-003	0.0000	48.9411
Worker	0.1138	0.1071	0.9013	3.0500e-003	1.4329	1.8400e-003	1.4347	0.1699	1.6900e-003	0.1716	0.0000	276.2078	276.2078	7.1900e-003	0.0000	276.3876
Total	**0.1195**	**0.2388**	**0.9328**	**3.6100e-003**	**1.4931**	**2.9400e-003**	**1.4960**	**0.1779**	**2.7300e-003**	**0.1806**	**0.0000**	**328.9118**	**328.9118**	**8.5200e-003**	**0.0000**	**329.1247**

3.3 Building Construction 1 - System Installation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3088	2.9100	2.4521	3.9400e-003		0.1807	0.1807		0.1699	0.1699	0.0000	343.5903	343.5903	0.0758	0.0000	345.4852
Total	**0.3088**	**2.9100**	**2.4521**	**3.9400e-003**		**0.1807**	**0.1807**		**0.1699**	**0.1699**	**0.0000**	**343.5903**	**343.5903**	**0.0758**	**0.0000**	**345.4852**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.2000e-004	0.0160	2.6500e-003	6.0000e-005	0.0274	6.0000e-005	0.0275	2.9600e-003	5.0000e-005	3.0100e-003	0.0000	5.9167	5.9167	2.0000e-004	0.0000	5.9218

Vendor	0.2523	5.6817	1.3956	0.0242	9.7091	0.0494	9.7585	1.0712	0.0473	1.1185	0.0000	2,289.0447	2,289.0447	0.0560	0.0000	2,290.4445
Worker	1.2812	1.2066	10.1493	0.0344	61.4622	0.0207	61.4829	6.5464	0.0191	6.5655	0.0000	3,110.4447	3,110.4447	0.0810	0.0000	3,112.4698
Total	**1.5339**	**6.9043**	**11.5475**	**0.0586**	**71.1987**	**0.0702**	**71.2689**	**7.6206**	**0.0664**	**7.6870**	**0.0000**	**5,405.4061**	**5,405.4061**	**0.1372**	**0.0000**	**5,408.8360**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3088	2.9100	2.4521	3.9400e-003		0.1807	0.1807		0.1699	0.1699	0.0000	343.5899	343.5899	0.0758	0.0000	345.4848
Total	**0.3088**	**2.9100**	**2.4521**	**3.9400e-003**		**0.1807**	**0.1807**		**0.1699**	**0.1699**	**0.0000**	**343.5899**	**343.5899**	**0.0758**	**0.0000**	**345.4848**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.2000e-004	0.0160	2.6500e-003	6.0000e-005	7.3200e-003	6.0000e-005	7.3800e-003	9.0000e-004	5.0000e-005	9.5000e-004	0.0000	5.9167	5.9167	2.0000e-004	0.0000	5.9218
Vendor	0.2523	5.6817	1.3956	0.0242	2.6453	0.0494	2.6947	0.3492	0.0473	0.3965	0.0000	2,289.0447	2,289.0447	0.0560	0.0000	2,290.4445
Worker	1.2812	1.2066	10.1493	0.0344	16.1359	0.0207	16.1566	1.9136	0.0191	1.9327	0.0000	3,110.4447	3,110.4447	0.0810	0.0000	3,112.4698
Total	**1.5339**	**6.9043**	**11.5475**	**0.0586**	**18.7885**	**0.0702**	**18.8587**	**2.2637**	**0.0664**	**2.3301**	**0.0000**	**5,405.4061**	**5,405.4061**	**0.1372**	**0.0000**	**5,408.8360**

3.3 Building Construction 1 - System Installation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0784	0.7450	0.6821	1.1100e-003		0.0441	0.0441		0.0415	0.0415	0.0000	96.9086	96.9086	0.0212	0.0000	97.4381
Total	**0.0784**	**0.7450**	**0.6821**	**1.1100e-003**		**0.0441**	**0.0441**		**0.0415**	**0.0415**	**0.0000**	**96.9086**	**96.9086**	**0.0212**	**0.0000**	**97.4381**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4000e-004	4.0600e-003	7.2000e-004	2.0000e-005	0.0272	1.0000e-005	0.0272	2.8600e-003	1.0000e-005	2.8700e-003	0.0000	1.6486	1.6486	5.0000e-005	0.0000	1.6500
Vendor	0.0541	1.3417	0.3296	6.7500e-003	2.7385	4.8800e-003	2.7433	0.3021	4.6600e-003	0.3068	0.0000	639.9501	639.9501	0.0145	0.0000	640.3117
Worker	0.3339	0.3015	2.6285	9.3800e-003	17.3355	5.7300e-003	17.3412	1.8464	5.2800e-003	1.8517	0.0000	848.7789	848.7789	0.0204	0.0000	849.2893
Total	**0.3882**	**1.6472**	**2.9589**	**0.0162**	**20.1011**	**0.0106**	**20.1117**	**2.1514**	**9.9500e-003**	**2.1614**	**0.0000**	**1,490.3777**	**1,490.3777**	**0.0349**	**0.0000**	**1,491.2509**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Off-Road	0.0784	0.7450	0.6821	1.1100e-003		0.0441	0.0441		0.0415	0.0415	0.0000	96.9084	96.9084	0.0212	0.0000	97.4380
Total	**0.0784**	**0.7450**	**0.6821**	**1.1100e-003**		**0.0441**	**0.0441**		**0.0415**	**0.0415**	**0.0000**	**96.9084**	**96.9084**	**0.0212**	**0.0000**	**97.4380**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4000e-004	4.0600e-003	7.2000e-004	2.0000e-005	7.0500e-003	1.0000e-005	7.0600e-003	8.0000e-004	1.0000e-005	8.1000e-004	0.0000	1.6486	1.6486	5.0000e-005	0.0000	1.6500
Vendor	0.0541	1.3417	0.3296	6.7500e-003	0.7461	4.8800e-003	0.7510	0.0985	4.6600e-003	0.1032	0.0000	639.9501	639.9501	0.0145	0.0000	640.3117
Worker	0.3339	0.3015	2.6285	9.3800e-003	4.5512	5.7300e-003	4.5569	0.5397	5.2800e-003	0.5450	0.0000	848.7789	848.7789	0.0204	0.0000	849.2893
Total	**0.3882**	**1.6472**	**2.9589**	**0.0162**	**5.3043**	**0.0106**	**5.3149**	**0.6390**	**9.9500e-003**	**0.6490**	**0.0000**	**1,490.3777**	**1,490.3777**	**0.0349**	**0.0000**	**1,491.2509**

3.4 Site Preparation 1 - Perimeter Fence Installation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.3900e-003	0.0584	0.0765	1.1000e-004		2.5300e-003	2.5300e-003		2.3300e-003	2.3300e-003	0.0000	9.9875	9.9875	3.2300e-003	0.0000	10.0682

Total	**4.3900e-003**	**0.0584**	**0.0765**	**1.1000e-004**	**0.0000**	**2.5300e-003**	**2.5300e-003**	**0.0000**	**2.3300e-003**	**2.3300e-003**	**0.0000**	**9.9875**	**9.9875**	**3.2300e-003**	**0.0000**	**10.0682**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.2900e-003	2.1000e-004	0.0000	1.7200e-003	0.0000	1.7300e-003	1.9000e-004	0.0000	1.9000e-004	0.0000	0.4741	0.4741	2.0000e-005	0.0000	0.4745
Vendor	0.0395	0.8903	0.2187	3.7800e-003	1.5214	7.7400e-003	1.5291	0.1679	7.4000e-003	0.1753	0.0000	358.6822	358.6822	8.7700e-003	0.0000	358.9016
Worker	0.1017	0.0958	0.8055	2.7300e-003	4.8780	1.6400e-003	4.8796	0.5196	1.5100e-003	0.5211	0.0000	246.8607	246.8607	6.4300e-003	0.0000	247.0214
Total	**0.1413**	**0.9873**	**1.0244**	**6.5100e-003**	**6.4010**	**9.3800e-003**	**6.4104**	**0.6876**	**8.9100e-003**	**0.6965**	**0.0000**	**606.0170**	**606.0170**	**0.0152**	**0.0000**	**606.3975**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.3900e-003	0.0584	0.0765	1.1000e-004		2.5300e-003	2.5300e-003		2.3300e-003	2.3300e-003	0.0000	9.9874	9.9874	3.2300e-003	0.0000	10.0682
Total	**4.3900e-003**	**0.0584**	**0.0765**	**1.1000e-004**	**0.0000**	**2.5300e-003**	**2.5300e-003**	**0.0000**	**2.3300e-003**	**2.3300e-003**	**0.0000**	**9.9874**	**9.9874**	**3.2300e-003**	**0.0000**	**10.0682**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.2900e-003	2.1000e-004	0.0000	4.6000e-004	0.0000	4.7000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.4741	0.4741	2.0000e-005	0.0000	0.4745
Vendor	0.0395	0.8903	0.2187	3.7800e-003	0.4145	7.7400e-003	0.4222	0.0547	7.4000e-003	0.0621	0.0000	358.6822	358.6822	8.7700e-003	0.0000	358.9016
Worker	0.1017	0.0958	0.8055	2.7300e-003	1.2806	1.6400e-003	1.2823	0.1519	1.5100e-003	0.1534	0.0000	246.8607	246.8607	6.4300e-003	0.0000	247.0214
Total	**0.1413**	**0.9873**	**1.0244**	**6.5100e-003**	**1.6956**	**9.3800e-003**	**1.7050**	**0.2067**	**8.9100e-003**	**0.2156**	**0.0000**	**606.0170**	**606.0170**	**0.0152**	**0.0000**	**606.3975**

3.5 Trenching - Underground work - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1943	1.8952	1.9529	3.0500e-003		0.1048	0.1048		0.0982	0.0982	0.0000	266.6283	266.6283	0.0693	0.0000	268.3614
Total	**0.1943**	**1.8952**	**1.9529**	**3.0500e-003**		**0.1048**	**0.1048**		**0.0982**	**0.0982**	**0.0000**	**266.6283**	**266.6283**	**0.0693**	**0.0000**	**268.3614**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	3.0000e-005	9.6000e-004	1.6000e-004	0.0000	1.7100e-003	0.0000	1.7200e-003	1.8000e-004	0.0000	1.9000e-004	0.0000	0.3540	0.3540	1.0000e-005	0.0000	0.3543
Vendor	0.0101	0.2266	0.0557	9.6000e-004	0.3873	1.9700e-003	0.3892	0.0427	1.8800e-003	0.0446	0.0000	91.3009	91.3009	2.2300e-003	0.0000	91.3568
Worker	0.1792	0.1688	1.4195	4.8100e-003	8.5961	2.9000e-003	8.5990	0.9156	2.6700e-003	0.9183	0.0000	435.0272	435.0272	0.0113	0.0000	435.3105
Total	**0.1893**	**0.3963**	**1.4753**	**5.7700e-003**	**8.9851**	**4.8700e-003**	**8.9900**	**0.9585**	**4.5500e-003**	**0.9631**	**0.0000**	**526.6822**	**526.6822**	**0.0136**	**0.0000**	**527.0215**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1943	1.8952	1.9529	3.0500e-003		0.1048	0.1048		0.0982	0.0982	0.0000	266.6280	266.6280	0.0693	0.0000	268.3610
Total	**0.1943**	**1.8952**	**1.9529**	**3.0500e-003**		**0.1048**	**0.1048**		**0.0982**	**0.0982**	**0.0000**	**266.6280**	**266.6280**	**0.0693**	**0.0000**	**268.3610**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0000e-005	9.6000e-004	1.6000e-004	0.0000	4.6000e-004	0.0000	4.6000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.3540	0.3540	1.0000e-005	0.0000	0.3543
Vendor	0.0101	0.2266	0.0557	9.6000e-004	0.1055	1.9700e-003	0.1075	0.0139	1.8800e-003	0.0158	0.0000	91.3009	91.3009	2.2300e-003	0.0000	91.3568
Worker	0.1792	0.1688	1.4195	4.8100e-003	2.2568	2.9000e-003	2.2597	0.2676	2.6700e-003	0.2703	0.0000	435.0272	435.0272	0.0113	0.0000	435.3105
Total	**0.1893**	**0.3963**	**1.4753**	**5.7700e-003**	**2.3627**	**4.8700e-003**	**2.3676**	**0.2816**	**4.5500e-003**	**0.2862**	**0.0000**	**526.6822**	**526.6822**	**0.0136**	**0.0000**	**527.0215**

3.5 Trenching - Underground work - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0591	0.5684	0.6586	1.0400e-003		0.0307	0.0307		0.0287	0.0287	0.0000	90.4594	90.4594	0.0234	0.0000	91.0445
Total	**0.0591**	**0.5684**	**0.6586**	**1.0400e-003**		**0.0307**	**0.0307**		**0.0287**	**0.0287**	**0.0000**	**90.4594**	**90.4594**	**0.0234**	**0.0000**	**91.0445**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	2.9000e-004	5.0000e-005	0.0000	1.7000e-003	0.0000	1.7000e-003	1.8000e-004	0.0000	1.8000e-004	0.0000	0.1187	0.1187	0.0000	0.0000	0.1188
Vendor	2.5900e-003	0.0644	0.0158	3.2000e-004	0.1314	2.3000e-004	0.1316	0.0145	2.2000e-004	0.0147	0.0000	30.7047	30.7047	6.9000e-004	0.0000	30.7220
Worker	0.0562	0.0507	0.4422	1.5800e-003	2.9165	9.6000e-004	2.9175	0.3106	8.9000e-004	0.3115	0.0000	142.7993	142.7993	3.4300e-003	0.0000	142.8852
Total	**0.0588**	**0.1154**	**0.4581**	**1.9000e-003**	**3.0496**	**1.1900e-003**	**3.0508**	**0.3253**	**1.1100e-003**	**0.3264**	**0.0000**	**173.6226**	**173.6226**	**4.1200e-003**	**0.0000**	**173.7259**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0591	0.5684	0.6586	1.0400e-003		0.0307	0.0307		0.0287	0.0287	0.0000	90.4593	90.4593	0.0234	0.0000	91.0444
Total	**0.0591**	**0.5684**	**0.6586**	**1.0400e-003**		**0.0307**	**0.0307**		**0.0287**	**0.0287**	**0.0000**	**90.4593**	**90.4593**	**0.0234**	**0.0000**	**91.0444**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	2.9000e-004	5.0000e-005	0.0000	4.4000e-004	0.0000	4.4000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1187	0.1187	0.0000	0.0000	0.1188
Vendor	2.5900e-003	0.0644	0.0158	3.2000e-004	0.0358	2.3000e-004	0.0360	4.7300e-003	2.2000e-004	4.9500e-003	0.0000	30.7047	30.7047	6.9000e-004	0.0000	30.7220
Worker	0.0562	0.0507	0.4422	1.5800e-003	0.7657	9.6000e-004	0.7667	0.0908	8.9000e-004	0.0917	0.0000	142.7993	142.7993	3.4300e-003	0.0000	142.8852
Total	**0.0588**	**0.1154**	**0.4581**	**1.9000e-003**	**0.8019**	**1.1900e-003**	**0.8031**	**0.0956**	**1.1100e-003**	**0.0967**	**0.0000**	**173.6226**	**173.6226**	**4.1200e-003**	**0.0000**	**173.7259**

3.6 Building Construction 2 - Gen-tie Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0328	0.3630	0.2442	4.5000e-004		0.0182	0.0182		0.0168	0.0168	0.0000	39.3767	39.3767	0.0127	0.0000	39.6951

Total	**0.0328**	**0.3630**	**0.2442**	**4.5000e-004**		**0.0182**	**0.0182**		**0.0168**	**0.0168**	**0.0000**	**39.3767**	**39.3767**	**0.0127**	**0.0000**	**39.6951**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.2900e-003	2.1000e-004	0.0000	1.7200e-003	0.0000	1.7300e-003	1.9000e-004	0.0000	1.9000e-004	0.0000	0.4741	0.4741	2.0000e-005	0.0000	0.4745
Vendor	1.8000e-003	0.0405	9.9400e-003	1.7000e-004	0.0692	3.5000e-004	0.0695	7.6300e-003	3.4000e-004	7.9700e-003	0.0000	16.3037	16.3037	4.0000e-004	0.0000	16.3137
Worker	0.0882	0.0830	0.6985	2.3700e-003	4.2298	1.4200e-003	4.2313	0.4505	1.3100e-003	0.4518	0.0000	214.0610	214.0610	5.5700e-003	0.0000	214.2004
Total	**0.0900**	**0.1248**	**0.7086**	**2.5400e-003**	**4.3007**	**1.7700e-003**	**4.3025**	**0.4583**	**1.6500e-003**	**0.4600**	**0.0000**	**230.8389**	**230.8389**	**5.9900e-003**	**0.0000**	**230.9886**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0328	0.3630	0.2442	4.5000e-004		0.0182	0.0182		0.0168	0.0168	0.0000	39.3767	39.3767	0.0127	0.0000	39.6950
Total	**0.0328**	**0.3630**	**0.2442**	**4.5000e-004**		**0.0182**	**0.0182**		**0.0168**	**0.0168**	**0.0000**	**39.3767**	**39.3767**	**0.0127**	**0.0000**	**39.6950**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.2900e-003	2.1000e-004	0.0000	4.6000e-004	0.0000	4.7000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.4741	0.4741	2.0000e-005	0.0000	0.4745
Vendor	1.8000e-003	0.0405	9.9400e-003	1.7000e-004	0.0188	3.5000e-004	0.0192	2.4900e-003	3.4000e-004	2.8200e-003	0.0000	16.3037	16.3037	4.0000e-004	0.0000	16.3137
Worker	0.0882	0.0830	0.6985	2.3700e-003	1.1105	1.4200e-003	1.1119	0.1317	1.3100e-003	0.1330	0.0000	214.0610	214.0610	5.5700e-003	0.0000	214.2004
Total	**0.0900**	**0.1248**	**0.7086**	**2.5400e-003**	**1.1298**	**1.7700e-003**	**1.1316**	**0.1342**	**1.6500e-003**	**0.1359**	**0.0000**	**230.8389**	**230.8389**	**5.9900e-003**	**0.0000**	**230.9886**

3.7 Site Preparation 3 - Testing, Commissioning, Site Clearning

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0186	0.0000	0.0186	2.0000e-003	0.0000	2.0000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0185	0.2425	0.1105	3.0000e-004		8.0000e-003	8.0000e-003		7.3600e-003	7.3600e-003	0.0000	26.7310	26.7310	8.6500e-003	0.0000	26.9471
Total	**0.0185**	**0.2425**	**0.1105**	**3.0000e-004**	**0.0186**	**8.0000e-003**	**0.0266**	**2.0000e-003**	**7.3600e-003**	**9.3600e-003**	**0.0000**	**26.7310**	**26.7310**	**8.6500e-003**	**0.0000**	**26.9471**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	1.6000e-004	4.6200e-003	8.2000e-004	2.0000e-005	6.8900e-003	2.0000e-005	6.9000e-003	7.5000e-004	1.0000e-005	7.6000e-004	0.0000	1.8734	1.8734	6.0000e-005	0.0000	1.8750
Vendor	9.5600e-003	0.2372	0.0583	1.1900e-003	0.4841	8.6000e-004	0.4849	0.0534	8.2000e-004	0.0542	0.0000	113.1225	113.1225	2.5600e-003	0.0000	113.1864
Worker	0.0736	0.0665	0.5793	2.0700e-003	3.8205	1.2600e-003	3.8218	0.4069	1.1600e-003	0.4081	0.0000	187.0587	187.0587	4.5000e-003	0.0000	187.1712
Total	**0.0833**	**0.3082**	**0.6384**	**3.2800e-003**	**4.3115**	**2.1400e-003**	**4.3136**	**0.4611**	**1.9900e-003**	**0.4631**	**0.0000**	**302.0546**	**302.0546**	**7.1200e-003**	**0.0000**	**302.2326**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.2400e-003	0.0000	7.2400e-003	7.8000e-004	0.0000	7.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0185	0.2425	0.1105	3.0000e-004		8.0000e-003	8.0000e-003		7.3600e-003	7.3600e-003	0.0000	26.7310	26.7310	8.6500e-003	0.0000	26.9471
Total	**0.0185**	**0.2425**	**0.1105**	**3.0000e-004**	**7.2400e-003**	**8.0000e-003**	**0.0152**	**7.8000e-004**	**7.3600e-003**	**8.1400e-003**	**0.0000**	**26.7310**	**26.7310**	**8.6500e-003**	**0.0000**	**26.9471**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.6000e-004	4.6200e-003	8.2000e-004	2.0000e-005	1.8600e-003	2.0000e-005	1.8700e-003	2.3000e-004	1.0000e-005	2.5000e-004	0.0000	1.8734	1.8734	6.0000e-005	0.0000	1.8750
Vendor	9.5600e-003	0.2372	0.0583	1.1900e-003	0.1319	8.6000e-004	0.1328	0.0174	8.2000e-004	0.0182	0.0000	113.1225	113.1225	2.5600e-003	0.0000	113.1864
Worker	0.0736	0.0665	0.5793	2.0700e-003	1.0030	1.2600e-003	1.0043	0.1190	1.1600e-003	0.1201	0.0000	187.0587	187.0587	4.5000e-003	0.0000	187.1712
Total	**0.0833**	**0.3082**	**0.6384**	**3.2800e-003**	**1.1368**	**2.1400e-003**	**1.1389**	**0.1366**	**1.9900e-003**	**0.1386**	**0.0000**	**302.0546**	**302.0546**	**7.1200e-003**	**0.0000**	**302.2326**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0198	0.2378	0.2062	1.1300e-003	0.0641	7.4000e-004	0.0648	0.0172	7.0000e-004	0.0179	0.0000	105.1881	105.1881	9.1000e-003	0.0000	105.4155
Unmitigated	0.0198	0.2378	0.2062	1.1300e-003	0.0641	7.4000e-004	0.0648	0.0172	7.0000e-004	0.0179	0.0000	105.1881	105.1881	9.1000e-003	0.0000	105.4155

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	43.08	43.08	43.08	166,438	166,438
Total	43.08	43.08	43.08	166,438	166,438

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.486321	0.031785	0.181048	0.107930	0.020259	0.005756	0.011219	0.141006	0.002203	0.001426	0.008588	0.001195	0.001263

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	897.2367	897.2367	0.0370	7.6600e-003	900.4466
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	897.2367	897.2367	0.0370	7.6600e-003	900.4466
NaturalGas Mitigated	2.6000e-003	0.0237	0.0199	1.4000e-004		1.8000e-003	1.8000e-003		1.8000e-003	1.8000e-003	0.0000	25.7478	25.7478	4.9000e-004	4.7000e-004	25.9008
NaturalGas Unmitigated	2.6000e-003	0.0237	0.0199	1.4000e-004		1.8000e-003	1.8000e-003		1.8000e-003	1.8000e-003	0.0000	25.7478	25.7478	4.9000e-004	4.7000e-004	25.9008

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Heavy Industry	482496	2.6000e-003	0.0237	0.0199	1.4000e-004		1.8000e-003	1.8000e-003		1.8000e-003	1.8000e-003	0.0000	25.7478	25.7478	4.9000e-004	4.7000e-004	25.9008
Total		**2.6000e-003**	**0.0237**	**0.0199**	**1.4000e-004**		**1.8000e-003**	**1.8000e-003**		**1.8000e-003**	**1.8000e-003**	**0.0000**	**25.7478**	**25.7478**	**4.9000e-004**	**4.7000e-004**	**25.9008**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Heavy Industry	482496	2.6000e-003	0.0237	0.0199	1.4000e-004		1.8000e-003	1.8000e-003		1.8000e-003	1.8000e-003	0.0000	25.7478	25.7478	4.9000e-004	4.7000e-004	25.9008
Total		**2.6000e-003**	**0.0237**	**0.0199**	**1.4000e-004**		**1.8000e-003**	**1.8000e-003**		**1.8000e-003**	**1.8000e-003**	**0.0000**	**25.7478**	**25.7478**	**4.9000e-004**	**4.7000e-004**	**25.9008**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	2.816e+006	897.2367	0.0370	7.6600e-003	900.4466
Total		**897.2367**	**0.0370**	**7.6600e-003**	**900.4466**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e

Land Use	kWh/yr	MT/yr			
General Heavy Industry	2.816e+006	897.2367	0.0370	7.6600e-003	900.4466
Total		**897.2367**	**0.0370**	**7.6600e-003**	**900.4466**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1455	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.1000e-004	5.1000e-004	0.0000	0.0000	5.5000e-004
Unmitigated	0.1455	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.1000e-004	5.1000e-004	0.0000	0.0000	5.5000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0333					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Consumer Products	0.1122					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.1000e-004	5.1000e-004	0.0000	0.0000	5.5000e-004
Total	**0.1455**	**0.0000**	**2.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.1000e-004**	**5.1000e-004**	**0.0000**	**0.0000**	**5.5000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0333					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1122					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.1000e-004	5.1000e-004	0.0000	0.0000	5.5000e-004
Total	**0.1455**	**0.0000**	**2.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.1000e-004**	**5.1000e-004**	**0.0000**	**0.0000**	**5.5000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	34.6718	2.0700e-003	3.1000e-004	34.8162
Unmitigated	34.6718	2.0700e-003	3.1000e-004	34.8162

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0.019511 / 9.77	34.6718	2.0700e-003	3.1000e-004	34.8162
Total		**34.6718**	**2.0700e-003**	**3.1000e-004**	**34.8162**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0.019511 / 9.77	34.6718	2.0700e-003	3.1000e-004	34.8162
Total		**34.6718**	**2.0700e-003**	**3.1000e-004**	**34.8162**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	7.2285	0.4272	0.0000	17.9083
Unmitigated	7.2285	0.4272	0.0000	17.9083

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	35.61	7.2285	0.4272	0.0000	17.9083
Total		**7.2285**	**0.4272**	**0.0000**	**17.9083**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			

General Heavy Industry	35.61	7.2285	0.4272	0.0000	17.9083
Total		**7.2285**	**0.4272**	**0.0000**	**17.9083**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Forklifts	2	8.00	12	89	0.20	Diesel
Tractors/Loaders/Backhoes	2	8.00	12	97	0.37	Diesel

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Forklifts	1.3600e-003	0.0127	0.0138	2.0000e-005		8.4000e-004	8.4000e-004		7.7000e-004	7.7000e-004	0.0000	1.6115	1.6115	5.2000e-004	0.0000	1.6245
Tractors/Loaders/ Backhoes	1.9800e-003	0.0201	0.0269	4.0000e-005		1.0800e-003	1.0800e-003		9.9000e-004	9.9000e-004	0.0000	3.2794	3.2794	1.0600e-003	0.0000	3.3059
Total	**3.3400e-003**	**0.0328**	**0.0407**	**6.0000e-005**		**1.9200e-003**	**1.9200e-003**		**1.7600e-003**	**1.7600e-003**	**0.0000**	**4.8909**	**4.8909**	**1.5800e-003**	**0.0000**	**4.9304**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix G

Geology and Paleontological Reports for the Sanborn Solar Project

ESA

Appendix G1

Geotechnical Study

ESA

GEOTECHNICAL STUDY
SANBORN SOLAR PROJECT
KERN COUNTY, CALIFORNIA

PREPARED FOR:
Dudek
605 Third Street
Encinitas, California 92024

PREPARED BY
Ninyo & Moore
Geotechnical and Environmental Sciences Consultants
5710 Ruffin Road
San Diego, California 92123

March 27, 2018
Project No. 108362001

March 27, 2018
Project No. 108362001

Ms. Megan S. Enright
Dudek
605 Third Street
Encinitas, California 92024

Subject: Geotechnical Study
Sanborn Solar Project
Kern County, California

Dear Ms. Enright:

In accordance with your request and authorization, we have performed a geotechnical study for the Sanborn Solar project in Kern County, California. The attached revised report presents our methodology, findings, opinions, and preliminary recommendations regarding the geology and soils conditions at the site.

We appreciate the opportunity to be of service on this project.

Sincerely,
NINYO & MOORE

Christina Tretinjak, PG, CEG
Project Geologist

Gregory T. Farrand, PG, CEG
Principal Geologist

NMM/CAT/WRM/GTF/gg

Distribution: (1) Addressee

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EXECUTIVE SUMMARY

The proposed Sanborn Solar project is located approximately 2.3 miles southeast of the town of Mojave in unincorporated Kern County, California. The solar generation site (project site) is generally bounded by Highway 58 to the north, the intersection of Mojave Boulevard & Dalton Avenue to the east, Trotter Avenue to the south, and Lone Butte Road to the west. Specifically, the project site consists of three rectangular and triangular areas, totaling approximately 2,100-acres in size, and a proposed generation transmission line parallel to Purdy Avenue and Old Creek Road to the existing Windhub Substation approximately 8 miles to the west.

As shown on Figure 2, the project area is generally undeveloped, with the exception of a few unpaved roads extending through the project site, 20th Street (paved) extending through the central solar field, and buried pipelines extending through the northern portion of the project site. The topography of the project area is relatively flat, with the exception of scattered hills in the project area up to approximately 200 feet in height. Elevations across the solar generation sites range from approximately 2,660 feet above mean sea level (MSL) in the northwest portion of the site to approximately 2,500 feet above MSL in the southeast portion of the site.

Geologic and geotechnical constraints evaluated for the project include:

- Surface and near-surface soils at the project site are mapped as alluvium and intrusive igneous rock (Dibblee, 1959a; 1959b). Fill materials associated with the construction of the existing roadways utilities as well as agricultural topsoil are also anticipated at the project. Geotechnical constraints related to soils at the project are:
    - *Soft Ground* – Areas with soft ground or loose soils can be found throughout the project.
    - *Expansive Soils* – The project soils are expected to have a moderate potential for expansion.
    - *Fill Soils* – Man-made fill soils placed without engineering supervision may be loosely or inadequately compacted, may contain oversize materials unsuitable for reuse in engineered fills, and may contain unsuitable organic or expansive materials and debris that may preclude their use in engineered fills.
- The closest known major active fault is the Garlock Fault, which is located approximately 9.5 miles northwest of the solar field project site. Geotechnical constraints related to faulting and seismic events at the project are:
    - *Ground Shaking* – The project has a moderate potential for strong ground motions due to earthquakes on nearby active faults.
    - *Liquefaction* – Alluvium (where shallow groundwater is present) may be subject to or liquefaction during a nearby seismic event. Alluvial soils situated both above and below groundwater may be susceptible to seismic settlement as a result of a nearby seismic event.

- The depth to groundwater in the project area ranges from approximately 350 feet in the western portion of the project area to 240 feet in the northern portion of the project area to 80 feet in the southeastern portion of the project area.
- The potential for landsliding and slope instability at the project site is considered low.
- Dam inundation is not considered to be a significant hazard to the project site.
- Portions of the project site are located within the 100-year floodplain.
- Based on previous work in the project area, the soils at the project site are anticipated to be corrosive.

Provided that the preliminary recommendations provided herein as well as standard design measures typical for solar facilities are incorporated into the design and construction of the proposed project, the above geologic conditions can be mitigated to a less than significant level. Our preliminary recommendations assume that further geotechnical evaluation, including subsurface evaluation and laboratory testing, will be conducted prior to finalization of project plans and that more specific recommendations will be provided at that time.

1. INTRODUCTION

In accordance with your request, Ninyo & Moore has completed a geotechnical study for the proposed Sanborn Solar project located approximately 2.3 miles southeast of the town of Mojave, in unincorporated Kern County, California (Figure 1). Our evaluation is based on a geologic reconnaissance, published and non-published reports, aerial photographs, in-house data, and the assessment of the potential geologic hazards in the project area. The purpose of this geologic reconnaissance was to evaluate the potential for existing environmental impacts related to geologic or soils conditions to affect the project site and adjoining areas, and to discuss measures that can be implemented to reduce or mitigate the potential impacts with respect to the design and construction of the proposed project.

2. REGULATORY FRAMEWORK

Geologic resources and geotechnical hazards within the proposed project area are governed by Kern County and the California Code of Regulations (CCR), 2016 California Building Code (CBC).

The CBC is promulgated under CCR, Title 24, Parts 1 through 12 (also known as the California Building Standards Code), and is administered by the California Building Standards Commission (CBSC). The CBSC is responsible for administering California's building codes.

3. SITE AND PROJECT DESCRIPTION

The site of the proposed Sanborn Solar project is located southeast of the community of Mojave in unincorporated Kern County, north of the Antelope Valley area, in south-central California. The solar generation site (project site) is generally bounded by Highway 58 to the north, the intersection of Mojave Boulevard & Dalton Avenue to the east, Trotter Avenue to the south, and Lone Butte Road to the west (Figure 1). The proposed project consists of two generally discontinuous sites that together comprise the project site (Figure 2). The northern portion of the site is approximately 1,118 acres and the southern portion of the site is approximately 983 acres. The northern site is directly east of Burlington Northern Santa Fe (BNSF) Railway, south of East Texas Street,

and west of southern 10th Street. The southern site is directly north of Edwards Air Force Base, east of 15th Street, and 0.2 mile south of the BNSF Railway; its eastern edge generally follows an unnamed dirt road.

As shown on Figure 2, the project area is generally undeveloped, with the exception of a few unpaved roads extending through each solar generation area, 20th Street (paved) extending through the central solar generation area, and buried pipelines extending through the northern portion of the project area. Additionally, some fenced areas, debris, vehicles, and concrete slabs were observed on the project site. The topography of the project area is relatively flat, with the exception of scattered hills in the project area up to approximately 200 feet in height. Elevations across the solar generation sites range from approximately 2,660 feet above mean sea level (MSL) in the northwest portion of the site to approximately 2,500 feet above MSL in the southeast portion of the site.

We understand that the project will consist of the development of a photovoltaic (PV) solar facility and associated infrastructure necessary to generate a combined 300 megawatts (MW) of renewable electrical energy and/or energy storage capacity. A generator tie-in line (gen-tie) line would connect the energy generated on site to either the Windhub Substation, which is owned and operated by Southern California Edison (SCE), and/or the privately owned Westwind Substation

A geotechnical report prepared by Earth Systems Southwest (2009) was provided for our review. The geotechnical evaluation and subsurface exploration focused on the northern portion of the current project area. The subsurface exploration for the study consisted of two borings, two test pits, and 38 cone penetration test (CPT) soundings (Earth Systems Southwest, 2009).

4. GEOLOGY

The following sections present our findings relative to regional and site geology, geologic hazards, groundwater, faulting, and seismicity.

4.1. Regional Geologic Setting

The project area is situated in the western portion of the Mojave Desert Geomorphic Province. This geomorphic province encompasses an area that extends approximately 250 miles from the intersection of the San Andreas and Garlock Faults on the west to the Nevada and Arizona borders on the east. The western end of the province is bounded by the San Andreas and Garlock Faults. The province is up to 100 miles wide and is generally bounded by the Garlock Fault, the Tehachapi Mountains, and the Basin and Range to the north and to the south by the Transverse Ranges (Norris and Webb, 1990). In general, the province consists of broad alluviated valleys underlain by sedimentary, metamorphic, and igneous rocks. The Mojave Desert Province within the project area generally consists of Tertiary-, Quaternary-, and Mesozoic-age granitic rock, sedimentary rock, and alluvium.

4.2. Site Geology

Based on our review of published geologic maps and our site reconnaissance, surficial soils at the project site consist of fill, alluvium, and igneous rock. A brief description of these units, as described in the cited literature or as observed on the site, is presented below.

4.2.1. Fill

Fill soils are anticipated to underlie portions of the site area due to previous land use, roadway construction, and burial of utility lines. As observed at the surface, the fill soils are generally composed of brown clay, silt, sand, and gravel.

4.2.2. Alluvium

Quaternary-age alluvium (Dibblee, 1959a; 1959b) underlies the fill soils at the site. Where observed these soils generally consist of various shades of yellow, orange, brown, and gray, silty sand and clayey sand with deposits of silty clay and gravely sand (Earth Systems Southwest, 2009). Based on two borings, two test pits, and 38 CPTs included in the previous geotechnical report (Earth Systems Southwest, 2009), the upper approximately 16.5 feet of the explored portion of the site is underlain by silty sand, clayey sand, and clay.

4.2.3. Igneous Rock

Two outcrops of volcanic rocks have been mapped within the project site boundaries, specifically at the northeast and southeast corners of the central solar generation site. The northeastern outcrop is mapped as intrusive porphyry and extends up to approximately 200 vertical feet above the surrounding area, and the southeastern outcrop is mapped as felsite and porphyritic felsite and extends up to approximately 150 vertical feet above the surrounding area (Dibblee, 1959a; 1959b).

4.3. Groundwater

Sources provided by the California Water Data Library Resources (DWR) and the California State Water Resources Control Board (SWRCB) were reviewed for information pertaining to groundwater quality and occurrence in the vicinity of the project.

We researched information on the SWRCB GeoTracker website for groundwater monitoring well data in the vicinity of the project site. Numerous irrigation and observation wells are located around the project site. Video surveys performed for two existing on-site wells indicate that the depth to groundwater is approximately 168 feet (Welenco, 2014). Based on Earth Systems Southwest's geotechnical report for the site (2009), groundwater was not encountered in any of their borings or test pits to a depth of approximately 16.5 feet at the time of drilling.

4.4. Faulting and Seismicity

As shown on Figure 4, there are several active faults in the region. Therefore, like most of southern California, the project area is considered to be seismically active. The site is not located within a State of California Alquist-Priolo Earthquake Fault Zone. The closest known active fault is the Garlock Fault (western Garlock section), which is capable of generating an earthquake magnitude of 7.1 (USGS, 2017a). The Garlock Fault (western Garlock section) is located approximately 9.5 miles northwest of the northern solar field.

In general, hazards associated with seismic activity include ground surface rupture, strong ground motion, liquefaction, and tsunamis. These hazards are discussed in the following sections.

4.4.1. Ground Surface Rupture

Ground surface rupture due to active faulting is not considered likely in the project area due to the absence of known active faults underlying the site. However, lurching or cracking of the ground surface as a result of nearby seismic events is possible.

4.4.2. Strong Ground Motion

The 2016 California Building Code (CBC) specifies that the Risk-Targeted, Maximum Considered Earthquake (MCE_R) ground motion response accelerations be used to evaluate seismic loads for design of buildings and other structures. The MCE_R ground motion response accelerations are based on the spectral response accelerations for 5 percent damping in the direction of maximum horizontal response and incorporate a target risk for structural collapse equivalent to 1 percent in 50 years with deterministic limits for near-source effects. The horizontal peak ground acceleration (PGA) that corresponds to the MCE_R for the site was calculated as 0.47g using the United States Geological Survey (USGS, 2017b) seismic design tool (web-based). Spectral response acceleration parameters, consistent with the 2016 CBC, are also provided in the recommendations section of this report for the evaluation of seismic loads on buildings and other structures.

The 2016 CBC specifies that the potential for liquefaction and soil strength loss be evaluated, where applicable, for the Maximum Considered Earthquake Geometric Mean (MCE_G) peak ground acceleration with adjustment for site class effects in accordance with the American Society of Civil Engineers (ASCE) 7-10 Standard. The MCE_G peak ground acceleration is based on the geometric mean peak ground acceleration with a 2 percent probability of exceedance in 50 years. The MCE_G peak ground acceleration with adjustment for site class effects (PGA_M) was calculated as 0.44g using the USGS (USGS, 2017b) seismic design tool that yielded a mapped MCE_G peak ground acceleration of 0.47g for the site and a site coefficient (F_{PGA}) of 1.061 for Site Class D.

As noted, the nearest known active fault is the western Garlock section of the Garlock Fault, located approximately 9.5 miles northwest of the project site. Table 1 below lists principal known active faults that may affect the subject site, the maximum moment magnitude (M_{max}) and the fault types. The approximate fault-to-site distances were calculated using the USGS website (USGS, 2017a).

Table 1 – Principal Active Faults

Fault	Approximate Distance miles (km)[1]	Maximum Moment Magnitude (M_{max})[1]
Garlock (western Garlock)	9.5 (15.3)	7.1
Southern Sierra Nevada	20 (32)	7.5
Lenwood-Lockhart-Old Woman Springs	24 (39)	7.5
South San Andreas (Santa Cruz Mtn)	29 (47)	7.3
Helendale-South Lockhart	31 (50)	7.4
South San Andreas NM	31 (50)	7.0
White Wolf	31 (50)	7.2
Gravel Hills-Harper Lake	41 (66)	7.1
Plieto	43 (69)	7.1
San Gabriel	45 (72)	7.3
South San Andreas BB	46 (74)	7.1
Holser	48 (77)	6.8
Little Lake	49 (79)	6.9
Blackwater	50 (80)	7.1
Northridge	51 (82)	6.9
Sierra Madre	52 (84)	7.2
Santa Susana	52 (84)	6.9
Santa Ynez	53 (85)	7.2
San Cayetano	54 (87)	7.2
Oak Ridge	55 (89)	7.4
Verdugo	55 (89)	6.9
Clamshell-Sawpit	56 (90)	6.7
South San Andreas (North San Bernardino)	59 (95)	6.9
Simi-Santa Rosa	59 (95)	6.9
San Jacinto (San Bernardino)	59 (95)	7.1
Raymond	60 (97)	6.8
Cleghorn	62 (100)	6.8
Hollywood	62 (100)	6.7

Note:
[1] United States Geological Survey, 2017a

4.4.3. Liquefaction and Seismically Induced Settlement

Liquefaction of cohesionless soils can be caused by strong vibratory motion due to earthquakes. Research and historical data indicate that loose granular soils and non-plastic silts that are saturated by a relatively shallow groundwater table are susceptible to liquefaction. Based on the absence of a shallow water table encountered during the previous geotechnical study (Earth Systems Southwest, 2009), and our review of nearby well data, shallow groundwater is not anticipated in the project area. Therefore, liquefaction is not anticipated to be a design consideration. It is the responsibility of the geotechnical engineer of record to evaluate the potential for liquefaction and dynamic settlement and to provide appropriate design recommendations.

4.4.4. Tsunamis and Seiches

Tsunamis are long wavelength seismic sea waves (long compared to the ocean depth) generated by sudden movements of the ocean bottom during submarine earthquakes, landslides, or volcanic activity. Based on the inland location and elevation of the project, the potential for a tsunami to impact the site is not a design consideration.

Seiches are oscillations of enclosed or partially enclosed bodies of water often generated by seismic activity. Based on the elevation of the site and the absence of nearby bodies of water, the potential for seiches to impact the site is considered low.

4.5. Landsliding and Slope Stability

Based on our review of published geologic literature, aerial photographs, and our site reconnaissance, no landslides or related features are known to underlie or be adjacent to the project site. Therefore, the potential for landslides at the project site is considered low.

Global slope stability is not anticipated to be a design consideration at the project due to the relatively flat topography of the project area. However, surficial stability and erosion may be design considerations in the southern portion of the project area where scattered hills up to approximately 200 feet in height are present.

4.6. Regional Land Subsidence

Land subsidence is characterized as a shrinking of the ground surface relative to surrounding areas, and can generally occur where deep alluvial deposits are present in valley areas. Subsidence in alluvial valley areas is typically associated with groundwater withdrawal or other fluid withdrawal from the subsurface such as oil and/or natural gas. Extraction of these geologic fluids can cause subsidence, which can result in the development of surface ground cracks and fissures, particularly near valley margins. Cracks and earth fissures can cause damage to improvements including roads, transmission lines, foundations, structures, and pipelines. Review of the USGS report "Groundwater-Flow and Land-Subsidence Model of Antelope Valley" prepared in 2014, indicates that up to 6.6 feet of land subsidence occurred in the region from 1930 to 1992 as a result of groundwater withdrawal. This land subsidence primarily occurred to the south of the project site near the cities of Rosamond and Lancaster. However, no land subsidence has been measured in the project area.

During our site reconnaissance, we did not observe ground cracks or earth fissures. We note however, that the site generally consists of loose surficial soils that may conceal underlying cracks or fissures.

4.7. Flood Hazards

Based on our review of Federal Emergency Management Agency (FEMA) Mapping Information Platform website (2016), drainage channels cross the project site that are mapped as Special Flood Hazard Areas subject to inundation by the 1 percent annual chance flood. Portions of the project site are located within mapped 100 year floodways. Based on review of the flood maps and the elevation of the site, the potential for significant flooding to impact the project is considered to be a project constraint. The potential for dam inundation is not considered a project constraint.

4.8. Expansive Soils

Expansive soils generally result from specific clay minerals that have the capacity to shrink or swell in response to changes in moisture content. Shrinking or swelling of foundation soils can lead to damage to slabs, foundations, and other engineered structures, including tilting and cracking. Based on the previous geotechnical report for the site (Earth Systems Southwest, 2009), the site soils in the northern portion of the project area have a moderate potential for expansion. The potential for similar soils to occur at the project is considered high.

4.9. Corrosive Soils

Caltrans corrosion criteria (2015) consider soils with more than 500 parts per million (ppm) chlorides, more than 0.2 percent sulfates, or a pH less than 5.5 to be corrosive. Based on the previous geotechnical report for the site (Earth Systems Southwest, 2009), the site soils in the northern portion of the project area can be classified as corrosive. The potential for similar soils to occur at the project is considered high.

4.10. Agricultural Soils

Based on the interactive map using the Web Soil Survey website (USDA, 2017), eight different soil units have been noted on the project site. These soils types include: Arizo Gravelly Loamy Sand, Cajon Sand, Cajon Loamy Sand, Cajon Gravelly Loamy Sand, Garlock Loamy Sand, Rosamond Clay Loam, Torriorthents-Rock Outcrop Complex, and general Rock Outcrops. Based on wind and water erosion and the surrounding paved and unpaved roadways, preexisting native soils are anticipated to have been removed and/or disturbed on the project site.

4.11. Mineral Resources

According to Troxel (1962), the project area is not located within a mapped mining district or an area with known mineral resources.

5. CONCLUSIONS

Based on our review of the referenced background data and our geologic field reconnaissance it is our opinion that geologic and geotechnical considerations at the project site include the following:

- Surface and near-surface soils at the project are mapped as alluvium. Fill materials associated with the construction of the existing roadways and utilities are also anticipated to be present at the project site. Geotechnical constraints related to soils at the project are:
    - *Soft Ground* – Areas with soft ground or loose soils can be found at the ground surface. In addition, surficial soils are susceptible to wind and water erosion.
    - *Expansive Soils* – The project soils are expected to have a moderate potential for expansion.
    - *Fill Soils* – Man-made fill soils placed without engineering supervision may be loosely or inadequately compacted, may contain oversize materials unsuitable for reuse in engineered fills, and may contain unsuitable organic or expansive materials and debris that may preclude their use in engineered fills.
- The depth to groundwater in the project area ranges from approximately 350 feet in the western portion of the project area to 240 feet in the northern portion of the project area to 80 feet in the southeastern portion of the project area.
- The closest known major active fault is the northwest Garlock segment of the Garlock Fault, which is located approximately 9.5 miles west of the northern solar field. Geotechnical constraints related to faulting and seismic events at the project are:
    - *Ground Shaking* – The project has a moderate potential for strong ground motions due to earthquakes on nearby active faults.
    - *Liquefaction* – Liquefaction is not anticipated be a design consideration due to the absence of shallow groundwater at the project site. Alluvial soils situated both above and below groundwater may be susceptible to seismic settlement as a result of a nearby seismic event.
- The potential for landsliding in the project area is considered low.
- Portions of the site are located within mapped 100 year floodways. Based on the elevation of the site, significant flooding is considered a project constraint.
- Dam inundation is not considered a design constraint.
- Based on the previous geotechnical report for the site (Earth Systems Southwest, 2009), the site soils are anticipated to be corrosive to buried metal pipes and concrete. Based on previous work in the project area, some soils at the project site may be expansive and corrosive.

The conditions described above would increase the cost and duration of grading and construction of the project, but would not preclude development of the project.

6. PRELIMINARY RECOMMENDATIONS

Based on the geologic and geotechnical considerations at the project site presented in the previous section, our preliminary recommendations are presented below. These preliminary recommendations assume that further geotechnical evaluation, including subsurface evaluation and laboratory testing, will be conducted prior to finalization of project plans and that more specific recommendations will be provided at that time.

- Soft Ground – Soils in areas with soft ground or loose soils in the area of the proposed project may be subject to settlement. Recommendations to mitigate this condition in areas where settlement-sensitive improvements are proposed can typically include removal and/or replacement of soils as engineered compacted fill. The extent of soft soils and recommended removals may be evaluated by subsurface exploration and laboratory testing.

- Land Subsidence – Land subsidence may cause ground cracks or earth fissures which may lead to damage to foundations and engineered structures. The proposed structures associated with the substation and transmission line should be designed to accommodate vertical movement associated with long-term ground subsidence. The PV structures can also be provided with mechanisms so they can be readily realigned in response to subsidence as needed.

- Expansive Soils – Expansive soils may lead to damage to foundations and engineered structures. If expansive soils exist in areas where cracking-susceptible improvements are planned, the following recommendations may be implemented during construction: the soils may be removed from sensitive areas and placed in deeper fill areas; the soils may be excavated and removed from the site; or the expansive soils may be chemically treated (i.e., lime treatment) to reduce their potential for expansion. The extent of expansive soils and recommended mitigation measures may be evaluated by subsurface exploration and laboratory testing.

- Ground Shaking – Proposed structures should be designed appropriately to mitigate strong ground shaking in the event of an earthquake on a nearby fault.

- Liquefaction – Based on the absence of a shallow water table encountered during the previous geotechnical study (Earth Systems Southwest, 2009), and our review of nearby well data, shallow groundwater is not anticipated in the project area. Therefore, liquefaction is not anticipated be a design consideration. However, prior to development, a geotechnical evaluation involving subsurface exploration and laboratory testing should be performed to specifically evaluate the potential for liquefaction on the project site. If such an evaluation finds that a potential for liquefaction to exist, the following recommendations may be im-

plemented during construction: removal and replacement of soils susceptible to seismic settlement and/or liquefaction; densification of these soils; or utilization of special foundations to mitigate liquefaction and seismic settlement.

- Shallow groundwater – Although not anticipated at the project site, shoring and dewatering may be required if construction is proposed in areas of shallow or perched groundwater.
- Landsliding – Landslides have not been mapped on the site or reported in the available literature. Further, no landslides were observed on or adjacent to the site during our field reconnaissance.
- Corrosive Soils – If corrosive soils exist on the site, a corrosion engineer may be required to assist in the design of improvements in contact with the soil. A preliminary evaluation of soil corrosivity tests were reported in a geotechnical report and classified the site soils as corrosive (Earth Systems Southwest, 2009). The extent of corrosive soils and recommended mitigation measures may be further evaluated by subsurface exploration and laboratory testing.

7. IMPACT ANALYSIS

Based upon the results of our geologic reconnaissance, our findings, conclusions, and recommendations regarding potential geological impacts to the Sanborn Solar Project are summarized in the following sections.

7.1. Significance Thresholds

In evaluating the significance of potential environmental concerns in a particular study area, the criteria to consider, as they relate to geologic and soil conditions, are presented in the CEQA Guidelines. In accordance with the scope of work, the findings of this study were evaluated with respect to Questions A through E of Section 6 “Geology and Soils” within Appendix G of the CEQA Guidelines (2009).

7.2. Project Impacts and Significance

Based on the above criteria and the results of the evaluation, the potential impact by geologic and soil conditions at the project have been identified, and are discussed below.

A. Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of known fault?

The potential for ground surface rupture due to active faulting is considered low in the project area due to the absence of known active faults underlying the site (less than significant impact). However, lurching or cracking of the ground surface as a result of nearby seismic events is possible. Mitigation of the potential impacts of fault rupture can be achieved through project design.

ii. Strong seismic ground shaking?

The project has a moderate potential for strong ground motions due to earthquakes on nearby active faults. Mitigation of the potential impacts of strong seismic shaking can be achieved through project design that incorporates recommendations from a site specific geotechnical evaluation.

iii. Seismic related ground failure, including liquefaction?

Based on the absence of shallow groundwater at the site, it is our opinion that the potential for liquefaction over the majority of the project site is not a design consideration. The potential for liquefaction should be evaluated further. However, we consider this impact to be less than significant with mitigation incorporated. Mitigation of the potential impacts of seismic related ground failure can be achieved through project design that incorporates recommendations from a site specific geotechnical evaluation

iv. ***Landslides?***

Geologic mapping does not indicate the presence of mapped landslides on the project site. Additionally, landslides were not observed on or adjacent to the project. Therefore, the potential for existing landslides is considered low (less than significant impact).

B. Would the project result in substantial soil erosion or the loss of topsoil?

If the site is developed in accordance with current building codes and industry standards, the potential for substantial soil erosion is considered to be low (less than significant impact).

C. Would the project be located on geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

The alluvial deposits underlying the site may be subject to seismic settlement or liquefaction during a nearby seismic event. The site is not considered prone to landsliding or slope instability issues. Based on these items, we consider this impact to be less than significant with mitigation incorporated. Land subsidence may cause ground cracks or earth fissures which may lead to

damage to foundations and engineered structures. The proposed structures should be designed to accommodate vertical movement associated with long-term ground subsidence.

D. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

The soils on the project site are expected to have a moderate potential for expansion based on classification in a report (Earth Systems Southwest, 2009). However, we consider this impact to be less than significant with mitigation incorporated. Mitigation of the potential impacts of expansive soil can be achieved through project design that incorporates recommendations from a site specific geotechnical evaluation.

E. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

The soils on the project site are expected to be able to support adequately designed septic tanks or alternative waste water disposal systems. We consider this impact to be less than significant with mitigation incorporated. Mitigation of the potential impacts of inadequate soils can be achieved through project design that incorporates recommendations from a site specific geotechnical evaluation.

8. LIMITATIONS

The field evaluation and geotechnical analyses presented in this report have been conducted in accordance with current engineering practice and the standard of care exercised by reputable geotechnical consultants performing similar tasks in this area. No warranty, implied or expressed, is made regarding the conclusions, recommendations, and professional opinions expressed in this report. Variations may exist and conditions not observed or described in this report may be encountered. Our preliminary conclusions and recommendations area based on an analysis of the observed conditions and the referenced background information.

The purpose of this study was to evaluate general geologic and geotechnical conditions within the project site and to provide a preliminary geotechnical evaluation report to assist in the preparation of environmental impact documents for the project. A comprehensive geotechnical evaluation, including subsurface exploration and laboratory testing, should be performed prior to design and construction of structural improvements.

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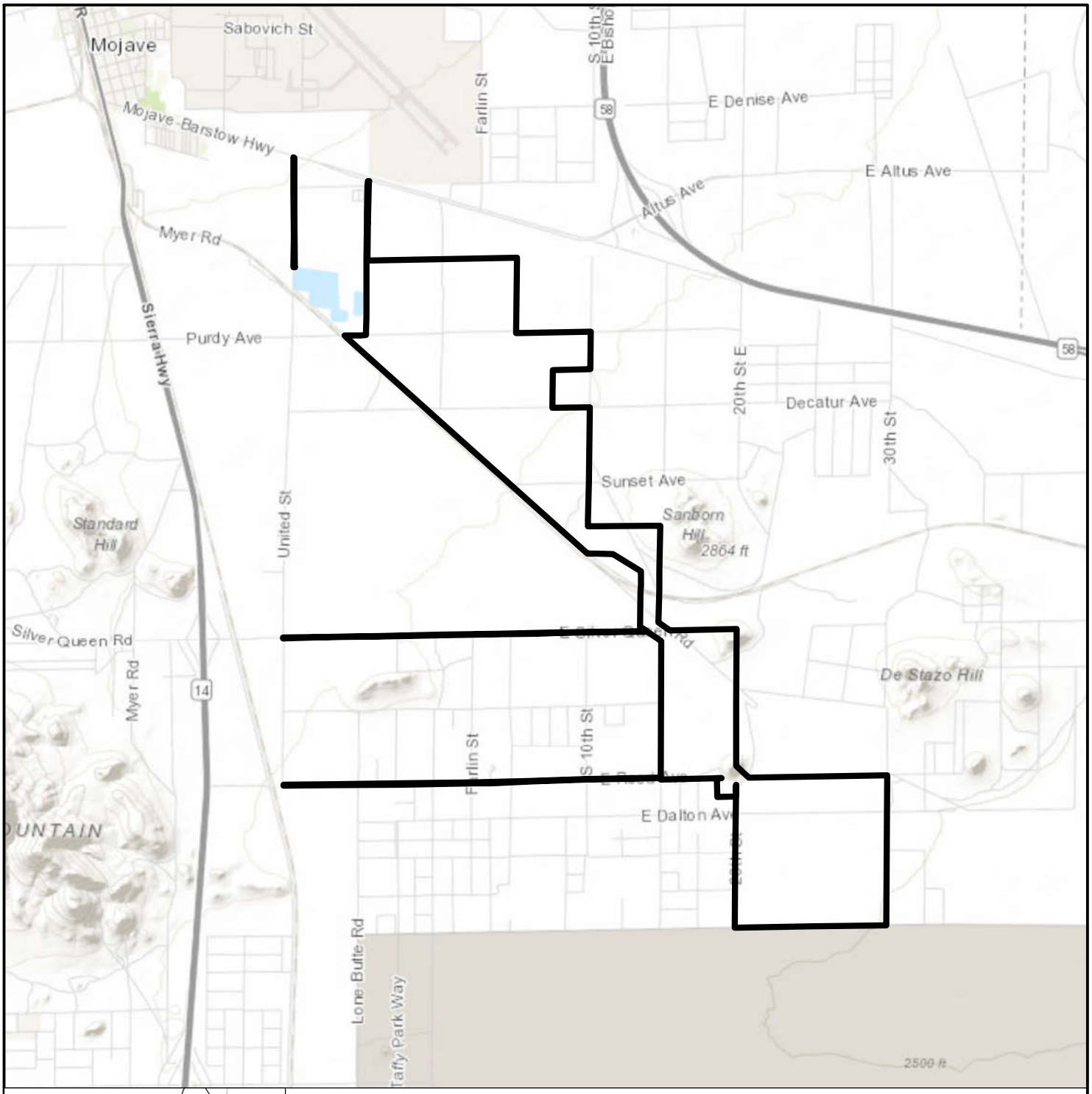

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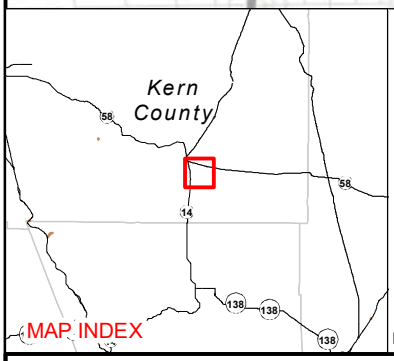

LEGEND

PROJECT AREA

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NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE

Ninyo & Moore		PROJECT AREA LOCATION	FIGURE
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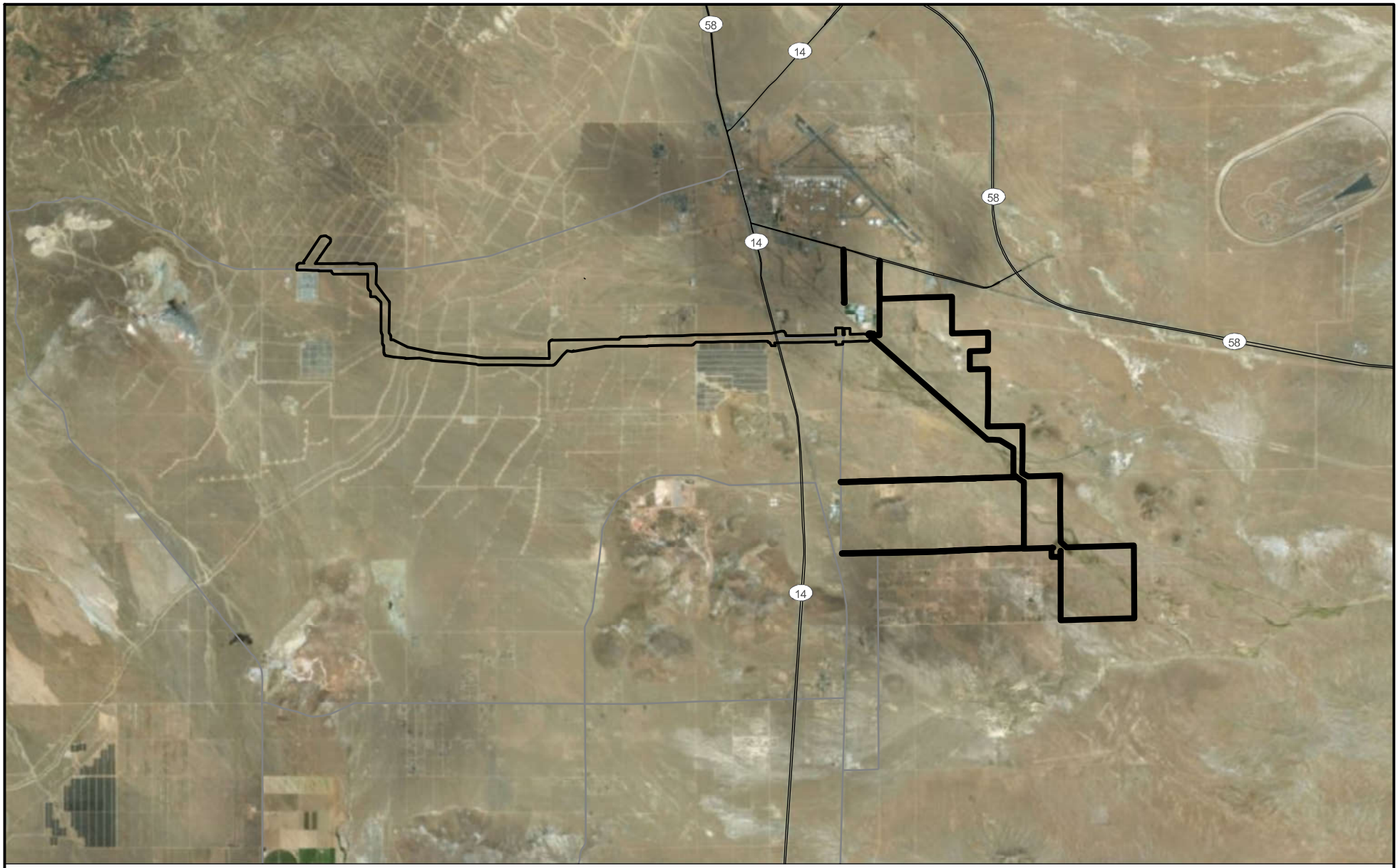

SOURCE: GOOGLE EARTH, 2017.

SCALE IN FEET

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NOTE: ALL DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE

Ninyo & Moore		PROJECT AREA AND VICINITY	FIGURE
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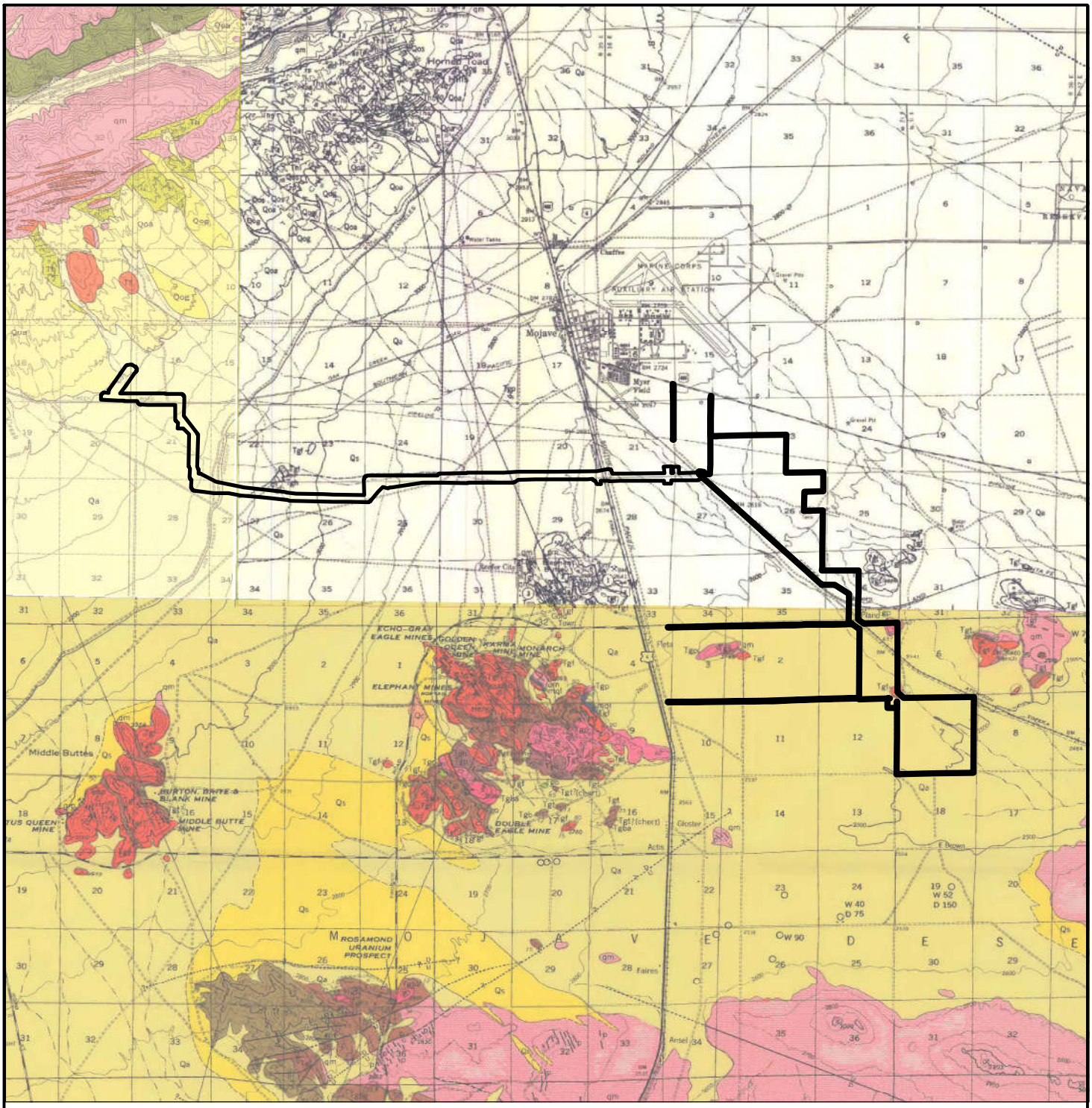
108362001	3/18		

2_108362001_PAV.mxd 3/26/2018 AOB



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LEGEND	
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SCALE IN FEET

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NOTES: ALL DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE

Ninyo & Moore	GEOLOGY	FIGURE
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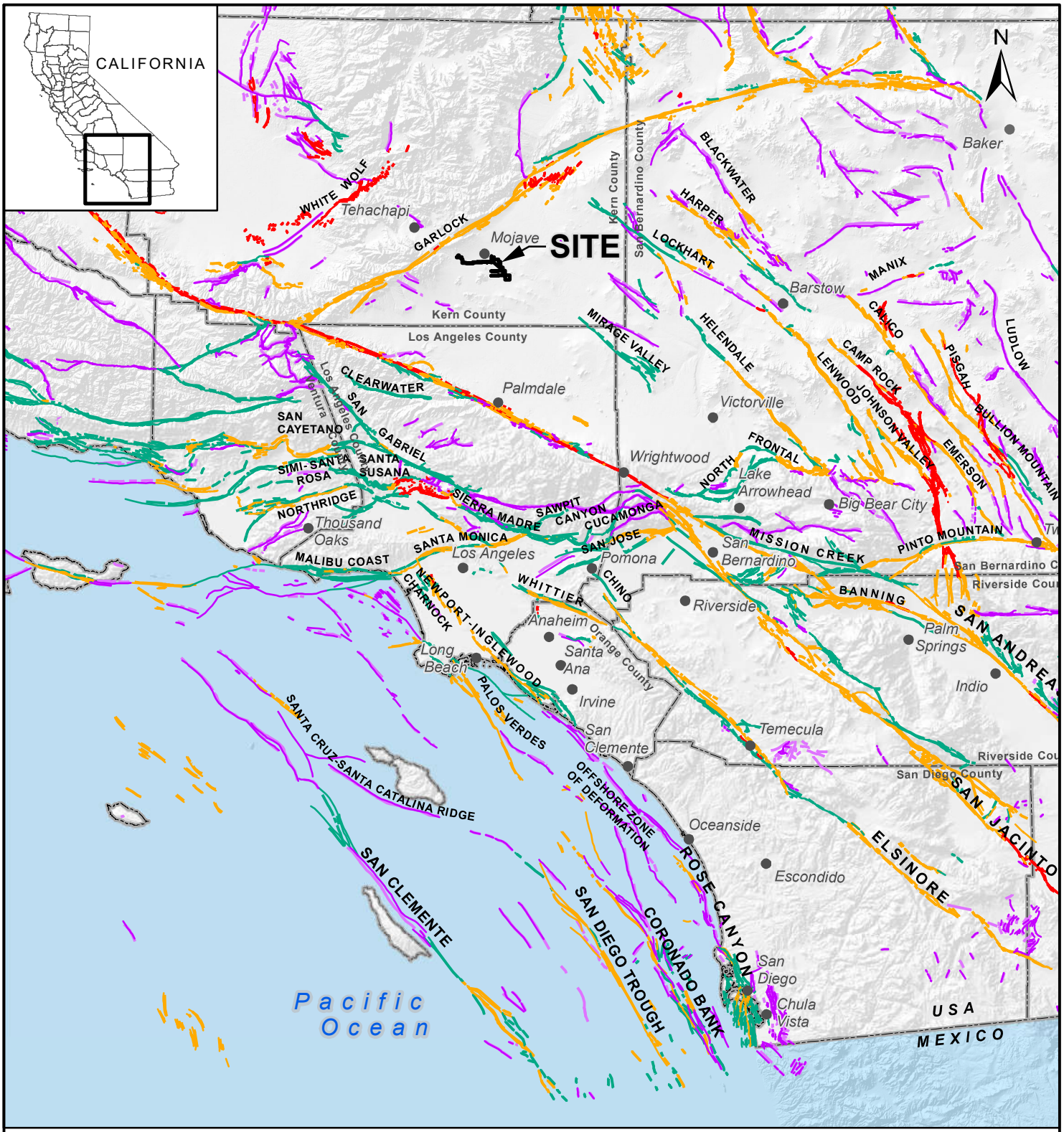
3_108362001_G.mxd 3/26/2018 AOB



LEGEND

CALIFORNIA FAULT ACTIVITY

- HISTORICALLY ACTIVE
- HOLOCENE ACTIVE
- LATE QUATERNARY (POTENTIALLY ACTIVE)
- QUATERNARY (POTENTIALLY ACTIVE)
- STATE/COUNTY BOUNDARY

SOURCE: JENNINGS, C.W., AND BRYANT, W.A., 2010, FAULT ACTIVITY MAP OF CALIFORNIA, CALIFORNIA GEOLOGICAL SURVEY.

SCALE IN MILES

0 30 60

NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE.

Ninyo & Moore

PROJECT NO.	DATE
108362001	3/18

FAULT LOCATIONS

SANBORN SOLAR PROJECT
KERN COUNTY, CALIFORNIA

FIGURE

4

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Appendix G2

Paleontological Resources Assessment report

ESA

PALEONTOLOGICAL RESOURCES ASSESSMENT OF THE SANBORN SOLAR PROJECT, KERN COUNTY, CALIFORNIA

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AUGUST 2019

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APPENDIX

A Museum Records Search Results

1 INTRODUCTION

This project description has been prepared by Dudek on behalf of `Sanborn Solar, LLC, for submittal to Kern County (County), the lead agency, for the approximately 2,102-acre Sanborn Solar Project (project) proposed by Sanborn Solar, LLC (Applicant). The proposed project consists of the development of a photovoltaic (PV) solar facility and associated infrastructure necessary to generate up to a combined 300 megawatts (MW) of renewable electrical energy and/or energy storage capacity.

The proposed project consists of two discontinuous sites, each of which would contain solar and energy storage facilities, which together would compose the project site. The northern site is approximately 1,118 acres and the southern site is approximately 983 acres. The northern site is directly east of the Burlington Northern and Santa Fe (BNSF) Railway, south of State Route 58 (SR-58), and west of southern 10th Street. The southern site is directly north of Edwards Air Force Base, east of 15th Street, and 0.2 miles south of the BNSF Railway; its eastern edge generally follows an unnamed dirt road. A generator tie-in line (gen-tie) line would connect the energy generated on site to either the Windhub Substation, which is owned and operated by Southern California Edison (SCE), and/or the privately owned Westwind Substation. The northern site would be accessed by Lone Butte Road or 10th Street from SR-58 and the southern site would be accessed by Silver Queen Road or Reed Avenue from United Street (Figures 1 and 2).

1.1 Overview

The project site is located in the southern portion of Kern County, in central California, as shown on Figures 1 and 2. The project site is located at the western edge of the Antelope Valley, directly south of the community of Mojave. The solar generation sites and 1.3 miles of the gen-tie line are east of SR-14 (Antelope Valley Freeway) and the remainder of the gen-tie line is west of SR-14. The northern site is less than 1 mile southwest of SR-58 (West Avenue D) and south of the Mojave Air and Space Port. The BNSF Railway forms the western edge of the northern site and the gen-tie line crosses the BNSF Railway in two locations. The western extent of the gen-tie line is approximately 38 miles east of Interstate 5 (I-5). The gen-tine line crosses the Los Angeles Aqueduct approximately 1.5 miles east of the Windhub Substation. The southern site is directly north of Edwards Air Force Base. The northern site lies in the Sanborn and Mojave, California U.S. Geological Survey 7.5-minute topographic quadrangle maps, Sections 22, 23, 26, 27, 34, and 35, Township 11 North, Range 12 West, San Bernardino Base and Meridian (SBBM). The southern site lies in the Bissell U.S. Geological Survey 7.5-minute quadrangles, Sections 1, 6, 7, and 12, Township 10 North, Ranges 12 West and 11 West, SBBM.

1.2 Project Description

The paleontological resources project area is defined as the gen-tie line along with a 50-foot (15.4 meters [m]) buffer on either side, the approximately 1,118-acre northern site, and the approximately 983-acre southern site. The entirety of the gen-tie line and 270 acres of the northern site were previously surveyed (Lawson and Helton 2009 and Hudlow 2010). These areas were not resurveyed during the current investigation, but rather spot-checked, confirming the previously-recorded conditions via reconnaissance survey. As a result, a total of 1,831 acres were intensively surveyed.

1.3 Scope of Work

Several chapters follow this introductory Chapter 1. Chapter 2 outlines the regulations to which the project adheres. Chapter 3 is a description of the methods used to accomplish this study. The results are summarized in Chapter 4, followed by the impact analysis in Chapter 5. Findings and recommendations are presented in Chapter 6. All references cited are provided in Chapter 7. Appendix A includes the museum records search results letter (Appendix A). Michael J. Williams, Ph.D. served as Principal Investigator, conducted the field survey and records search, and served as primary author of the report.

SANBORN SOLAR

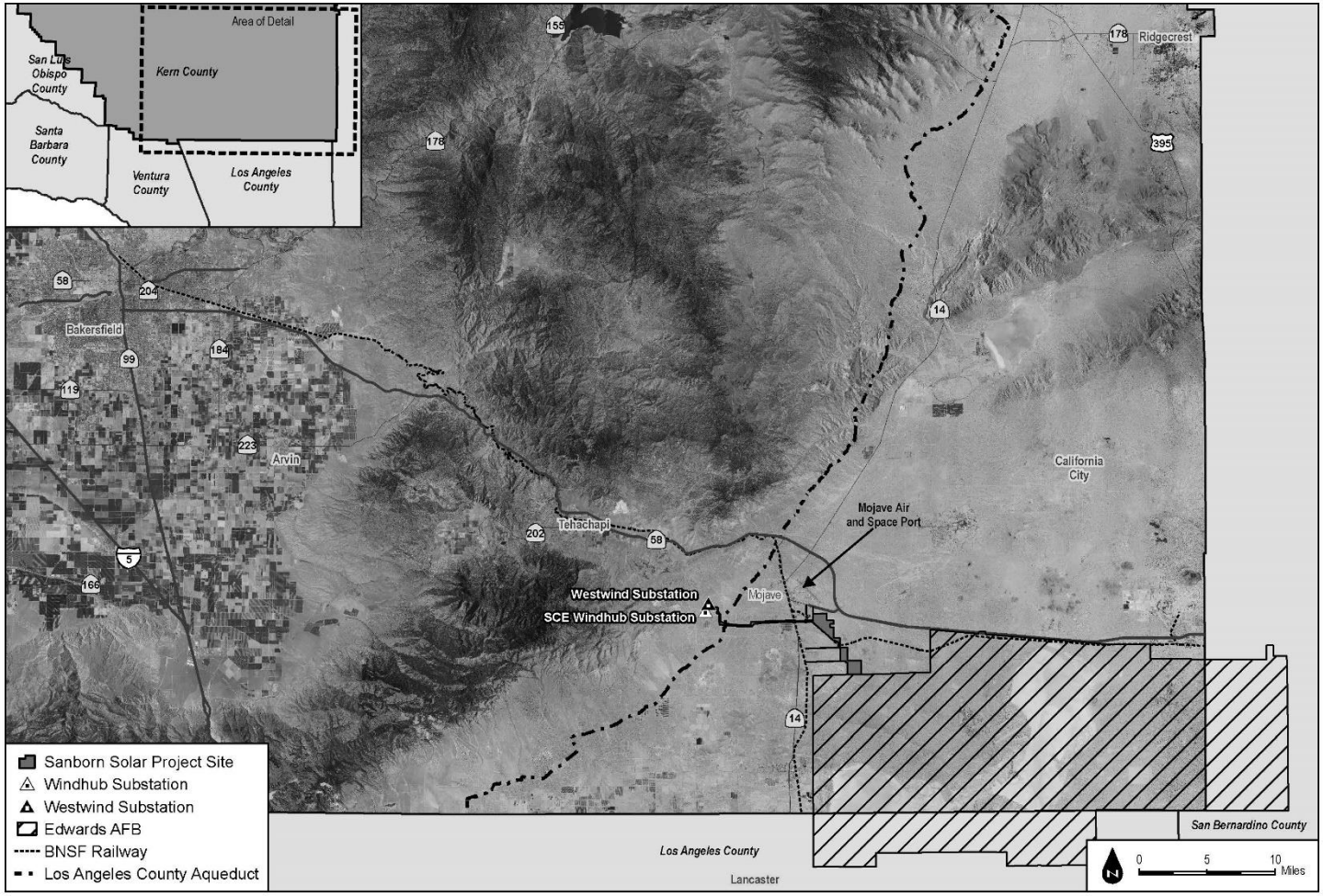

Figure 1: PROJECT VICINITY

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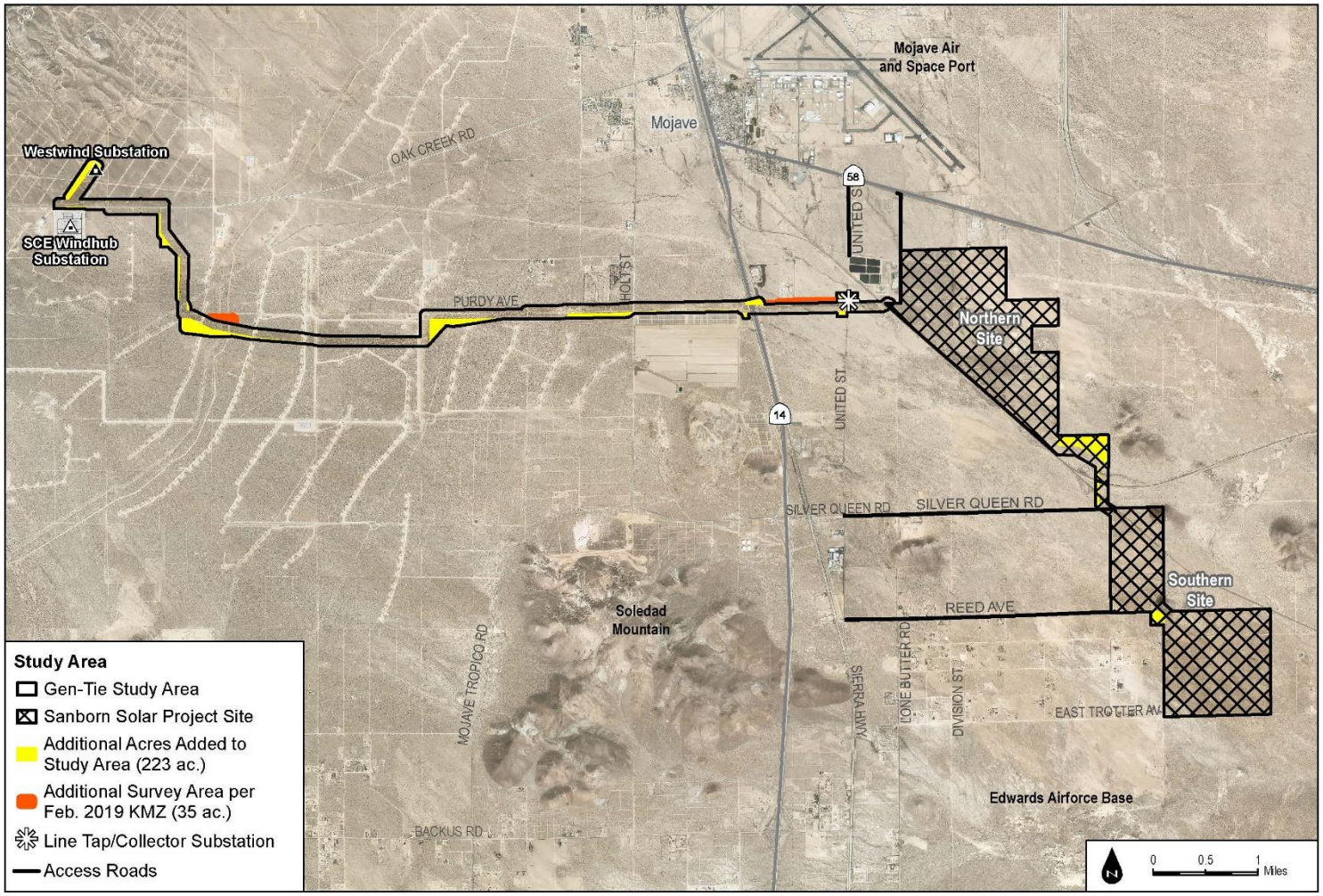

Figure 2: PROJECT SITE

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2 REGULATORY SETTING

2.1 State and Local Regulations and Laws

This section summarizes federal and state laws and regulations that are related to paleontological resources. Various federal, state, and local requirements are integrated with the development of construction projects, and each is outlined below.

Federal Requirements

The Paleontological Resources Protection Act (PRPA) of 2009 requires the Secretaries of the Interior and Agriculture to manage and protect paleontological resources on federal land. The Federal Highway Act of 1935 (20 United States Code [USC] 78) addresses paleontological resources. Section 305 of the Act (20 USC 78, 78a) gives authority to use federal funds to salvage archaeological and paleontological sites that are impacted by highway projects. Although there are several other laws and regulations that address paleontological resources either directly or indirectly, such as the Antiquities Act of 1906 (16 USC 431-433), Archeological and Paleontological Salvage (23 USC 305), and the National Environmental Policy Act of 1969 (42 USC 138; 49 USC 1653).

State Requirements

Paleontological resources are afforded consideration under CEQA. Appendix G of the CEQA Guidelines (Title 14, Division 6, Chapter 3, California Code of Regulations: 15000 et seq.) includes as one of the questions to be answered in the Environmental Checklist (Appendix G, Section V, Part c) the following: “Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?” Public Resources Code (PRC) Section 5097.5 specifies that any unauthorized removal of paleontological remains is a misdemeanor. Further, the California Penal Code Section 622.5 sets the penalties for damage to or removal of paleontological resources.

California Environmental Quality Act

Under CEQA, state and public agencies are required to investigate mitigation measures that would reduce significant environmental effects of proposed projects. If paleontological resources are identified during an environmental assessment of a project, then the sponsoring agency must take the resources into consideration when evaluating project effects.

Public Resources Code Section 5097.5

Section 5097.5 of the California Public Code Section protects historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological sites, or any other archaeological, paleontological, or historical feature that is situated on land owned by, or in the jurisdiction of, the State of California, or any city, county, district, authority, or public corporation, or any agency thereof.

Local and Regional Requirements

Kern County General Plan

Kern County Land Use, Conservation, Open Space Element of the General Plan

Section 1.10.3 of the Land Use, Conservation, Open Space Element of the Kern County General Plan (General Plan) identifies the County's policy and implementation measures that guide the preservation of cultural and paleontological resources in Kern County. These measures are provided below:

> **Policy 25.**
>
> The County will promote the preservation of cultural and historic resources which provide ties with the past and constitute a heritage value to residents and visitors.
>
> **Implementation Measure K.**
>
> Coordinate with the California State University, Bakersfield's Archaeology Inventory Center.
>
> **Implementation Measure L.**
>
> The County shall address archaeological and historical resources for discretionary projects in accordance with CEQA.
>
> **Implementation Measure M.**
>
> In areas of known paleontological resources, the County should address the preservation of these resources where feasible.

Implementation Measure N.

The County shall develop a list of Native American organizations and individuals who desire to be notified of proposed discretionary projects. This notification will be accomplished through the established procedures for discretionary projects and CEQA documents.

Implementation Measure O.

On a project specific basis, the County Planning Department shall evaluate the necessity for the involvement of a qualified Native American monitor for grading or other construction activities on discretionary projects that are subject to a CEQA document (Kern County Planning Department 2009).

Kern County Energy Element of the General Plan

Section 5.4.7 of the Energy Element of the General Plan encourages development of transmission lines in urban areas to limit impacts, and identifies the following policies with respect to transmission line development:

1. The County should encourage the development and upgrading of transmission lines and associated facilities (e.g., substations) as needed to serve Kern County's residents and access the County's generating resources, insofar as transmission lines do not create significant environmental or public health and safety hazards.
2. The County shall review all proposed transmission lines and their alignments for conformity with the Land Use, Conservation, and Open Space Element of this General Plan.
3. In reviewing proposals for new transmission lines and/or capacity, the County should assert a preference for upgrade of existing lines and use of existing corridors where feasible.
4. The County should work with other agencies in establishing routes for proposed transmission lines.
5. The County should discourage the siting of above-ground transmission lines in visually sensitive areas.

The County should encourage new transmission lines to be sited/configured to avoid or minimize collision and electrocution hazards to raptors. (Kern County Planning Department 2009).

2.2 Paleontological Resources

Paleontological resources are limited, nonrenewable resources of scientific and educational value, which are afforded protection under state laws and regulations. This study satisfies project requirements in accordance with State guidelines (13 PRC, 2100 et seq.) and Public Resources Code Section 5097.5 (Stats 1965, c 1136, p. 2792). This analysis also complies with guidelines and significance criteria specified by the Society of Vertebrate Paleontology (SVP; 2010).

3 METHODS

This section discusses the field and background research methods utilized to perform this study.

3.1 Museum Records Search

A records search was conducted by the LACM on October 31, 2018 (Appendix A). The purpose of the museum records search is to determine whether there are any known fossil localities in or near project area, identify the sensitivity of geological units present within the project area, and whether a paleontological mitigation plan is warranted to avoid or minimize potential adverse effects of construction on paleontological resources.

3.2 Geological Map Review and Literature Review

Published geological maps and published and unpublished reports were reviewed to identify geological units on the site and determine their paleontological sensitivity.

3.3 Field Survey

A pedestrian survey of the project area was conducted to determine whether paleontological resources are present on the ground surface and field check the published geological mapping.

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4 RESULTS

This section presents the results of the records searches and field survey for the current study.

4.1 Paleontological and Geological Map and Literature Review, Paleontological Records Search Results, and Field Survey

Dudek reviewed pertinent geological and paleontological literature and geological maps of the project area and conducted a site visit to verify geological mapping and to assist in determining the paleontological sensitivity of the project (Figures 3 through 6).

In addition to the background research, Dudek requested a paleontological records search of the project area and a one-mile buffer from the Natural History Museum of Los Angeles County (LACM) on October 31, 2018. The purpose of paleontological records search was to determine if any previously-documented paleontological localities are known from in and surrounding the project area, determine geological units present onsite (along with a geological map review), and assist in determining the paleontological sensitivity of the project area.

4.1.1 Paleontological and Geological Map and Literature Review

The project area is located in the western Mojave Desert Geomorphic Province (California Geological Survey [CGS] 2002). This geomorphic province lies between the Basin and Range and Sierra Nevada Geomorphic Provinces to the north and the Transverse Ranges and Colorado Desert Geomorphic Provinces to the south. The northern boundary is delineated by the Garlock Fault, which is the southern boundary of the Sierra Nevada and Basin and Range; the southern boundary in this area is the San Andreas Fault where it trends eastward forming the Transverse Ranges (CGS 2002).

More specifically, surficial geological mapping at scales of 1:48,000 and 1:62,500 indicates the majority of the project area to be underlain by Holocene (< 12,000 years ago) Quaternary alluvium (map unit Qa) and Quaternary sand deposits (map unit Qs), Quaternary older alluvium (map unit Qoa), with elevated areas (e.g. Lookout Hill) underlain by the late Miocene (~ 12 – 5 million years ago) Bobtail Quartz Latite Member of the Gem Hill Formation (map units Tlf, Tgf, and Tlp) (Figure 3) (Dibblee 1959a; Dibblee 1959b; and Dibblee and Louke 1970).

Due to the young age, Quaternary alluvial and sand deposits have low paleontological sensitivity on the surface that increases to high with depth where older alluvial deposits and paleosols (fossil soil horizons) can be encountered. Oftentimes, paleosols are not mapped on the surface or lie just below a thin layer of alluvial or aeolian sediments and are known to produce significant fossil vertebrates in the Mojave and Colorado Deserts (Williams, pers. obs. 2011; Stewart et al., 2012). Quaternary older alluvium, which is mapped in the northwestern terminus of the Gen-Tie line, in the vicinity of the Westwind Substation, has high paleontological sensitivity. The Gem Hill Formation igneous rocks have no paleontological sensitivity.

In his compilation of Quaternary (Pleistocene and Holocene) vertebrate fossils from California, Jefferson (1991) listed several Pleistocene vertebrate fossil localities from this part of the Mojave Desert in Kern County. The closest locality, near the intersection of Rosamond Boulevard and 25th Street, produced fossil specimens of mammoth, horse, and bison. The Clay Mine Road, Lake Thompson locality and the Rogers Lake, Edwards Air Force Base, Lake Thompson Locality, yielded fossil lizard, snake, bird, and mammal specimens. Of these specimens, several extinct taxa were recovered, including possible mammoth specimens and camels.

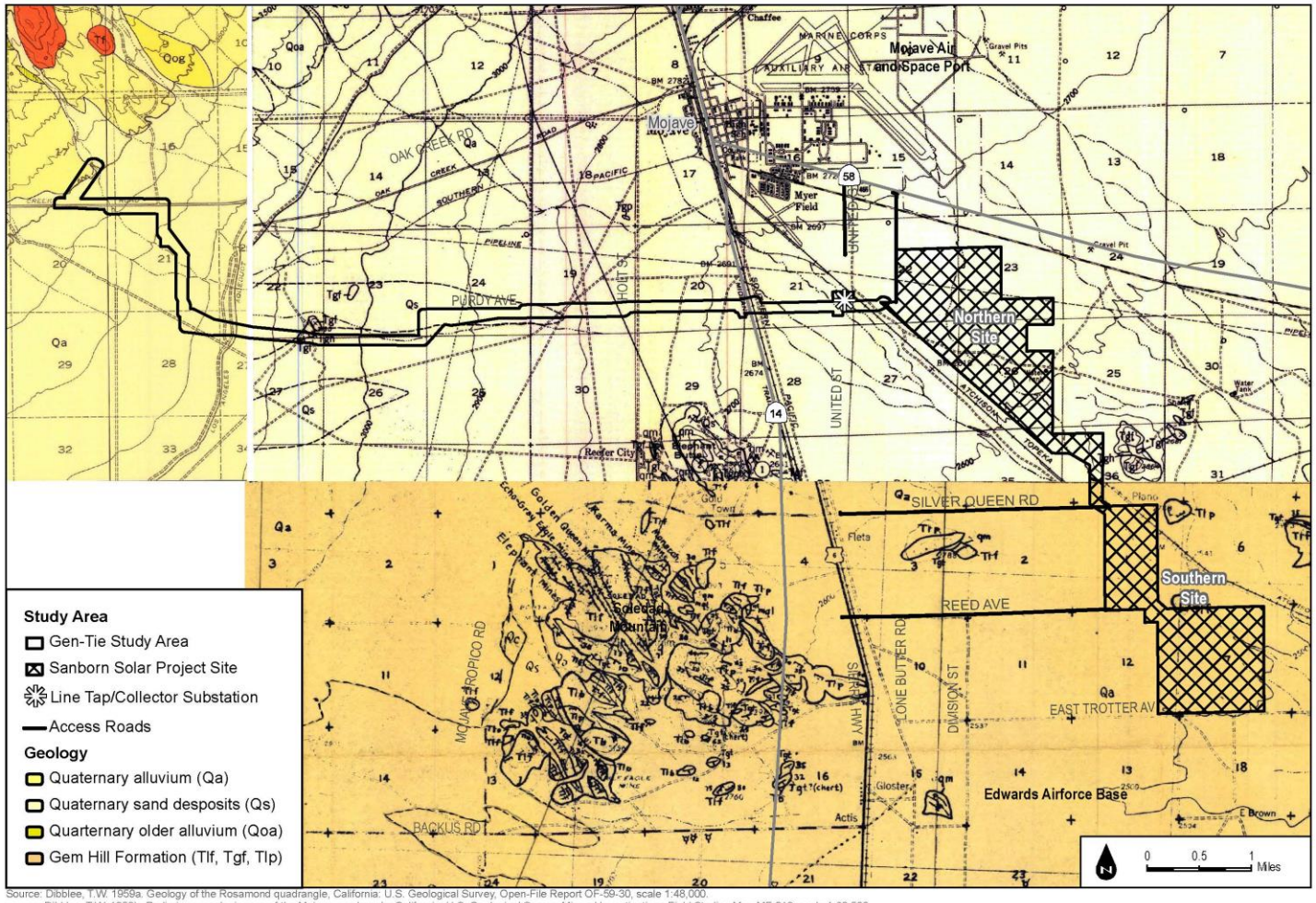
4.1.2 Paleontological Records Search

In accordance with geological mapping of Dibblee (1959a), Dibblee (1959b), and Dibblee and Louke (1970), the LACM reported the majority of the proposed project area to be underlain by Quaternary alluvium, with a small area of Quaternary dune sands in the southwest portion of the northwest parcel and the Gem Hill Formation in the elevated areas (McLeod 2018). While no paleontological localities were reported from the project area, the LACM reported several fossil localities within the area from the same or similar deposits that underlie the project area. The closest LACM fossil locality is LACM 7891, which consists of a fossil camel (*Hemiauchenia*), recovered south-southwest of the westernmost project area near the California Aqueduct west and southwest of Soledad Mountain (McLeod 2018). LACM 3722, which is the next closest vertebrate fossil locality, produced a fossil horse (*Equus*) during excavations for a sewer line within the city of Tehachapi. Two localities south of the project area and north of Lancaster (LACM 7853 and 7884) yielded an abundance of small fossil vertebrates including snakes, lizards, rabbits, rats, mice, gopher, and squirrel in addition to camels (McLeod 2018). While the LACM acknowledged the presence of Quaternary alluvium throughout the majority of the project area and the low paleontological sensitivity of the geological unit, paleontological monitoring was recommended for substantial excavations that may extend into older Quaternary alluvium along with sediment sampling to determine the presence of microvertebrate fossils. Due to the extremely unlikely chance of recovering recognizable fossils in igneous rocks, no monitoring was recommended for excavations into areas of project underlain by the Gem Hill Formation (McLeod 2018).

4.1.3 Paleontological Field Survey

Dudek senior paleontologist, Dr. Michael Williams, visited the project area on October 22, and October 23, 2018 to verify geological mapping and analyze subsurface sediments as exposed during archaeological testing (Figures 4 – 7). No paleontological resources were observed during the field visit and the geological mapping was confirmed. However, it was noted during archaeological shovel test pit excavations that the subsurface (~ 1 foot below the ground surface) consisted of moderately indurated, reddish brown, silty sands that are indicative of older sediments.

SANBORN SOLAR



Source: Dibblee, T.W. 1959a. Geology of the Rosamond quadrangle, California: U.S. Geological Survey, Open-File Report OF-59-30, scale 1:48,000.
Dibblee, T.W. 1959b. Preliminary geologic map of the Mojave quadrangle, California: U.S. Geological Survey, Mineral Investigations Field Studies Map MF-219, scale 1:62,500.
Dibblee, T.W., Jr. and Louke, G.P., 1970. Geologic map of the Tehachapi quadrangle, Kern County, California: U.S. Geological Survey, Miscellaneous Geologic Investigations Map I-607, scale 1:62,500.

Figure 3: GEOLOGY

PALEONTOLOGICAL RESOURCES ASSESSMENT REPORT

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Figure 4. Project Overview. View to Northeast.

Figure 5. Project Overview. View to Southeast.

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Figure 6. Project Overview. View to Northwest.

Figure 7. Project Overview. View to South.

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5 IMPACT ANALYSIS/PROJECT EFFECTS

While no paleontological resources or localities are known from within the project area, impacts to unknown surface or buried paleontological resources can occur during construction-related excavations and drilling activities.

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6 MANAGEMENT RECOMMENDATIONS

Based on the paleontological records search, the paleontological site visit, and geological map and paleontological literature review, the project site is considered to have low paleontological sensitivity on the surface in areas mapped as Quaternary alluvium or sand deposits that increases to high with depth, high paleontological sensitivity in areas underlain by Quaternary older alluvium and no paleontological sensitivity in areas underlain by igneous rocks of the Gem Hill Formation. The following mitigation is recommended to reduce construction related impacts to paleontological resources to a less than significant level:

Prior to the commencement of any grading activity, the applicant should retain a qualified paleontologist to ensure the implementation of a paleontological monitoring program. The Society of Vertebrate Paleontology (SVP, 2010) defines a qualified paleontologist as having:

> "1. A graduate degree in paleontology or geology, and/or a publication record in peer reviewed journals; and demonstrated competence in field techniques, preparation, identification, curation, and reporting in the state or geologic province in which the project occurs. An advanced degree is less important than demonstrated competence and regional experience.
>
> 2. At least two full years professional experience as assistant to a Project Paleontologist with administration and project management experience; supported by a list of projects and referral contacts.
>
> 3. Proficiency in recognizing fossils in the field and determining significance.
>
> 4. Expertise in local geology, stratigraphy, and biostratigraphy.
>
> 5. Experience collecting vertebrate fossils in the field."

The qualified paleontologist should attend any preconstruction meetings, present a worker environmental training to construction personnel, and manage the paleontological monitor(s) if he or she is not doing the monitoring. A paleontological monitor should be onsite initially to spot-check excavations below a depth of one foot below the ground surface in a given area. If it is determined that sediments consist of older alluvium, then full-time paleontological monitoring shall ensue. If sediments are determined to consist of Holocene Quaternary alluvium, paleontological monitoring shall be suspended until an excavation depth of five feet below the ground surface is reached in the area. The SVP (2010) defines a qualified paleontological monitor as having:

> "1. BS or BA degree in geology or paleontology and one year experience monitoring in the state or geologic province of the specific project. An associate

degree and/or demonstrated experience showing ability to recognize fossils in a biostratigraphic context and recover vertebrate fossils in the field may be substituted for a degree. An undergraduate degree in geology or paleontology is preferable, but is less important than documented experience performing paleontological monitoring, or

2. AS or AA in geology, paleontology, or biology and demonstrated two years experience collecting and salvaging fossil materials in the state or geologic province of the specific project, or
3. Enrollment in upper division classes pursuing a degree in the fields of geology or paleontology and two years of monitoring experience in the state or geologic province of the specific project.
4 Monitors must demonstrate proficiency in recognizing various types of fossils, in collection methods, and in other paleontological field techniques."

The paleontological monitor shall be equipped with necessary tools for the collection of fossils and associated geological and paleontological data. The monitor shall complete daily logs detailing the day's excavation activities and pertinent geological and paleontological data. In the event that paleontological resources (e.g., fossils) are unearthed during grading, the paleontological monitor will temporarily halt and/or divert grading activity to allow recovery of paleontological resources. The area of discovery will be roped off with a 50-foot radius buffer. Once documentation and collection of the find is completed, the monitor will remove the rope and allow grading to recommence in the area of the find.

Following the paleontological monitoring program, a final monitoring report shall be submitted to Kern County for approval. The report should summarize the monitoring program and include geological observations and any paleontological resources recovered during paleontological monitoring for the proposed project.

7 REFERENCES

California Geological Survey (CGS). 2002. California Geomorphic Provinces: Note 36. 4 pp.

Dibblee, T.W. 1959a. Geology of the Rosamond quadrangle, California: U.S. Geological Survey, Open-File Report OF-59-30, scale 1:48,000.

Dibblee, T.W. 1959b. Preliminary geologic map of the Mojave quadrangle, California: U.S. Geological Survey, Mineral Investigations Field Studies Map MF-219, scale 1:62,500.

Dibblee, T.W., Jr. and Louke, G.P., 1970. Geologic map of the Tehachapi quadrangle, Kern County, California: U.S. Geological Survey, Miscellaneous Geologic Investigations Map I-607, scale 1:62,500.

Hudlow. 2010. Phase I Cultural Resources Survey For Pv12, Monte Vista Solar Array, Mojave, Kern County, California. Prepared for Edison Mission Energy, Irvine, California. On file at Southern San Joaquin Valley Information Center, California State University, Bakersfield.

Jefferson, G.T. 1991. A Catalog of Late Quaternary Vertebrates from California. Natural History Museum of Los Angeles County, Technical Reports 7:1-174. Unpublished revision: 18 May 2012.

Kern County Planning Department. 2009. General Plan. http://pcd.kerndsa.com/planning/planning-documents/general-plans. Accessed December 2017.

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Society of Vertebrate Paleontology. 2010. Standard Procedures for the assessment and mitigation of adverse impacts to paleontological resources. Available: http://www.vertpaleo.org/Impact_Mitigation_Guidelines.htm.

Stewart, J.D., M. Williams, M. Hakel, and S. Musik, 2012. Wash it Washed in? New Evidence for the Genesis of Pleistocene Fossil Vertebrate Remains in the Mojave Desert of Southern California. *In*: Reynolds, R. (ed.) Searching for the Pliocene: Southern Exposures. California State University Desert Studies Center, The 2012 Desert Research Symposium, P. 140.

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APPENDIX A

Museum Record Search Results

Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

tel 213.763.DINO
www.nhm.org

Vertebrate Paleontology Section
Telephone: (213) 763-3325

e-mail: smcleod@nhm.org

14 November 2018

Dudek
605 Third Street
Encinitas, CA 92024

Attn: Michael Williams, Ph.D., Senior Paleontologist

re: Vertebrate Paleontology Records Check for paleontological resources for the proposed Sanborn Solar Project, Dudek Project # 10303, near Mojave, Kern County, project area

Dear Michael:

I have conducted a thorough search of our paleontology collection records for the locality and specimen data for the proposed Sanborn Solar Project, Dudek Project # 10303, near Mojave, Kern County, project area as outlined on the portions of the Monolith, Mojave, Sanborn and Bissell USGS topographic quadrangle maps that you sent to me via e- mail on 31 October 2018. We do not have any vertebrate fossil localities that occur within the boundaries of the proposed project area, but we do have localities nearby from the same sedimentary deposits that occur in the proposed project area, either at the surface or at depth.

In the two hills in the northwestern portion of the southeastern parcel of the proposed project area there are exposures of volcanic rocks of the Gem Hill Formation that almost certainly will not contain recognizable fossils. In the very southwestern portion of the northwestern parcel of the proposed project area the surficial deposits consist of younger Quaternary dune sands. Otherwise surface sediments in the entire proposed project area consist of younger Quaternary Alluvium, derived as alluvial fan deposits from the Tehachapi Mountains to the northwest. These younger Quaternary deposits typically do not contain significant vertebrate fossils, at least in the uppermost layers, but are usually underlain by older Quaternary deposits that may well contain significant vertebrate fossils.

Our closest vertebrate fossil locality from these deposits is LACM 7891, south-southwest west of the western-most portion of the proposed project area, west-southwest of Soledad Mountain near the California Aqueduct, that produced a fossil specimen of camel, *Hemiauchenia*. Our next closest vertebrate fossil locality from these Quaternary deposits is LACM 3722, west-northwest of the proposed project area and found during excavation for a sewer line within the city of Tehachapi, that produced a specimen of fossil horse, *Equus*. South of the eastern-most portion of the proposed project area, north of the eastern side of Lancaster, our vertebrate fossil locality LACM 7853 from these Quaternary deposits that from screen washing matrix produced a fossil fauna of small vertebrates including coachwhip, *Masticophis*, leaf-nosed snake, *Phyllorhynchus*, lyre snake, *Trimorphodon biscutatus*, desert iguana, *Dipsosaurus dorsalis*, whiptail lizard, *Aspidoscelis tigris*, alligator lizard, *Elgaria*, desert spiny lizard, *Sceloporus magister*, side-blotched lizard, *Uta stansburiana*, desert night lizard, *Xantusia vigilis*, skink, *Plestiodon*, cottontail rabbit, *Sylvilagus audubonii*, wood rat, *Neotoma*, deer mouse, *Peromyscus*, pocket gopher, *Thomomys bottae*, kangaroo rat, *Dipodomys*, pocket mouse, *Perognathus*, ground squirrel, *Ammospermophilus leucurus*, and camel, *Camelops*. A little further south, but still on the north side of Lancaster, our fossil vertebrate locality LACM 7884 produced a fossil specimen of camel, *Camelops hesternus*.

Excavations in the volcanic rocks exposed on the two hills in the southeastern portion of the proposed project area are highly unlikely to uncover recognizable fossils. Shallow excavations in the younger Quaternary dune sand and alluvial fan deposits exposed in the rest of the proposed project area are unlikely to encounter any significant fossil vertebrate remains. Deeper excavations in those deposits that extend down into older Quaternary deposits, however, may well uncover significant vertebrate fossils. Any substantial excavations in the sedimentary deposits in the proposed project area, therefore, should be monitored closely to quickly and professionally recover any fossil remains discovered while not impeding development. Also, sediment samples should be collected and processed to determine the small fossil potential in the proposed project area. Any fossils recovered during mitigation should be deposited in an accredited and permanent scientific institution for the benefit of current and future generations.

This records search covers only the vertebrate paleontology records of the Natural History Museum of Los Angeles County. It is not intended to be a thorough paleontological survey of the proposed project area covering other institutional records, a literature survey, or any potential on-site survey.

Sincerely,

Samuel A. McLeod

Samuel A. McLeod, Ph.D.
Vertebrate Paleontology

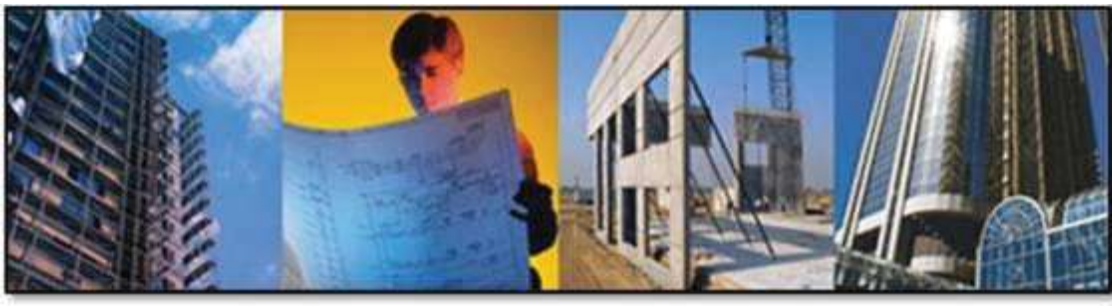
enclosure: invoice

Appendix H

Phase 1 Environmental Site Assessments

ESA

PARTNER
Engineering and Science, Inc.



PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

Gabrych TerraGen
APN 428-020-07
Mojave, California 93501

Report Date: March 2, 2017
Partner Project No. 17-180030.1

Prepared for:

Lansing Companies
12671 High Bluff Drive, Suite 150
San Diego, California 92130

PARTNER
Engineering and Science, Inc.

March 2, 2017

Mr. Casey Malone
Lansing Companies
12671 High Bluff Drive, Suite 150
San Diego, California 92130

Subject: Phase I Environmental Site Assessment
Gabrych TerraGen
APN 428-020-07
Mojave, California 93501
Partner Project No. 17-180030.1

Dear Mr. Malone:

Partner Engineering and Science, Inc. (Partner) is pleased to provide the results of the *Phase I Environmental Site Assessment* (Phase I ESA) report of the abovementioned address (the "subject property"). This assessment was performed in general conformance with the scope and limitations as detailed in the ASTM Practice E1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

This assessment included a site reconnaissance as well as research and interviews with representatives of the public, property ownership, site manager, and regulatory agencies. An assessment was made, conclusions stated, and recommendations outlined.

We appreciate the opportunity to provide environmental services to you. If you have any questions concerning this report, or if we can assist you in any other matter, please contact me at (619) 925-9672 or MLambson@partneresi.com.

Sincerely,

DRAFT

Mark Lambson
Principal

EXECUTIVE SUMMARY

Partner Engineering and Science, Inc. (Partner) has performed a Phase I Environmental Site Assessment (ESA) in general accordance with the scope of work and limitations of ASTM Standard Practice E1527-13, the Environmental Protection Agency Standards and Practices for All Appropriate Inquiries (AAI) (40 CFR Part 312) and set forth by Lansing Companies for the property located at APN 428-020-07 in an unincorporated area of Kern County, California (the "subject property"). The Phase I Environmental Site Assessment is designed to provide Lansing Companies with an assessment concerning environmental conditions (limited to those issues identified in the report) as they exist at the subject property.

Property Description

The subject property is located approximately 2.5 miles southeast of the town of Mojave, California, and approximately 0.5 mile south of State Highway 58 within a mixed commercial and residential area of southeastern Kern County. Please refer to the table below for further description of the subject property:

Subject Property Data	
Address:	APN 428-020-07, Kern County, California
Property Use:	Vacant
Land Acreage (Ac):	160
Number of Buildings:	None
Assessor's Parcel Number (APN):	428-020-07
Site Assessment Performed By:	Jeremy Russell
Site Assessment Conducted On:	February 22, 2017

The subject property is currently vacant and undeveloped. No onsite operations were observed. The subject property consists of native land. A buried utilities corridor crosses through the northern portion of the subject property.

According to available historical sources, the subject property has been undeveloped as early as 1915.

The immediately surrounding properties consist of commercial, residential properties and vacant land to the north and undeveloped land to the south, east, and west.

According to a previous subsurface investigation conducted on a nearby property (Mojave Airport aka FORMER MARINE CORPS AIR STATION - UST #1 and Case #T0602938829), the depth of groundwater in the vicinity of the subject property was reported to be approximately 238 to 350 feet below ground surface (bgs). No flow direction was reported.

Findings

A *recognized environmental condition (REC)* refers to the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: due to release to the environment; under conditions indicative of a release to the environment; or under conditions that pose a material threat of a future release to the environment. The following was identified during the course of this assessment:

- Partner did not identify any recognized environmental conditions during the course of this assessment.

A *controlled recognized environmental condition (CREC)* refers to a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls. The following was identified during the course of this assessment:

- Partner did not identify any controlled recognized environmental conditions during the course of this assessment.

A *historical recognized environmental condition (HREC)* refers to a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls. The following was identified during the course of this assessment:

- Partner did not identify any historical recognized environmental conditions during the course of this assessment.

An *environmental issue* refers to environmental concerns identified by Partner, which do not qualify as RECs; however, warrant further discussion. The following was identified during the course of this assessment:

- Partner did not identify any environmental issues during the course of this assessment.

Conclusions, Opinions, and Recommendations

Partner has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-13 of APN 428-020-07 in an unincorporated area of, Kern County, California (the "subject property"). Any exceptions to, or deletions from, this practice are described in Section 1.5 of this report.

This assessment has revealed no evidence of recognized environmental conditions or environmental issues in connection with the subject property. Based on the conclusions of this assessment, Partner recommends no further investigation of the subject property at this time.

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1.0 INTRODUCTION

Partner Engineering and Science, Inc. (Partner) has performed a Phase I Environmental Site Assessment (ESA) in general conformance with the scope and limitations of ASTM Standard Practice E1527-13 and the Environmental Protection Agency Standards and Practices for All Appropriate Inquiries (AAI) (40 CFR Part 312) for the property located at APN 428-020-07 in an unincorporated area of, Kern County, California (the "subject property"). Any exceptions to, or deletions from, this scope of work are described in the report.

1.1 Purpose

The purpose of this ESA is to identify existing or potential Recognized Environmental Conditions (as defined by ASTM Standard E1527-13) affecting the subject property that: 1) constitute or result in a material violation or a potential material violation of any applicable environmental law; 2) impose any material constraints on the operation of the subject property or require a material change in the use thereof; 3) require clean-up, remedial action or other response with respect to Hazardous Substances or Petroleum Products on or affecting the subject property under any applicable environmental law; 4) may affect the value of the subject property; and 5) may require specific actions to be performed with regard to such conditions and circumstances. The information contained in the ESA Report will be used by Client to: 1) evaluate its legal and financial liabilities for transactions related to foreclosure, purchase, sale, loan origination, loan workout or seller financing; 2) evaluate the subject property's overall development potential, the associated market value and the impact of applicable laws that restrict financial and other types of assistance for the future development of the subject property; and/or 3) determine whether specific actions are required to be performed prior to the foreclosure, purchase, sale, loan origination, loan workout or seller financing of the subject property.

This ESA was performed to permit the *User* to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on scope of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C. §9601) liability (hereinafter, the "*landowner liability protections*," or "*LLPs*"). ASTM Standard E1527-13 constitutes "*all appropriate inquiry* into the previous ownership and uses of the *property* consistent with good commercial or customary practice" as defined at 42 U.S.C. §9601(35)(B).

1.2 Scope of Work

The scope of work for this ESA is in general accordance with the requirements of ASTM Standard E1527-13. This assessment included: 1) a property and adjacent site reconnaissance; 2) interviews with key personnel; 3) a review of historical sources; 4) a review of regulatory agency records; and 5) a review of a regulatory database report provided by a third-party vendor. Partner contacted local agencies, such as environmental health departments, fire departments and building departments in order to determine any current and/or former hazardous substances usage, storage and/or releases of hazardous substances on the subject property. Additionally, Partner researched information on the presence of activity and use limitations (AULs) at these agencies. As defined by ASTM E1527-13, AULs are the legal or physical restrictions or limitations on the use of, or access to, a site or facility: 1) to reduce or eliminate potential

exposure to hazardous substances or petroleum products in the soil or groundwater on the subject property; or 2) to prevent activities that could interfere with the effectiveness of a response action, in order to ensure maintenance of a condition of no significant risk to public health or the environment. These legal or physical restrictions, which may include institutional and/or engineering controls (IC/ECs), are intended to prevent adverse impacts to individuals or populations that may be exposed to hazardous substances and petroleum products in the soil or groundwater on the property.

If requested by Client, this report may also include the identification, discussion of, and/or limited sampling of asbestos-containing materials (ACMs), lead-based paint (LBP), mold, and/or radon.

1.3 Limitations

Partner warrants that the findings and conclusions contained herein were accomplished in accordance with the methodologies set forth in the Scope of Work. These methodologies are described as representing good commercial and customary practice for conducting an ESA of a property for the purpose of identifying recognized environmental conditions. There is a possibility that even with the proper application of these methodologies there may exist on the subject property conditions that could not be identified within the scope of the assessment or which were not reasonably identifiable from the available information. Partner believes that the information obtained from the record review and the interviews concerning the subject property is reliable. However, Partner cannot and does not warrant or guarantee that the information provided by these other sources is accurate or complete. The conclusions and findings set forth in this report are strictly limited in time and scope to the date of the evaluations. The conclusions presented in the report are based solely on the services described therein, and not on scientific tasks or procedures beyond the scope of agreed-upon services or the time and budgeting restraints imposed by the Client. No other warranties are implied or expressed.

Some of the information provided in this report is based upon personal interviews, and research of available documents, records, and maps held by the appropriate government and private agencies. This report is subject to the limitations of historical documentation, availability, and accuracy of pertinent records, and the personal recollections of those persons contacted.

This practice does not address requirements of any state or local laws or of any federal laws other than the all appropriate inquiry provisions of the LLPs. Further, this report does not intend to address all of the safety concerns, if any, associated with the subject property.

Environmental concerns, which are beyond the scope of a Phase I ESA as defined by ASTM include the following: ACMs, LBP, radon, and lead in drinking water. These issues may affect environmental risk at the subject property and may warrant discussion and/or assessment; however, are considered non-scope issues. If specifically requested by the Client, these non-scope issues are discussed in Section 6.3.

1.4 User Reliance

Lansing Companies engaged Partner to perform this assessment in accordance with an agreement governing the nature, scope and purpose of the work as well as other matters critical to the engagement. All reports, both verbal and written, are for the sole use and benefit of Lansing Companies. Either verbally

or in writing, third parties may come into possession of this report or all or part of the information generated as a result of this work. In the absence of a written agreement with Partner granting such rights, no third parties shall have rights of recourse or recovery whatsoever under any course of action against Partner, its officers, employees, vendors, successors or assigns. Any such unauthorized user shall be responsible to protect, indemnify and hold Partner, Client and their respective officers, employees, vendors, successors and assigns harmless from any and all claims, damages, losses, liabilities, expenses (including reasonable attorneys' fees) and costs attributable to such Use. Unauthorized use of this report shall constitute acceptance of and commitment to these responsibilities, which shall be irrevocable and shall apply regardless of the cause of action or legal theory pled or asserted. Additional legal penalties may apply.

This report has been completed under specific Terms and Conditions relating to scope, relying parties, limitations of liability, indemnification, dispute resolution, and other factors relevant to any reliance on this report. Any parties relying on this report do so having accepted the Terms and Conditions for which this report was completed. A copy of Partner's standard Terms and Conditions can be found at http://www.partneresi.com/terms-and-conditions.php.

1.5 Limiting Conditions

The findings and conclusions contain all of the limitations inherent in these methodologies that are referred to in ASTM E1527-13.

Specific limitations and exceptions to this ESA are more specifically set forth below:

- Interviews with past or current owners, operators, and occupants were not reasonably ascertainable and thus constitute a data gap. Based on information obtained from other historical sources (as discussed in Section 3.0), this data gap is not expected to alter the findings of this assessment.
- Partner requested information relative to deed restrictions and environmental liens, a title search, and completion of a pre-survey questionnaire from the Report User. This information was not provided at the time of the assessment.

Due to time constraints associated with this report, the Client has requested the report despite the above-listed limitations.

2.0 SITE DESCRIPTION

2.1 Site Location and Legal Description

The subject property at APN 428-020-07, in an unincorporated area of Kern County, California, is located approximately 2.5 miles southeast of the town of Mojave, California, and approximately 0.5 mile south of State Highway 58. According to the Kern County Assessor, the subject property is legally described as: "SECTION 23 TOWNSHIP 11 RANGE 12", and ownership is currently vested in GM GABRYCH FAMILY L P.

Please refer to Figure 1: Site Location Map, Figure 2: Site Plan, Figure 3: Topographic Map, and Appendix A: Site Photographs for the location and site characteristics of the subject property.

2.2 Current Property Use

The subject property is currently vacant and undeveloped. No onsite operations were observed. The subject property consists of native land. A buried utilities corridor crosses through the northern portion of the subject property.

The subject property is designated for residential development by Kern County.

The subject property was not identified in the regulatory database report of Section 4.2.

2.3 Current Use of Adjacent Properties

The subject property is located within a mixed commercial and residential area of southeastern Kern County. During the vicinity reconnaissance, Partner observed the following land use on properties in the immediate vicinity of the subject property:

Immediately Surrounding Properties	
North:	Dwelling, Auto Parts/Auto Wrecking (426 Highway 58), and vacant land
South:	Vacant land
East:	Vacant land
West:	Vacant land and sewage treatment ponds further west

No adjacent properties were identified in the regulatory database report of Section 4.2.

2.4 Physical Setting Sources

2.4.1 Topography

The United States Geological Survey (USGS) *Mojave, California* Quadrangle 7.5-minute series topographic map was reviewed for this ESA. According to the contour lines on the topographic map, the subject property ranges in elevation from approximately 2,620 feet above mean sea level (MSL) to 2,640 feet MSL. The contour lines in the area of the subject property indicate the area is sloping gently downward towards the southeast. No development is depicted on the subject property on the 1995 map.

A copy of the 1995 map is included as Figure 3 of this report.

2.4.2 Hydrology

According to topographic map interpretation, the direction of groundwater in the vicinity of the subject property is inferred to flow towards the southeast. The nearest surface water in the vicinity of the subject property are sewage treatment ponds, located approximately 1 mile west of the subject property. No settling ponds, lagoons, surface impoundments, wetlands, or natural catch basins were observed at the subject property during this assessment.

According to available information, a public water system operated by the Mojave Public Utility District serves the subject property vicinity. According to a representative of the MPUD, shallow groundwater beneath the subject property is not utilized for domestic purposes. The sources of public water for the MPUD are surface water from the State Water Project.

According to a previous subsurface investigation conducted on a nearby property (Mojave Airport aka FORMER MARINE CORPS AIR STATION - UST #1 and Case #T0602938829), the depth of groundwater in the vicinity of the subject property was reported to be approximately 238 to 350 feet below ground surface (bgs).

2.4.3 Geology/Soils

The subject property is situated within the Antelope Valley of the Mojave Desert geomorphic province of the State of California. The uppermost geologic formation underlying the soils at the subject property is the Quaternary Age alluvium. The alluvium comprises the underlying stratigraphy and consists mostly of gravel, sand, silt and clay deposited in alluvial fan, lake, and stream channel environments. The thickness of the alluvium is estimated to be over 2,000 feet. The alluvium is underlain by the Cenozoic volcanic and igneous rocks.

Based on information obtained from the USDA Natural Resources Conservation Service Web Soil Survey online database, the subject property is mapped as Garlock loamy sand. The Garlock series consists of very deep, well drained, loamy sand; sandy clay loam; sandy loam; gravelly loamy sand; and very gravelly loamy sand. These soils are on broad alluvial fans. Slopes range from 2 to 9 percent.

2.4.4 Flood Zone Information

Partner performed a review of the Flood Insurance Rate Map, published by the Federal Emergency Management Agency. According to Community Panel Numbers 06029C3295E and 06029C3325E, effective on September 26, 2008, the subject property appears to be located in Zone X (Unshaded), an area located outside of the 100-year and 500-year flood plains.

A copy of the reviewed flood map is included in Appendix B of this report.

3.0 HISTORICAL INFORMATION

Partner obtained historical use information about the subject property from a variety of sources. A chronological listing of the historical data found is summarized in the table below:

Historical Use Information		
Period/Date	**Source**	**Description/Use**
1915-1955	Aerial Photographs, Interviews, Topographic Maps	Undeveloped/Native land
1956-Present	Topographic Maps, Aerial Photographs, City Directories, Interviews	Undeveloped with a buried pipeline crossing through northern portion

No tenants were identified on the subject property. No potential environmental concerns were identified in association with the current or former use of the subject property.

3.1 Aerial Photograph Review

Partner obtained available aerial photographs of the subject property and surrounding area from Environmental Data Resources (EDR) and Google Earth on February 14, 2017. The following observations were noted to be visible on the subject property and adjacent properties during the aerial photograph review:

Date: 1966	***Scale: 1" = 500'***
Subject Property:	Appears to be generally undeveloped. A dirt road appears to cross northwest-southeast through the northern portion
North:	Mostly undeveloped with land developed adjacent to the northeast corner of the subject property. Use not discernible.
South:	Undeveloped across a dirt road
East:	Undeveloped
West:	Land appears black in the aerial photograph; use not discernible. Agricultural land appears developed adjacent southwest

Date: 1973, 1983	***Scale: 1" = 500'***
Subject Property:	No significant changes visible
North:	No significant changes visible
South:	No significant changes visible
East:	No significant changes visible
West:	The land conditions observed in the 1966 photographs are not visible. No other significant changes visible

Date: 1994	*Scale: 1" = 500'*
Subject Property:	The property adjacent to the northeast corner of the subject property appears to have extended southward onto the subject property. No other significant changes visible.
North:	A dwelling appears developed adjoining the north central border of the subject property. No other significant changes visible.
South:	No significant changes visible
East:	No significant changes visible
West:	No significant changes visible

Date: 2005, 2009, 2010, 2012	*Scale: 1" = 500'*
Subject Property:	No significant changes visible
North:	No significant changes visible
South:	No significant changes visible
East:	No significant changes visible
West:	No significant changes visible

Copies of select aerial photographs are included in Appendix B of this report.

3.2 Fire Insurance Maps

Partner reviewed the collection of Sanborn Fire insurance maps from EDR February 10, 2017. Sanborn map coverage was not available for the subject property.

3.3 City Directories

Partner reviewed historical city directories obtained from EDR on February 14, 2017, for past names and businesses that were listed for the subject property and adjacent properties. The findings are presented in the following table:

City Directory Search for APN 428-020-07 (Subject Property – no address)	
Year(s)	**Occupant Listed**
1975, 1980, 1990, 1992, 1995, 1999, 2003, 2008, 2013	No listings

Based on the city directory review, no environmentally sensitive listings were identified for the subject property.

City Directory Search for Adjacent Properties	
Year(s)	**Occupant Listed**
1975, 1980, 1990, 1992, 1995, 1999, 2003, 2008, 2013	No listings

Based on the city directory review, no environmentally sensitive listings were identified for the adjacent property addresses.

3.4 Historical Topographic Maps

Partner reviewed historical topographic maps obtained from EDR on February 10, 2017. The following observations were noted to be depicted on the subject property and adjacent properties during the topographic map review:

Date:	***1915***
Subject Property:	Undeveloped
North:	Undeveloped
South:	Undeveloped
East:	Undeveloped
West:	Undeveloped

Date:	***1943, 1947***
Subject Property:	No significant changes depicted
North:	No significant changes depicted. Map depicts Highway 466 further north.
South:	No significant changes depicted
East:	No significant changes depicted
West:	No significant changes depicted

Date:	***1956***
Subject Property:	Depicted with a buried pipeline cross through the north portion. No other significant changes depicted
North:	No significant changes depicted
South:	No significant changes depicted
East:	No significant changes depicted
West:	No significant changes depicted

Date:	***1973***
Subject Property:	Depicted with two buried pipelines. No other significant changes depicted.
North:	No significant changes depicted
South:	No significant changes depicted
East:	Not mapped
West:	No significant changes depicted. Sewage treatment ponds are depicted further west.

Date:	***1995***
Subject Property:	No significant changes depicted
North:	A small structure is depicted. No other significant changes depicted.
South:	No significant changes depicted
East:	No significant changes depicted
West:	No significant changes depicted. Additional sewage treatment ponds are depicted further west.

Copies of reviewed topographic maps are included in Appendix B of this report.

4.0 REGULATORY RECORDS REVIEW

4.1 Regulatory Agencies

4.1.1 State Department

Regulatory Agency Data	
Name of Agency:	California Environmental Protection Agency (CalEPA)
Point of Contact:	Not Provided
Agency Address:	1001 I Street, Sacramento, California
Agency Phone Number:	(926) 323-2514
Date of Contact:	February 15, 2017
Method of Communication:	Telephone
Summary of Communication:	The CalEPA manages the following State agencies: *Air Resources Board (ARB), Department of Resources Recycling and Recovery (CalRecycle), Department of Pesticide Regulation (DPR), Department of Toxic Substances Control (DTSC), Office of Environmental Health Hazard Assessment (OEHHA), and the State Water Resources Control Board (SWRCB)*. These agencies are discussed individually, where applicable, in the following sections. The subject property was not identified for records maintained by CalRecycle, for pesticides with the DPR databases, or for hazardous substance risk evaluation by the OEHHA. No records regarding hazardous substance use, storage or releases, or the presence of USTs and AULs on the subject property were on file with the CalEPA.

A copy of pertinent documents is not included in Appendix B of this report.

4.1.2 Health Department

Regulatory Agency Data	
Name of Agency:	Kern County Environmental Health Services Department (KCEHSD)
Point of Contact:	Ms. Lydia V. von Sydow, Waste Management Technician II
Agency Address:	2700 M Street, Bakersfield, California
Agency Phone Number:	(661) 862-8748
Date of Contact:	February 15, 2017
Method of Communication:	Online/Email
Summary of Communication:	The Certified Unified Program Agency (CUPA) was developed to consolidate the administration of six specific state hazardous

Regulatory Agency Data	
	materials programs under one agency. The CUPA for the County of Kern is the Kern County Environmental Health Services Department. Under Kern County CUPA, *aboveground storage tanks, underground storage tanks, hazardous waste treatment, hazardous waste generators, hazardous materials management and response plans* are managed by the KCEHSD. On February 21, 2017, Ms. Von Sedow responded that no records regarding hazardous substance use, storage or releases, or the presence of USTs and AULs on the subject property were on file with the KCEHSD.

A copy of pertinent documents is included in Appendix B of this report.

4.1.3 Fire Department

Regulatory Agency Data	
Name of Agency:	Kern County Fire Department (KCFD)
Point of Contact:	Not Provided
Agency Address:	5642 Victor Street, Bakersfield, California
Agency Phone Number:	(661) 391 7000
Date of Contact:	February 15, 2017
Method of Communication:	Telephone
Summary of Communication:	No records regarding hazardous substance use, storage or releases, or the presence of USTs and AULs on the subject property were on file with the KCFD. KCFD indicated that such records are maintained by the KCEHSD.

A copy of pertinent documents is not included in Appendix B of this report.

4.1.4 Air Pollution Control Agency

Regulatory Agency Data	
Name of Agency:	Eastern Kern County Air Pollution Control District (EKCAPCD)
Point of Contact:	Mr. Jason Mentry
Agency Address:	43301 Division Street, Lancaster, California
Agency Phone Number:	(661) 723-8070
Date of Contact:	February 15, 2017
Method of Communication:	Telephone
Summary of Communication:	No Permits to Operate (PTO), Notices of Violation (NOV), or Notices to Comply (NTC) or the presence of AULs, dry cleaning machines, or USTs were on file for the subject property with the AVAQMD.

A copy of pertinent documents is not included in Appendix B of this report.

4.1.5 Regional Water Quality Agency

Regulatory Agency Data	
Name of Agency:	State Water Resources Control Board (SWRQCB)
Point of Contact:	N/A
Agency Address:	3737 Main Street, Riverside, California
Agency Phone Number:	(909) 782-4130
Date of Contact:	February 15, 2017
Method of Communication:	http://geotracker.waterboards.ca.gov/
Summary of Communication:	No records regarding hazardous substance use, storage or releases, or the presence of USTs and AULs on the subject property were on file with the SWRQCB.

A copy of pertinent documents are not included in Appendix B of this report.

4.1.6 Department of Toxic Substances Control

Regulatory Agency Data	
Name of Agency:	California Department of Toxic Substances Control (DTSC)
Point of Contact:	N/A
Agency Address:	5796 Corporate Avenue, Cypress, California
Agency Phone Number:	(714) 484-5300
Date of Contact:	February 15, 2017
Method of Communication:	http://hwts.dtsc.ca.gov/report_search.cfm?id=5
Summary of Communication:	The subject property was not identified on the DTSC hazardous waste tracking system (HWTS).

A copy of pertinent documents is not included in Appendix B of this report.

4.1.7 Building Department

Regulatory Agency Data	
Name of Agency:	Kern County Engineering, Surveying, and Permit Services Department, Building Inspection Division (BID)
Point of Contact:	Ms. LeAnn Thomas
Agency Address:	2700 M Street, Bakersfield, California
Agency Phone Number:	(661) 862-5075
Date of Contact:	February 15, 2017

Regulatory Agency Data	
Method of Communication:	Telephone/Online
Summary of Communication:	A representative indicated to Partner that permit records are recorded with the Kern County Assessor, which posts the permit information on the Assessor's website. No records of permits were found for the subject property APNs on the Kern County Assessor's website.

A copy of pertinent documents is not included in Appendix B of this report.

4.1.8 Planning Department

Regulatory Agency Data	
Name of Agency:	Kern County Geographic Information Systems
Point of Contact:	N/A
Agency Address:	2700 M Street, Bakersfield, California
Agency Phone Number:	(661) 862-5075
Date of Contact:	February 23, 2017
Method of Communication:	Online
Summary of Communication:	According to records reviewed, the subject property is zoned Residential by Kern County

A copy of pertinent documents is not included in Appendix B of this report.

4.1.9 Oil & Gas Exploration

Regulatory Agency Data	
Name of Agency:	California Division of Oil, Gas, and Geothermal Resources (DOGGR)
Point of Contact:	N/A
Agency Address:	5816 Corporate Avenue, Suite 200
Agency Phone Number:	(714) 816-6847
Date of Contact:	February 15, 2017
Method of Communication:	http://maps.conservation.ca.gov/doms/doms-app.html
Summary of Communication:	According to the DOGGR interactive website, no oil gas, or geothermal wells were identified on or adjoining to the subject property.

A copy of pertinent documents is not included in Appendix B of this report.

4.1.10 Assessor's Office

Regulatory Agency Data	
Name of Agency:	Kern County Assessor (KCA)
Point of Contact:	N/A
Agency Address:	1655 Chester Street, Bakersfield, California
Agency Phone Number:	(661) 868-6400
Date of Contact:	February 15, 2017
Method of Communication:	Online
Summary of Communication:	According to records reviewed, the subject property was identified with the assessor's parcel number 427-030-04 with an area of 160 acres. No records regarding building and utility information for the subject property was on file with the KCA.

4.2 Mapped Database Records Search

Information from standard federal, state, county, and city environmental record sources was provided by EDR. Data from governmental agency lists are updated and integrated into one database, which is updated as these data are released. The information contained in this report was compiled from publicly available sources and the locations of the sites are plotted utilizing a geographic information system, which geocodes the site addresses. The accuracy of the geocoded locations is approximately +/-300 feet.

Using the ASTM definition of migration, Partner considers the migration of hazardous substances or petroleum products in any form onto the subject property during the evaluation of each site listed on the radius report, which includes solid, liquid, and vapor.

4.2.1 Regulatory Database Summary

Radius Report Data				
Database	**Search Radius (mile)**	**Subject Property**	**Adjacent Properties**	**Sites of Concern**
Federal NPL or Delisted NPL Site	1.00	N	N	N
Federal CERCLIS Site	0.50	N	N	N
Federal CERCLIS-NFRAP Site	0.50	N	N	N
Federal RCRA CORRACTS Facility	1.00	N	N	N
Federal RCRA TSDF Facility	0.50	N	N	N
Federal RCRA Generators Site (LQG, SQG, CESQG)	0.25	N	N	N
Federal IC/EC Registries	0.50	N	N	N
Federal ERNS Site	Subject Property	N	-	-
State/Tribal Equivalent NPL	1.00	N	N	N
State/Tribal Equivalent CERCLIS	1.00	N	N	N
State/Tribal Landfill/Solid Waste Disposal Site	0.50	N	N	N

Radius Report Data				
Database	**Search Radius (mile)**	**Subject Property**	**Adjacent Properties**	**Sites of Concern**
State/Tribal Leaking Storage Tank Site	0.50	N	N	N
State/Tribal Registered Storage Tank Sites (UST/AST)	0.25	N	N	N
State/Tribal Voluntary Cleanup Sites (VCP)	0.50	N	N	N
State/Tribal Spills	0.50	N	N	N
Federal Brownfield Sites	0.50	N	N	N
State Brownfield Sites	0.50	N	N	N
EDR MGP	Varies	N	N	N
EDR US Hist Auto Station	Varies	N	N	N
EDR US Hist Cleaners	Varies	N	N	N

4.2.2 Subject Property Listings

The subject property is not identified in the regulatory database report.

4.2.3 Adjacent Property Listings

The adjacent properties are not identified in the regulatory database report.

Based on the findings, vapor migration is not expected to represent a significant environmental concern at this time.

4.2.4 Sites of Concern Listings

No sites of concern are identified in the regulatory database report

Based on the findings, vapor migration is not expected to represent a significant environmental concern at this time.

4.2.5 Orphan Listings

No orphan listings are identified in the regulatory database report.

A copy of the regulatory database report is included in Appendix C of this report.

5.0 USER PROVIDED INFORMATION AND INTERVIEWS

In order to qualify for one of the *Landowner Liability Protections (LLPs)* offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the *Brownfields Amendments*), the *User* must conduct the following inquiries required by 40 CFR 312.25, 312.28, 312.29, 312.30, and 312.31. The *User* should provide the following information to the *environmental professional*. Failure to provide this information could result in a determination that *all appropriate inquiries* is not complete. The *User* is asked to provide information or knowledge of the following:

- Review Title and Judicial Records for Environmental Liens and AULs
- Specialized Knowledge or Experience of the User
- Actual Knowledge of the User
- Reason for Significantly Lower Purchase Price
- Commonly Known or *Reasonably Ascertainable* information
- Degree of Obviousness
- Reason for Preparation of this Phase I ESA

Fulfillment of these user responsibilities is key to qualification for the identified defenses to CERCLA liability. Partner requested our Client to provide information to satisfy User Responsibilities as identified in Section 6 of the ASTM guidance.

Pursuant to ASTM E1527-13, Partner requested the following site information from Lansing Companies (User of this report).

User Responsibilities				
Item	**Provided By User**	**Not Provided By User**	**Discussed Below**	**Does Not Apply**
Environmental Pre-Survey Questionnaire			**X**	
Title Records, Environmental Liens, and AULs			**X**	
Specialized Knowledge			**X**	
Actual Knowledge			**X**	
Valuation Reduction for Environmental Issues			**X**	
Identification of Key Site Manager	**Section 5.1.3**			
Reason for Performing Phase I ESA	**Section 1.1**			
Prior Environmental Reports		**X**		
Other				**X**

5.1 Interviews

5.1.1 Interview with Owner

The owner of the subject property, identified as GM GABRYCH FAMILY L P, was not available to be interviewed at the time of the assessment.

5.1.2 Interview with Report User

Please refer to Section 5.2 below for information requested from the Report User. The information requested was not received prior to the issuance of this report. Because the Report User (Client) is a lender, it is understood that the Report User would not have knowledge of the property that would significantly impact our ability to satisfy the objectives of this assessment. The lack of this information is not considered to represent a significant data gap.

5.1.3 Interview with Key Site Manager

Mr. Casey Malone, key site manager, indicated that he had no information pertaining to any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the subject property; any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the subject property; or any notices from a governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products.

According to Mr. Malone, the subject property has been undeveloped. Mr. Malone further stated that there are no USTs, ASTs, clarifiers, oil/water separators, groundwater monitoring wells, or hazardous substance use/storage/generation on the subject property to the best of his knowledge.

5.1.4 Interviews with Past Owners, Operators, and Occupants

Interviews with past owners, operators, and occupants were not reasonably ascertainable and thus constitute a data gap.

5.1.5 Interview with Others

As the subject property is not an abandoned property as defined in ASTM 1527-13, interview with others were not performed.

5.2 User Provided Information

5.2.1 Title Records, Environmental Liens, and AULs

Partner was not provided with title records or environmental lien and AUL information for review as part of this assessment.

5.2.2 Specialized Knowledge

No specialized knowledge of environmental conditions associated with the subject property was provided by the User at the time of the assessment.

5.2.3 Actual Knowledge of the User

No actual knowledge of any environmental lien or AULs encumbering the subject property or in connection with the subject property was provided by the User at the time of the assessment.

5.2.4 Valuation Reduction for Environmental Issues

No knowledge of valuation reductions associated with the subject property was provided by the User at the time of the assessment.

5.2.5 Commonly Known or Reasonably Ascertainable Information

The User did not provide information that is commonly known or *reasonably ascertainable* within the local community about the subject property at the time of the assessment.

5.2.6 Previous Reports and Other Provided Documentation

No previous reports or other pertinent documentation was provided to Partner for review during the course of this assessment.

6.0 SITE RECONNAISSANCE

The weather at the time of the site visit was sunny and clear. Refer to Section 1.5 for limitations encountered during the field reconnaissance and Sections 2.1 and 2.2 for subject property operations. The table below provides the site assessment details:

Site Assessment Data	
Site Assessment Performed By:	Jeremy Russell
Site Assessment Conducted On:	February 22, 2017

The table below provides the subject property personnel interviewed during the field reconnaissance:

Site Visit Personnel for APN 428-020-07 (Subject Property)			
Name	**Title/Role**	**Contact Number**	**Site Walk* Yes/No**
Mr. Casey Malone	Key Site Manager	(858) 523-0719	No

** Accompanied Partner during the field reconnaissance activities and provided information pertaining to the current operations and maintenance of the subject property*

No potential environmental concerns were identified during the onsite reconnaissance.

6.1 General Site Characteristics

6.1.1 Solid Waste Disposal

No solid waste was observed generated at the subject property.

No evidence of illegal dumping of solid waste was observed during the Partner site reconnaissance.

6.1.2 Sewage Discharge and Disposal

Since no habitable structures are present on the subject property, no sanitary discharges on the subject property were observed. No wastewater treatment facilities or septic systems are observed or reported on the subject property.

The existing structure on the subject property that appeared to have been used as a truck weight scale and traffic control building did not appear to have sanitary discharge features.

6.1.3 Surface Water Drainage

Storm water is removed from the subject property primarily by sheet flow action across the unpaved, natural ground surface towards topographically lower areas on the subject property and vicinity.

The subject property does not appear to be a designated wetland area, based on information obtained from the United States Fish & Wildlife Service; however, a comprehensive wetlands survey would be required in order to formally determine actual wetlands on the subject property. No surface impoundments, wetlands, natural catch basins, settling ponds, or lagoons are located on the subject property. No drywells were identified on the subject property.

6.1.4 Source of Heating and Cooling

Since no habitable structures are located on the subject property, no heating or cooling systems or domestic hot water equipment are operated on the subject property.

6.1.5 Wells and Cisterns

No aboveground evidence of wells or cisterns was observed during the site reconnaissance.

6.1.6 Wastewater

Since no habitable structures are located on the subject property, no domestic wastewater is generated at the subject property. No industrial process is currently performed at the subject property.

6.1.7 Septic Systems

No septic systems were observed or reported on the subject property.

6.1.8 Additional Site Observations

No additional general site characteristics were observed during the site reconnaissance.

6.2 Potential Environmental Hazards

6.2.1 Hazardous Substances and Petroleum Products Used or Stored

No hazardous substances or petroleum products were observed on the subject property during the site reconnaissance.

6.2.2 Aboveground & Underground Hazardous Substance or Petroleum Product Storage Tanks (ASTs/USTs)

No evidence of current or former ASTs or USTs was observed during the site reconnaissance.

6.2.3 Evidence of Releases

No spills, stains, or other indications that a surficial release has occurred at the subject property were observed.

6.2.4 Polychlorinated Biphenyls (PCBs)

No potential PCB-containing equipment (transformers, oil-filled switches, hoists, lifts, dock levelers, hydraulic elevators, etc.) was observed on the subject property during Partner's reconnaissance.

6.2.5 Strong, Pungent, or Noxious Odors

No strong, pungent, or noxious odors were evident during the site reconnaissance.

6.2.6 Pools of Liquid

No pools of liquid were observed on the subject property during the site reconnaissance.

6.2.7 Drains, Sumps, and Clarifiers

No drains, sumps, or clarifiers were observed on the subject property during the site reconnaissance.

6.2.8 Pits, Ponds, and Lagoons

No pits, ponds, or lagoons were observed on the subject property.

6.2.9 Stressed Vegetation

No stressed vegetation was observed on the subject property.

6.2.10 Additional Potential Environmental Hazards

No additional environmental hazards, including landfill activities or radiological hazards, were observed.

6.3 Non-ASTM Services

6.3.1 Asbestos-Containing Materials (ACMs)

Asbestos is the name given to a number of naturally occurring, fibrous silicate minerals mined for their useful properties such as thermal insulation, chemical and thermal stability, and high tensile strength. The Occupational Safety and Health Administration (OSHA) regulation 29 CFR 1926.1101 requires certain construction materials to be *presumed* to contain asbestos, for purposes of this regulation. All thermal system insulation (TSI), surfacing material, and asphalt/vinyl flooring that are present in a building constructed prior to 1981 and have not been appropriately tested are "presumed asbestos-containing material" (PACM).

Due to the undeveloped nature of the subject property, ACMs were not considered within the scope of this assessment.

6.3.2 Lead-Based Paint (LBP)

Lead is a highly toxic metal that affects virtually every system of the body. LBP is defined as any paint, varnish, stain, or other applied coating that has 1 mg/cm^2 (or 5,000 ug/g or 0.5% by weight) or more of lead. Congress passed the Residential Lead-Based Paint Hazard Reduction Act of 1992, also known as "Title X", to protect families from exposure to lead from paint, dust, and soil. Under Section 1017 of Title X, intact LBP on most walls and ceilings is not considered a "hazard," although the condition of the paint should be monitored and maintained to ensure that it does not become deteriorated. Further, Section 1018 of this law directed the Housing and Urban Development (HUD) and the US EPA to require the disclosure of known information on LBP and LBP hazards before the sale or lease of most housing built before 1978.

Due to the undeveloped nature of the subject property, LBP was not considered within the scope of this assessment.

6.3.3 Radon

Radon is a colorless, odorless, naturally occurring, radioactive, inert, gaseous element formed by radioactive decay of radium (Ra) atoms. The US EPA has prepared a map to assist National, State, and local organizations to target their resources and to implement radon-resistant building codes. The map divides the country into three Radon Zones, according to the table below:

EPA Radon Zones		
EPA Zones	**Average Predicted Radon Levels**	**Potential**
Zone 1	Exceed 4.0 pCi/L	Highest
Zone 2	Between 2.0 and 4.0 pCi/L	Moderate
Zone 3	Less than 2.0 pCi/L	Low

It is important to note that the EPA has found homes with elevated levels of radon in all three zones, and the US EPA recommends site-specific testing in order to determine radon levels at a specific location. However, the map does give a valuable indication of the propensity of radon gas accumulation in structures.

Radon sampling was not conducted as part of this assessment. Review of the US EPA Map of Radon Zones places the subject property in Zone 2. Based upon the radon zone classification, radon is not considered to be a significant environmental concern.

6.3.4 Lead in Drinking Water

No public or private water system is operated on the subject property.

6.3.5 Mold

Molds are microscopic organisms found virtually everywhere, indoors and outdoors. Mold will grow and multiply under the right conditions, needing only sufficient moisture (e.g.in the form of very high humidity, condensation, or water from a leaking pipe, etc.) and organic material (e.g., ceiling tile, drywall, paper, or natural fiber carpet padding).

Since no structures are developed on the subject property, the evaluation for significant evidence of mold growth was not within the scope of work for this assessment.

6.4 Adjacent Property Reconnaissance

The adjacent property reconnaissance consisted of observing the adjacent properties from the subject property premises. No items of environmental concern were identified on the adjacent properties during the site assessment, including hazardous substances, petroleum products, ASTs, USTs, evidence of releases, PCBs, strong or noxious odors, pools of liquids, sumps or clarifiers, pits or lagoons, stressed vegetation, or any other potential environmental hazards.

7.0 FINDINGS AND CONCLUSIONS

Findings

A *recognized environmental condition (REC)* refers to the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: due to release to the environment; under conditions indicative of a release to the environment; or under conditions that pose a material threat of a future release to the environment. The following was identified during the course of this assessment:

- Partner did not identify any recognized environmental conditions during the course of this assessment.

A *controlled recognized environmental condition (CREC)* refers to a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls. The following was identified during the course of this assessment:

- Partner did not identify any controlled recognized environmental conditions during the course of this assessment.

A *historical recognized environmental condition (HREC)* refers to a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls. The following was identified during the course of this assessment:

- Partner did not identify any historical recognized environmental conditions during the course of this assessment.

An *environmental issue* refers to environmental concerns identified by Partner, which do not qualify as RECs; however, warrant further discussion. The following was identified during the course of this assessment:

- Partner did not identify any environmental issues during the course of this assessment.

Conclusions, Opinions, and Recommendations

Partner has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-13 of APN 428-020-07 in an unincorporated area of, Kern County, California (the "subject property"). Any exceptions to, or deletions from, this practice are described in Section 1.5 of this report.

This assessment has revealed no evidence of recognized environmental conditions or environmental issues in connection with the subject property. Based on the conclusions of this assessment, Partner recommends no further investigation of the subject property at this time.

8.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

Partner has performed a Phase I Environmental Site Assessment of the property located at APN 428-020-07 in an unincorporated area of, Kern County, California in general conformance with the scope and limitations of the protocol and the limitations stated earlier in this report. Exceptions to or deletions from this protocol are discussed earlier in this report.

By signing below, Partner declares that, to the best of our professional knowledge and belief, we meet the definition of *Environmental Professional* as defined in §312.10 of 40 CFR §312. Partner has the specific qualifications based on education, training, and experience to assess a *property* of the nature, history, and setting of the subject *property*. Partner has developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Prepared By:

DRAFT

Jeremy Russell
Environmental Professional

Reviewed By:

DRAFT

Shawn Askew, REPA
Senior Author

9.0 REFERENCES

Reference Documents

American Society for Testing and Materials, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, ASTM Designation: E1527-13.

Environmental Data Resources (EDR), Radius Report, February 2017

Federal Emergency Management Agency, Federal Insurance Administration, National Flood Insurance Program, Community Panel Numbers 06029C3295E and 06029C3325E, effective on September 26, 2008, accessed via internet, February 2017

United States Department of Agriculture, Natural Resources Conservation Service, accessed via internet, February 2017

United States Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey, accessed via the internet, February 2017

United States Environmental Protection Agency, EPA Map of Radon Zones (Document EPA-402-R-93-071), accessed via the internet, February 2017

United States Geological Survey, accessed via the Internet, February 2017

United States Geological Survey Topographic Map 1995 Mojave, Kern County, California, 7.5 minute series, accessed via internet, February 2017

FIGURES

1 SITE LOCATION MAP

2 SITE PLAN

3 TOPOGRAPHIC MAP

PARTNER

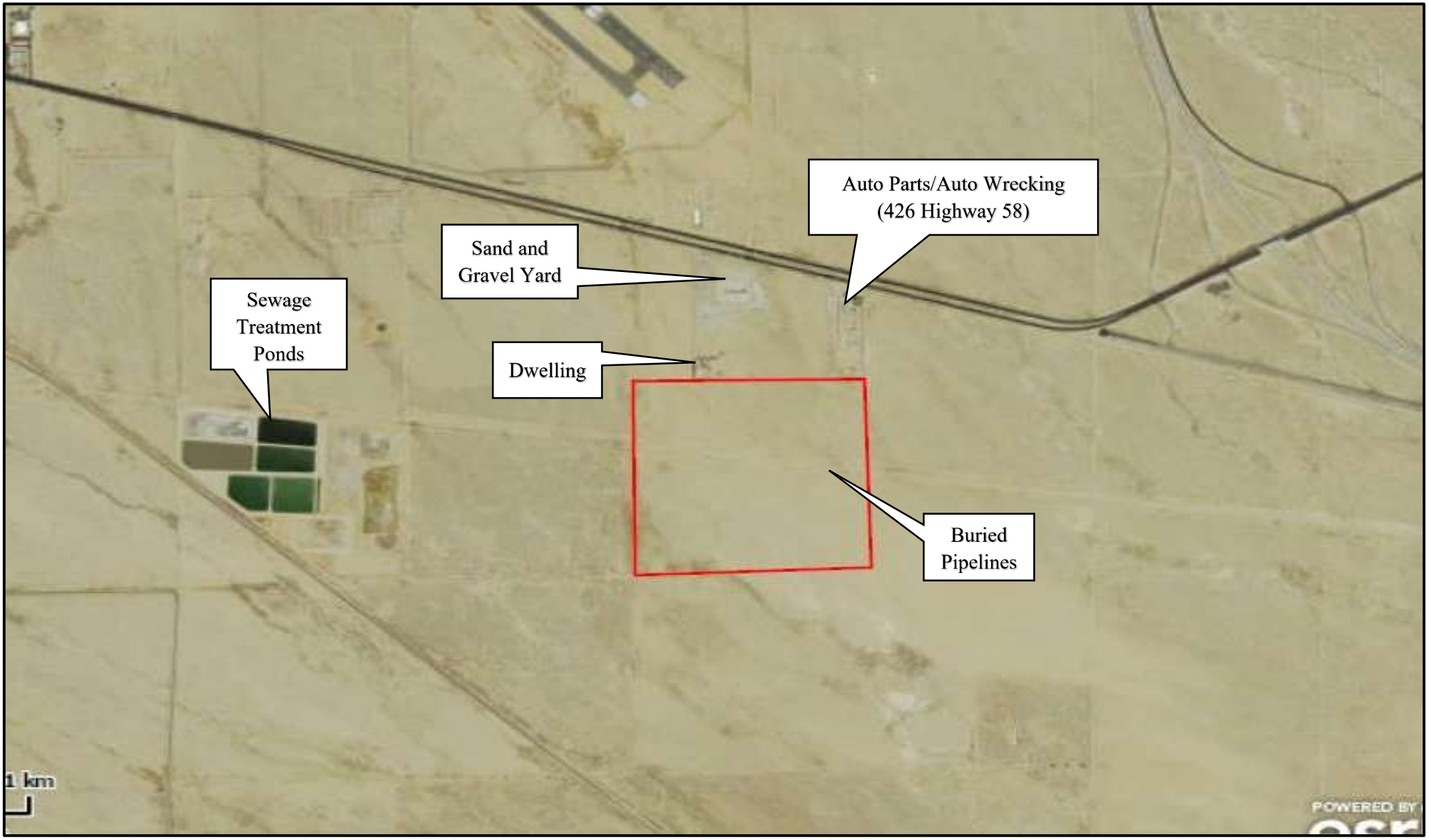
N

Drawing Not To Scale

KEY:
Subject Property

FIGURE 1: SITE LOCATION MAP
Project No. 17-180030.1

PARTNER



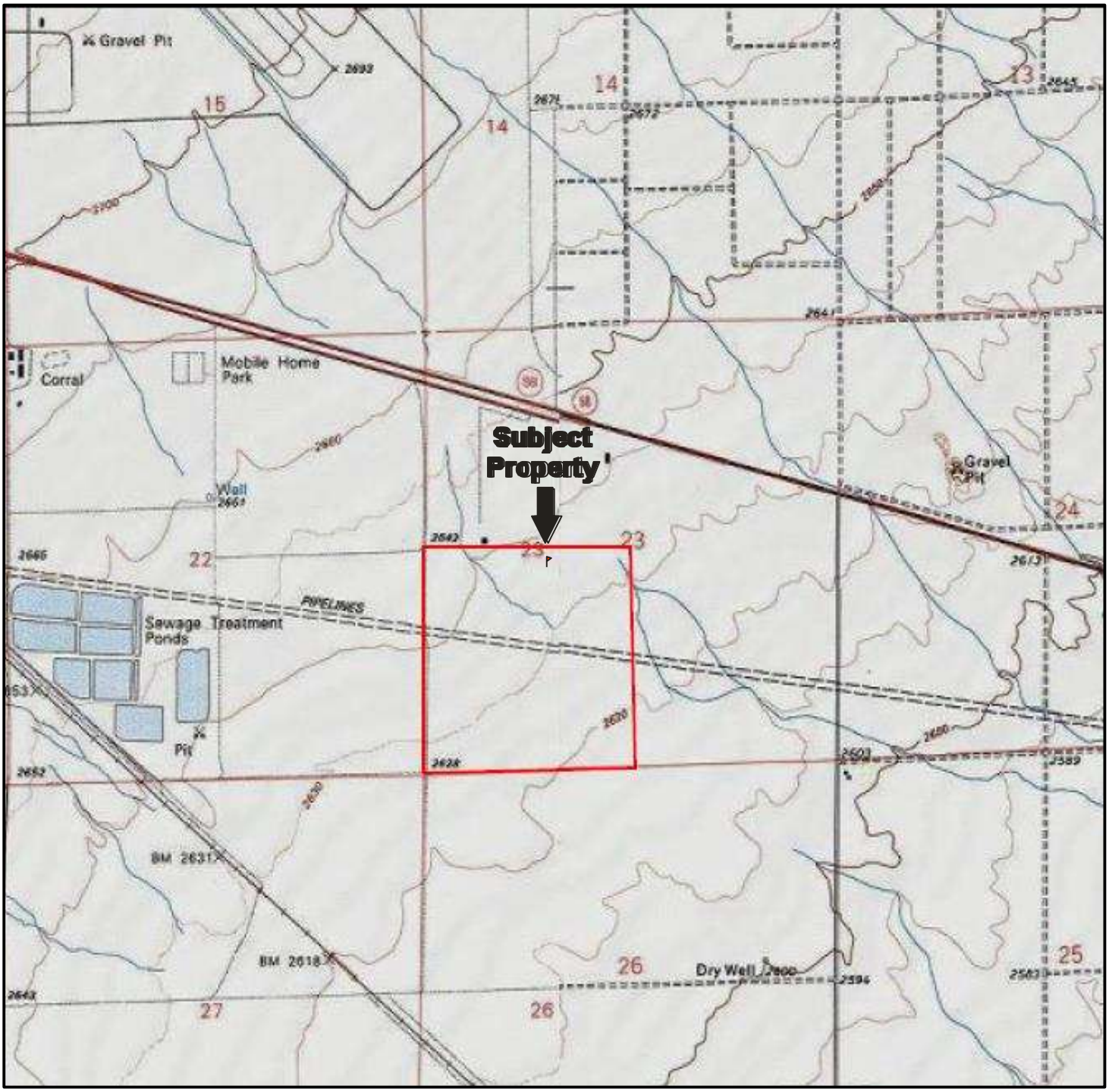
N

GROUNDWATER FLOW

KEY:
Subject Property

FIGURE 2: SITE PLAN
Project No. 17-180030.1

PARTNER



N

USGS 7.5 Minute *Mojave, CA* Quadrangle
Created: 1973/Revised: 1995

KEY:
Subject Property

FIGURE 3: TOPOGRAPHIC MAP
Project No. 17-180030.1

PARTNER

APPENDIX A: SITE PHOTOGRAPHS

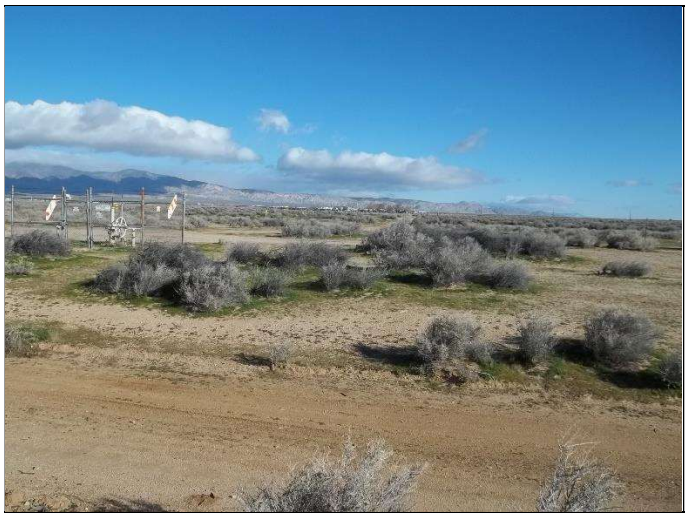
PARTNER

1. View of the northeast area.

2. View east along pipeline road on northern area.

3. View toward the north area.

4. View of land west of the subject property.



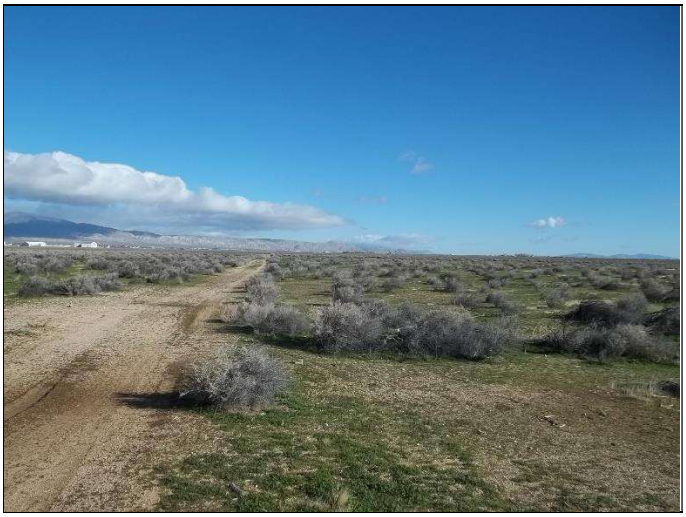
5. View of the east central area.

6. View toward the central area from the east.

7. View of the southern area from the east.

8. View west along pipeline road from the east side.

9. Survey monument at southwest corner of the subject property.



10. View north along western boundary.

11. View of the southwest area.

12. View of land adjacent west and southwest.

13. View of land adjacent south.

14. View of land adjacent south and southeast.

15. View east along southern border.

16. View of the southeast area.

17. View northwest from the southeast area.

18. Land adjacent east.

19. Land adjacent east.

20. Land adjacent southeast.

APPENDIX B: HISTORICAL/REGULATORY DOCUMENTATION

PARTNER

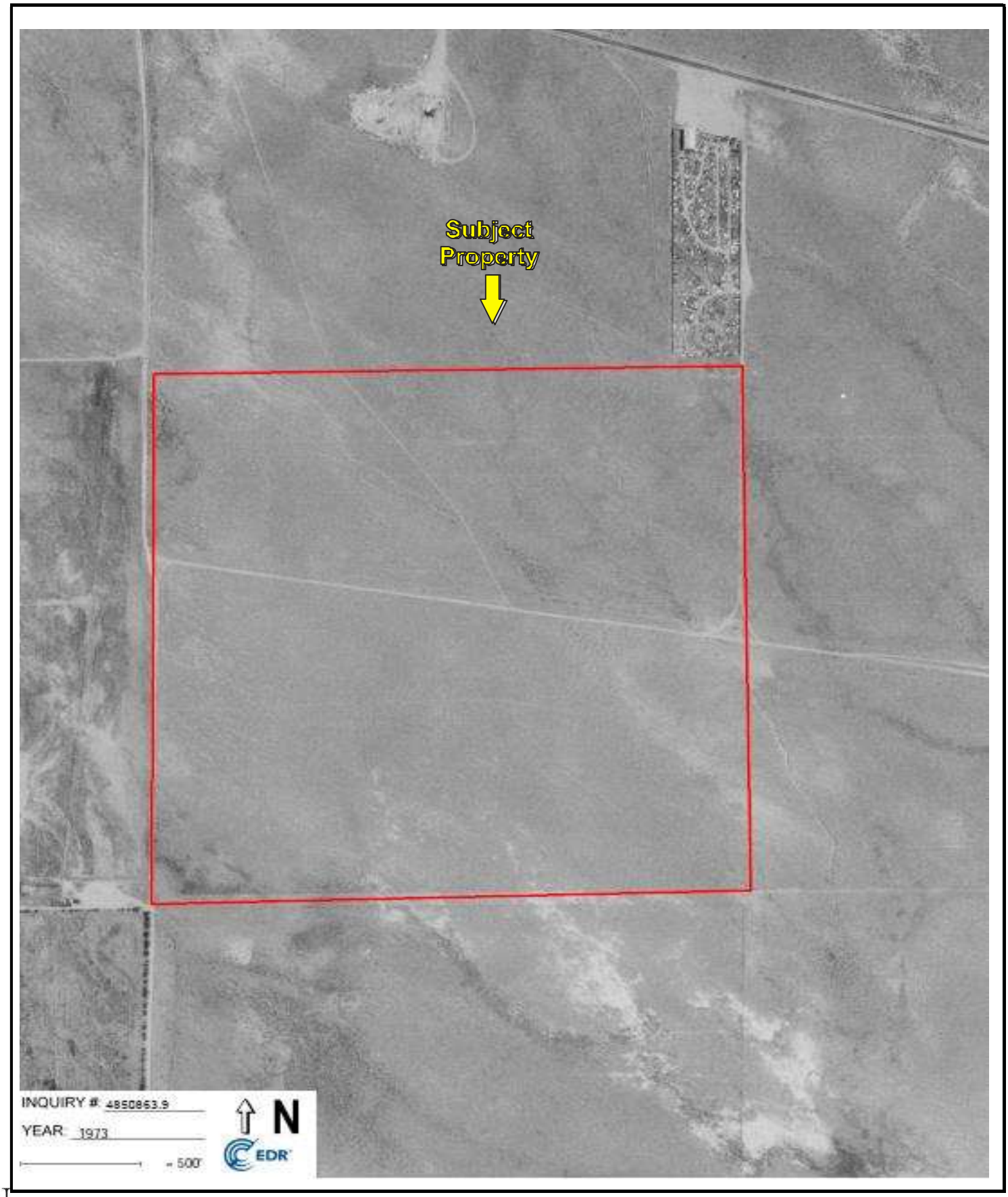
N

Date of Photograph: 1966

KEY:
Subject Property

APPENDIX B: AERIAL PHOTOGRAPHS
Project No. 17-180030.1

PARTNER



N

Date of Photograph: 1973

KEY:
Subject Property

APPENDIX B: AERIAL PHOTOGRAPHS
Project No. 17-180030.1

PARTNER

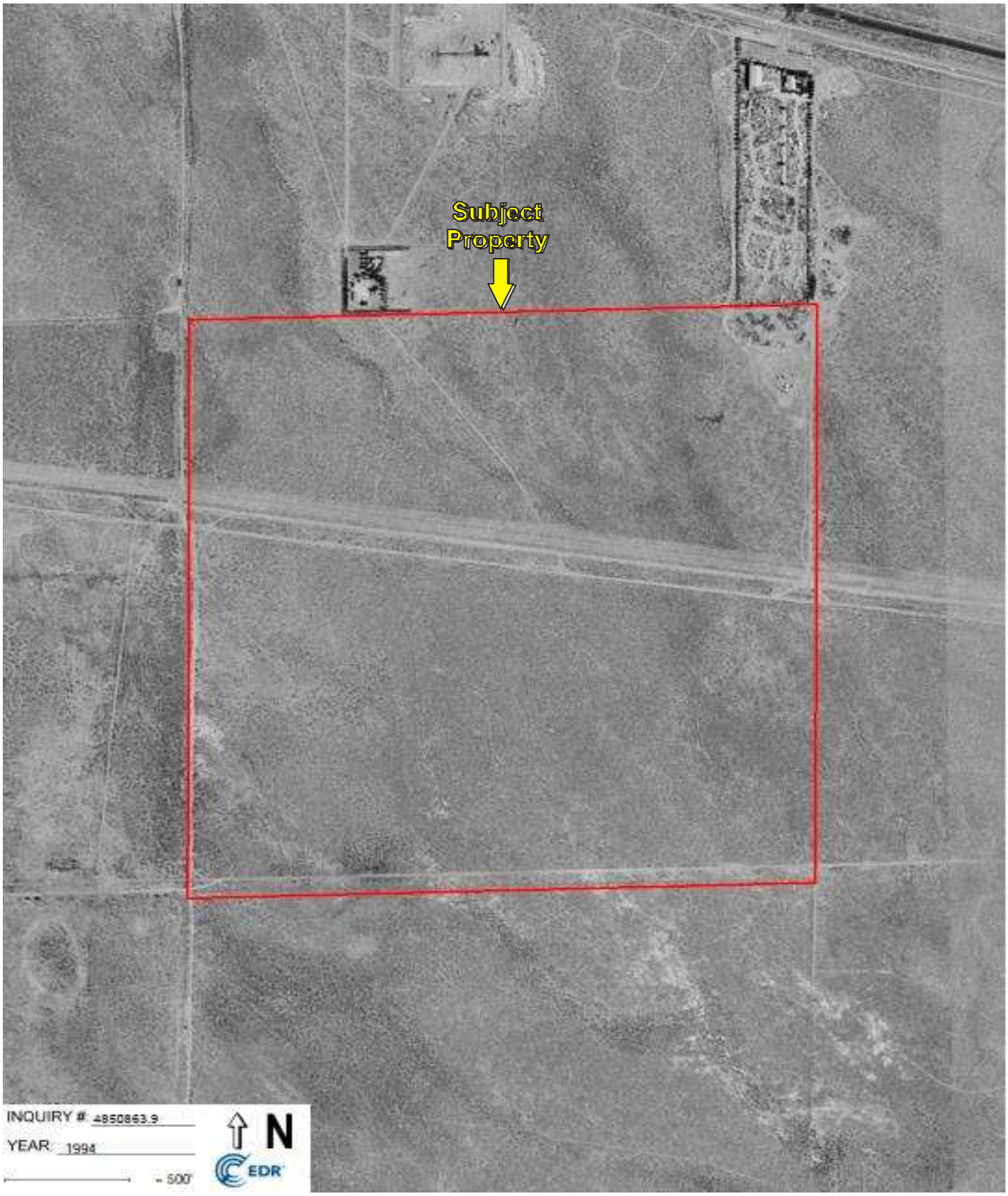
N

Date of Photograph: 1983

KEY:
Subject Property

APPENDIX B: AERIAL PHOTOGRAPHS
Project No. 17-180030.1

PARTNER



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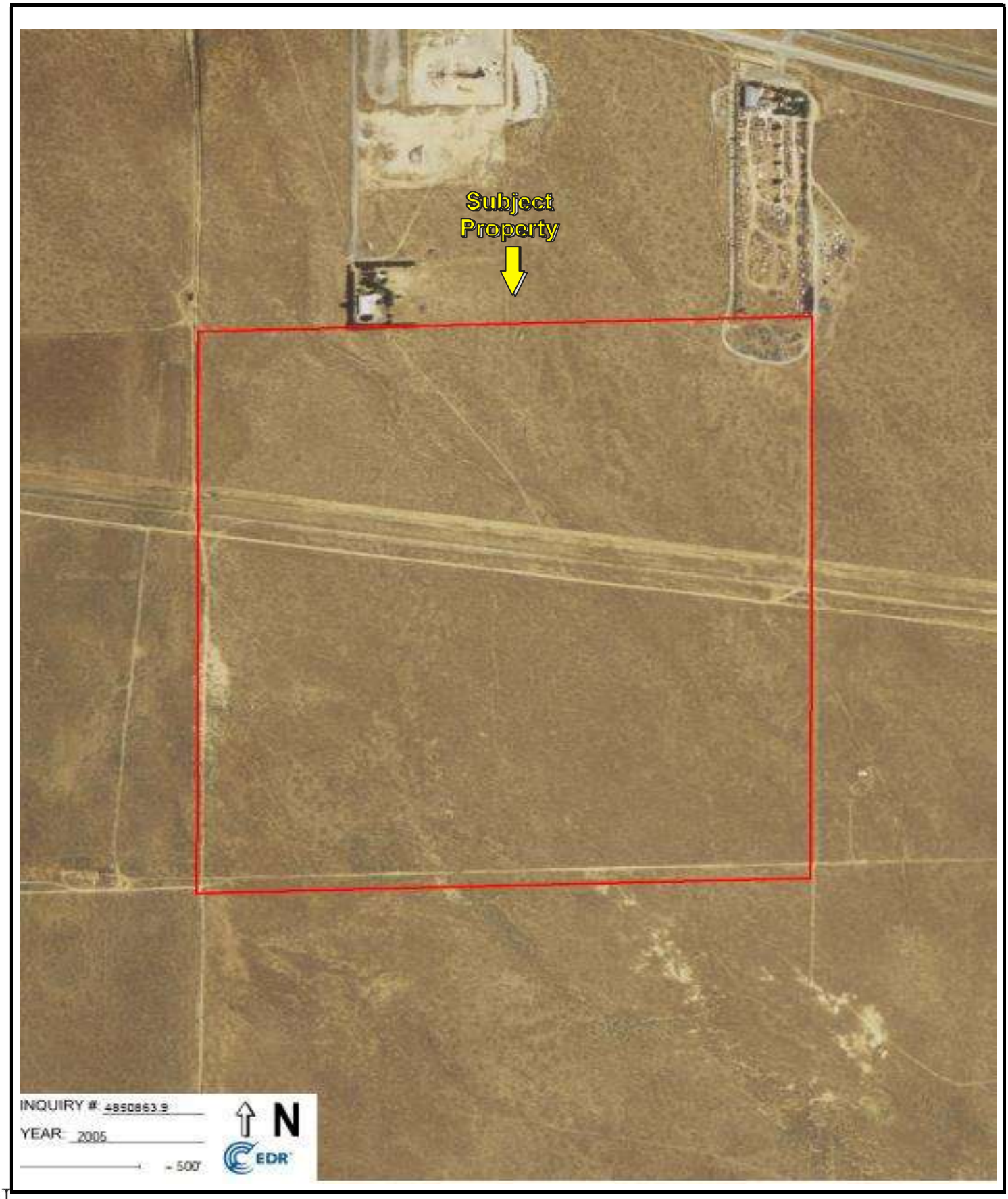
Date of Photograph: 1994

KEY:
Subject Property

APPENDIX B: AERIAL PHOTOGRAPHS
Project No. 17-180030.1

PARTNER



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Date of Photograph: 2005

KEY:
Subject Property

APPENDIX B: AERIAL PHOTOGRAPHS
Project No. 17-180030.1

PARTNER

N

Date of Photograph: 2009

KEY:
Subject Property

APPENDIX B: AERIAL PHOTOGRAPHS
Project No. 17-180030.1

PARTNER

N

Date of Photograph: 2010

KEY:
Subject Property

APPENDIX B: AERIAL PHOTOGRAPHS
Project No. 17-180030.1

PARTNER

N

Date of Photograph: 2012

KEY:
Subject Property

APPENDIX B: AERIAL PHOTOGRAPHS
Project No. 17-180030.1

PARTNER

Gabrych Terragen

APN 428-020-07

Mojave, CA 93501

Inquiry Number: 4850863.3

February 10, 2017

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

02/10/17

Site Name:	Client Name:
Gabrych Terragen	Partner Engineering and Science, Inc.
APN 428-020-07	2154 Torrance Blvd, Suite 200
Mojave, CA 93501	Torrance, CA 90501-0000
EDR Inquiry # 4850863.3	Contact: Adrian Rivas

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Partner Engineering and Science, Inc. were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

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Certified Sanborn Results:

Certification # 44AA-4902-B9C0

PO # NA

Project 17-180030.1

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: 44AA-4902-B9C0

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- ✔ Library of Congress
- ✔ University Publications of America
- ✔ EDR Private Collection

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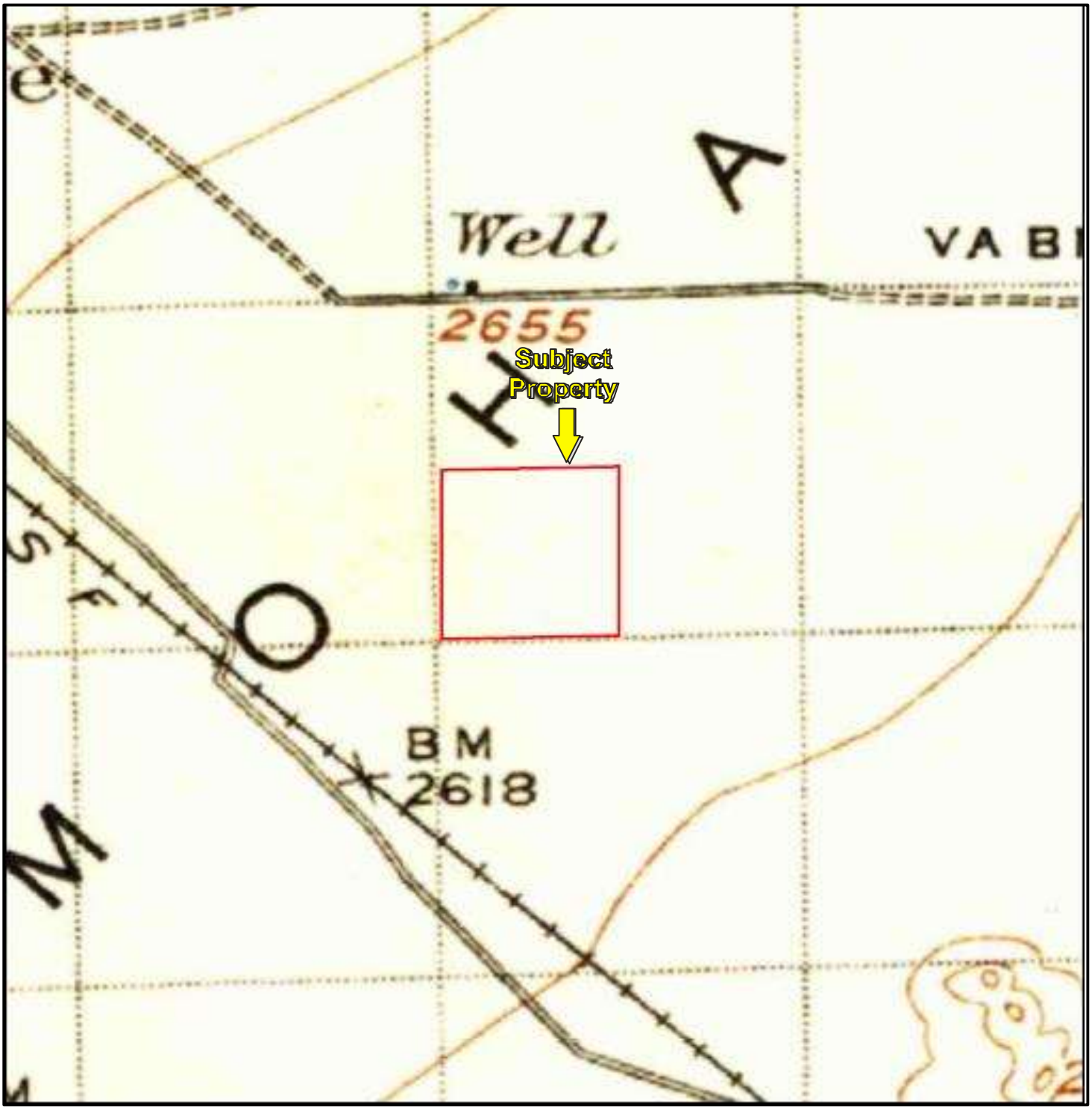
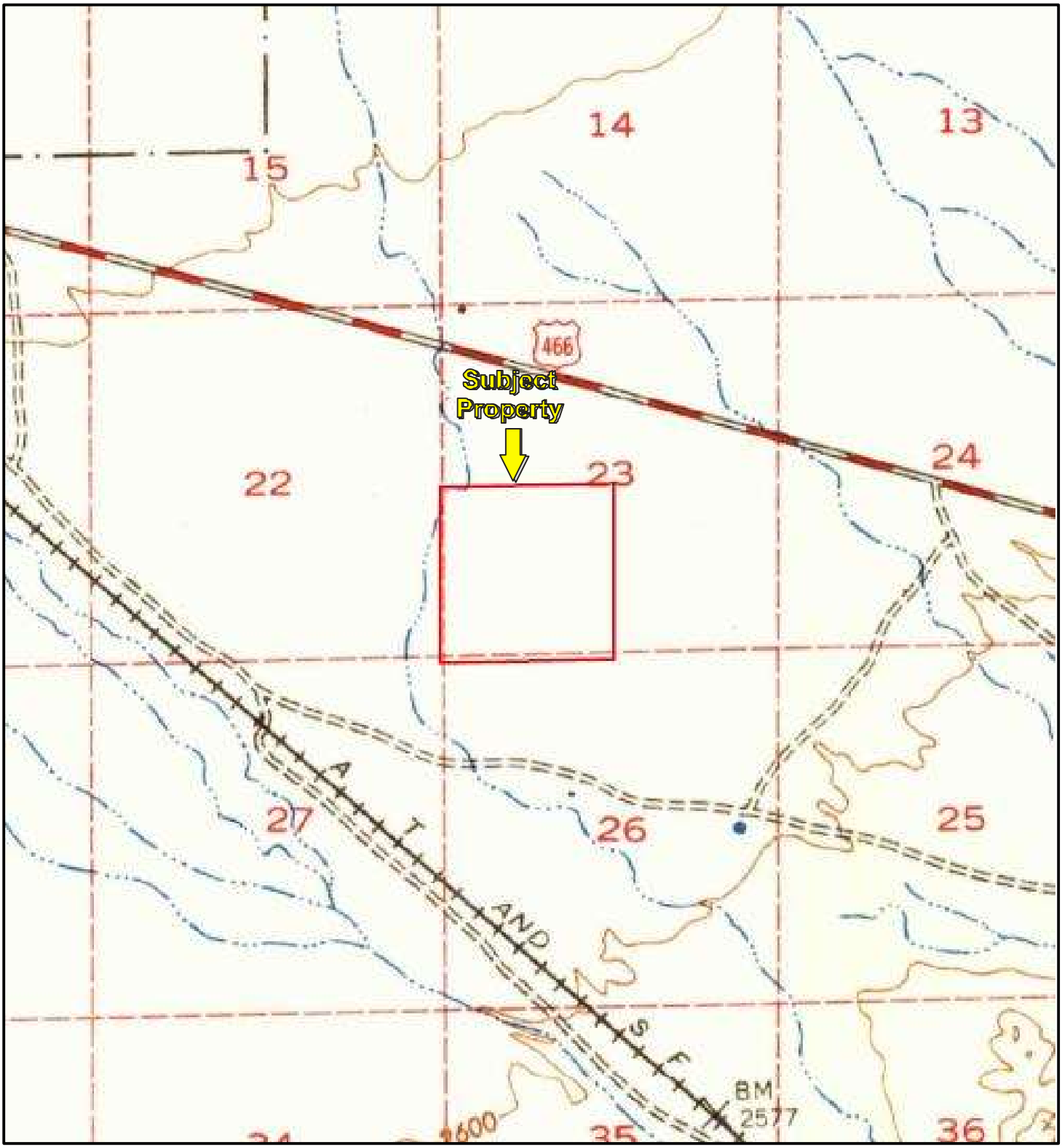


N

USGS 7.5 Minute *Mojave, CA* Quadrangle
Created: 1915

KEY:
Subject Property



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USGS 7.5 Minute *Mojave, CA* Quadrangle
Created: 1943

KEY:
Subject Property

APPENDIX B: HISTORIC TOPOGRAPHIC MAPS
Project No. 17-180030.1

PARTNER

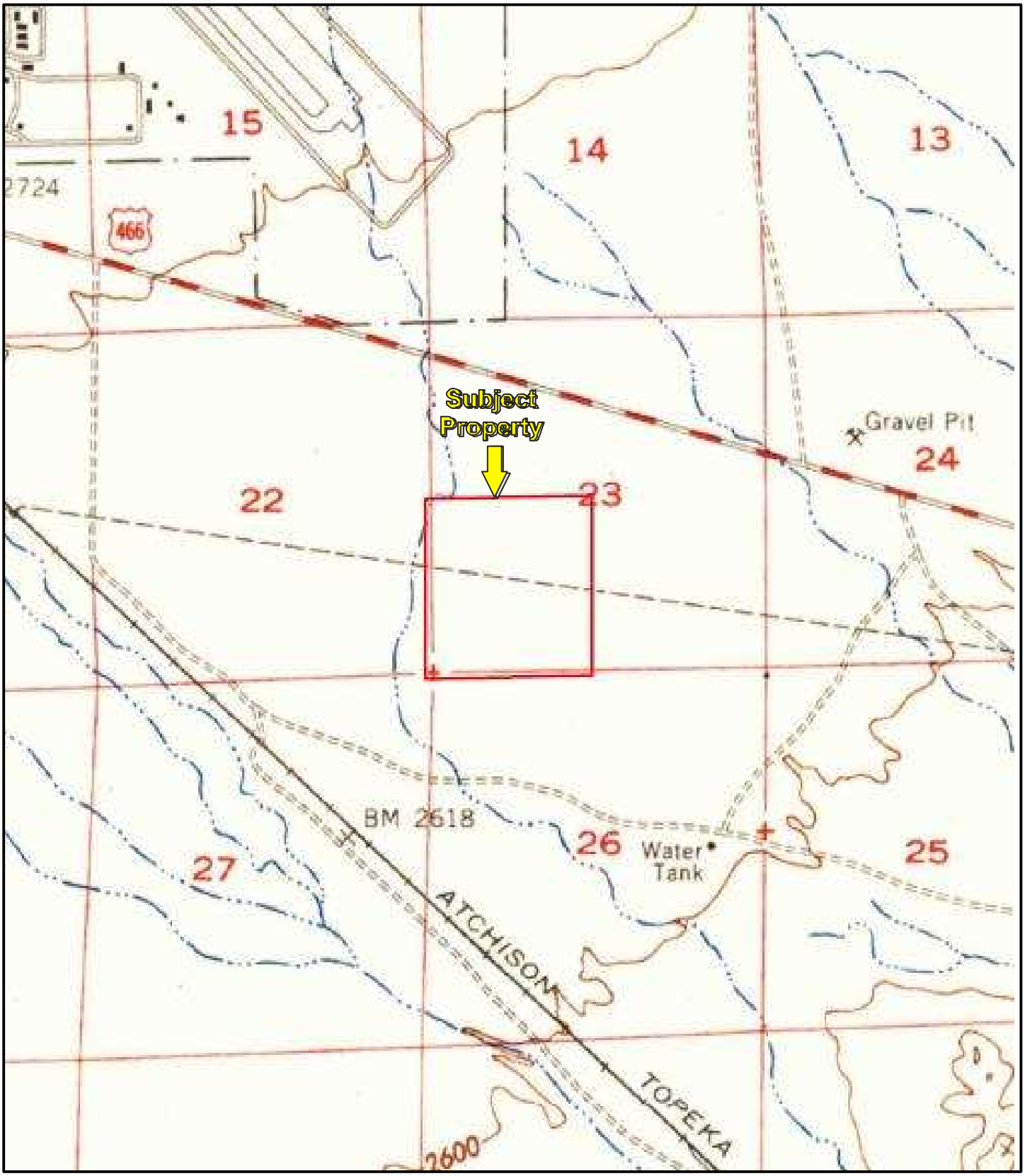
N

USGS 7.5 Minute *Mojave, CA* Quadrangle
Created: 1947

KEY:
Subject Property

APPENDIX B: HISTORIC TOPOGRAPHIC MAPS
Project No. 17-180030.1

PARTNER



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USGS 7.5 Minute *Mojave, CA* Quadrangle
Created: 1956

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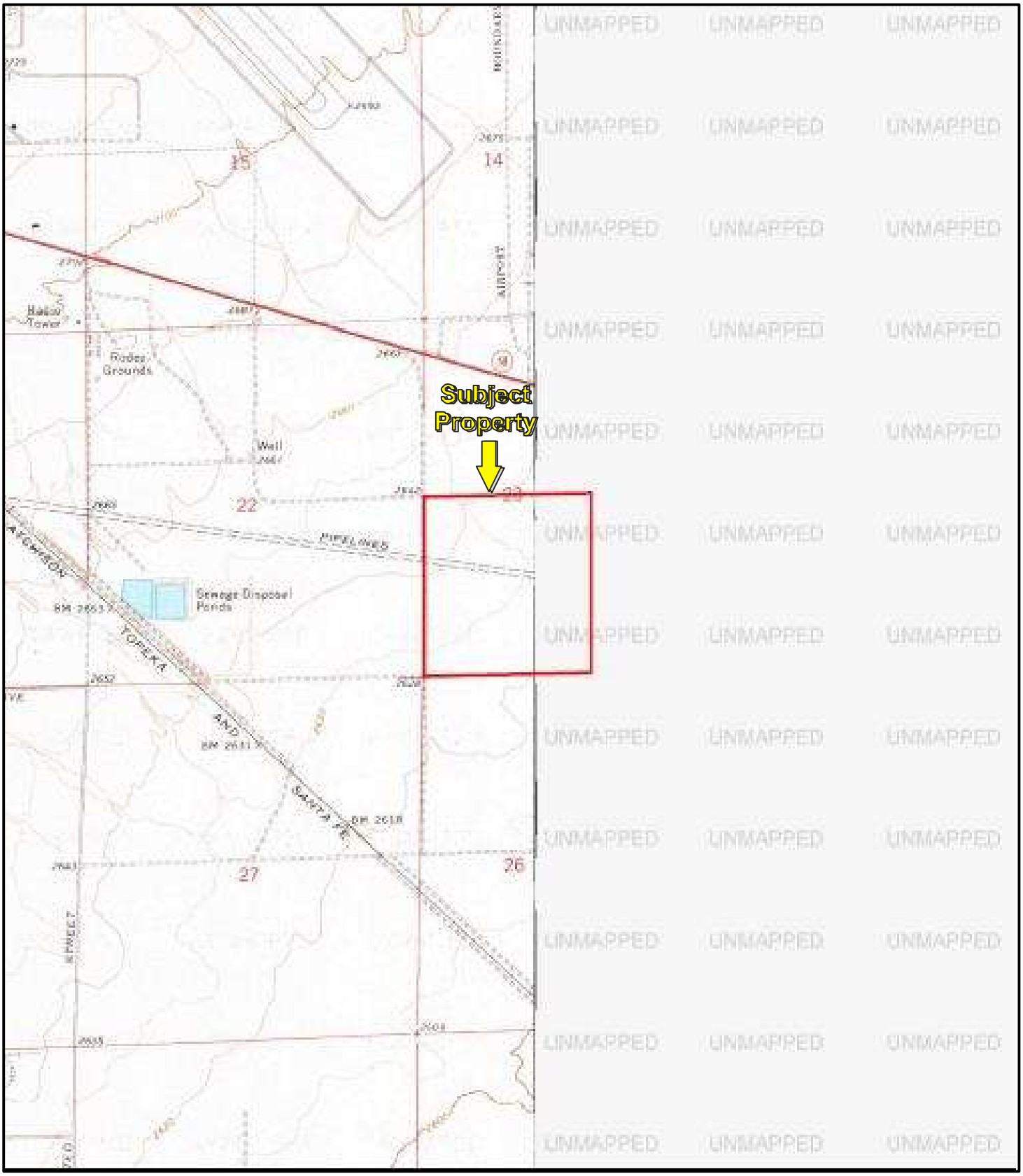
Project No. 17-180030.1

PARTNER



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USGS 7.5 Minute *Mojave, CA* Quadrangle
Created: 1973

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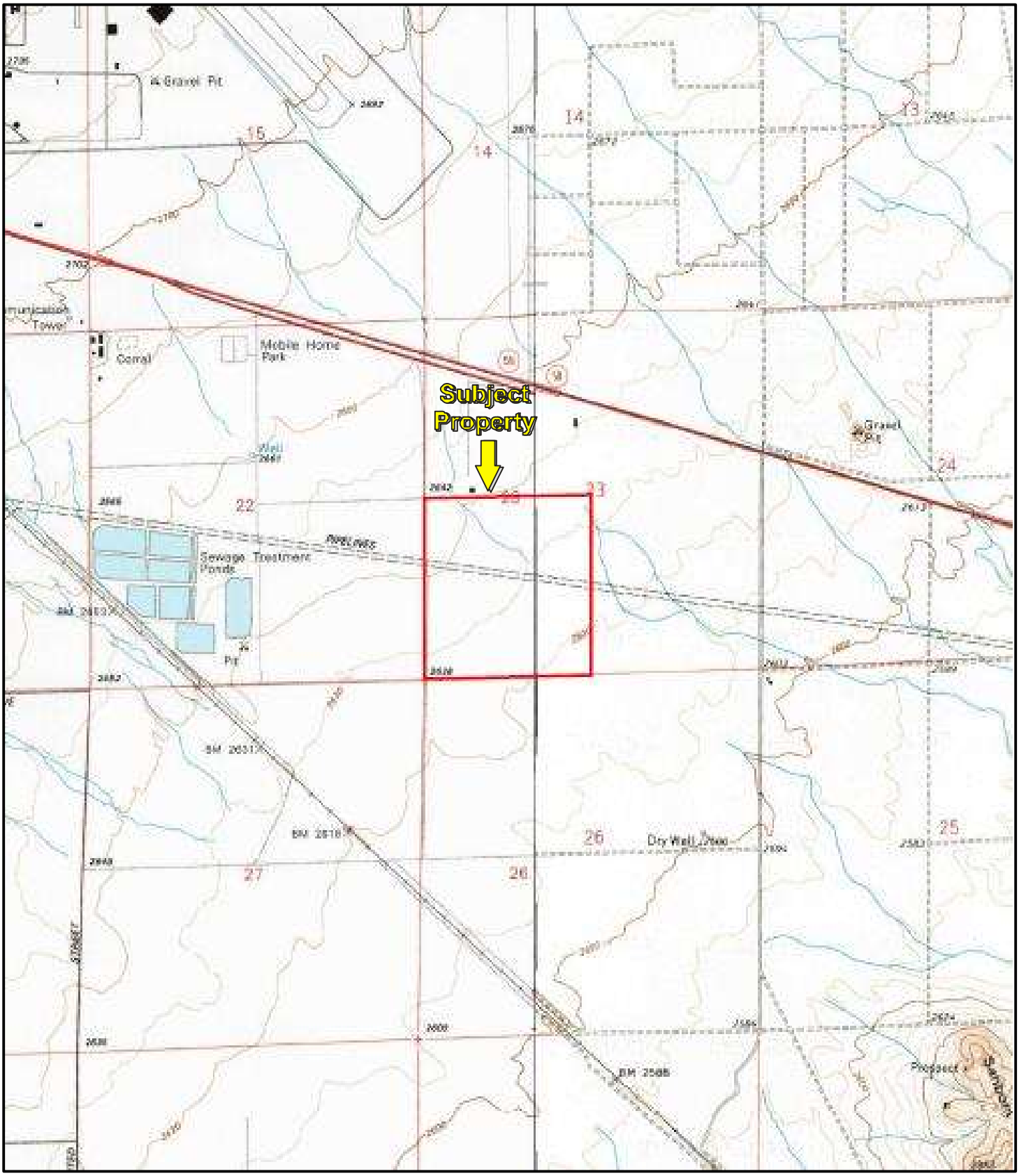
Subject Property

APPENDIX B: HISTORIC TOPOGRAPHIC MAPS
Project No. 17-180030.1

PARTNER



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USGS 7.5 Minute *Mojave CA* Quadrangle
Created: 1995

KEY:
Subject Property

APPENDIX B: HISTORIC TOPOGRAPHIC MAPS
Project No. 17-180030.1

PARTNER

Gabrych Terragen
APN 428-020-07
Mojave, CA 93501

Inquiry Number: 4850863.5
February 14, 2017

The EDR-City Directory Image Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION

Executive Summary

Findings

City Directory Images

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Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	*Target Street*	*Cross Street*	*Source*
2013	☐	☑	Cole Information Services
2008	☐	☑	Cole Information Services
2003	☐	☑	Cole Information Services
1999	☐	☐	Cole Information Services
1995	☐	☐	Cole Information Services
1992	☐	☐	Cole Information Services
1990	☐	☐	Haines Criss-Cross Directory
1985	☐	☐	Haines Criss-Cross Directory
1980	☐	☐	Haines Criss-Cross Directory
1975	☐	☐	Haines Criss-Cross Directory

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FINDINGS

TARGET PROPERTY STREET

APN 428-020-07
Mojave, CA 93501

No Addresses Found

FINDINGS

CROSS STREETS

Year	CD Image	Source	
PURDY RD			
2013	pg. A1	Cole Information Services	
2008	pg. A2	Cole Information Services	
2003	pg. A3	Cole Information Services	
1999	-	Cole Information Services	Target and Adjoining not listed in Source
1995	-	Cole Information Services	Target and Adjoining not listed in Source
1992	-	Cole Information Services	Target and Adjoining not listed in Source
1990	-	Haines Criss-Cross Directory	Street not listed in Source
1985	-	Haines Criss-Cross Directory	Street not listed in Source
1980	-	Haines Criss-Cross Directory	Street not listed in Source
1975	-	Haines Criss-Cross Directory	Street not listed in Source

City Directory Images

Target Street	Cross Street	Source
-	✓	Cole Information Services

PURDY RD 2013

1667 TRICAL INC
1873 PARAMOUNT PETROLEUM CORPORATION ASPH

Target Street	Cross Street	Source
-	✓	Cole Information Services

PURDY RD 2008

1667 NIKLOR CHEMICAL CO INC
OCCUPANT UNKNOWN
1873 PARAMOUNT PETROLEUM CORP ASPHALT TER

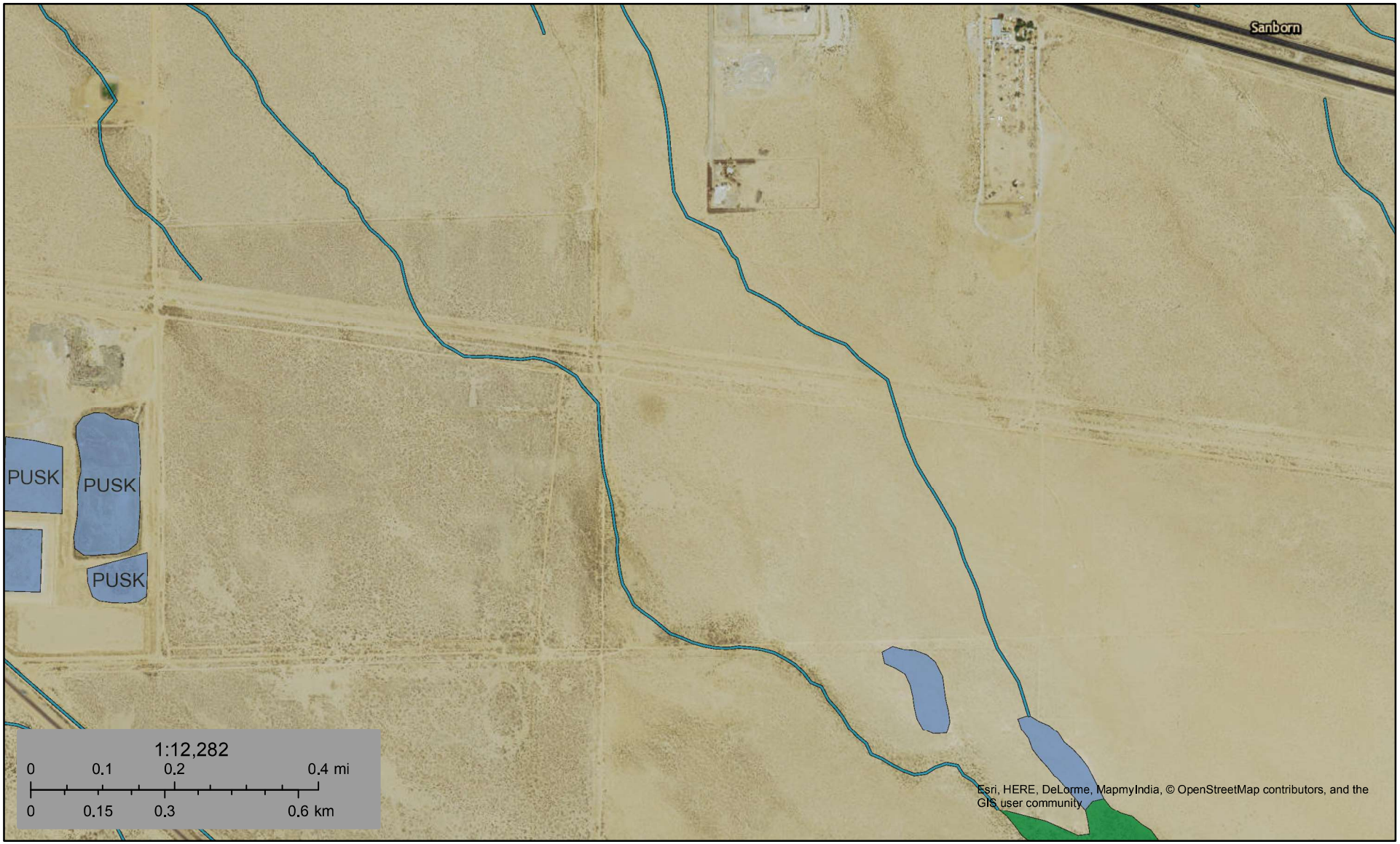
Target Street	Cross Street	Source
-	✓	Cole Information Services

PURDY RD 2003

1873 PARAMOUNT PETROLEUM CORP

U.S. Fish and Wildlife Service
National Wetlands Inventory

Wetlands

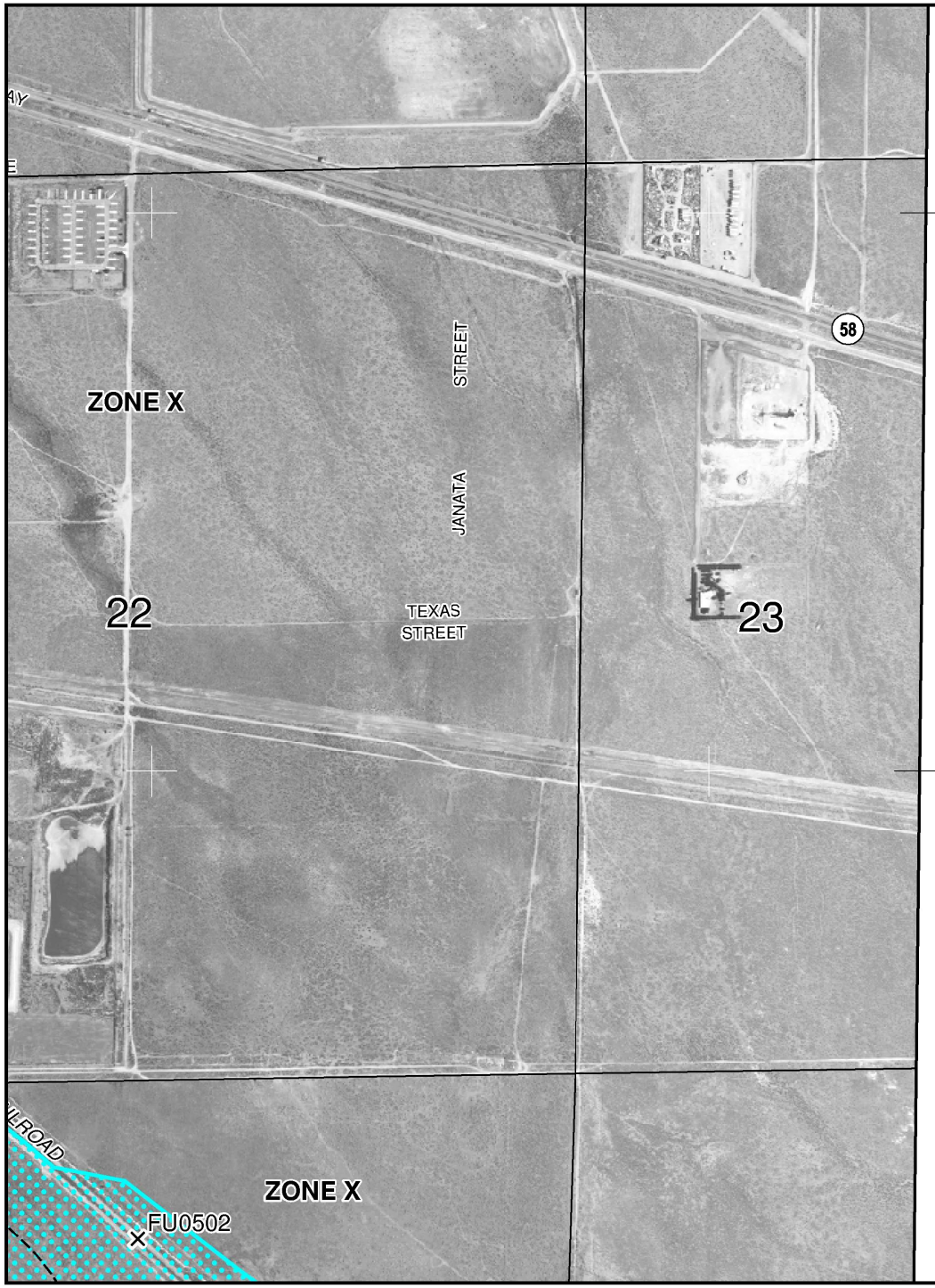


March 2, 2017

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper



he Flood Insurance Study report for this jurisdiction.

ce is available in this community, contact your insurance
d Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'

0 300 600 METERS

NATIONAL FLOOD INSURANCE PROGRAM

FIP

PANEL 3295E

FIRM
FLOOD INSURANCE RATE MAP
KERN COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 3295 OF 4125
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
KERN COUNTY	060075	3295	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06029C3295E

EFFECTIVE DATE
SEPTEMBER 26, 2008

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

KERN COUNTY
Public Health Services
DEPARTMENT

MATTHEW CONSTANTINE
DIRECTOR

2700 M STREET, SUITE 300 BAKERSFIELD, CALIFORNIA 93301-2370 VOICE: 661-862-8740 FAX: 661-862-8701 KERNPUBLICHEALTH.COM

REQUEST FOR PUBLIC RECORDS

Describe the records you are requesting in as much detail (business name, address, type of record desired, etc.) as possible:

seeking any CUPA records pertaining to the following APNs:

428-020-07

428-030-32

429-030-02

244-233-01

244-233-02

****

Jeremy Russell

Name (Please Print)

Partner Engineering

Organization/Company

1761 E. Garry Avenue, Santa Ana, CA

Address

949 678 8911

Phone Number

jeremy.russell@protonmail.com

Email Address

Signature

2/15/2017

Date

APPENDIX C: REGULATORY DATABASE REPORT

PARTNER

Gabrych Terragen
APN 428-020-07
Mojave, CA 93501

Inquiry Number: 4850863.2s
February 10, 2017

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Map Findings	8
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GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
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Physical Setting SSURGO Soil Map	A-5
Physical Setting Source Map	A-7
Physical Setting Source Map Findings	A-9
Physical Setting Source Records Searched	PSGR-1

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

APN 428-020-07
MOJAVE, CA 93501

COORDINATES

Latitude (North):	35.0292940 - 35˚ 1' 45.45''
Longitude (West):	118.1272740 - 118˚ 7' 38.18''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	397166.4
UTM Y (Meters):	3876674.8
Elevation:	2634 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5639196 MOJAVE, CA
Version Date:	2012
Northeast Map:	5639204 SANBORN, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140823
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
APN 428-020-07
MOJAVE, CA 93501

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	MOJAVE #2 BD	NE/4,NE/4,NW/4, SEC2	SWF/LF	Higher	1180, 0.223, North
2	ANGELS TRUCK STOP	2001 HWY 58	LUST, HIST CORTESE	Higher	2291, 0.434, NNW
3	SILVER QUEEN JUNKYAR	BACK LOT AT 11847 UN	RESPONSE, ENVIROSTOR, HIST Cal-Sites, DEED,...	Higher	5157, 0.977, WSW

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL..... National Priority List
Proposed NPL..... Proposed National Priority List Sites
NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY..... Federal Facility Site Information listing
SEMS..... Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE..... Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators
RCRA-SQG..... RCRA - Small Quantity Generators
RCRA-CESQG..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

LUCIS..... Land Use Control Information System
US ENG CONTROLS..... Engineering Controls Sites List

US INST CONTROL..... Sites with Institutional Controls

Federal ERNS list

ERNS..... Emergency Response Notification System

State and tribal leaking storage tank lists

INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land
SLIC..... Statewide SLIC Cases

State and tribal registered storage tank lists

FEMA UST..... Underground Storage Tank Listing
UST..... Active UST Facilities
AST..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST..... Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

INDIAN VCP..... Voluntary Cleanup Priority Listing
VCP..... Voluntary Cleanup Program Properties

State and tribal Brownfields sites

BROWNFIELDS..... Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT..... Waste Management Unit Database
SWRCY..... Recycler Database
HAULERS..... Registered Waste Tire Haulers Listing
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations
ODI..... Open Dump Inventory
IHS OPEN DUMPS..... Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL..... Delisted National Clandestine Laboratory Register
SCH..... School Property Evaluation Program
CDL..... Clandestine Drug Labs
Toxic Pits..... Toxic Pits Cleanup Act Sites
US CDL..... National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

SWEEPS UST..... SWEEPS UST Listing

HIST UST ..... Hazardous Substance Storage Container Database
CA FID UST ..... Facility Inventory Database

Local Land Records

LIENS ..... Environmental Liens Listing
LIENS 2 ..... CERCLA Lien Information
DEED ..... Deed Restriction Listing

Records of Emergency Release Reports

HMIRS ..... Hazardous Materials Information Reporting System
CHMIRS ..... California Hazardous Material Incident Report System
LDS ..... Land Disposal Sites Listing
MCS ..... Military Cleanup Sites Listing
SPILLS 90 ..... SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR ..... RCRA - Non Generators / No Longer Regulated
FUDS ..... Formerly Used Defense Sites
DOD ..... Department of Defense Sites
SCRD DRYCLEANERS ..... State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR ..... Financial Assurance Information
EPA WATCH LIST ..... EPA WATCH LIST
2020 COR ACTION ..... 2020 Corrective Action Program List
TSCA ..... Toxic Substances Control Act
TRIS ..... Toxic Chemical Release Inventory System
SSTS ..... Section 7 Tracking Systems
ROD ..... Records Of Decision
RMP ..... Risk Management Plans
RAATS ..... RCRA Administrative Action Tracking System
PRP ..... Potentially Responsible Parties
PADS ..... PCB Activity Database System
ICIS ..... Integrated Compliance Information System
FTTS ..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS ..... Material Licensing Tracking System
COAL ASH DOE ..... Steam-Electric Plant Operation Data
COAL ASH EPA ..... Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER ..... PCB Transformer Registration Database
RADINFO ..... Radiation Information Database
HIST FTTS ..... FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS ..... Incident and Accident Data
CONSENT ..... Superfund (CERCLA) Consent Decrees
INDIAN RESERV ..... Indian Reservations
FUSRAP ..... Formerly Utilized Sites Remedial Action Program
UMTRA ..... Uranium Mill Tailings Sites
LEAD SMELTERS ..... Lead Smelter Sites
US AIRS ..... Aerometric Information Retrieval System Facility Subsystem
US MINES ..... Mines Master Index File
FINDS ..... Facility Index System/Facility Registry System
DOCKET HWC ..... Hazardous Waste Compliance Docket Listing
UXO ..... Unexploded Ordnance Sites
CA BOND EXP. PLAN ..... Bond Expenditure Plan

EXECUTIVE SUMMARY

Cortese	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings	CUPA Resources List
DRYCLEANERS	Cleaner Facilities
EMI	Emissions Inventory Data
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
HAZNET	Facility and Manifest Data
ICE	ICE
HWP	EnviroStor Permitted Facilities Listing
HWT	Registered Hazardous Waste Transporter Database
MINES	Mines Site Location Listing
MWMP	Medical Waste Management Program Listing
NPDES	NPDES Permits Listing
PEST LIC	Pesticide Regulation Licenses Listing
PROC	Certified Processors Database
Notify 65	Proposition 65 Records
UIC	UIC Listing
WASTEWATER PITS	Oil Wastewater Pits Listing
WDS	Waste Discharge System
WIP	Well Investigation Program Case List
FUELS PROGRAM	EPA Fuels Program Registered Listing
ABANDONED MINES	Abandoned Mines
ECHO	Enforcement & Compliance History Information

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants
EDR Hist Auto	EDR Exclusive Historic Gas Stations
EDR Hist Cleaner	EDR Exclusive Historic Dry Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF	Recovered Government Archive Solid Waste Facilities List
RGA LUST	Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

STANDARD ENVIRONMENTAL RECORDS

State- and tribal - equivalent NPL

RESPONSE: Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

A review of the RESPONSE list, as provided by EDR, has revealed that there is 1 RESPONSE site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SILVER QUEEN JUNKYAR	***BACK LOT AT 11847 UN***	***WSW 1/2 - 1 (0.977 mi.)***	***3***	***10***
AWP Facility Id: 15500002 Status: Certified / Operation & Maintenance Facility Id: 15500002				

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 10/31/2016 has revealed that there is 1 ENVIROSTOR site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SILVER QUEEN JUNKYAR	***BACK LOT AT 11847 UN***	***WSW 1/2 - 1 (0.977 mi.)***	***3***	***10***
Facility Id: 15500002 Status: Certified / Operation & Maintenance				

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Integrated Waste Management Board's Solid Waste Information System (SWIS) database.

A review of the SWF/LF list, as provided by EDR, has revealed that there is 1 SWF/LF site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MOJAVE #2 BD	NE/4,NE/4,NW/4, SEC2	N 1/8 - 1/4 (0.223 mi.)	1	8
Database: SWF/LF (SWIS), Date of Government Version: 11/14/2016				

Facility ID: 15-CR-0020
Operational Status: Closed
Regulation Status: Pre-regulations

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

A review of the LUST list, as provided by EDR, has revealed that there is 1 LUST site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ANGELS TRUCK STOP	***2001 HWY 58***	***NNW 1/4 - 1/2 (0.434 mi.)***	***2***	***8***
Database: LUST REG 6V, Date of Government Version: 06/07/2005 Status: Leak being confirmed				

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Hazardous waste / Contaminated Sites

HIST Cal-Sites: Formerly known as ASPIS, this database contains both known and potential hazardous substance sites. The source is the California Department of Toxic Substance Control. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

A review of the HIST Cal-Sites list, as provided by EDR, and dated 08/08/2005 has revealed that there is 1 HIST Cal-Sites site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SILVER QUEEN JUNKYAR	***BACK LOT AT 11847 UN***	***WSW 1/2 - 1 (0.977 mi.)***	***3***	***10***

Other Ascertainable Records

HIST CORTESE: The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

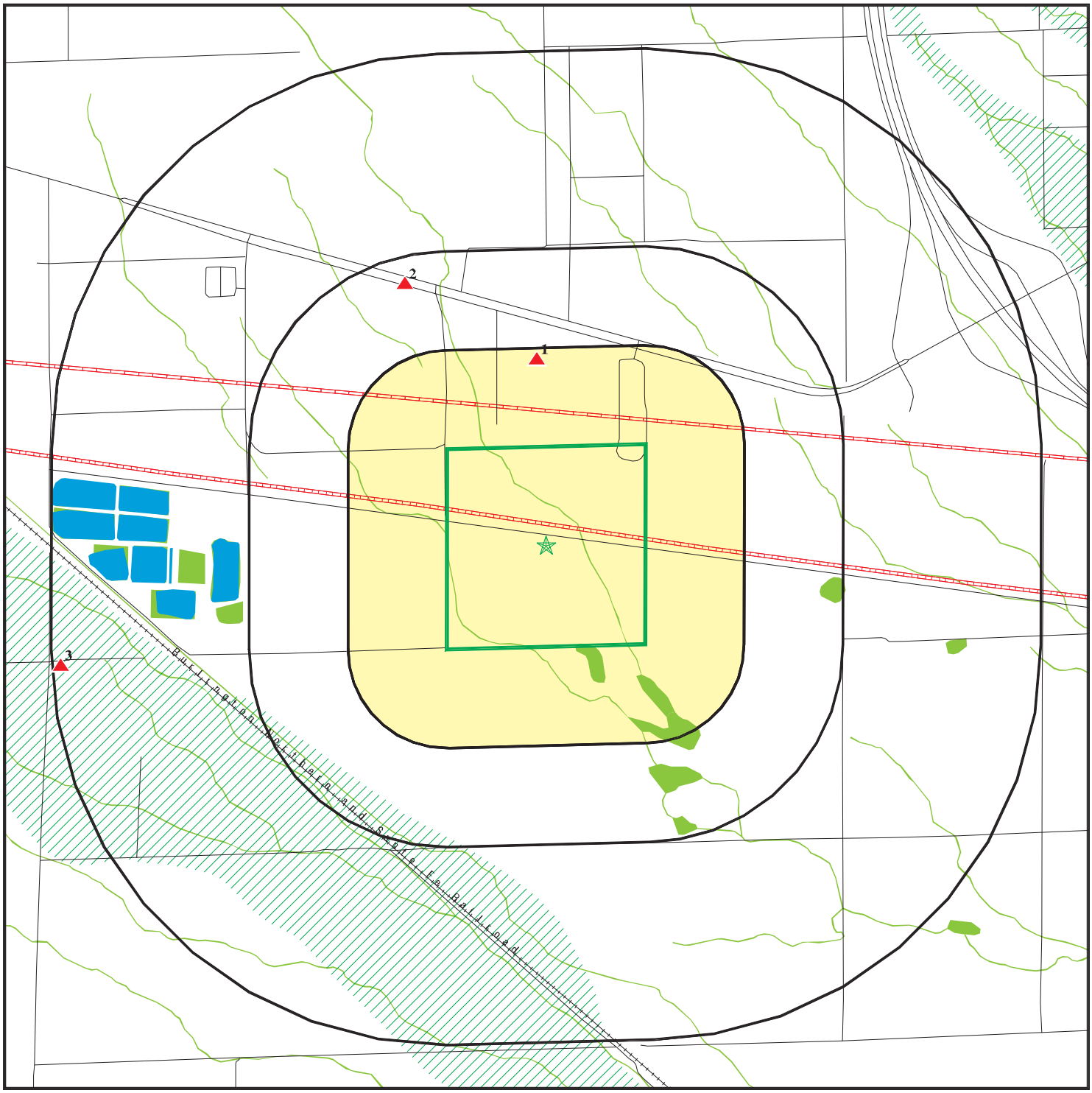
A review of the HIST CORTESE list, as provided by EDR, and dated 04/01/2001 has revealed that there is 1 HIST CORTESE site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ANGELS TRUCK STOP	***2001 HWY 58***	***NNW 1/4 - 1/2 (0.434 mi.)***	***2***	***8***
Reg Id: 6B1500024T				

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 4850863.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Pipelines

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

Areas of Concern

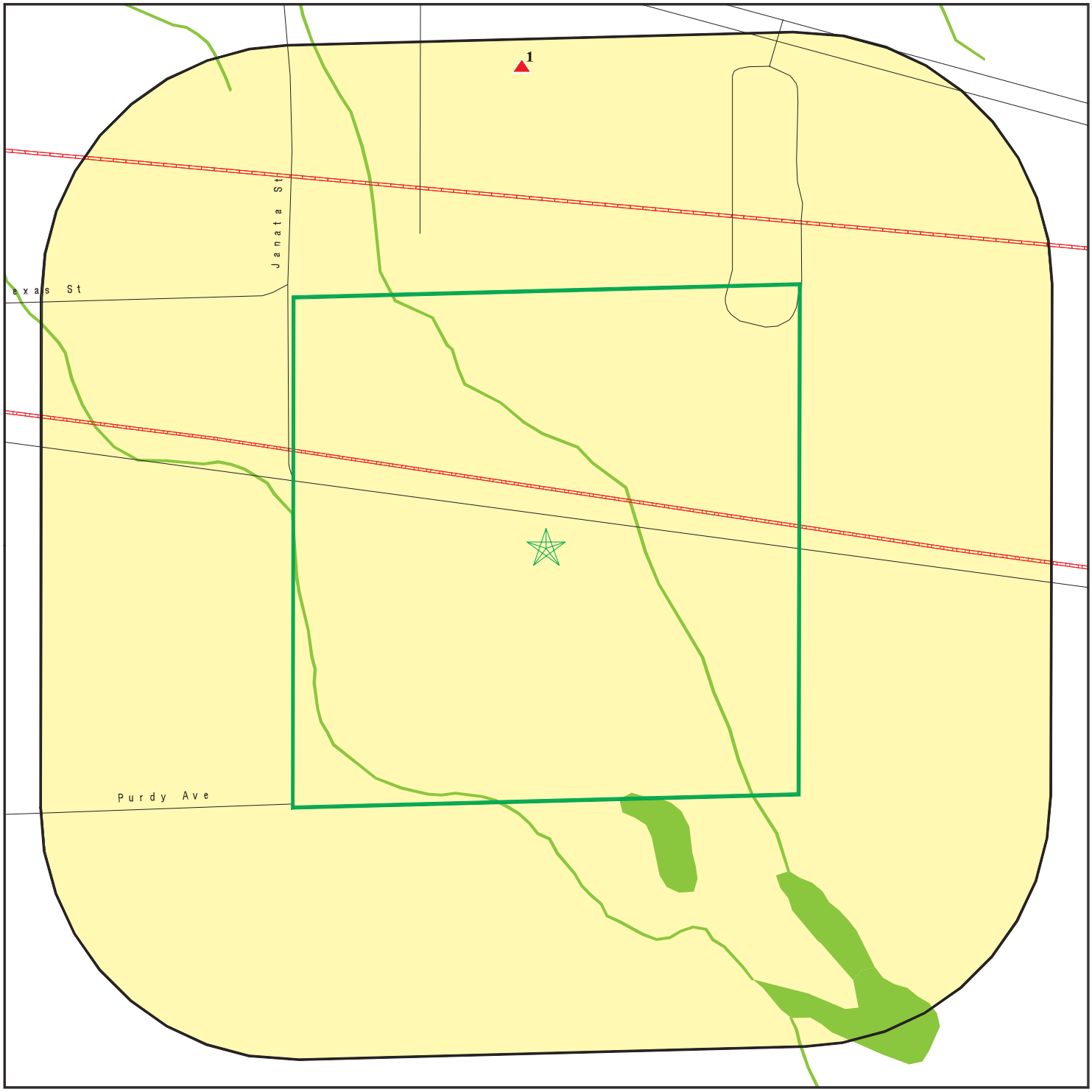
N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Gabrych Terragen ADDRESS: APN 428-020-07 Mojave CA 93501 LAT/LONG: 35.029294 / 118.127274	CLIENT: Partner Engineering and Science, Inc. CONTACT: Adrian Rivas INQUIRY #: 4850863.2s DATE: February 10, 2017 12:03 pm

Copyright © 2017 EDR, Inc. © 2015 TomTom Rel. 2015.

DETAIL MAP - 4850863.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

Sensitive Receptors

National Priority List Sites

Dept. Defense Sites

0 1/8 1/4 1/2 Miles

Indian Reservations BIA

Pipelines

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Gabrych Terragen ADDRESS: APN 428-020-07 Mojave CA 93501 LAT/LONG: 35.029294 / 118.127274	CLIENT: Partner Engineering and Science, Inc. CONTACT: Adrian Rivas INQUIRY #: 4850863.2s DATE: February 10, 2017 12:04 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	1	NR	1
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	0	1	NR	1
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	1	0	NR	NR	1
State and tribal leaking storage tank lists								
LUST	0.500		0	0	1	NR	NR	1

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
SLIC	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	TP		NR	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	1	NR	1
SCH	0.250		0	0	NR	NR	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	TP		NR	NR	NR	NR	NR	0
LIENS 2	TP		NR	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
CHMIRS	TP		NR	NR	NR	NR	NR	0
LDS	TP		NR	NR	NR	NR	NR	0
MCS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	TP		NR	NR	NR	NR	NR	0
ENF	TP		NR	NR	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
HAZNET	TP		NR	NR	NR	NR	NR	0
ICE	TP		NR	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	1	NR	NR	1
HWP	1.000		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
HWT	0.250		0	0	NR	NR	NR	0
MINES	TP		NR	NR	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
PEST LIC	TP		NR	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	TP		NR	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.500		0	0	0	NR	NR	0
ECHO	TP		NR	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	TP		NR	NR	NR	NR	NR	0
RGA LUST	TP		NR	NR	NR	NR	NR	0
- Totals --		0	0	1	2	3	0	6

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1 North 1/8-1/4 0.223 mi. 1180 ft. | **MOJAVE #2 BD** | **SWF/LF** | **S105678114**
NE/4,NE/4,NW/4, SEC22,T11N,R12W. | **N/A**
MOJAVE, CA

Relative: Higher

Actual: 2651 ft.

SWF/LF (SWIS):

Region:	STATE
Facility ID:	15-CR-0020
Lat/Long:	35.0362 / -118.1277
Owner Name:	County of Kern Waste Management Dept.
Owner Telephone:	6618628900
Owner Address:	Not reported
Owner Address2:	2700 M Street, Suite 500
Owner City,St,Zip:	Bakersfield, CA 93301
Operational Status:	Closed
Operator:	County of Kern Waste Management Dept.
Operator Phone:	6618628900
Operator Address:	Not reported
Operator Address2:	2700 M Street, Suite 500
Operator City,St,Zip:	Bakersfield, CA 93301
Permit Date:	Not reported
Permit Status:	Not reported
Permitted Acreage:	$0.00
Activity:	Solid Waste Disposal Site
Regulation Status:	Pre-regulations
Landuse Name:	Not reported
GIS Source:	Map
Category:	Disposal
Unit Number:	01
Inspection Frequency:	Annual
Accepted Waste:	Not reported
Closure Date:	12/31/1973
Closure Type:	Estimated
Disposal Acreage:	$20.00
SWIS Num:	15-CR-0020
Waste Discharge Requirement Num:	Not reported
Program Type:	Not reported
Permitted Throughput with Units:	Not reported
Actual Throughput with Units:	Not reported
Permitted Capacity with Units:	Not reported
Remaining Capacity:	Not reported
Remaining Capacity with Units:	Not reported
Lat/Long:	35.0362 / -118.1277

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2 NNW 1/4-1/2 0.434 mi. 2291 ft. | **ANGELS TRUCK STOP** | **LUST** | **S102424015**
2001 HWY 58 | **HIST CORTESE** | **N/A**
MOJAVE, CA 93501

Relative: Higher

Actual: 2667 ft.

LUST Region 6V:

Region:	6V
Case Number:	6B1500024T
Leak Record:	10/27/1995
Report Date:	9/19/1995
Reported By Address:	Not reported
Responsible Party:	SHAHRZAD JADALIPOUR
Operator:	AVETIK MKRTCHYAN
Cross Street:	M ST

ANGELS TRUCK STOP (Continued) **S102424015**

Local Agency:	15000L
Regional Board:	6V
Chemical:	Diesel
Case Type:	Undefined
Funding:	R
Enforce Type:	N
How Found:	Nuisance Conditions
How Stopped:	Not reported
Cause of Leak:	Overfill
Leak Source:	UNK
Global ID:	T0602900811
Stop Date:	Not reported
Leak Confirm:	10/14/1994
Submit Workplan:	Not reported
Prelim Assess:	Not reported
Pollution Char:	Not reported
Remed Plan:	Not reported
Remed Action:	Not reported
Monitoring:	Not reported
Close Date:	Not reported
Discovered:	10/14/1994
Enforce Date:	1/1/1965
Review Date:	10/6/1999
GW Qualifier:	Not reported
Soil Qualifier:	Not reported
MTBE class:	*
Max MTBE Grnd Wtr:	Not reported
Max MTBE Soil:	Not reported
MTBE Counts:	0
MTBE Fuel:	0
MTBE Tested:	NRQ
Organization Name:	Not reported
Status:	Leak being confirmed
Contact:	Not reported
Interim Action:	Not reported
Pilot Program:	LUST
Lat/Long:	35 / -118.1671357
Staff Initials:	GDC
Local Agency Staff:	SBC
Lead Agency:	Local Agency
Summary:	Not reported
Basin Number:	ANTELOPE VALLEY (6-4
Beneficial:	Not reported
Priority:	Not reported
UST Cleanup Fund ID:	Not reported
Suspended:	Not reported
Local Case Number:	590020
Amount:	Not reported
Abate Method:	Unknown - action taken at site is unknown
Water System:	Not reported
Well Name:	Not reported
Distance:	6355.737247
Wst Disch Reqrmnt Global ID:	Not reported
Wst Disch Reqrmnt Name:	Not reported

HIST CORTESE:

Region:	CORTESE

ANGELS TRUCK STOP (Continued) **S102424015**

Facility County Code: 15
Reg By: LTNKA
Reg Id: 6B1500024T

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3 WSW 1/2-1 0.977 mi. 5157 ft.

Relative: Higher

Actual: 2654 ft.

SILVER QUEEN JUNKYARD
BACK LOT AT 11847 UNITED STREET
MOJAVE, CA 93501

RESPONSE **S100183850**
ENVIROSTOR **N/A**
HIST Cal-Sites
DEED
Cortese
HIST CORTESE

AWP:

AWP Facility ID:	15500002
Region Code:	1
Region:	SACRAMENTO
SMBR Branch Code:	CC
SMBR Branch Unit:	CENTRAL CALIFORNIA
Site Name.:	Not reported
Current Status Date:	10011990
Current Status:	ANNUAL WORKPLAN - ACTIVE SITE
Lead Agency Code:	DTSC
Lead Agency:	DEPT OF TOXIC SUBSTANCES CONTROL
Facility Type:	State orphan site
Awp Site Type:	STATE FUNDED SITE
NPL:	Not Listed
Tier Of AWP Site:	Not reported
Source Of Funding:	C
Responsible Staff Member:	DDOMINGO
Supervisor Responsible:	Not reported
SIC Code:	50
Facility SIC:	WHOLESALE TRADE - DURABLE GOODS
RWQCB Code:	Not reported
RWQCB Associated With Site:	Not reported
Site Access Controlled:	Not reported
Site Listed HWS List:	Not reported
Hazard Ranking Score:	Not reported
Date Site Hazard Ranked:	Not reported
Groundwater Contamination:	N
# Of Contamination Sources:	2
Lat/Long:	Not reported
Lat/Long (dms):	0 0 0 / 0 0 0
Lat/long Method:	Not reported
Description Of Entity:	Not reported
State Assembly Distt Code:	34
State Senate District:	18

RESPONSE:

Facility ID:	15500002
Site Type:	State Response
Site Type Detail:	State Response or NPL
Acres:	21
National Priorities List:	NO
Cleanup Oversight Agencies:	SMBRP
Lead Agency Description:	DTSC - Site Cleanup Program
Project Manager:	Danny Domingo
Supervisor:	Kevin Shaddy
Division Branch:	Cleanup San Joaquin

SILVER QUEEN JUNKYARD (Continued) **S100183850**

Site Code:	100273
Site Mgmt. Req.:	REM, FOUN, DAY, ELD, HOS, LUC, FEN, NOWN, NDAM, NUSE, NDEV, NSUB, SCH, FOOD, RES
Assembly:	36
Senate:	16
Special Program Status:	Not reported
Status:	Certified / Operation & Maintenance
Status Date:	06/30/2006
Restricted Use:	YES
Funding:	Orphan Funds
Latitude:	34.99468
Longitude:	-118.1524
APN:	429-170-05
Past Use:	BATTERY RECLAMATION, OPEN BURN/OPEN DETONATION
Potential COC :	Dioxin (as 2,3,7,8-TCDD TEQ Lead Copper and compounds Zinc
Confirmed COC:	NONE SPECIFIED
Potential Description:	SOIL
Alias Name:	AGAJANIAN PROPERTY
Alias Type:	Alternate Name
Alias Name:	429-170-05
Alias Type:	APN
Alias Name:	110033608479
Alias Type:	EPA (FRS #)
Alias Name:	P14008
Alias Type:	PCode
Alias Name:	100273
Alias Type:	Project Code (Site Code)
Alias Name:	15500002
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Land Use Restriction - Site Inspection/Visit
Completed Date:	04/24/2009
Comments:	Details of inspection are available in a memo to the files from DDomingo

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Certification
Completed Date:	06/30/2006
Comments:	Certification with Operation and Maintenance requirements. Certified for industrial/commerical use and restricted for residential use.

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Land Use Restriction - Site Inspection/Visit
Completed Date:	02/03/2012
Comments:	Not reported

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Land Use Restriction - Site Inspection/Visit
Completed Date:	05/16/2013
Comments:	Memo to File Inspection Memorandum

Completed Area Name:	PROJECT WIDE

SILVER QUEEN JUNKYARD (Continued) **S100183850**

Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction - Site Inspection/Visit
Completed Date: 06/24/2014
Comments: Memo to File reporting inspection of the cap.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction - Site Inspection/Visit
Completed Date: 03/17/2015
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction - Site Inspection/Visit
Completed Date: 09/12/2016
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Completion Report
Completed Date: 06/30/1999
Comments: Excavation of affected soils (contaminated by lead, copper and zinc). Approximately 2000 cubic yards into an onsite consolida- tion pit which was capped. The remediated dreds were cleaned up to industrial levels (1000 mg/kg, 2500 mg/kg and 5000 mg/kg for Pb, Cu and Zu respectively.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Workplan
Completed Date: 12/16/1998
Comments: RAW/CEQA -- APPROVAL OF NEGATIVE DECLARATION FOR REMOVAL ACTION WORKPLAN FOR FINAL REMEDIATION.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Completion Report
Completed Date: 09/24/1996
Comments: RA (FENCE)-- Installation of fence fabric, double wide gate, and posting of signs. Approximately 500 feet of fence fabric reinstalled.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Completion Report
Completed Date: 08/23/1994
Comments: Applied polymer seal to site. Activity was paid for by DTSC.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation / Feasibility Study
Completed Date: 08/20/1993
Comments: RI/FS -- completed and approved by Department. Total approx. cost = $30,000 (RP funded).

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Completion Report

SILVER QUEEN JUNKYARD (Continued) **S100183850**

Completed Date: 07/23/1990
Comments: Application of Polymer Coating over the waste piles and contaminated surface soil. Approximately 5 acres of area were stablized with the polymer.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Plan
Completed Date: 06/29/2006
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Plan
Completed Date: 07/05/2007
Comments: The Interim Operation and Maintenence Plan originally adopted in June of 2006 and included as an attachment to the Certification Package was updated as a Stand Alone Document.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: 5 Year Review Reports
Completed Date: 06/11/2015
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction - Site Inspection/Visit
Completed Date: 06/28/2011
Comments: Annual Inspection of the site and capped area. Note: Fence around the perimeter of the capped area has been removed by theft.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: CEQA - Initial Study/ Neg. Declaration
Completed Date: 12/16/1998
Comments: Intial Study and Notice of Determination for the Remedial Action Plan

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Final Determination of Non-Compliance
Completed Date: 06/28/1993
Comments: ORDER - DTSC issued a Final Determination of Non-Compliance with I&SE Order. The Determination of Non-Compliance was issued for the RP's failue to submit required reports to DTSC.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Unilateral Order (I/SE, RAO, CAO, EPA AO)
Completed Date: 02/27/1991
Comments: Imminent and Substantial Endangerment and Remedial Action Order Issued to the owner of the property.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction
Completed Date: 12/22/2005

SILVER QUEEN JUNKYARD (Continued) **S100183850**

Comments: Pursuant to Case No. CCV 96 5176 REC SMC; Federal Court Order Restricting use of Property. The Order included DTSC's Land Use Restrictions requirements as the basis for the land use restriction. Order signed on December 22, 2005. Order received by DTSC on January 09, 2006 and recorded at Kern County Recorder's office on January 10, 2006.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Triage Meeting
Completed Date: 06/16/2015
Comments: Not reported

Future Area Name: PROJECT WIDE
Future Sub Area Name: Not reported
Future Document Type: 5 Year Review Reports
Future Due Date: 2020
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

ENVIROSTOR:
Facility ID: 15500002
Status: Certified / Operation & Maintenance
Status Date: 06/30/2006
Site Code: 100273
Site Type: State Response
Site Type Detailed: State Response or NPL
Acres: 21
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Danny Domingo
Supervisor: Kevin Shaddy
Division Branch: Cleanup San Joaquin
Assembly: 36
Senate: 16
Special Program: Not reported
Restricted Use: YES
Site Mgmt Req: REM, FOUN, DAY, ELD, HOS, LUC, FEN, NOWN, NDAM, NUSE, NDEV, NSUB, SCH, FOOD, RES
Funding: Orphan Funds
Latitude: 34.99468
Longitude: -118.1524
APN: 429-170-05
Past Use: BATTERY RECLAMATION, OPEN BURN/OPEN DETONATION
Potential COC: Dioxin (as 2,3,7,8-TCDD TEQ Lead Copper and compounds Zinc
Confirmed COC: NONE SPECIFIED
Potential Description: SOIL
Alias Name: AGAJANIAN PROPERTY
Alias Type: Alternate Name
Alias Name: 429-170-05
Alias Type: APN
Alias Name: 110033608479
Alias Type: EPA (FRS #)

SILVER QUEEN JUNKYARD (Continued) **S100183850**

Alias Name: P14008
Alias Type: PCode
Alias Name: 100273
Alias Type: Project Code (Site Code)
Alias Name: 15500002
Alias Type: Envirostor ID Number

Completed Info:

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction - Site Inspection/Visit
Completed Date: 04/24/2009
Comments: Details of inspection are available in a memo to the files from DDomingo

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Certification
Completed Date: 06/30/2006
Comments: Certification with Operation and Maintenance requirements. Certified for industrial/commerical use and restricted for residential use.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction - Site Inspection/Visit
Completed Date: 02/03/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction - Site Inspection/Visit
Completed Date: 05/16/2013
Comments: Memo to File Inspection Memorandum

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction - Site Inspection/Visit
Completed Date: 06/24/2014
Comments: Memo to File reporting inspection of the cap.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction - Site Inspection/Visit
Completed Date: 03/17/2015
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction - Site Inspection/Visit
Completed Date: 09/12/2016
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Completion Report
Completed Date: 06/30/1999
Comments: Excavation of affected soils (contaminated by lead, copper and zinc). Approximately 2000 cubic yards into an onsite consolida- tion pit

SILVER QUEEN JUNKYARD (Continued) **S100183850**

which was capped. The remediated dreds were cleaned up to industrial levels (1000 mg/kg, 2500 mg/kg and 5000 mg/kg for Pb, Cu and Zu respectively.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Workplan
Completed Date: 12/16/1998
Comments: RAW/CEQA -- APPROVAL OF NEGATIVE DECLARATION FOR REMOVAL ACTION WORKPLAN FOR FINAL REMEDIATION.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Completion Report
Completed Date: 09/24/1996
Comments: RA (FENCE)-- Installation of fence fabric, double wide gate, and posting of signs. Approximately 500 feet of fence fabric reinstalled.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Completion Report
Completed Date: 08/23/1994
Comments: Applied polymer seal to site. Activity was paid for by DTSC.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation / Feasibility Study
Completed Date: 08/20/1993
Comments: RI/FS -- completed and approved by Department. Total approx. cost = $30,000 (RP funded).

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Completion Report
Completed Date: 07/23/1990
Comments: Application of Polymer Coating over the waste piles and contaminated surface soil. Approximately 5 acres of area were stablized with the polymer.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Plan
Completed Date: 06/29/2006
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Plan
Completed Date: 07/05/2007
Comments: The Interim Operation and Maintenence Plan originally adopted in June of 2006 and included as an attachment to the Certification Package was updated as a Stand Alone Document.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: 5 Year Review Reports
Completed Date: 06/11/2015

SILVER QUEEN JUNKYARD (Continued) **S100183850**

Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction - Site Inspection/Visit
Completed Date: 06/28/2011
Comments: Annual Inspection of the site and capped area. Note: Fence around the perimeter of the capped area has been removed by theft.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: CEQA - Initial Study/ Neg. Declaration
Completed Date: 12/16/1998
Comments: Intial Study and Notice of Determination for the Remedial Action Plan

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Final Determination of Non-Compliance
Completed Date: 06/28/1993
Comments: ORDER - DTSC issued a Final Determination of Non-Compliance with I&SE Order. The Determination of Non-Compliance was issued for the RP's failue to submit required reports to DTSC.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Unilateral Order (I/SE, RAO, CAO, EPA AO)
Completed Date: 02/27/1991
Comments: Imminent and Substantial Endangerment and Remedial Action Order Issued to the owner of the property.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction
Completed Date: 12/22/2005
Comments: Pursuant to Case No. CCV 96 5176 REC SMC; Federal Court Order Restricting use of Property. The Order included DTSC's Land Use Restrictions requirements as the basis for the land use restriction. Order signed on December 22, 2005. Order received by DTSC on January 09, 2006 and recorded at Kern County Recorder's office on January 10, 2006.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Triage Meeting
Completed Date: 06/16/2015
Comments: Not reported

Future Area Name: PROJECT WIDE
Future Sub Area Name: Not reported
Future Document Type: 5 Year Review Reports
Future Due Date: 2020
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

SILVER QUEEN JUNKYARD (Continued) **S100183850**

Calsite:

Region:	SACRAMENTO
Facility ID:	15500002
Facility Type:	STATE
Type:	STATE FUNDED SITE
Branch:	CC
Branch Name:	CENTRAL CALIFORNIA
File Name:	Not reported
State Senate District:	10011990
Status:	ANNUAL WORKPLAN (AWP) - ACTIVE SITE
Status Name:	ANNUAL WORKPLAN - ACTIVE SITE
Lead Agency:	DEPT OF TOXIC SUBSTANCES CONTROL
NPL:	Not Listed
SIC Code:	50
SIC Name:	WHOLESALE TRADE - DURABLE GOODS
Access:	Not reported
Cortese:	Not reported
Hazardous Ranking Score:	Not reported
Date Site Hazard Ranked:	Not reported
Groundwater Contamination:	Unknown
Staff Member Responsible for Site:	DDOMINGO
Supervisor Responsible for Site:	Not reported
Region Water Control Board:	Not reported
Region Water Control Board Name:	Not reported
Lat/Long Direction:	Not reported
Lat/Long (dms):	0 0 0 / 0 0 0
Lat/long Method:	Not reported
Lat/Long Description:	Not reported
State Assembly District Code:	34
State Senate District Code:	18
Facility ID:	15500002
Activity:	FDNC
Activity Name:	FINAL DETERMINATION OF NON-COMPLIANCE
AWP Code:	Not reported
Proposed Budget:	0
AWP Completion Date:	Not reported
Revised Due Date:	Not reported
Comments Date:	06281993
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15500002
Activity:	RIFS
Activity Name:	REMEDIAL INVESTIGATION / FEASIBILITY STUDY

SILVER QUEEN JUNKYARD (Continued) **S100183850**

AWP Code:	Not reported
Proposed Budget:	0
AWP Completion Date:	Not reported
Revised Due Date:	Not reported
Comments Date:	08201993
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15500002
Activity:	ERA
Activity Name:	EXPEDITED RESPONSE ACTION
AWP Code:	POLYM
Proposed Budget:	0
AWP Completion Date:	Not reported
Revised Due Date:	Not reported
Comments Date:	07231990
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	N
Activity Comments:	POLYMER COATING WAS APPLIED ON PORTIONS OF THE PROPERTY. BULK OF WORKDONE MAY 1990, WITH SOME RESIDUAL WORK DONE JULY 1990.
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15500002
Activity:	ORDER
Activity Name:	I/SE, IORSE, FFA, FFSRA, VCA, EA
AWP Code:	ISE
Proposed Budget:	0
AWP Completion Date:	Not reported
Revised Due Date:	Not reported
Comments Date:	02271991
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported

SILVER QUEEN JUNKYARD (Continued) **S100183850**

Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15500002
Activity:	RA
Activity Name:	REMOVAL ACTION
AWP Code:	SEAL
Proposed Budget:	0
AWP Completion Date:	Not reported
Revised Due Date:	Not reported
Comments Date:	08231994
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	N
Activity Comments:	APPLIED POLYMER SEAL TO SITE AS AN ENFORCEMENT ACTION TO PREVENT THEOFF-SITE MIGRATION OF THE CONTAMINANTS FROM THE SITE.
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15500002
Activity:	RA
Activity Name:	REMOVAL ACTION
AWP Code:	FENCE
Proposed Budget:	0
AWP Completion Date:	Not reported
Revised Due Date:	Not reported
Comments Date:	09241996
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	X
Removal Action Certification:	N

SILVER QUEEN JUNKYARD (Continued) **S100183850**

Activity Comments:	INSTALLATION OF FENCE FABRIC, DOUBLE WIDE GATE, AND POSTING OF SIGNS.
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15500002
Activity:	RAW
Activity Name:	REMOVAL ACTION WORKPLAN
AWP Code:	Not reported
Proposed Budget:	0
AWP Completion Date:	Not reported
Revised Due Date:	Not reported
Comments Date:	12161998
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15500002
Activity:	RA
Activity Name:	REMOVAL ACTION
AWP Code:	Not reported
Proposed Budget:	0
AWP Completion Date:	Not reported
Revised Due Date:	Not reported
Comments Date:	06301999
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	2000
Liquids Treated (Gals):	0
Action Included Capping:	X
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	N
Activity Comments:	EXCAVATION OF LEAD, COPPER AND ZINC CONTAMINATED SOILS.
For Commercial Reuse:	25
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15500002
Activity:	CERT
Activity Name:	CERTIFICATION
AWP Code:	Not reported

SILVER QUEEN JUNKYARD (Continued) **S100183850**

Proposed Budget:	0
AWP Completion Date:	07302005
Revised Due Date:	Not reported
Comments Date:	Not reported
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15500002
Activity:	CEQA
Activity Name:	CEQA INCLUDING NEGATIVE DECS
AWP Code:	Not reported
Proposed Budget:	0
AWP Completion Date:	Not reported
Revised Due Date:	Not reported
Comments Date:	12161998
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Alternate Address:	UNITED ST & SILVER QUEEN RD EXTENSION
Alternate City,St,Zip:	MOJAVE, CA 93501
Alternate Address:	BACK LOT AT 11847 UNITED STREET
Alternate City,St,Zip:	MOJAVE, CA 93501
Background Info:	The Silver Queen Junkyard, also known as the Agajanian property, is an approximately 20 acre parcel located west of the in the intersection of United Road and Silver Queen Road Extension, and is approximately 4 miles south of the town of Mojave in Kern County. The site of the former metal recovery business is located at the western end of the parcel and is an area approximately five to six acres in size. Early operators of the site recovered metal from shredded automobile seats, batteries and copper wire. The site operated

SILVER QUEEN JUNKYARD (Continued) **S100183850**

from the late 1960 to mid-1970. Waste generated from the recovery process was piled on the ground surface. The piles were comprised of auto battery cases, ash containing heavy metals, wire and various debris.
In 1990 a polymer coating was sprayed onto the waste piles to prevent airborne migration of the ash. Investigation of the waste piles and surface soil indicated hazardous concentrations of lead, copper and zinc in the surface soil and ash piles.
In February 1991, DTSC issued an Imminent or Substantial to the owner of the proprety. In June 1993, DTSC issued a Final Determination of Non-Compliance with the I&SE Order. Subsequently, the RP completed a Remedial Investigation and Feasibility Study (RIFS), which DTSC approved in August of 1993. DTSC referred the site to the Attorney General's office for recovery of past costs and injunctive relief in 1996, obtained summary judgement against the RP in 1997 and placed a lien on the property in 1997.
In 1998 a Remedial Action Workplan was prepared and approved in December 1998. Removal actions were conducted and completed in June 1999. The removal action involved consolidating and capping approximately 2,000 cubic yards of contaminated soil on-site. The cap is composed of reinforced concrete, occupies an area approximately 240 feet long by 70 feet wide, and is located in near the southwest corner of the state.
The affected area has been remediated to industrial clean levels of 1,000 mg/kg, 2,500 mg/kg and 5,000 mg/kg, respectively for lead, copper and zinc.

Comments Date: 05301990
Comments: ERA: Polymer coating.
Comments Date: 06281993
Comments: ORDER - DTSC issued a Final Determination of Non-Compliance
Comments Date: 06281993
Comments: with I&SE Order. The Determination of Non-Compliance was
Comments Date: 06281993
Comments: issued for the RP's failue to submit required reports to
Comments Date: 06281993
Comments: DTSC.
Comments Date: 06301999
Comments: Excavation of affected soils (contaminated by lead, copper and
Comments Date: 06301999
Comments: zinc). Approximately 2000 cubic yards into an onsite consolida-
Comments Date: 06301999
Comments: tion pit which was capped. The remediated dreds were cleaned up
Comments Date: 06301999
Comments: to industrial levels (1000 mg/kg, 2500 mg/kg and 5000 mg/kg
Comments Date: 06301999
Comments: for Pb, Cu and Zu respectively.
Comments Date: 07251991
Comments: Metal recovery business. Contaminants include Pb, Ni, Cu,
Comments Date: 07251991
Comments: dioxins, and furans.
Comments Date: 08201993
Comments: RI/FS -- completed and approved by Department. Total
Comments Date: 08201993
Comments: approx. cost = $30,000 (RP funded).
Comments Date: 08201993
Comments: Not reported

SILVER QUEEN JUNKYARD (Continued) **S100183850**

Comments Date: 08201993
Comments: Not reported
Comments Date: 08231994
Comments: Applied polymer seal to site. Activity was paid for by DTSC.
Comments Date: 09241996
Comments: RA (FENCE)-- Installation of fence fabric, double wide
Comments Date: 09241996
Comments: gate, and posting of signs. Approximately 500 feet of
Comments Date: 09241996
Comments: fence fabric reinstalled.
Comments Date: 12161998
Comments: RAW/CEQA -- APPROVAL OF NEGATIVE DECLARATION FOR REMOVAL
Comments Date: 12161998
Comments: ACTION WORKPLAN FOR FINAL REMEDIATION.
ID Name: BEP DATABASE PCODE
ID Value: P14008
ID Name: CALSTARS CODE
ID Value: 100273
Alternate Name: SILVER QUEEN JUNKYARD
Alternate Name: AGAJANIAN PROPERTY
Alternate Name: Not reported
Special Programs Code: Not reported
Special Programs Name: Not reported

DEED:
Envirostor ID: 15500002
Area: PROJECT WIDE
Sub Area: Not reported
Site Type: STATE RESPONSE
Status: CERTIFIED / OPERATION & MAINTENANCE
Agency: Not reported
Covenant Uploaded: Not reported
Deed Date(s): 12/22/2005

CORTESE:
Region: CORTESE
Envirostor Id: 15500002
Site/Facility Type: STATE RESPONSE
Cleanup Status: CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS
Status Date: 06/30/2006
Site Code: 100273
Latitude: 34.994682
Longitude: -118.15245
Owner: Not reported
Enf Type: Not reported
Swat R: Not reported
Flag: envirostor
Order No: Not reported
Waste Discharge System No: Not reported
Effective Date: Not reported
Region 2: Not reported
WID Id: Not reported
Solid Waste Id No: Not reported
Waste Management Uit Name: Not reported

SILVER QUEEN JUNKYARD (Continued) **S100183850**

HIST CORTESE:

Region:	CORTESE
Facility County Code:	15
Reg By:	CALSI
Reg Id:	15500002

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 12/05/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 29

Source: EPA
Telephone: N/A
Last EDR Contact: 01/05/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 12/05/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 29

Source: EPA
Telephone: N/A
Last EDR Contact: 01/05/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/05/2016	Source: EPA
Date Data Arrived at EDR: 01/05/2017	Telephone: N/A
Date Made Active in Reports: 02/03/2017	Last EDR Contact: 01/05/2017
Number of Days to Update: 29	Next Scheduled EDR Contact: 04/17/2017
	Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 09/14/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/04/2016	Telephone: 703-603-8704
Date Made Active in Reports: 10/21/2016	Last EDR Contact: 01/05/2017
Number of Days to Update: 17	Next Scheduled EDR Contact: 04/17/2017
	Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/10/2016	Source: EPA
Date Data Arrived at EDR: 10/20/2016	Telephone: 800-424-9346
Date Made Active in Reports: 01/06/2017	Last EDR Contact: 01/06/2017
Number of Days to Update: 78	Next Scheduled EDR Contact: 05/01/2017
	Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 10/10/2016
Date Data Arrived at EDR: 10/20/2016
Date Made Active in Reports: 01/06/2017
Number of Days to Update: 78

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 01/06/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/28/2016
Date Made Active in Reports: 01/06/2017
Number of Days to Update: 100

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/28/2016
Date Made Active in Reports: 01/06/2017
Number of Days to Update: 100

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/28/2016
Date Made Active in Reports: 01/06/2017
Number of Days to Update: 100

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/28/2016
Date Made Active in Reports: 01/06/2017
Number of Days to Update: 100

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/28/2016
Date Made Active in Reports: 01/06/2017
Number of Days to Update: 100

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/28/2015
Date Data Arrived at EDR: 05/29/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 13

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 11/18/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 11/15/2016
Date Data Arrived at EDR: 11/29/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 11/29/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 11/15/2016
Date Data Arrived at EDR: 11/29/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 11/29/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 09/29/2016
Date Made Active in Reports: 11/11/2016
Number of Days to Update: 43

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Annually

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 10/31/2016
Date Data Arrived at EDR: 11/01/2016
Date Made Active in Reports: 01/18/2017
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 10/31/2016
Date Data Arrived at EDR: 11/01/2016
Date Made Active in Reports: 01/18/2017
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 11/14/2016
Date Data Arrived at EDR: 11/15/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 66

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 11/15/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST: Geotracker's Leaking Underground Fuel Tank Report
Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 37

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 12/14/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Quarterly

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 01/07/2016
Date Data Arrived at EDR: 01/08/2016
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 41

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 02/25/2016
Date Data Arrived at EDR: 04/27/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/13/2015
Date Data Arrived at EDR: 10/23/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 118

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 10/09/2015
Date Data Arrived at EDR: 02/12/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 112

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 12/11/2015
Date Data Arrived at EDR: 02/19/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 105

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 02/05/2016
Date Data Arrived at EDR: 04/29/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 35

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/24/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/27/2015
Date Data Arrived at EDR: 10/29/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 67

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 02/17/2016
Date Data Arrived at EDR: 04/27/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 37

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

SLIC: Statewide SLIC Cases

Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 40

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/14/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Varies

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 12/15/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 12/22/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 01/26/2016
Date Data Arrived at EDR: 02/05/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 119

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 09/23/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 65

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 12/03/2015
Date Data Arrived at EDR: 02/04/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 120

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/20/2015
Date Data Arrived at EDR: 10/29/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 67

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 02/05/2016
Date Data Arrived at EDR: 04/29/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 35

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 01/24/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 11/05/2015
Date Data Arrived at EDR: 11/13/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 52

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 01/07/2016
Date Data Arrived at EDR: 01/08/2016
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 41

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 02/25/2016
Date Data Arrived at EDR: 04/27/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 37

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

State and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 12/27/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 10/31/2016
Date Data Arrived at EDR: 11/01/2016
Date Made Active in Reports: 01/18/2017
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfieds Sites Listing
A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 02/29/2016
Date Data Arrived at EDR: 03/07/2016
Date Made Active in Reports: 05/04/2016
Number of Days to Update: 58

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 01/04/2017
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 09/20/2016
Date Data Arrived at EDR: 09/21/2016
Date Made Active in Reports: 11/11/2016
Number of Days to Update: 51

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 12/20/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/14/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 08/25/2016
Date Data Arrived at EDR: 08/26/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 49

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 11/11/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 10/31/2016
Next Scheduled EDR Contact: 02/13/2017
Data Release Frequency: Varies

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 08/31/2016
Date Data Arrived at EDR: 09/06/2016
Date Made Active in Reports: 09/23/2016
Number of Days to Update: 17

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/29/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 10/31/2016
Date Data Arrived at EDR: 11/01/2016
Date Made Active in Reports: 01/18/2017
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 08/31/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 34

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 08/30/2016
Date Data Arrived at EDR: 09/06/2016
Date Made Active in Reports: 09/23/2016
Number of Days to Update: 17

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/29/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Quarterly

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 12/01/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 35

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 11/28/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 11/29/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 48

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 01/24/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 12/06/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 45

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 12/06/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/28/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 37

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 01/17/2017
Number of Days to Update: 83

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 01/25/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 37

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/14/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 37

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/14/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/28/2016
Date Made Active in Reports: 01/06/2017
Number of Days to Update: 100

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015
Date Data Arrived at EDR: 07/08/2015
Date Made Active in Reports: 10/13/2015
Number of Days to Update: 97

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 12/08/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 01/31/2017
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 10/11/2016
Date Data Arrived at EDR: 11/16/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 04/22/2013
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 11/11/2016
Next Scheduled EDR Contact: 02/20/2017
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/15/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 14

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 12/23/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 11/24/2015
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 133

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 11/22/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 12/06/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 08/01/2016
Date Data Arrived at EDR: 08/22/2016
Date Made Active in Reports: 11/11/2016
Number of Days to Update: 81

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 11/07/2016
Next Scheduled EDR Contact: 02/20/2017
Data Release Frequency: Quarterly

PADS: PCB Activity Database System
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 01/20/2016
Date Data Arrived at EDR: 04/28/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 127

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/27/2016
Date Data Arrived at EDR: 08/05/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 11/17/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 11/17/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Quarterly

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/2016
Date Data Arrived at EDR: 09/08/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 43

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 12/06/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 12/06/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 01/29/2016
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 10/03/2016
Date Data Arrived at EDR: 10/05/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 16

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 01/06/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 02/01/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 09/30/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 77

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

BRS: Biennial Reporting System
The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 02/24/2015
Date Made Active in Reports: 09/30/2015
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 11/23/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program
DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 07/21/2016
Date Data Arrived at EDR: 07/26/2016
Date Made Active in Reports: 09/23/2016
Number of Days to Update: 59

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites
Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 09/09/2016
Next Scheduled EDR Contact: 12/05/2016
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites
A listing of former lead smelter site locations.

Date of Government Version: 03/07/2016
Date Data Arrived at EDR: 04/07/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 148

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 01/05/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites
A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)
The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 12/22/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 12/22/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Annually

US MINES: Mines Master Index File
Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/05/2016
Date Data Arrived at EDR: 09/01/2016
Date Made Active in Reports: 09/23/2016
Number of Days to Update: 22

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 12/01/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing
This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 12/12/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Varies

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/15/2016
Date Data Arrived at EDR: 09/07/2016
Date Made Active in Reports: 11/11/2016
Number of Days to Update: 65

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 12/06/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 06/02/2016
Date Data Arrived at EDR: 06/03/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 91

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 11/28/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 10/25/2015
Date Data Arrived at EDR: 01/29/2016
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 67

Source: Department of Defense
Telephone: 571-373-0407
Last EDR Contact: 01/20/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Varies

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 09/27/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 52

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 09/02/2016
Date Data Arrived at EDR: 09/27/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 79

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 09/23/2016
Date Made Active in Reports: 10/24/2016
Number of Days to Update: 31

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 12/23/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 12/06/2016
Date Data Arrived at EDR: 12/09/2016
Date Made Active in Reports: 01/18/2017
Number of Days to Update: 40

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 04/25/2016
Date Data Arrived at EDR: 04/29/2016
Date Made Active in Reports: 06/21/2016
Number of Days to Update: 53

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 11/16/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 63

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 11/11/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 10/12/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 64

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Annually

ICE: ICE
Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 11/21/2016
Date Data Arrived at EDR: 11/22/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 62

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 11/22/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List
The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing
Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 11/21/2016
Date Data Arrived at EDR: 11/22/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 62

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/22/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database
A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/12/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 64

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 01/11/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing
A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Varies

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 09/06/2016
Date Data Arrived at EDR: 09/07/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 37

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 12/06/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 05/16/2016
Date Data Arrived at EDR: 05/18/2016
Date Made Active in Reports: 06/23/2016
Number of Days to Update: 36

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 11/15/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing
A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 09/06/2016
Date Data Arrived at EDR: 09/07/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 37

Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 12/06/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/14/2016
Next Scheduled EDR Contact: 12/26/2016
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 09/19/2016
Date Data Arrived at EDR: 09/20/2016
Date Made Active in Reports: 12/16/2016
Number of Days to Update: 87

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 12/16/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: No Update Planned

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30

Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 12/14/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water board?s review found that more than one-third of the region?s active disposal pits are operating without permission.

Date of Government Version: 04/15/2015
Date Data Arrived at EDR: 04/17/2015
Date Made Active in Reports: 06/23/2015
Number of Days to Update: 67

Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 04/24/2047
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Quarterly

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 12/22/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines
An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 06/09/2016
Date Data Arrived at EDR: 06/13/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 81

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 12/09/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information
ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 09/18/2016
Date Data Arrived at EDR: 09/20/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 12/20/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Quarterly

FUELS PROGRAM: EPA Fuels Program Registered Listing
This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 11/21/2016
Date Data Arrived at EDR: 11/22/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 73

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 11/22/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Quarterly

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank
The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites
A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/14/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 35

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/06/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Semi-Annually

Underground Tanks
Underground storage tank sites located in Alameda county.

Date of Government Version: 10/10/2016
Date Data Arrived at EDR: 10/12/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 90

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2047
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA Facility List
Cupa Facility List

Date of Government Version: 11/10/2016
Date Data Arrived at EDR: 12/13/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 9

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing
Cupa facility list.

Date of Government Version: 10/21/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 23

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 10/25/2016
Date Data Arrived at EDR: 10/27/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 22

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 12/27/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 09/02/2016
Date Data Arrived at EDR: 09/06/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 38

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Varies

CONTRA COSTA COUNTY:

Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 11/17/2016
Date Data Arrived at EDR: 11/22/2016
Date Made Active in Reports: 01/26/2017
Number of Days to Update: 65

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA Facility List
Cupa Facility list

Date of Government Version: 11/01/2016
Date Data Arrived at EDR: 11/03/2016
Date Made Active in Reports: 11/22/2016
Number of Days to Update: 19

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 11/22/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 01/17/2017
Number of Days to Update: 55

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 10/11/2016
Date Data Arrived at EDR: 10/14/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 35

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 01/03/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Semi-Annually

HUMBOLDT COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 10/25/2016
Date Data Arrived at EDR: 10/27/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 22

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 11/21/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

IMPERIAL COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 10/24/2016
Date Data Arrived at EDR: 10/27/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 22

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INYO COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 09/11/2013
Date Made Active in Reports: 10/14/2013
Number of Days to Update: 33

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing

Kern County Sites and Tanks Listing.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 11/08/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 63

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/14/2016
Date Data Arrived at EDR: 12/16/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 6

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 09/08/2016
Date Data Arrived at EDR: 09/09/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 35

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 01/17/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Varies

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 12/15/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: No Update Planned

HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 11/14/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 66

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 10/17/2016
Date Data Arrived at EDR: 10/18/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 58

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 01/18/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Varies

City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2016
Date Data Arrived at EDR: 01/26/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 56

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 01/17/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Varies

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 03/29/2016
Date Data Arrived at EDR: 04/06/2016
Date Made Active in Reports: 06/13/2016
Number of Days to Update: 68

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 01/17/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 03/30/2015
Date Data Arrived at EDR: 04/02/2015
Date Made Active in Reports: 04/13/2015
Number of Days to Update: 11

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 01/17/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 11/04/2015
Date Data Arrived at EDR: 11/13/2015
Date Made Active in Reports: 12/17/2015
Number of Days to Update: 34

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Annually

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 10/04/2016
Date Data Arrived at EDR: 10/11/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 93

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/05/2016
Date Data Arrived at EDR: 12/09/2016
Date Made Active in Reports: 01/19/2017
Number of Days to Update: 41

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 10/19/2016
Date Data Arrived at EDR: 10/25/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 79

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 01/17/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 12/02/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 01/17/2017
Number of Days to Update: 42

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List
CUPA Facility List

Date of Government Version: 11/29/2016
Date Data Arrived at EDR: 12/05/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 17

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 11/28/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 06/24/2016
Date Data Arrived at EDR: 06/27/2016
Date Made Active in Reports: 08/09/2016
Number of Days to Update: 43

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 11/21/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 12/05/2011
Date Data Arrived at EDR: 12/06/2011
Date Made Active in Reports: 02/07/2012
Number of Days to Update: 63

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 11/28/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 11/08/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 44

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 11/03/2016
Date Data Arrived at EDR: 11/11/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 73

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 11/04/2016
Date Data Arrived at EDR: 11/11/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 73

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 11/03/2016
Date Data Arrived at EDR: 11/08/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 65

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/07/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 09/02/2016
Date Data Arrived at EDR: 09/06/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 38

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 10/20/2016
Date Data Arrived at EDR: 10/25/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 51

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/19/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 10/20/2016
Date Data Arrived at EDR: 10/25/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 77

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/19/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 08/22/2016
Date Data Arrived at EDR: 10/04/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 45

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/05/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 08/22/2016
Date Data Arrived at EDR: 10/04/2016
Date Made Active in Reports: 12/16/2016
Number of Days to Update: 73

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/05/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 09/06/2016
Date Data Arrived at EDR: 09/07/2016
Date Made Active in Reports: 10/19/2016
Number of Days to Update: 42

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database
The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 09/23/2013
Date Data Arrived at EDR: 09/24/2013
Date Made Active in Reports: 10/17/2013
Number of Days to Update: 23

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 12/06/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Quarterly

Solid Waste Facilities
San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2015
Date Data Arrived at EDR: 11/07/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 58

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

Environmental Case Listing
The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/16/2016
Date Data Arrived at EDR: 11/21/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 52

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 09/21/2016
Date Data Arrived at EDR: 09/22/2016
Date Made Active in Reports: 10/18/2016
Number of Days to Update: 26

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 12/15/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 11/17/2016
Date Data Arrived at EDR: 11/21/2016
Date Made Active in Reports: 01/19/2017
Number of Days to Update: 59

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

SAN MATEO COUNTY:

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 06/02/2016
Date Data Arrived at EDR: 06/07/2016
Date Made Active in Reports: 06/22/2016
Number of Days to Update: 15

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 06/09/2016
Date Data Arrived at EDR: 06/13/2016
Date Made Active in Reports: 08/09/2016
Number of Days to Update: 57

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 12/09/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List
Cupa facility list

Date of Government Version: 11/16/2016
Date Data Arrived at EDR: 11/21/2016
Date Made Active in Reports: 01/19/2017
Number of Days to Update: 59

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 11/28/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Annually

Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 11/10/2016
Date Made Active in Reports: 01/24/2017
Number of Days to Update: 75

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List
CUPA facility listing.

Date of Government Version: 11/16/2016
Date Data Arrived at EDR: 11/21/2016
Date Made Active in Reports: 01/19/2017
Number of Days to Update: 59

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/15/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 29

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 11/21/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 11/29/2016
Date Data Arrived at EDR: 12/21/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 1

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 12/09/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 11/29/2016
Date Data Arrived at EDR: 12/22/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 19

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 12/09/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List
Cupa Facility list

Date of Government Version: 09/27/2016
Date Data Arrived at EDR: 09/28/2016
Date Made Active in Reports: 11/22/2016
Number of Days to Update: 55

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 12/22/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites

A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 10/04/2016
Date Data Arrived at EDR: 10/06/2016
Date Made Active in Reports: 12/16/2016
Number of Days to Update: 71

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 12/22/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 12/02/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 35

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Semi-Annually

TUOLUMNE COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 10/27/2016
Date Data Arrived at EDR: 10/28/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 74

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 10/27/2016
Date Made Active in Reports: 01/17/2017
Number of Days to Update: 82

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/30/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 11/14/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: Quarterly

Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 10/27/2016
Date Made Active in Reports: 01/24/2017
Number of Days to Update: 89

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 11/28/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 29

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/14/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 11/14/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 55

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 01/03/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Annually

YUBA COUNTY:

CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 10/28/2016
Date Data Arrived at EDR: 11/03/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 42

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013
Date Data Arrived at EDR: 08/19/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 11/11/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 09/29/2016
Date Made Active in Reports: 01/03/2017
Number of Days to Update: 96

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 10/01/2016
Date Data Arrived at EDR: 11/02/2016
Date Made Active in Reports: 01/04/2017
Number of Days to Update: 63

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 02/01/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 07/22/2016
Date Made Active in Reports: 11/22/2016
Number of Days to Update: 123

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 01/12/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 06/19/2015
Date Made Active in Reports: 07/15/2015
Number of Days to Update: 26

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 11/21/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 04/14/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 50

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 12/12/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: PennWell Corporation
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data
Source: PennWell Corporation
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

GABRYCH TERRAGEN
APN 428-020-07
MOJAVE, CA 93501

TARGET PROPERTY COORDINATES

Latitude (North):	35.029294 - 35˚ 1' 45.46''
Longitude (West):	118.127274 - 118˚ 7' 38.19''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	397166.4
UTM Y (Meters):	3876674.8
Elevation:	2634 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5639196 MOJAVE, CA
Version Date:	2012
Northeast Map:	5639204 SANBORN, CA
Version Date:	2012

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

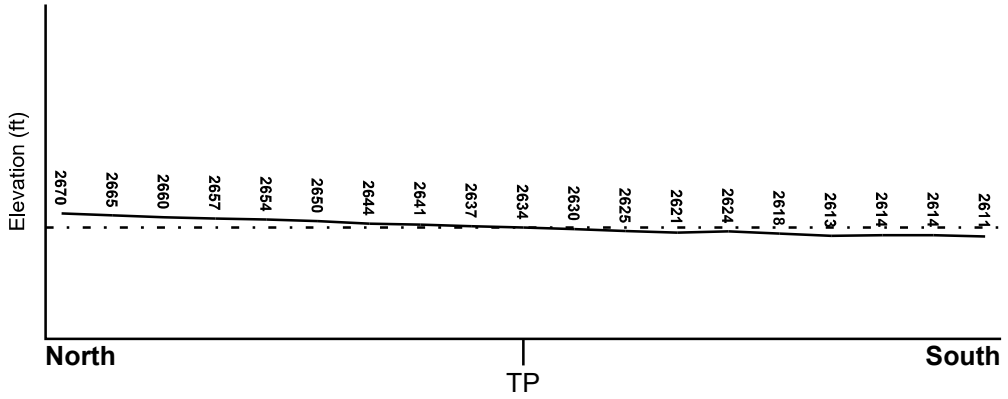
TOPOGRAPHIC INFORMATION

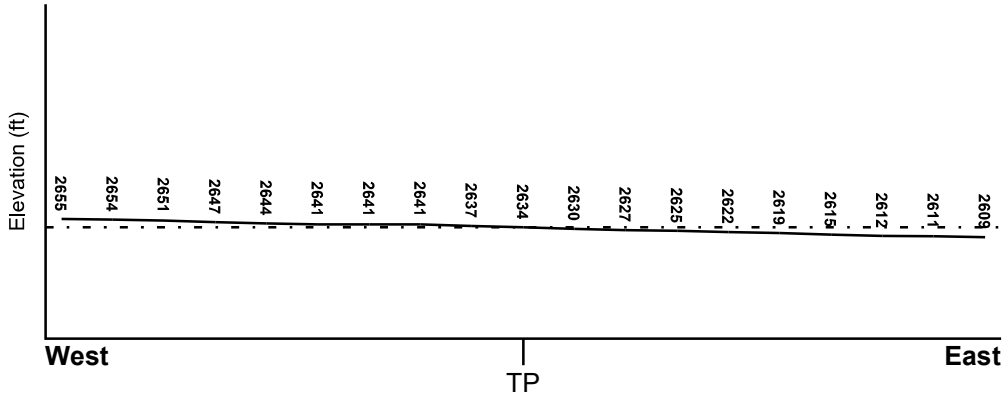
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

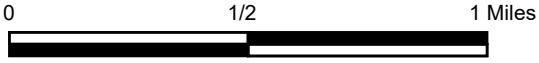
General Topographic Gradient: General SE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





Target Property Elevation: 2634 ft.



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06029C3295E	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
06029C3325E	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
MOJAVE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

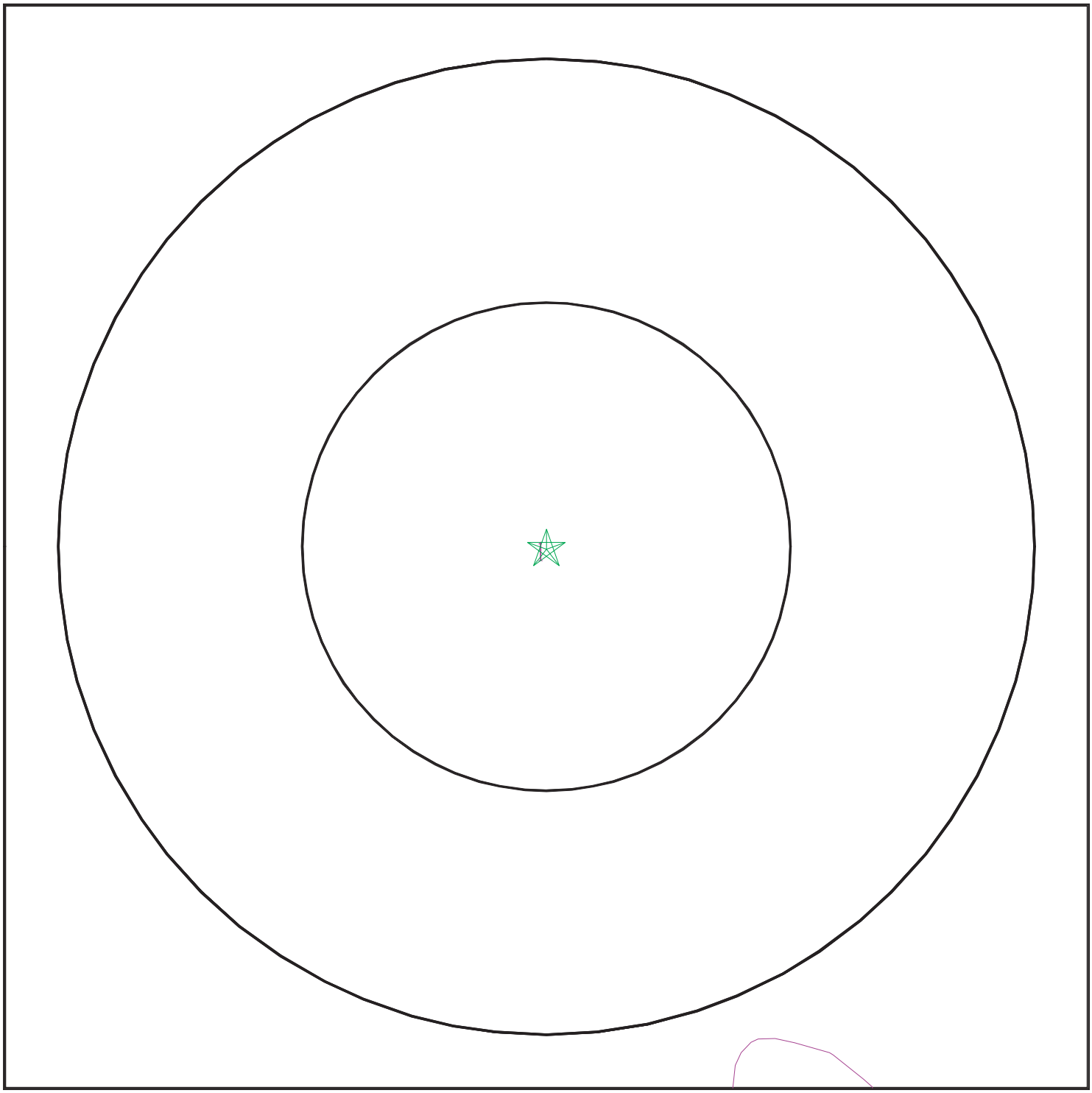
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 4850863.2s



Target Property

SSURGO Soil

Water

0 1/16 1/8 1/4 Miles

SITE NAME:	Gabrych Terragen	CLIENT:	Partner Engineering and Science, Inc.
ADDRESS:	APN 428-020-07 Mojave CA 93501	CONTACT:	Adrian Rivas
		INQUIRY #:	4850863.2s
LAT/LONG:	35.029294 / 118.127274	DATE:	February 10, 2017 12:04 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: GARLOCK

Soil Surface Texture:
Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4
2	11 inches	24 inches		Not reported	Not reported	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4
3	24 inches	33 inches		Not reported	Not reported	Max: 42 Min: 14	Max: 8.4 Min: 7.4
4	33 inches	51 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4
5	51 inches	59 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A2	USGS40000159893	1/2 - 1 Mile NE
B3	USGS40000159933	1/2 - 1 Mile NNW
B4	USGS40000159934	1/2 - 1 Mile NNW
C5	USGS40000159894	1/2 - 1 Mile WNW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

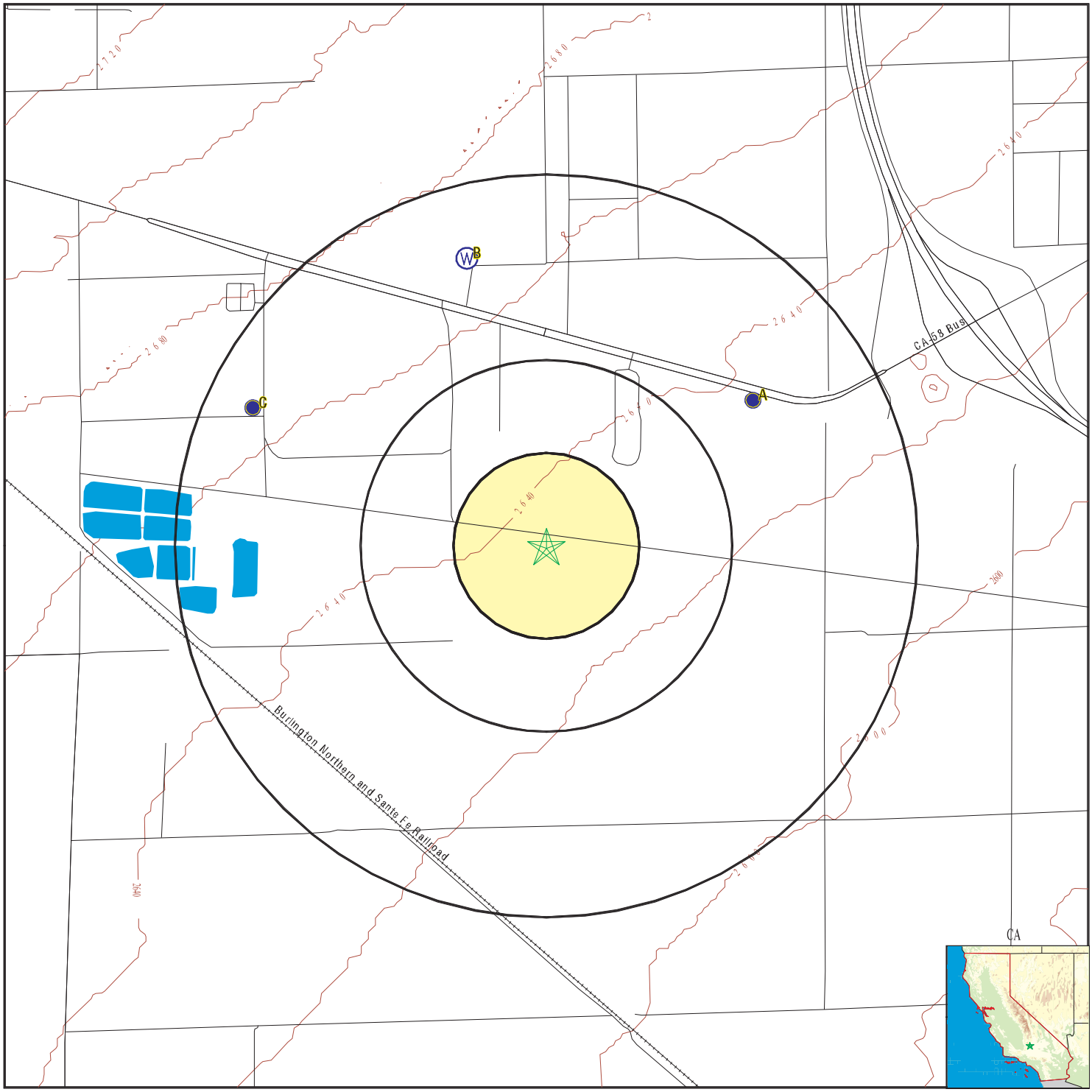
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	CADW60000000737	1/2 - 1 Mile NE
C6	10430	1/2 - 1 Mile WNW

PHYSICAL SETTING SOURCE MAP - 4850863.2s



County Boundary
Major Roads
Contour Lines
Earthquake Fault Lines
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

Groundwater Flow Direction
Indeterminate Groundwater Flow at Location
Groundwater Flow Varies at Location
Closest Hydrogeological Data
Oil, gas or related wells

SITE NAME: Gabrych Terragen ADDRESS: APN 428-020-07 Mojave CA 93501 LAT/LONG: 35.029294 / 118.127274	CLIENT: Partner Engineering and Science, Inc. CONTACT: Adrian Rivas INQUIRY #: 4850863.2s DATE: February 10, 2017 12:04 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation	Database	EDR ID Number
A1 **NE** **1/2 - 1 Mile** **Higher**	**CA WELLS**	**CADW60000000737**

Objectid:	737
Latitude:	35.035
Longitude:	-118.1179
Site code:	350350N1181179W001
State well numbe:	11N12W26J001S
Local well name:	”
Well use id:	6
Well use descrip:	Unknown
County id:	15
County name:	Kern
Basin code:	’6-44’
Basin desc:	Antelope Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000000737

A2 **NE** **1/2 - 1 Mile** **Higher**	**FED USGS**	**USGS40000159893**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-350206118065801		
Monloc name:	011N012W26J001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18090206	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	35.0349708
Longitude:	-118.1170185	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	2594.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Basin and Range basin-fill aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 60

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1987-02-22	171.04		1986-03-26	172.54	
1985-03-26	172.80		1984-03-06	173.32	

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1983-04-14	173.80		1982-02-18	174.29	
1981-04-17	174.76		1980-03-26	165.27	
1979-02-14	175.99		1978-03-30	176.74	
1977-03-09					
Note: An obstruction was encountered in the well above the water surface (no water level recorded).					
1976-02-11	178.78		1975-02-04	179.85	
1974-02-11	181.50		1973-03-25	183.70	
1971-10-26					
Note: An obstruction was encountered in the well above the water surface (no water level recorded).					
1971-03-16	193.50		1970-10-20	211.33	
1970-03-16	198.04				
1969-09-18	209.67				
Note: A nearby site that taps the same aquifer was being pumped.					
1968-10-31	206.30				
Note: A nearby site that taps the same aquifer was being pumped.					
1968-03-21	203.68				
Note: A nearby site that taps the same aquifer was being pumped.					
1967-10-10	193.30		1967-03-23	202.60	
1966-10-17	194.87				
1966-03-08	192.60				
Note: A nearby site that taps the same aquifer was being pumped.					
1965-10-18	201.34				
Note: A nearby site that taps the same aquifer was being pumped.					
1965-03-15	198.70				
1964-10-07	198.67				
Note: A nearby site that taps the same aquifer was being pumped.					
1964-03-04	196.07				
Note: A nearby site that taps the same aquifer was being pumped.					
1963-11-06	181.01				
1963-03-13	189.73				
Note: A nearby site that taps the same aquifer was being pumped.					
1962-11-07	189.31				
Note: A nearby site that taps the same aquifer was being pumped.					
1962-03-01	169.29		1961-11-08	173.07	
1961-02-27	171.56				
Note: A nearby site that taps the same aquifer was being pumped.					
1960-11-10	169.24		1960-03-02	160.63	
1959-03-10	156.10		1958-11-04	156.06	
1958-03-12	156.15		1958-02-03	156.16	
1957-12-20	156.20		1957-11-15	156.19	
1957-10-15	156.19		1957-09-24	156.23	
1957-08-14	156.23		1957-07-17	156.16	
1957-03-05	156.25		1956-10-19	156.22	
1956-03-21	156.24		1955-09-27	156.37	
1955-03-02	156.46		1954-11-29	156.49	
1954-03-15	156.60		1952-12-04	156.40	
1952-09-15	156.46		1930-03-01	158.20	
1929-09-26	161.20		1918	155.00	

B3
NNW
1/2 - 1 Mile
Higher

FED USGS **USGS40000159933**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-350226118074801		
Monloc name:	011N012W14N002S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18090206	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	35.0405261
Longitude:	-118.1309077	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	2670.00
Vert measure units:	feet	Vertacc measure val:	010
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Basin and Range basin-fill aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	109
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

B4
NNW
1/2 - 1 Mile
Higher

FED USGS **USGS40000159934**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-350226118074901		
Monloc name:	011N012W14N001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18090206	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	35.0405261
Longitude:	-118.1311855	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	2665.00
Vert measure units:	feet	Vertacc measure val:	010
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Basin and Range basin-fill aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	186
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

Map ID Direction Distance Elevation	Database	EDR ID Number
C5 **WNW** **1/2 - 1 Mile** **Higher**	**FED USGS**	**USGS40000159894**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-350206118082401		
Monloc name:	011N012W22F001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18090206	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	35.0349708
Longitude:	-118.140908	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	2660.00
Vert measure units:	feet	Vertacc measure val:	.1
Vert accmeasure units:	feet		
Vertcollection method:	Level or other surveying method		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Basin and Range basin-fill aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19680101	Welldepth:	381
Welldepth units:	ft	Wellholedepth:	395
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 2

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1974-06-03	255				
Note: Other conditions existed that would affect the measured water level.					
1968-12-14	223				

C6 **WNW** **1/2 - 1 Mile** **Higher**		**CA WELLS**	**10430**

Water System Information:

Prime Station Code:	11N/12W-22F01 S	User ID:	CYA
FRDS Number:	1510014007	County:	Kern
District Number:	12	Station Type:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Water Type:	Well/Groundwater	Well Status:	Standby Treated
Source Lat/Long:	350204.9 1180826.4	Precision:	1,000 Feet (10 Seconds)
Source Name:	WELL 30 - STANDBY - TREATED		
System Number:	1510014		
System Name:	MOJAVE PUD		
Organization That Operates System:			
	15844 K STREET MOJAVE, CA 93501		
Pop Served:	4500	Connections:	1243
Area Served:	MOJAVE AND VICINITY		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	06-MAR-13	Findings:	51. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	03-DEC-13	Findings:	45. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	03-MAR-14	Findings:	51. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	25-JUL-14	Findings:	6.6 UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	10-MAR-15	Findings:	40. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	28-MAR-16	Findings:	12. MG/L
Chemical:	NITRATE (AS N)		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
93501	5	0

Federal EPA Radon Zone for KERN County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for KERN COUNTY, CA

Number of sites tested: 94

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	1.422 pCi/L	98%	2%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW[R] Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779
Oil and Gas well locations in the state.

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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APPENDIX D: QUALIFICATIONS/INSURANCE

PARTNER

Jeremy Russell, REA II

Partner Associate

Education

B.S., Geology, University of Texas at Austin

Registrations

California Registered Environmental Assessor II

Summary of Professional Experience

Mr. Russell has 17 years of experience in the environmental service industry. He has significant experience in due diligence assessments for a variety of property types and the needs and requirements of varied number of reporting standards, including ASTM standards, EPA's All Appropriate Inquiry (AAI), and customized client formats. Specifically, Mr. Russell has performed Phase I Environmental Site Assessments, Environmental Transaction Screens, Phase II and III Subsurface Investigations, Remediation Design projects, Limited Asbestos Surveys, Lead-based Paint Surveys, Radon Studies, Mold Assessments, and Lead-in-water sampling and analysis.

Mr. Russell has managed numerous subsurface investigations to assess and cleanup the horizontal and vertical extent of soil and groundwater contamination. Mr. Russell has prepared Remediation Feasibility Studies, Work Plans and Remedial Action Plans for numerous projects that involved soil vapor extraction, LNAPL extraction and bioremediation. Mr. Russell conducted Preliminary Endangerment Assessments to evaluate potential contamination concerns on 10 proposed California public school sites. After review of report findings the California Department of Toxic Substances Control determined all sites were suitable for developments.

Mr. Russell has extensive experience conducting site assessments on large sections of vacant land for the purpose of evaluating and mapping planned developments. Mr. Russell has completed the California Desert Tortoise Environmental Awareness Training.

In addition, Mr. Russell has provided on behalf of clients interface with regulatory agencies and provided regulatory guidance and compliance with Cal-EPA, California Department of Toxic Substances Control (DTSC), California State Water Resources Control Board (SWRCB), and county and municipal regulations.

Finally, Mr. Russell's diversity across residential, industrial, municipal, and commercial environments is a major contribution to Partner Engineering and Science's Associate team in the Southwest region of the United States.

Shawn Askew
Project Manager

Education

Civil Engineering Technology major, Kennesaw State University; Mechanical Engineering major, Georgia Institute of Technology

Training

Certificate of Completion for PCA / PNA 8-Hour Training and Final Exam, including the Structural Module, Roofing Module, MEP Module, ADA / FFHA Module, Red Flag Issues, Cost Tables, and Fannie Mae 4099 Forms

ASTM E1527 Phase I Environmental Site Assessment Course, The Environmental Institute, 2003

OSHA 40-Hour Hazardous Waste Operations Emergency Response (HAZWOPER) Course (with current refreshers), Grant Training Solutions, from 2008

Asbestos Inspector: EPA-Model Accredited Asbestos in Buildings: Inspection & Assessment Course (with current refreshers), The Environmental Institute, from 2004

Lead-Based Paint Inspector: EPA-Target Housing & Child-Occupied Facilities Course, The Environmental Institute, from 2004

Mold Assessment and Remediation in Buildings Course, The Environmental Institute, 2007

Environmental Review Procedures for Responsible Entities Course, U.S. Department of Housing & Urban Development Region IV, 2008

Highlights

13 years of experience in environmental and civil engineering service industries

13 years of experience conducting Phase I Environmental Site Assessments (ESA)

11 years of experience conducting Property Condition Assessments (PCA)/Fannie Mae Physical Needs Assessments (PNA)

Experience Summary

Mr. Askew serves as a Project Manager for Partner Engineering and Science, Inc. (Partner). Mr. Askew's primary responsibilities include internal quality assurance/quality control review of Partner's equity-level ESAs and PCAs.

Mr. Askew performs Phase I Environmental Site Assessments in accordance with the EPA's All Appropriate Inquiry (AAI) and remediation of contaminated sites. An Environmental Professional (EP), Mr. Askew's areas of expertise include assessment and remediation of chlorinated solvents and petroleum hydrocarbons in soil and groundwater. Additionally, Mr. Askew conducts Property Condition Assessments of a variety of commercial real estate types, including Federal Fannie Mae Physical Needs Assessments (PNA) of multi-family residential developments. He has a total of thirteen years of experience in environmental and engineering due diligence, including experience with asbestos (ACM) surveys, lead-based paint (LBP) identification and abatement design, radon measurement and mitigation, mold assessments, lead-in-water sampling and analysis, and development of operations and maintenance (O&M) programs. Mr. Askew has personally managed and performed over 450 Phase I Environmental Site Assessments and Property Condition Assessments in twenty-six and twenty-seven states, respectively.

Project Experience

Phase I Environmental Site Assessments, Numerous Locations

National Center for Civil and Human Rights, Atlanta, Georgia, for Cousins Properties/Gude Management Group. Mr. Askew composed the June 2009 Phase I Environmental Site Assessment of a vacant parcel that became the site of the National Center for Civil and Human Rights museum in downtown Atlanta. Activities included property research at the world headquarters of previous property owner Coca-Cola, a site investigation, compilation of Georgia EPD environmental documentation related to the site, and report writing.

Truett-McConnell College, Cleveland, Georgia, for BB&T Bank. Mr. Askew executed a Phase I Environmental Site Assessment of the entire campus of Truett-McConnell College in Cleveland, Georgia for BB&T Bank in April 2014. Activities included inspections of twenty-eight on-site structures, identification of previously undetected asbestos-containing floor tile, compilation of Georgia EPD environmental documentation related to the site, and report writing.

Property Condition Assessments, Numerous Locations

Sooner Mall, Norman, Oklahoma, for US Bank. Mr. Askew executed a Property Condition Assessment of the entirety of Sooner Mall in Norman, Oklahoma as part of a portfolio for US Bank in March 2013. Activities included inspections of the roof, all interior space, and all major building systems, as well as local code compliance inquiries and report writing.

Platinum Tower, Atlanta, Georgia, for JP Morgan Chase. Mr. Askew executed a Property Condition Assessment of the 17-story Platinum Tower office building in Atlanta, Georgia as part of a portfolio for JP Morgan Chase in July 2011. Activities included inspections of the roof, office space on each of the building's floors, and all major building systems, as well as local code compliance inquiries and report writing.

Fannie Mae Assessments, Numerous Locations

Sandpiper Apartments, Birmingham, Alabama, for Wells Fargo Multifamily Capital. Mr. Askew executed an Environmental Transaction Screen/Physical Needs Assessment of Sandpiper Apartments in Birmingham, Alabama for Wells Fargo Multifamily Capital in February 2013 with follow-up work in April 2013.

Silver Creek Apartments, Chattanooga, Tennessee, for Arbor Commercial Mortgage. Mr. Askew executed a Phase I Environmental Site Assessment/Physical Needs Assessment of Silver Creek Apartments in Chattanooga, Tennessee for Arbor Commercial Mortgage in November 2012.

Donnelly Gardens Apartments, Atlanta, Georgia, for Arbor Commercial Mortgage. Mr. Askew executed a Phase I Environmental Site Assessment/Physical Needs Assessment of Donnelly Gardens Apartments in Atlanta, Georgia for Arbor Commercial Mortgage in October 2013.

The Reserve at Cavalier, Greenville, South Carolina, for Arbor Commercial Mortgage. Mr. Askew executed a Phase I Environmental Site Assessment/Physical Needs Assessment of The Reserve at Cavalier Apartments in Greenville, South Carolina for Arbor Commercial Mortgage in December 2014.

Logan Square Apartments, Auburn, Alabama, for NorthMarq Capital Finance. Mr. Askew executed a Physical Needs Assessment of Logan Square Apartments in Auburn, Alabama for NorthMarq Capital Finance in September 2015.

Contact

saskew@partneresi.com

Education

Bachelor of Arts, Public Administration & Economics, San Diego State University
Executive MBA Program, 2000-2003

Highlights

Over 20 years of experience in the environmental and engineering consulting industry
Property Condition Assessments (PCAs)
Fannie Mae, Freddie Mac, and HUD due diligence

Experience Summary

Mr. Lambson is a true veteran of the commercial real estate services industry. He has over 20 years of experience managing and performing environmental and engineering consulting projects on a national level. Mr. Lambson serves as a Principal for Partner and is located in Partner's San Diego County office. Mr. Lambson currently provides client management and consulting to a nationwide client base and specializes in advising "equity" clients during the acquisition phase of commercial property transactions in the U.S., Mexico, and Canada.

Mr. Lambson has assisted clients on over 10,000 commercial real estate transactions throughout his career. His due diligence resume includes experience at all levels, and includes advising REITs, developers, property managers, retail companies, commercial real estate brokers, mortgage brokers, attorneys, lenders, universities, and real estate investment groups with the following nationwide services:

- Property Condition Assessments (PCAs)
- Individual Building System Inspections for Roof, Mechanical Electrical Plumbing (MEP), Elevator, Structure, Façade, and ADA/Accessibility
- Phase I Environmental Site Assessments (ESAs)
- Phase II Subsurface Investigations (Soil and groundwater sampling and analysis)
- Phase III Environmental Remediation Services
- Asbestos, Lead, Radon, Mold Sampling
- Seismic and Structural Assessments (PMLs)
- Energy Audits, Benchmarking, AB1103 Energy Disclosure, and LEED-related services
- Hydrology, Water Conservation and Efficiency
- Fannie Mae / Freddie Mac / HUD Due Diligence
- Geotechnical and Soils Reports
- Zoning Reports
- ALTA Surveys

Building Sciences

Property Condition Assessment, MEP Report, Roof Report, Elevator Report, Structural and Seismic Assessment for a high-profile Class A office campus acquisition in the San Francisco Bay Area

ADA Compliance and Accessibility Reviews for a national bank branch portfolio

Fannie Mae Property Condition / Physical Needs Assessment services for a 5400-unit multifamily portfolio in Nevada

Environmental Assessments
Phase I and Phase II Environmental Assessments for a 75-acre aerospace facility in the Northwest United States

Over 500 Phase I Environmental Site Assessments for a national fast-food chain

Environmental consulting for over 1 million acres of desert land in California, Nevada, and Arizona

Land Surveys
ALTA Surveys for 2400-unit apartment portfolio in the Midwest

Multi-Site Portfolios
113-site office portfolio acquisition for a national REIT

122-site hotel portfolio for a national lending institution

55-site hotel portfolio acquisition for a private investment group

68-site healthcare portfolio acquisition for a national REIT

50-site country club/golf course acquisition for a private investment group

Energy and Water Efficiency
Energy & Water consulting for a national property owner that operates and manages 30 retail and office centers on the West Coast and Texas

Affiliations
National Association of Real Estate Investment Trusts (NAREIT)
International Council of Shopping Centers (ICSC)
U.S Green Building Council (USGBC)
Society of Industrial and Office Realtors, San Diego County (SIOR)
National Association of Industrial & Office Parks, Southern California (NAIOP)
San Diego Habitat Conservancy, Board of Directors. 2010 - 2014

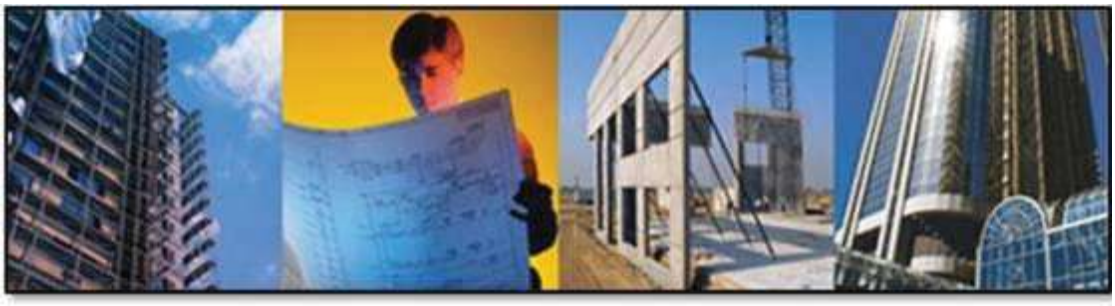
Speaking
Bisnow Conference, Panel Moderator, La Jolla, CA, October 2014. Moderated panel on Southern California Real Estate Trends.

Globestreet, ICSC Western States Conference, San Diego, CA May 2013. Video interview regarding retail real estate trends and due diligence.

Publications
Shopping Centers Today, 2010. Authored article on LEED applications for shopping centers and retail assets.

Contact
mlambson@partneresi.com

PARTNER
Engineering and Science, Inc.



PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

Gabrych TerraGen
APN 428-030-32
Mojave, California 93501

Report Date: March 2, 2017
Partner Project No. 17-180030.2

Prepared for:

Lansing Companies
12671 High Bluff Drive, Suite 150
San Diego, California 92130

March 2, 2017

Mr. Casey Malone
Lansing Companies
12671 High Bluff Drive, Suite 150
San Diego, California 92130

Subject: Phase I Environmental Site Assessment
Gabrych TerraGen
APN 428-030-32
Mojave, California 93501
Partner Project No. 17-180030.2

Dear Mr. Malone:

Partner Engineering and Science, Inc. (Partner) is pleased to provide the results of the *Phase I Environmental Site Assessment* (Phase I ESA) report of the abovementioned address (the "subject property"). This assessment was performed in general conformance with the scope and limitations as detailed in the ASTM Practice E1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

This assessment included a site reconnaissance as well as research and interviews with representatives of the public, property ownership, site manager, and regulatory agencies. An assessment was made, conclusions stated, and recommendations outlined.

We appreciate the opportunity to provide environmental services to you. If you have any questions concerning this report, or if we can assist you in any other matter, please contact me at (619) 925-9672 or MLambson@partneresi.com.

Sincerely,

DRAFT

Mark Lambson
Principal

EXECUTIVE SUMMARY

Partner Engineering and Science, Inc. (Partner) has performed a Phase I Environmental Site Assessment (ESA) in general accordance with the scope of work and limitations of ASTM Standard Practice E1527-13, the Environmental Protection Agency Standards and Practices for All Appropriate Inquiries (AAI) (40 CFR Part 312) and set forth by Lansing Companies for the property located at APN 428-030-32 in an unincorporated area of Kern County, California (the "subject property"). The Phase I Environmental Site Assessment is designed to provide Lansing Companies with an assessment concerning environmental conditions (limited to those issues identified in the report) as they exist at the subject property.

Property Description

The subject property is located approximately 4.5 miles southeast of the town of Mojave, California, and approximately 4 miles south of State Highway 58, at the southwest corner of Sunset Avenue and South 10th Street within a mixed commercial and residential area of southeastern Kern County. Please refer to the table below for further description of the subject property:

Subject Property Data	
Address:	APN 428-030-32, Kern County, California
Property Use:	Vacant
Land Acreage (Ac):	72.5
Assessor's Parcel Number (APN):	428-030-32
Site Assessment Performed By:	Jeremy Russell
Site Assessment Conducted On:	February 22, 2017

The subject property is currently vacant and undeveloped. No onsite operations were observed. The subject property consists of native land.

According to available historical sources, the subject property has been undeveloped since as early as 1915.

The immediately surrounding properties consist of undeveloped land to the north, east, and west, and undeveloped beyond railroad tracks to the south.

According to a previous subsurface investigation conducted on a nearby property (Mojave Airport aka FORMER MARINE CORPS AIR STATION - UST #1 and Case #T0602938829), the depth of groundwater in the vicinity of the subject property was reported to be approximately 238 to 350 feet below ground surface (bgs). No flow direction was reported.

Findings

A *recognized environmental condition (REC)* refers to the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: due to release to the environment; under conditions indicative of a release to the environment; or under conditions that pose a material threat of a future release to the environment. The following was identified during the course of this assessment:

- Partner did not identify any recognized environmental conditions during the course of this assessment.

A *controlled recognized environmental condition (CREC)* refers to a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls. The following was identified during the course of this assessment:

- Partner did not identify any controlled recognized environmental conditions during the course of this assessment.

A *historical recognized environmental condition (HREC)* refers to a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls. The following was identified during the course of this assessment:

- Partner did not identify any historical recognized environmental conditions during the course of this assessment.

An *environmental issue* refers to environmental concerns identified by Partner, which do not qualify as RECs; however, warrant further discussion. The following was identified during the course of this assessment:

- Partner did not identify any environmental issues during the course of this assessment.

Conclusions, Opinions, and Recommendations

Partner has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-13 of APN 428-030-32 in an unincorporated area of, Kern County, California (the "subject property"). Any exceptions to, or deletions from, this practice are described in Section 1.5 of this report.

This assessment has revealed no evidence of recognized environmental conditions or environmental issues in connection with the subject property. Based on the conclusions of this assessment, Partner recommends no further investigation of the subject property at this time.

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1.0 INTRODUCTION

Partner Engineering and Science, Inc. (Partner) has performed a Phase I Environmental Site Assessment (ESA) in general conformance with the scope and limitations of ASTM Standard Practice E1527-13 and the Environmental Protection Agency Standards and Practices for All Appropriate Inquiries (AAI) (40 CFR Part 312) for the property located at APN 428-030-32 in an unincorporated area of, Kern County, California (the "subject property"). Any exceptions to, or deletions from, this scope of work are described in the report.

1.1 Purpose

The purpose of this ESA is to identify existing or potential Recognized Environmental Conditions (as defined by ASTM Standard E1527-13) affecting the subject property that: 1) constitute or result in a material violation or a potential material violation of any applicable environmental law; 2) impose any material constraints on the operation of the subject property or require a material change in the use thereof; 3) require clean-up, remedial action or other response with respect to Hazardous Substances or Petroleum Products on or affecting the subject property under any applicable environmental law; 4) may affect the value of the subject property; and 5) may require specific actions to be performed with regard to such conditions and circumstances. The information contained in the ESA Report will be used by Client to: 1) evaluate its legal and financial liabilities for transactions related to foreclosure, purchase, sale, loan origination, loan workout or seller financing; 2) evaluate the subject property's overall development potential, the associated market value and the impact of applicable laws that restrict financial and other types of assistance for the future development of the subject property; and/or 3) determine whether specific actions are required to be performed prior to the foreclosure, purchase, sale, loan origination, loan workout or seller financing of the subject property.

This ESA was performed to permit the *User* to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on scope of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C. §9601) liability (hereinafter, the "*landowner liability protections*," or "*LLPs*"). ASTM Standard E1527-13 constitutes "*all appropriate inquiry* into the previous ownership and uses of the *property* consistent with good commercial or customary practice" as defined at 42 U.S.C. §9601(35)(B).

1.2 Scope of Work

The scope of work for this ESA is in general accordance with the requirements of ASTM Standard E1527-13. This assessment included: 1) a property and adjacent site reconnaissance; 2) interviews with key personnel; 3) a review of historical sources; 4) a review of regulatory agency records; and 5) a review of a regulatory database report provided by a third-party vendor. Partner contacted local agencies, such as environmental health departments, fire departments and building departments in order to determine any current and/or former hazardous substances usage, storage and/or releases of hazardous substances on the subject property. Additionally, Partner researched information on the presence of activity and use limitations (AULs) at these agencies. As defined by ASTM E1527-13, AULs are the legal or physical restrictions or limitations on the use of, or access to, a site or facility: 1) to reduce or eliminate potential

exposure to hazardous substances or petroleum products in the soil or groundwater on the subject property; or 2) to prevent activities that could interfere with the effectiveness of a response action, in order to ensure maintenance of a condition of no significant risk to public health or the environment. These legal or physical restrictions, which may include institutional and/or engineering controls (IC/ECs), are intended to prevent adverse impacts to individuals or populations that may be exposed to hazardous substances and petroleum products in the soil or groundwater on the property.

If requested by Client, this report may also include the identification, discussion of, and/or limited sampling of asbestos-containing materials (ACMs), lead-based paint (LBP), mold, and/or radon.

1.3 Limitations

Partner warrants that the findings and conclusions contained herein were accomplished in accordance with the methodologies set forth in the Scope of Work. These methodologies are described as representing good commercial and customary practice for conducting an ESA of a property for the purpose of identifying recognized environmental conditions. There is a possibility that even with the proper application of these methodologies there may exist on the subject property conditions that could not be identified within the scope of the assessment or which were not reasonably identifiable from the available information. Partner believes that the information obtained from the record review and the interviews concerning the subject property is reliable. However, Partner cannot and does not warrant or guarantee that the information provided by these other sources is accurate or complete. The conclusions and findings set forth in this report are strictly limited in time and scope to the date of the evaluations. The conclusions presented in the report are based solely on the services described therein, and not on scientific tasks or procedures beyond the scope of agreed-upon services or the time and budgeting restraints imposed by the Client. No other warranties are implied or expressed.

Some of the information provided in this report is based upon personal interviews, and research of available documents, records, and maps held by the appropriate government and private agencies. This report is subject to the limitations of historical documentation, availability, and accuracy of pertinent records, and the personal recollections of those persons contacted.

This practice does not address requirements of any state or local laws or of any federal laws other than the all appropriate inquiry provisions of the LLPs. Further, this report does not intend to address all of the safety concerns, if any, associated with the subject property.

Environmental concerns, which are beyond the scope of a Phase I ESA as defined by ASTM include the following: ACMs, LBP, radon, and lead in drinking water. These issues may affect environmental risk at the subject property and may warrant discussion and/or assessment; however, are considered non-scope issues. If specifically requested by the Client, these non-scope issues are discussed in Section 6.3.

1.4 User Reliance

Lansing Companies engaged Partner to perform this assessment in accordance with an agreement governing the nature, scope and purpose of the work as well as other matters critical to the engagement. All reports, both verbal and written, are for the sole use and benefit of Lansing Companies. Either verbally

or in writing, third parties may come into possession of this report or all or part of the information generated as a result of this work. In the absence of a written agreement with Partner granting such rights, no third parties shall have rights of recourse or recovery whatsoever under any course of action against Partner, its officers, employees, vendors, successors or assigns. Any such unauthorized user shall be responsible to protect, indemnify and hold Partner, Client and their respective officers, employees, vendors, successors and assigns harmless from any and all claims, damages, losses, liabilities, expenses (including reasonable attorneys' fees) and costs attributable to such Use. Unauthorized use of this report shall constitute acceptance of and commitment to these responsibilities, which shall be irrevocable and shall apply regardless of the cause of action or legal theory pled or asserted. Additional legal penalties may apply.

This report has been completed under specific Terms and Conditions relating to scope, relying parties, limitations of liability, indemnification, dispute resolution, and other factors relevant to any reliance on this report. Any parties relying on this report do so having accepted the Terms and Conditions for which this report was completed. A copy of Partner's standard Terms and Conditions can be found at http://www.partneresi.com/terms-and-conditions.php.

1.5 Limiting Conditions

The findings and conclusions contain all of the limitations inherent in these methodologies that are referred to in ASTM E1527-13.

Specific limitations and exceptions to this ESA are more specifically set forth below:

- Interviews with past or current owners, operators, and occupants were not reasonably ascertainable and thus constitute a data gap. Based on information obtained from other historical sources (as discussed in Section 3.0), this data gap is not expected to alter the findings of this assessment.
- Partner requested information relative to deed restrictions and environmental liens, a title search, and completion of a pre-survey questionnaire from the Report User. This information was not provided at the time of the assessment.

Due to time constraints associated with this report, the Client has requested the report despite the above-listed limitations.

2.0 SITE DESCRIPTION

2.1 Site Location and Legal Description

The subject property at APN 428-030-32, in an unincorporated area of Kern County, California, is located approximately 4.5 miles southeast of the town of Mojave, California, and approximately 4 miles south of State Highway 58, at the southwest corner of Sunset Avenue and S. 10th Street. According to the Kern County Assessor, the subject property is legally described as: "SECTION 35 TOWNSHIP 11 RANGE 12", and ownership is currently vested in GENUS L P.

Please refer to Figure 1: Site Location Map, Figure 2: Site Plan, Figure 3: Topographic Map, and Appendix A: Site Photographs for the location and site characteristics of the subject property.

2.2 Current Property Use

The subject property is currently vacant and undeveloped. No onsite operations were observed. The subject property consists of native land.

The subject property is designated for residential development by Kern County.

The subject property was not identified in the regulatory database report of Section 4.2.

2.3 Current Use of Adjacent Properties

The subject property is located within a mixed commercial and residential area of southeastern Kern County. During the vicinity reconnaissance, Partner observed the following land use on properties in the immediate vicinity of the subject property:

Immediately Surrounding Properties	
North:	Vacant land
South:	Undeveloped land across railroad tracks
East:	Vacant land
West:	Vacant land

No adjacent properties were identified in the regulatory database report of Section 4.2.

2.4 Physical Setting Sources

2.4.1 Topography

The United States Geological Survey (USGS) *Mojave, California* Quadrangle 7.5-minute series topographic map was reviewed for this ESA. According to the contour lines on the topographic map, the subject property ranges in elevation from approximately 2,580 feet above mean sea level (MSL) to 2,588 feet MSL. The contour lines in the area of the subject property indicate the area is sloping gently downward toward the southeast. No development is depicted on the subject property on the 1995 map.

A copy of the 1995 map is included as Figure 3 of this report.

2.4.2 Hydrology

According to topographic map interpretation, the direction of groundwater in the vicinity of the subject property is inferred to flow towards the southeast. The nearest surface water in the vicinity of the subject property are sewage treatment ponds, located approximately 3 miles northwest of the subject property. No settling ponds, lagoons, surface impoundments, wetlands, or natural catch basins were observed at the subject property during this assessment.

According to available information, a public water system operated by the Mojave Public Utility District serves the subject property vicinity. According to a representative of the MPUD, shallow groundwater beneath the subject property is not utilized for domestic purposes. The sources of public water for the MPUD are surface water from the State Water Project and groundwater.

According to a previous subsurface investigation conducted on a nearby property (Mojave Airport aka FORMER MARINE CORPS AIR STATION - UST #1 and Case #T0602938829), the depth of groundwater in the vicinity of the subject property was reported to be approximately 238 to 350 feet below ground surface (bgs).

2.4.3 Geology/Soils

The subject property is situated within the Antelope Valley of the Mojave Desert geomorphic province of the State of California. The uppermost geologic formation underlying the soils at the subject property is the Quaternary Age alluvium. The alluvium comprises the underlying stratigraphy and consists mostly of gravel, sand, silt and clay deposited in alluvial fan, lake, and stream channel environments. The thickness of the alluvium is estimated to be over 2,000 feet. The alluvium is underlain by the Cenozoic volcanic and igneous rocks.

Based on information obtained from the USDA Natural Resources Conservation Service Web Soil Survey online database, the subject property is mapped as Garlock loamy sand. The Garlock series consists of very deep, well drained, loamy sand; sandy clay loam; sandy loam; gravelly loamy sand; and very gravelly loamy sand. These soils are on broad alluvial fans. Slopes range from 2 to 9 percent.

2.4.4 Flood Zone Information

Partner performed a review of the Flood Insurance Rate Map, published by the Federal Emergency Management Agency. According to Community Panel Number 06029C3325E, effective on September 26, 2008, the subject property appears to be located in Zone X (Unshaded), an area located outside of the 100-year and 500-year flood plains.

A copy of the reviewed flood map is included in Appendix B of this report.

3.0 HISTORICAL INFORMATION

Partner obtained historical use information about the subject property from a variety of sources. A chronological listing of the historical data found is summarized in the table below:

Historical Use Information		
Period/Date	**Source**	**Description/Use**
1915-Present	Topographic Maps, Aerial Photographs, City Directories, Interviews, Site Observations	Undeveloped

No tenants were identified on the subject property. No potential environmental concerns were identified in association with the current or former use of the subject property.

3.1 Aerial Photograph Review

Partner obtained available aerial photographs of the subject property and surrounding area from Environmental Data Resources (EDR) and Google Earth on February 14, 2017. The following observations were noted to be visible on the subject property and adjacent properties during the aerial photograph review:

Date: 1966	***Scale: 1" = 500'***
Subject Property:	Appears to be undeveloped. A dirt road appears on the northeast area.
North:	Undeveloped and land developed adjacent to the northwest corner of the subject property that appears to be for agricultural use.
South:	Undeveloped across a railroad track
East:	Undeveloped
West:	Appears to be undeveloped

Date: 1973, 1983, 1986, 1994, 2005, 2009, 2010, 2012	***Scale: 1" = 500'***
Subject Property:	No significant changes visible
North:	Land adjacent to the northwest corner no longer appears to be agricultural in use and appears to be undeveloped
South:	No significant changes visible
East:	No significant changes visible
West:	No significant changes visible

Copies of select aerial photographs are included in Appendix B of this report.

3.2 Fire Insurance Maps

Partner reviewed the collection of Sanborn Fire insurance maps from EDR February 10, 2017. Sanborn map coverage was not available for the subject property.

3.3 City Directories

Partner reviewed historical city directories obtained from EDR on February 14, 2017, for past names and businesses that were listed for the subject property and adjacent properties. The findings are presented in the following table:

City Directory Search for APN 428-030-32 (Subject Property – no address)	
Year(s)	**Occupant Listed**
1975, 1980, 1990, 1992, 1995, 1999, 2003, 2008, 2013	No listings

Based on the city directory review, no environmentally sensitive listings were identified for the subject property.

City Directory Search for Adjacent Properties	
Year(s)	**Occupant Listed**
1975, 1980, 1990, 1992, 1995, 1999, 2003, 2008, 2013	No listings

Based on the city directory review, no environmentally sensitive listings were identified for the adjacent property addresses.

3.4 Historical Topographic Maps

Partner reviewed historical topographic maps obtained from EDR on February 10, 2017. The following observations were noted to be depicted on the subject property and adjacent properties during the topographic map review:

Date: 1915	
Subject Property:	Undeveloped
North:	Undeveloped
South:	Undeveloped across a railroad track
East:	Undeveloped
West:	Undeveloped

Date: 1943, 1947, 1956, 1980, 1995	
Subject Property:	No significant changes depicted
North:	No significant changes depicted
South:	No significant changes depicted

Date:	***1943, 1947, 1956, 1980, 1995***
East:	No significant changes depicted
West:	No significant changes depicted

Copies of reviewed topographic maps are included in Appendix B of this report.

4.0 REGULATORY RECORDS REVIEW

4.1 Regulatory Agencies

4.1.1 State Department

Regulatory Agency Data	
Name of Agency:	California Environmental Protection Agency (CalEPA)
Point of Contact:	Not Provided
Agency Address:	1001 I Street, Sacramento, California
Agency Phone Number:	(926) 323-2514
Date of Contact:	February 15, 2017
Method of Communication:	Telephone
Summary of Communication:	The CalEPA manages the following State agencies: *Air Resources Board (ARB), Department of Resources Recycling and Recovery (CalRecycle), Department of Pesticide Regulation (DPR), Department of Toxic Substances Control (DTSC), Office of Environmental Health Hazard Assessment (OEHHA), and the State Water Resources Control Board (SWRCB)*. These agencies are discussed individually, where applicable, in the following sections. The subject property was not identified for records maintained by CalRecycle, for pesticides with the DPR databases, or for hazardous substance risk evaluation by the OEHHA. No records regarding hazardous substance use, storage or releases, or the presence of USTs and AULs on the subject property were on file with the CalEPA.

A copy of pertinent documents is not included in Appendix B of this report.

4.1.2 Health Department

Regulatory Agency Data	
Name of Agency:	Kern County Environmental Health Services Department (KCEHSD)
Point of Contact:	Ms. Lydia V. von Sydow, Waste Management Technician II
Agency Address:	2700 M Street, Bakersfield, California
Agency Phone Number:	(661) 862-8748
Date of Contact:	February 15, 2017
Method of Communication:	Online/Email
Summary of Communication:	The Certified Unified Program Agency (CUPA) was developed to consolidate the administration of six specific state hazardous

Regulatory Agency Data	
	materials programs under one agency. The CUPA for the County of Kern is the Kern County Environmental Health Services Department. Under Kern County CUPA, *above ground storage tanks, underground storage tanks, hazardous waste treatment, hazardous waste generators, hazardous materials management and response plans* are managed by the KCEHSD. On February 21, 2017, Ms. Von Sedow responded that no records regarding hazardous substance use, storage or releases, or the presence of USTs and AULs on the subject property were on file with the KCEHSD.

A copy of pertinent documents is included in Appendix B of this report.

4.1.3 Fire Department

Regulatory Agency Data	
Name of Agency:	Kern County Fire Department (KCFD)
Point of Contact:	Not Provided
Agency Address:	5642 Victor Street, Bakersfield, California
Agency Phone Number:	(661) 391-7000
Date of Contact:	February 15, 2017
Method of Communication:	Telephone
Summary of Communication:	No records regarding hazardous substance use, storage or releases, or the presence of USTs and AULs on the subject property were on file with the KCFD. KCFD indicated that such records are maintained by the KCEHSD.

A copy of pertinent documents is not included in Appendix B of this report.

4.1.4 Air Pollution Control Agency

Regulatory Agency Data	
Name of Agency:	Eastern Kern County Air Pollution Control District (EKCAPCD)
Point of Contact:	Mr. Jason Mentry
Agency Address:	43301 Division Street, Lancaster, California
Agency Phone Number:	(661) 723-8070
Date of Contact:	February 15, 2017
Method of Communication:	Telephone
Summary of Communication:	No Permits to Operate (PTO), Notices of Violation (NOV), or Notices to Comply (NTC) or the presence of AULs, dry cleaning machines, or USTs were on file for the subject property with the AVAQMD.

A copy of pertinent documents is not included in Appendix B of this report.

4.1.5 Regional Water Quality Agency

Regulatory Agency Data	
Name of Agency:	State Water Resources Control Board (SWRQCB)
Point of Contact:	N/A
Agency Address:	3737 Main Street, Riverside, California
Agency Phone Number:	(909) 782-4130
Date of Contact:	February 15, 2017
Method of Communication:	http://geotracker.waterboards.ca.gov/
Summary of Communication:	No records regarding hazardous substance use, storage or releases, or the presence of USTs and AULs on the subject property were on file with the SWRQCB.

A copy of pertinent documents are not included in Appendix B of this report.

4.1.6 Department of Toxic Substances Control

Regulatory Agency Data	
Name of Agency:	California Department of Toxic Substances Control (DTSC)
Point of Contact:	N/A
Agency Address:	5796 Corporate Avenue, Cypress, California
Agency Phone Number:	(714) 484-5300
Date of Contact:	February 15, 2017
Method of Communication:	http://hwts.dtsc.ca.gov/report_search.cfm?id=5
Summary of Communication:	The subject property was not identified on the DTSC hazardous waste tracking system (HWTS).

A copy of pertinent documents is not included in Appendix B of this report.

4.1.7 Building Department

Regulatory Agency Data	
Name of Agency:	Kern County Engineering and Survey Services Department, Building Inspection Division (BID)
Point of Contact:	Ms. LeAnn Thomas
Agency Address:	2700 M Street, Bakersfield, California
Agency Phone Number:	(661) 862-5075
Date of Contact:	February 15, 2017

Regulatory Agency Data	
Method of Communication:	Telephone/Online
Summary of Communication:	A representative indicated to Partner that permit records are recorded with the Kern County Assessor, which posts the permit information on the Assessor's website. No records of permits were found for the subject property APNs on the Kern County Assessor's website.

A copy of pertinent documents is not included in Appendix B of this report.

4.1.8 Planning Department

Regulatory Agency Data	
Name of Agency:	Kern County Geographic Information Systems
Point of Contact:	N/A
Agency Address:	2700 M Street, Bakersfield, California
Agency Phone Number:	(661) 862-5075
Date of Contact:	February 23, 2017
Method of Communication:	Online
Summary of Communication:	According to records reviewed, the subject property is zoned Residential by Kern County

A copy of pertinent documents is not included in Appendix B of this report.

4.1.9 Oil & Gas Exploration

Regulatory Agency Data	
Name of Agency:	California Division of Oil, Gas, and Geothermal Resources (DOGGR)
Point of Contact:	N/A
Agency Address:	5816 Corporate Avenue, Suite 200
Agency Phone Number:	(714) 816-6847
Date of Contact:	February 15, 2017
Method of Communication:	http://maps.conservation.ca.gov/doms/doms-app.html
Summary of Communication:	According to the DOGGR interactive website, no oil gas, or geothermal wells were identified on or adjoining to the subject property.

A copy of pertinent documents is not included in Appendix B of this report.

4.1.10 Assessor's Office

Regulatory Agency Data	
Name of Agency:	Kern County Assessor (KCA)
Point of Contact:	N/A
Agency Address:	1655 Chester Street, Bakersfield, California
Agency Phone Number:	(661) 868-6400
Date of Contact:	February 15, 2017
Method of Communication:	Online
Summary of Communication:	According to records reviewed, the subject property was identified with the assessor's parcel number 427-030-04 with an area of 72.5 acres. No records regarding building and utility information for the subject property was on file with the KCA.

4.2 Mapped Database Records Search

Information from standard federal, state, county, and city environmental record sources was provided by EDR. Data from governmental agency lists are updated and integrated into one database, which is updated as these data are released. The information contained in this report was compiled from publicly available sources and the locations of the sites are plotted utilizing a geographic information system, which geocodes the site addresses. The accuracy of the geocoded locations is approximately +/-300 feet.

Using the ASTM definition of migration, Partner considers the migration of hazardous substances or petroleum products in any form onto the subject property during the evaluation of each site listed on the radius report, which includes solid, liquid, and vapor.

4.2.1 Regulatory Database Summary

Radius Report Data				
Database	**Search Radius (mile)**	**Subject Property**	**Adjacent Properties**	**Sites of Concern**
Federal NPL or Delisted NPL Site	1.00	N	N	N
Federal CERCLIS Site	0.50	N	N	N
Federal CERCLIS-NFRAP Site	0.50	N	N	N
Federal RCRA CORRACTS Facility	1.00	N	N	N
Federal RCRA TSDF Facility	0.50	N	N	N
Federal RCRA Generators Site (LQG, SQG, CESQG)	0.25	N	N	N
Federal IC/EC Registries	0.50	N	N	N
Federal ERNS Site	Subject Property	N	-	-
State/Tribal Equivalent NPL	1.00	N	N	N
State/Tribal Equivalent CERCLIS	1.00	N	N	N

Radius Report Data				
Database	**Search Radius (mile)**	**Subject Property**	**Adjacent Properties**	**Sites of Concern**
State/Tribal Landfill/Solid Waste Disposal Site	0.50	N	N	N
State/Tribal Leaking Storage Tank Site	0.50	N	N	N
State/Tribal Registered Storage Tank Sites (UST/AST)	0.25	N	N	N
State/Tribal Voluntary Cleanup Sites (VCP)	0.50	N	N	N
State/Tribal Spills	0.50	N	N	N
Federal Brownfield Sites	0.50	N	N	N
State Brownfield Sites	0.50	N	N	N
EDR MGP	Varies	N	N	N
EDR US Hist Auto Station	Varies	N	N	N
EDR US Hist Cleaners	Varies	N	N	N

4.2.2 Subject Property Listings

The subject property is not identified in the regulatory database report.

4.2.3 Adjacent Property Listings

The adjacent properties are not identified in the regulatory database report.

Based on the findings, vapor migration is not expected to represent a significant environmental concern at this time.

4.2.4 Sites of Concern Listings

No sites of concern are identified in the regulatory database report

Based on the findings, vapor migration is not expected to represent a significant environmental concern at this time.

4.2.5 Orphan Listings

No orphan listings are identified in the regulatory database report.

A copy of the regulatory database report is included in Appendix C of this report.

5.0 USER PROVIDED INFORMATION AND INTERVIEWS

In order to qualify for one of the *Landowner Liability Protections (LLPs)* offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the *Brownfields Amendments*), the *User* must conduct the following inquiries required by 40 CFR 312.25, 312.28, 312.29, 312.30, and 312.31. The *User* should provide the following information to the *environmental professional*. Failure to provide this information could result in a determination that *all appropriate inquiries* is not complete. The *User* is asked to provide information or knowledge of the following:

- Review Title and Judicial Records for Environmental Liens and AULs
- Specialized Knowledge or Experience of the User
- Actual Knowledge of the User
- Reason for Significantly Lower Purchase Price
- Commonly Known or *Reasonably Ascertainable* information
- Degree of Obviousness
- Reason for Preparation of this Phase I ESA

Fulfillment of these user responsibilities is key to qualification for the identified defenses to CERCLA liability. Partner requested our Client to provide information to satisfy User Responsibilities as identified in Section 6 of the ASTM guidance.

Pursuant to ASTM E1527-13, Partner requested the following site information from Lansing Companies (User of this report).

User Responsibilities				
Item	**Provided By User**	**Not Provided By User**	**Discussed Below**	**Does Not Apply**
Environmental Pre-Survey Questionnaire			**X**	
Title Records, Environmental Liens, and AULs			**X**	
Specialized Knowledge			**X**	
Actual Knowledge			**X**	
Valuation Reduction for Environmental Issues			**X**	
Identification of Key Site Manager	**Section 5.1.3**			
Reason for Performing Phase I ESA	**Section 1.1**			
Prior Environmental Reports		**X**		
Other				**X**

5.1 Interviews

5.1.1 Interview with Owner

The owner of the subject property owner identified as GENUS L P, was not available to be interviewed at the time of the assessment.

5.1.2 Interview with Report User

Please refer to Section 5.2 below for information requested from the Report User. The information requested was not received prior to the issuance of this report. Because the Report User (Client) is a lender, it is understood that the Report User would not have knowledge of the property that would significantly impact our ability to satisfy the objectives of this assessment. The lack of this information is not considered to represent a significant data gap.

5.1.3 Interview with Key Site Manager

Mr. Casey Malone, key site manager, indicated that he had no information pertaining to any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the subject property; any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the subject property; or any notices from a governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products.

According to Mr. Malone, the subject property has been undeveloped. Mr. Malone further stated that there are no USTs, ASTs, clarifiers, oil/water separators, groundwater monitoring wells, or hazardous substance use/storage/generation on the subject property to the best of his knowledge.

5.1.4 Interviews with Past Owners, Operators, and Occupants

Interviews with past owners, operators, and occupants were not reasonably ascertainable and thus constitute a data gap.

5.1.5 Interview with Others

As the subject property is not an abandoned property as defined in ASTM 1527-13, interview with others were not performed.

5.2 User Provided Information

5.2.1 Title Records, Environmental Liens, and AULs

Partner was not provided with title records or environmental lien and AUL information for review as part of this assessment.

5.2.2 Specialized Knowledge

No specialized knowledge of environmental conditions associated with the subject property was provided by the User at the time of the assessment.

5.2.3 Actual Knowledge of the User

No actual knowledge of any environmental lien or AULs encumbering the subject property or in connection with the subject property was provided by the User at the time of the assessment.

5.2.4 Valuation Reduction for Environmental Issues

No knowledge of valuation reductions associated with the subject property was provided by the User at the time of the assessment.

5.2.5 Commonly Known or Reasonably Ascertainable Information

The User did not provide information that is commonly known or *reasonably ascertainable* within the local community about the subject property at the time of the assessment.

5.2.6 Previous Reports and Other Provided Documentation

No previous reports or other pertinent documentation was provided to Partner for review during the course of this assessment.

6.0 SITE RECONNAISSANCE

The weather at the time of the site visit was sunny and clear. Refer to Section 1.5 for limitations encountered during the field reconnaissance and Sections 2.1 and 2.2 for subject property operations. The table below provides the site assessment details:

Site Assessment Data	
Site Assessment Performed By:	Jeremy Russell
Site Assessment Conducted On:	February 22, 2017

The table below provides the subject property personnel interviewed during the field reconnaissance:

Site Visit Personnel for APN 428-030-32 (Subject Property)			
Name	**Title/Role**	**Contact Number**	**Site Walk* Yes/No**
Mr. Casey Malone	Key Site Manager	(858) 523-0719	No

** Accompanied Partner during the field reconnaissance activities and provided information pertaining to the current operations and maintenance of the subject property*

No potential environmental concerns were identified during the onsite reconnaissance.

6.1 General Site Characteristics

6.1.1 Solid Waste Disposal

No solid waste was observed generated at the subject property.

No evidence of illegal dumping of solid waste was observed during the Partner site reconnaissance.

6.1.2 Sewage Discharge and Disposal

Since no habitable structures are present on the subject property, no sanitary discharges on the subject property were observed. No wastewater treatment facilities or septic systems are observed or reported on the subject property.

6.1.3 Surface Water Drainage

Storm water is removed from the subject property primarily by sheet flow action across the unpaved, natural ground surface towards topographically lower areas on the subject property and vicinity.

The subject property does not appear to be a designated wetland area, based on information obtained from the United States Fish & Wildlife Service; however, a comprehensive wetlands survey would be required in order to formally determine actual wetlands on the subject property. No surface impoundments, wetlands, natural catch basins, settling ponds, or lagoons are located on the subject property. No drywells were identified on the subject property.

6.1.4 Source of Heating and Cooling

Since no habitable structures are located on the subject property, no heating or cooling systems or domestic hot water equipment are operated on the subject property.

6.1.5 Wells and Cisterns

No aboveground evidence of wells or cisterns was observed during the site reconnaissance.

6.1.6 Wastewater

Since no habitable structures are located on the subject property, no domestic wastewater is generated at the subject property. No industrial process is currently performed at the subject property.

6.1.7 Septic Systems

No septic systems were observed or reported on the subject property.

6.1.8 Additional Site Observations

No additional general site characteristics were observed during the site reconnaissance.

6.2 Potential Environmental Hazards

6.2.1 Hazardous Substances and Petroleum Products Used or Stored

No hazardous substances or petroleum products were observed on the subject property during the site reconnaissance.

6.2.2 Aboveground & Underground Hazardous Substance or Petroleum Product Storage Tanks (ASTs/USTs)

No evidence of current or former ASTs or USTs was observed during the site reconnaissance.

6.2.3 Evidence of Releases

No spills, stains, or other indications that a surficial release has occurred at the subject property were observed.

6.2.4 Polychlorinated Biphenyls (PCBs)

No potential PCB-containing equipment (transformers, oil-filled switches, hoists, lifts, dock levelers, hydraulic elevators, etc) was observed on the subject property during Partner's reconnaissance.

6.2.5 Strong, Pungent, or Noxious Odors

No strong, pungent, or noxious odors were evident during the site reconnaissance.

6.2.6 Pools of Liquid

No pools of liquid were observed on the subject property during the site reconnaissance.

6.2.7 Drains, Sumps, and Clarifiers

No drains, sumps, or clarifiers were observed on the subject property during the site reconnaissance.

6.2.8 Pits, Ponds, and Lagoons

No pits, ponds, or lagoons were observed on the subject property.

6.2.9 Stressed Vegetation

No stressed vegetation was observed on the subject property.

6.2.10 Additional Potential Environmental Hazards

No additional environmental hazards, including landfill activities or radiological hazards, were observed.

6.3 Non-ASTM Services

6.3.1 Asbestos-Containing Materials (ACMs)

Asbestos is the name given to a number of naturally occurring, fibrous silicate minerals mined for their useful properties such as thermal insulation, chemical and thermal stability, and high tensile strength. The Occupational Safety and Health Administration (OSHA) regulation 29 CFR 1926.1101 requires certain construction materials to be *presumed* to contain asbestos, for purposes of this regulation. All thermal system insulation (TSI), surfacing material, and asphalt/vinyl flooring that are present in a building constructed prior to 1981 and have not been appropriately tested are "presumed asbestos-containing material" (PACM).

Due to the undeveloped nature of the subject property, ACMs were not considered within the scope of this assessment.

6.3.2 Lead-Based Paint (LBP)

Lead is a highly toxic metal that affects virtually every system of the body. LBP is defined as any paint, varnish, stain, or other applied coating that has 1 mg/cm^2 (or 5,000 ug/g or 0.5% by weight) or more of lead. Congress passed the Residential Lead-Based Paint Hazard Reduction Act of 1992, also known as "Title X", to protect families from exposure to lead from paint, dust, and soil. Under Section 1017 of Title X, intact LBP on most walls and ceilings is not considered a "hazard," although the condition of the paint should be monitored and maintained to ensure that it does not become deteriorated. Further, Section 1018 of this law directed the Housing and Urban Development (HUD) and the US EPA to require the disclosure of known information on LBP and LBP hazards before the sale or lease of most housing built before 1978.

Due to the undeveloped nature of the subject property, LBP was not considered within the scope of this assessment.

6.3.3 Radon

Radon is a colorless, odorless, naturally occurring, radioactive, inert, gaseous element formed by radioactive decay of radium (Ra) atoms. The US EPA has prepared a map to assist National, State, and local organizations to target their resources and to implement radon-resistant building codes. The map divides the country into three Radon Zones, according to the table below:

EPA Radon Zones		
EPA Zones	**Average Predicted Radon Levels**	**Potential**
Zone 1	Exceed 4.0 pCi/L	Highest
Zone 2	Between 2.0 and 4.0 pCi/L	Moderate
Zone 3	Less than 2.0 pCi/L	Low

It is important to note that the EPA has found homes with elevated levels of radon in all three zones, and the US EPA recommends site-specific testing in order to determine radon levels at a specific location. However, the map does give a valuable indication of the propensity of radon gas accumulation in structures.

Radon sampling was not conducted as part of this assessment. Review of the US EPA Map of Radon Zones places the subject property in Zone 2. Based upon the radon zone classification, radon is not considered to be a significant environmental concern.

6.3.4 Lead in Drinking Water

No public or private water system is operated on the subject property.

6.3.5 Mold

Molds are microscopic organisms found virtually everywhere, indoors and outdoors. Mold will grow and multiply under the right conditions, needing only sufficient moisture (e.g.in the form of very high humidity, condensation, or water from a leaking pipe, etc.) and organic material (e.g., ceiling tile, drywall, paper, or natural fiber carpet padding).

Since no structures are developed on the subject property, the evaluation for significant evidence of mold growth was not within the scope of work for this assessment.

6.4 Adjacent Property Reconnaissance

The adjacent property reconnaissance consisted of observing the adjacent properties from the subject property premises. No items of environmental concern were identified on the adjacent properties during the site assessment, including hazardous substances, petroleum products, ASTs, USTs, evidence of releases, PCBs, strong or noxious odors, pools of liquids, sumps or clarifiers, pits or lagoons, stressed vegetation, or any other potential environmental hazards.

7.0 FINDINGS AND CONCLUSIONS

Findings

A *recognized environmental condition (REC)* refers to the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: due to release to the environment; under conditions indicative of a release to the environment; or under conditions that pose a material threat of a future release to the environment. The following was identified during the course of this assessment:

- Partner did not identify any recognized environmental conditions during the course of this assessment.

A *controlled recognized environmental condition (CREC)* refers to a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls. The following was identified during the course of this assessment:

- Partner did not identify any controlled recognized environmental conditions during the course of this assessment.

A *historical recognized environmental condition (HREC)* refers to a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls. The following was identified during the course of this assessment:

- Partner did not identify any historical recognized environmental conditions during the course of this assessment.

An *environmental issue* refers to environmental concerns identified by Partner, which do not qualify as RECs; however, warrant further discussion. The following was identified during the course of this assessment:

- Partner did not identify any environmental issues during the course of this assessment.

Conclusions, Opinions, and Recommendations

Partner has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-13 of APN 428-030-32 in an unincorporated area of, Kern County, California (the "subject property"). Any exceptions to, or deletions from, this practice are described in Section 1.5 of this report.

This assessment has revealed no evidence of recognized environmental conditions or environmental issues in connection with the subject property. Based on the conclusions of this assessment, Partner recommends no further investigation of the subject property at this time.

8.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

Partner has performed a Phase I Environmental Site Assessment of the property located at APN 428-030-32 in an unincorporated area of, Kern County, California in general conformance with the scope and limitations of the protocol and the limitations stated earlier in this report. Exceptions to or deletions from this protocol are discussed earlier in this report.

By signing below, Partner declares that, to the best of our professional knowledge and belief, we meet the definition of *Environmental Professional* as defined in §312.10 of 40 CFR §312. Partner has the specific qualifications based on education, training, and experience to assess a *property* of the nature, history, and setting of the subject *property*. Partner has developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Prepared By:

DRAFT

Jeremy Russell
Environmental Professional

Reviewed By:

DRAFT

Shawn Askew, REPA
Senior Author

9.0 REFERENCES

Reference Documents

American Society for Testing and Materials, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, ASTM Designation: E1527-13.

Environmental Data Resources (EDR), Radius Report, February 2017

Federal Emergency Management Agency, Federal Insurance Administration, National Flood Insurance Program, Community Panel Number 06029C3325E, effective on September 26, 2008, accessed via internet, February 2017

United States Department of Agriculture, Natural Resources Conservation Service, accessed via internet, February 2017

United States Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey, accessed via the internet, February 2017

United States Environmental Protection Agency, EPA Map of Radon Zones (Document EPA-402-R-93-071), accessed via the internet, February 2017

United States Geological Survey, accessed via the Internet, February 2017

United States Geological Survey Topographic Map 1995 Mojave, Kern County, California, 7.5 minute series, accessed via internet, February 2017

FIGURES

1 SITE LOCATION MAP

2 SITE PLAN

3 TOPOGRAPHIC MAP

PARTNER

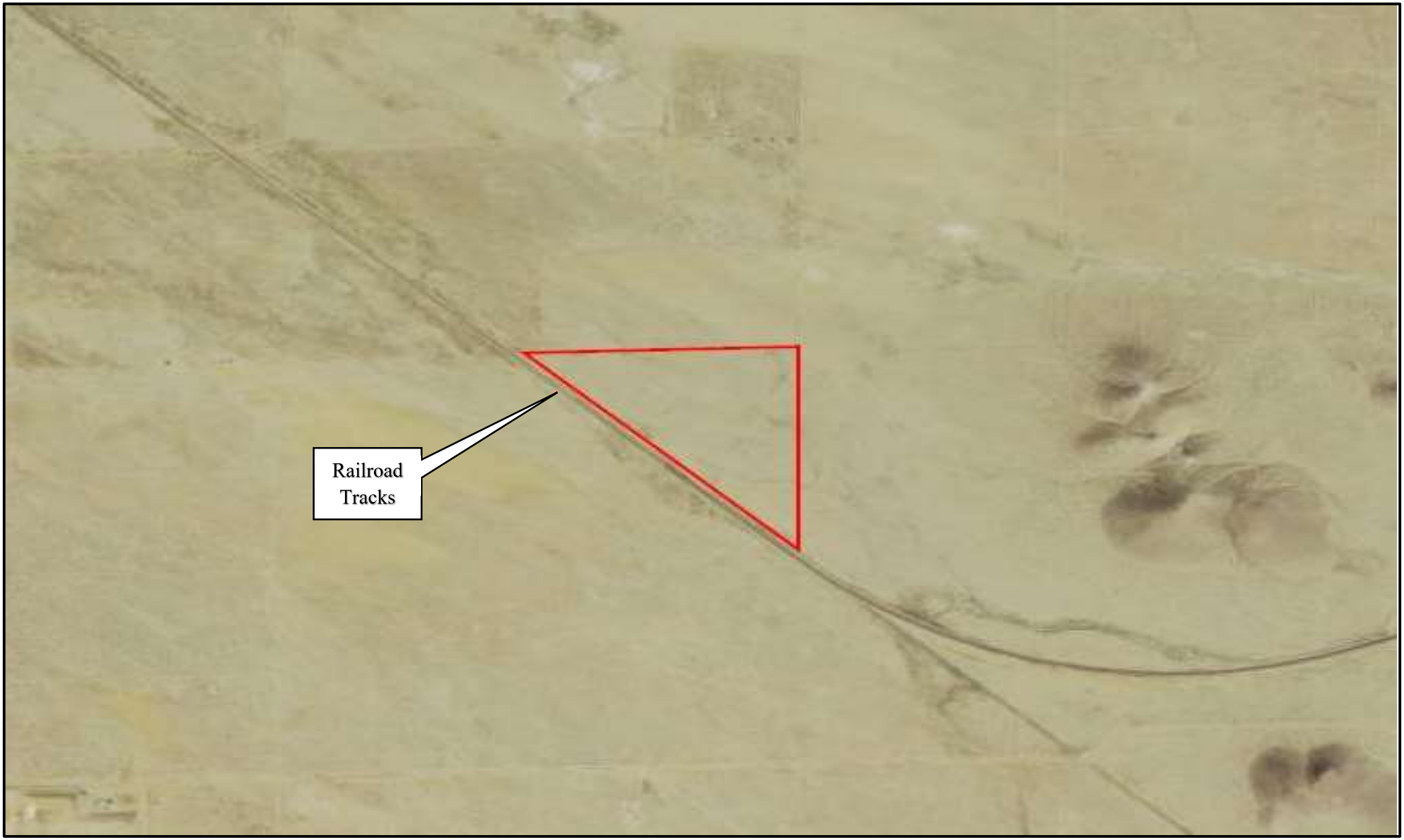
N

Drawing Not To Scale

KEY:
Subject Property

FIGURE 1: SITE LOCATION MAP
Project No. 17-180030.2

PARTNER



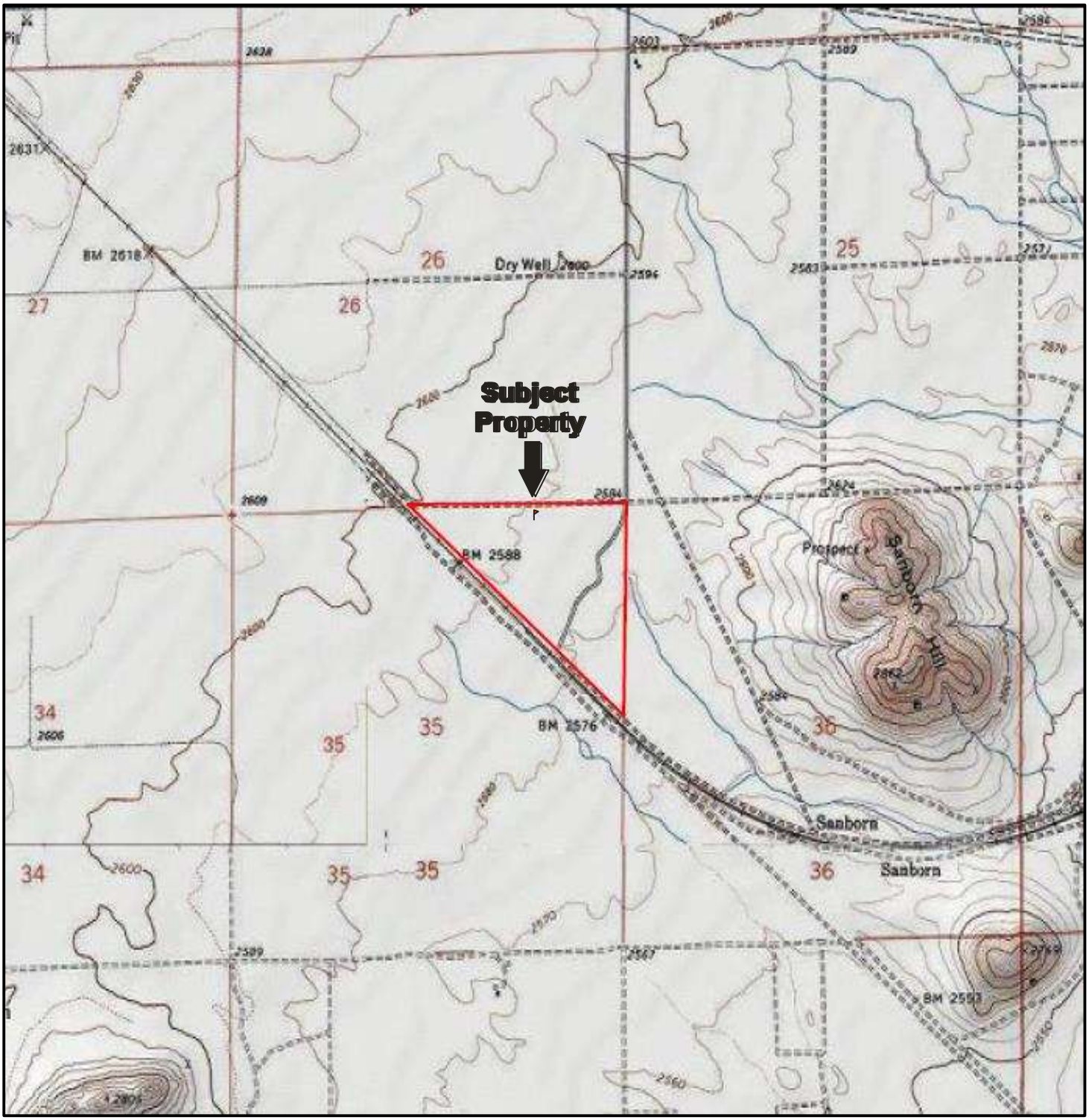
N

GROUNDWATER FLOW

KEY:
Subject Property

FIGURE 2: SITE PLAN
Project No. 17-180030.2

PARTNER



N

USGS 7.5 Minute *Mojave, CA* Quadrangle
Created: 1973/Revised: 1995

KEY:
Subject Property

FIGURE 3: TOPOGRAPHIC MAP
Project No. 17-180030.2

PARTNER

APPENDIX A: SITE PHOTOGRAPHS

PARTNER

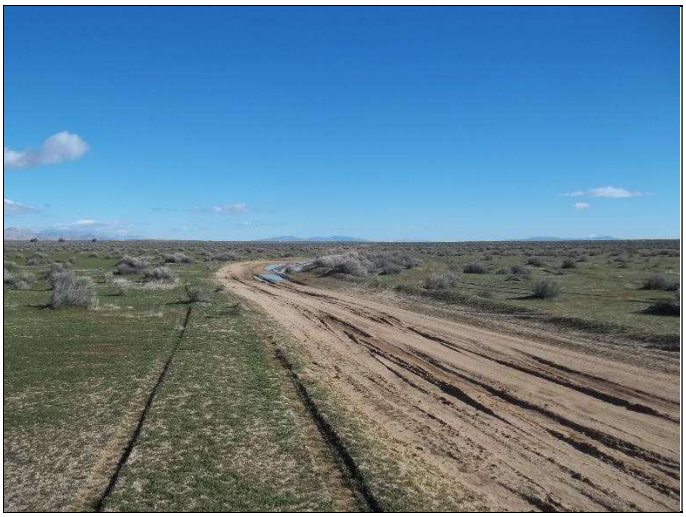
1. View west along the north side, from the northeast corner.

2. View southwest across the subject property.

3. View of land adjacent east.

4. View south along eastern side of the subject property.

5. View of the western area.



6. View toward the central area from the south.

7. View of land adjacent east.

8. View of the west area with railroad tracks beyond.

9. View of the western area.

10. View of the western area from the central area.

11. View of the southwest area.

12. View of land adjacent east.

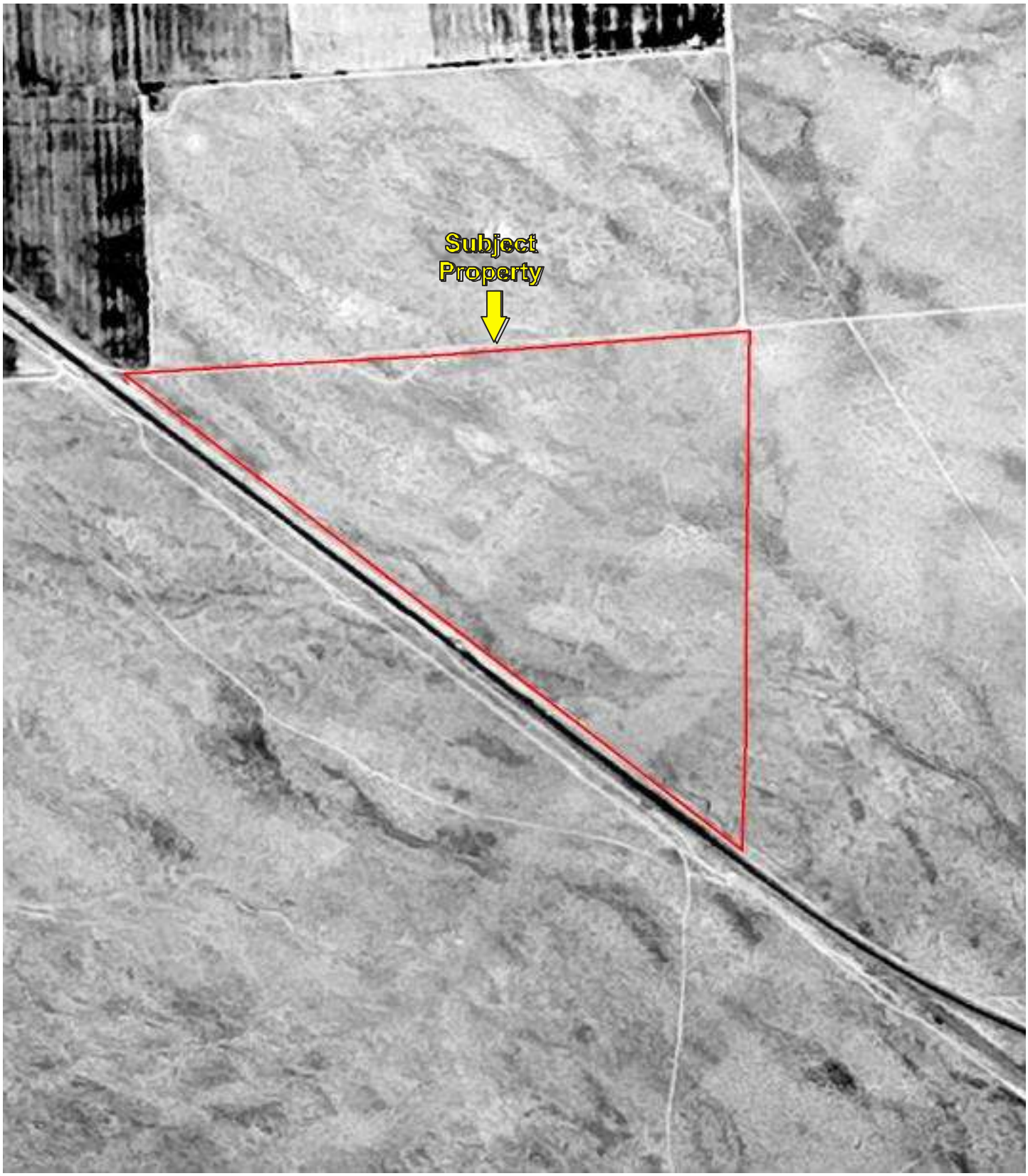
13. View of land adjacent south.

14. View of land adjacent west.

15. View survey monument near the northeast corner of the subject property.

APPENDIX B: HISTORICAL/REGULATORY DOCUMENTATION

PARTNER



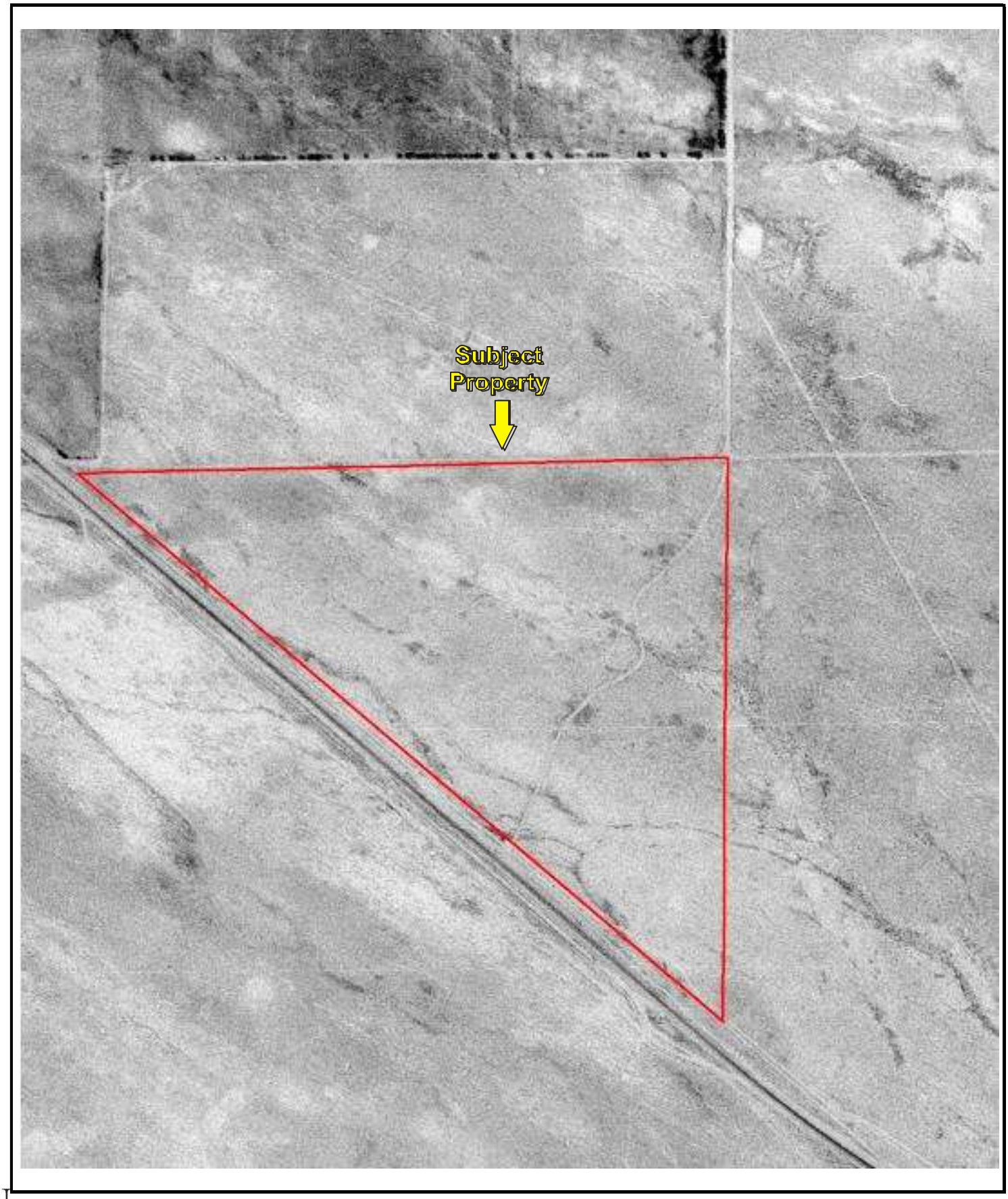
Date of Photograph: 1966

KEY:
Subject Property

N

APPENDIX B: AERIAL PHOTOGRAPHS
Project No. 17-180030.2

PARTNER



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Date of Photograph: 1973

KEY:
Subject Property

APPENDIX B: AERIAL PHOTOGRAPHS
Project No. 17-180030.2

PARTNER

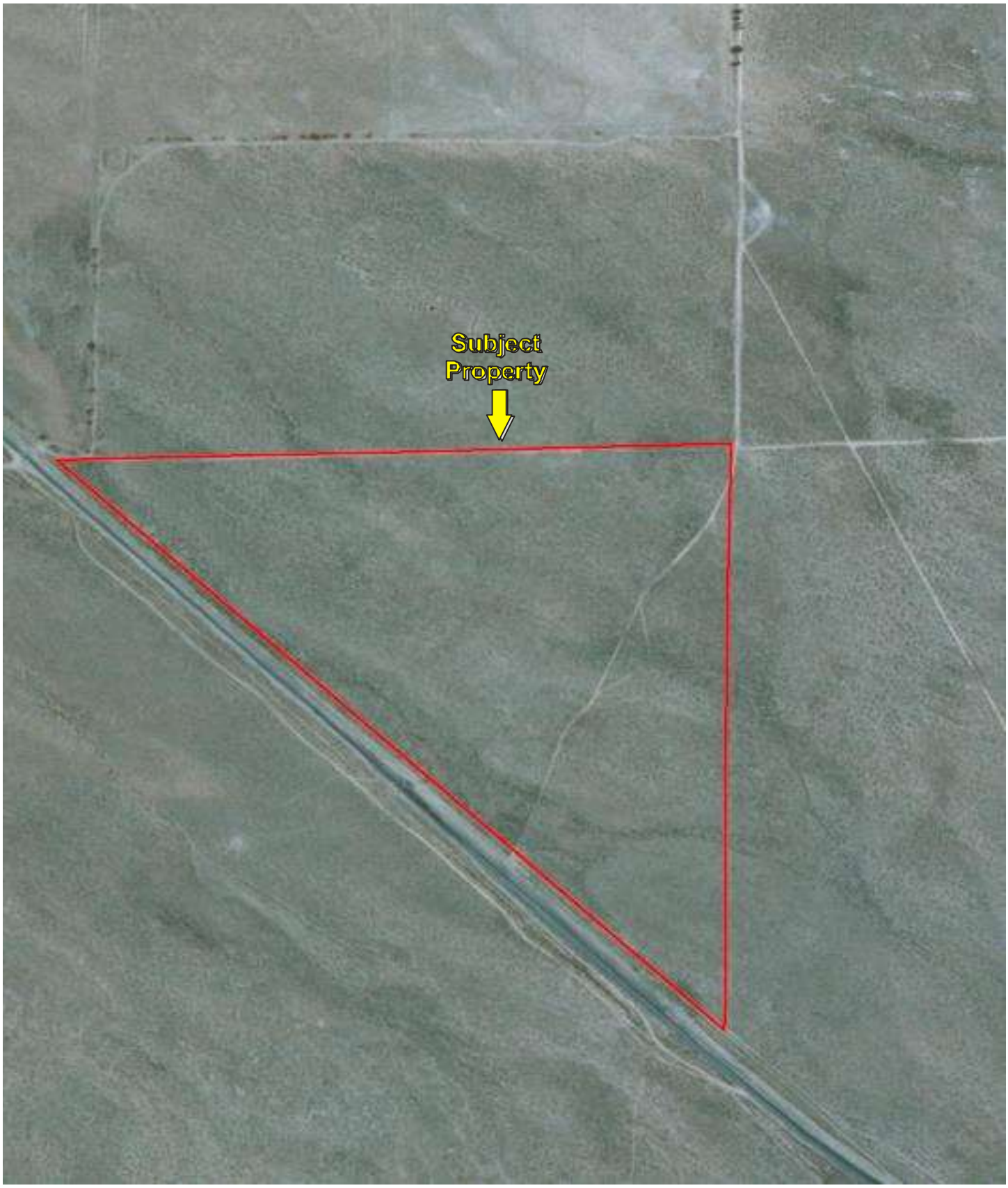
N

Date of Photograph: 1983

KEY:
Subject Property

APPENDIX B: AERIAL PHOTOGRAPHS
Project No. 17-180030.2

PARTNER



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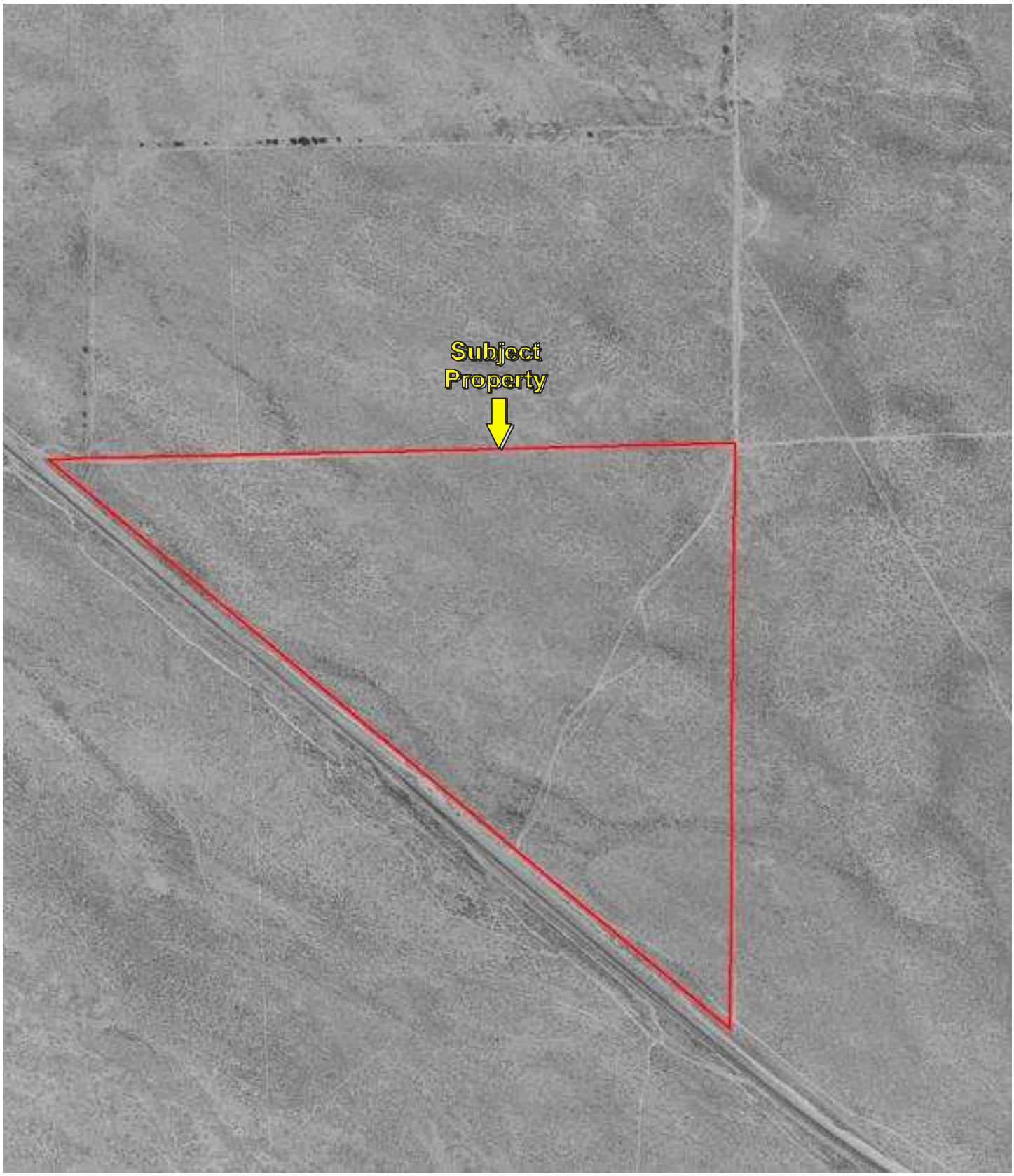
Date of Photograph: 1986

KEY:
Subject Property

APPENDIX B: AERIAL PHOTOGRAPHS
Project No. 17-180030.2

PARTNER



N

Date of Photograph: 1994

KEY:
Subject Property

APPENDIX B: AERIAL PHOTOGRAPHS
Project No. 17-180030.2

PARTNER

N

Date of Photograph: 2005

KEY:
Subject Property

APPENDIX B: AERIAL PHOTOGRAPHS
Project No. 17-180030.2

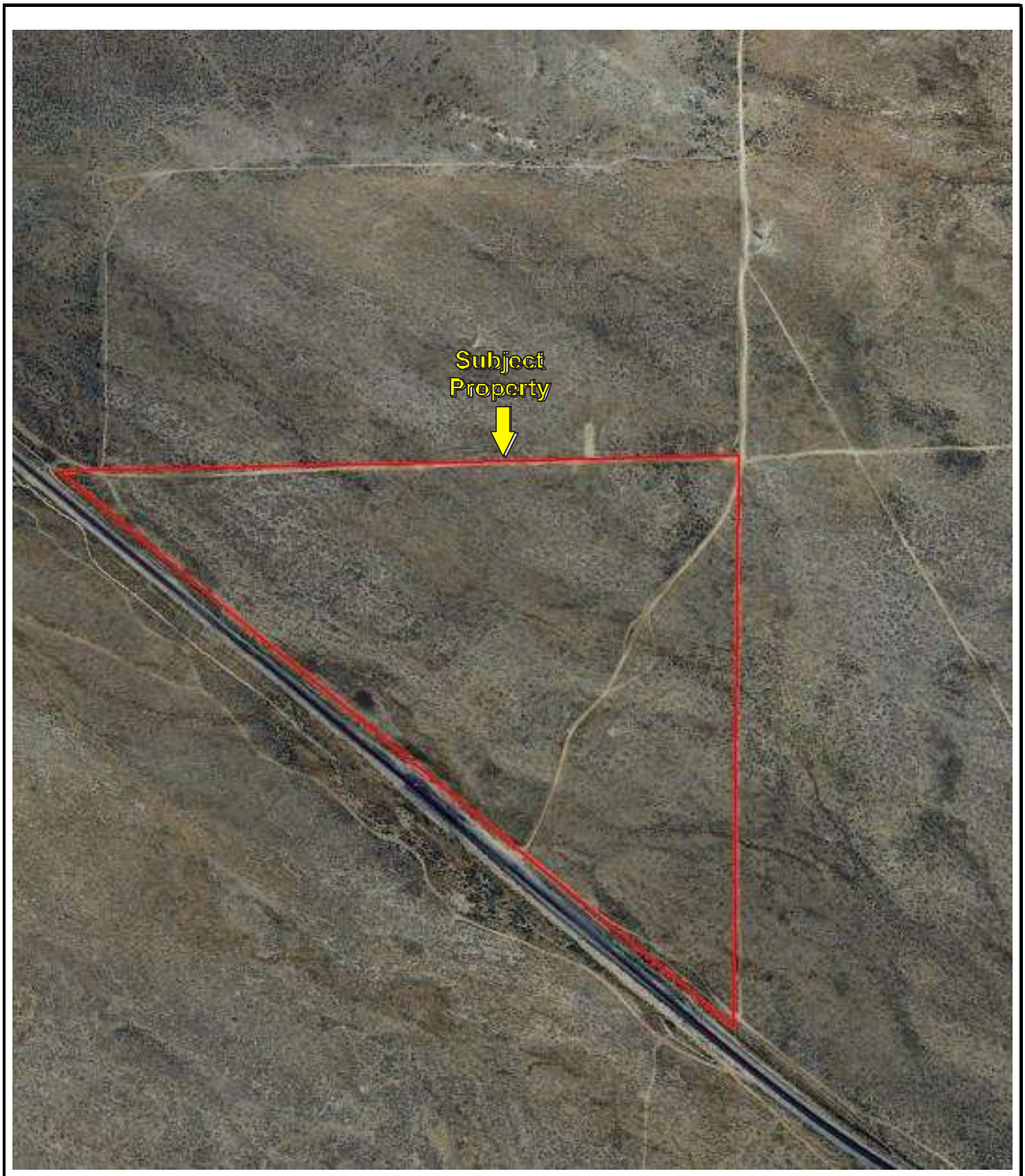
PARTNER

Date of Photograph: 2009

KEY:
Subject Property

APPENDIX B: AERIAL PHOTOGRAPHS
Project No. 17-180030.2

PARTNER



N

Date of Photograph: 2010

KEY:
Subject Property

APPENDIX B: AERIAL PHOTOGRAPHS
Project No. 17-180030.2

PARTNER

N

Date of Photograph: 2012

KEY:
Subject Property

APPENDIX B: AERIAL PHOTOGRAPHS
Project No. 17-180030.2

PARTNER

Gabrych TerraGen

APN 428-030-32

Mojave, CA 93501

Inquiry Number: 4850869.3

February 10, 2017

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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02/10/17

Site Name:	Client Name:
Gabrych TerraGen	Partner Engineering and Science, Inc.
APN 428-030-32	2154 Torrance Blvd, Suite 200
Mojave, CA 93501	Torrance, CA 90501-0000
EDR Inquiry # 4850869.3	Contact: Adrian Rivas

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Certified Sanborn Results:

Certification # 54AF-489D-A0E7

PO # NA

Project 17-180030.2

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: 54AF-489D-A0E7

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- ✔ Library of Congress
- ✔ University Publications of America
- ✔ EDR Private Collection

The Sanborn Library LLC Since 1866™

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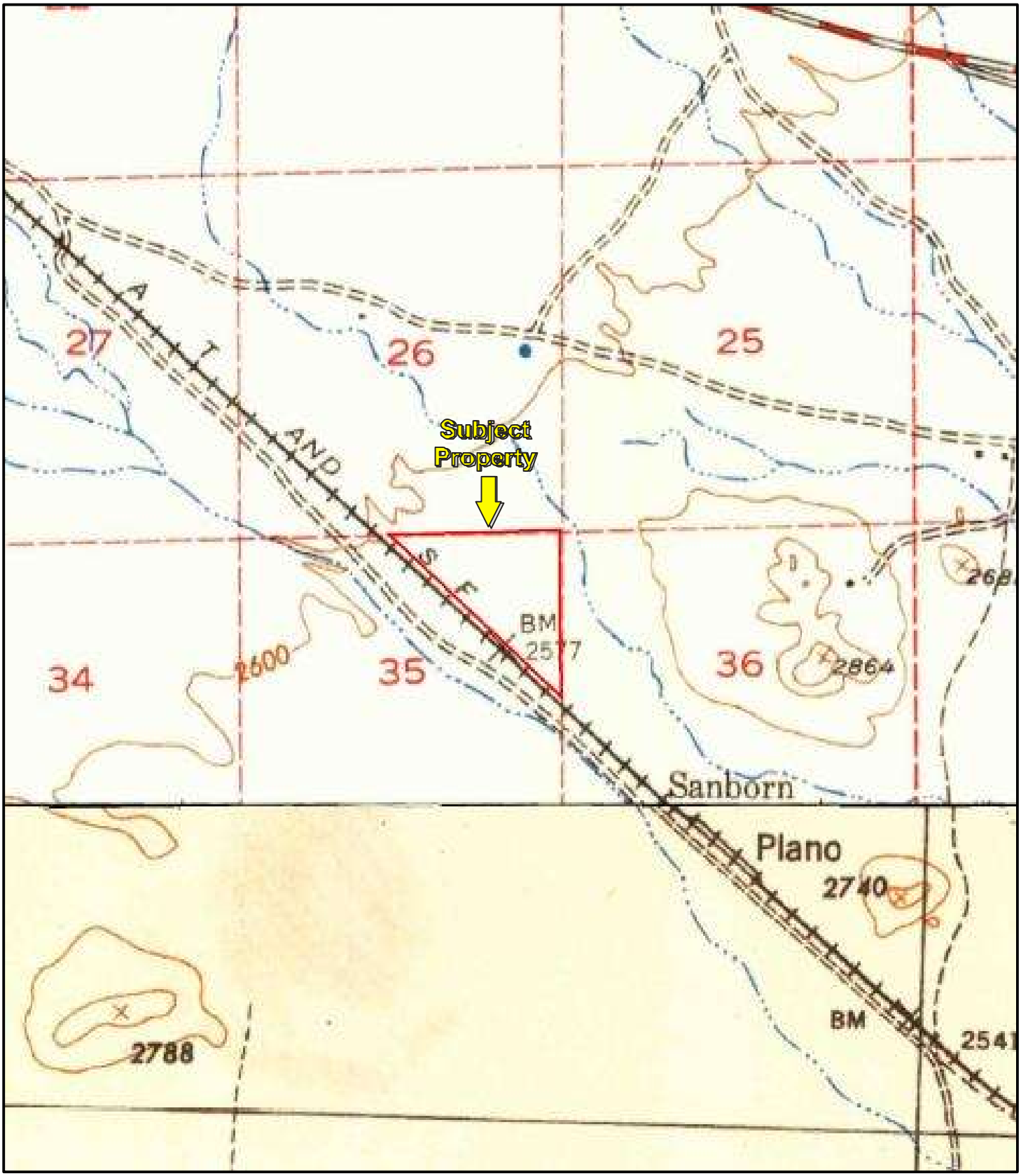
N

USGS 7.5 Minute *Mojave, CA* Quadrangle
Created: 1915

KEY:
Subject Property



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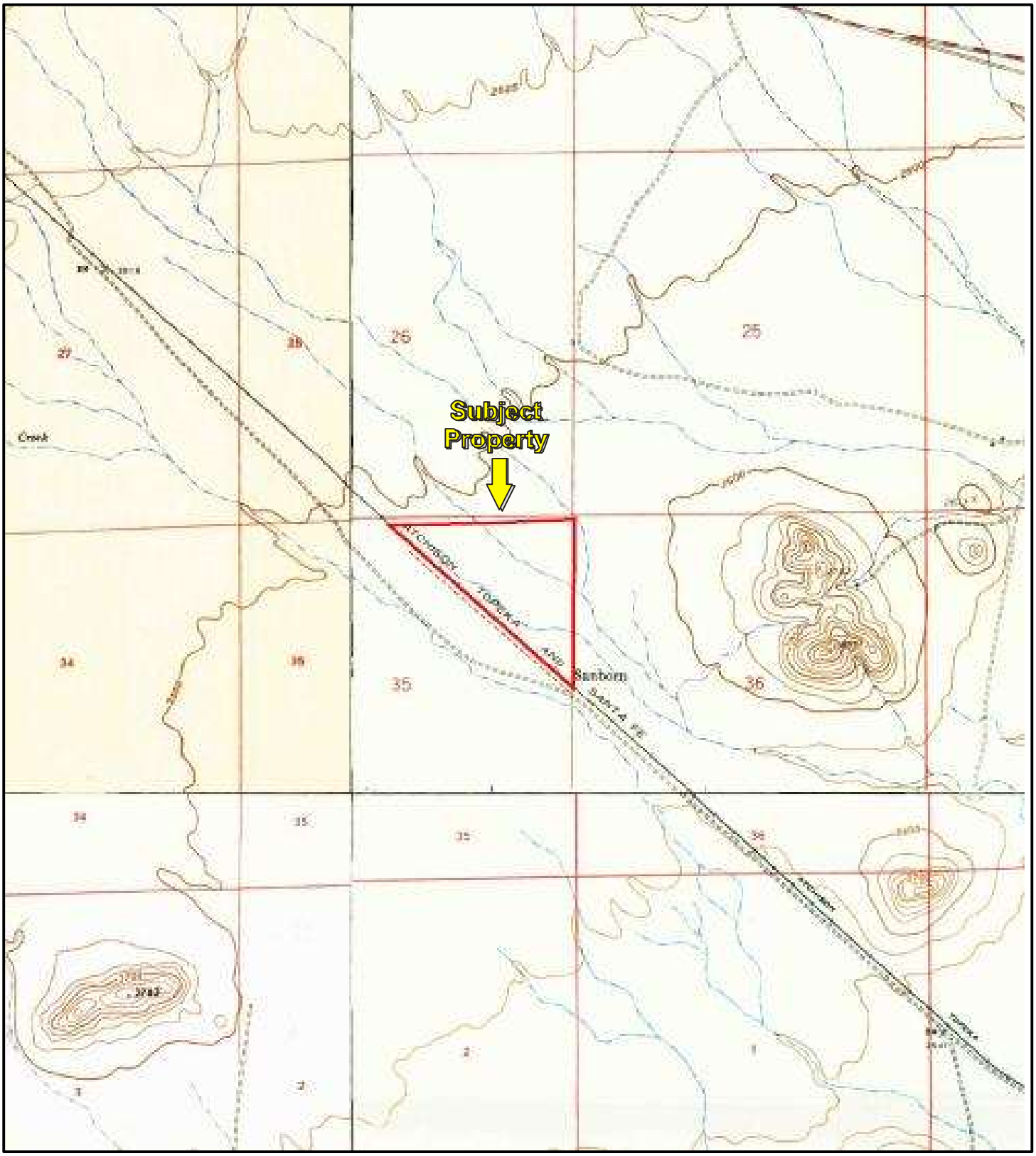
USGS 7.5 Minute *Mojave, CA* Quadrangle
Created: 1943

KEY:
Subject Property

APPENDIX B: HISTORIC TOPOGRAPHIC MAPS
Project No. 17-180030.2

PARTNER



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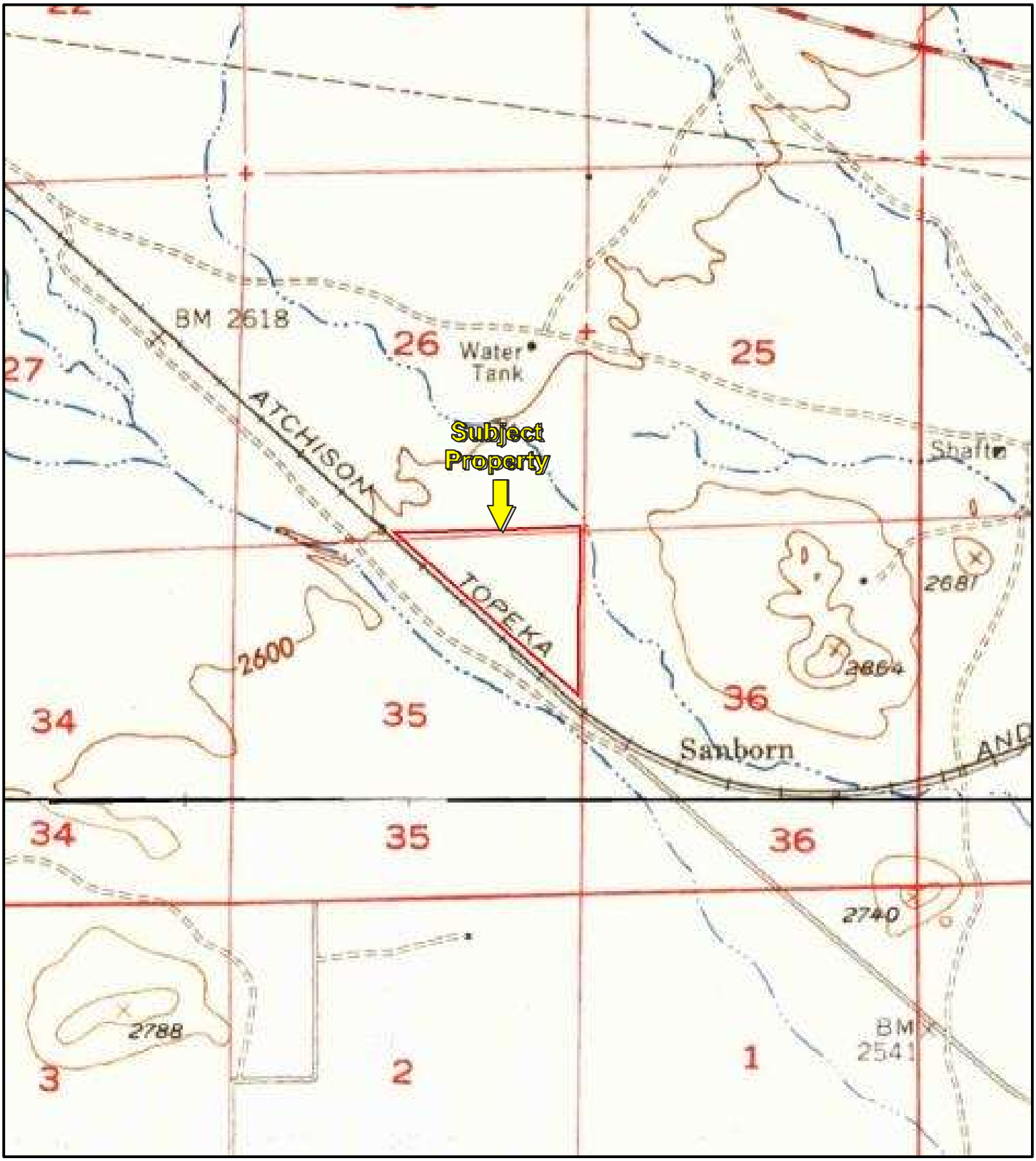
APPENDIX B: HISTORIC TOPOGRAPHIC MAPS
Project No. 17-180030.2

PARTNER



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USGS 7.5 Minute *Mojave, CA* Quadrangle
Created: 1956

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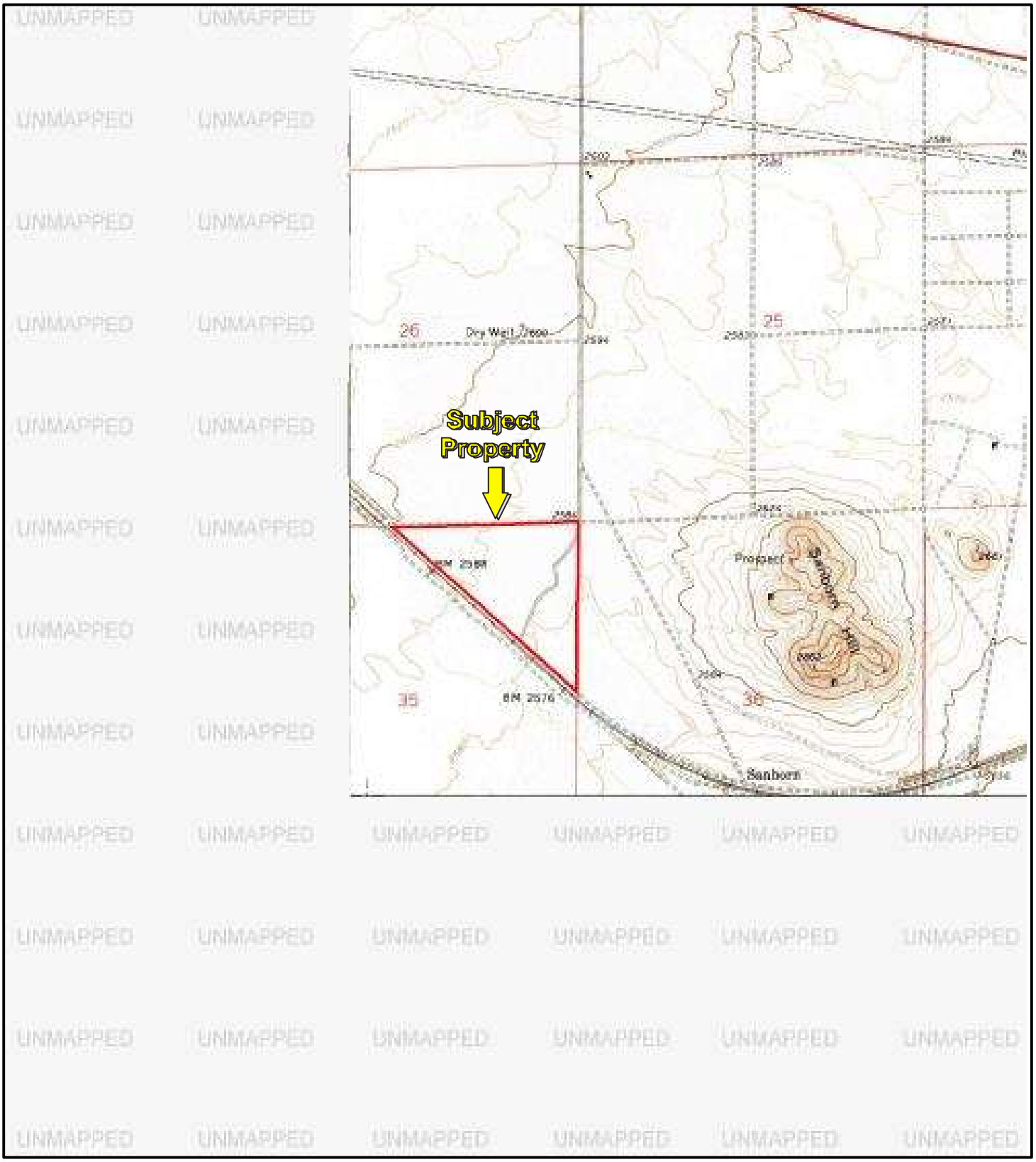
PARTNER



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USGS 7.5 Minute *Mojave, CA* Quadrangle
Created: 1980

KEY:
Subject Property

APPENDIX B: HISTORIC TOPOGRAPHIC MAPS
Project No. 17-180030.2

PARTNER

N

USGS 7.5 Minute *Mojave CA* Quadrangle
Created: 1995

KEY:
Subject Property

APPENDIX B: HISTORIC TOPOGRAPHIC MAPS
Project No. 17-180030.2

PARTNER

Gabrych TerraGen
APN 428-030-32
Mojave, CA 93501

Inquiry Number: 4850869.5
February 14, 2017

The EDR-City Directory Image Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

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SECTION

Executive Summary

Findings

City Directory Images

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with any questions or comments.

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	*Target Street*	*Cross Street*	*Source*
2013	☑	☐	Cole Information Services
2008	☑	☐	Cole Information Services
2003	☑	☐	Cole Information Services
1999	☑	☐	Cole Information Services
1995	☐	☐	Cole Information Services
1992	☐	☐	Cole Information Services
1990	☐	☐	Haines Criss-Cross Directory
1985	☐	☐	Haines Criss-Cross Directory
1980	☐	☐	Haines Criss-Cross Directory
1975	☐	☐	Haines Criss-Cross Directory

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FINDINGS

TARGET PROPERTY STREET

APN 428-030-32
Mojave, CA 93501

Year	CD Image	Source	
10TH ST E			
2013	pg A1	Cole Information Services	
2008	pg A2	Cole Information Services	
2003	pg A3	Cole Information Services	
1999	pg A4	Cole Information Services	
1995	-	Cole Information Services	Target and Adjoining not listed in Source
1992	-	Cole Information Services	Target and Adjoining not listed in Source
1990	-	Haines Criss-Cross Directory	Street not listed in Source
1985	-	Haines Criss-Cross Directory	Street not listed in Source
1980	-	Haines Criss-Cross Directory	Street not listed in Source
1975	-	Haines Criss-Cross Directory	Street not listed in Source

FINDINGS

CROSS STREETS

No Cross Streets Identified

City Directory Images

Target Street	Cross Street	Source
✓	-	Cole Information Services

10TH ST E 2013

10301	FELIPE HERNANDEZ
10303	OCCUPANT UNKNOWN

Target Street	Cross Street	Source
✓	-	Cole Information Services

10TH ST E 2008

10301	FELIPE HERNANDEZ
10303	VICTOR MARTINEZ

Target Street	Cross Street	Source
✓	-	Cole Information Services

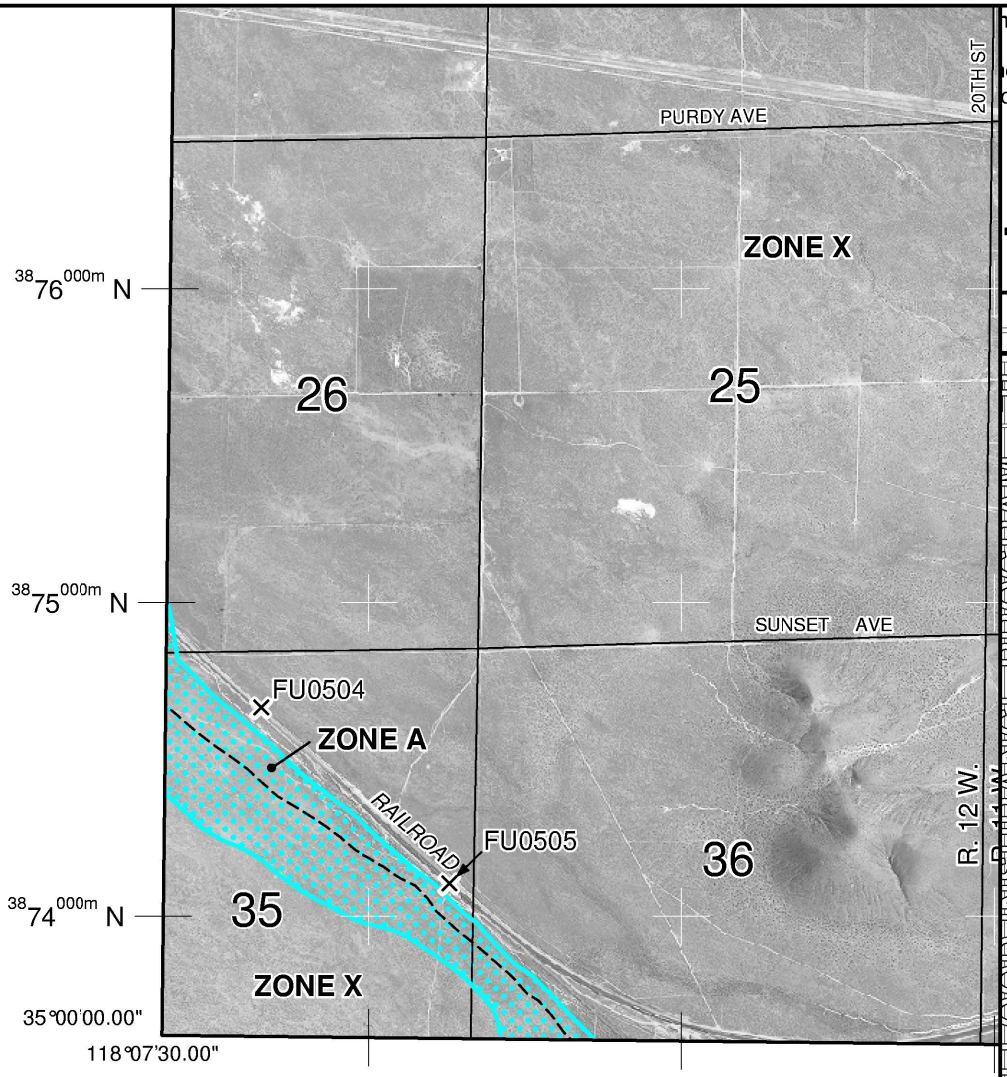
10TH ST E 2003

10303 IRMA GARCIA

Target Street	Cross Street	Source
✓	-	Cole Information Services

10TH ST E 1999

10301 FELIPE HERNANDEZ



he Flood Insurance Study report for this jurisdiction.

ce is available in this community, contact your insurance
d Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 2000'

METERS
0 600 1200

NATIONAL FLOOD INSURANCE PROGRAM FIP

PANEL 3325E

FIRM
FLOOD INSURANCE RATE MAP
KERN COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 3325 OF 4125
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
KERN COUNTY	060075	3325	E
CALIFORNIA CITY, CITY OF	060440	3325	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06029C3325E

EFFECTIVE DATE
SEPTEMBER 26, 2008

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

KERN COUNTY
Public Health Services
DEPARTMENT

MATTHEW CONSTANTINE
DIRECTOR

2700 M STREET, SUITE 300 BAKERSFIELD, CALIFORNIA 93301-2370 VOICE: 661-862-8740 FAX: 661-862-8701 KERNPUBLICHEALTH.COM

REQUEST FOR PUBLIC RECORDS

Describe the records you are requesting in as much detail (business name, address, type of record desired, etc.) as possible:

seeking any CUPA records pertaining to the following APNs:

428-020-07

428-030-32

429-030-02

244-233-01

244-233-02

****

Jeremy Russell

Name (Please Print)

Partner Engineering

Organization/Company

1761 E. Garry Avenue, Santa Ana, CA

Address

949 678 8911

Phone Number

jeremy.russell@protonmail.com

Email Address

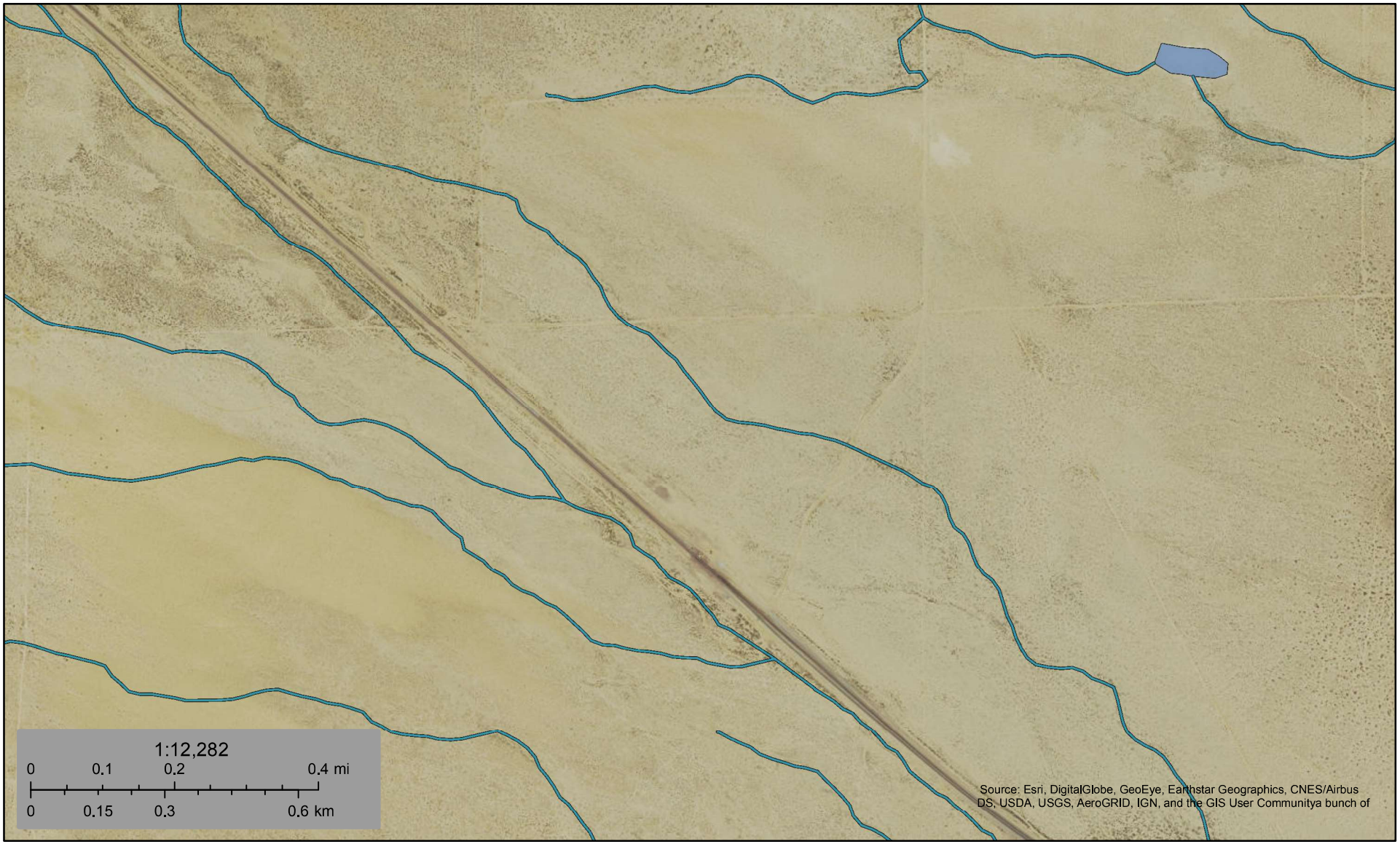
Signature

2/15/2017

Date

U.S. Fish and Wildlife Service
National Wetlands Inventory

Wetlands



March 2, 2017

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

APPENDIX C: REGULATORY DATABASE REPORT

PARTNER

Gabrych TerraGen
APN 428-030-32
Mojave, CA 93501

Inquiry Number: 4850869.2s
February 10, 2017

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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GEOCHECK ADDENDUM

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Physical Setting Source Records Searched	PSGR-1

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

APN 428-030-32
MOJAVE, CA 93501

COORDINATES

Latitude (North):	35.0088370 - 35˚ 0' 31.81''
Longitude (West):	118.1172590 - 118˚ 7' 2.13''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	398054.7
UTM Y (Meters):	3874395.8
Elevation:	2589 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5639204 SANBORN, CA
Version Date:	2012
Southeast Map:	5630785 BISSELL, CA
Version Date:	2012
Southwest Map:	5630773 SOLEDAD MOUNTAIN, CA
Version Date:	2012
Northwest Map:	5639196 MOJAVE, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140921, 20140823
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
APN 428-030-32
MOJAVE, CA 93501

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION

NO MAPPED SITES FOUND

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL..... National Priority List
Proposed NPL..... Proposed National Priority List Sites
NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY..... Federal Facility Site Information listing
SEMS..... Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE..... Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators
RCRA-SQG..... RCRA - Small Quantity Generators
RCRA-CESQG..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

LUCIS..... Land Use Control Information System
US ENG CONTROLS..... Engineering Controls Sites List

US INST CONTROL..... Sites with Institutional Controls

Federal ERNS list

ERNS..... Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE..... State Response Sites

State- and tribal - equivalent CERCLIS

ENVIROSTOR..... EnviroStor Database

State and tribal landfill and/or solid waste disposal site lists

SWF/LF..... Solid Waste Information System

State and tribal leaking storage tank lists

LUST..... Geotracker's Leaking Underground Fuel Tank Report
INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land
SLIC..... Statewide SLIC Cases

State and tribal registered storage tank lists

FEMA UST..... Underground Storage Tank Listing
UST..... Active UST Facilities
AST..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST..... Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

INDIAN VCP..... Voluntary Cleanup Priority Listing
VCP..... Voluntary Cleanup Program Properties

State and tribal Brownfields sites

BROWNFIELDS..... Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT..... Waste Management Unit Database
SWRCY..... Recycler Database
HAULERS..... Registered Waste Tire Haulers Listing
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations
ODI..... Open Dump Inventory

IHS OPEN DUMPS ..... Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL ..... Delisted National Clandestine Laboratory Register
HIST Cal-Sites ..... Historical Calsites Database
SCH ..... School Property Evaluation Program
CDL ..... Clandestine Drug Labs
Toxic Pits ..... Toxic Pits Cleanup Act Sites
US CDL ..... National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

SWEEPS UST ..... SWEEPS UST Listing
HIST UST ..... Hazardous Substance Storage Container Database
CA FID UST ..... Facility Inventory Database

Local Land Records

LIENS ..... Environmental Liens Listing
LIENS 2 ..... CERCLA Lien Information
DEED ..... Deed Restriction Listing

Records of Emergency Release Reports

HMIRS ..... Hazardous Materials Information Reporting System
CHMIRS ..... California Hazardous Material Incident Report System
LDS ..... Land Disposal Sites Listing
MCS ..... Military Cleanup Sites Listing
SPILLS 90 ..... SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR ..... RCRA - Non Generators / No Longer Regulated
FUDS ..... Formerly Used Defense Sites
DOD ..... Department of Defense Sites
SCRD DRYCLEANERS ..... State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR ..... Financial Assurance Information
EPA WATCH LIST ..... EPA WATCH LIST
2020 COR ACTION ..... 2020 Corrective Action Program List
TSCA ..... Toxic Substances Control Act
TRIS ..... Toxic Chemical Release Inventory System
SSTS ..... Section 7 Tracking Systems
ROD ..... Records Of Decision
RMP ..... Risk Management Plans
RAATS ..... RCRA Administrative Action Tracking System
PRP ..... Potentially Responsible Parties
PADS ..... PCB Activity Database System
ICIS ..... Integrated Compliance Information System
FTTS ..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS ..... Material Licensing Tracking System
COAL ASH DOE ..... Steam-Electric Plant Operation Data
COAL ASH EPA ..... Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER ..... PCB Transformer Registration Database

EXECUTIVE SUMMARY

RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
FINDS	Facility Index System/Facility Registry System
DOCKET HWC	Hazardous Waste Compliance Docket Listing
UXO	Unexploded Ordnance Sites
CA BOND EXP. PLAN	Bond Expenditure Plan
Cortese	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings	CUPA Resources List
DRYCLEANERS	Cleaner Facilities
EMI	Emissions Inventory Data
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
HAZNET	Facility and Manifest Data
ICE	ICE
HIST CORTESE	Hazardous Waste & Substance Site List
HWP	EnviroStor Permitted Facilities Listing
HWT	Registered Hazardous Waste Transporter Database
MINES	Mines Site Location Listing
MWMP	Medical Waste Management Program Listing
NPDES	NPDES Permits Listing
PEST LIC	Pesticide Regulation Licenses Listing
PROC	Certified Processors Database
Notify 65	Proposition 65 Records
UIC	UIC Listing
WASTEWATER PITS	Oil Wastewater Pits Listing
WDS	Waste Discharge System
WIP	Well Investigation Program Case List
FUELS PROGRAM	EPA Fuels Program Registered Listing
ABANDONED MINES	Abandoned Mines
ECHO	Enforcement & Compliance History Information

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants
EDR Hist Auto	EDR Exclusive Historic Gas Stations
EDR Hist Cleaner	EDR Exclusive Historic Dry Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF	Recovered Government Archive Solid Waste Facilities List
RGA LUST	Recovered Government Archive Leaking Underground Storage Tank

EXECUTIVE SUMMARY

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were not identified.

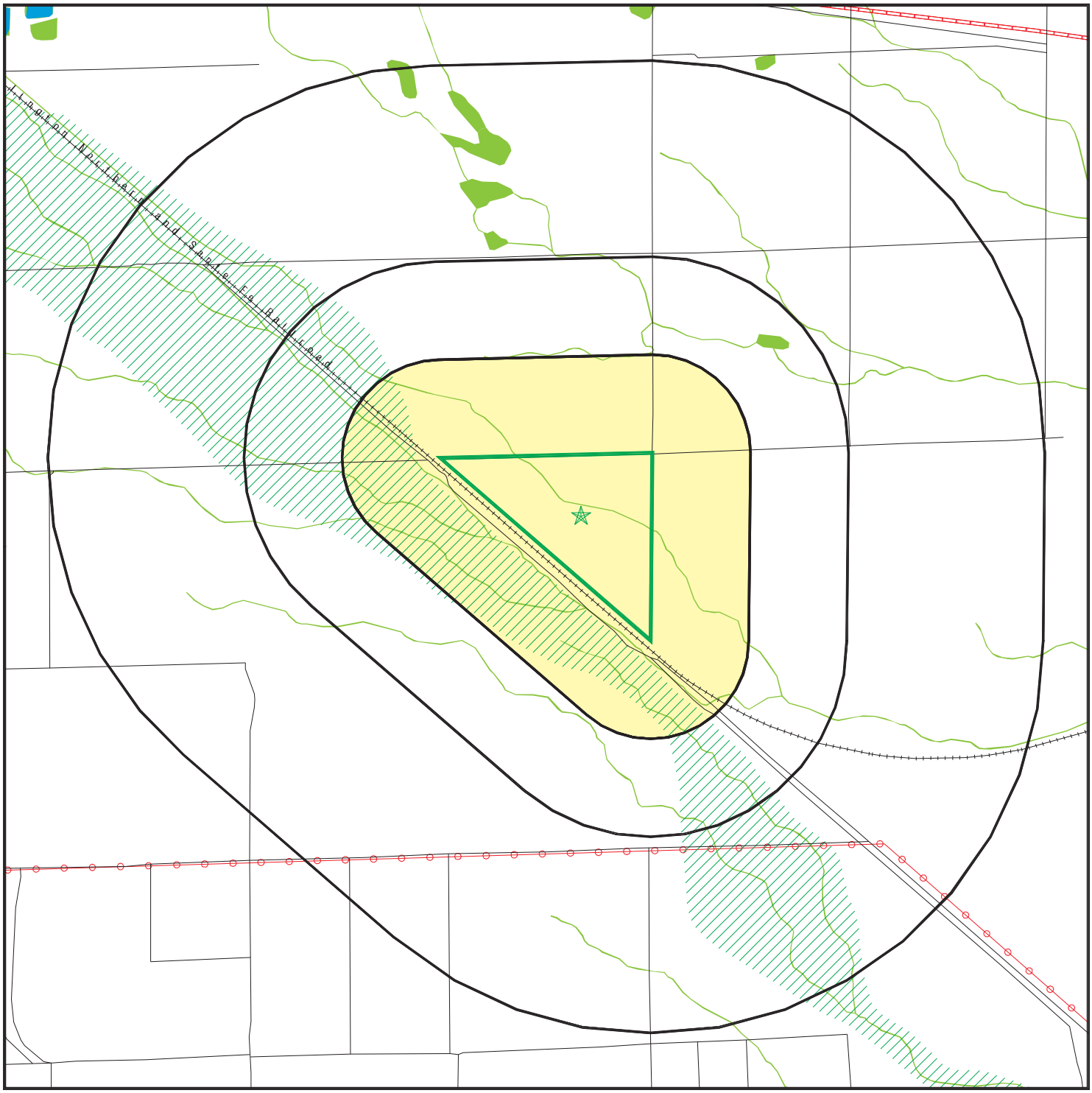
Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 1 records.

Site Name	Database(s)
FORMER MARINE CORPS AIR STATION -	LUST

OVERVIEW MAP - 4850869.2S



0 1/4 1/2 1 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Gabrych TerraGen ADDRESS: APN 428-030-32 Mojave CA 93501 LAT/LONG: 35.008837 / 118.117259	CLIENT: Partner Engineering and Science, Inc. CONTACT: Adrian Rivas INQUIRY #: 4850869.2s DATE: February 10, 2017 12:23 pm

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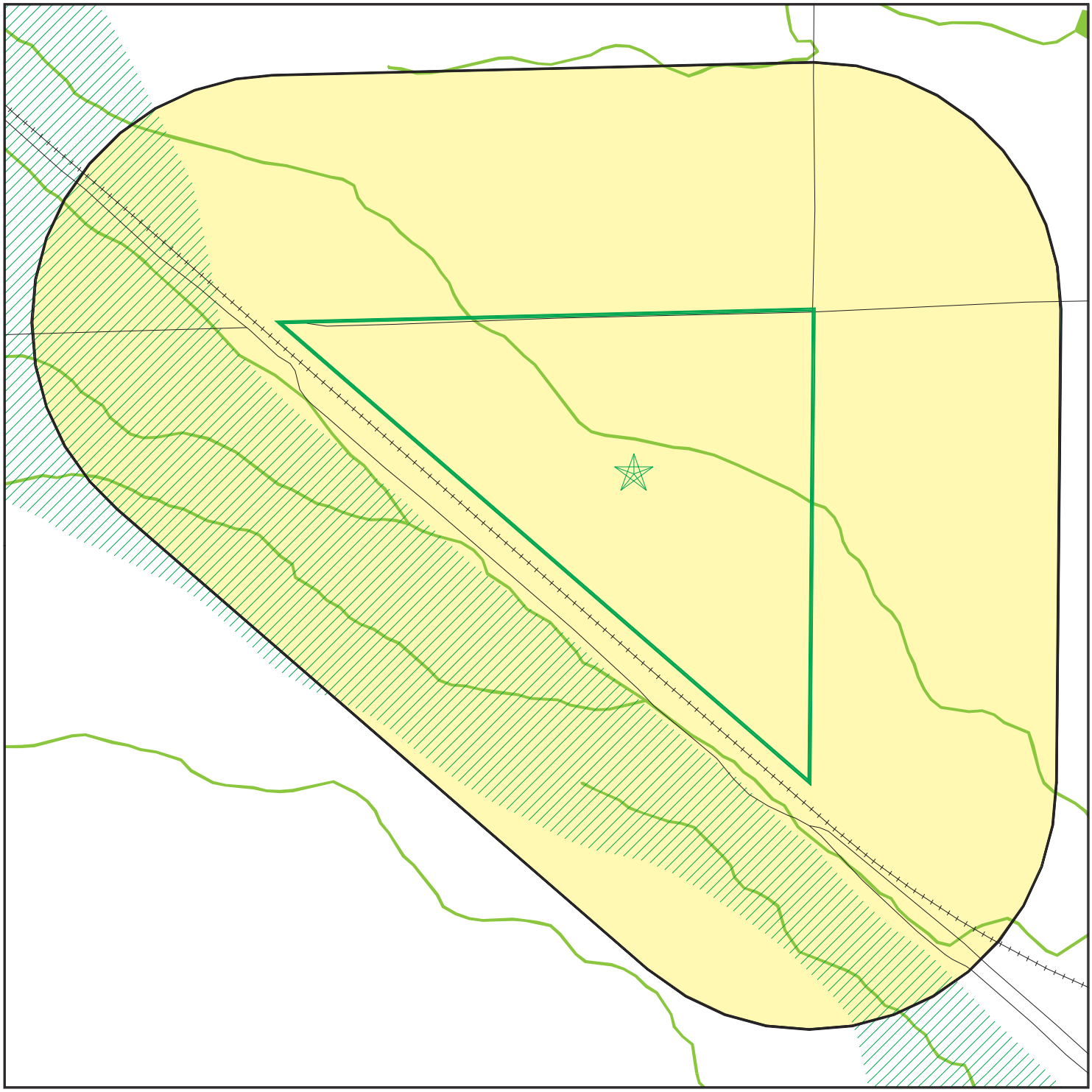
DETAIL MAP - 4850869.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

Sensitive Receptors

National Priority List Sites

Dept. Defense Sites

0 1/8 1/4 1/2 Miles

Indian Reservations BIA

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Gabrych TerraGen ADDRESS: APN 428-030-32 Mojave CA 93501 LAT/LONG: 35.008837 / 118.117259	CLIENT: Partner Engineering and Science, Inc. CONTACT: Adrian Rivas INQUIRY #: 4850869.2s DATE: February 10, 2017 12:23 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
SLIC	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	TP		NR	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	TP		NR	NR	NR	NR	NR	0
LIENS 2	TP		NR	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
CHMIRS	TP		NR	NR	NR	NR	NR	0
LDS	TP		NR	NR	NR	NR	NR	0
MCS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	TP		NR	NR	NR	NR	NR	0
ENF	TP		NR	NR	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
HAZNET	TP		NR	NR	NR	NR	NR	0
ICE	TP		NR	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
HWT	0.250		0	0	NR	NR	NR	0
MINES	TP		NR	NR	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
PEST LIC	TP		NR	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	TP		NR	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.500		0	0	0	NR	NR	0
ECHO	TP		NR	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	TP		NR	NR	NR	NR	NR	0
RGA LUST	TP		NR	NR	NR	NR	NR	0
- Totals --		0	0	0	0	0	0	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

MAP FINDINGS

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number

NO SITES FOUND

Count: 1 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
MOJAVE	S104574174	FORMER MARINE CORPS AIR STATION -	MOJAVE AIRPORT	93501	LUST

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 12/05/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 29

Source: EPA
Telephone: N/A
Last EDR Contact: 01/05/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 12/05/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 29

Source: EPA
Telephone: N/A
Last EDR Contact: 01/05/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/05/2016	Source: EPA
Date Data Arrived at EDR: 01/05/2017	Telephone: N/A
Date Made Active in Reports: 02/03/2017	Last EDR Contact: 01/05/2017
Number of Days to Update: 29	Next Scheduled EDR Contact: 04/17/2017
	Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 09/14/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/04/2016	Telephone: 703-603-8704
Date Made Active in Reports: 10/21/2016	Last EDR Contact: 01/05/2017
Number of Days to Update: 17	Next Scheduled EDR Contact: 04/17/2017
	Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/10/2016	Source: EPA
Date Data Arrived at EDR: 10/20/2016	Telephone: 800-424-9346
Date Made Active in Reports: 01/06/2017	Last EDR Contact: 01/06/2017
Number of Days to Update: 78	Next Scheduled EDR Contact: 05/01/2017
	Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 10/10/2016
Date Data Arrived at EDR: 10/20/2016
Date Made Active in Reports: 01/06/2017
Number of Days to Update: 78

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 01/06/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report
CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/28/2016
Date Made Active in Reports: 01/06/2017
Number of Days to Update: 100

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/28/2016
Date Made Active in Reports: 01/06/2017
Number of Days to Update: 100

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/28/2016
Date Made Active in Reports: 01/06/2017
Number of Days to Update: 100

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/28/2016
Date Made Active in Reports: 01/06/2017
Number of Days to Update: 100

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/28/2016
Date Made Active in Reports: 01/06/2017
Number of Days to Update: 100

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/28/2015
Date Data Arrived at EDR: 05/29/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 13

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 11/18/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 11/15/2016
Date Data Arrived at EDR: 11/29/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 11/29/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 11/15/2016
Date Data Arrived at EDR: 11/29/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 11/29/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 09/29/2016
Date Made Active in Reports: 11/11/2016
Number of Days to Update: 43

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Annually

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 10/31/2016
Date Data Arrived at EDR: 11/01/2016
Date Made Active in Reports: 01/18/2017
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 10/31/2016
Date Data Arrived at EDR: 11/01/2016
Date Made Active in Reports: 01/18/2017
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 11/14/2016
Date Data Arrived at EDR: 11/15/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 66

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 11/15/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST: Geotracker's Leaking Underground Fuel Tank Report
Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 37

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 12/14/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Quarterly

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 01/07/2016
Date Data Arrived at EDR: 01/08/2016
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 41

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 02/25/2016
Date Data Arrived at EDR: 04/27/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/13/2015
Date Data Arrived at EDR: 10/23/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 118

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 10/09/2015
Date Data Arrived at EDR: 02/12/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 112

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 12/11/2015
Date Data Arrived at EDR: 02/19/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 105

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 02/05/2016
Date Data Arrived at EDR: 04/29/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 35

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/24/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/27/2015
Date Data Arrived at EDR: 10/29/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 67

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 02/17/2016
Date Data Arrived at EDR: 04/27/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 37

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

SLIC: Statewide SLIC Cases

Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 40

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/14/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Varies

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 12/15/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 12/22/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 01/26/2016
Date Data Arrived at EDR: 02/05/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 119

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 09/23/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 65

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 12/03/2015
Date Data Arrived at EDR: 02/04/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 120

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/20/2015
Date Data Arrived at EDR: 10/29/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 67

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 02/05/2016
Date Data Arrived at EDR: 04/29/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 35

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 01/24/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 11/05/2015
Date Data Arrived at EDR: 11/13/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 52

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 01/07/2016
Date Data Arrived at EDR: 01/08/2016
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 41

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 02/25/2016
Date Data Arrived at EDR: 04/27/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 37

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

State and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 12/27/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 10/31/2016
Date Data Arrived at EDR: 11/01/2016
Date Made Active in Reports: 01/18/2017
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfieds Sites Listing
A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 02/29/2016
Date Data Arrived at EDR: 03/07/2016
Date Made Active in Reports: 05/04/2016
Number of Days to Update: 58

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 01/04/2017
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 09/20/2016
Date Data Arrived at EDR: 09/21/2016
Date Made Active in Reports: 11/11/2016
Number of Days to Update: 51

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 12/20/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/14/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 08/25/2016
Date Data Arrived at EDR: 08/26/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 49

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 11/11/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 10/31/2016
Next Scheduled EDR Contact: 02/13/2017
Data Release Frequency: Varies

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 08/31/2016
Date Data Arrived at EDR: 09/06/2016
Date Made Active in Reports: 09/23/2016
Number of Days to Update: 17

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/29/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 10/31/2016
Date Data Arrived at EDR: 11/01/2016
Date Made Active in Reports: 01/18/2017
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 08/31/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 34

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 08/30/2016
Date Data Arrived at EDR: 09/06/2016
Date Made Active in Reports: 09/23/2016
Number of Days to Update: 17

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/29/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Quarterly

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 12/01/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 35

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 11/28/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 11/29/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 48

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 01/24/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 12/06/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 45

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 12/06/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/28/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 37

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 01/17/2017
Number of Days to Update: 83

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 01/25/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 37

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/14/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 37

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/14/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/28/2016
Date Made Active in Reports: 01/06/2017
Number of Days to Update: 100

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015
Date Data Arrived at EDR: 07/08/2015
Date Made Active in Reports: 10/13/2015
Number of Days to Update: 97

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 12/08/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 01/31/2017
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 10/11/2016
Date Data Arrived at EDR: 11/16/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 04/22/2013
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 11/11/2016
Next Scheduled EDR Contact: 02/20/2017
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/15/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 14

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 12/23/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 11/24/2015
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 133

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 11/22/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 12/06/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 08/01/2016
Date Data Arrived at EDR: 08/22/2016
Date Made Active in Reports: 11/11/2016
Number of Days to Update: 81

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 11/07/2016
Next Scheduled EDR Contact: 02/20/2017
Data Release Frequency: Quarterly

PADS: PCB Activity Database System
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 01/20/2016
Date Data Arrived at EDR: 04/28/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 127

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/27/2016
Date Data Arrived at EDR: 08/05/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 11/17/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 11/17/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Quarterly

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/2016
Date Data Arrived at EDR: 09/08/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 43

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 12/06/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 12/06/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 01/29/2016
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 10/03/2016
Date Data Arrived at EDR: 10/05/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 16

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 01/06/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 02/01/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 09/30/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 77

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

BRS: Biennial Reporting System
The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 02/24/2015
Date Made Active in Reports: 09/30/2015
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 11/23/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program
DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 07/21/2016
Date Data Arrived at EDR: 07/26/2016
Date Made Active in Reports: 09/23/2016
Number of Days to Update: 59

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites
Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 09/09/2016
Next Scheduled EDR Contact: 12/05/2016
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites
A listing of former lead smelter site locations.

Date of Government Version: 03/07/2016
Date Data Arrived at EDR: 04/07/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 148

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 01/05/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites
A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)
The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 12/22/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 12/22/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Annually

US MINES: Mines Master Index File
Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/05/2016
Date Data Arrived at EDR: 09/01/2016
Date Made Active in Reports: 09/23/2016
Number of Days to Update: 22

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 12/01/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing
This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 12/12/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Varies

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/15/2016
Date Data Arrived at EDR: 09/07/2016
Date Made Active in Reports: 11/11/2016
Number of Days to Update: 65

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 12/06/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 06/02/2016
Date Data Arrived at EDR: 06/03/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 91

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 11/28/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 10/25/2015
Date Data Arrived at EDR: 01/29/2016
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 67

Source: Department of Defense
Telephone: 571-373-0407
Last EDR Contact: 01/20/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Varies

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 09/27/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 52

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 09/02/2016
Date Data Arrived at EDR: 09/27/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 79

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 09/23/2016
Date Made Active in Reports: 10/24/2016
Number of Days to Update: 31

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 12/23/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 12/06/2016
Date Data Arrived at EDR: 12/09/2016
Date Made Active in Reports: 01/18/2017
Number of Days to Update: 40

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 04/25/2016
Date Data Arrived at EDR: 04/29/2016
Date Made Active in Reports: 06/21/2016
Number of Days to Update: 53

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 11/16/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 63

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 11/11/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 10/12/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 64

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Annually

ICE: ICE
Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 11/21/2016
Date Data Arrived at EDR: 11/22/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 62

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 11/22/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List
The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing
Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 11/21/2016
Date Data Arrived at EDR: 11/22/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 62

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/22/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database
A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/12/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 64

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 01/11/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing
A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Varies

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 09/06/2016
Date Data Arrived at EDR: 09/07/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 37

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 12/06/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 05/16/2016
Date Data Arrived at EDR: 05/18/2016
Date Made Active in Reports: 06/23/2016
Number of Days to Update: 36

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 11/15/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing
A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 09/06/2016
Date Data Arrived at EDR: 09/07/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 37

Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 12/06/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/14/2016
Next Scheduled EDR Contact: 12/26/2016
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 09/19/2016
Date Data Arrived at EDR: 09/20/2016
Date Made Active in Reports: 12/16/2016
Number of Days to Update: 87

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 12/16/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: No Update Planned

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30

Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 12/14/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water board?s review found that more than one-third of the region?s active disposal pits are operating without permission.

Date of Government Version: 04/15/2015
Date Data Arrived at EDR: 04/17/2015
Date Made Active in Reports: 06/23/2015
Number of Days to Update: 67

Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 04/24/2047
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Quarterly

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 12/22/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines
An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 06/09/2016
Date Data Arrived at EDR: 06/13/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 81

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 12/09/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information
ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 09/18/2016
Date Data Arrived at EDR: 09/20/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 12/20/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Quarterly

FUELS PROGRAM: EPA Fuels Program Registered Listing
This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 11/21/2016
Date Data Arrived at EDR: 11/22/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 73

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 11/22/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Quarterly

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/14/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 35

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/06/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 10/10/2016
Date Data Arrived at EDR: 10/12/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 90

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2047
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA Facility List

Cupa Facility List

Date of Government Version: 11/10/2016
Date Data Arrived at EDR: 12/13/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 9

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing

Cupa facility list.

Date of Government Version: 10/21/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 23

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 10/25/2016
Date Data Arrived at EDR: 10/27/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 22

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 12/27/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 09/02/2016
Date Data Arrived at EDR: 09/06/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 38

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Varies

CONTRA COSTA COUNTY:

Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 11/17/2016
Date Data Arrived at EDR: 11/22/2016
Date Made Active in Reports: 01/26/2017
Number of Days to Update: 65

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA Facility List
Cupa Facility list

Date of Government Version: 11/01/2016
Date Data Arrived at EDR: 11/03/2016
Date Made Active in Reports: 11/22/2016
Number of Days to Update: 19

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 11/22/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 01/17/2017
Number of Days to Update: 55

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 10/11/2016
Date Data Arrived at EDR: 10/14/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 35

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 01/03/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Semi-Annually

HUMBOLDT COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 10/25/2016
Date Data Arrived at EDR: 10/27/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 22

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 11/21/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

IMPERIAL COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 10/24/2016
Date Data Arrived at EDR: 10/27/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 22

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INYO COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 09/11/2013
Date Made Active in Reports: 10/14/2013
Number of Days to Update: 33

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing

Kern County Sites and Tanks Listing.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 11/08/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 63

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/14/2016
Date Data Arrived at EDR: 12/16/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 6

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 09/08/2016
Date Data Arrived at EDR: 09/09/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 35

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 01/17/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Varies

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 12/15/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: No Update Planned

HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 11/14/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 66

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 10/17/2016
Date Data Arrived at EDR: 10/18/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 58

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 01/18/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Varies

City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2016
Date Data Arrived at EDR: 01/26/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 56

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 01/17/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Varies

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 03/29/2016
Date Data Arrived at EDR: 04/06/2016
Date Made Active in Reports: 06/13/2016
Number of Days to Update: 68

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 01/17/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 03/30/2015
Date Data Arrived at EDR: 04/02/2015
Date Made Active in Reports: 04/13/2015
Number of Days to Update: 11

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 01/17/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 11/04/2015
Date Data Arrived at EDR: 11/13/2015
Date Made Active in Reports: 12/17/2015
Number of Days to Update: 34

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Annually

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 10/04/2016
Date Data Arrived at EDR: 10/11/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 93

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/05/2016
Date Data Arrived at EDR: 12/09/2016
Date Made Active in Reports: 01/19/2017
Number of Days to Update: 41

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 10/19/2016
Date Data Arrived at EDR: 10/25/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 79

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 01/17/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 12/02/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 01/17/2017
Number of Days to Update: 42

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List
CUPA Facility List

Date of Government Version: 11/29/2016
Date Data Arrived at EDR: 12/05/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 17

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 11/28/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 06/24/2016
Date Data Arrived at EDR: 06/27/2016
Date Made Active in Reports: 08/09/2016
Number of Days to Update: 43

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 11/21/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 12/05/2011
Date Data Arrived at EDR: 12/06/2011
Date Made Active in Reports: 02/07/2012
Number of Days to Update: 63

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 11/28/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 11/08/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 44

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 11/03/2016
Date Data Arrived at EDR: 11/11/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 73

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 11/04/2016
Date Data Arrived at EDR: 11/11/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 73

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 11/03/2016
Date Data Arrived at EDR: 11/08/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 65

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/07/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 09/02/2016
Date Data Arrived at EDR: 09/06/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 38

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 10/20/2016
Date Data Arrived at EDR: 10/25/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 51

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/19/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 10/20/2016
Date Data Arrived at EDR: 10/25/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 77

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/19/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 08/22/2016
Date Data Arrived at EDR: 10/04/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 45

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/05/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 08/22/2016
Date Data Arrived at EDR: 10/04/2016
Date Made Active in Reports: 12/16/2016
Number of Days to Update: 73

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/05/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 09/06/2016
Date Data Arrived at EDR: 09/07/2016
Date Made Active in Reports: 10/19/2016
Number of Days to Update: 42

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database
The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 09/23/2013
Date Data Arrived at EDR: 09/24/2013
Date Made Active in Reports: 10/17/2013
Number of Days to Update: 23

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 12/06/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Quarterly

Solid Waste Facilities
San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2015
Date Data Arrived at EDR: 11/07/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 58

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

Environmental Case Listing
The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/16/2016
Date Data Arrived at EDR: 11/21/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 52

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 09/21/2016
Date Data Arrived at EDR: 09/22/2016
Date Made Active in Reports: 10/18/2016
Number of Days to Update: 26

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 12/15/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 11/17/2016
Date Data Arrived at EDR: 11/21/2016
Date Made Active in Reports: 01/19/2017
Number of Days to Update: 59

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

SAN MATEO COUNTY:

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 06/02/2016
Date Data Arrived at EDR: 06/07/2016
Date Made Active in Reports: 06/22/2016
Number of Days to Update: 15

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 06/09/2016
Date Data Arrived at EDR: 06/13/2016
Date Made Active in Reports: 08/09/2016
Number of Days to Update: 57

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 12/09/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List
Cupa facility list

Date of Government Version: 11/16/2016
Date Data Arrived at EDR: 11/21/2016
Date Made Active in Reports: 01/19/2017
Number of Days to Update: 59

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 11/28/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Annually

Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 11/10/2016
Date Made Active in Reports: 01/24/2017
Number of Days to Update: 75

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List
CUPA facility listing.

Date of Government Version: 11/16/2016
Date Data Arrived at EDR: 11/21/2016
Date Made Active in Reports: 01/19/2017
Number of Days to Update: 59

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/15/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 29

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 11/21/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 11/29/2016
Date Data Arrived at EDR: 12/21/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 1

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 12/09/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 11/29/2016
Date Data Arrived at EDR: 12/22/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 19

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 12/09/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List
Cupa Facility list

Date of Government Version: 09/27/2016
Date Data Arrived at EDR: 09/28/2016
Date Made Active in Reports: 11/22/2016
Number of Days to Update: 55

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 12/22/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 10/04/2016
Date Data Arrived at EDR: 10/06/2016
Date Made Active in Reports: 12/16/2016
Number of Days to Update: 71

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 12/22/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 12/02/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 35

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Semi-Annually

TUOLUMNE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 10/27/2016
Date Data Arrived at EDR: 10/28/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 74

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 10/27/2016
Date Made Active in Reports: 01/17/2017
Number of Days to Update: 82

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/30/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 11/14/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: Quarterly

Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 10/27/2016
Date Made Active in Reports: 01/24/2017
Number of Days to Update: 89

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 11/28/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 29

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/14/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 11/14/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 55

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 01/03/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Annually

YUBA COUNTY:

CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 10/28/2016
Date Data Arrived at EDR: 11/03/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 42

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013
Date Data Arrived at EDR: 08/19/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 11/11/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 09/29/2016
Date Made Active in Reports: 01/03/2017
Number of Days to Update: 96

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 10/01/2016
Date Data Arrived at EDR: 11/02/2016
Date Made Active in Reports: 01/04/2017
Number of Days to Update: 63

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 02/01/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 07/22/2016
Date Made Active in Reports: 11/22/2016
Number of Days to Update: 123

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 01/12/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 06/19/2015
Date Made Active in Reports: 07/15/2015
Number of Days to Update: 26

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 11/21/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 04/14/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 50

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 12/12/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: PennWell Corporation
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data
Source: PennWell Corporation
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

GABRYCH TERRAGEN
APN 428-030-32
MOJAVE, CA 93501

TARGET PROPERTY COORDINATES

Latitude (North):	35.008837 - 35˚ 0’ 31.81’’
Longitude (West):	118.117259 - 118˚ 7’ 2.13’’
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	398054.7
UTM Y (Meters):	3874395.8
Elevation:	2589 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5639204 SANBORN, CA
Version Date:	2012
Southeast Map:	5630785 BISSELL, CA
Version Date:	2012
Southwest Map:	5630773 SOLEDAD MOUNTAIN, CA
Version Date:	2012
Northwest Map:	5639196 MOJAVE, CA
Version Date:	2012

EDR’s GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

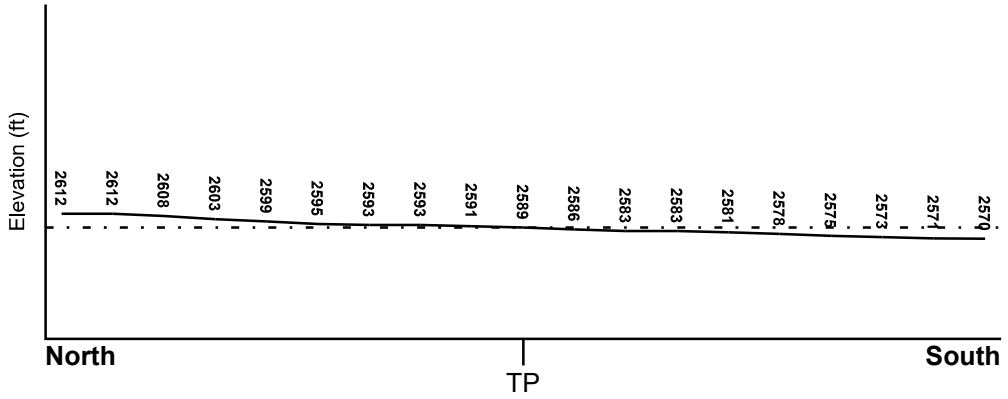
TOPOGRAPHIC INFORMATION

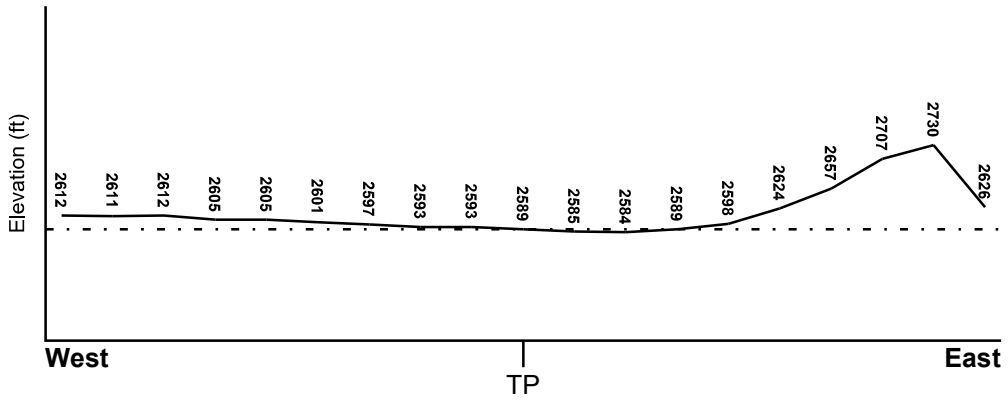
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SSE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





Target Property Elevation: 2589 ft.

0 1/2 1 Miles

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06029C3325E	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
06029C3295E	FEMA FIRM Flood data
06029C3675E	FEMA FIRM Flood data
06029C3700E	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
SANBORN	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

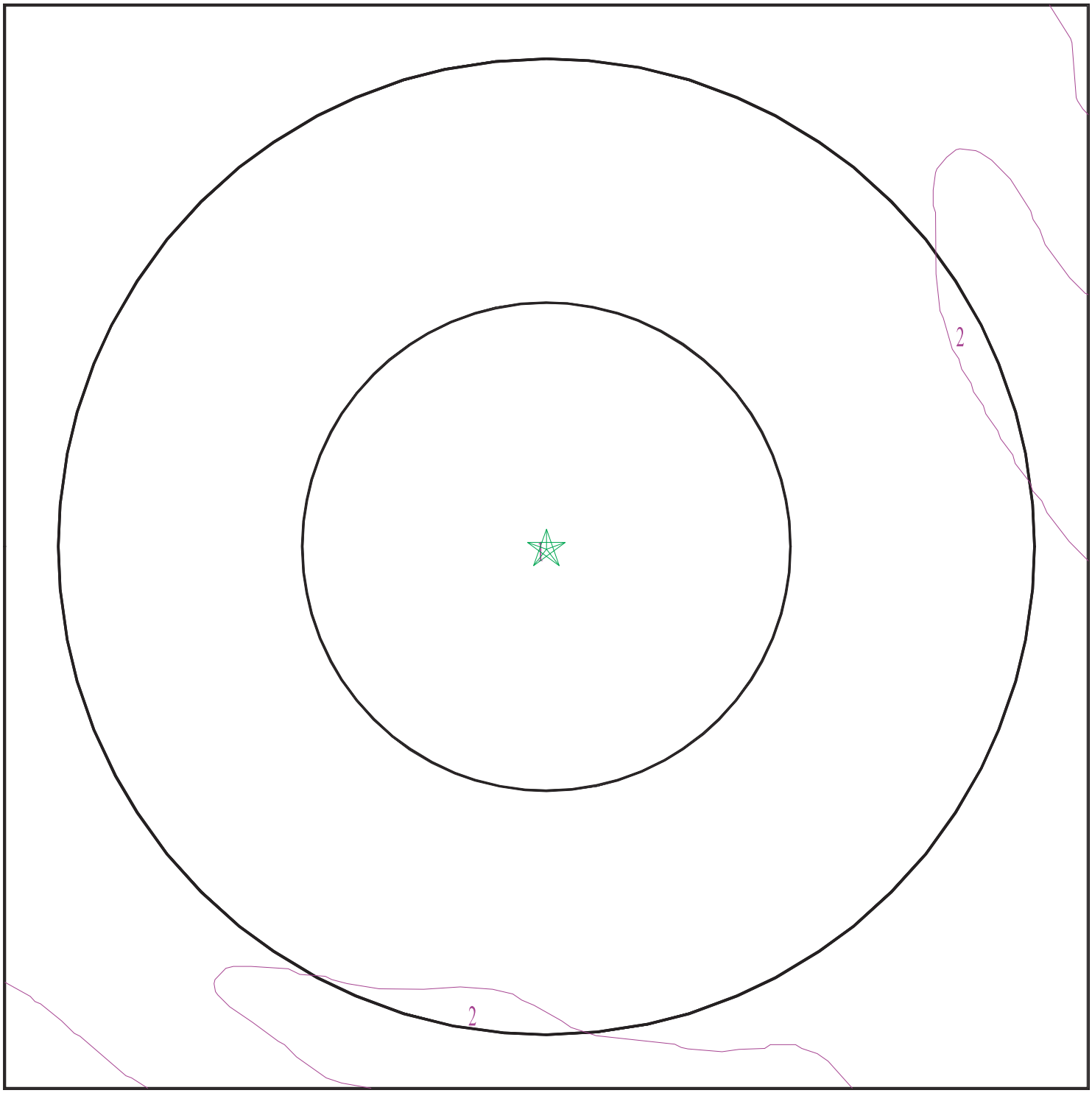
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 4850869.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

SITE NAME:	Gabrych TerraGen	CLIENT:	Partner Engineering and Science, Inc.
ADDRESS:	APN 428-030-32 Mojave CA 93501	CONTACT:	Adrian Rivas
		INQUIRY #:	4850869.2s
LAT/LONG:	35.008837 / 118.117259	DATE:	February 10, 2017 12:23 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: ROSAMOND

Soil Surface Texture:
Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	1 inches		Not reported	Not reported	Max: 42 Min: 14	Max: 8.4 Min: 7.9
2	1 inches	14 inches		Not reported	Not reported	Max: 4 Min: 1.4	Max: 8.4 Min: 7.9
3	14 inches	59 inches		Not reported	Not reported	Max: 14 Min: 4	Max: 8.4 Min: 7.9

Soil Map ID: 2

Soil Component Name: CAJON

Soil Surface Texture:
Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Somewhat excessively drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	20 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4
2	20 inches	59 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

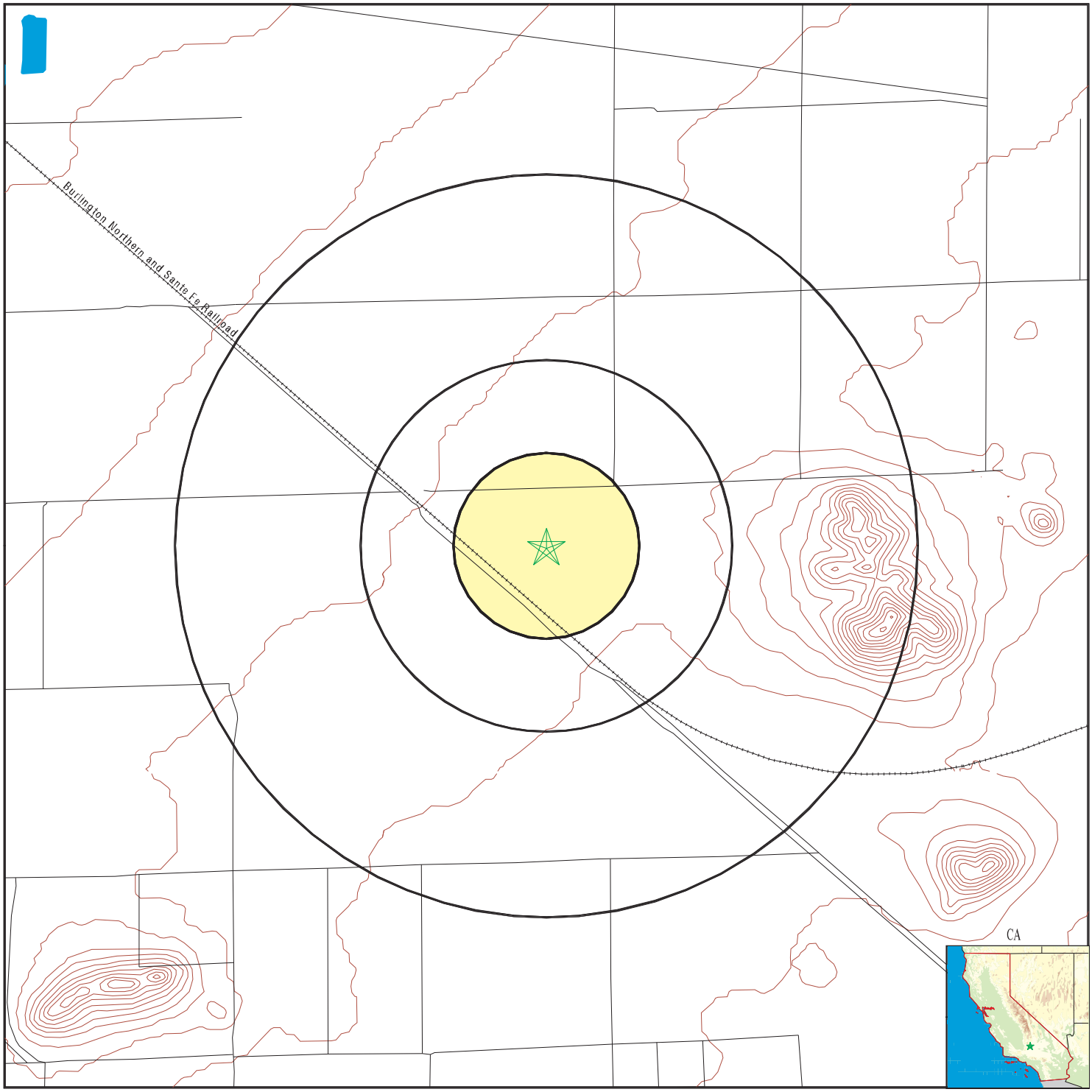
Note: PWS System location is not always the same as well location.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 4850869.2s



County Boundary
Major Roads
Contour Lines
Earthquake Fault Lines
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

0 1/4 1/2 1 Miles

Groundwater Flow Direction
Indeterminate Groundwater Flow at Location
Groundwater Flow Varies at Location
Closest Hydrogeological Data
Oil, gas or related wells

SITE NAME: Gabrych TerraGen ADDRESS: APN 428-030-32 Mojave CA 93501 LAT/LONG: 35.008837 / 118.117259	CLIENT: Partner Engineering and Science, Inc. CONTACT: Adrian Rivas INQUIRY #: 4850869.2s DATE: February 10, 2017 12:23 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
93501	5	0

Federal EPA Radon Zone for KERN County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for KERN COUNTY, CA

Number of sites tested: 94

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	1.422 pCi/L	98%	2%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW[R] Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779
Oil and Gas well locations in the state.

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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APPENDIX D: QUALIFICATIONS/INSURANCE

PARTNER

Jeremy Russell, REA II

Partner Associate

Education

B.S., Geology, University of Texas at Austin

Registrations

California Registered Environmental Assessor II

Summary of Professional Experience

Mr. Russell has 17 years of experience in the environmental service industry. He has significant experience in due diligence assessments for a variety of property types and the needs and requirements of varied number of reporting standards, including ASTM standards, EPA's All Appropriate Inquiry (AAI), and customized client formats. Specifically, Mr. Russell has performed Phase I Environmental Site Assessments, Environmental Transaction Screens, Phase II and III Subsurface Investigations, Remediation Design projects, Limited Asbestos Surveys, Lead-based Paint Surveys, Radon Studies, Mold Assessments, and Lead-in-water sampling and analysis.

Mr. Russell has managed numerous subsurface investigations to assess and cleanup the horizontal and vertical extent of soil and groundwater contamination. Mr. Russell has prepared Remediation Feasibility Studies, Work Plans and Remedial Action Plans for numerous projects that involved soil vapor extraction, LNAPL extraction and bioremediation. Mr. Russell conducted Preliminary Endangerment Assessments to evaluate potential contamination concerns on 10 proposed California public school sites. After review of report findings the California Department of Toxic Substances Control determined all sites were suitable for developments.

Mr. Russell has extensive experience conducting site assessments on large sections of vacant land for the purpose of evaluating and mapping planned developments. Mr. Russell has completed the California Desert Tortoise Environmental Awareness Training.

In addition, Mr. Russell has provided on behalf of clients interface with regulatory agencies and provided regulatory guidance and compliance with Cal-EPA, California Department of Toxic Substances Control (DTSC), California State Water Resources Control Board (SWRCB), and county and municipal regulations.

Finally, Mr. Russell's diversity across residential, industrial, municipal, and commercial environments is a major contribution to Partner Engineering and Science's Associate team in the Southwest region of the United States.

Shawn Askew
Project Manager

Education

Civil Engineering Technology major, Kennesaw State University; Mechanical Engineering major, Georgia Institute of Technology

Training

Certificate of Completion for PCA / PNA 8-Hour Training and Final Exam, including the Structural Module, Roofing Module, MEP Module, ADA / FFHA Module, Red Flag Issues, Cost Tables, and Fannie Mae 4099 Forms

ASTM E1527 Phase I Environmental Site Assessment Course, The Environmental Institute, 2003

OSHA 40-Hour Hazardous Waste Operations Emergency Response (HAZWOPER) Course (with current refreshers), Grant Training Solutions, from 2008

Asbestos Inspector: EPA-Model Accredited Asbestos in Buildings: Inspection & Assessment Course (with current refreshers), The Environmental Institute, from 2004

Lead-Based Paint Inspector: EPA-Target Housing & Child-Occupied Facilities Course, The Environmental Institute, from 2004

Mold Assessment and Remediation in Buildings Course, The Environmental Institute, 2007

Environmental Review Procedures for Responsible Entities Course, U.S. Department of Housing & Urban Development Region IV, 2008

Highlights

13 years of experience in environmental and civil engineering service industries

13 years of experience conducting Phase I Environmental Site Assessments (ESA)

11 years of experience conducting Property Condition Assessments (PCA)/Fannie Mae Physical Needs Assessments (PNA)

Experience Summary

Mr. Askew serves as a Project Manager for Partner Engineering and Science, Inc. (Partner). Mr. Askew's primary responsibilities include internal quality assurance/quality control review of Partner's equity-level ESAs and PCAs.

Mr. Askew performs Phase I Environmental Site Assessments in accordance with the EPA's All Appropriate Inquiry (AAI) and remediation of contaminated sites. An Environmental Professional (EP), Mr. Askew's areas of expertise include assessment and remediation of chlorinated solvents and petroleum hydrocarbons in soil and groundwater. Additionally, Mr. Askew conducts Property Condition Assessments of a variety of commercial real estate types, including Federal Fannie Mae Physical Needs Assessments (PNA) of multi-family residential developments. He has a total of thirteen years of experience in environmental and engineering due diligence, including experience with asbestos (ACM) surveys, lead-based paint (LBP) identification and abatement design, radon measurement and mitigation, mold assessments, lead-in-water sampling and analysis, and development of operations and maintenance (O&M) programs. Mr. Askew has personally managed and performed over 450 Phase I Environmental Site Assessments and Property Condition Assessments in twenty-six and twenty-seven states, respectively.

Project Experience

Phase I Environmental Site Assessments, Numerous Locations

National Center for Civil and Human Rights, Atlanta, Georgia, for Cousins Properties/Gude Management Group. Mr. Askew composed the June 2009 Phase I Environmental Site Assessment of a vacant parcel that became the site of the National Center for Civil and Human Rights museum in downtown Atlanta. Activities included property research at the world headquarters of previous property owner Coca-Cola, a site investigation, compilation of Georgia EPD environmental documentation related to the site, and report writing.

Truett-McConnell College, Cleveland, Georgia, for BB&T Bank. Mr. Askew executed a Phase I Environmental Site Assessment of the entire campus of Truett-McConnell College in Cleveland, Georgia for BB&T Bank in April 2014. Activities included inspections of twenty-eight on-site structures, identification of previously undetected asbestos-containing floor tile, compilation of Georgia EPD environmental documentation related to the site, and report writing.

Property Condition Assessments, Numerous Locations

Sooner Mall, Norman, Oklahoma, for US Bank. Mr. Askew executed a Property Condition Assessment of the entirety of Sooner Mall in Norman, Oklahoma as part of a portfolio for US Bank in March 2013. Activities included inspections of the roof, all interior space, and all major building systems, as well as local code compliance inquiries and report writing.

Platinum Tower, Atlanta, Georgia, for JP Morgan Chase. Mr. Askew executed a Property Condition Assessment of the 17-story Platinum Tower office building in Atlanta, Georgia as part of a portfolio for JP Morgan Chase in July 2011. Activities included inspections of the roof, office space on each of the building's floors, and all major building systems, as well as local code compliance inquiries and report writing.

Fannie Mae Assessments, Numerous Locations

Sandpiper Apartments, Birmingham, Alabama, for Wells Fargo Multifamily Capital. Mr. Askew executed an Environmental Transaction Screen/Physical Needs Assessment of Sandpiper Apartments in Birmingham, Alabama for Wells Fargo Multifamily Capital in February 2013 with follow-up work in April 2013.

Silver Creek Apartments, Chattanooga, Tennessee, for Arbor Commercial Mortgage. Mr. Askew executed a Phase I Environmental Site Assessment/Physical Needs Assessment of Silver Creek Apartments in Chattanooga, Tennessee for Arbor Commercial Mortgage in November 2012.

Donnelly Gardens Apartments, Atlanta, Georgia, for Arbor Commercial Mortgage. Mr. Askew executed a Phase I Environmental Site Assessment/Physical Needs Assessment of Donnelly Gardens Apartments in Atlanta, Georgia for Arbor Commercial Mortgage in October 2013.

The Reserve at Cavalier, Greenville, South Carolina, for Arbor Commercial Mortgage. Mr. Askew executed a Phase I Environmental Site Assessment/Physical Needs Assessment of The Reserve at Cavalier Apartments in Greenville, South Carolina for Arbor Commercial Mortgage in December 2014.

Logan Square Apartments, Auburn, Alabama, for NorthMarq Capital Finance. Mr. Askew executed a Physical Needs Assessment of Logan Square Apartments in Auburn, Alabama for NorthMarq Capital Finance in September 2015.

Contact

saskew@partneresi.com

Education

Bachelor of Arts, Public Administration & Economics, San Diego State University
Executive MBA Program, 2000-2003

Highlights

Over 20 years of experience in the environmental and engineering consulting industry
Property Condition Assessments (PCAs)
Fannie Mae, Freddie Mac, and HUD due diligence

Experience Summary

Mr. Lambson is a true veteran of the commercial real estate services industry. He has over 20 years of experience managing and performing environmental and engineering consulting projects on a national level. Mr. Lambson serves as a Principal for Partner and is located in Partner's San Diego County office. Mr. Lambson currently provides client management and consulting to a nationwide client base and specializes in advising "equity" clients during the acquisition phase of commercial property transactions in the U.S., Mexico, and Canada.

Mr. Lambson has assisted clients on over 10,000 commercial real estate transactions throughout his career. His due diligence resume includes experience at all levels, and includes advising REITs, developers, property managers, retail companies, commercial real estate brokers, mortgage brokers, attorneys, lenders, universities, and real estate investment groups with the following nationwide services:

- Property Condition Assessments (PCAs)
- Individual Building System Inspections for Roof, Mechanical Electrical Plumbing (MEP), Elevator, Structure, Façade, and ADA/Accessibility
- Phase I Environmental Site Assessments (ESAs)
- Phase II Subsurface Investigations (Soil and groundwater sampling and analysis)
- Phase III Environmental Remediation Services
- Asbestos, Lead, Radon, Mold Sampling
- Seismic and Structural Assessments (PMLs)
- Energy Audits, Benchmarking, AB1103 Energy Disclosure, and LEED-related services
- Hydrology, Water Conservation and Efficiency
- Fannie Mae / Freddie Mac / HUD Due Diligence
- Geotechnical and Soils Reports
- Zoning Reports
- ALTA Surveys

Building Sciences

Property Condition Assessment, MEP Report, Roof Report, Elevator Report, Structural and Seismic Assessment for a high-profile Class A office campus acquisition in the San Francisco Bay Area

ADA Compliance and Accessibility Reviews for a national bank branch portfolio

Fannie Mae Property Condition / Physical Needs Assessment services for a 5400-unit multifamily portfolio in Nevada

Environmental Assessments
Phase I and Phase II Environmental Assessments for a 75-acre aerospace facility in the Northwest United States

Over 500 Phase I Environmental Site Assessments for a national fast-food chain

Environmental consulting for over 1 million acres of desert land in California, Nevada, and Arizona

Land Surveys
ALTA Surveys for 2400-unit apartment portfolio in the Midwest

Multi-Site Portfolios
113-site office portfolio acquisition for a national REIT

122-site hotel portfolio for a national lending institution

55-site hotel portfolio acquisition for a private investment group

68-site healthcare portfolio acquisition for a national REIT

50-site country club/golf course acquisition for a private investment group

Energy and Water Efficiency
Energy & Water consulting for a national property owner that operates and manages 30 retail and office centers on the West Coast and Texas

Affiliations
National Association of Real Estate Investment Trusts (NAREIT)
International Council of Shopping Centers (ICSC)
U.S Green Building Council (USGBC)
Society of Industrial and Office Realtors, San Diego County (SIOR)
National Association of Industrial & Office Parks, Southern California (NAIOP)
San Diego Habitat Conservancy, Board of Directors. 2010 - 2014

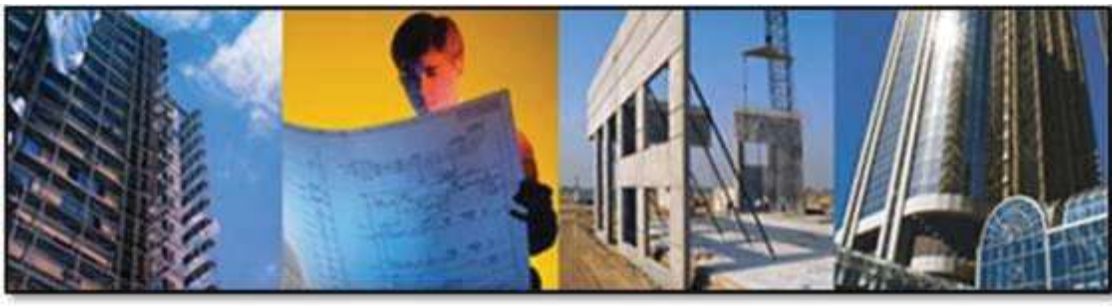
Speaking
Bisnow Conference, Panel Moderator, La Jolla, CA, October 2014. Moderated panel on Southern California Real Estate Trends.

Globestreet, ICSC Western States Conference, San Diego, CA May 2013. Video interview regarding retail real estate trends and due diligence.

Publications
Shopping Centers Today, 2010. Authored article on LEED applications for shopping centers and retail assets.

Contact
mlambson@partneresi.com

PARTNER
Engineering and Science, Inc.



PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

Gabrych TerraGen
APNs 429-030-02; 244-233-01; and 244-233-02
Mojave, California 93501

Report Date: March 2, 2017
Partner Project No. 17-180030.3

Prepared for:

Lansing Companies
12671 High Bluff Drive, Suite 150
San Diego, California 92130

PARTNER
Engineering and Science, Inc.

March 2, 2017

Mr. Casey Malone
Lansing Companies
12671 High Bluff Drive, Suite 150
San Diego, California 92130

Subject: Phase I Environmental Site Assessment
Gabrych TerraGen
APNs 429-030-02; 244-233-01; and 244-233-02
Mojave, California 93501
Partner Project No. 17-180030.3

Dear Mr. Malone:

Partner Engineering and Science, Inc. (Partner) is pleased to provide the results of the *Phase I Environmental Site Assessment* (Phase I ESA) report of the abovementioned address (the "subject property"). This assessment was performed in general conformance with the scope and limitations as detailed in the ASTM Practice E1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

This assessment included a site reconnaissance as well as research and interviews with representatives of the public, property ownership, site manager, and regulatory agencies. An assessment was made, conclusions stated, and recommendations outlined.

We appreciate the opportunity to provide environmental services to you. If you have any questions concerning this report, or if we can assist you in any other matter, please contact me at (619) 925-9672 or MLambson@partneresi.com.

Sincerely,

DRAFT

Mark Lambson
Principal

EXECUTIVE SUMMARY

Partner Engineering and Science, Inc. (Partner) has performed a Phase I Environmental Site Assessment (ESA) in general accordance with the scope of work and limitations of ASTM Standard Practice E1527-13, the Environmental Protection Agency Standards and Practices for All Appropriate Inquiries (AAI) (40 CFR Part 312) and set forth by Lansing Companies for the property located at APNs 429-030-02; 244-233-01; and 244-233-02 in an unincorporated area of Kern County, California (the "subject property"). The Phase I Environmental Site Assessment is designed to provide Lansing Companies with an assessment concerning environmental conditions (limited to those issues identified in the report) as they exist at the subject property.

Property Description

The subject property is located approximately 5 miles southeast of the town of Mojave, California, and approximately 2.5 miles south of State Highway 58 within a mixed commercial and residential area of southeastern Kern County. Please refer to the table below for further description of the subject property:

Subject Property Data	
Address:	APNs 429-030-02, 244-233-01, and 244-233-02, Kern County, California
Property Use:	Vacant
Land Acreage (Ac):	965.5
Assessor's Parcel Numbers (APNs):	429-030-02, 244-233-01, and 244-233-02
Site Assessment Performed By:	Jeremy Russell
Site Assessment Conducted On:	February 22, 2017

The subject property is currently vacant and undeveloped; no structures are on the property. No onsite operations were observed. The subject property consists of native land. A road crosses northwest-southeast through the northern portion of APN 429-030-02.

According to available historical sources, the subject property has been undeveloped since as early as 1915.

The immediately surrounding properties consist of undeveloped land to the north, east, and south, and residential dwellings to the west.

According to a previous subsurface investigation conducted on a nearby property (Mojave Airport aka FORMER MARINE CORPS AIR STATION - UST #1 and Case #T0602938829), the depth of groundwater in the vicinity of the subject property was reported to be approximately 238 to 350 feet below ground surface (bgs). No flow direction was reported.

Findings

A *recognized environmental condition (REC)* refers to the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: due to release to the environment; under conditions indicative of a release to the environment; or under conditions that pose a material threat of a future release to the environment. The following was identified during the course of this assessment:

- Partner did not identify any recognized environmental conditions during the course of this assessment.

A *controlled recognized environmental condition (CREC)* refers to a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls. The following was identified during the course of this assessment:

- Partner did not identify any controlled recognized environmental conditions during the course of this assessment.

A *historical recognized environmental condition (HREC)* refers to a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls. The following was identified during the course of this assessment:

- Partner did not identify any historical recognized environmental conditions during the course of this assessment.

An *environmental issue* refers to environmental concerns identified by Partner, which do not qualify as RECs; however, warrant further discussion. The following was identified during the course of this assessment:

- Partner did not identify any environmental issues during the course of this assessment.

Conclusions, Opinions, and Recommendations

Partner has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-13 of APNs 429-030-02; 244-233-01; and 244-233-02 in an unincorporated area of, Kern County, California (the "subject property"). Any exceptions to, or deletions from, this practice are described in Section 1.5 of this report.

This assessment has revealed no evidence of recognized environmental conditions or environmental issues in connection with the subject property. Based on the conclusions of this assessment, Partner recommends no further investigation of the subject property at this time.

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1.0 INTRODUCTION

Partner Engineering and Science, Inc. (Partner) has performed a Phase I Environmental Site Assessment (ESA) in general conformance with the scope and limitations of ASTM Standard Practice E1527-13 and the Environmental Protection Agency Standards and Practices for All Appropriate Inquiries (AAI) (40 CFR Part 312) for the property located at APNs 429-030-02; 244-233-01; and 244-233-02 in an unincorporated area of, Kern County, California (the "subject property"). Any exceptions to, or deletions from, this scope of work are described in the report.

1.1 Purpose

The purpose of this ESA is to identify existing or potential Recognized Environmental Conditions (as defined by ASTM Standard E1527-13) affecting the subject property that: 1) constitute or result in a material violation or a potential material violation of any applicable environmental law; 2) impose any material constraints on the operation of the subject property or require a material change in the use thereof; 3) require clean-up, remedial action or other response with respect to Hazardous Substances or Petroleum Products on or affecting the subject property under any applicable environmental law; 4) may affect the value of the subject property; and 5) may require specific actions to be performed with regard to such conditions and circumstances. The information contained in the ESA Report will be used by Client to: 1) evaluate its legal and financial liabilities for transactions related to foreclosure, purchase, sale, loan origination, loan workout or seller financing; 2) evaluate the subject property's overall development potential, the associated market value and the impact of applicable laws that restrict financial and other types of assistance for the future development of the subject property; and/or 3) determine whether specific actions are required to be performed prior to the foreclosure, purchase, sale, loan origination, loan workout or seller financing of the subject property.

This ESA was performed to permit the *User* to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on scope of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C. §9601) liability (hereinafter, the "*landowner liability protections*," or "*LLPs*"). ASTM Standard E1527-13 constitutes "*all appropriate inquiry* into the previous ownership and uses of the *property* consistent with good commercial or customary practice" as defined at 42 U.S.C. §9601(35)(B).

1.2 Scope of Work

The scope of work for this ESA is in general accordance with the requirements of ASTM Standard E1527-13. This assessment included: 1) a property and adjacent site reconnaissance; 2) interviews with key personnel; 3) a review of historical sources; 4) a review of regulatory agency records; and 5) a review of a regulatory database report provided by a third-party vendor. Partner contacted local agencies, such as environmental health departments, fire departments and building departments in order to determine any current and/or former hazardous substances usage, storage and/or releases of hazardous substances on the subject property. Additionally, Partner researched information on the presence of activity and use limitations (AULs) at these agencies. As defined by ASTM E1527-13, AULs are the legal or physical restrictions or limitations on the use of, or access to, a site or facility: 1) to reduce or eliminate potential

exposure to hazardous substances or petroleum products in the soil or groundwater on the subject property; or 2) to prevent activities that could interfere with the effectiveness of a response action, in order to ensure maintenance of a condition of no significant risk to public health or the environment. These legal or physical restrictions, which may include institutional and/or engineering controls (IC/ECs), are intended to prevent adverse impacts to individuals or populations that may be exposed to hazardous substances and petroleum products in the soil or groundwater on the property.

If requested by Client, this report may also include the identification, discussion of, and/or limited sampling of asbestos-containing materials (ACMs), lead-based paint (LBP), mold, and/or radon.

1.3 Limitations

Partner warrants that the findings and conclusions contained herein were accomplished in accordance with the methodologies set forth in the Scope of Work. These methodologies are described as representing good commercial and customary practice for conducting an ESA of a property for the purpose of identifying recognized environmental conditions. There is a possibility that even with the proper application of these methodologies there may exist on the subject property conditions that could not be identified within the scope of the assessment or which were not reasonably identifiable from the available information. Partner believes that the information obtained from the record review and the interviews concerning the subject property is reliable. However, Partner cannot and does not warrant or guarantee that the information provided by these other sources is accurate or complete. The conclusions and findings set forth in this report are strictly limited in time and scope to the date of the evaluations. The conclusions presented in the report are based solely on the services described therein, and not on scientific tasks or procedures beyond the scope of agreed-upon services or the time and budgeting restraints imposed by the Client. No other warranties are implied or expressed.

Some of the information provided in this report is based upon personal interviews, and research of available documents, records, and maps held by the appropriate government and private agencies. This report is subject to the limitations of historical documentation, availability, and accuracy of pertinent records, and the personal recollections of those persons contacted.

This practice does not address requirements of any state or local laws or of any federal laws other than the all appropriate inquiry provisions of the LLPs. Further, this report does not intend to address all of the safety concerns, if any, associated with the subject property.

Environmental concerns, which are beyond the scope of a Phase I ESA as defined by ASTM include the following: ACMs, LBP, radon, and lead in drinking water. These issues may affect environmental risk at the subject property and may warrant discussion and/or assessment; however, are considered non-scope issues. If specifically requested by the Client, these non-scope issues are discussed in Section 6.3.

1.4 User Reliance

Lansing Companies engaged Partner to perform this assessment in accordance with an agreement governing the nature, scope and purpose of the work as well as other matters critical to the engagement. All reports, both verbal and written, are for the sole use and benefit of Lansing Companies. Either verbally

or in writing, third parties may come into possession of this report or all or part of the information generated as a result of this work. In the absence of a written agreement with Partner granting such rights, no third parties shall have rights of recourse or recovery whatsoever under any course of action against Partner, its officers, employees, vendors, successors or assigns. Any such unauthorized user shall be responsible to protect, indemnify and hold Partner, Client and their respective officers, employees, vendors, successors and assigns harmless from any and all claims, damages, losses, liabilities, expenses (including reasonable attorneys' fees) and costs attributable to such Use. Unauthorized use of this report shall constitute acceptance of and commitment to these responsibilities, which shall be irrevocable and shall apply regardless of the cause of action or legal theory pled or asserted. Additional legal penalties may apply.

This report has been completed under specific Terms and Conditions relating to scope, relying parties, limitations of liability, indemnification, dispute resolution, and other factors relevant to any reliance on this report. Any parties relying on this report do so having accepted the Terms and Conditions for which this report was completed. A copy of Partner's standard Terms and Conditions can be found at http://www.partneresi.com/terms-and-conditions.php.

1.5 Limiting Conditions

The findings and conclusions contain all of the limitations inherent in these methodologies that are referred to in ASTM E1527-13.

Specific limitations and exceptions to this ESA are more specifically set forth below:

- Interviews with past or current owners, operators, and occupants were not reasonably ascertainable and thus constitute a data gap. Based on information obtained from other historical sources (as discussed in Section 3.0), this data gap is not expected to alter the findings of this assessment.
- Partner requested information relative to deed restrictions and environmental liens, a title search, and completion of a pre-survey questionnaire from the Report User. This information was not provided at the time of the assessment.

Due to time constraints associated with this report, the Client has requested the report despite the above-listed limitations.

2.0 SITE DESCRIPTION

2.1 Site Location and Legal Description

The subject property, consisting of APNs 429-030-02, 244-233-01, and 244-233-02 in an unincorporated area of Kern County, California, is located approximately 5 miles southeast of the town of Mojave, California, and approximately 2.5 miles south of State Highway 58. According to the Kern County Assessor, the subject property is legally described as: "SECTION 1 TOWNSHIP 10 RANGE 12 and SECTION 7 TOWNSHIP 10 RANGE 11", and ownership is currently vested in GENUS L P and SF PACIFIC PROPERTIES INC.

Please refer to Figure 1: Site Location Map, Figure 2: Site Plan, Figure 3: Topographic Map, and Appendix A: Site Photographs for the location and site characteristics of the subject property.

2.2 Current Property Use

The subject property is currently vacant and undeveloped; no structures are on the property. No onsite operations were observed. The subject property consists of native land. A road crosses northwest-southeast through the northern portion of APN 429-030-02.

The subject property is designated for residential development by Kern County.

The subject property was not identified in the regulatory database report of Section 4.2.

2.3 Current Use of Adjacent Properties

The subject property is located within a mixed commercial and residential area of southeastern Kern County. During the vicinity reconnaissance, Partner observed the following land use on properties in the immediate vicinity of the subject property:

Immediately Surrounding Properties	
North:	Vacant land
South:	Undeveloped land
East:	Vacant land
West:	Residential dwellings and vacant land

No adjacent properties were identified in the regulatory database report of Section 4.2.

2.4 Physical Setting Sources

2.4.1 Topography

The United States Geological Survey (USGS) *Mojave, California* Quadrangle 7.5-minute series topographic map was reviewed for this ESA. According to the contour lines on the topographic map, the subject property ranges in elevation from approximately 2,500 feet above mean sea level (MSL) to 2,750 feet MSL. The contour lines in the area of the subject property indicate the area is sloping gently downward towards the southeast. No development is depicted on the subject property on the 1995 map.

A copy of the 1995 map is included as Figure 3 of this report.

2.4.2 Hydrology

According to topographic map interpretation, the direction of groundwater in the vicinity of the subject property is inferred to flow towards the southeast. The nearest surface water in the vicinity of the subject property are sewage treatment ponds located approximately 3 miles northwest of the subject property. No settling ponds, lagoons, surface impoundments, wetlands, or natural catch basins were observed at the subject property during this assessment.

According to available information, a public water system operated by the Mojave Public Utility District serves the subject property vicinity. According to a representative of the MPUD, shallow groundwater beneath the subject property is not utilized for domestic purposes. The sources of public water for the MPUD are surface water from the State Water Project and groundwater.

According to a previous subsurface investigation conducted on a nearby property (Mojave Airport aka FORMER MARINE CORPS AIR STATION - UST #1 and Case #T0602938829), the depth of groundwater in the vicinity of the subject property was reported to be approximately 238 to 350 feet below ground surface (bgs).

2.4.3 Geology/Soils

The subject property is situated within the Antelope Valley of the Mojave Desert geomorphic province of the State of California. The uppermost geologic formation underlying the soils at the subject property is the Quaternary Age alluvium. The alluvium comprises the underlying stratigraphy and consists mostly of gravel, sand, silt and clay deposited in alluvial fan, lake, and stream channel environments. The thickness of the alluvium is estimated to be over 2,000 feet. The alluvium is underlain by the Cenozoic volcanic and igneous rocks.

Based on information obtained from the USDA Natural Resources Conservation Service Web Soil Survey online database, the subject property is mapped as Garlock loamy sand. The Garlock series consists of very deep, well drained, loamy sand; sandy clay loam; sandy loam; gravelly loamy sand; and very gravelly loamy sand. These soils are on broad alluvial fans. Slopes range from 2 to 9 percent.

2.4.4 Flood Zone Information

Partner performed a review of the Flood Insurance Rate Map, published by the Federal Emergency Management Agency. According to Community Panel Numbers 06029C3700E, effective on September 26, 2008, the majority of the subject property appears to be located in Zone X, an area located outside of the 100-year and 500-year flood plains. Areas on the subject property including and adjacent to intermittent dry creekbeds are located in Zone A, defined as areas subject to inundation by the 1-percent-annual-chance flood event. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown.

A copy of the reviewed flood map is included in Appendix B of this report.

3.0 HISTORICAL INFORMATION

Partner obtained historical use information about the subject property from a variety of sources. A chronological listing of the historical data found is summarized in the table below:

Historical Use Information		
Period/Date	**Source**	**Description/Use**
1915-Present	Topographic Maps, Aerial Photographs, City Directories, Interviews, Site Observations	Undeveloped with railroad tracks and unpaved roads

No tenants were identified on the subject property. No potential environmental concerns were identified in association with the current or former use of the subject property.

3.1 Aerial Photograph Review

Partner obtained available aerial photographs of the subject property and surrounding area from Environmental Data Resources (EDR) and Google Earth on February 14, 2017. The following observations were noted to be visible on the subject property and adjacent properties during the aerial photograph review:

Date:	***1973, 1977***	***Scale:***	***1" = 500'***
Subject Property:	Appears to be undeveloped. An unpaved road or railroad track appears to cross through the north area of APN 429-030-02.		
North:	Undeveloped land		
South:	Undeveloped land		
East:	Undeveloped land		
West:	Undeveloped land		

Date:	***1987, 1994, 2005, 2009, 2010, 2012***	***Scale:***	***1" = 500'***
Subject Property:	No significant changes visible		
North:	No significant changes visible		
South:	No significant changes visible		
East:	No significant changes visible		
West:	Appears developed with a few residential dwellings. No other significant changes visible		

Copies of select aerial photographs are included in Appendix B of this report.

3.2 Fire Insurance Maps

Partner reviewed the collection of Sanborn Fire insurance maps from EDR on February 10, 2017. Sanborn map coverage was not available for the subject property.

3.3 City Directories

Partner reviewed historical city directories obtained from EDR on February 14, 2017, for past names and businesses that were listed for the subject property and adjacent properties. The findings are presented in the following table:

City Directory Search for APNs 429-030-02; 244-233-01; and 244-233-02 (Subject Property – no address)	
Year(s)	**Occupant Listed**
1975, 1980, 1990, 1992, 1995, 1999, 2003, 2008, 2013	No listings

Based on the city directory review, no environmentally sensitive listings were identified for the subject property.

City Directory Search for Adjacent Properties	
Year(s)	**Occupant Listed**
1975, 1980, 1985	No listings
1990, 1992, 1995, 1999, 2003, 2008, 2013	Residential listings on Dalton Avenue

Based on the city directory review, no environmentally sensitive listings were identified for the adjacent property addresses.

3.4 Historical Topographic Maps

Partner reviewed historical topographic maps obtained from EDR on February 10, 2017. The following observations were noted to be depicted on the subject property and adjacent properties during the topographic map review:

Date:	***1915, 1917, 1943, 1947, 1956, 1973***
Subject Property:	Undeveloped with Atchison Topeka and Santa Fe railroad tracks and unpaved roads
North:	Undeveloped
South:	Undeveloped
East:	Undeveloped
West:	Undeveloped

Copies of reviewed topographic maps are included in Appendix B of this report.

4.0 REGULATORY RECORDS REVIEW

4.1 Regulatory Agencies

4.1.1 State Department

Regulatory Agency Data	
Name of Agency:	California Environmental Protection Agency (CalEPA)
Point of Contact:	Not Provided
Agency Address:	1001 I Street, Sacramento, California
Agency Phone Number:	(926) 323-2514
Date of Contact:	February 15, 2017
Method of Communication:	Telephone
Summary of Communication:	The CalEPA manages the following State agencies: *Air Resources Board (ARB), Department of Resources Recycling and Recovery (CalRecycle), Department of Pesticide Regulation (DPR), Department of Toxic Substances Control (DTSC), Office of Environmental Health Hazard Assessment (OEHHA), and the State Water Resources Control Board (SWRCB)*. These agencies are discussed individually, where applicable, in the following sections. The subject property was not identified for records maintained by CalRecycle, for pesticides with the DPR databases, or for hazardous substance risk evaluation by the OEHHA. No records regarding hazardous substance use, storage or releases, or the presence of USTs and AULs on the subject property were on file with the CalEPA.

A copy of pertinent documents is not included in Appendix B of this report.

4.1.2 Health Department

Regulatory Agency Data	
Name of Agency:	Kern County Environmental Health Services Department (KCEHSD)
Point of Contact:	Ms. Lydia V. von Sydow, Waste Management Technician II
Agency Address:	2700 M Street, Bakersfield, California
Agency Phone Number:	(661) 862-8748
Date of Contact:	February 15, 2017
Method of Communication:	Online/Email
Summary of Communication:	The Certified Unified Program Agency (CUPA) was developed to consolidate the administration of six specific state hazardous

Regulatory Agency Data	
	materials programs under one agency. The CUPA for the County of Kern is the Kern County Environmental Health Services Department. Under Kern County CUPA, *above ground storage tanks, underground storage tanks, hazardous waste treatment, hazardous waste generators, hazardous materials management and response plans* are managed by the KCEHSD. On February 21, 2017, Ms. von Sydow responded that no records regarding hazardous substance use, storage or releases, or the presence of USTs and AULs on the subject property were on file with the KCEHSD.

A copy of pertinent documents is included in Appendix B of this report.

4.1.3 Fire Department

Regulatory Agency Data	
Name of Agency:	Kern County Fire Department (KCFD)
Point of Contact:	Not Provided
Agency Address:	5642 Victor Street, Bakersfield, California
Agency Phone Number:	(661) 391-7000
Date of Contact:	February 15, 2017
Method of Communication:	Telephone
Summary of Communication:	No records regarding hazardous substance use, storage or releases, or the presence of USTs and AULs on the subject property were on file with the KCFD. KCFD indicated that such records are maintained by the KCEHSD.

A copy of pertinent documents is not included in Appendix B of this report.

4.1.4 Air Pollution Control Agency

Regulatory Agency Data	
Name of Agency:	Eastern Kern County Air Pollution Control District (EKCAPCD)
Point of Contact:	Mr. Jason Mentry
Agency Address:	43301 Division Street, Lancaster, California
Agency Phone Number:	(661) 723-8070
Date of Contact:	February 15, 2017
Method of Communication:	Telephone
Summary of Communication:	No Permits to Operate (PTO), Notices of Violation (NOV), or Notices to Comply (NTC) or the presence of AULs, dry cleaning machines, or USTs were on file for the subject property with the AVAQMD.

A copy of pertinent documents is not included in Appendix B of this report.

4.1.5 Regional Water Quality Agency

Regulatory Agency Data	
Name of Agency:	State Water Resources Control Board (SWRQCB)
Point of Contact:	N/A
Agency Address:	3737 Main Street, Riverside, California
Agency Phone Number:	(909) 782-4130
Date of Contact:	February 15, 2017
Method of Communication:	http://geotracker.waterboards.ca.gov/
Summary of Communication:	No records regarding hazardous substance use, storage or releases, or the presence of USTs and AULs on the subject property were on file with the SWRQCB.

A copy of pertinent documents are not included in Appendix B of this report.

4.1.6 Department of Toxic Substances Control

Regulatory Agency Data	
Name of Agency:	California Department of Toxic Substances Control (DTSC)
Point of Contact:	N/A
Agency Address:	5796 Corporate Avenue, Cypress, California
Agency Phone Number:	(714) 484-5300
Date of Contact:	February 15, 2017
Method of Communication:	http://hwts.dtsc.ca.gov/report_search.cfm?id=5
Summary of Communication:	The subject property was not identified on the DTSC hazardous waste tracking system (HWTS).

A copy of pertinent documents is not included in Appendix B of this report.

4.1.7 Building Department

Regulatory Agency Data	
Name of Agency:	Kern County Engineering and Survey Services Department, Building Inspection Division (BID)
Point of Contact:	Ms. LeAnn Thomas
Agency Address:	2700 M Street, Bakersfield, California
Agency Phone Number:	(661) 862-5075
Date of Contact:	February 15, 2017

Regulatory Agency Data	
Method of Communication:	Telephone/Online
Summary of Communication:	A representative indicated to Partner that permit records are recorded with the Kern County Assessor, which posts the permit information on the Assessor's website. No records of permits were found for the subject property APNs on the Kern County Assessor's website.

A copy of pertinent documents is not included in Appendix B of this report.

4.1.8 Planning Department

Regulatory Agency Data	
Name of Agency:	Kern County Geographic Information Systems
Point of Contact:	N/A
Agency Address:	2700 M Street, Bakersfield, California
Agency Phone Number:	(661) 862-5075
Date of Contact:	February 23, 2017
Method of Communication:	Online
Summary of Communication:	According to records reviewed, the subject property is zoned Residential by Kern County

A copy of pertinent documents is not included in Appendix B of this report.

4.1.9 Oil & Gas Exploration

Regulatory Agency Data	
Name of Agency:	California Division of Oil, Gas, and Geothermal Resources (DOGGR)
Point of Contact:	N/A
Agency Address:	5816 Corporate Avenue, Suite 200
Agency Phone Number:	(714) 816-6847
Date of Contact:	February 15, 2017
Method of Communication:	http://maps.conservation.ca.gov/doms/doms-app.html
Summary of Communication:	According to the DOGGR interactive website, no oil gas, or geothermal wells were identified on or adjoining to the subject property.

A copy of pertinent documents is not included in Appendix B of this report.

4.1.10 Assessor's Office

Regulatory Agency Data	
Name of Agency:	Kern County Assessor (KCA)
Point of Contact:	N/A
Agency Address:	1655 Chester Street, Bakersfield, California
Agency Phone Number:	(661) 868-6400
Date of Contact:	February 15, 2017
Method of Communication:	Online
Summary of Communication:	According to records reviewed, the subject property was identified with the assessor's parcel number 427-030-04 with an area of 965.5 acres. No records regarding building and utility information for the subject property was on file with the KCA.

4.2 Mapped Database Records Search

Information from standard federal, state, county, and city environmental record sources was provided by EDR. Data from governmental agency lists are updated and integrated into one database, which is updated as these data are released. The information contained in this report was compiled from publicly available sources and the locations of the sites are plotted utilizing a geographic information system, which geocodes the site addresses. The accuracy of the geocoded locations is approximately +/-300 feet.

Using the ASTM definition of migration, Partner considers the migration of hazardous substances or petroleum products in any form onto the subject property during the evaluation of each site listed on the radius report, which includes solid, liquid, and vapor.

4.2.1 Regulatory Database Summary

Radius Report Data				
Database	**Search Radius (mile)**	**Subject Property**	**Adjacent Properties**	**Sites of Concern**
Federal NPL or Delisted NPL Site	1.00	N	N	N
Federal CERCLIS Site	0.50	N	N	N
Federal CERCLIS-NFRAP Site	0.50	N	N	N
Federal RCRA CORRACTS Facility	1.00	N	N	N
Federal RCRA TSDF Facility	0.50	N	N	N
Federal RCRA Generators Site (LQG, SQG, CESQG)	0.25	N	N	N
Federal IC/EC Registries	0.50	N	N	N
Federal ERNS Site	Subject Property	N	-	-
State/Tribal Equivalent NPL	1.00	N	N	N
State/Tribal Equivalent CERCLIS	1.00	N	N	N

Radius Report Data				
Database	**Search Radius (mile)**	**Subject Property**	**Adjacent Properties**	**Sites of Concern**
State/Tribal Landfill/Solid Waste Disposal Site	0.50	N	N	N
State/Tribal Leaking Storage Tank Site	0.50	N	N	N
State/Tribal Registered Storage Tank Sites (UST/AST)	0.25	N	N	N
State/Tribal Voluntary Cleanup Sites (VCP)	0.50	N	N	N
State/Tribal Spills	0.50	N	N	N
Federal Brownfield Sites	0.50	N	N	N
State Brownfield Sites	0.50	N	N	N
EDR MGP	Varies	N	N	N
EDR US Hist Auto Station	Varies	N	N	N
EDR US Hist Cleaners	Varies	N	N	N

4.2.2 Subject Property Listings

The subject property is not identified in the regulatory database report.

4.2.3 Adjacent Property Listings

The adjacent properties are not identified in the regulatory database report.

Based on the findings, vapor migration is not expected to represent a significant environmental concern at this time.

4.2.4 Sites of Concern Listings

No sites of concern are identified in the regulatory database report

Based on the findings, vapor migration is not expected to represent a significant environmental concern at this time.

4.2.5 Orphan Listings

No orphan listings are identified in the regulatory database report.

A copy of the regulatory database report is included in Appendix C of this report.

5.0 USER PROVIDED INFORMATION AND INTERVIEWS

In order to qualify for one of the *Landowner Liability Protections (LLPs)* offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the *Brownfields Amendments*), the *User* must conduct the following inquiries required by 40 CFR 312.25, 312.28, 312.29, 312.30, and 312.31. The *User* should provide the following information to the *environmental professional*. Failure to provide this information could result in a determination that *all appropriate inquiries* is not complete. The *User* is asked to provide information or knowledge of the following:

- Review Title and Judicial Records for Environmental Liens and AULs
- Specialized Knowledge or Experience of the User
- Actual Knowledge of the User
- Reason for Significantly Lower Purchase Price
- Commonly Known or *Reasonably Ascertainable* information
- Degree of Obviousness
- Reason for Preparation of this Phase I ESA

Fulfillment of these user responsibilities is key to qualification for the identified defenses to CERCLA liability. Partner requested our Client to provide information to satisfy User Responsibilities as identified in Section 6 of the ASTM guidance.

Pursuant to ASTM E1527-13, Partner requested the following site information from Lansing Companies (User of this report).

User Responsibilities				
Item	**Provided By User**	**Not Provided By User**	**Discussed Below**	**Does Not Apply**
Environmental Pre-Survey Questionnaire			**X**	
Title Records, Environmental Liens, and AULs			**X**	
Specialized Knowledge			**X**	
Actual Knowledge			**X**	
Valuation Reduction for Environmental Issues			**X**	
Identification of Key Site Manager	**Section 5.1.3**			
Reason for Performing Phase I ESA	**Section 1.1**			
Prior Environmental Reports		**X**		
Other				**X**

5.1 Interviews

5.1.1 Interview with Owner

The owner of the subject property owners identified as GENUS L P and SF PACIFIC PROPERTIES INC., were not available to be interviewed at the time of the assessment.

5.1.2 Interview with Report User

Please refer to Section 5.2 below for information requested from the Report User. The information requested was not received prior to the issuance of this report. Because the Report User (Client) is a lender, it is understood that the Report User would not have knowledge of the property that would significantly impact our ability to satisfy the objectives of this assessment. The lack of this information is not considered to represent a significant data gap.

5.1.3 Interview with Key Site Manager

Mr. Casey Malone, key site manager, indicated that he had no information pertaining to any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the subject property; any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the subject property; or any notices from a governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products.

According to Mr. Malone, the subject property has been undeveloped. Mr. Malone further stated that there are no USTs, ASTs, clarifiers, oil/water separators, groundwater monitoring wells, or hazardous substance use/storage/generation on the subject property to the best of his knowledge.

5.1.4 Interviews with Past Owners, Operators, and Occupants

Interviews with past owners, operators, and occupants were not reasonably ascertainable and thus constitute a data gap.

5.1.5 Interview with Others

As the subject property is not an abandoned property as defined in ASTM 1527-13, interview with others were not performed.

5.2 User Provided Information

5.2.1 Title Records, Environmental Liens, and AULs

Partner was not provided with title records or environmental lien and AUL information for review as part of this assessment.

5.2.2 Specialized Knowledge

No specialized knowledge of environmental conditions associated with the subject property was provided by the User at the time of the assessment.

5.2.3 Actual Knowledge of the User

No actual knowledge of any environmental lien or AULs encumbering the subject property or in connection with the subject property was provided by the User at the time of the assessment.

5.2.4 Valuation Reduction for Environmental Issues

No knowledge of valuation reductions associated with the subject property was provided by the User at the time of the assessment.

5.2.5 Commonly Known or Reasonably Ascertainable Information

The User did not provide information that is commonly known or *reasonably ascertainable* within the local community about the subject property at the time of the assessment.

5.2.6 Previous Reports and Other Provided Documentation

No previous reports or other pertinent documentation was provided to Partner for review during the course of this assessment.

6.0 SITE RECONNAISSANCE

The weather at the time of the site visit was sunny and clear. Refer to Section 1.5 for limitations encountered during the field reconnaissance and Sections 2.1 and 2.2 for subject property operations. The table below provides the site assessment details:

Site Assessment Data	
Site Assessment Performed By:	Jeremy Russell
Site Assessment Conducted On:	February 22, 2017

The table below provides the subject property personnel interviewed during the field reconnaissance:

Site Visit Personnel for APNs 429-030-02; 244-233-01; and 244-233-02 (Subject Property)			
Name	**Title/Role**	**Contact Number**	**Site Walk* Yes/No**
Mr. Casey Malone	Key Site Manager	(858) 523-0719	No

** Accompanied Partner during the field reconnaissance activities and provided information pertaining to the current operations and maintenance of the subject property*

No potential environmental concerns were identified during the onsite reconnaissance.

6.1 General Site Characteristics

6.1.1 Solid Waste Disposal

No solid waste was observed generated at the subject property.

No evidence of illegal dumping of solid waste was observed during the Partner site reconnaissance.

6.1.2 Sewage Discharge and Disposal

Since no habitable structures are present on the subject property, no sanitary discharges on the subject property were observed. No wastewater treatment facilities or septic systems are observed or reported on the subject property.

6.1.3 Surface Water Drainage

Storm water is removed from the subject property primarily by sheet flow action across the unpaved, natural ground surface towards topographically lower areas on the subject property and vicinity.

The subject property does not appear to be a designated wetland area, based on information obtained from the United States Fish & Wildlife Service; however, a comprehensive wetlands survey would be required in order to formally determine actual wetlands on the subject property. No surface impoundments, wetlands, natural catch basins, settling ponds, or lagoons are located on the subject property. No drywells were identified on the subject property.

6.1.4 Source of Heating and Cooling

Since no habitable structures are located on the subject property, no heating or cooling systems, as well as domestic hot water equipment, are operated on the subject property.

6.1.5 Wells and Cisterns

No aboveground evidence of wells or cisterns was observed during the site reconnaissance.

6.1.6 Wastewater

Since no habitable structures are located on the subject property, no domestic wastewater is generated at the subject property. No industrial process is currently performed at the subject property.

6.1.7 Septic Systems

No septic systems were observed or reported on the subject property.

6.1.8 Additional Site Observations

No additional general site characteristics were observed during the site reconnaissance.

6.2 Potential Environmental Hazards

6.2.1 Hazardous Substances and Petroleum Products Used or Stored

No hazardous substances or petroleum products were observed on the subject property during the site reconnaissance.

6.2.2 Aboveground & Underground Hazardous Substance or Petroleum Product Storage Tanks (ASTs/USTs)

No evidence of current or former ASTs or USTs was observed during the site reconnaissance.

6.2.3 Evidence of Releases

No spills, stains, or other indications that a surficial release has occurred at the subject property were observed.

6.2.4 Polychlorinated Biphenyls (PCBs)

No potential PCB-containing equipment (transformers, oil-filled switches, hoists, lifts, dock levelers, hydraulic elevators, etc.) was observed on the subject property during Partner's reconnaissance.

6.2.5 Strong, Pungent, or Noxious Odors

No strong, pungent, or noxious odors were evident during the site reconnaissance.

6.2.6 Pools of Liquid

No pools of liquid were observed on the subject property during the site reconnaissance.

6.2.7 Drains, Sumps, and Clarifiers

No drains, sumps, or clarifiers were observed on the subject property during the site reconnaissance.

6.2.8 Pits, Ponds, and Lagoons

No pits, ponds, or lagoons were observed on the subject property.

6.2.9 Stressed Vegetation

No stressed vegetation was observed on the subject property.

6.2.10 Additional Potential Environmental Hazards

No additional environmental hazards, including landfill activities or radiological hazards, were observed.

6.3 Non-ASTM Services

6.3.1 Asbestos-Containing Materials (ACMs)

Asbestos is the name given to a number of naturally occurring, fibrous silicate minerals mined for their useful properties such as thermal insulation, chemical and thermal stability, and high tensile strength. The Occupational Safety and Health Administration (OSHA) regulation 29 CFR 1926.1101 requires certain construction materials to be *presumed* to contain asbestos, for purposes of this regulation. All thermal system insulation (TSI), surfacing material, and asphalt/vinyl flooring that are present in a building constructed prior to 1981 and have not been appropriately tested are "presumed asbestos-containing material" (PACM).

Due to the undeveloped nature of the subject property, ACMs were not considered within the scope of this assessment.

6.3.2 Lead-Based Paint (LBP)

Lead is a highly toxic metal that affects virtually every system of the body. LBP is defined as any paint, varnish, stain, or other applied coating that has 1 mg/cm^2 (or 5,000 ug/g or 0.5% by weight) or more of lead. Congress passed the Residential Lead-Based Paint Hazard Reduction Act of 1992, also known as "Title X", to protect families from exposure to lead from paint, dust, and soil. Under Section 1017 of Title X, intact LBP on most walls and ceilings is not considered a "hazard," although the condition of the paint should be monitored and maintained to ensure that it does not become deteriorated. Further, Section 1018 of this law directed the Housing and Urban Development (HUD) and the US EPA to require the disclosure of known information on LBP and LBP hazards before the sale or lease of most housing built before 1978.

Due to the undeveloped nature of the subject property, LBP was not considered within the scope of this assessment.

6.3.3 Radon

Radon is a colorless, odorless, naturally occurring, radioactive, inert, gaseous element formed by radioactive decay of radium (Ra) atoms. The US EPA has prepared a map to assist National, State, and local organizations to target their resources and to implement radon-resistant building codes. The map divides the country into three Radon Zones, according to the table below:

EPA Radon Zones		
EPA Zones	**Average Predicted Radon Levels**	**Potential**
Zone 1	Exceed 4.0 pCi/L	Highest
Zone 2	Between 2.0 and 4.0 pCi/L	Moderate
Zone 3	Less than 2.0 pCi/L	Low

It is important to note that the EPA has found homes with elevated levels of radon in all three zones, and the US EPA recommends site-specific testing in order to determine radon levels at a specific location. However, the map does give a valuable indication of the propensity of radon gas accumulation in structures.

Radon sampling was not conducted as part of this assessment. Review of the US EPA Map of Radon Zones places the subject property in Zone 2. Based upon the radon zone classification, radon is not considered to be a significant environmental concern.

6.3.4 Lead in Drinking Water

No public or private water system is operated on the subject property.

6.3.5 Mold

Molds are microscopic organisms found virtually everywhere, indoors and outdoors. Mold will grow and multiply under the right conditions, needing only sufficient moisture (e.g.in the form of very high humidity, condensation, or water from a leaking pipe, etc.) and organic material (e.g., ceiling tile, drywall, paper, or natural fiber carpet padding).

Since no structures are developed on the subject property, the evaluation for significant evidence of mold growth was not within the scope of work for this assessment.

6.4 Adjacent Property Reconnaissance

The adjacent property reconnaissance consisted of observing the adjacent properties from the subject property premises. No items of environmental concern were identified on the adjacent properties during the site assessment, including hazardous substances, petroleum products, ASTs, USTs, evidence of releases, PCBs, strong or noxious odors, pools of liquids, sumps or clarifiers, pits or lagoons, stressed vegetation, or any other potential environmental hazards.

7.0 FINDINGS AND CONCLUSIONS

Findings

A *recognized environmental condition (REC)* refers to the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: due to release to the environment; under conditions indicative of a release to the environment; or under conditions that pose a material threat of a future release to the environment. The following was identified during the course of this assessment:

- Partner did not identify any recognized environmental conditions during the course of this assessment.

A *controlled recognized environmental condition (CREC)* refers to a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls. The following was identified during the course of this assessment:

- Partner did not identify any controlled recognized environmental conditions during the course of this assessment.

A *historical recognized environmental condition (HREC)* refers to a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls. The following was identified during the course of this assessment:

- Partner did not identify any historical recognized environmental conditions during the course of this assessment.

An *environmental issue* refers to environmental concerns identified by Partner, which do not qualify as RECs; however, warrant further discussion. The following was identified during the course of this assessment:

- Partner did not identify any environmental issues during the course of this assessment.

Conclusions, Opinions, and Recommendations

Partner has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-13 of APNs 429-030-02; 244-233-01; and 244-233-02 in an unincorporated area of, Kern County, California (the "subject property"). Any exceptions to, or deletions from, this practice are described in Section 1.5 of this report.

This assessment has revealed no evidence of recognized environmental conditions or environmental issues in connection with the subject property. Based on the conclusions of this assessment, Partner recommends no further investigation of the subject property at this time.

8.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

Partner has performed a Phase I Environmental Site Assessment of the property located at APNs 429-030-02; 244-233-01; and 244-233-02 in an unincorporated area of, Kern County, California in general conformance with the scope and limitations of the protocol and the limitations stated earlier in this report. Exceptions to or deletions from this protocol are discussed earlier in this report.

By signing below, Partner declares that, to the best of our professional knowledge and belief, we meet the definition of *Environmental Professional* as defined in §312.10 of 40 CFR §312. Partner has the specific qualifications based on education, training, and experience to assess a *property* of the nature, history, and setting of the subject *property*. Partner has developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Prepared By:

DRAFT

Jeremy Russell
Environmental Professional

Reviewed By:

DRAFT

Shawn Askew, REPA
Senior Author

9.0 REFERENCES

Reference Documents

American Society for Testing and Materials, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, ASTM Designation: E1527-13.

Environmental Data Resources (EDR), Radius Report, February 2017

Federal Emergency Management Agency, Federal Insurance Administration, National Flood Insurance Program, to Community Panel Numbers 06029C3700E, effective on September 26, 2008, accessed via internet, February 2017

United States Department of Agriculture, Natural Resources Conservation Service, accessed via internet, February 2017

United States Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey, accessed via the internet, February 2017

United States Environmental Protection Agency, EPA Map of Radon Zones (Document EPA-402-R-93-071), accessed via the internet, February 2017

United States Geological Survey, accessed via the Internet, February 2017

United States Geological Survey Topographic Map 1995 Mojave, Kern County, California, 7.5 minute series, accessed via internet, February 2017

FIGURES

1 SITE LOCATION MAP

2 SITE PLAN

3 TOPOGRAPHIC MAP

PARTNER

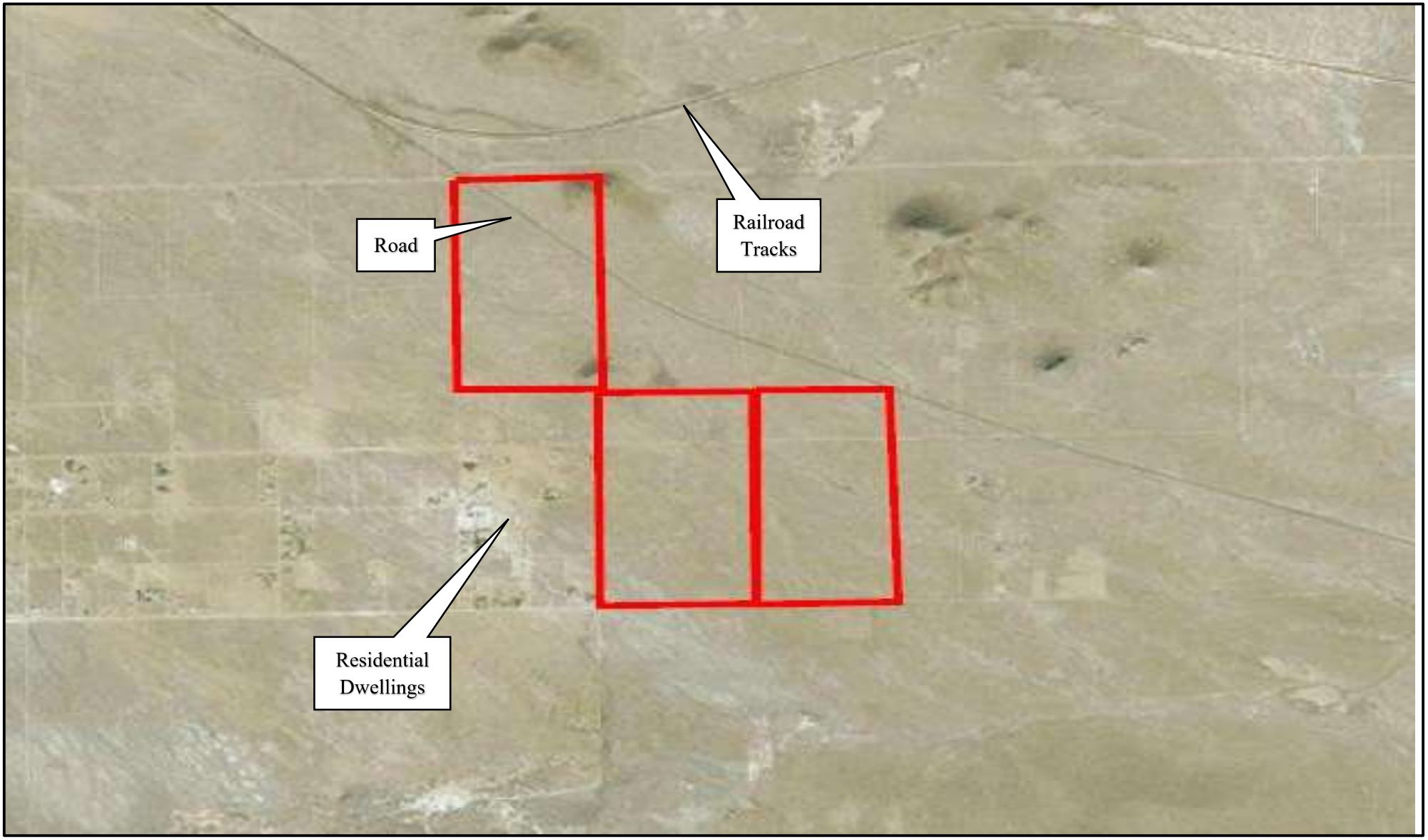
N

Drawing Not To Scale

KEY:
Subject Property

FIGURE 1: SITE LOCATION MAP
Project No. 17-180030.3

PARTNER



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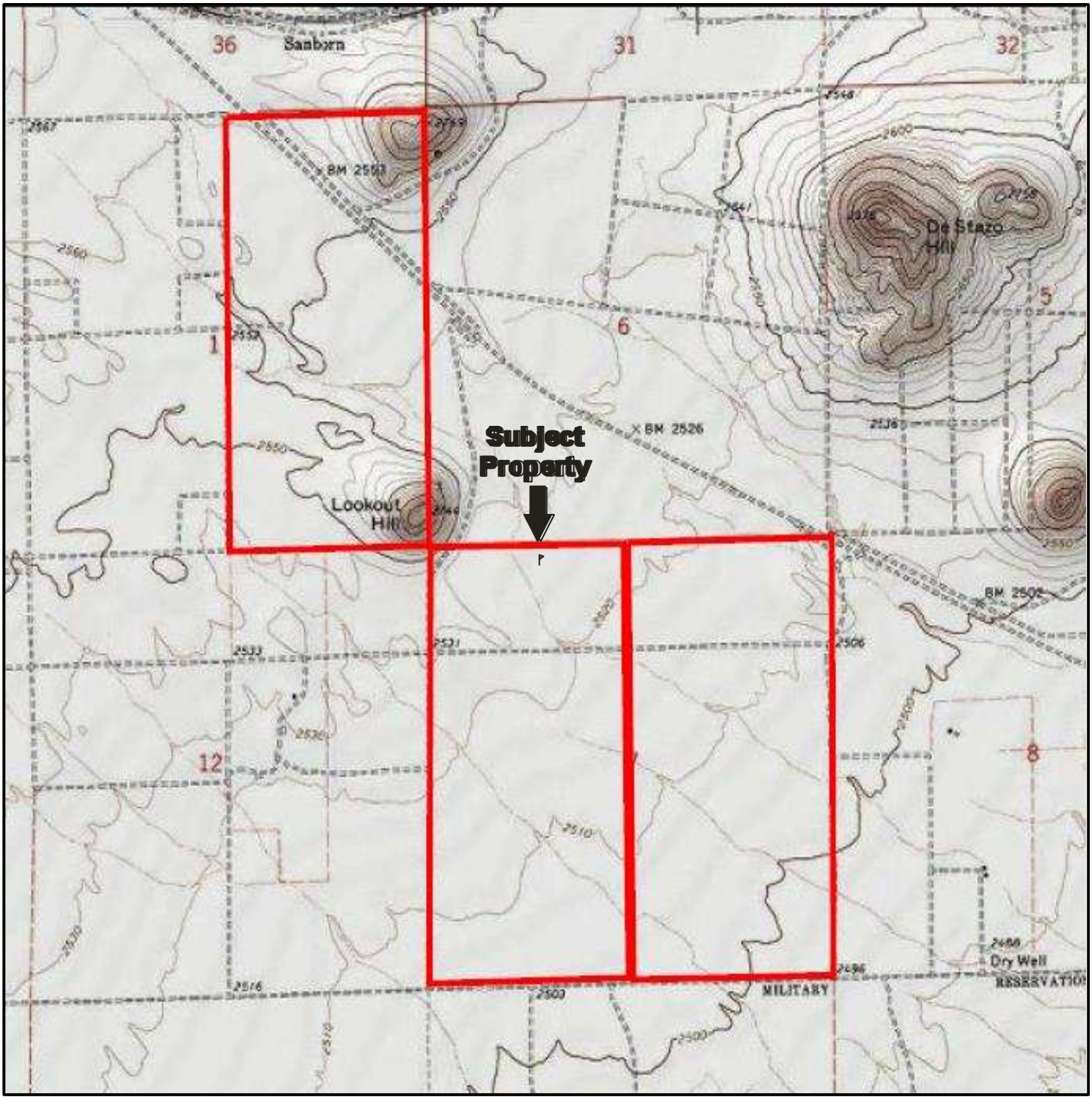
GROUNDWATER FLOW

KEY:
Subject Property

FIGURE 2: SITE PLAN
Project No. 17-180030.3

PARTNER



N

USGS 7.5 Minute *Mojave, CA* Quadrangle
Created: 1973/Revised: 1995

KEY:
Subject Property

FIGURE 3: TOPOGRAPHIC MAP
Project No. 17-180030.3

PARTNER

APPENDIX A: SITE PHOTOGRAPHS

PARTNER

1. View of the north area of APN 429-030-02.

2. View south from the north area of APN 429-030-02.

3. View west along north area of APN 429-030-02.

4. Land adjacent north.

5. View southeast from the northwest area of APN 429-030-02.

6. View of central area of APN 429-030-02

7. View west from the central area of APN 429-030-02

8. View of the southeast area of APN 429-030-02.

9. View of the southern area of APN 429-030-02

10. View of hill at the southeast corner of APN 429-030-02.

11. View of the northwest area of APN 244-233-01

12. View of the west central area of APN 244-233-01.

13. View of residential area west of APN 244-233-01.

14. View of the central area of APN 244-233-01.

15. View of the southwest area of APN 244-233-01.

16. View of residential property adjacent to the southwest corner of APN 244-233-01.

17. Land adjacent south.

18. View of the east central area of APN 244-233-01.

19. View of the southwest area of APN 244-233-02.

20. View of the west central area of APN 244-233-02.

21. Land adjacent south of APN 244-233-02.

22. View of the southeast area of APN 244-233-02.

23. View of the north area of APN 244-233-02.

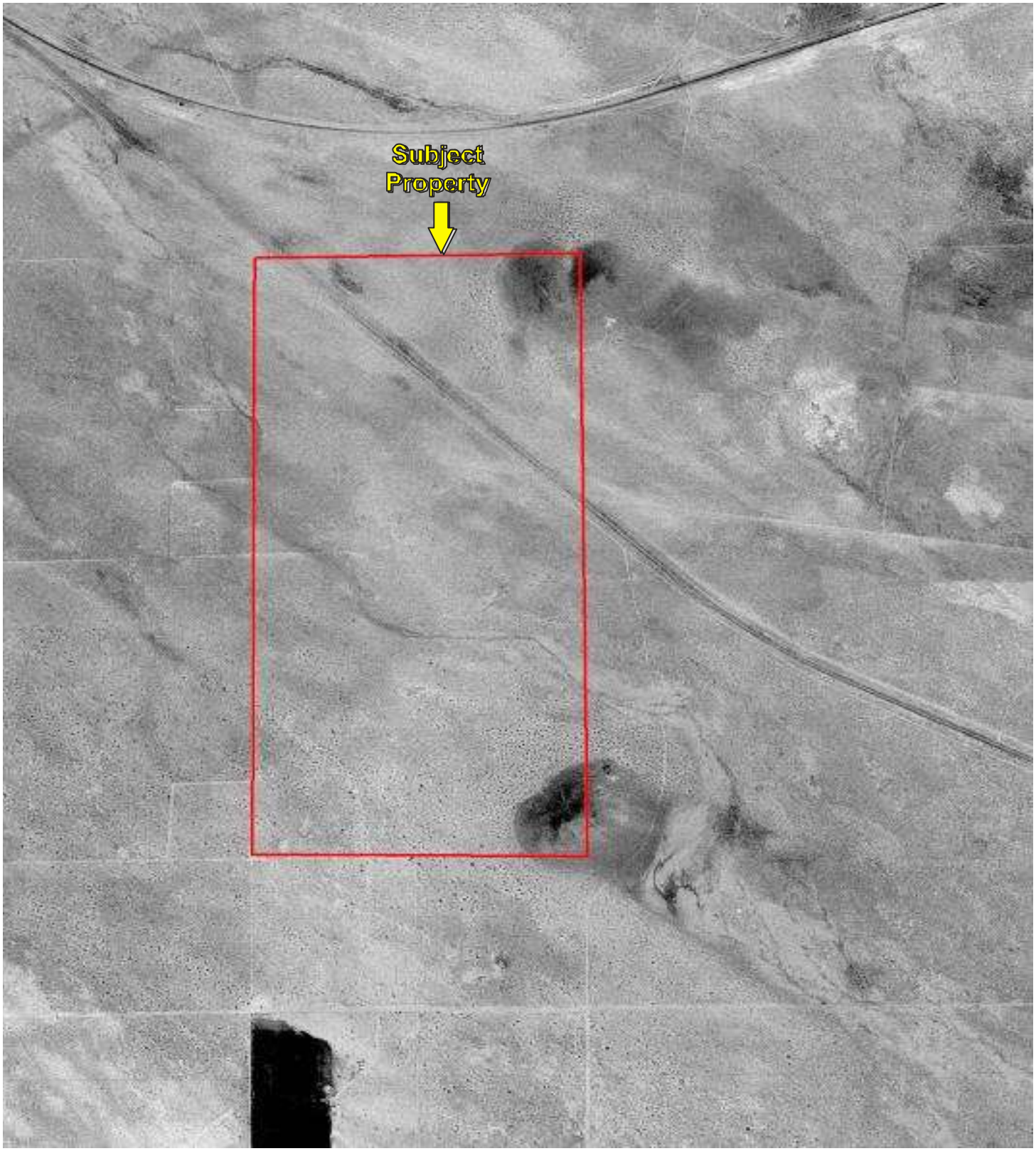
24. View of the northwest area of APN 244-233-02.

25. View of the central area of APN 244-233-02.

26. View of the northeast area of APN 244-233-02.

APPENDIX B: HISTORICAL/REGULATORY DOCUMENTATION

PARTNER



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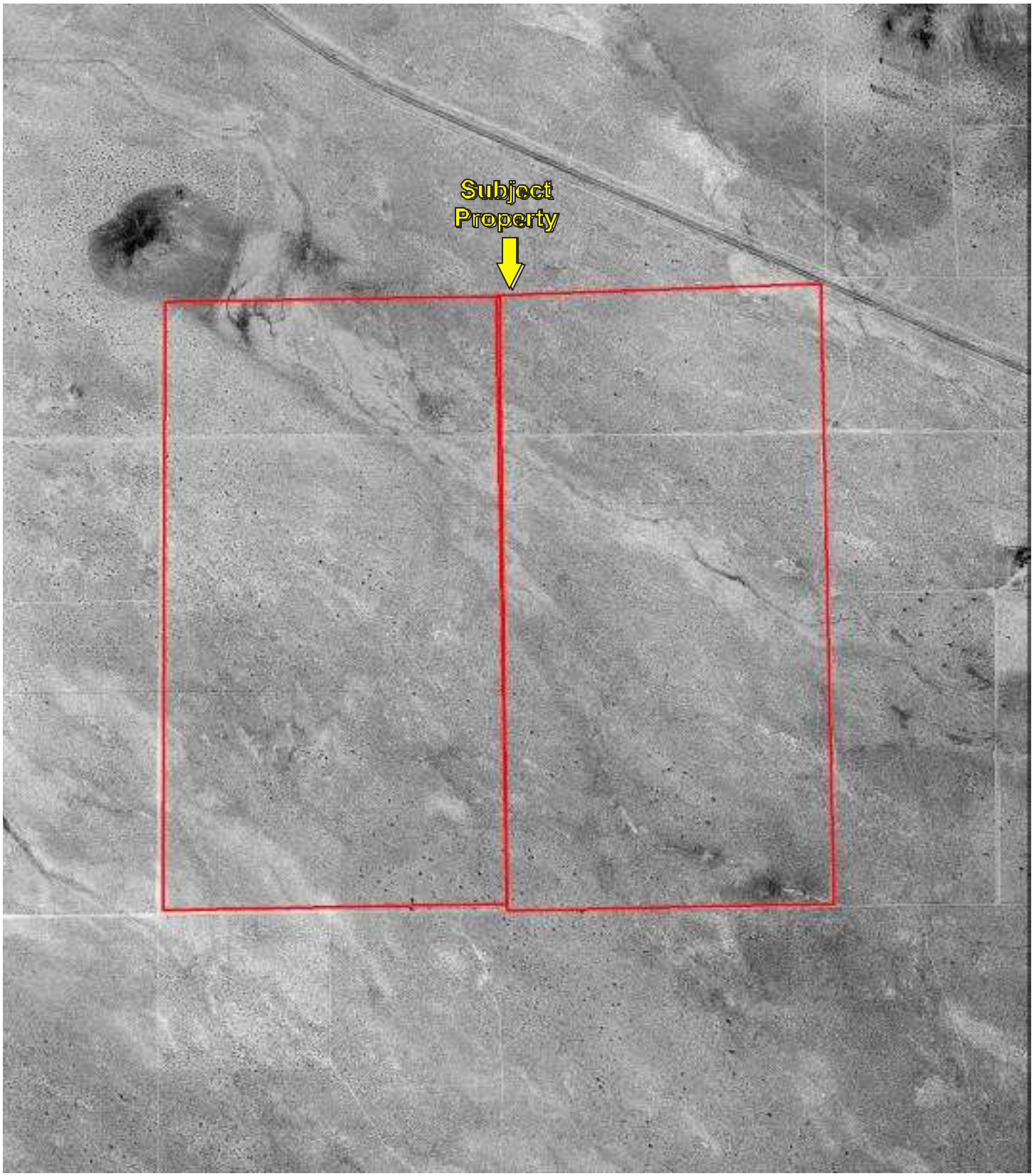
Date of Photograph: 1973

KEY:
Subject Property

APPENDIX B: AERIAL PHOTOGRAPHS
Project No. 17-180030.3

PARTNER



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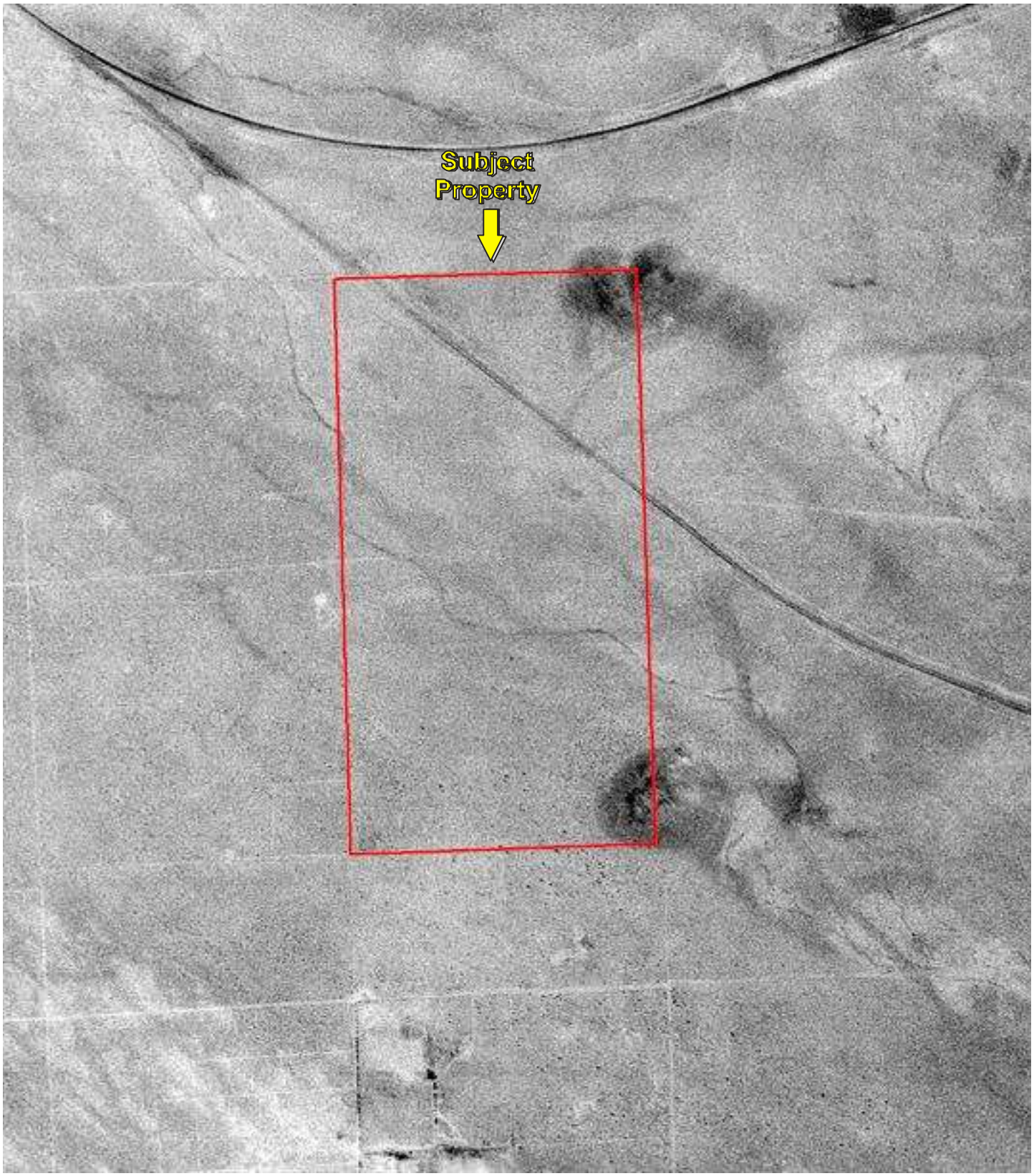

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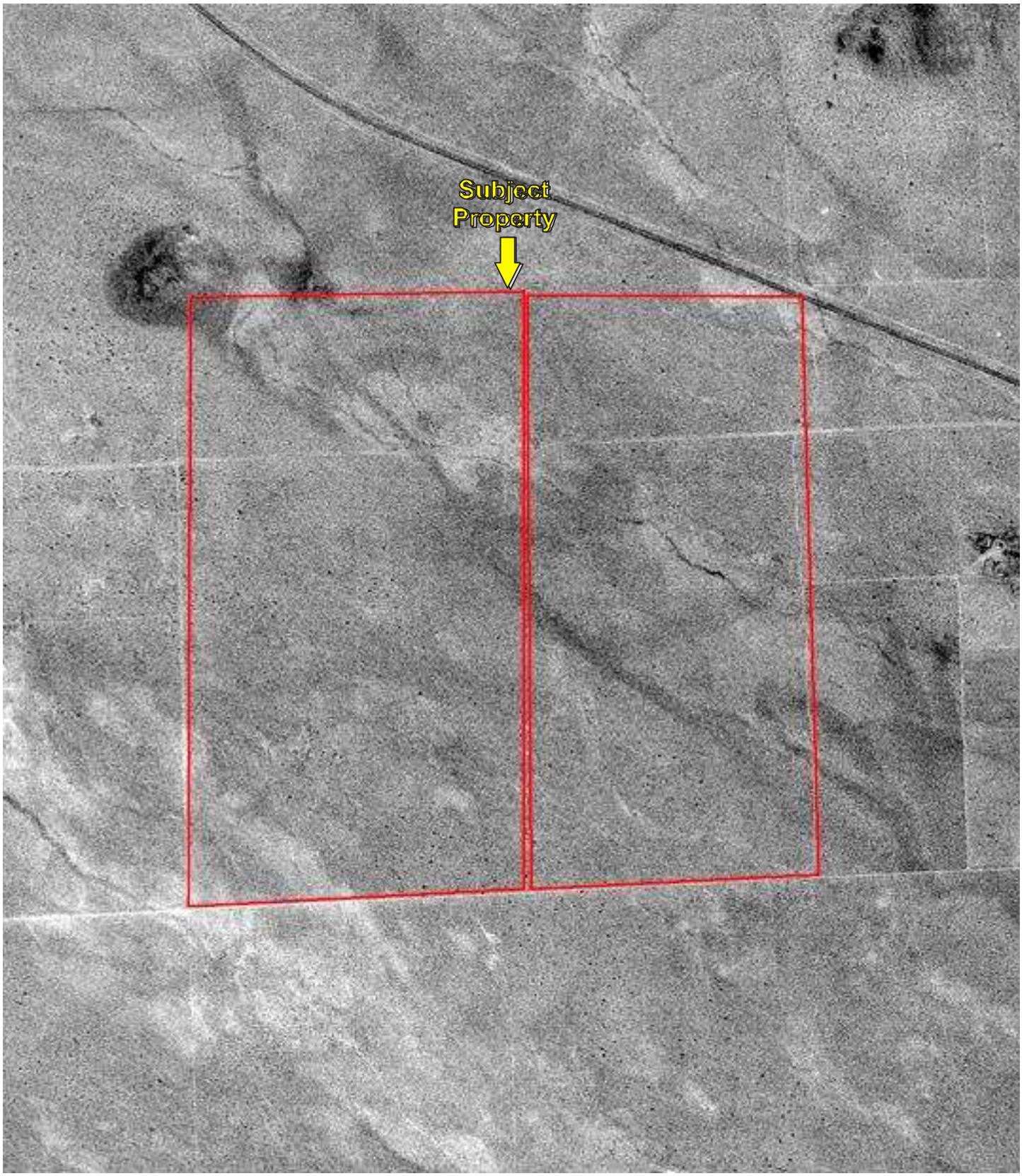

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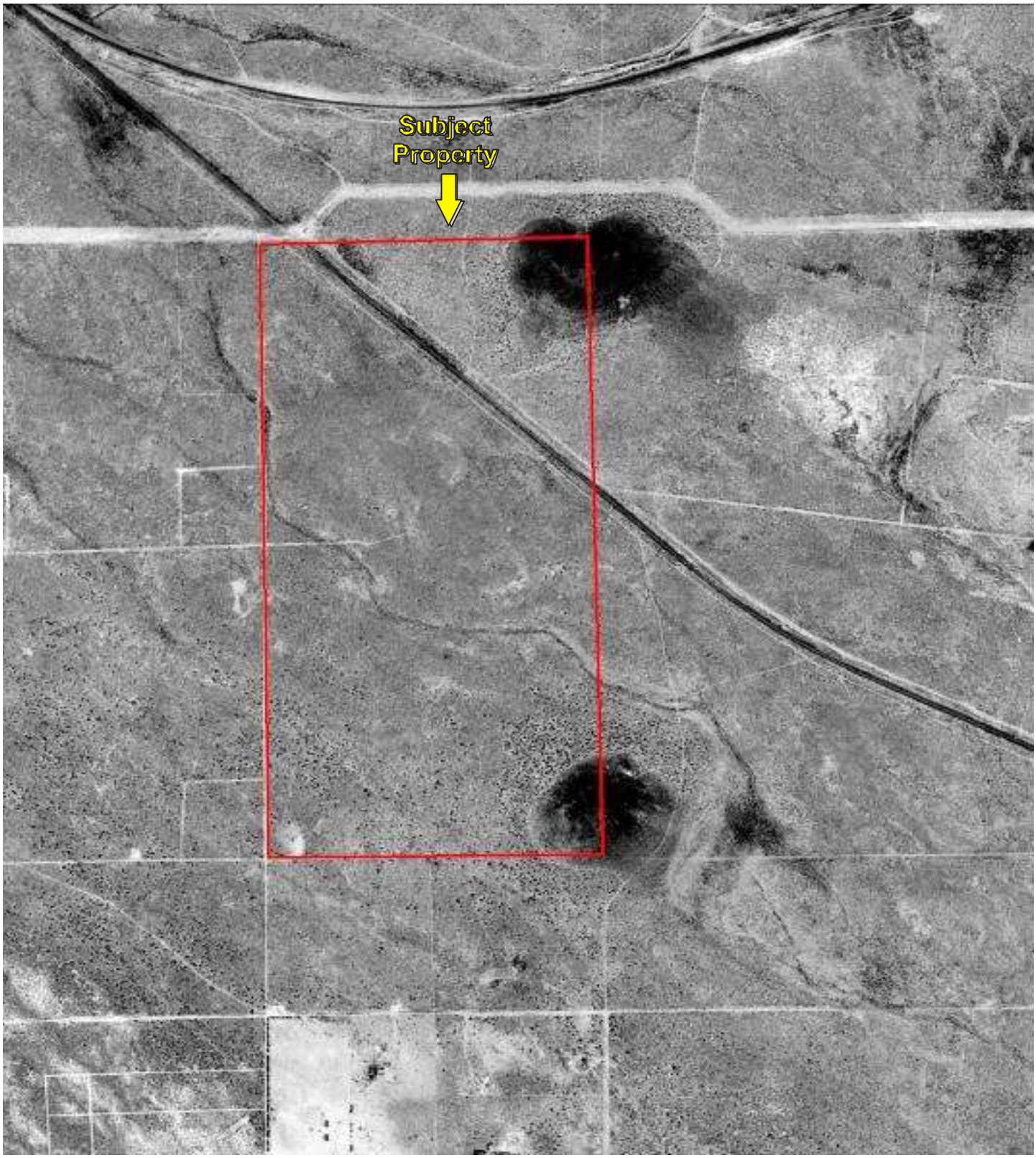

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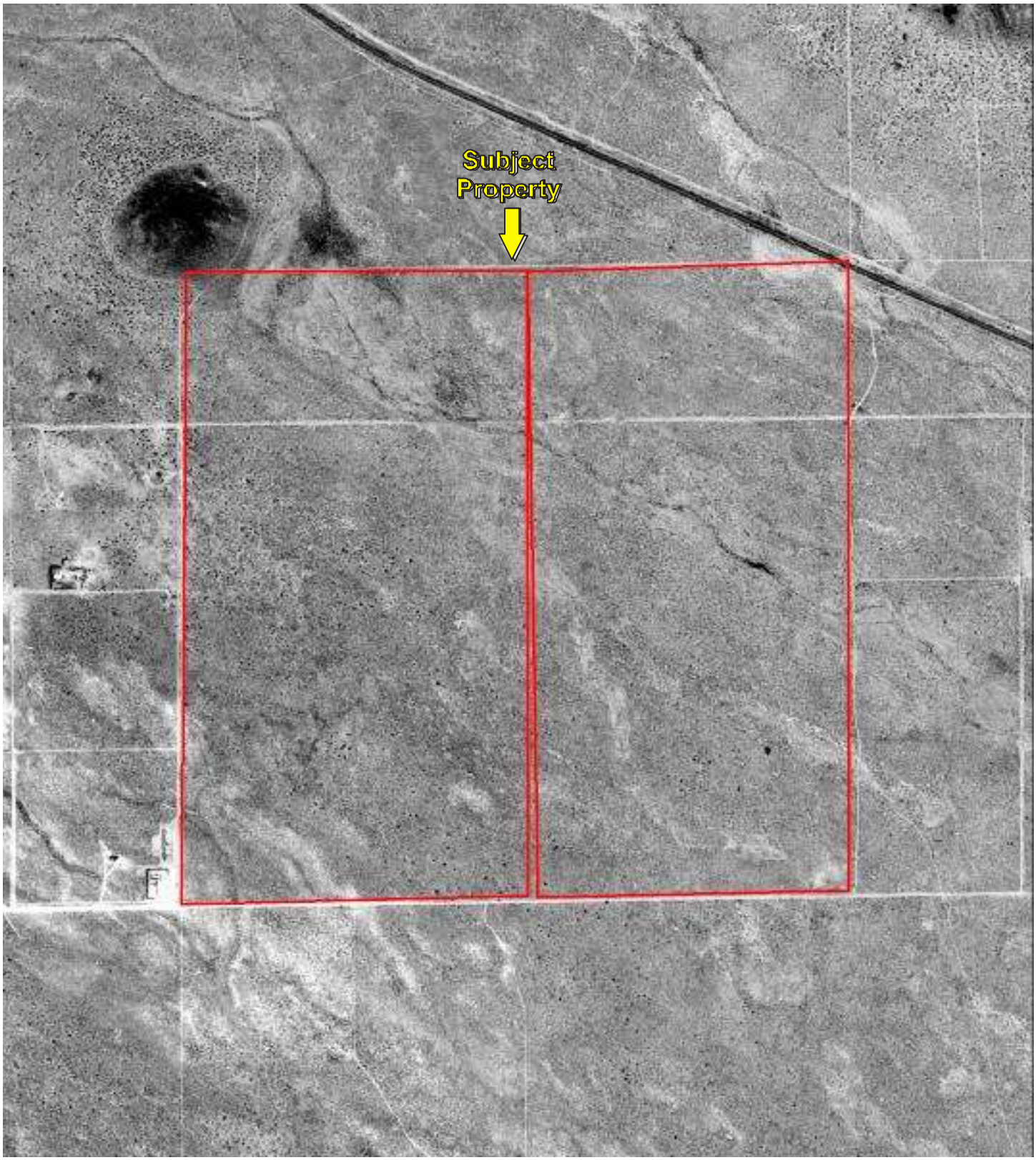

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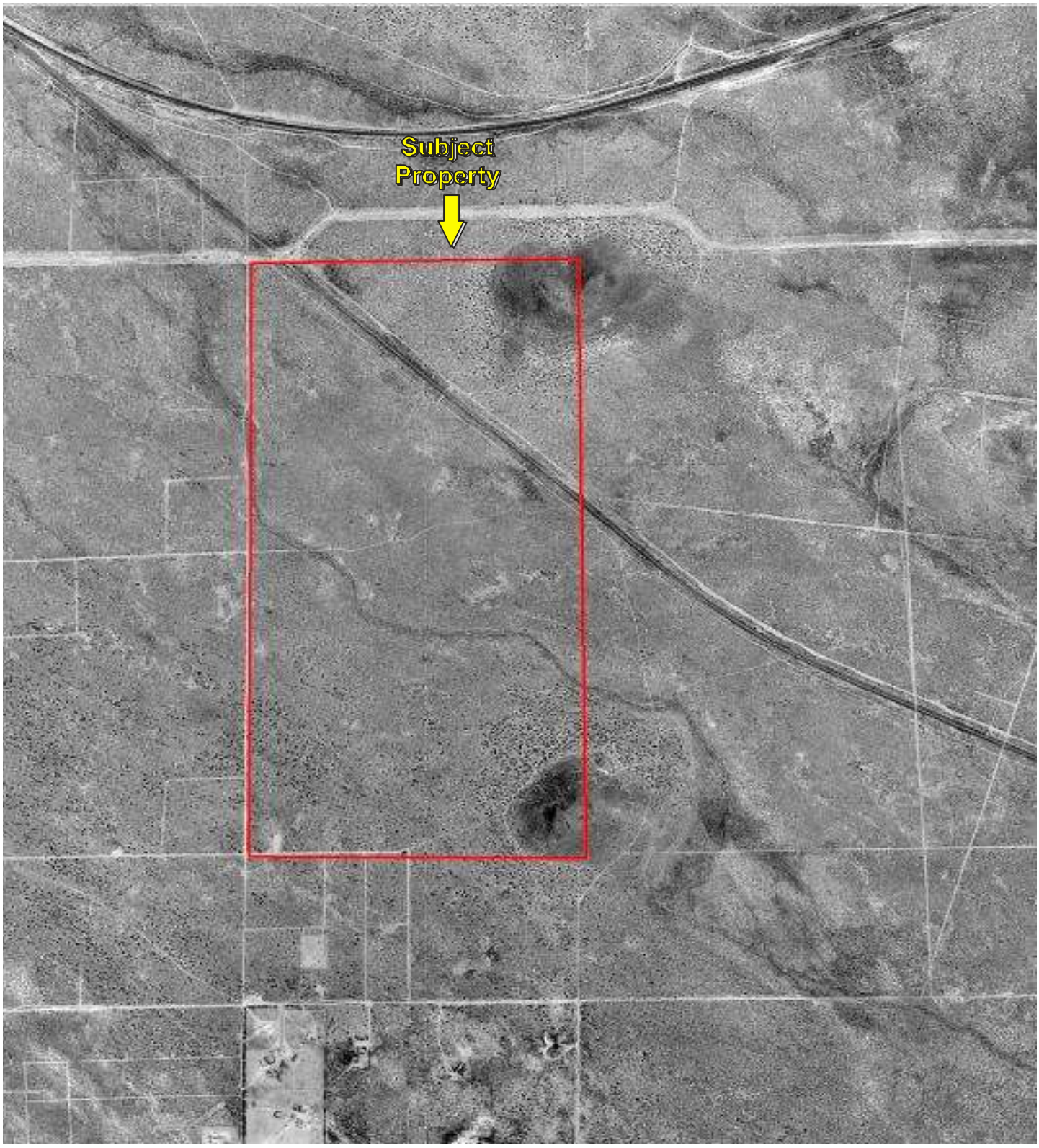

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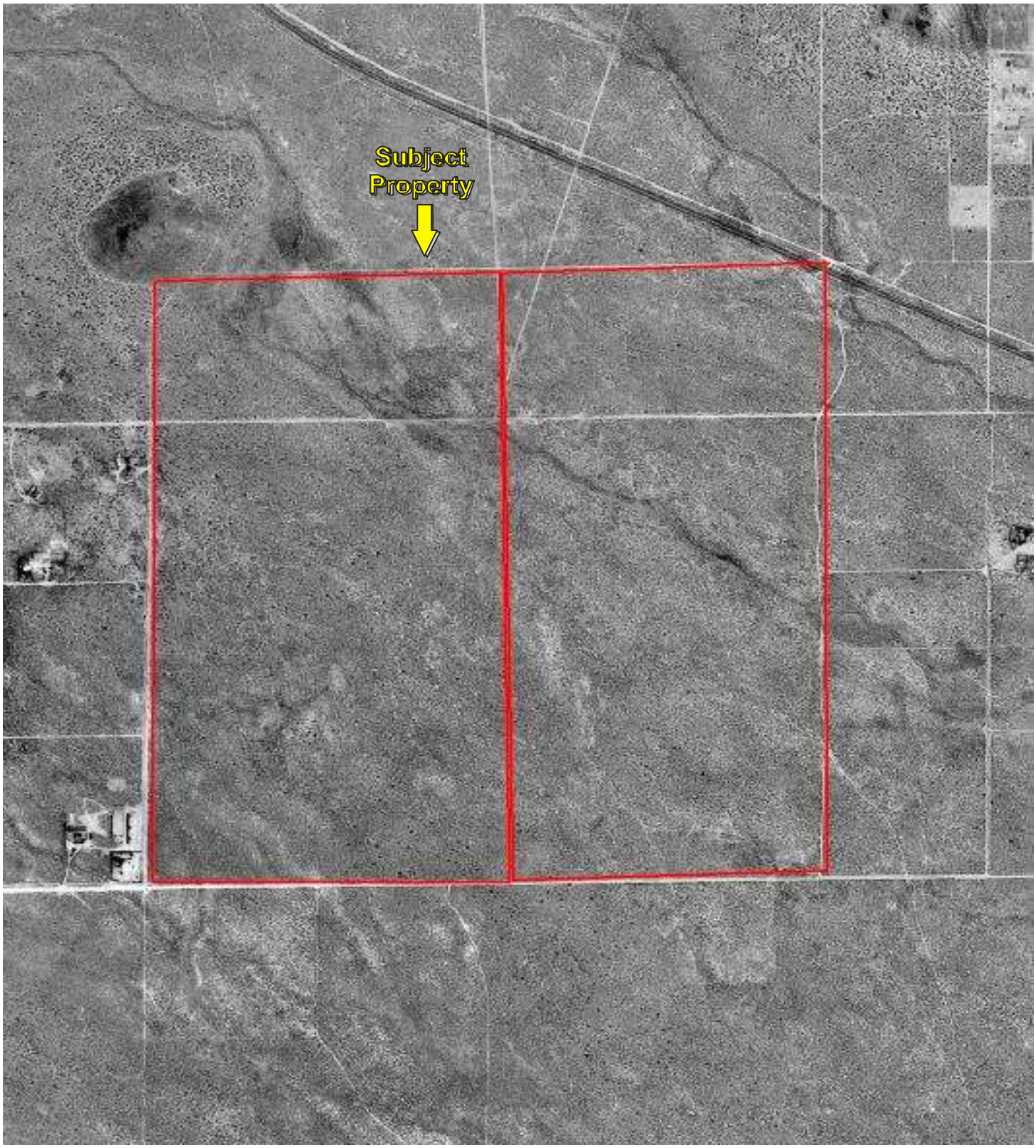

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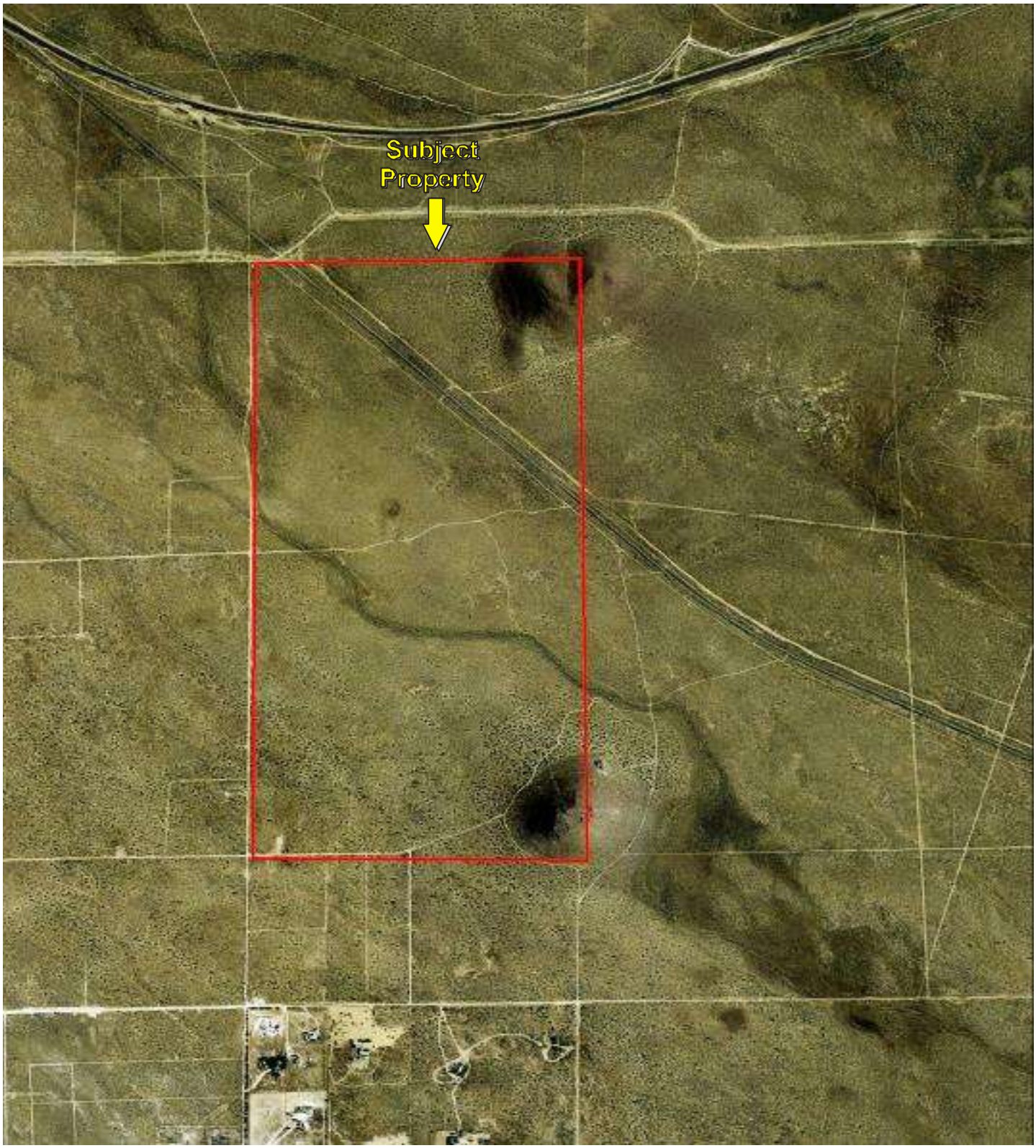

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Date of Photograph: 2005

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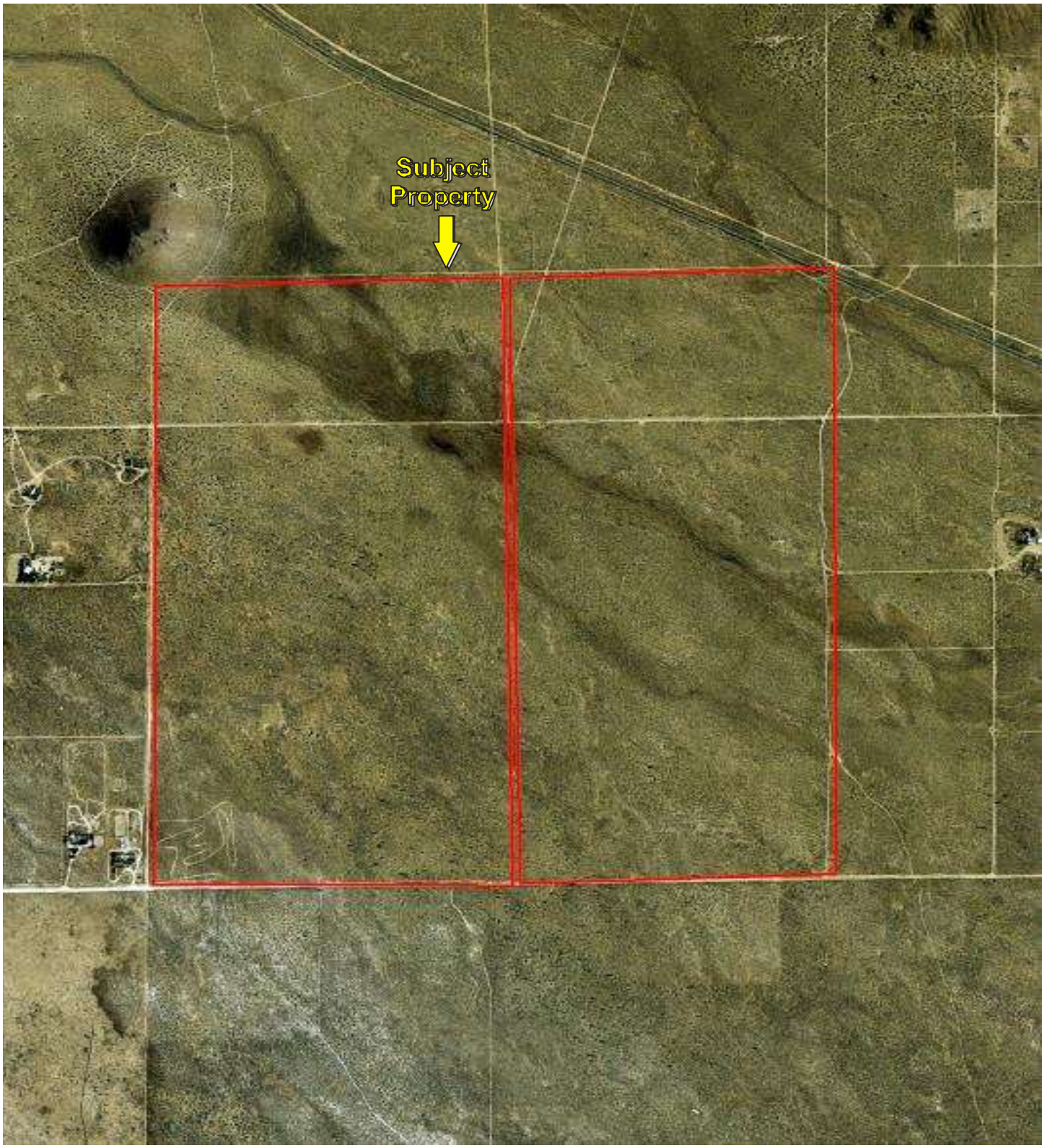

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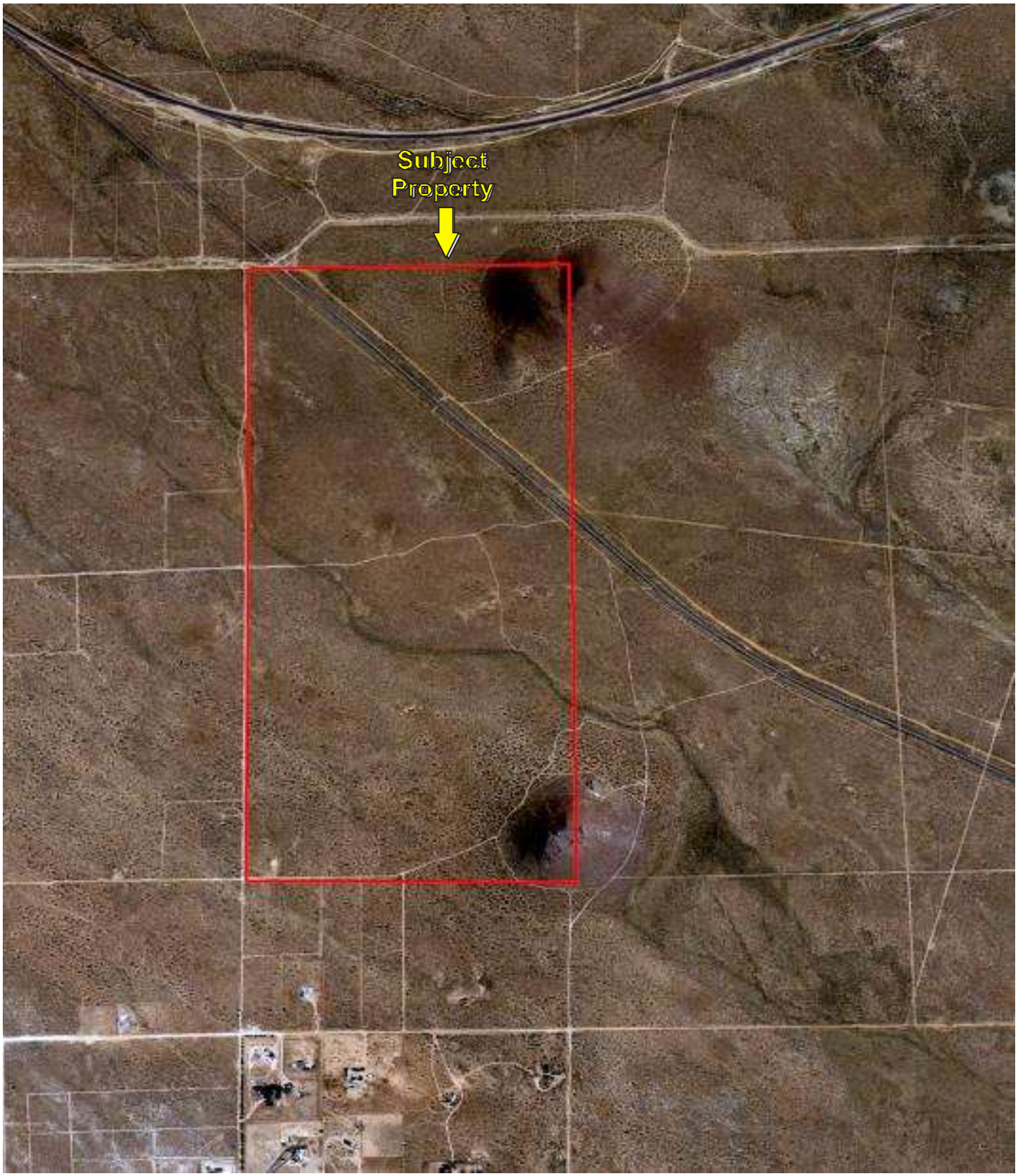

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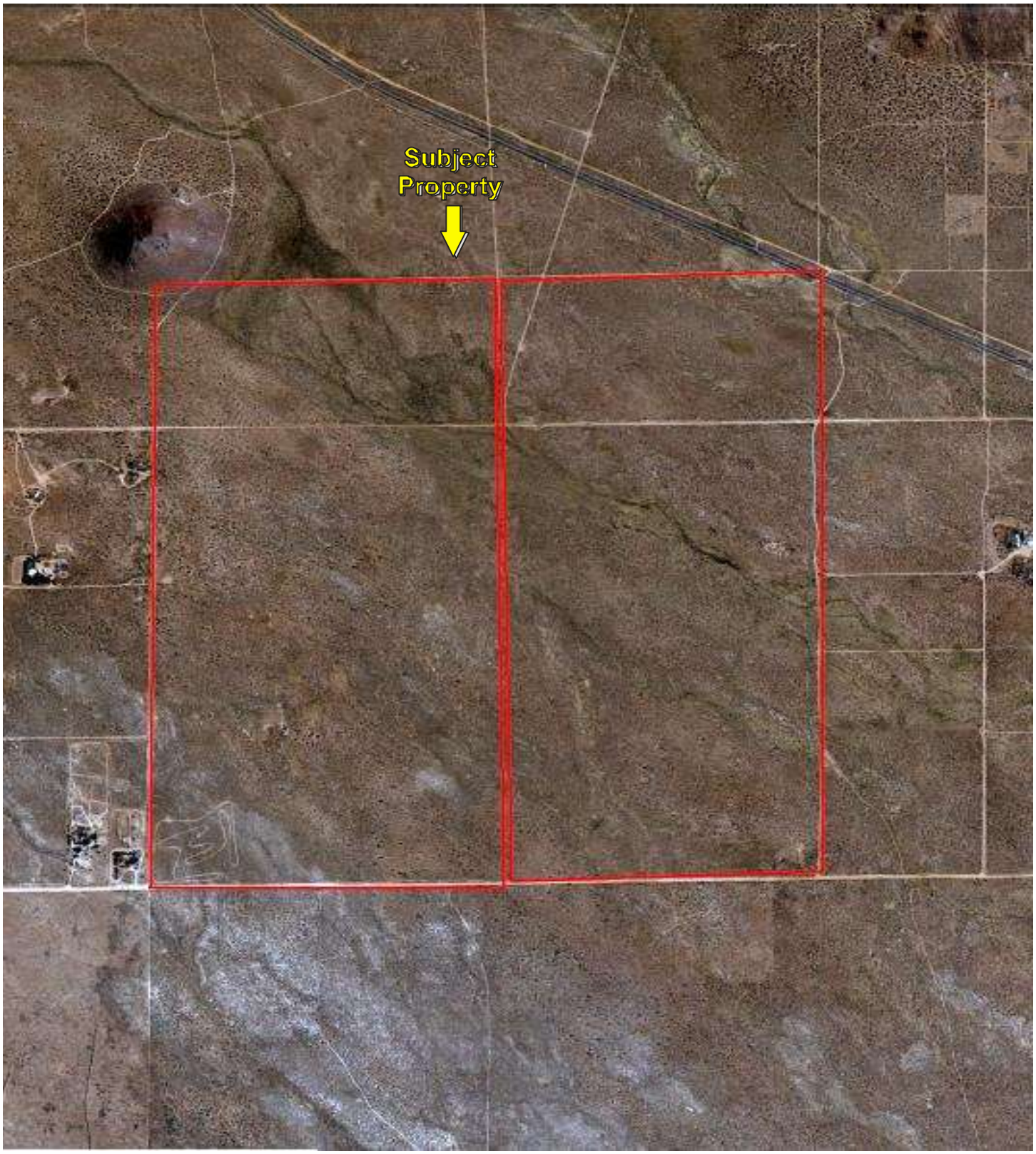

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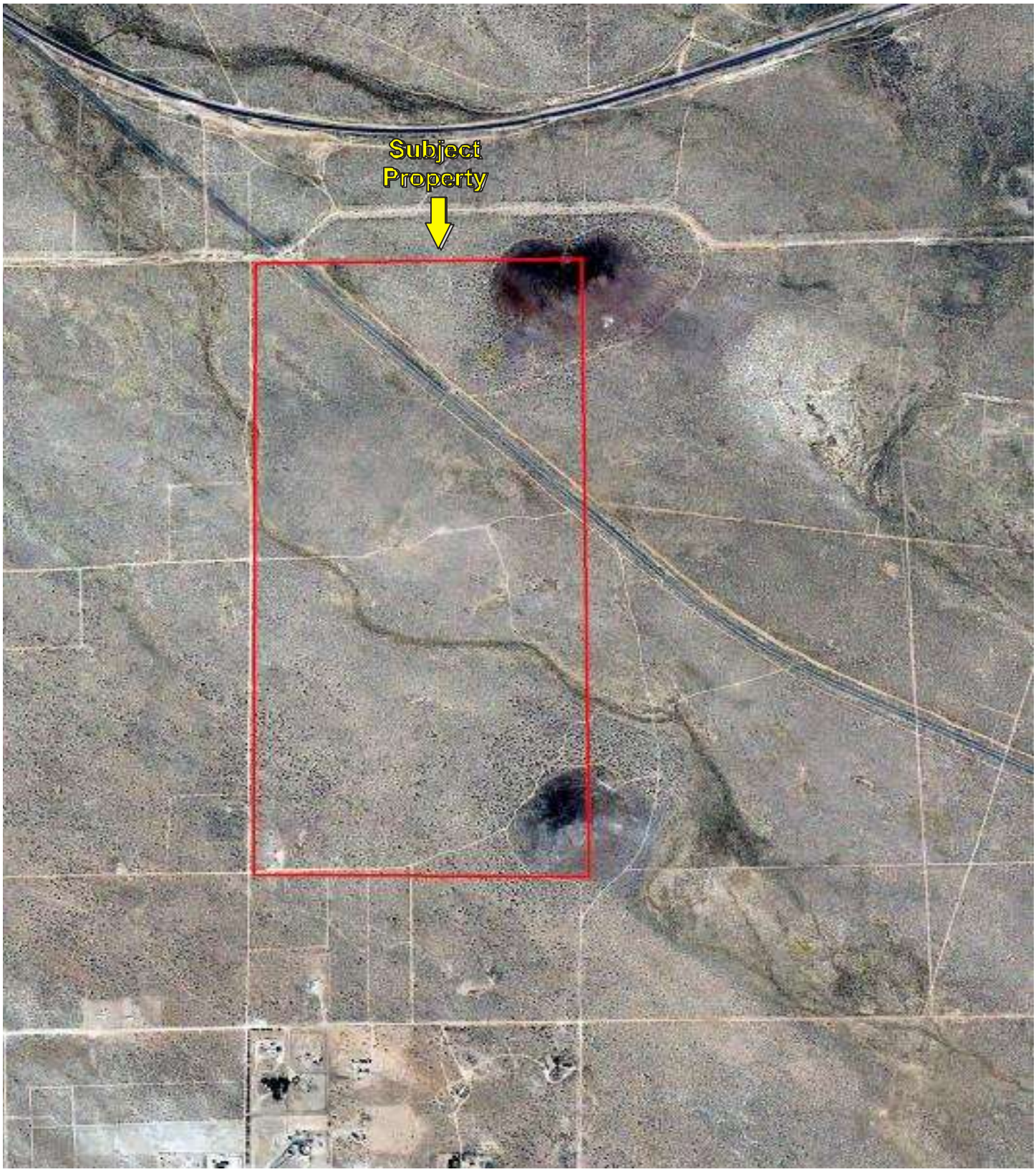

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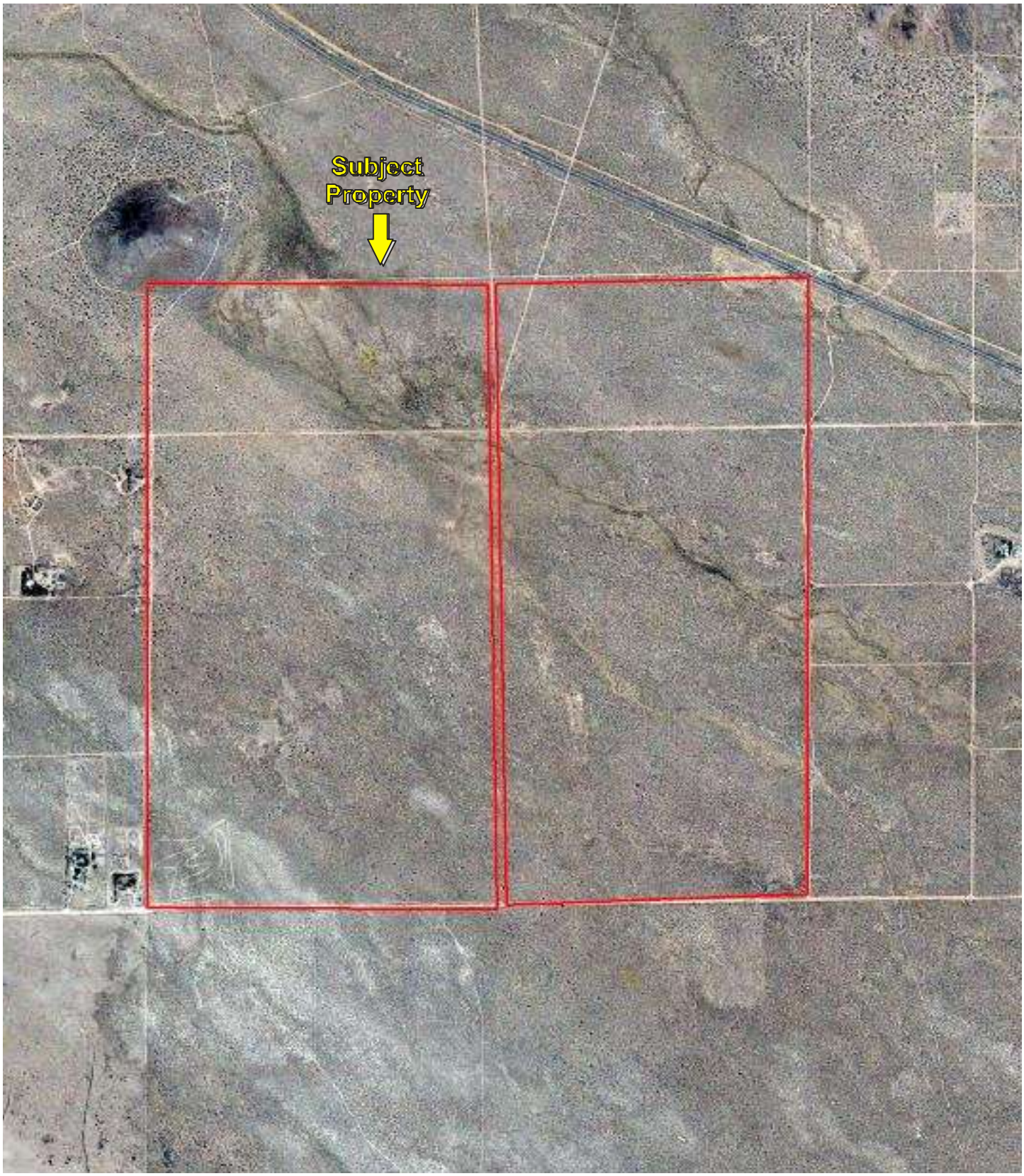

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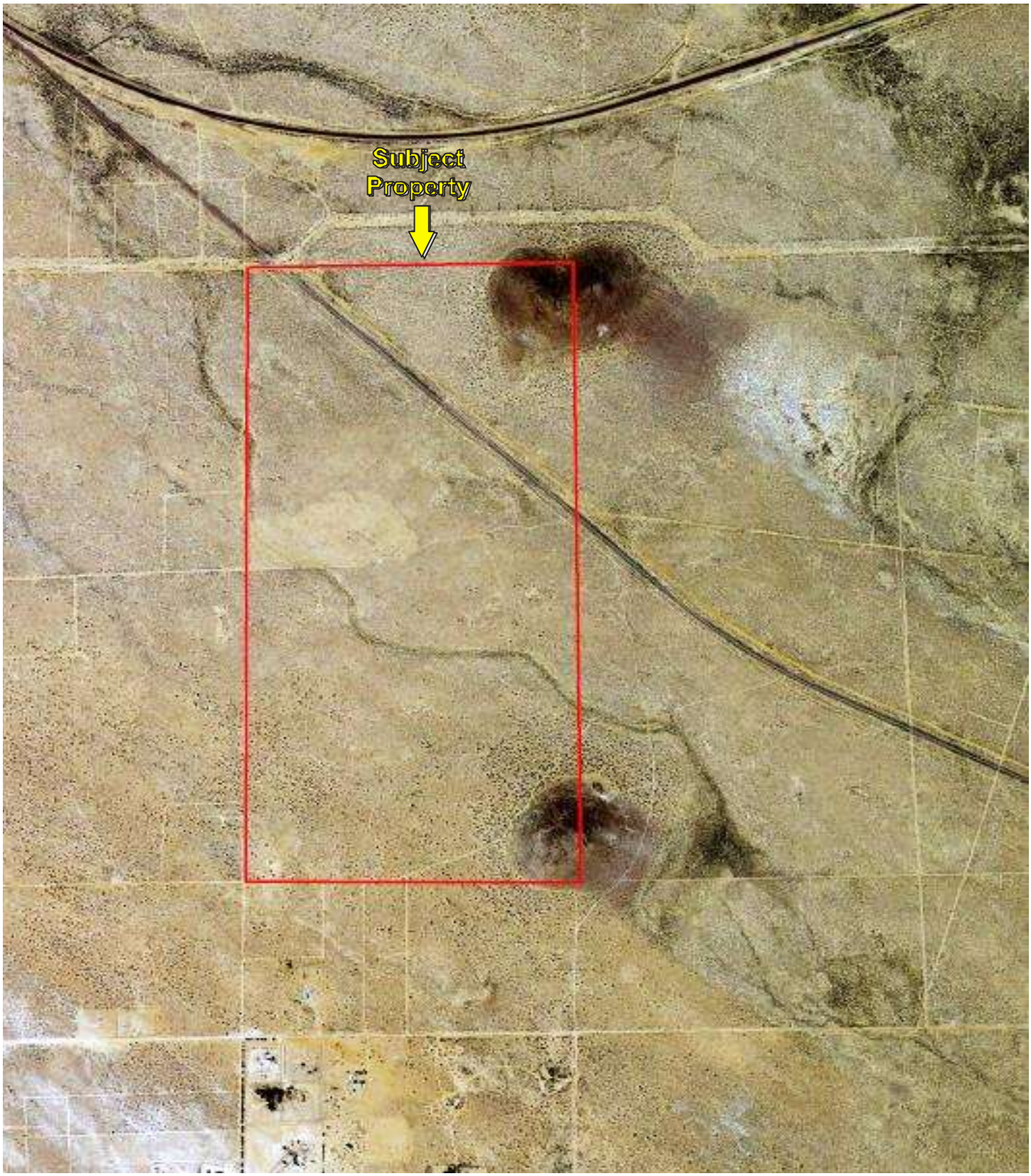

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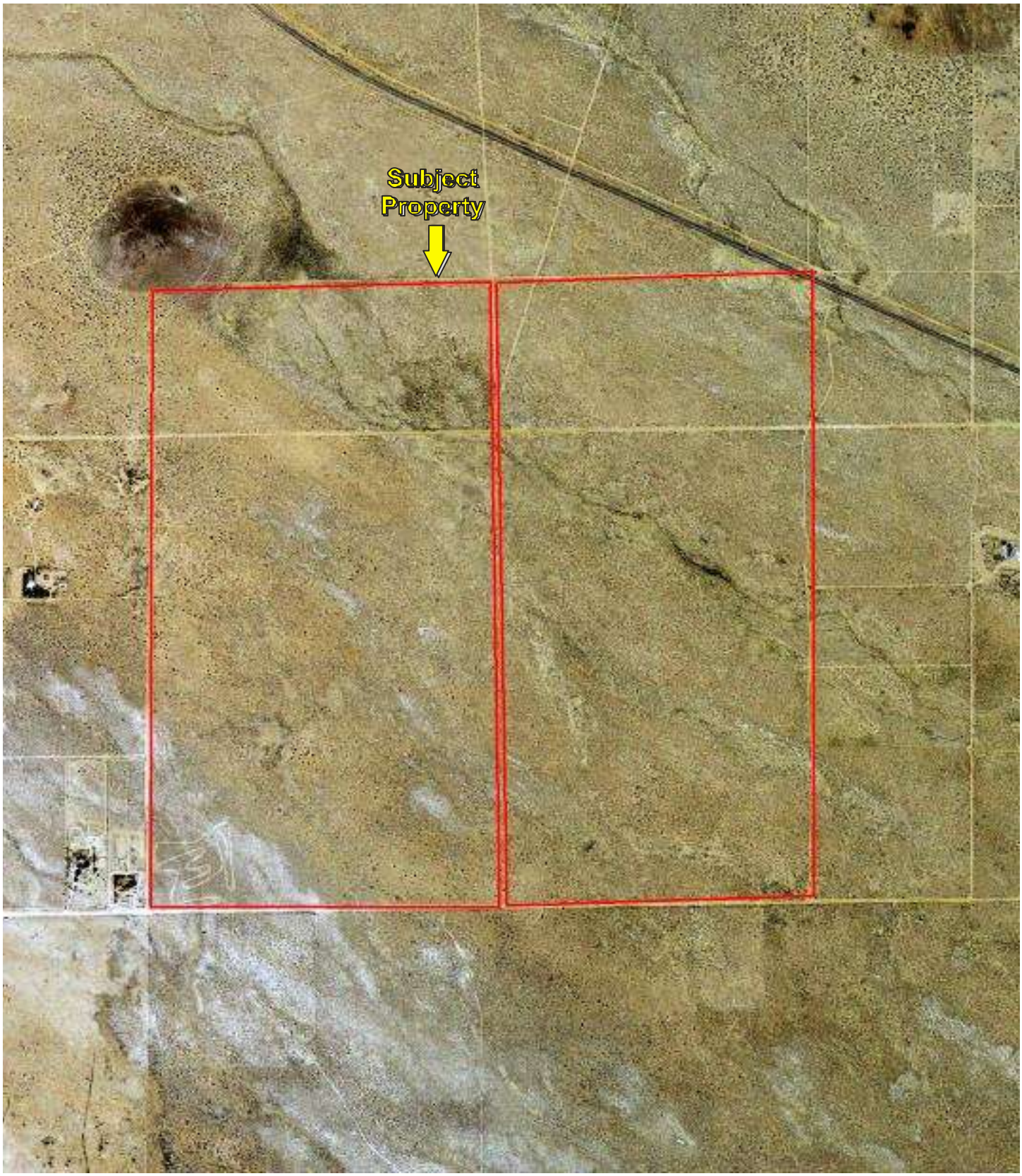

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Date of Photograph: 2012

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Subject Property

APPENDIX B: AERIAL PHOTOGRAPHS
Project No. 17-180030.3

PARTNER

Gabrych TerraGen

APN 244-233-01, APN 244-233-02, APN 429-030-02

Mojave, CA 93501

Inquiry Number: 4853226.3

February 14, 2017

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

02/14/17

Site Name:	Client Name:
Gabrych TerraGen	Partner Engineering and Science, Inc.
APN 244-233-01, APN 244-233	2154 Torrance Blvd, Suite 200
Mojave, CA 93501	Torrance, CA 90501-0000
EDR Inquiry # 4853226.3	Contact: Adrian Rivas

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Partner Engineering and Science, Inc. were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # 799D-4DB2-BDC7

PO # NA

Project 17-180030.3

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: 799D-4DB2-BDC7

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✔ Library of Congress
- ✔ University Publications of America
- ✔ EDR Private Collection

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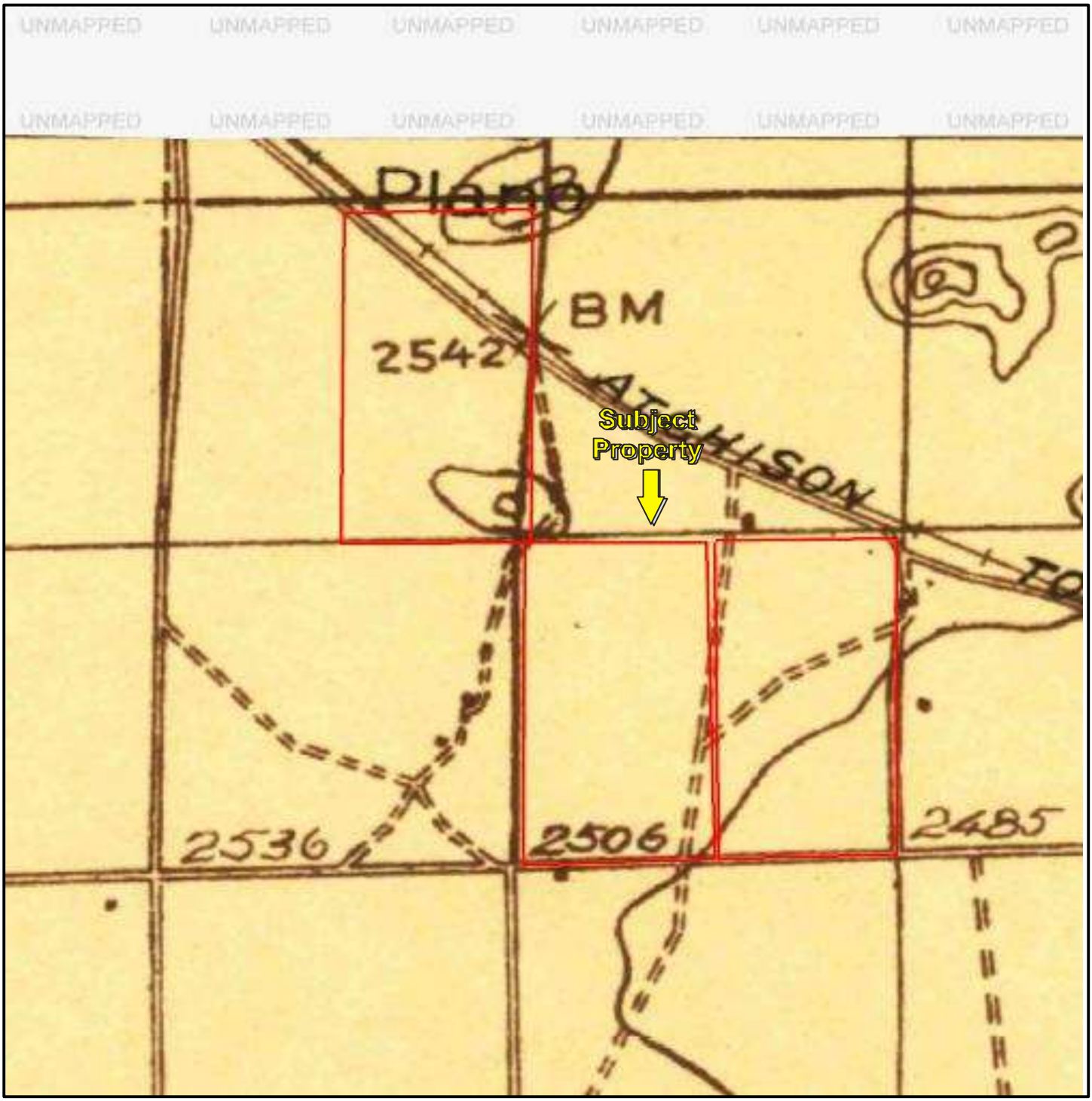
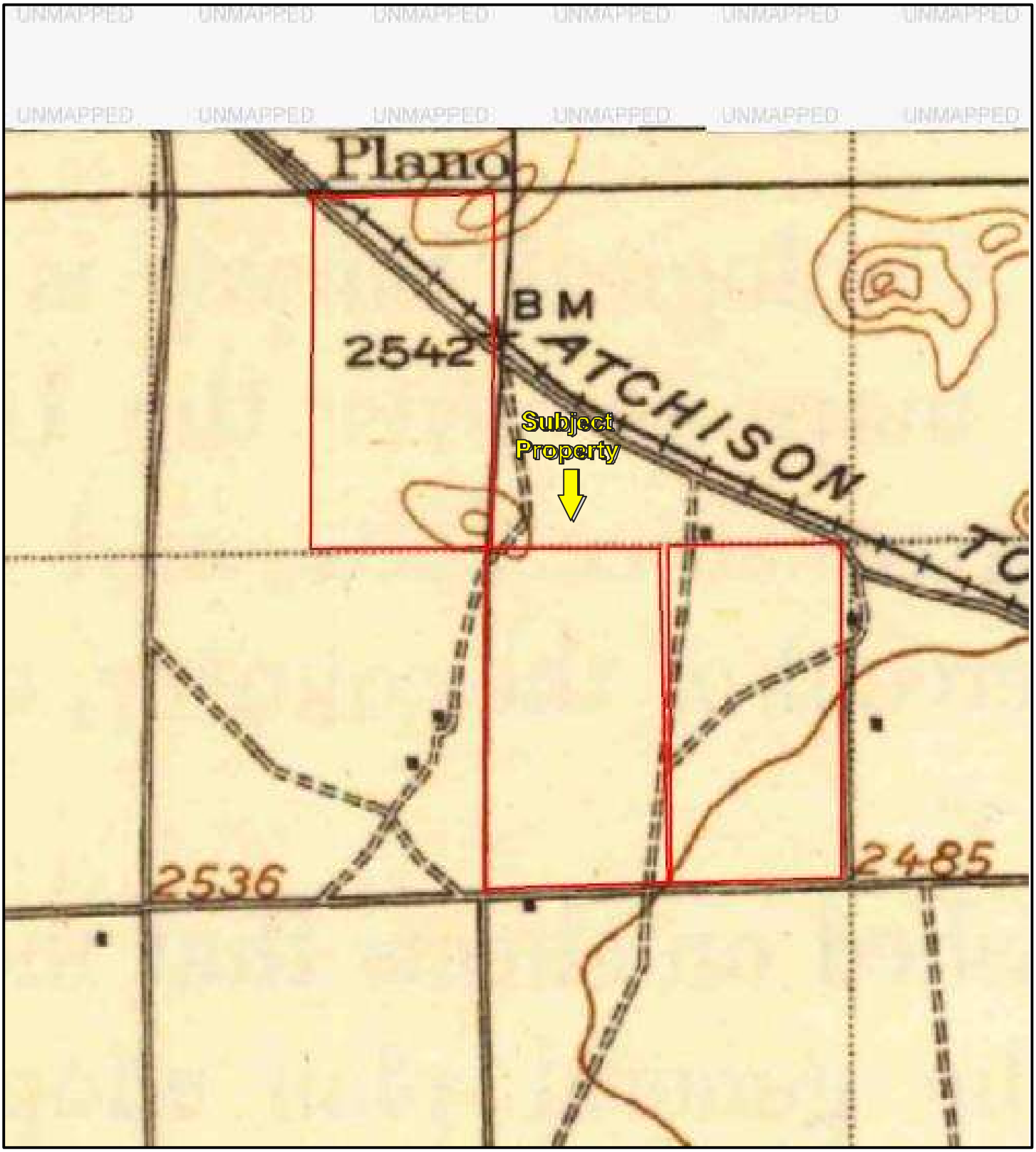


N

USGS 7.5 Minute *Elizabeth Lake, CA* Quadrangle
Created: 1915

KEY:
Subject Property



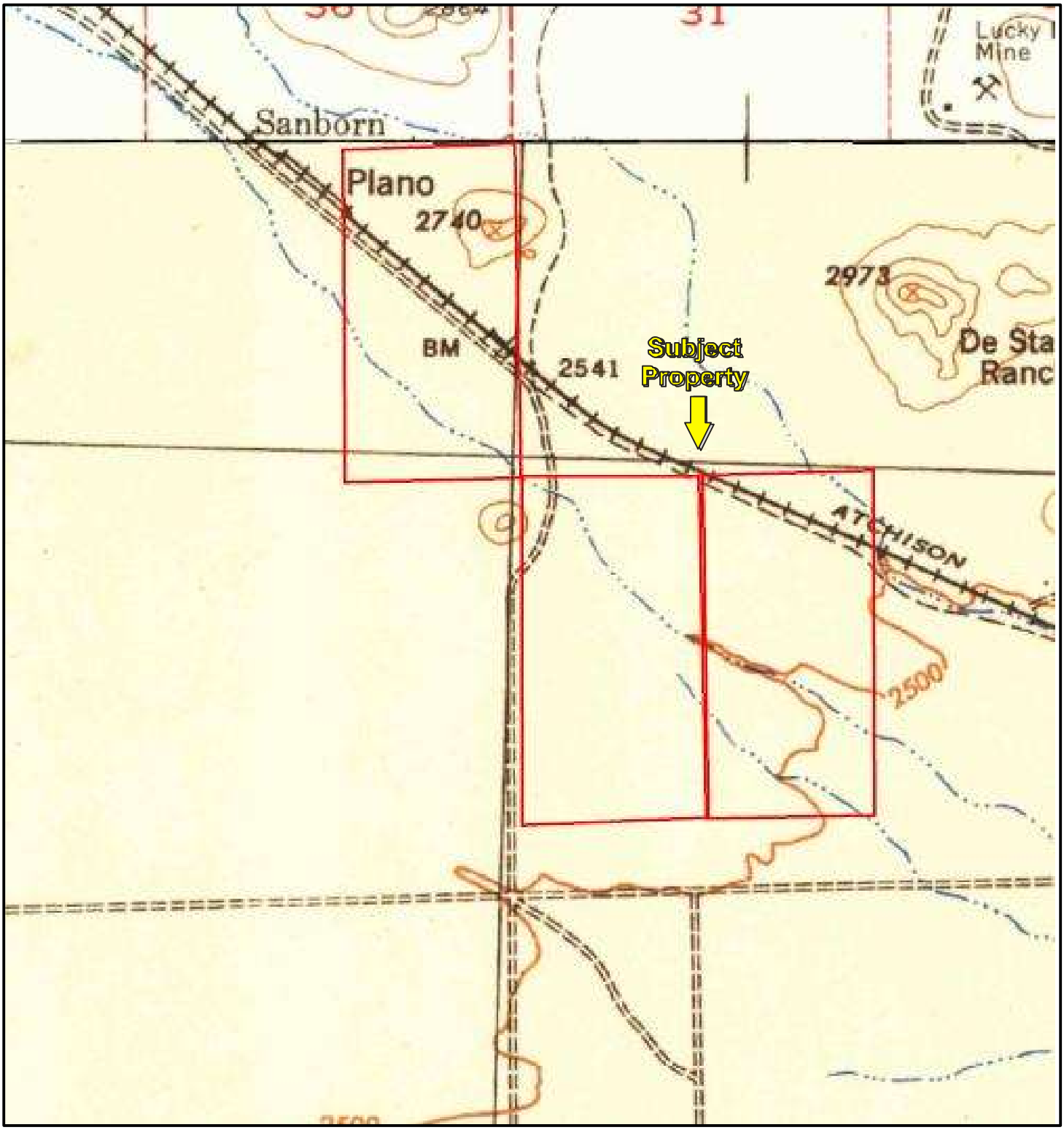
N

USGS 7.5 Minute *Elizabeth Lake, CA* Quadrangle
Created: 1917

KEY:
Subject Property

APPENDIX B: HISTORIC TOPOGRAPHIC MAPS
Project No. 17-180030.3

PARTNER



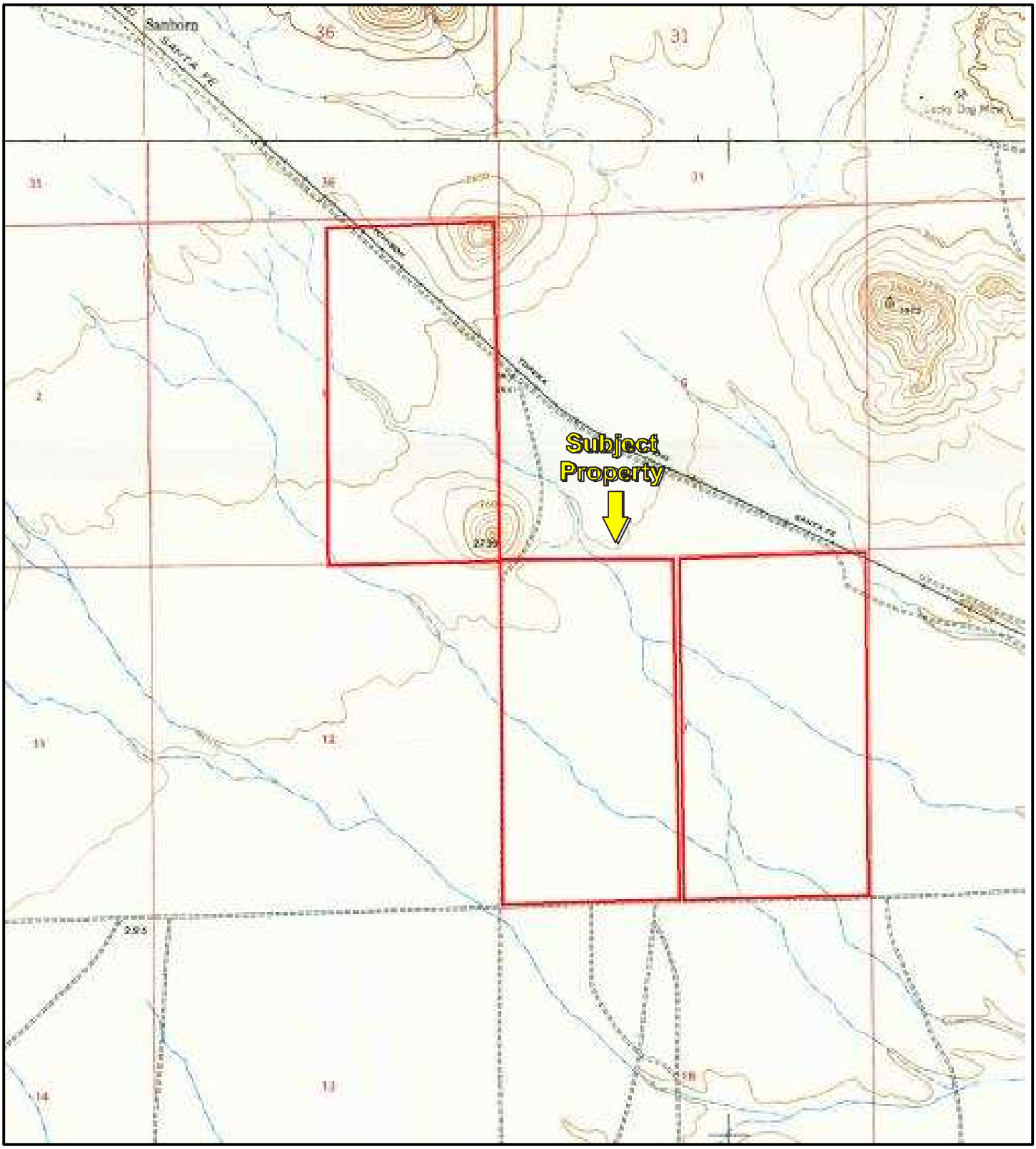
N

USGS 7.5 Minute *Rosamond, CA* Quadrangle
Created: 1943

KEY:
Subject Property

APPENDIX B: HISTORIC TOPOGRAPHIC MAPS
Project No. 17-180030.3

PARTNER



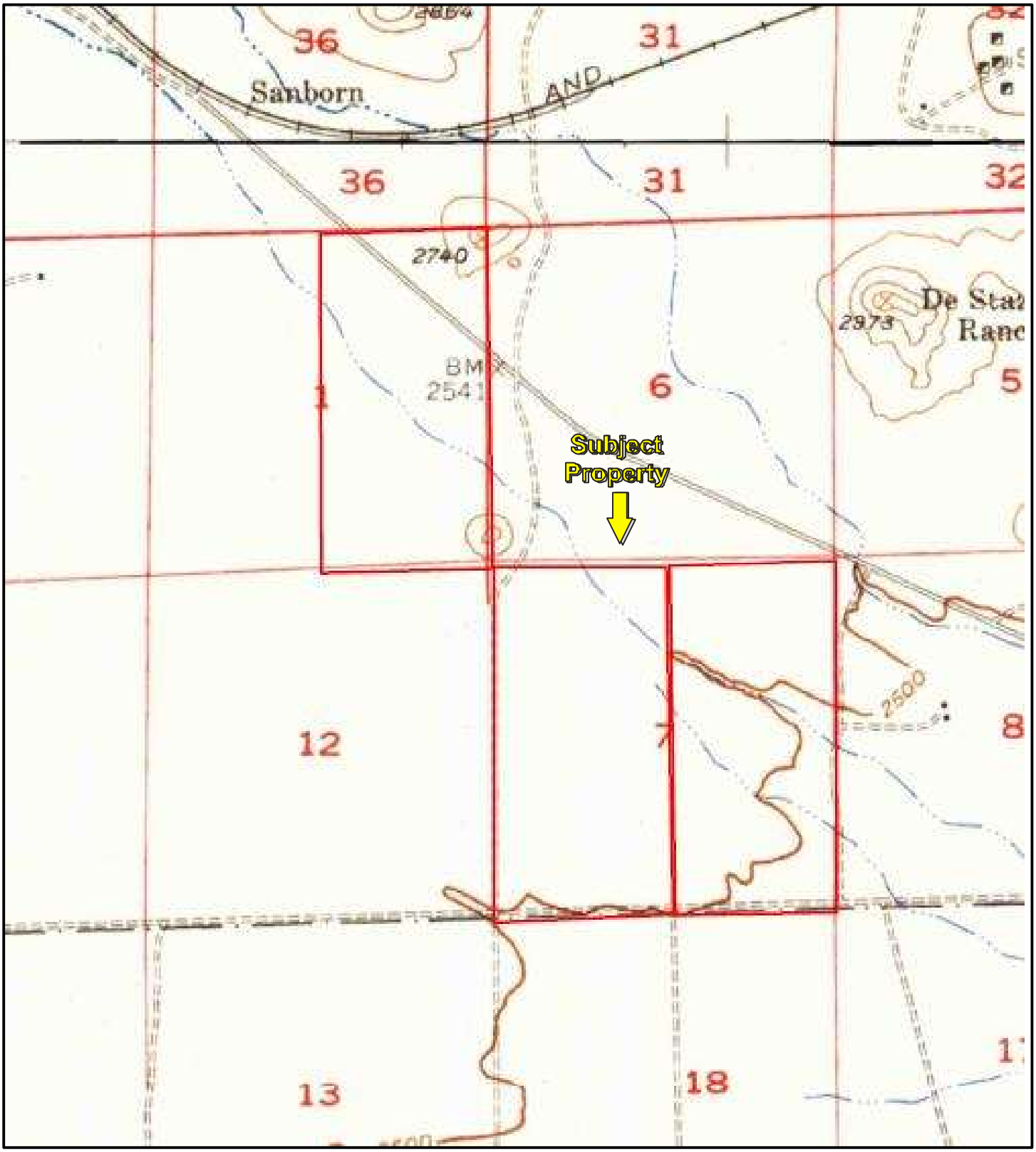
N

USGS 7.5 Minute *Bissell, CA* Quadrangle
Created: 1947

KEY:
Subject Property

APPENDIX B: HISTORIC TOPOGRAPHIC MAPS
Project No. 17-180030.3

PARTNER



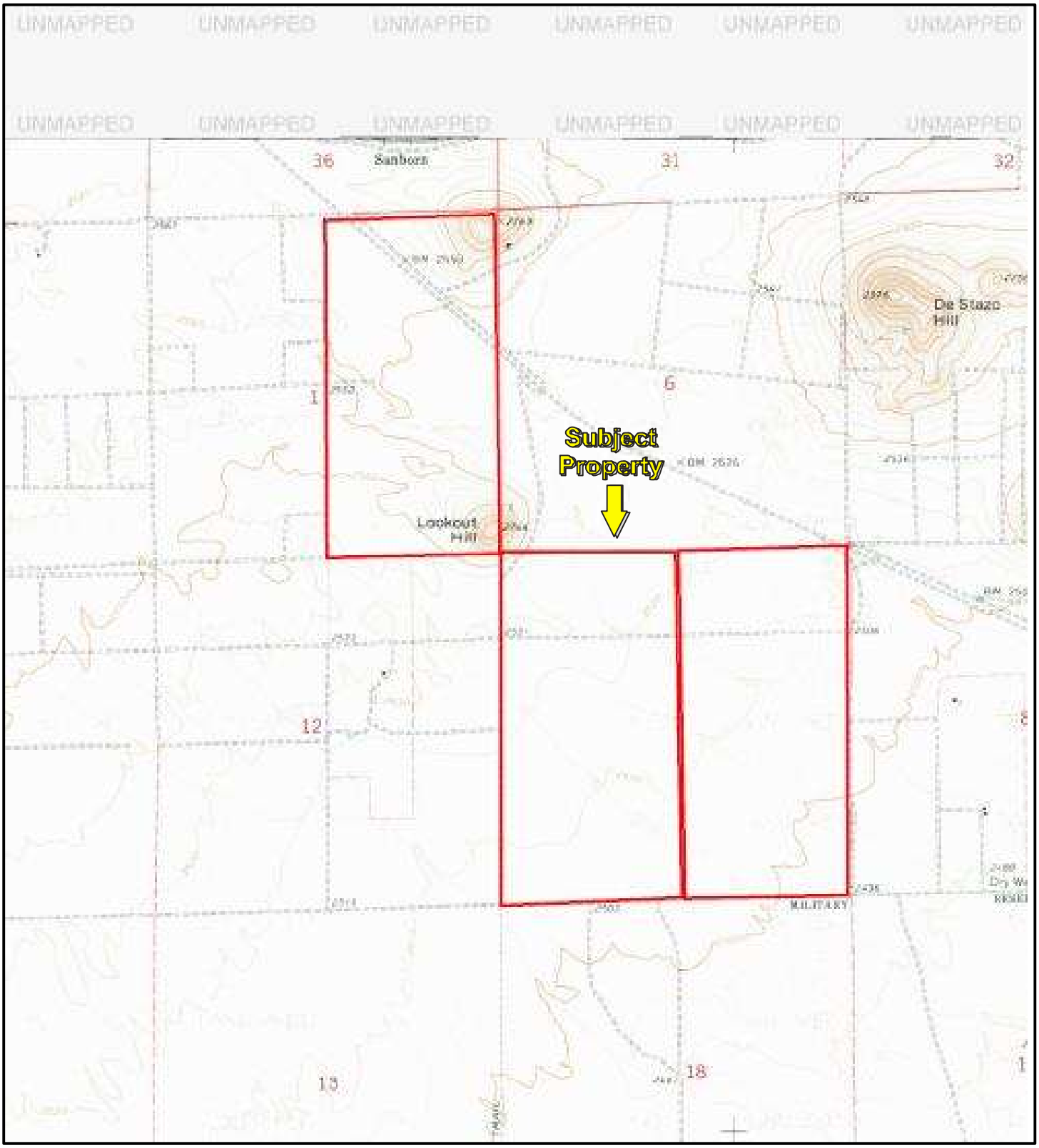
N

USGS 7.5 Minute *Rosamond, CA* Quadrangle
Created: 1956

KEY:
Subject Property

APPENDIX B: HISTORIC TOPOGRAPHIC MAPS
Project No. 17-180030.3

PARTNER



N

USGS 7.5 Minute *Bissell, CA* Quadrangle
Created: 1973

KEY:
Subject Property

APPENDIX B: HISTORIC TOPOGRAPHIC MAPS
Project No. 17-180030.3

PARTNER

Gabrych TerraGen
APN 244-233-01, APN 244-233-02, APN 429-030-02
Mojave, CA 93501

Inquiry Number: 4853226.5
February 16, 2017

The EDR-City Directory Image Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

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Findings

City Directory Images

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	Target Street	Cross Street	Source
2013	☐	☑	Cole Information Services
2008	☐	☑	Cole Information Services
2003	☐	☑	Cole Information Services
1999	☐	☑	Cole Information Services
1995	☐	☑	Cole Information Services
1992	☐	☑	Cole Information Services
1990	☐	☑	Haines Criss-Cross Directory
1985	☐	☐	Haines Criss-Cross Directory
1980	☐	☐	Haines Criss-Cross Directory
1975	☐	☐	Haines Criss-Cross Directory

RECORD SOURCES

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FINDINGS

TARGET PROPERTY STREET

APN 244-233-01, APN 244-233-02, APN 429-030-02
Mojave, CA 93501

No Addresses Found

FINDINGS

CROSS STREETS

Year	*CD Image*	*Source*	
DALTON AVE			
2013	pg. A1	Cole Information Services	
2008	pg. A2	Cole Information Services	
2003	pg. A3	Cole Information Services	
1999	pg. A4	Cole Information Services	
1995	pg. A5	Cole Information Services	
1992	pg. A6	Cole Information Services	
1990	pg. A7	Haines Criss-Cross Directory	
1985	-	Haines Criss-Cross Directory	Street not listed in Source
1980	-	Haines Criss-Cross Directory	Street not listed in Source
1975	-	Haines Criss-Cross Directory	Street not listed in Source

City Directory Images

Target Street	Cross Street	Source
-	✓	Cole Information Services

DALTON AVE 2013

76	JOSE COLON
120	IDELLA STVERAK
201	NATALIE CASTANEDA
202	EBER SANIGER
203	MARCO GALVEZ
308	DANIEL HERNANDEZ
326	KRISTINA PONCE
346	BERNARDINA SANCHEZ
384	FRANCISCO AVALOS
519	WALTER HARGIS
1536	GERI MITCHELL
1609	OCCUPANT UNKNOWN
1672	HOWARD GARD
1820	OCCUPANT UNKNOWN

Target Street	Cross Street	Source
-	✓	Cole Information Services

DALTON AVE 2008

120	IDELLA STVERAK
201	NATALIE CASTANEDA
202	EBER SANIGER
203	NORTON OLMOS
308	RUBIA HERNANDEZ
346	JAVIER ALCARAZ
384	DOUBLE AA ROOFING
	JAVIER AVALOS
519	OCCUPANT UNKNOWN
1536	JONATHAN POPE
1609	THERESA FETTERS
1672	HOWARD GARD

Target Street	Cross Street	Source
-	✓	Cole Information Services

DALTON AVE 2003

120	IDELLA STVERAK
201	DANNY HAMMOCK
202	EBER SANIGER
203	KIMBERLY NORTON
308	RUBIA HERNANDEZ
346	JAVIER ALCARAZ
384	JAVIER AVALOS
1536	JONATHAN POPE
1584	ACCUTRANS DATA SYSTEMS
1672	DENNY YOUNG

Target Street	Cross Street	Source
-	✓	Cole Information Services

DALTON AVE 1999

120	IDELLA STVERAK
203	NORTON OLMOS
308	OCCUPANT UNKNOWN
	WILBERT GUERRA
346	JAVIER ALCARAZ
1536	JONATHAN POPE
1584	JOSEPH GONZALEZ
	OCCUPANT UNKNOWN
1672	HOWARD GARD

Target Street	Cross Street	Source
-	✓	Cole Information Services

DALTON AVE 1995

120 STVERAK, CHARLES

Target Street	Cross Street	Source
-	✓	Cole Information Services

DALTON AVE 1992

120	STVERAK, CHARELS
1672	YOUNG, DENNY

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

DALTON AVE 1990

DALTON DR (88) 93501
MOJAVE

1673 ★T C J CATTLE RANCH 824-9166 8
★ 1 BUS 0 RES 0 NEW

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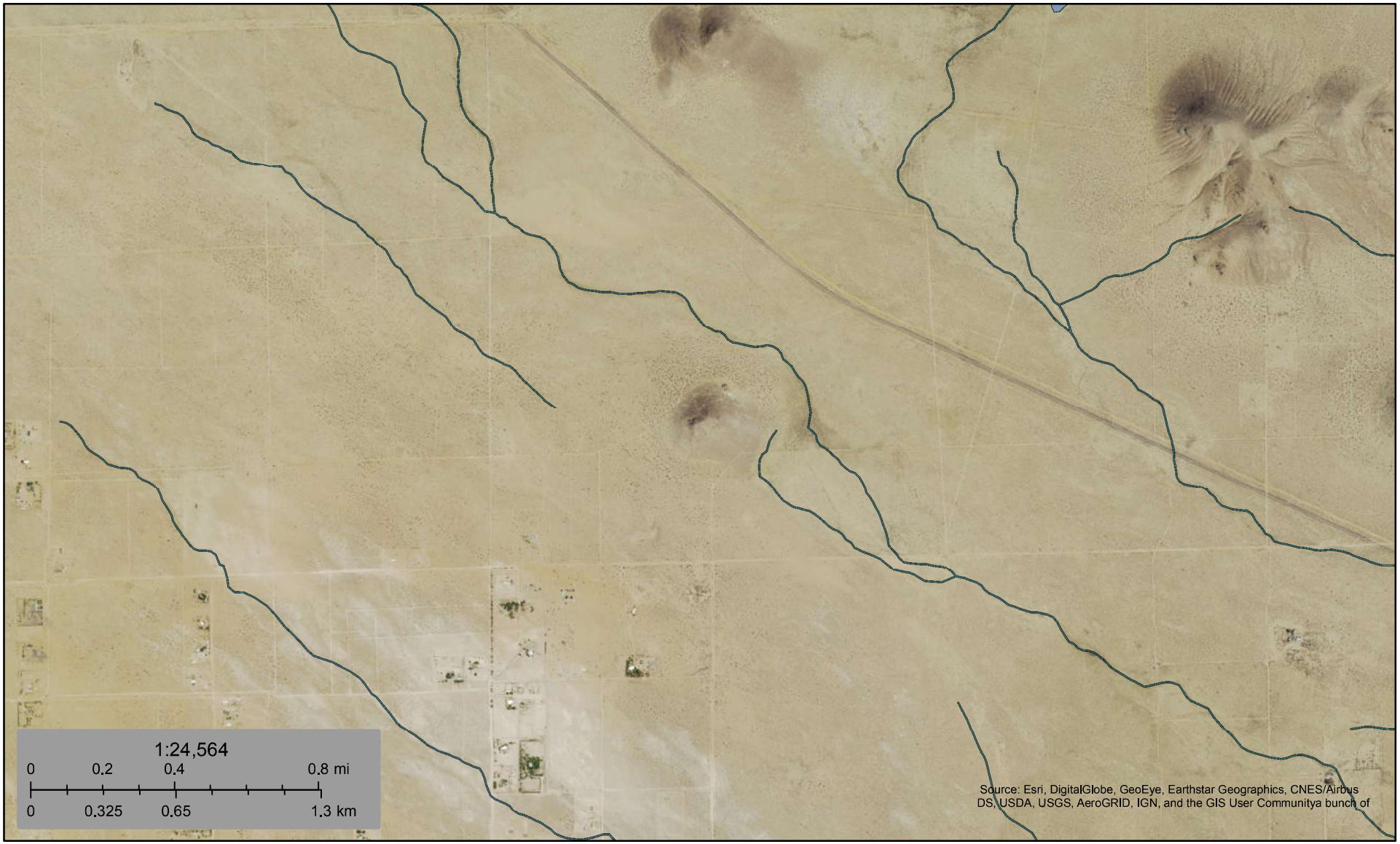
U.S. Fish and Wildlife Service

National Wetlands Inventory

Wetlands

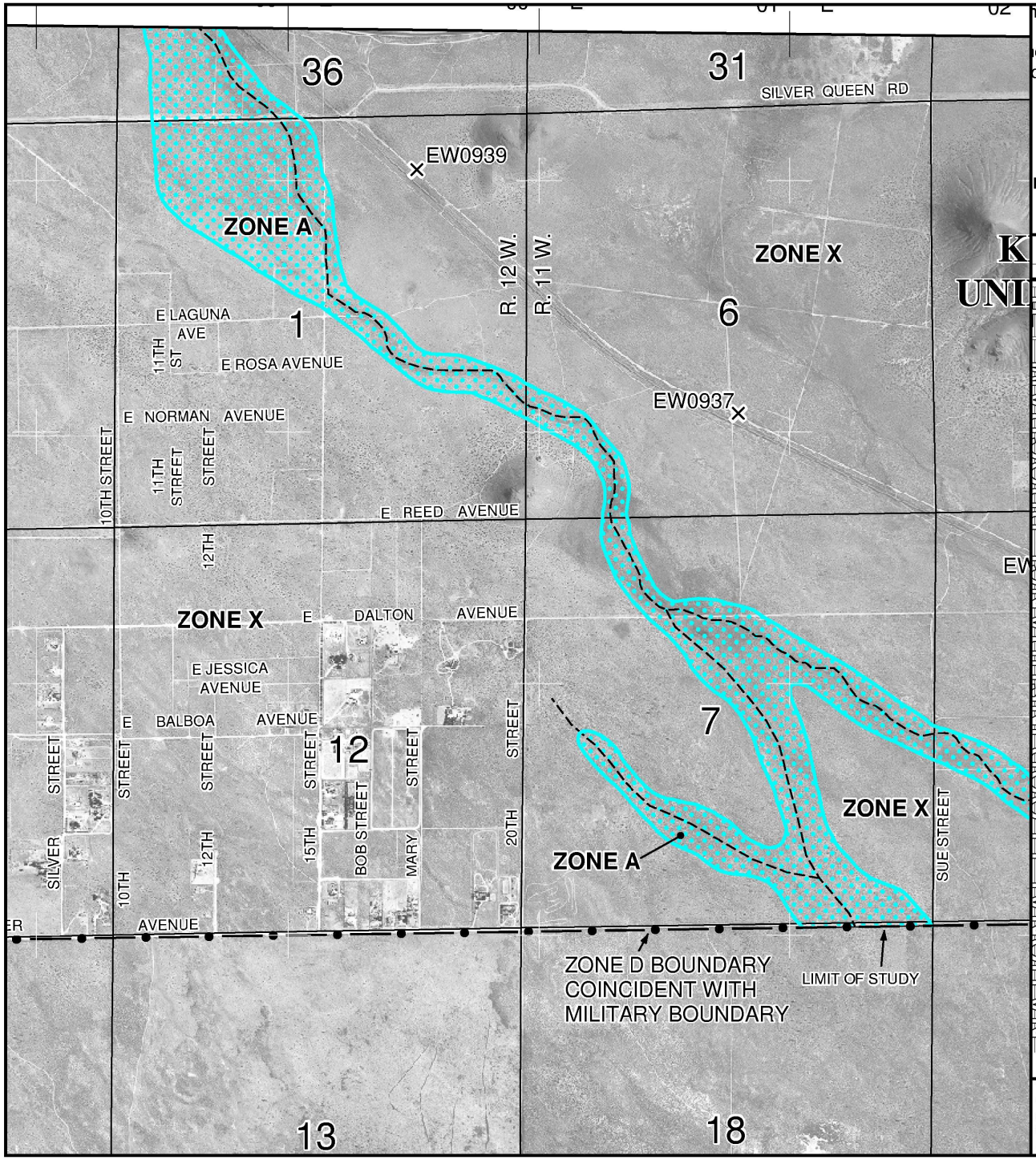


March 2, 2017

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper



he Flood Insurance Study report for this jurisdiction.

ce is available in this community, contact your insurance
d Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 2000'

METERS
0 600 1200

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 3700E

FIRM
FLOOD INSURANCE RATE MAP
KERN COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 3700 OF 4125
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
KERN COUNTY	060075	3700	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06029C3700E

EFFECTIVE DATE
SEPTEMBER 26, 2008

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

KERN COUNTY
Public Health Services
DEPARTMENT

MATTHEW CONSTANTINE
DIRECTOR

2700 M STREET, SUITE 300 BAKERSFIELD, CALIFORNIA 93301-2370 VOICE: 661-862-8740 FAX: 661-862-8701 KERNPUBLICHEALTH.COM

REQUEST FOR PUBLIC RECORDS

Describe the records you are requesting in as much detail (business name, address, type of record desired, etc.) as possible:

seeking any CUPA records pertaining to the following APNs:

428-020-07

428-030-32

429-030-02

244-233-01

244-233-02

****

Jeremy Russell

Name (Please Print)

Partner Engineering

Organization/Company

1761 E. Garry Avenue, Santa Ana, CA

Address

949 678 8911

Phone Number

jeremy.russell@protonmail.com

Email Address

Signature

2/15/2017

Date

APPENDIX C: REGULATORY DATABASE REPORT

PARTNER

Gabrych TerraGen
APN 244-233-01, APN 244-233-02, APN 429-030-02
Mojave, CA 93501

Inquiry Number: 4853226.2s
February 14, 2017

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Physical Setting Source Records Searched	PSGR-1

Thank you for your business.
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with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

APN 244-233-01, APN 244-233-02, APN 429-030-02
MOJAVE, CA 93501

COORDINATES

Latitude (North):	34.9817950 - 34˚ 58' 54.46''
Longitude (West):	118.0952660 - 118˚ 5' 42.95''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	400028.6
UTM Y (Meters):	3871374.5
Elevation:	2533 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5630785 BISSELL, CA
Version Date:	2012
North Map:	5639204 SANBORN, CA
Version Date:	2012
Southwest Map:	5630773 SOLEDAD MOUNTAIN, CA
Version Date:	2012
Northwest Map:	5639196 MOJAVE, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140921, 20140823
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
APN 244-233-01, APN 244-233-02, APN 429-030-02
MOJAVE, CA 93501

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
Reg	EDWARDS AIR FORCE BA		DOD	Same	6086, 1.153, South
Reg	EDWARDS AIR FORCE BA	5 EAST POPSON AVE BL	NPL, SEMS, CORRACTS, RCRA-TSDF, RCRA-LQG, US ENG...	Same	5309, 1.005, South

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

Proposed NPL..... Proposed National Priority List Sites
NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY..... Federal Facility Site Information listing

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE..... Superfund Enterprise Management System Archive

Federal RCRA generators list

RCRA-SQG..... RCRA - Small Quantity Generators
RCRA-CESQG..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

LUCIS..... Land Use Control Information System

Federal ERNS list

ERNS..... Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE..... State Response Sites

State and tribal landfill and/or solid waste disposal site lists

SWF/LF..... Solid Waste Information System

EXECUTIVE SUMMARY

State and tribal leaking storage tank lists

LUST ..... Geotracker's Leaking Underground Fuel Tank Report
INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land
SLIC ..... Statewide SLIC Cases

State and tribal registered storage tank lists

FEMA UST ..... Underground Storage Tank Listing
UST ..... Active UST Facilities
AST ..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST ..... Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

INDIAN VCP ..... Voluntary Cleanup Priority Listing
VCP ..... Voluntary Cleanup Program Properties

State and tribal Brownfields sites

BROWNFIELDS ..... Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT ..... Waste Management Unit Database
SWRCY ..... Recycler Database
HAULERS ..... Registered Waste Tire Haulers Listing
INDIAN ODI ..... Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9 ..... Torres Martinez Reservation Illegal Dump Site Locations
ODI ..... Open Dump Inventory
IHS OPEN DUMPS ..... Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL ..... Delisted National Clandestine Laboratory Register
SCH ..... School Property Evaluation Program
CDL ..... Clandestine Drug Labs
Toxic Pits ..... Toxic Pits Cleanup Act Sites
US CDL ..... National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

SWEEPS UST ..... SWEEPS UST Listing
HIST UST ..... Hazardous Substance Storage Container Database
CA FID UST ..... Facility Inventory Database

Local Land Records

LIENS ..... Environmental Liens Listing

LIENS 2	CERCLA Lien Information

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
CHMIRS	California Hazardous Material Incident Report System
LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated
FUDS	Formerly Used Defense Sites
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
RMP	Risk Management Plans
PADS	PCB Activity Database System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US MINES	Mines Master Index File
FINDS	Facility Index System/Facility Registry System
UXO	Unexploded Ordnance Sites
CA BOND EXP. PLAN	Bond Expenditure Plan
CUPA Listings	CUPA Resources List
DRYCLEANERS	Cleaner Facilities
EMI	Emissions Inventory Data
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
HIST CORTESE	Hazardous Waste & Substance Site List
HWP	EnviroStor Permitted Facilities Listing
HWT	Registered Hazardous Waste Transporter Database
MINES	Mines Site Location Listing
MWMP	Medical Waste Management Program Listing
NPDES	NPDES Permits Listing
PEST LIC	Pesticide Regulation Licenses Listing
PROC	Certified Processors Database
Notify 65	Proposition 65 Records

EXECUTIVE SUMMARY

UIC..... UIC Listing
WASTEWATER PITS..... Oil Wastewater Pits Listing
WDS..... Waste Discharge System
WIP..... Well Investigation Program Case List
FUELS PROGRAM..... EPA Fuels Program Registered Listing
ABANDONED MINES..... Abandoned Mines
ECHO..... Enforcement & Compliance History Information

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP..... EDR Proprietary Manufactured Gas Plants
EDR Hist Auto..... EDR Exclusive Historic Gas Stations
EDR Hist Cleaner..... EDR Exclusive Historic Dry Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF..... Recovered Government Archive Solid Waste Facilities List
RGA LUST..... Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: Also known as Superfund, the National Priority List database is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund program. The source of this database is the U.S. EPA.

A review of the NPL list, as provided by EDR, and dated 12/05/2016 has revealed that there is 1 NPL site within approximately 2.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EDWARDS AIR FORCE BA	***5 EAST POPSON AVE BL***	***S 1 - 2 (1.005 mi.)***	***0***	***8***

EXECUTIVE SUMMARY

Federal CERCLIS list

SEMS: SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

A review of the SEMS list, as provided by EDR, and dated 10/10/2016 has revealed that there is 1 SEMS site within approximately 2 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EDWARDS AIR FORCE BA	***5 EAST POPSON AVE BL***	***S 1 - 2 (1.005 mi.)***	***0***	***8***

Federal RCRA CORRACTS facilities list

CORRACTS: CORRACTS is a list of handlers with RCRA Corrective Action Activity. This report shows which nationally-defined corrective action core events have occurred for every handler that has had corrective action activity.

A review of the CORRACTS list, as provided by EDR, and dated 12/12/2016 has revealed that there is 1 CORRACTS site within approximately 2.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EDWARDS AIR FORCE BA	***5 EAST POPSON AVE BL***	***S 1 - 2 (1.005 mi.)***	***0***	***8***

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

A review of the RCRA-TSDF list, as provided by EDR, and dated 12/12/2016 has revealed that there is 1 RCRA-TSDF site within approximately 2 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EDWARDS AIR FORCE BA	***5 EAST POPSON AVE BL***	***S 1 - 2 (1.005 mi.)***	***0***	***8***

Federal RCRA generators list

RCRA-LQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

A review of the RCRA-LQG list, as provided by EDR, and dated 12/12/2016 has revealed that there is 1 RCRA-LQG site within approximately 1.75 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EDWARDS AIR FORCE BA	*5 EAST POPSON AVE BL*	*S 1 - 2 (1.005 mi.)*	*0*	*8*

Federal institutional controls / engineering controls registries

US ENG CONTROLS: A listing of sites with engineering controls in place.

A review of the US ENG CONTROLS list, as provided by EDR, and dated 11/15/2016 has revealed that there is 1 US ENG CONTROLS site within approximately 2 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EDWARDS AIR FORCE BA	*5 EAST POPSON AVE BL*	*S 1 - 2 (1.005 mi.)*	*0*	*8*

US INST CONTROL: A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

A review of the US INST CONTROL list, as provided by EDR, and dated 11/15/2016 has revealed that there is 1 US INST CONTROL site within approximately 2 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EDWARDS AIR FORCE BA	*5 EAST POPSON AVE BL*	*S 1 - 2 (1.005 mi.)*	*0*	*8*

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 10/31/2016 has revealed that there is

1 ENVIROSTOR site within approximately 2.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EDWARDS AIR FORCE BA	***5 EAST POPSON AVE BL***	***S 1 - 2 (1.005 mi.)***	***0***	***8***
Facility Id: 15970001				
Status: Active				

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Hazardous waste / Contaminated Sites

HIST Cal-Sites: Formerly known as ASPIS, this database contains both known and potential hazardous substance sites. The source is the California Department of Toxic Substance Control. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

A review of the HIST Cal-Sites list, as provided by EDR, and dated 08/08/2005 has revealed that there is 1 HIST Cal-Sites site within approximately 2.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EDWARDS AIR FORCE BA	***5 EAST POPSON AVE BL***	***S 1 - 2 (1.005 mi.)***	***0***	***8***

Local Land Records

DEED: The use of recorded land use restrictions is one of the methods the DTSC uses to protect the public from unsafe exposures to hazardous substances and wastes .

A review of the DEED list, as provided by EDR, and dated 12/06/2016 has revealed that there is 1 DEED site within approximately 2 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EDWARDS AIR FORCE BA	***5 EAST POPSON AVE BL***	***S 1 - 2 (1.005 mi.)***	***0***	***8***
Status: ACTIVE				
Envirostor ID: 15970001				

Other Ascertainable Records

DOD: Consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

A review of the DOD list, as provided by EDR, and dated 12/31/2005 has revealed that there is 1 DOD site within approximately 2.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EDWARDS AIR FORCE BA		S 1 - 2 (1.153 mi.)	0	8

EXECUTIVE SUMMARY

ROD: Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid the cleanup.

A review of the ROD list, as provided by EDR, and dated 11/25/2013 has revealed that there is 1 ROD site within approximately 2.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EDWARDS AIR FORCE BA	*5 EAST POPSON AVE BL*	*S 1 - 2 (1.005 mi.)*	*0*	*8*

RAATS: The RCRA Administration Action Tracking System contains records based on enforcement actions issued under RCRA and pertaining to major violators. It includes administrative and civil actions brought by the United States Environmental Protection Agency. The source of this database is the U.S. EPA.

A review of the RAATS list, as provided by EDR, and dated 04/17/1995 has revealed that there is 1 RAATS site within approximately 1.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EDWARDS AIR FORCE BA	*5 EAST POPSON AVE BL*	*S 1 - 2 (1.005 mi.)*	*0*	*8*

PRP: A listing of verified Potentially Responsible Parties

A review of the PRP list, as provided by EDR, and dated 10/25/2013 has revealed that there is 1 PRP site within approximately 1.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EDWARDS AIR FORCE BA	*5 EAST POPSON AVE BL*	*S 1 - 2 (1.005 mi.)*	*0*	*8*

ICIS: The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

A review of the ICIS list, as provided by EDR, and dated 11/18/2016 has revealed that there is 1 ICIS site within approximately 1.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EDWARDS AIR FORCE BA	*5 EAST POPSON AVE BL*	*S 1 - 2 (1.005 mi.)*	*0*	*8*

US AIRS: The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

A review of the US AIRS list, as provided by EDR, has revealed that there is 1 US AIRS site within approximately 1.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EDWARDS AIR FORCE BA	*5 EAST POPSON AVE BL*	*S 1 - 2 (1.005 mi.)*	*0*	*8*

Database: US AIRS (AFS), Date of Government Version: 10/12/2016

EXECUTIVE SUMMARY

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

A review of the DOCKET HWC list, as provided by EDR, and dated 06/02/2016 has revealed that there is 1 DOCKET HWC site within approximately 1.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EDWARDS AIR FORCE BA	***5 EAST POPSON AVE BL***	***S 1 - 2 (1.005 mi.)***	***0***	***8***

Cortese: The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

A review of the Cortese list, as provided by EDR, and dated 09/26/2016 has revealed that there is 1 Cortese site within approximately 2 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EDWARDS AIR FORCE BA	***5 EAST POPSON AVE BL***	***S 1 - 2 (1.005 mi.)***	***0***	***8***
Envirostor Id: 15970001				
Cleanup Status: ACTIVE - LAND USE RESTRICTIONS				

HAZNET: The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000-1,000,000 annually, representing approximately 350,000-500,000 shipments. Data from non-California manifests & continuation sheets are not included at the present time. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, & disposal method. The source is the Department of Toxic Substance Control is the agency. This database begins with calendar year 1993.

A review of the HAZNET list, as provided by EDR, and dated 12/31/2015 has revealed that there is 1 HAZNET site within approximately 1.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EDWARDS AIR FORCE BA	***5 EAST POPSON AVE BL***	***S 1 - 2 (1.005 mi.)***	***0***	***8***
GEPAID: CA1570024504				

ICE: Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

A review of the ICE list, as provided by EDR, and dated 11/21/2016 has revealed that there is 1 ICE site within approximately 1.5 miles of the target property.

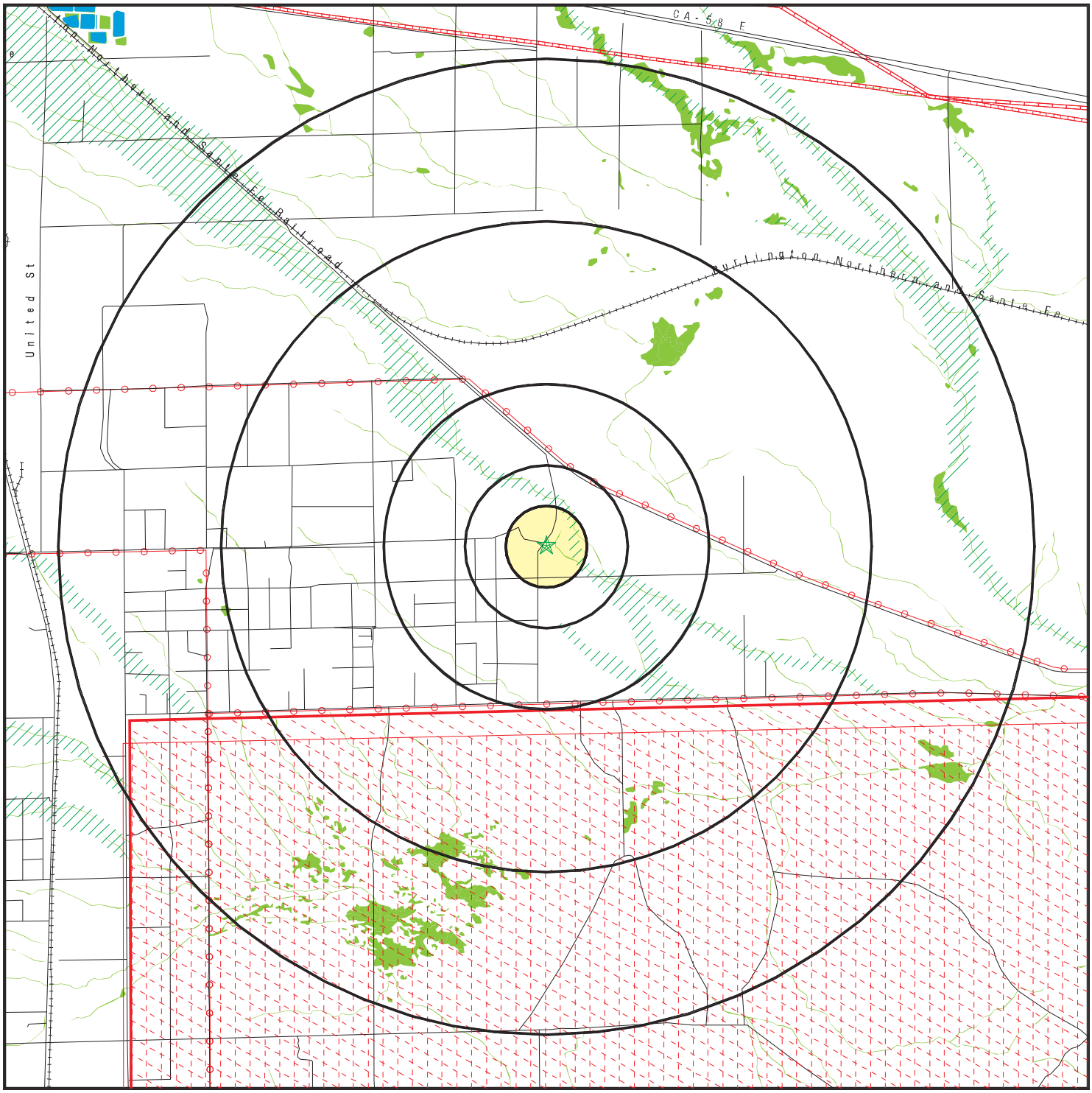
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EDWARDS AIR FORCE BA	***5 EAST POPSON AVE BL***	***S 1 - 2 (1.005 mi.)***	***0***	***8***

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 7 records.

Site Name	Database(s)
	CDL
	CDL
	CDL
	CDL
	CDL
	CDL
FORMER MARINE CORPS AIR STATION -	LUST

OVERVIEW MAP - 4853226.2S



0 3/4 1 1/2 3 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Gabrych TerraGen ADDRESS: APN 244-233-01, APN 244-233-02, APN 429-030-02 Mojave CA 93501 LAT/LONG: 34.981795 / 118.095266	CLIENT: Partner Engineering and Science, Inc. CONTACT: Adrian Rivas INQUIRY #: 4853226.2s DATE: February 14, 2017 1:40 pm

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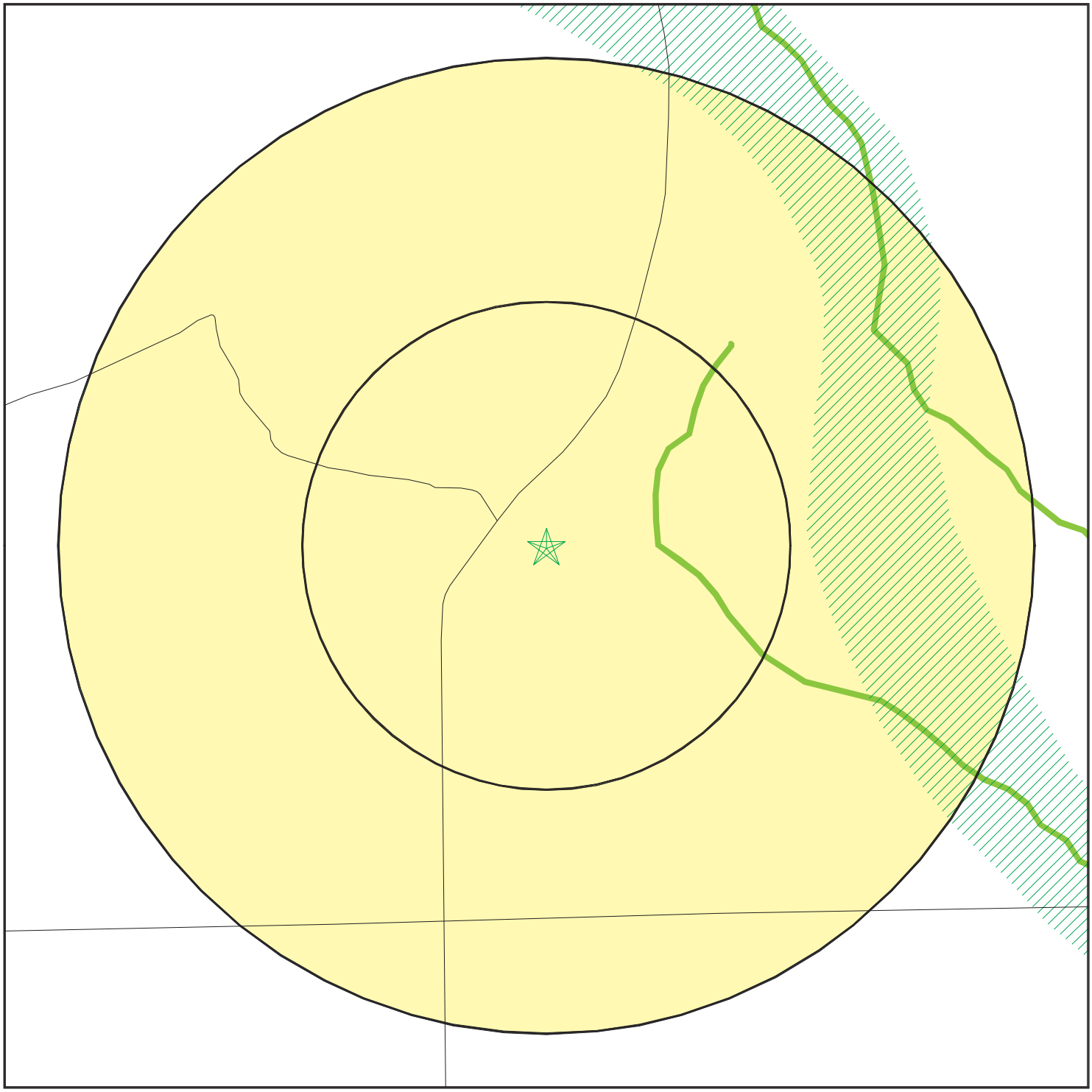
DETAIL MAP - 4853226.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

0 1/16 1/8 1/4 Miles

- Indian Reservations BIA
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Gabrych TerraGen ADDRESS: APN 244-233-01, APN 244-233-02, APN 429-030-02 Mojave CA 93501 LAT/LONG: 34.981795 / 118.095266	CLIENT: Partner Engineering and Science, Inc. CONTACT: Adrian Rivas INQUIRY #: 4853226.2s DATE: February 14, 2017 1:41 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	2.500		0	0	0	0	1	1
Proposed NPL	2.500		0	0	0	0	0	0
NPL LIENS	1.500		0	0	0	0	0	0
Federal Delisted NPL site list								
Delisted NPL	2.500		0	0	0	0	0	0
Federal CERCLIS list								
FEDERAL FACILITY	2.000		0	0	0	0	0	0
SEMS	2.000		0	0	0	0	1	1
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	2.000		0	0	0	0	0	0
Federal RCRA CORRACTS facilities list								
CORRACTS	2.500		0	0	0	0	1	1
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	2.000		0	0	0	0	1	1
Federal RCRA generators list								
RCRA-LQG	1.750		0	0	0	0	1	1
RCRA-SQG	1.750		0	0	0	0	0	0
RCRA-CESQG	1.750		0	0	0	0	0	0
Federal institutional controls / engineering controls registries								
LUCIS	2.000		0	0	0	0	0	0
US ENG CONTROLS	2.000		0	0	0	0	1	1
US INST CONTROL	2.000		0	0	0	0	1	1
Federal ERNS list								
ERNS	1.500		0	0	0	0	0	0
State- and tribal - equivalent NPL								
RESPONSE	2.500		0	0	0	0	0	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	2.500		0	0	0	0	1	1
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	2.000		0	0	0	0	0	0
State and tribal leaking storage tank lists								
LUST	2.000		0	0	0	0	0	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	2.000		0	0	0	0	0	0
SLIC	2.000		0	0	0	0	0	0
State and tribal registered storage tank lists								
FEMA UST	1.750		0	0	0	0	0	0
UST	1.750		0	0	0	0	0	0
AST	1.750		0	0	0	0	0	0
INDIAN UST	1.750		0	0	0	0	0	0
State and tribal voluntary cleanup sites								
INDIAN VCP	2.000		0	0	0	0	0	0
VCP	2.000		0	0	0	0	0	0
State and tribal Brownfields sites								
BROWNFIELDS	2.000		0	0	0	0	0	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	2.000		0	0	0	0	0	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	2.000		0	0	0	0	0	0
SWRCY	2.000		0	0	0	0	0	0
HAULERS	1.500		0	0	0	0	0	0
INDIAN ODI	2.000		0	0	0	0	0	0
DEBRIS REGION 9	2.000		0	0	0	0	0	0
ODI	2.000		0	0	0	0	0	0
IHS OPEN DUMPS	2.000		0	0	0	0	0	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	1.500		0	0	0	0	0	0
HIST Cal-Sites	2.500		0	0	0	0	1	1
SCH	1.750		0	0	0	0	0	0
CDL	1.500		0	0	0	0	0	0
Toxic Pits	2.500		0	0	0	0	0	0
US CDL	1.500		0	0	0	0	0	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	1.750		0	0	0	0	0	0
HIST UST	1.750		0	0	0	0	0	0
CA FID UST	1.750		0	0	0	0	0	0
Local Land Records								
LIENS	1.500		0	0	0	0	0	0
LIENS 2	1.500		0	0	0	0	0	0
DEED	2.000		0	0	0	0	1	1
Records of Emergency Release Reports								
HMIRS	1.500		0	0	0	0	0	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
CHMIRS	1.500		0	0	0	0	0	0
LDS	1.500		0	0	0	0	0	0
MCS	1.500		0	0	0	0	0	0
SPILLS 90	1.500		0	0	0	0	0	0
Other Ascertainable Records								
RCRA NonGen / NLR	1.750		0	0	0	0	0	0
FUDS	2.500		0	0	0	0	0	0
DOD	2.500		0	0	0	0	1	1
SCRD DRYCLEANERS	2.000		0	0	0	0	0	0
US FIN ASSUR	1.500		0	0	0	0	0	0
EPA WATCH LIST	1.500		0	0	0	0	0	0
2020 COR ACTION	1.750		0	0	0	0	0	0
TSCA	1.500		0	0	0	0	0	0
TRIS	1.500		0	0	0	0	0	0
SSTS	1.500		0	0	0	0	0	0
ROD	2.500		0	0	0	0	1	1
RMP	1.500		0	0	0	0	0	0
RAATS	1.500		0	0	0	0	1	1
PRP	1.500		0	0	0	0	1	1
PADS	1.500		0	0	0	0	0	0
ICIS	1.500		0	0	0	0	1	1
FTTS	1.500		0	0	0	0	0	0
MLTS	1.500		0	0	0	0	0	0
COAL ASH DOE	1.500		0	0	0	0	0	0
COAL ASH EPA	2.000		0	0	0	0	0	0
PCB TRANSFORMER	1.500		0	0	0	0	0	0
RADINFO	1.500		0	0	0	0	0	0
HIST FTTS	1.500		0	0	0	0	0	0
DOT OPS	1.500		0	0	0	0	0	0
CONSENT	2.500		0	0	0	0	0	0
INDIAN RESERV	2.500		0	0	0	0	0	0
FUSRAP	2.500		0	0	0	0	0	0
UMTRA	2.000		0	0	0	0	0	0
LEAD SMELTERS	1.500		0	0	0	0	0	0
US AIRS	1.500		0	0	0	0	1	1
US MINES	1.750		0	0	0	0	0	0
FINDS	1.500		0	0	0	0	0	0
DOCKET HWC	1.500		0	0	0	0	1	1
UXO	2.500		0	0	0	0	0	0
CA BOND EXP. PLAN	2.500		0	0	0	0	0	0
Cortese	2.000		0	0	0	0	1	1
CUPA Listings	1.750		0	0	0	0	0	0
DRYCLEANERS	1.750		0	0	0	0	0	0
EMI	1.500		0	0	0	0	0	0
ENF	1.500		0	0	0	0	0	0
Financial Assurance	1.500		0	0	0	0	0	0
HAZNET	1.500		0	0	0	0	1	1
ICE	1.500		0	0	0	0	1	1
HIST CORTESE	2.000		0	0	0	0	0	0
HWP	2.500		0	0	0	0	0	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
HWT	1.750		0	0	0	0	0	0
MINES	1.500		0	0	0	0	0	0
MWMP	1.750		0	0	0	0	0	0
NPDES	1.500		0	0	0	0	0	0
PEST LIC	1.500		0	0	0	0	0	0
PROC	2.000		0	0	0	0	0	0
Notify 65	2.500		0	0	0	0	0	0
UIC	1.500		0	0	0	0	0	0
WASTEWATER PITS	2.000		0	0	0	0	0	0
WDS	1.500		0	0	0	0	0	0
WIP	1.750		0	0	0	0	0	0
FUELS PROGRAM	1.750		0	0	0	0	0	0
ABANDONED MINES	2.000		0	0	0	0	0	0
ECHO	1.500		0	0	0	0	0	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	2.500		0	0	0	0	0	0
EDR Hist Auto	1.625		0	0	0	0	0	0
EDR Hist Cleaner	1.625		0	0	0	0	0	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	1.500		0	0	0	0	0	0
RGA LUST	1.500		0	0	0	0	0	0
- Totals --		0	0	0	0	0	20	20

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

DOD **EDWARDS AIR FORCE BASE** **DOD** **CUSA140697**
Region **N/A**
South **EDWARDS AIR FORCE BASE (County), CA**
> 1
6086 ft.

DOD:

Feature 1:	Air Force DOD
Feature 2:	Not reported
Feature 3:	Not reported
URL:	Not reported
Name 1:	Edwards Air Force Base
Name 2:	Not reported
Name 3:	Not reported
State:	CA
DOD Site:	Yes
Tile name:	CAKERN

NPL **EDWARDS AIR FORCE BASE** **NPL** **1000155217**
Region **5 EAST POPSON AVE BLDG 2650** **SEMS** **CA1570024504**
South **EDWARDS AFB, CA 93524** **CORRACTS**
> 1 **RCRA-TSDF**
5309 ft. **RCRA-LQG**
US ENG CONTROLS
US INST CONTROL
ENVIROSTOR
HIST Cal-Sites
DEED
ROD
RAATS
PRP
ICIS
US AIRS
DOCKET HWC
Cortese
HAZNET
ICE

NPL:

EPA ID:	CA1570024504
Cerclis ID:	902725
EPA Region:	9
Federal:	Y
Final Date:	1990-08-29 00:00:00
Site Score:	33.619999999999997
Latitude:	34.94943
Longitude:	-117.8857

Category Details:

NPL Status:	Currently on the Final NPL
Category Description:	Depth To Aquifer-> 100 Feet
Category Value:	110
NPL Status:	Currently on the Final NPL
Category Description:	Distance To Nearest Population-> 0 And <= 1/4 Mile
Category Value:	10

Site Details:

Site Name:	EDWARDS AIR FORCE BASE

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Site Status: Final
Site Zip: 93524
Site City: EDWARDS AFB
Site State: CA
Federal Site: Yes
Site County: KERN
EPA Region: 09
Date Proposed: 07/14/89
Date Deleted: Not reported
Date Finalized: 08/30/90

Substance Details:

NPL Status: Currently on the Final NPL
Substance ID: Not reported
Substance: Not reported
CAS #: Not reported
Pathway: Not reported
Scoring: Not reported

NPL Status: Currently on the Final NPL
Substance ID: A020
Substance: CHROMIUM AND COMPOUNDS
CAS #: Not reported
Pathway: GROUND WATER PATHWAY
Scoring: 4

NPL Status: Currently on the Final NPL
Substance ID: D004
Substance: ARSENIC
CAS #: 7440-38-2
Pathway: GROUND WATER PATHWAY
Scoring: 3

NPL Status: Currently on the Final NPL
Substance ID: U036
Substance: CHLORDANE
CAS #: 57-74-9
Pathway: GROUND WATER PATHWAY
Scoring: 3

NPL Status: Currently on the Final NPL
Substance ID: U061
Substance: DDT
CAS #: 50-29-3
Pathway: GROUND WATER PATHWAY
Scoring: 3

NPL Status: Currently on the Final NPL
Substance ID: U077
Substance: DICHLOROETHANE, 1,2-
CAS #: 107-06-2
Pathway: GROUND WATER PATHWAY
Scoring: 2

NPL Status: Currently on the Final NPL
Substance ID: U079
Substance: TRANS-DICHLOROETHYLENE, 1,2-

EDWARDS AIR FORCE BASE (Continued) **1000155217**

CAS #: 156-60-5
Pathway: GROUND WATER PATHWAY
Scoring: 2

NPL Status: Currently on the Final NPL
Substance ID: U210
Substance: TETRACHLOROETHENE
CAS #: 127-18-4
Pathway: GROUND WATER PATHWAY
Scoring: 2

NPL Status: Currently on the Final NPL
Substance ID: U228
Substance: TRICHLOROETHYLENE (TCE)
CAS #: 79-01-6
Pathway: GROUND WATER PATHWAY
Scoring: 2

Summary Details:

Conditions at proposal July 14, 1989): Edwards Air Force Base EAFB) is in Kern, Los Angeles, and San Bernardino Counties, California, occupying approximately 800 square miles in the western portion of the Mojave Desert. The base has been in operation since 1933. Its primary mission is to conduct research and development on new aircraft. EAFB is participating in the Installation Restoration Program IRP), established in 1978. Under this program, the Department of Defense seeks to identify, investigate, and clean up contamination from ha ardous materials. Under IRP, the Air Force has identified 21 waste areas at the facility. The Main/South Base area, at the western edge of Rogers Dry Lake, is the primary area for maintenance and refueling of aircraft. On several occasions, large amounts of fuel have been spilled in the area, and poor disposal practices have released organic solvents to the ground. Also in the area are an abandoned sanitary landfill containing pesticides and heavy metals, an area where electroplating wastes were dumped, and the industrial waste pond, which contains sediments rich in heavy metals. Trichloroethylene, trans-1,2-dichloroethylene, 1,2-dichloroethane, tetrachloroethylene, and methylene chloride are present in ground water underlying the Main/South Base area, according to a 1987 IRP report. EAFB s 13,800 employees obtain drinking water from wells within 3 miles of the Main/South Base area. There is no perennial surface water at EAFB. The Air Force has completed an initial assessment of the base and is now conducting a remedial investigation/feasibility study to determine the type and extent of contamination and identify alternatives for remedial action. Status August 30, 1990): The Air Force is reviewing previous studies to determine any additional data needed to fully characteri e known waste areas. EPA, the State, and the Air Force arenegotiating an Interagency Agreement under CERCLA Section 120 covering response activities at the base.

Site Status Details:
NPL Status: Final
Proposed Date: 07/14/1989
Final Date: 08/30/1990
Deleted Date: Not reported

Narratives Details:
NPL Name: EDWARDS AIR FORCE BASE
City: EDWARDS AFB

EDWARDS AIR FORCE BASE (Continued) **1000155217**

State: CA

SEMS:

Site ID:	902725
EPA ID:	CA1570024504
Federal Facility:	Y
NPL:	Currently on the Final NPL
Non NPL Status:	Not reported

Following information was gathered from the prior CERCLIS update completed in 10/2013:

Site ID:	0902725
EPA ID:	CA1570024504
Facility County:	KERN
Short Name:	EDWARDS AIR FORCE BASE
Congressional District:	23
IFMS ID:	09P8
SMSA Number:	0680
USGC Hydro Unit:	18090206
Federal Facility:	Federal Facility
DMNSN Number:	301000.00000
Site Orphan Flag:	N
RCRA ID:	Not reported
USGS Quadrangle:	Not reported
Site Init By Prog:	Not reported
NFRAP Flag:	Not reported
Parent ID:	Not reported
RST Code:	Not reported
EPA Region:	09
Classification:	Federal Facility
Site Settings Code:	RU
NPL Status:	Currently on the Final NPL
DMNSN Unit Code:	ACRE
RBRAC Code:	Not reported
RResp Fed Agency Code:	USAF
Non NPL Status:	Not reported
Non NPL Status Date:	/ /
Site Fips Code:	06029
CC Concurrence Date:	/ /
CC Concurrence FY:	Not reported
Alias EPA ID:	Not reported
Site FUDS Flag:	Not reported

CERCLIS Site Contact Name(s):

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EDWARDS AIR FORCE BASE (Continued) **1000155217**

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Contact Title: Site Assessment Manager (SAM)
Contact Email: Not reported

CERCLIS Site Alias Name(s):
Alias ID: 101
Alias Name: EDWARDS AFB
Alias Address: TEST AREAS 1A & 1C
EDWARDS, CA 93523
Alias ID: 102
Alias Name: EDWARDS
Alias Address: Not reported
Not reported
Alias ID: 103
Alias Name: NASA-DRYDEN
Alias Address: Not reported
Not reported
Alias ID: 104
Alias Name: EDWARDS-JPL
Alias Address: Not reported
Not reported
Alias ID: 105
Alias Name: EDWARDS AIR FORCE BASE
Alias Address: AFFTC EDWARDS AFB, ATTN ROBERT W. WOOD
EDWARDS AFB, CA 935241130
Alias ID: 106
Alias Name: EDWARDS AIR FORCE BASE
Alias Address: AFFTC EDWARDS AFB
KERN COUNTY, CA 93523
Alias ID: 9270118
Alias Name: EDWARDS USAF BASE
Alias Address: AFFTC EDWARDS AFB
EDWARDS, CA 94066
Alias Comments: Not reported
Site Description: Edwards Air Force Base (AFB) is located in the Antelope Valley region of the western Mojave Desert in southern California, approximately 60 miles northeast of Los Angeles, California. The Base occupies an area of approximately 301,000 acres, or 470 square miles. Portions of the Base lie within Kern, Los Angeles, and San Bernardino counties. Broad alluvial valleys surrounded by low hills of consolidated bedrock characterize Edwards AFB. Two large playa lakes, Rogers and Rosamond dry lakes, and numerous small playa lakes occupy the alluvial valleys. The upland areas in the northwestern part of the base (Rosamond Hills and Bissell Hills) and in the east/southeastern part of the base (Leuhman Ridge and Mount Mesa) are underlain by consolidated bedrock. The contacts between the valley fill and the consolidated bedrock at the edges of the valleys are shallowly dipping in most places, but occasionally are faulted and near vertical. Also, at the edges of the valleys, gently sloping alluvial plains and fans extend into the lowland areas. Surface water drains from the nearby Tehachapi and San Gabriel mountains terminating in the lowland playa lakes.

EDWARDS AIR FORCE BASE (Continued) **1000155217**

This surface drainage is the principal source of the groundwater recharge; however, much of it is lost to evaporation. Operable Unit 2: Operable Unit 2: South Base History Sites 5, 14, 69, 76, 78, 79, 86, and 96 are located on the western margin of Rogers Dry Lake, just south of the current Main Base runway. This area was the site of small farms and homesteads until Muroc Army Air Base was constructed in the early 1940s as a World War II test and training facility. The area was occupied until the mid-1950s when the Army turned over the facilities to the Air Force and new facilities were constructed in the current Main Base area. South Base was largely abandoned until the area was reactivated in the 1980s with the construction of the Birk Flight Test Facility (BFTF). Site 29, the Old South Base Landfill, is located approximately 1.7 miles south of the BFTF. It was active from the late 1930s to the 1970s, a time span that saw both homestead and military use. Area of concern (AOC) 417 is located adjacent to the South Base rocket sled track. The original 10,000-foot Experimental High Speed Sled Track was constructed in 1948, and expanded to 20,000 feet in 1957. It is located approximately 5.5 miles south of the BFTF. Several active Edwards Air Force Base (AFB) groundwater supply wells are located near the South Base sled track. A more comprehensive discussion of these areas within operable unit 02 (OU2) is presented in the Environmental Restoration Program, Remedial Investigation Summary Report, South Base Operable Unit No. 2, Edwards AFB, California, hereafter referred to as the OU2 Remedial Investigation (RI) Summary Report. Current and Potential Future Land and Resource Uses All current and potential future land and resource uses for sites contained in this Record of Decision (ROD) are equivalent to "industrial" for risk assessment purposes. According to the General Plan for Edwards AFB (General Plan), the BFTF Area and the area surrounding Site 29 are located within the Developed Area of the Base that has industrial use for aircraft maintenance and support. The current land use designations in the BFTF area include Aircraft Clearances, Engineering Test, Buffer Zone, Industrial, and Lakebed - Non-Maintained Landing Site. The current land use designations in the Site 29 area include Industrial, Engineering Test/Aircraft Overflight Test Area, and Lakebed - Non-Maintained Landing Site. The current land use designation in the South Base Sled Track Area is Engineering Test/Aircraft Overflight Test Area. According to the General Plan, which indicates future land use out for a period of five years, land use at OU2 is expected to be similar to current use. There are no current or anticipated residential or sensitive uses (e.g., daycares, hospitals, etc.) in any portion of OU2. No part of OU2 has been designated as critical habitat for threatened or endangered species. The Water Board has assigned a beneficial use designation of potential drinking water supply to the groundwater at OU2. No permanent surface water bodies exist at OU2. Stormwater at OU2 drains to Rogers Dry Lake via surface runoff, engineered drainages, and storm drains. During most winters, standing water collects on Rogers Dry Lake bed. The terrain within OU2 south of Jones Road is generally poorly-drained stabilized dune topography, with numerous small clay pans between the dunes that become shallow, ephemeral ponds after heavy rainfalls. Southeast of Site 29, effluent from a wastewater treatment plant is present periodically in evaporation ponds. Southwest of Site 29, inactive evaporation ponds used by the former wastewater treatment plant are usually dry; however, ephemeral ponds form after heavy rainfalls due to poor drainage. Site 69 Site History Site 69 was identified as an area requiring further investigation in Installation Restoration Program, Remedial Investigation/Feasibility Study (RI/FS), Work Plan, Sampling and Analysis Plan (WP/SAP), and Health and Safety Plan, South Base Operable Unit No. 2, Edwards AFB, California, hereafter referred to as the RI/FS WP/SAP; and Installation Restoration Program, Expanded Source Investigation/Resource Conservation and Recovery Act (RCRA) Facility Assessment (ESI/RFA), Appendix B, South Base,

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Edwards AFB, California, Technical Report, hereafter referred to as the ESI/RFA Technical Report. Remedial Investigation In June and July 1993, the United States Air Force (USAF) conducted a geophysical survey at Site 69 to map the extent of the buried wastes. Four areas, encompassing approximately 0.9 acres in total, were identified by the survey. In September 1993, a soil gas survey was conducted at 44 sample locations to further investigate the geophysical anomalies identified during the geophysical survey. In 1995, ten test pits were excavated to depths ranging from four feet below ground surface (bgs) to 10 feet bgs in the areas of the geophysical anomalies and verified the presence of buried debris. Soil samples were also collected and sent to off-Base laboratories for analysis. Interim Removal Actions No interim removal actions have been performed at Site 69. Nature and Extent of Residual Site Contamination The debris excavated from the test pits at Site 69 included glass jars and bottles, wood chips, burnt metal, twisted wire, porcelain fragments, charcoal, rubber cable, bricks, burnt piping, nails, and fencing materials. In addition, two drums containing tar were recovered. Organic compounds (fuel and solvents, pesticides, and polychlorinated biphenyls [PCBs]) and metals and other elements were detected in the soil samples collected at Site 69. With the exception of two detections of 4,4-dichlorodiphenyldichloroethylene (4,4-DDE) and one detection of 4,4-dichlorodiphenyltrichloroethane (4,4-DDT) in shallow soil samples (less than two feet bgs), the contaminants detected in the soil were at concentrations below the residential Preliminary Remedial Goals (PRGs). None of these contaminants are present at concentrations that could threaten groundwater, which occurs at a depth of approximately 50 feet bgs. Sites 78 and 79 Site History The facilities at Sites 78 and 79 were constructed in the early 1940s, and were demolished in the mid-1950s when activities were moved to the current Main Base area of Edwards AFB. Sites 78 and 79 were identified as areas requiring further investigation in the RI/FS WP/SAP; and the ESI/RFA Technical Report. Remedial Investigations RI activities performed at Sites 78 and 79 included soil gas sampling at one sample location at Site 78 in 1986, soil sampling at both sites from two hand-augered boreholes and six boreholes drilled to depths ranging from 40.5 feet bgs to 51.5 feet bgs using hollow-stem auger drilling methods in 1994 and 1995, and groundwater sampling from a groundwater monitoring well 600 feet east of Site 79 in 1993 and 1994. Borehole samples were collected adjacent to sumps, wash racks, and grease pits associated with the vehicle maintenance areas. Hand auger samples were collected within the soil-filled grease pits. Soil samples were analyzed for oil and grease, volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and metals and other elements. Soil samples within the grease pits were found to be contaminated with oil and grease and lead, at maximum concentrations of 31,000 milligrams per kilogram (mg/kg) and 871 mg/kg, respectively. Groundwater samples were analyzed for VOCs, SVOCs, metals and other elements, and cyanide. Groundwater contaminants above background were limited to a detection of a single organic analyte, bis (2-ethylhexyl) phthalate, which is a common laboratory and field contaminant. A more comprehensive discussion of the RI activities is presented in the OU2 RI Summary Report. Interim Removal Actions Contamination at Sites 78 and 79 was limited to approximately three cubic yards of soil and debris contaminated with petroleum products and lead in concrete-lined grease pits at each site. A Treatability Study Work Plan was prepared to excavate and transport the contaminated soil and debris. The contaminated soil and debris were removed from the sites in December 1997. Soil was disposed at an off-Base disposal facility. Nonmetallic debris was transported to the Main Base Active Landfill, and metallic debris was transported to the Defense Reutilization Marketing Office Salvage Yard. No cracks were found in the concrete lining of the grease pits; therefore, no soil samples were collected from under the grease pits.

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The grease pits were subsequently backfilled with clean soil. Following the interim removal actions, at Site 78 no constituents other than arsenic remain on site above both background concentrations and residential PRGs. The elevated arsenic concentration was only detected in one of the 10 samples collected at the site. Antimony and cadmium exceeded background concentrations in three of 10 samples and one of 10 samples, respectively, but were both below residential PRGs. Although these inorganic constituents were carried forward in the risk assessment, they are believed to be naturally occurring because there are no known anthropogenic sources of these constituents at the site. At Site 79, no constituents other than arsenic remain on site above background concentrations. The elevated arsenic concentration was only detected in one of the 10 samples collected at the site, and is considered to be naturally occurring because there are no known anthropogenic sources of arsenic at the site. Nature and Extent of Residual Site Contamination Because all contaminated soil was removed from the concrete-lined grease pits, and the pits were found to be intact with no cracks, no residual contaminants remain at Sites 78 and 79 that would limit exposure or restrict use. Site 96 Site History Site 96 was identified as an area requiring further investigation in the RI/FS WP/SAP and the ESI/RFA Technical Report. Based on the results of the RI and interim removal action performed at Site 96, the Remedial Project Managers (RPMs) concurred that no further investigation was required on 1 June 2001. Remedial Investigations RI activities performed at Site 96 included soil gas sampling at 36 sample locations in May 1994 and soil sampling at 10 hand-augered boreholes in February 1997. Soil samples were analyzed for diesel and jet fuel, VOCs, SVOCs, pesticides and PCBs, and metals and other elements. Selected samples were analyzed for dioxins and furans. No organic constituents were detected at concentrations above the residential PRGs. Maximum concentrations of arsenic (31.4 mg/kg), cadmium (26.3 mg/kg), iron (62,500 mg/kg), and lead (1,510 mg/kg) were detected at concentrations above both the calculated background concentrations and residential PRGs. Because no organic constituents were detected in soils at concentrations above the screening levels, and the inorganic contaminants were detected at concentrations above the screening levels only in shallow soils (less than 3.5 feet bgs), no groundwater monitoring wells were installed. A more comprehensive discussion of the RI activities is presented in the OU2 RI Summary Report. Interim Removal Actions In 2000, the USAF excavated four areas within Site 96 to remove metals-contaminated soil. Each area was excavated to approximately two feet bgs, and 85 cubic yards of soil were temporarily stockpiled on site. Soil samples collected from the bottoms of the excavations were analyzed, and the results confirmed that contaminant concentrations, except for a single detection of iron, were below the residential PRGs. The excavated soil was mixed with cement and water to stabilize the metals, and the soil-cement slurry was used to backfill the shallow excavations. Following the interim removal action, no constituents other than arsenic and iron remain on site at concentrations above both background concentrations and residential PRGs. A single surface detection of trichloroethene (TCE) (0.007 mg/kg) remains at a concentration below the residential PRG of 2.8 mg/kg. The elevated concentrations of arsenic and iron were only detected in one of the 17 samples collected at the site. Molybdenum, vanadium, and zinc exceeded background concentrations in only one or two of 17 samples and were all below residential PRGs. There is no known anthropogenic source of molybdenum or vanadium in this World War II-era site. In 2002, the abandoned water well at the site was destroyed and the well shaft sealed with cement grout to prevent contaminants from entering the well shaft and migrating to the groundwater. Nature and Extent of Residual Site Contamination Because the contaminants present in the soil were stabilized as a result of the interim removal action, no residual contaminants remain at the site that

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would limit exposure or restrict use. Area of Concern 417 Site History The original 10,000-foot sled track was completed in 1948, lengthened to 20,000 feet in 1957, and deactivated in 1963. Remedial Investigations (RIs) RI activities were performed at AOC 417 from 1992 through 1995. These activities included soil gas sampling at 49 sample locations, soil sampling at six hand-augered boreholes, and groundwater sampling of the inactive Base water supply well. No aromatic, halogenated, or total petroleum hydrocarbons were detected in the soil gas samples. Soil samples were analyzed for total petroleum hydrocarbons (TPH), VOCs, SVOCs, metals and other elements, pesticides, and PCBs in and around the pit containing drums and debris and in the drainage area where the drums were found. Low concentrations of TPH (10 mg/kg to 14 mg/kg) were found in the pit containing drums and debris. Samples taken from the pit also had maximum concentrations of cadmium (20.3 mg/kg) and iron (90,800 mg/kg) above background concentrations and residential PRGs. Groundwater samples were analyzed for TPH, VOCs, metals, and nitrate. No organic analytes were present, and no inorganic analytes were detected at concentrations exceeding maximum contaminant levels (MCLs). A more comprehensive discussion of the RI activities is presented in the OU2 RI Summary Report. Interim Removal Actions In February 1997, the inactive Base water supply well was destroyed and the well shaft sealed with cement grout to prevent contaminants from migrating down the well bore from the ground surface. In December 1997, the 55-gallon drums and surface debris in the pit were removed. The pit was then excavated to a depth of approximately 10 feet bgs, the vertical extent of debris and stained soil, to remove the low-level metals-contaminated soil. Buried metallic and nonmetallic debris was separated from the excavated soil using screens. The 280 cubic yards of soil, metallic debris, and nonmetallic debris were temporarily stockpiled on site. Soil samples collected from the bottom of the excavation were analyzed, and the results confirmed that the contaminant concentrations were below both background concentrations and residential PRGs. The soil was mixed with cement and water to stabilize the metals and the soil-cement slurry was then used to backfill the pit. Approximately 20 cubic yards of metallic debris was sent to an on-Base recycling facility for later transport off-Base. Approximately 32 cubic yards of nonmetallic debris was transport to the Main Base Active Landfill for disposal. The drums were taken to the on-Base recycling center for later disposal off-Base. Nature and Extent of Residual Site Contamination No constituents remain on site above background concentrations. No residual contaminants remain at the site that would limit exposure or restrict use. Sites 5/14 Containment Plume Site History Site 5, Former South Base Waste petroleum, oil, and lubricants (POL) Storage Area, is located west of the BFTF and encompasses approximately 20 acres. The site included three clusters of underground storage tanks (USTs) - the former Fuel Oil Depot, the former Southern Fuel Depot, and the Waste POL Tanks. The USTs were installed in the early 1940s, and were in use until the mid-1950s. From 1972 to 1984, five former Southern Fuel Depot USTs (the Waste POL Tanks) were used to store waste jet fuels, aviation and motor gasoline, engine oils, and waste petroleum oil. The USTs at Site 5 were removed between November 1993 and April 1994. Prior to their removal, fuels and waste solvents leaked into the soil and subsequently reached the groundwater, which occurs at a depth of approximately 55 feet bgs. A portion of this fuel/solvent mixture floats on the surface of the groundwater as free product. The free product thickness has been evaluated to be less than two inches. The remainder became dissolved in the groundwater and the TCE was carried southeastward for approximately 5,600 feet to Site 14. Site 14, South Base Fire Fighting Training Facility, is located approximately 500 feet southeast of South Base Active Runway 06/24, and encompasses approximately 51 acres. The site consists of two training areas constructed around 1960, one referred to as the Current Fire Fighting Training

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Area (the location of the present day training area) and one referred to as the Former Fire Fighting Training Area. Both training areas were constructed on open ground, and were surrounded by six-inch earthen berms. Jet fuel and waste TCE were used during the fire fighting exercises conducted at the two training areas. Following Installation Restoration Program (IRP) investigations conducted during the mid-1980s, the Current Fire Fighting Training Area was reconstructed in 1988. The reconstruction included the installation of a clay cap overlain by two high-density polyethylene (HDPE) liners with gravel to protect the liners, and a Fuel/Water Recovery System. In 1992, a propane-fueled fire fighting training system was constructed, and the use of jet fuel was discontinued. In 1997, the Fuel/Water Recovery System was removed. A small amount of the TCE in the groundwater at Site 14 is attributable to past fire fighting training activities. Remedial Investigations Site investigations conducted to date include the following:
- Between 1982 and 1989, Engineering-Science, Inc. performed initial site investigations at South Base in an area that included the current Sites 5 and 14. In the vicinity of the Sites 5/14 Contaminant Plume, the investigations included conducting two soil gas surveys, drilling and sampling 23 boreholes and four hand-augered boring locations, and sampling 23 groundwater monitoring wells installed to total depths ranging from 51 feet bgs to 150 feet bgs.
- In 1993 and 1994, in conjunction with an interim removal action conducted at Site 5, soil samples were collected beneath the locations of 20 removed underground storage tanks (USTs) and below the locations of piping associated with these USTs. - Between 1993 and 2000, Earth Tech conducted additional RIs to further define the nature and extent of the soil, groundwater, and floating free product contamination. Investigations included collecting groundwater samples from existing wells, conducting soil gas surveys, drilling and sampling boreholes, installing and sampling groundwater monitoring wells, and surveying Cone Penetrometer Test/Rapid Optical Screening ToolTM (CPT/ROSTTM) test points. - In 2005, an additional monitoring well was installed at Site 14 to further delineate the lateral extent of the contaminant plume. A more detailed discussion of the site investigations is contained in the OU2 RI Summary Report. Groundwater Monitoring Between 1994 and 1996, groundwater samples were collected from selected groundwater monitoring wells. Beginning in 1996 and continuing to the present, long-term groundwater monitoring and sampling of selected monitoring and extraction wells has been performed. Groundwater samples were collected from the wells once each year in 1996 and 1997, semiannually from 1998 to 2004, and annually from 2005 through 2007. Of the organic constituents, maximum concentrations of benzene, carbon tetrachloride, tetrachloroethene (PCE), and TCE were detected above Primary MCLs. The only inorganic constituent detected above both background concentrations and MCLs was arsenic, and only in one of 8 samples. High concentrations of arsenic are common in the Lancaster Subbasin and the detection is believed to be naturally occurring. Free product floating on top of the groundwater contaminant plume covers an area of approximately 6.5 acres. The free product is primarily JP-4 that contains the VOCs n-butylbenzene, sec-butylbenzene, ethylbenzene, isopropylbenzene, p-isopropyltoluene, n-propylbenzene, TCE, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and xylenes; and the SVOC naphthalene. Pilot Testing A series of pilot tests were conducted to evaluate potential remedial alternatives for the Sites 5/14 Contaminant Plume: - A dual extraction/soil vapor extraction (SVE) pilot test was conducted in 1995 to develop design parameters for the Site 5 Dual Extraction System (DES). The pilot test indicated that a DES was a viable technology for remediation of the source area at Site 5. - An air sparging test was conducted in January 1999 at Site 5 to determine whether air sparging should be used in conjunction with the DES to enhance remediation of free product. Due to the mounding created by the air

EDWARDS AIR FORCE BASE (Continued) **1000155217**

sparging, it was determined that the air sparging could not be used to enhance DES operations. - Between October 1999 and June 2000, a series of free product recovery pilot tests were performed to investigate the connectivity/continuity of the floating free product between the source area (Site 5) and the middle section of the plume. The testing indicated that the free product plume was not continuous between the two areas. In addition, free product bail-down test results indicated that the true free product thickness in the middle section of the plume was less than two inches. - Between September 2000 and October 2003, Solutions Industrial & Environmental Services, Inc. (Solutions-IES) performed a pilot study at Site 14 to determine whether reductive dechlorination of TCE could be enhanced by the injection of an edible oil substrate (soybean oil) into the aquifer. Although TCE concentrations declined significantly in the test area, it was inconclusive if the decline was due to sorption of the TCE in the oil or reductive dechlorination. - Between April 2005 and September 2006, pilot tests were performed to evaluate in situ bioremediation using the PHOSter technology. The technology includes the injection of air, gaseous nutrients (nitrogen and phosphorus), and methane into the saturated zone of the contaminant plume with the objective of stimulating bacteria that biodegrade the contaminants. One test was performed at Site 5 to determine whether the technology could remediate both free product and dissolved contaminants in the plume. A second test was performed at Site 14 to determine whether the technology could remediate the chlorinated-only portion of the plume. Over an initial 3-month period of operation, the PHOSter technology appeared to reduce the free product thickness in the source area. Over a later 4-month period of operation, no further reduction in free product thickness was measured. However, over the following 11 months, free product thicknesses decreased to non-detectable levels in the source area. At Site 14, the technology was successful in reducing TCE concentrations between 86.6 and 99.8 percent within a radius of 44 feet from the injection well over a 3-month period of operation. - Between August 2007 and February 2008, pilot tests were performed to evaluate the effectiveness of in situ chemical oxidation (ISCO) using alkaline-activated persulfate, alone and in combination with air sparging, in treating residual free product at Site 5. The tests indicated that alkaline-activated persulfate without air sparging was effective in promoting free product dissolution and degradation, but at a radius of influence of less than 20 feet. The addition of air sparging enhanced the radius of influence of persulfate distribution to greater than 44 feet. Although persulfate was not in an activated state at that distance, it was still effective in degrading fuels and fuel constituents. - Between May 2007 and May 2008, a pilot test was performed to evaluate the effectiveness of ISCO using potassium permanganate (permanganate) injected into a horizontal well in treating TCE at Site 14. One continuous horizontal injection well with a 700-foot stainless steel screen, and 10 groundwater monitoring wells, were installed. A bench scale test was performed to determine the total oxidant demand. Approximately 8,000 gallons of a 3 percent permanganate solution were injected. Following the injection, permanganate was only detected in two of the downgradient monitoring wells; one 20 feet downgradient and the other 100 feet downgradient of the injection well. However, TCE concentrations initially decreased by 97 to 99 percent in four of the monitoring wells. Due to an upgradient source, these TCE concentrations have since rebounded in all but one of the wells. Based on detections of permanganate and reductions in TCE concentrations, groundwater velocity across the width of the plume has been calculated to vary from less than 20 feet per year to 320 feet per year. The results indicate the distribution of permanganate is influenced by preferential groundwater flow paths. Interim Removal Actions The USAF has performed interim removal actions to remove the possible sources of contamination, as well as to treat the contaminated soil and groundwater, as follows: -

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Between 1983 and 1984, the contents of five 50,000 gallon USTs at Site 5 were removed and taken to an off-Base recycling facility. The tanks were steam cleaned, filled with sand, and left in place. - Between November 1993 and April 1994, 22 USTs were removed under the UST Investigation Program at Site 5. Contents (if present) and decontamination rinsates (for USTs where decontamination was required) were taken to an off-Base recycling facility. Concrete and metals from the tank bodies and fill stands were also taken to off-Base recycling facilities. - In May 1994, the contents of the Fuel/Water Recovery System at Site 14 were removed and taken to an off-Base recycling facility. - A bioventing system was installed at the location of former UST S191 to treat petroleum-contaminated soil. The system became operational in October 1995, and was shut down in 1996 after the site tested clean. Subsequently, lines were run from the bioventing system to another area of soil contamination associated with former USTs S165 to S169. The bioventing system to address these USTs began operation in March 1999. It was shut down in 2005, pending closure of the former USTs by the Kern County Environmental Health Services Department. Because the contamination from these USTs was limited to petroleum hydrocarbons in the soils, it is being addressed outside the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) program. - An engineering evaluation/cost analysis (EE/CA) was prepared to evaluate remedial alternatives for the source area at Site 5. Based on the results of the EE/CA, a DES was designed and installed at Site 5. The system includes ten dual extraction wells (DEWs), four vapor extraction wells, a groundwater treatment system, and a vapor treatment system. Through April 2006, the system had treated approximately 2.8 billion cubic feet of soil vapor and 101.4 million gallons of groundwater. The cumulative mass of contaminants removed was 630,641 pounds in the vapor phase; 1,035 pounds in the dissolved phase; and 7,803 pounds in the free phase (i.e., as free product). The system was shut down in May 2007, pending implementation of the final remedy for the site. - In February 1997, the Fuel/Water Recovery System at Site 14 was removed. The steel from the system was taken to an off-Base recycling facility. Approximately 925 cubic yards of petroleum-contaminated soils were also removed at this time and taken to an on-Base bioremediation treatment facility. Because contamination from the Fuel/Water Recovery System is limited to petroleum hydrocarbons in the soils, it is being addressed outside the CERCLA program. A bioventing system was installed in 2000 to remediate the remaining soils contaminated with petroleum hydrocarbons and jet fuel. The bioventing system was shut down in 2005, pending closure of the former USTs by the Kern County Environmental Health Services Department. - In November 1997, an EE/CA was prepared to address the groundwater contamination at Site 14. Based on the results of the EE/CA, a groundwater extraction and treatment system (GETS) was selected to prevent further downgradient migration of the plume. The GETS became operational in December 1998. The system consists of four extraction wells, two injection wells, and a groundwater treatment system. The groundwater is treated using liquid-phase granular activated carbon (GAC) and reinjected into the aquifer at two injection wells. Through February 2006, the system had treated approximately 24.7 million gallons of groundwater and removed approximately 22.2 pounds of TCE. The Site 14 GETS is preventing the further downgradient migration of the Sites 5/14 Contaminant Plume. - In March 2004, 10 remediation status soil boreholes were drilled and sampled to assess the progress of soil remediation by the Site 5 DES. - In June 2005, three remediation status borings were drilled and sampled to assess the progress of soil remediation by the Site 14 bioventing system. - A GeoTech Solar Sipper, a mobile free product recovery system, removed free product from the middle section of the Sites 5/14 Contaminant Plume in 2005 and 2006. During a six month period, the system removed only 47 gallons of free product, indicating that the technology would

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not be effective in remediating the estimated 94,000 gallons of free product which remains at Sites 5/14. The maximum concentrations of the contaminants detected in soil at Sites 5 and 14 are compared to their respective calculated background concentrations and residential PRGs. No organic constituents were detected at concentrations above residential PRGs, and no inorganic constituents were detected at concentrations above either the calculated background concentrations or residential PRGs. Nature and Extent of Residual Site Contamination Prior to the startup of the soil remediation systems at Sites 5 and 14, tetrachloroethene (PCE), TCE, and benzene were the primary organic contaminants detected in soil samples at these sites. No inorganic constituents were detected above both background concentrations and residential PRGs. However, based on the results of soil sampling at Site 5 in March 2004 and at Site 14 in June 2005, the soil remediation activities at the Site 5 DES and the Site 14 bioventing system have mitigated the concentrations of organic compounds in the soil to levels where they do not pose an unacceptable risk to human health or the environment except. However, contamination still remains in the groundwater at the Sites 5/14 Contaminant Plume. The contaminant plume extending from Site 5 to Site 14 is approximately 5,600 feet long, approximately 900 feet wide at its widest point, and covers an area of approximately 77.5 acres. Assuming the contamination within the plume is limited to the upper 10 to 15 feet of the groundwater aquifer, the estimated total volume of groundwater that is potentially contaminated at concentration levels above the MCLs is 76 million gallons. All of the contaminated groundwater contains TCE. An estimated 30 percent of the groundwater is also contaminated with fuel-related constituents. Based on the 2007 sampling results, the estimated dissolved-phase mass of fuels and TCE in the plume is 950 pounds (lbs) and 63 lbs, respectively. The estimated volume of floating free product is 71,000 gallons. Based on the specific gravity of JP-4, the estimated residual mass of free product in the plume is 462,000 lbs. Current and Potential Future Land and Resource Uses According to the General Plan, the Sites 5/14 Contaminant Plume is located within the Developed Area of the Base, and the existing land uses within the limits of the plume boundary are categorized as Airfield Pavements, Engineering Test, Industrial, and Buffer Zone. The Airfield Pavements land use category includes South Base Runway 06/24. The Engineering Test land use category includes the southwestern corner of the BFTF. The land used for Industrial purposes is the Current Fire Fighting Training Area. Future land uses at the Sites 5/14 Contaminant Plume are expected to be similar to the existing land uses. All these land use categories are considered industrial for risk assessment purposes. According to the General Plan, which indicates future land use out for a period of five years, land use at OU2, including Sites 5/14, is expected to be similar to current use. No residential uses of any portion of OU2 are anticipated.
Although groundwater in the Sites 5 and 14 areas, including the groundwater in the contaminant plume, is not currently used for drinking water, historic (inactive) Base supply wells are located within the boundaries of the sites. Active Base supply wells are located approximately two miles south of the sites. The Cal/EPA DTSC and the Water Board have designated the groundwater at these sites as a potential source of drinking water. Sites 76 & 86 Site History Sites 76 and 86 were identified as areas requiring further investigation in the RI/FS WP/SAP and the ESI/RFA Technical Report.
Remedial Investigations RI activities performed at Sites 76 and 86 from the mid-1980s through 1999 included geophysical surveys, investigation and removal of three USTs at Site 76, soil gas sampling at 68 sample locations (56 at Site 76 and 12 at Site 86), soil sampling, installation of 14 groundwater monitoring wells (eight at Site 76 and six at Site 86) to depths ranging from 53 feet bgs to 150 feet bgs, and groundwater sampling. Long-term groundwater monitoring programs began at Site 76 in 1999 and Site 86 in 2000. A more

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comprehensive discussion of the RI activities at these sites is presented in the OU2 RI Summary Report. At Sites 76 and 86, no organic constituents were detected at concentrations above residential PRGs, and no inorganic constituents were detected at concentrations above either the calculated background concentrations or residential PRGs. However, it was found that organic contaminants (mostly TCE) reached groundwater, which occurs at depths of approximately 50 feet bgs. The groundwater contamination occurs in the unconsolidated alluvial sediments of the upper aquifer of the Lancaster Subbasin. Groundwater Monitoring As part the RI program, groundwater samples were collected during several sampling events from wells at Site 76 from 1986 through 1995 and Site 86 from 1988 through 1998. Long-term groundwater monitoring began at Site 76 in 1999, and groundwater samples were collected from selected wells at the site once in 1999 and 2000, semiannually from 2001 through 2004, and annually from 2005 through 2007. Long-term groundwater monitoring began at Site 86 in 2000, and groundwater samples were collected from selected wells at the site semiannually from 2000 through 2004, and annually from 2005 through 2007. Of the organic constituents, only the maximum concentration of TCE detected was above its Primary MCL. No inorganic constituent was detected above either its background concentration or its Primary MCL at Site 76. At Site 86, only zinc was detected above it background concentration, however, no Primary MCL has been promulgated for zinc, and it was detected below its secondary MCL. Pilot Testing In 2006, a pilot test was performed at Site 86 to evaluate the effectiveness of a commercial bioremediation project, CL-Out, in remediating TCE in the groundwater. CL-Out was injected into a treatment well at the site on a monthly basis for three months (from February through April 2006). Because the TCE concentrations did not change, a calcium peroxide solution was added on a monthly basis for the next three months (May through July 2006) to try to increase dissolved oxygen levels. This was followed by a final injection of CL-Out in July 2006. The Pilot Study results show that CL-Out is not an effective remedy for the site.
Interim Removal Actions At Site 76 in May 1995, as part of the USTI program administered by Kern County, two 55 gallon drums connected by a pipe that were being used as an underground storage tank for fuel oil were removed. The drums were decontaminated and the rinsate was taken of an off-Base recycling facility. The drums were then shipped to an off-Base recycling facility. No USTs remain in the ground at the site. Due to the low risk to human health and the environment from the groundwater contamination at Sites 76 and 86, only groundwater monitoring and land use controls (LUCs) have been instituted to date. These LUCs consist of requiring digging permits for intrusive work, and prohibiting the installation of drinking water wells.
Nature and Extent of Residual Site Contamination Based on available data, contamination is limited to the upper 10 feet to 15 feet of the groundwater. Although not currently used for drinking water, the groundwater is classified as a potential drinking water source. At Site 76, TCE concentrations exceeding the MCL are localized in an area approximately 140 feet wide by 360 feet long. The plume covers approximately one acre, and contains an estimated 996,000 gallons of contaminated groundwater. The estimated remaining mass of TCE in the plume is 0.1 lbs. At Site 86, TCE concentrations exceeding the MCL are localized in an area approximately 200 feet wide by 670 feet long. The plume covers approximately 2.6 acres, and contains an estimated 2.5 million gallons of contaminated groundwater. The estimated remaining mass of TCE in the plume is 0.2 lbs. Current and Potential Future Land and Resource Uses According to the General Plan, Sites 76 and 86 are located within the Developed Area of the Base. The existing land uses at Site 76 are categorized as Engineering Test and Buffer Zone. The existing land use at Site 86 is categorized as Buffer Zone. The Engineering Test land use category at Site 76 includes the northeastern corner of the BFTF. The Buffer Zone at Sites 76 and 86 includes

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areas that are undeveloped and may be uneconomical to develop due to the ERP sites or nearby flood-prone areas. All these categories are considered industrial for risk assessment purposes. According to the General Plan, which indicates future land use out for a period of five years, land use at OU2 is expected to be similar to current use. No residential uses of any portion of OU2, including Sites 76 and 86, are anticipated. Site 29 Site History The older, western landfill area encompasses approximately three acres and was active in the late 1930s. The eastern landfill area encompasses approximately 20 acres and was opened in the mid-1950s. Waste was deposited in the eastern landfill until the 1970s. Household and industrial wastes, construction rubble (mainly concrete and asphalt), and asbestos-containing material (ACM) were deposited in the eastern landfill. During its operation, the eastern landfill served as the primary area for waste disposal. The cut-and-cover method of waste disposal was used, and trenches (cells) were dug to contain the waste. At the end of each operating day, the waste was covered with a 6-inch soil layer. As many as seven cells, ranging in thickness from 10 feet to 15 feet, were designated to receive various types of waste. There are anecdotal reports that the eastern landfill may contain UXO. The total area of subsurface debris is 25.2 acres. The total volume of subsurface debris is not known; however, based on an assumed refuse depth of 15 feet bgs, is approximately 490,000 cubic yards. In 1985, construction rubble from the demolition of parts of South Base was placed on the surface of the eastern landfill. The aerial extent of surface debris at the landfill is 20.8 acres. The total volume of surface debris at the landfill is estimated to be 60,000 cubic yards. Site 29 was identified as an area requiring further investigation in the RI/FS WP/SAP and the ESI/RFA Technical Report. Remedial Investigation This section presents a brief description of the RI activities conducted at Site 29. A more comprehensive discussion of the RI activities is presented in the OU2 RI Summary Report. The RI activities conducted to date include the following (presented in chronological order): - In January 1990, three gas migration monitoring wells were installed in the eastern section of the landfill as part of an air Solid Waste Assessment Test (SWAT) to evaluate the potential for landfill gas migration. - In February 1992, a geophysical survey was conducted at Site 29 using magnetic and electromagnetic induction (EMI) methods to delineate the boundaries of the two former landfills. - In May 1992, 40 soil gas points were installed around the perimeter of the landfill to evaluate contamination in soil and groundwater in or beneath the landfill. - In July and August 1992, seven groundwater monitoring wells were installed around the perimeter of Site 29 in order to evaluate possible groundwater contamination from the landfill. In September 1992, groundwater samples were collected from the monitoring wells, and two surface soil samples were collected at the southern perimeter of the landfill. - In June 1994, three additional groundwater monitoring wells were installed at Site 29. Soil samples were collected during the installation of the wells. - In August and September 1994, groundwater samples were collected from the 10 monitoring wells. In February and March 1995, a second round of groundwater samples was collected from three monitoring wells. Groundwater samples were also collected from the 10 monitoring wells in June 1997. - In August 1996, 35 hand-augered boreholes were sampled to evaluate the potential risk due to contact with the surface soil. Soil samples were collected at the surface, one foot bgs, and two feet bgs or auger refusal. - In June 1997, rising-head permeability tests were performed on three deep monitoring wells and one shallow monitoring well. Hydraulic conductivities ranged from 0.5 foot to 6.9 feet per day. Groundwater Monitoring Long-term groundwater monitoring at Site 29 began in January 1999, and occurred semiannually from 1999 through 2003. In 2004, one groundwater monitoring and sampling event was conducted. The next groundwater monitoring

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and sampling event at Site 29 was conducted in 2006. Sampling results from the 2004 round from Well 29-MW10 are not included because that well is now dry. No VOCs or SVOCs were detected in the groundwater above primary MCLs, and no metals or other elements were detected above background concentrations at any of the wells. Interim Removal Actions Interim remedial alternatives were evaluated in an EE/CA in 1997. Based on the results of this analysis, the recommended interim removal actions were to conduct groundwater monitoring to provide early warning of a chemical release to groundwater, and to install an eight-foot high chain-link fence along the boundaries of the landfill to prevent unauthorized dumping and to limit site access. Additionally, it was determined that ACM should be removed from the landfill surface for proper disposal. The fence was installed in 1998, and the groundwater monitoring program was instituted. Additionally, a total of 645 cubic yards of non-friable ACM and 15 cubic yards of friable ACM were removed from the site. The ACM was transported to a land disposal facility and disposed according to the requirements in CCR, Title 14, Division 7, Chapter 3.5. Nature and Extent of Residual Site Contamination No volatile organic gases or methane were detected in the landfill gas samples collected from landfill gas probes during the SWAT investigation. Low concentrations of solvents (trichloroethane [TCA], TCE, and PCE), total volatile petroleum hydrocarbons (TVPH), and aromatic hydrocarbons (benzene, toluene, ethylbenzene, and xylenes [BTEX]) were detected in the soil gas samples. No vinyl chloride or methane (common landfill gas constituents) was detected in any of the samples. Low concentrations of fuels, solvents, and pesticides were detected in surface and shallow soil samples collected at Site 29, but not at concentrations exceeding residential PRGs. Arsenic, cadmium, iron, and lead were detected at concentrations exceeding the residential PRGs and the background concentrations calculated for OU2. None of the contaminants are present at concentrations that are a continuing source of pollution to groundwater. Although very low concentrations of organic compounds have been sporadically detected in the groundwater samples collected at Site 29 in the past, there have not been any organic compounds detected at concentrations above the MCLs since May 2002. Although chromium and nickel have been detected in groundwater at concentrations above the MCLs and background concentrations for OU2, the high concentration levels were detected in the shallow perched groundwater which is not a potential source of drinking water under State Water Resources Control Board (SWRCB) Resolution 88-63 because the well yield is less than 200 gallons per day (gpd). In October 2006, the monitoring well used to sample the shallow perched groundwater was dry. Current and Potential Future Land and Resource Uses According to the General Plan, the northern part of Site 29 is located within the Developed Area of the Base, and the land use is categorized as Industrial. The southern part of the site is located within the Undeveloped Area of the Base, and the land use is categorized as Aircraft Overflight Test Area. All these land uses are considered industrial for risk assessment purposes. According to the Base General Plan, which indicates future land use out for a period of five years, land use at OU2, including Site 29, is expected to be similar to current use. No residential uses of any portion of OU2 are anticipated. A ROD addressing the Edwards Air Force Base, operable unit 02, was completed in June, 2009. Operable Unit 3: Operable Unit 3 (OU3) encompasses eight abandoned water well locations throughout the base that were suspected as potential contaminant pathways to groundwater. These well locations, identified by historical and archival research, surveys, and homestead records, were cataloged for investigation. During the early 1900s, settlers in the Mojave Desert began claiming parcels of land under the Homestead and Desert Land laws. Under these laws, settlers could claim up to 160 acres of land. The first settlers tried to dry farm the land, but drought forced them to start digging wells to supply

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underground water for domestic and agricultural uses. During the late 1920s, the military began using the area as a practice bombing and gunnery range. As military operations expanded, the government acquired more homestead land. In 1949, what was then called the Muroc Army Air Field was renamed Edwards Air Force Base in honor of Capt. Glen Edwards, killed in the crash of the jet-powered flying wing in 1948. Eventually, the base grew to its present size of 301,000 acres. As the government acquired parcels of land, any existing structures were removed and the wells were abandoned. In some cases, the pumps were removed and wellheads cut off. Some wells were destroyed, filled with soil, or capped. Some, however, remained partially open and provided a potential pathway to groundwater. Edwards AFB was placed on the National Priorities List (NPL) in 1990 and entered into a Federal Facility Agreement (FFA) with the U.S. EPA, the California Department of Toxic Substances Control (DTSC), and the California Regional Water Quality Control Board (RWQCB). The U.S. Air Force, U.S. EPA, DTSC, and the RWQCB were designated as the Remedial Project Managers (RPM) under the FFA. The FFA, with the RPMs as the decision reviewing and approving body, provides a framework for developing, monitoring, and implementing response actions at Edwards AFB. A ROD addressing OU3 groundwater well sites 409, 410, 411, 412, 413, 414, 415, and 416 was completed in September 2003. OUs 4&9: Sites 37, 120, 133, and 321 are (or were) associated with rocket component maintenance, the AFRL wastewater treatment plant, civil engineering activities, and materials storage facilities located on the southwestern side of Leuhman Ridge (a topographic high where the geology is characterized by shallow granitic bedrock and groundwater located within bedrock fractures). The groundwater plumes associated with these sites, collectively identified as the South AFRL, share a regional groundwater flow direction toward the southwest. The primary contaminants at Sites 37, 120, 133, and 321 are tetrachloroethene (PCE) and trichloroethene (TCE). Near the source areas for Sites 37 and 133, these solvents are suspected to be present as dense, non-aqueous phase liquids (DNAPLs), based upon 1) historic practices at these sites; 2) vertical distribution of PCE just south of Building 8595 (Site 37) and of TCE adjacent to Dry Wells E and F (Site 133); and 3) dissolved phase concentrations that persist at greater than 1% (1,500 micrograms per liter [ug/L] for PCE and 11,000 ug/L for TCE) of their free-phase solubility, cited by the USEPA (1994) as presumptive evidence for the presence of a DNAPL. The groundwater beneath the South AFRL, which occurs in fractured granitic bedrock in the Hi Vista area, is not considered an aquifer and is not part of a groundwater basin as defined by the U.S. Geological Survey (USGS). Rather this area of shallow bedrock and low groundwater yield provides recharge to the surrounding Lancaster and North Muroc Sub-basins. The nearest on-base drinking water wells are located in the Lancaster Sub-basin approximately 6.8 miles southwest of the AFRL cantonment area and approximately 5.1 miles from the outer limits of groundwater contamination at the South AFRL. The on-base water supply is supplemented by Sacramento Delta water from the State Water project, which is piped to the AFRL by the Antelope Valley-East Kern (AVEK) Water Agency. The nearest off-base drinking water wells (currently off-line due to naturally-occurring arsenic concentrations exceeding the federal primary Maximum Contaminant Level [pMCL]) are located approximately 650 feet northeast of the Base boundary, which is approximately 3.4 miles north of the South AFRL containment zone (CZ). The nearest residential areas are located approximately 4.3 miles to the north of the CZ just outside the base boundary in the town of Boron. There are also dormitories and Base housing located approximately 8.6 miles and 10.1 miles, respectively, west of the South AFRL CZ at the Main Base, across Rogers Dry Lake bed. The nearest surface water courses are numerous intermittent streams that drain the South AFRL following heavy rains. From 1991 to 1993, a comprehensive Expanded Source Investigation/RCRA Facility Assessment (ESI/RFA) was performed that covered the entire Base, including the

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AFRL facilities. The ESI/RFA involved the assessment and inspection of over 1,000 features, from small hazardous waste storage facilities to large, multiple-story aircraft hangar/maintenance facilities and rocket test stands. Based on 1) results of the ESI/RFA, 2) a subsequent site inspection (SI) conducted between 1993 and 1995, and 3) development of remedial investigation/ feasibility study (RI/FS) field sampling plans for OU4 and OU9, a total of 88 sites and areas of concern (AOCs) were identified as contaminated or potentially contaminated in OU4 (one site was identified in 1999 bringing the total to 89) and 46 sites and AOCs were identified as contaminated or potentially contaminated in OU9. Of the 89 OU4 sites or AOCs, 38 were eliminated after the SI study phase because "no significant contamination" was identified through investigative activities such as soil and soil gas sampling, generally by screening sampling results (where chemicals were detected) against residential Preliminary Remediation Goals (PRGs published by USEPA Region 9); consistent with the CERCLA petroleum exclusion, another 29 were removed from the CERCLA process because they involved petroleum only. The majority (24) of the petroleum-only sites correspond to the locations of removed underground storage tanks (USTs), which generally were used to contain heating oil; two sites (184, 186) included USTs associated with a former and active gas station; the other three sites (32, 40, 169) involved the aboveground storage and/or rail transport of large volumes of rocket propellant (RP-1) fuel. Based on results of soil samples collected at the time of tank removal, during further site characterization, or following interim removal actions (IRAs) including bioventing (Sites 143 and 144) and excavation (Sites 32, 137, 151, 169), these sites were all approved for no further investigation (NFI) by the remedial project managers (RPMs) and (with the possible exception of continued groundwater monitoring at Site 32) require no further action by the local enforcement agency (Kern County Environmental Health Services Department [KCEHSD]). Of the 46 OU9 sites or AOCs, 29 were eliminated after the SI study phase because "no significant contamination" was identified, generally by screening soil sampling results (where chemicals were detected) against residential PRGs; six were removed because they involved petroleum only (and were approved for NFI on the basis of soil sampling results); and one (Site 39) was removed from the CERCLA process because it remains an active waste management site. The remaining 22 sites and AOCs in OU4 were investigated during the remedial investigation (RI) phase between 1996 and 2004 while the remaining 10 sites in OU9 were investigated in the RI phase between 2001 and 2005. For the feasibility study (FS) and subsequent phases, the 32 sites in OU4 and OU9 remaining in the CERCLA process were organized by contaminated medium (groundwater or soil) as shown below (note that Sites 115 and 318 appear in both lists): -Impacted groundwater (further categorized by geographic location and direction of groundwater flow): South AFRL - Sites 37, 120, and 133 in OU4 and Site 321 in OU9; AFRL Arroyos - Sites 162 and 461 in OU4; Northeast AFRL - Sites 177 and 318 in OU4; and Sites 115, 116, 178, and 325 in OU9; and Mars Blvd - Site 333 in OU4 and Sites 27, 125, and 127 in OU9. -Impacted soil and/or debris: Sites 7, 13, 26, 36, 150, 153, 166, 167, 170/171, 172, 312, 318, 329, and 396 in OU4; and Sites 6, 113, and 115 in OU9. The following source control actions to prevent ongoing or future releases have been completed at Sites 37, 120, 133, and 321: - Decommissioned, cleaned, and backfilled the leaking sumps (AOCs 170/171 and Site 172) at Building 8595 in 1997. Replaced the flooring inside the building now used as an electronic propulsion laboratory; - Renovated and upgraded the sewage treatment plant (STP) (Site 120) between 1995 and 1999, including taking the former Imhoff tank, sludge drying beds, and waste evaporation/percolation ponds out of service; - Removed USTs from the AFRL gas station (petroleum-only Site 186) in 1995; - Removed an aboveground storage tank from the former fire training area (Site 26) and excavated petroleum-contaminated soil in 2000 and

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2001; - Excavated petroleum-impacted soil associated with removed USTs in the CE Yard in 2001 and at Building 8431 in 1995 (petroleum-only Sites 137 and 151); - Destroyed waste discharge wells (Sites 153 and 396) by redirecting active inlet lines; cleaning out contaminated soil, sludge and water; and backfilling with cement/sand slurry in 2001; - Installed a final cover system at the AFRL Landfill (Site 13) in 2001 to 2002; and - Removed below-grade catch tanks associated with Site 321 in 1995. This decision document addresses groundwater and suspected DNAPL solvent contamination at Sites 37, 120, 133, and 321 in the South AFRL area of OUs 4 and 9. Soil vapors originating from the impacted groundwater (at Sites 37, 120, 133, and 321) and from soil (at Sites 37 and 321) are also addressed. The limits of the South AFRL CZ include an area located partially within the AFRL and partially within the PIRA, both entirely within Edwards AFB. According to the Base GP, current and long-term land uses at the AFRL (Management Area G) include the testing of rocket engines, extensive safety zones surrounding the test cells, and industrial, research, development and administrative uses. The current and designated long-term land use for the PIRA (Management Area B) is aircraft flight testing, explosive ordnance disposal (EOD), and placement of communication equipment. The South AFRL CZ also extends (on the west) into Management Area A, designated as an Aircraft Overflight Test Area, which is generally undeveloped and supports aircraft test activity. Land uses within the AFRL, PIRA, and Aircraft Overflight Test Area are industrial in nature, and no residential uses (including day care facilities or other uses that would result in higher exposure amounts beyond worker exposures) of any portion of these Management Areas are anticipated, as the Air Force will continue to occupy the Base indefinitely. There are no current or long-term uses of groundwater for drinking water supply or any other purpose at the South AFRL. No permanent surface water bodies exist at the South AFRL other than man-made retention ponds at the STP. Engineered drainages and stormwater runoff ultimately drain to Rogers Dry Lake bed where standing water collects during most winters. A Record of Decision (ROD) addressing OUs 4&9 was prepared in September 2004. OU 6: National Aeronautics and Space Administration (NASA) Dryden Flight Research Center (DFRC), a tenant organization at Edwards AFB, is designated ERP OU 6 and is located in the north-central portion of the Base on the main flightline, which is wholly within Kern County. The responsible party and lead agency for OU6 activities is the USAF. NASA is the funding entity. USEPA has a remedy selection role and oversight role for the cleanup. In addition to the USEPA, the regulatory agencies include the California DTSC and the CRWQCB. OU6 is part of a military base and is utilized for research, development, testing, and evaluation of aerospace systems. Three sites within the NASA DFRC boundary (Sites N2, N3, and N7) are considered to be the original source areas of the current OU6 groundwater solvent plume. NASA DFRC has leased a portion of the Edwards AFB flightline for 60 years (since 1946) supporting Space Shuttle, flight testing, and aeronautical research operations. During that time, workers performed test, evaluation, and maintenance activities involving toxic and hazardous materials. These materials often spilled and soaked into the ground or were disposed of inappropriately. Current use and disposal of these materials are strictly regulated to prevent releases to the environment. However, the following two past practices most likely resulted in releases to the environment at NASA DFRC: drum and underground tank storage of fuels and solvents; and use of coating-related materials (paints, thinners, strippers, and plating materials) in aircraft operation and maintenance. In 1981, a preliminary assessment was performed for Edwards AFB, and a brief preliminary assessment and site inspection study was conducted at NASA DFRC in 1988. From 1991 to 1993, a comprehensive Expanded Source Investigation/RCRA Facility Assessment (ESI/RFA) was performed and covered the entire Base, including the NASA DFRC facilities. The ESI/RFA involved the

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assessment and inspection of over 1,000 features from small hazardous waste storage facilities to large-multiple story aircraft hangar/maintenance facilities. Based on the results of the ESI/RFA, 20 sites and/or areas of concern (AOCs) were identified within OU6 as contaminated or potentially contaminated. The OU6 Feasibility Study (FS) and this Record of Decision (ROD), as part of the remedial response process, addresses the following three sites: - Site N2 (ERP Site 206 - Former Auxiliary Power Unit [APU] Drainage Area) - Site N3 (ERP Site 207 - Building 4889 Former Gas Station and Former Drum Dispensing Areas) - Site N7 (ERP Site 211 - Building 4827 Former Drum Storage Areas) Site N2: Site N2, located south of Buildings 4801 and 4823, consists of approximately 1.5 acres known as the Building 4801 Former APU Drainage Area. The Former auxiliary power unit (APU) Drainage Area was built in 1958 and was used to contain wastes from the former APU test facility located to the southwest of the drainage area. It may have received runoff from the aircraft runup area formerly located on the concrete apron and ramp south and east of the former APU test facility. Site N2 also includes the Building 4801 Dilution Pits in the western half of the Former APU Drainage Area. The Dilution Pits, located northeast of the former APU test facility, consisted of three pits similar in construction to a three-chamber oil/water separator. The Dilution Pits were used to dilute hydrogen peroxide that drained from the former APU test facility. Potential wastes that may have been released at the Dilution Pits and the Former APU Drainage Area include hydrogen peroxide, solvents, jet fuel, and hydrazine from the former APU test facility and aircraft runup area, and chromium associated with runoff from the cooling tower blow down. The Drainage Area and Dilution Pits were covered with pavement in 1962 and are no longer used for waste containment or disposal. Site N3: Site N3 is the site of a former gas station and contains Buildings 4889, 4886, 4803, and 4858, as well as two former drum dispensing areas. The Former Gas Station previously contained three underground storage tanks (USTs), which were removed in 1991. The tanks contained leaded and unleaded gasoline and jet fuel. The sources of the contaminant plume were likely a result of historical UST leakage as well as spillage of hazardous materials possibly including ethylene glycol, lubricating oil, degreasers, and solvents stored at the drum dispensing area from 1958 to 1993. Site N7: Site N7, Building 4827 Former Drum Storage Areas, is located south of Building 4827. One drum storage area was located approximately 15 feet south of Building 4827, while a second drum storage area was located approximately 60 feet east of the first. The storage areas where spills may have originated were reportedly used for storage of drummed hazardous materials and wastes such as paints; paint thinners; and petroleum, oil, and lubricants (POL). During a 1992 site visit, drums containing antifreeze, motor oil, and paint primer were observed. The drum storage areas were reportedly used prior to 1980 and up until 1993. DFRC is NASA's primary flight research center. Current research at DFRC includes aeronautical and control systems concepts validation, atmospheric flight testing, and earth science experiments. Current research facilities include: the Flight Loads Laboratory, the Walter C. Williams Research Aircraft Integration Facility, and the Western Aeronautical Test Range. Land uses surrounding DFRC are industrial in nature and support aeronautical flight testing. The Base General Plan (GP) specifies that DFRC will continue to be used for industrial purposes, and no residential uses, including day care facilities or other uses that would result in higher exposure amounts beyond worker exposures, of any portion of OU6 are anticipated as the Air Force will continue to occupy the Base indefinitely. Table 2-2 of the Water Quality Control Plan for the Lahontan Region (Basin Plan) designates the following beneficial uses for groundwater in the Antelope Valley hydrologic basin, which includes the groundwater at OU6: municipal, agricultural, industrial, and freshwater replenishment. However, there are no current or near future uses

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of groundwater for drinking water supply at OU6. Groundwater at OU6 is not used currently for any purposes. Surface water bodies at OU6 consist of man-made stormwater retention and the intermittent filling of Rogers Dry Lake during the winters. OU6 stormwater drains to the lakebed via surface runoff, engineered drainages, and storm drains. A ROD addressing OU6 was completed in September of 2006. OU 9: See OUs 4 & 9 Operable Unit (OU) 11: The Air Force Research Laboratory (AFRL) at Edwards AFB has been used as a rocket research and testing facility for over 50 years (since the 1950s). During that time, workers involved in research, testing, evaluation, and maintenance activities used toxic and hazardous materials. In the past, materials were spilled or otherwise released to the ground surface or subsurface. Contamination at the soil and debris sites resulted from former activities at several rocket test areas and industrial facilities, a landfill, a fire training area, and two historic mineral mines. These sites and Areas of Concern (AOCs) fall into two general categories: 1. Further Action Sites exhibit contamination or hazards that require additional remedial action and/or long-term land use controls (LUCs) in order to protect human health and the environment. Sites 13, 36, 167, 312, and 318 in OU4; and Sites 6, 113, and 115 in OU9 are in this category. 2. No Further Action (NFA) Sites are those in which either (1) interim remedial actions (IRAs) have successfully reduced formerly high soil contaminant concentrations to levels acceptable for unrestricted use; or (2) only low-level soil contamination was originally found, leaving no need for cleanup actions. The NFA sites include Sites or AOCs 7, 26, 150, 153, 166, 170, 171, 172, 329, and 396. Historically, potable water for the AFRL was supplied by two production well fields: Mary's Well Field (including Wells 1, 2 and 3 that have been inactive since at least 1994) and the Lower Well Field (including Wells A, B, C, and D). The well fields are respectively located approximately 4 miles and 7.5 miles southwest of the nearest soil and debris site, and draw groundwater from the middle aquifer of the Lancaster Sub-basin, which has not been contaminated by AFRL activities. Since late 1997, AFRL has purchased a portion of its potable water supply from Antelope Valley-East Kern Water Agency (AVEK), which operates a pipeline to AFRL from Boron. Well production records for 2002 show that AVEK supplied approximately 39 million gallons, or 64 percent of the water supply, in that year. The nearest off-base groundwater production wells are operated by Boron and Desert Lakes Community Services but are currently off-line indefinitely due to high naturally-occurring arsenic concentrations. The wells are located approximately 4 miles north of the nearest soil and debris site, and tap the North Muroc Subbasin aquifer, which has not been contaminated by AFRL activities. With the exception of Sites 6 and 113, located within the Precision Impact Range Area (PIRA), the soil and debris sites are located on AFRL land; both the AFRL and PIRA are located entirely within Edwards AFB. According to the Edwards AFB General Plan (EAFB GP), current and long-term land uses at the AFRL include the testing of rocket engines, extensive safety zones surrounding the test cells, and industrial, research, development and administrative uses. The EAFB GP also states the current and designated long-term land use for the PIRA is aircraft flight testing, explosive ordnance disposal (EOD), and placement of communication equipment. Land uses within the AFRL and PIRA are industrial in nature, and no residential uses (including day care facilities or other uses that would result in higher exposure amounts beyond worker exposures) of any portion of these Management Areas are anticipated, as the Air Force will continue to occupy the Base indefinitely. References to residential land uses, or residential receptors, at AFRL are hypothetical and are for comparison purposes only. Site13: The Site 13 Closed AFRL Landfill is located approximately 1.5 miles south of Leuhman Ridge, on the eastern side of Mars Boulevard. The permitted landfill site boundary encompasses approximately 54 acres, just south of the Civil Engineering Yard. The AFRL Landfill began

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operation in 1961 and was operated without regulatory oversight until 1976. During the first 5 years, wastes were burned in one of two trenches located west of a high-pressure gaseous nitrogen line that marks the landfill's eastern boundary. Burning of wastes was discontinued in 1966, after which refuse was compacted and buried in cells with a daily cover of approximately 6 inches of clean soil. Waste cells, or trenches, were excavated from east to west and were oriented in a north-south direction. Trench dimensions were approximately 300 feet long by 20 feet wide by 15 feet deep. Bulky construction debris (mostly asphalt and concrete), was stored above ground in piles totaling approximately 35,000 cubic yards in volume.. In 1976, the Water Board adopted Board Order No. 6-76-84, which established waste discharge requirements (WDRs) for the landfill. These WDRs were updated in Board Order No. 6-84-049 issued in 1984. A review of the available historic data indicated that the landfill received non-hazardous commercial and construction wastes, and was restricted from receiving liquid or hazardous wastes. Site inspections conducted by the Water Board between 1977 and 1985 showed no evidence of the disposal of hazardous waste. Under California Administrative Code Title 23, Chapter 3, Subtitle 15, the landfill was designated as a Class II-2 disposal site for Group 2 wastes (non-hazardous residential, commercial, and agricultural) and Group 3 wastes (inert demolition). In 1984, Chapter 15 of California Code of Regulation (CCR) Title 23 redesignated the site as a Class III non-hazardous solid waste landfill. However, the discovery of buried waste oil drums along the landfill perimeter during implementation of the IRA (see below) indicates that hazardous liquids were disposed in, or at least near, the landfill cells. The AFRL landfill was first identified as Site 13 under the Air Force ERP in 1984; however, the first subsurface investigations at the site (between 1990 and 1992) were undertaken as part of Solid Waste Assessment Tests (SWATs) under California Assembly Bill 3525. In February 1990, the Air Force wrote a letter to Kern County Environmental Health Services Department (KCEHSD) reporting that waste disposal activities at the landfill had been stopped in January of that year after a Phase I SWAT detected the presence of shallow groundwater in one the open landfill cells. However, additional construction debris was likely added to the existing surface piles after this date. A letter from the KCEHSD, dated May 1990, acknowledged receipt of notice that waste disposal operations had stopped at the landfill. In June 1991, the Air Force wrote a second letter to KCEHSD, transmitting a solid waste facilities permit application marked for facility closure. This letter also communicated that a Phase II SWAT was to be performed in the near future, and that all remediation for the landfill would be done under CERCLA as part of the Air Force ERP. In June 1993, the Water Board adopted blanket Board Order No. 6-93-100 to bring WDRs for all landfills in the region into compliance with Resource Conservation and Recovery Act (RCRA) Subtitle D regulations concerning municipal solid waste landfills. The AFRL landfill is listed in Section 1 of the Board Order as No. 9 in a list of 48 Class III landfills subject to the updated WDRs. In 1998, the Remedial Project Managers (RPMs) agreed to an Edwards AFB proposal to close the Site 13 landfill under the CERCLA presumptive remedy for municipal landfill sites, and in compliance with landfill closure requirements in CCR Title 27 and RCRA Subtitle D as Applicable or Relevant and Appropriate Requirements (ARARs). Because the Air Force notified the Water Board of its intent to close the landfill in compliance with CCR Title 27 requirements under CERCLA, the Water Board in September 1998 adopted Board Order 6-98-55 rescinding WDRs (Board Order Nos. 6-84-049 and 6-93-100) for the AFRL Class III landfill. In 1994 wastes were removed from the landfill cell in which groundwater was discovered and were disposed of at the Main Base landfill. Between 2001 and 2002, a cover system (or cap) was constructed over 21 acres of the permitted landfill, and the property was surrounded by a chain-link fence with locked gates. According to the EAFB GP, the current and anticipated future land

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uses at Site 13 are test and research; there are no residential land uses planned. These land uses are considered industrial for risk assessment purposes. Site 36: Site 36 is located in Test Area 1-21 on the crest of Leuhman Ridge. Test Area 1-21 was originally used for testing rocket engines fueled by liquid propellant/oxidizer combinations, and was later converted to a solid propellant cutting facility. The removed aboveground wastewater evaporation tank was formerly located northwest of Building 8582, on a steep hillside only partially accessible by all-terrain vehicles and small, tracked construction equipment. This ROD addresses only the shallow soil contamination at Site 36; contamination in the bedrock and groundwater is briefly discussed below but will be addressed in the ROD for the ARFL Arroyos area. The Site 36 wastewater evaporation tank was initially used as a catch basin/burn pit to dispose of liquid-waste propellants. After the test stand was converted (in 1968) to a solid propellant cutting facility, wastewater contaminated with ammonium perchlorate was collected in the aboveground tank. Dust from the solid propellant was separated out and the water was evaporated. It is likely that wastewater was also released to a natural drainage ravine west of the tank via an overflow pipe. In 2001, a compliance evaluation revealed that the steel tank had lost bottom integrity due to corrosion, resulting in unauthorized releases of wastewater to the underlying soil. In 2002, propellant cutting operations ceased at Test Area 1-21, the pipe connections from Building 8582 to the tank were severed, and propellant residues were removed from the tank. According to the EAFB GP, the current and anticipated future land uses at Site 36 are test and research; these land uses are considered industrial for risk assessment purposes. No residential land uses are planned. Site 167: The Test Area 1-46 Beryllium Firing Range (Site 167) is located along Mars Boulevard, 4 miles southeast of Mercury Boulevard. Constructed in 1962, Test Area 1-46 includes three test stands that have been inactive since the 1970s. The facilities at Test Area 1-46 were specifically designed to test small rocket engines, motors, and components using exotic propellants (especially beryllium). Test Stand A at Test Area 1-46 was used for testing both liquid-fueled engines and solid-fueled motors. Test Stand B was constructed to test fuels containing beryllium, hydrazine, aluminum, alcohol, and/or nitrogen tetroxide. Test Stand C was used for testing beryllium-fueled solid rocket motors. Between 1963 and 1966, numerous tests were performed at Test Stand C, with rocket motors fired in the direction of the Beryllium Firing Range. The exhaust cloud contained beryllium oxide, which was deposited on the surface soil. Two industrial wastewater ponds at Test Area 1-46 originally handled wastewater from Test Stand B, but also may have retained wastewater generated during decontamination of beryllium-contaminated hardware from Test Stand C. The ponds are lined with 4 inches of concrete; and are underlain by a plastic liner, 0.25 inches of clay, and 4 inches of base fill material. After rocket testing was discontinued in the 1970s, the ponds were inactive for a period of approximately 20 years. In 1995, under WDRs issued by the Water Board (Board Order No. 6-95-31), a three-layer leachate control and recovery liner system was added on top of the ponds which were reactivated to accommodate saline wastewater trucked in from a research and development program elsewhere at the AFRL. The ponds are currently not in use, and the above ground liner system has been removed pending rescission of the WDRs. In July 2007, three cores were cut in the bottom of each pond in preparation for sampling of the underling soil for potential contaminants. According to the EAFB GP, the current and anticipated future land uses at Site 167 are test and research (considered industrial for risk assessment purposes); no residential land uses are planned. Site 312: Site 312 is located in Test Area 1-14 at the crest of the southwestern portion of Leuhman Ridge. The site includes an electrical substation (Substation 11) located in a paved and fenced area approximately 100 feet northeast of Building 8620, the test area control station. The

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substation, originally installed in 1965, formerly housed two electric transformer units and a voltage regulator on a 15-foot by 38-foot concrete pad; all three units utilized oils containing polychlorinated biphenyls (PCBs). The concrete pad is surrounded by a margin of gravel (4 feet to 8 feet wide), beyond which the ground is paved. The gravel is surrounded by a concrete curb that varies in height from 0.5 foot to 2 feet. The curb and pavement north, east, and west of the substation were part of the original construction. However, the pavement south of the substation was added sometime between 1977 and 1992. In 1991, an estimated 1 pint of PCB oil was spilled onto the concrete pad during the retro-filling of one of the former transformers. Moreover, oil stains formerly visible on the concrete pad indicate that there were likely leaks or spills from all three units. According to the EAFB GP, the current and anticipated future land uses at Site 312 are test and research; there are no residential land uses planned. These land uses are considered industrial for risk assessment purposes. Site 318: Site 318 is located on Leuhman Ridge within Test Area 1-120. The site includes a catch basin and an evaporation pond associated with Test Stand 1-B. Test Stand 1-B was constructed in 1961 and used for vertical static testing of the F-1 rocket engine which burned rocket propellent-1 (RP-1, a kerosene-based liquid fuel) and liquid oxygen. Test Stand 1-B has been inactive since the conclusion of the F-1 program in 1968. During each engine test, approximately 60,000 gallons of RP-1 and 75,000 gallons of liquid oxygen were consumed. Following each test firing, the engine, fuel and oxidizer transfer lines, and thrust chamber were purged with gaseous nitrogen carrying a solvent (reportedly trichloroethene [TCE]), which was then discharged as a mist from the test stand. Approximately 1.5 million gallons of deluge water were used to cool the test stand's flame deflector and concrete blast apron. The deluge water, potentially contaminated with unconsumed fuel, solvent, combustion byproducts, and hydraulic fluid, drained from the blast apron through a concrete-lined drainage channel into the catch basin down slope from the test stand. The catch basin is an unlined earthen pit approximately 30 feet deep and 70,000 square feet in surface area. The basin was formed by the construction of two steep earthen dams across a dry stream channel. Periodically, unburned RP-1 fuel slicks that formed on the surface of the water in the basin were burned off before the deluge water was recycled for the next test. Evidence of past burning practices can be seen as black soil staining in the basin. Once the deluge water in the catch basin was free of unburned fuel, it was pumped via a 3-foot-diameter outlet pipe and transfer pump back up Leuhman Ridge to a water storage tank located in Test Area 1-125. Due to the surrounding topography, the catch basin only collects rainwater that falls within a small (23-acre) area of Leuhman Ridge. Therefore, very little runoff (no more than 1.3 acre-feet per year) enters the catch basin. A concrete-lined evaporation pond is located southeast of the catch basin. An underground pipeline (likely connected to the catch basin's outlet pipe via the transfer pump) discharges into the pond from the northwest. The evaporation pond also has an underground outlet pipe that discharges into a dry stream channel down gradient. It is possible that contaminated water from the catch basin was at times allowed to discharge to the dry stream channel. According to the EAFB GP, the current and anticipated future land uses at Site 318 are test and research; there are no residential land uses planned. These land uses are considered industrial for risk assessment purposes. Sites 6 and 113: Sites 6 and 113 are located approximately 4 miles east of Leuhman Ridge inside the remote, access-controlled PIRA. Sites 6 and 113 include Abandoned Mine Shafts 1 and 2, respectively. Each mine shaft measures approximately 12 feet by 12 feet and is estimated to be between 200 feet and 300 feet deep. Given that there is no evidence that pumping facilities were present at Site 6 or Site 113, it is unlikely that the shafts extend below the first encountered groundwater (approximately 250 feet to 260 feet below

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ground surface [bgs]). Also, because the mineshafts were excavated into nearly flat terrain and only limited mine tailings are found at the surface, it is likely that the shafts are vertical (or near-vertical) and do not incorporate horizontal galleries. Abandoned Mine Shaft Nos. 1 and 2 were originally dug as mineral mines (date unknown), but were used for waste disposal between 1959 and 1967. Materials disposed in the mine shafts may have included low-pressure cylinders containing fuels and oxidizers such as pentaborane, high-energy fuels (HEFs), and fluorine. Liquid rocket fuel (presumably RP-1) was then poured on top of the cylinders and ignited, resulting in multiple explosions that continued for approximately 8 hours. Stainless steel and scrap iron were also placed in the mine shafts, as was "contaminated" plumbing from Test Area 1-21. Prior to the RI, the Air Force backfilled the mine shafts with soil and placed asphalt caps over the entrances to prevent access and to protect the underlying groundwater from rainwater infiltration through the buried debris. Because the mine shafts were excavated into surface exposures of low permeability, hard crystalline bedrock, the caps are small (15 feet square) and only cover the dirt filled mine openings. Barbed-wire fences with warning signs were installed around each mine shaft but have since fallen into disrepair. According to the EAFB GP, the current and anticipated future land uses at Sites 6 and 113 are test and research; there are no residential land uses planned. These land uses are considered industrial for risk assessment purposes. Site 115: Site 115 is located in Test Area 1-100, at the northeast terminus of Gemini Road. The test area was constructed in 1959 and was used during the 1960s for test launches of tethered Minuteman I and II intercontinental ballistic missiles (ICBMs) from Missile Silo 1 (Building 8959) and Missile Silo 2 (Building 8960). Test Area 1-100 has been largely inactive since the 1970s with the exception of ongoing periodic solid propellant burns at Site 39. As described in the Sites 270 and 39 RI Site Summary Report, Site 39 is an active Open Burn Area operating under a RCRA permit, and is therefore not being evaluated as part of this CERCLA ROD. As documented in the OU 9 RI Summary Report, which can be found in the administrative record file and information repositories, Site 115 includes Missile Silos 1 and 2, two former sanitary leachfields, an open pit, and an open trench. Each silo consists of a concrete and steel-lined vertical shaft measuring approximately 27 feet in diameter and 86 feet in depth; the walls of the shaft extend approximately 2 feet above the ground surface. Inside each shaft is a steel launch tube into which the missiles were loaded; service walkways are installed at various levels around each launch tube. The silo shafts are ringed by concentric circular concrete pads and asphalt access roads. Because only limited construction details are available, it must be conservatively assumed that the silos are not sealed against water (or contaminant) seepage. Each silo is fitted with a horizontal box-framed protective cover that rolls away from the silo on steel guide rails. Each cover measures 30 feet square and 3 feet tall, and is enclosed by steel plates on the top and on all sides except one, left open so that the cover clears the above-ground portion of the silo when being opened. Although the covers are now welded in the closed position, the open sides allow entry to the silos and are not adequate access controls. However, the covers are effective in preventing rainwater infiltration through the silos. Because the silos were used only for test launches, they do not include the underground support facilities (i.e., launch control center and living quarters) typically included in the design of fully functional missile silo complexes. The missile tests conducted at Site 115 were performed to prove and refine the concept of belowground silo launches of the Minuteman I and II ICBM systems. Because the scope of the test program was limited to the first few moments of flight, the missiles were tethered to the ground by a data cable only about 500 feet long and likely carried only enough perchlorate-based solid fuel to clear the silos before motor cutoff. It is also likely that the upper

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stages of the test missiles were non-functional mockups used only to provide realistic weight and balance. During the test program, solid propellant residues from the perchlorate fuels were likely deposited in the silos. Additionally, in the mid-1960s, a missile (likely a Minuteman II) exploded inside Silo 1, damaging it beyond repair. Details of the accident are sparse, but the remnants of the missile were reportedly left in place and the silo was backfilled with debris, including fill soil, roofing material, and other construction materials. Collectively, the materials used to fill the silo (including the fill soil) are referred to as debris and are distinct from native soil on site. Although Silo 2 was also deactivated in the 1960s, it was reportedly not filled in with debris. In 1988, approximately twenty 1- and 5-gallon containers of X-ray developing fluids (acetic acid and aluminum chloride) were discarded into Silo 2. The unauthorized disposal was reported to the AFRL Safety and Health Office, which recovered several containers from the silo's first level (at a depth of 20 feet). However, most of the containers were broken and their contents released. Three broken containers were visible on the bottom of the silo during the initial site visit and were not recovered. Building 8950 was a missile assembly building where solid rocket engines were combined with their components into complete missile systems ready for testing. In the early 1960s, Building 8950 was used to test a pentaborane transfer system. After each test, the plumbing system was flushed with RP-1, reportedly to an open pit (10 feet in diameter) located 200 feet northwest of the building. The open pit has a 2-inch diameter inlet pipe and an ignition wire leading from Building 8950. An overflow pipe drains from the open pit into an open trench, approximately 50 feet long. Building 8955 was built in 1959 and was used as a control station for the silo test firings. Building 8953 provided shop and office space. Two former leachfields were apparently used for disposal of septic wastes generated in Buildings 8950 and 8953. According to the EAFB GP, the current and anticipated future land uses at Site 115 are test and research; there are no residential land uses planned. These land uses are considered industrial for risk assessment purposes. Site 7: Site 7 is located in Test Area 1-46 along Mars Boulevard approximately 4 miles southeast of its intersection with Mercury Boulevard. Site 7 is located within the Site 167 boundary but is considered a separate, though closely related, site. The beryllium-contaminated earth piles were located in two clusters in a disturbed area. Miscellaneous hardware, piping, and components from beryllium tests were disposed in the piles. Contaminated metal, wood, and other debris from an explosion that destroyed a building storing beryllium during the 1960s were added to the piles in 1970. Also, contaminated soils removed from the Site 167 Beryllium Firing Range were moved to this area in 1972. Based on the known history of activities at Site 7, beryllium was identified as the only chemical of concern (COC). An IRA conducted in 1996 included the excavation of beryllium-contaminated soils and debris and re-burial within the Site 167 SLDU. The SLDU is capped, and LUCs will be used to ensure its long-term integrity. Confirmation samples, collected after excavation was complete, showed that beryllium concentrations in the soil left behind were all below the 1.1 milligrams per kilogram (mg/kg) compliance standard (the industrial preliminary remediation goal [PRG] current at that time) and well below the current residential PRG of 150 mg/kg. The excavated area was then backfilled and revegetated. Site 26: Site 26 is located east of the AFRL Civil Engineering yard near the AFRL abandoned runway. The site consists of a former fire training area (FTA), a removed aboveground storage tank, and its associated underground pipeline. The FTA was used in the early 1970s to train personnel to fight aircraft fires, but has been inactive since 1975. During training exercises, jet fuel and/or gasoline were sprayed onto a small decommissioned jet aircraft, ignited, and then extinguished using water and chemical foam. The fuel was supplied by an aboveground storage tank, underground pipeline, and two

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aboveground nozzles. In 2001, the aboveground tank, the underground fuel pipeline, and the fuel nozzles were removed, cleaned, and disposed of as scrap metal. Also, approximately 120 cubic yards of petroleum contaminated soil and bedrock were excavated and disposed of as a non-hazardous waste at a licensed soil recycling treatment, storage and disposal facility (TSDF). Confirmation samples were collected following excavation to verify that soil concentrations remaining at the site were below the groundwater-protective leaking underground fuel tank (LUFT)-derived action levels. Subsequently, the KCEHSD regulator noted that a 10-fold lower compliance standard of 100 mg/kg for unknown extractable hydrocarbon (UEH) and 10 mg/kg for unknown volatile hydrocarbon (UVH) would have been more appropriate due to the shallow depth to groundwater in this area. The concentrations in confirmation samples were also below these more restrictive compliance standards. Site 150: Site 150 is located on Saturn Boulevard southeast of its intersection with Mercury Boulevard and encompasses a former beryllium/organic waste evaporation pond and a former inorganic waste evaporation pond associated with Building 8451, the Laboratory Services facility. Wastes discharged into the two ponds reportedly included beryllium, acids, solvents, alcohol, hydrazine, acetone, and waste containers. Drainage lines from Building 8451 also discharged to the organic waste pond. By 1968, the drain lines were capped off and re-routed to the inorganic waste pond, which was active from the 1950s to the early 1970s. This pond was filled with clean soil when deactivated, and there is no current surface evidence of the pond. Sites 153 and 396: Sites 153 and 396 are located north of the AFRL Civil Engineering Yard and east of Mercury Boulevard. Site 153 includes a former waste discharge area, former Dry Well A (associated with Building 8421), former Dry Well D (Building 8419), former Dry Well E (Building 8431), and former Dry Well F (Building 8423); Site 396 includes Dry Well G (Building 8425). Dry Wells B and C (reportedly associated with Building 8421) could not be located; it is assumed these two dry wells were destroyed prior to 1993. The former waste discharge area reportedly received hundreds of gallons of wastes from Building 8421, which was used as a machine shop from the early 1960s through mid-1997. A visual inspection of the site in June 1993 found evidence of soil discoloration in convergent drainage channels that originate at the southern extent of the asphalt surface southeast of Building 8421. The dry wells were formerly connected to floor drains, grease interceptor pits, cesspools, and/or air conditioning systems inside their associated buildings. Prior to 2001, the dry wells were isolated from all inlet sources except the air conditioning systems which discharge only clean water from the condensers. An IRA was conducted in 2001 to destroy the dry wells at Sites 153 and 396. Dry well destruction consisted of the following field tasks: 1. The dry well inlet lines were redirected to discharge clean water from the air conditioning systems to the sanitary sewer. 2. The standing water was pumped from Dry Well A and was disposed on-site after treatment. 3. At the request of the Water Board; the sludge, soil, and gravel in Dry Well E was excavated past the bottom of the dry well, to the bedrock contact. The remaining bedrock was too hard to collect confirmation samples. The removed material was disposed as a non-RCRA hazardous waste, at a licensed off-site TSDF. 4. The aboveground portions of all dry well surface monuments were removed. 5. The dry well casings were filled to the surface with a cement slurry to prevent future use and to safeguard the groundwater from further leaching of contaminants into the groundwater. Following dry well destruction, a closure letter from KCEHSD was issued stating, "The Department concurs that these wells are no longer a potential source for soil or groundwater contamination." Site 166: Site 166 includes a former waste discharge area and a removed waste oil underground storage tank (UST) associated with Building 8240, located on the southeastern side of Mercury Boulevard. Building 8240 was a service garage that was constructed in the late 1950s and deactivated in the mid-1960s; the building

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has since been demolished. The service station formerly included four fuel dispenser islands that were supplied by two 10,000-gallon USTs. The fuel dispensers and the tanks were removed in 1992 with no contaminants detected. The Site 166 waste oil UST had a 300-gallon capacity and was connected to the service station via an underground drain pipe. A second drainpipe originated at Building 8240 and discharged to the surface soil at the waste discharge area. This area extended southeast from the former UST and was located near an electrical utility pole. A transformer unit mounted on the utility pole leaked oil to the waste discharge area. The waste oil UST was removed in 1992 and the electric transformer was removed in 1994. In 1997, a total of 75 tons of contaminated soil was excavated from the former site of the waste oil UST and from the waste discharge area. The soil was remediated ex-situ at a treatment facility (land farm) located on Edwards AFB, near South Base. AOCs 170 and 171: AOCs 170 and 171 are associated with indoor degreasing and acid/caustic dip-cleaning operations formerly conducted at Building 8595, located at the intersection of Mars Boulevard and Ara Street. The indoor vapor degreaser pit and indoor sump were located in the southwestern portion of Building 8595. The solvent tetrachloroethene (PCE) was used in the vapor degreaser to clean rocket nozzles and components. From approximately 1963 to 1970, the unit was in use for up to 8 hours per day. Two drain lines from the vapor degreaser pit discharged directly into the indoor sump. Alkali and acids were used to clean parts in dip tanks located on a grate above the indoor sump. In November 1997, the sludge inside the indoor sump was removed and disposed of as a hazardous waste at an off-site, licensed TSDF. The pit and sump were then steam cleaned and inspected. The vapor degreaser pit was found to be in good condition. The drain from this unit, and all drains and holes in the indoor sump, were plugged with concrete. Both units were then backfilled with gravel to 6 inches below grade and capped with reinforced concrete. In addition, 180 square feet of damaged concrete flooring to the west, south, and east of the indoor sump were replaced. Site 172: Site 172, the Building 8595 outdoor waste sump, is located on the southeast-facing side of Leuhman Ridge, at the intersection of Mars Boulevard and Ara Street. At the time the waste sump was active, Building 8595 was used for the repair, rebuilding, and maintenance of rocket motor components. The outdoor waste sump was constructed in 1972 approximately 50 feet south of Building 8595 and was connected to the indoor sump (AOC 171) via a discharge line routed through the building and into a collection box on its northeastern corner. Two valved lines exited the collection box, one discharging into the sump and the other discharging to the ground surface southeast of the sump. Wastewater discharged to the outdoor waste sump was potentially contaminated with bases, acids, chlorinated solvents, heavy metals, paints, and waste petroleum products. In the mid 1980s, it was discovered that fluids were released from the sump due to leakage; repairs to the unit included installation of a fiberglass liner. Maintenance and cleaning of rocket components at Building 8595 were discontinued in mid-1997. The building is now used as an electric propulsion laboratory. In 1997, the liquids and sludge from the outdoor waste sump, the sump's fiberglass liner, and the underlying bed of sand were removed and disposed of as a RCRA hazardous waste at a licensed, off-site TSDF. The sump chambers were then steam-cleaned and all inlet pipes were removed. In 2002, the sump was filled with a concrete slurry and was capped by a reinforced concrete pad. A soil vapor extraction (SVE) system, using activated carbon to treat vapors extracted from three shallow vapor extraction wells, was installed at Site 172 in 2000. This temporary system was initially designed to clean up PCE contamination only in the soil below the Site 172 sump. However, in 2002 the system was upgraded to a permanent installation, and expanded to include four additional extraction wells that targeted PCE contamination in soil from nearby Site 37. The cumulative mass of contaminants removed by the SVE system through December 2007

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is approximately 7,500 pounds. Confirmation sampling of the fill sand beneath the sump in 2002 showed that PCE concentrations had dropped from 1,200 mg/kg (prior to treatment) to only 20 mg/kg. In a risk management meeting held on 20 January 2005, the AFRL RPMs concurred that the Site 172 SVE had achieved its original goal of reducing contaminant mass below the sump and that Site 172 should be administratively closed. Also, it was agreed that any remaining soil contaminants in the vicinity of Building 8595 would be addressed in the final remedy for Site 37. Currently the SVE system is online pending development of the South AFRL RAWP to address long-term management of the vapor intrusion pathway at Building 8595 in Site 37. Site 329: Site 329 is located in Test Area 1-46 near Sites 7 and 167. The site includes a wash rack and an oxidation pond associated with the test area's main shop and instrumentation/control station. Between the early 1960 and early 1970s, the wash rack was reportedly used to rinse vehicles that may have become contaminated during tests of beryllium-fueled rocket engines. Wastewater from the wash rack, potentially containing waste oil and beryllium, formerly drained to the unlined oxidation pond or soaked into the ground next to the wash rack. Also, the oxidation pond likely received septic wastes. There is an outlet pipe on the southwestern end of the pond. Southeast of the wash rack, and east of the oxidation pond, is a cleared area with scattered metal debris. A ROD addressing OU11 was completed in August 2008. The two sites in OU7 CWM included in this ROD were former industrial facilities or known EOD burial locations. These sites fall into two categories: - No Further Action Site. Site 426 is a former World War II CWM storage yard that has been recommended for no further action because no CWM or CERCLA-related wastes were found at the site; and following the interim response action the risks have been reduced to acceptable levels for unrestricted use and unlimited exposure. - Site with Known EOD Burial Locations. Site 442 includes three known EOD burial locations (Areas 1, 2, and 3) that contain munitions debris, possibly including CWM, that require remedial action to prevent potential receptors from coming into direct contact with the buried munitions and to minimize future erosion of the cover soil. Site 426, the former World War II (WWII) Chemical Warfare Materiel Storage Yard, is located in the Northwest Main Base area of Edwards AFB, south of Popson Avenue and north of Rosamond Boulevard. Buildings 2518 and 2519 (part of a dormitory complex for enlisted military personnel built in the late 1990s) are partially inside the western boundary of Site 426, but are located approximately 25 feet west of the former features associated with the former Storage Yard. A restaurant building (Building 2412) and an older dormitory complex built in the 1950s (Buildings 2422 through 2425) are located approximately 300 feet north to 800 feet northwest of Site 426. Site 426 is located in Land Use Management Area C (Developed Area [Housing/Commercial/ Industrial]) as designated in the Integrated Natural Resources Management Plan (INRMP) for Edwards AFB. Management Area C comprises Main Base, North Base, South Base, the National Aeronautics and Space Administration (NASA) Dryden Flight Research Center, and the Main Base Active Landfill. Biotic habitats in the Main Base area, where Site 426 is located, include zonal xerophytic saltbush scrub, creosote bush scrub, and Joshua tree woodlands; and azonal urban/developed areas. However, the land at Site 426 is highly disturbed due to past interim response actions, and the results of a Pre-scoping Ecological Risk Assessment (PERA) conducted by the USAF concluded that there was no habitat for ecological receptors at the site. Additionally, data in the Base Geographic Information System (GIS) shows that no endangered, threatened, or sensitive flora or fauna species have been identified in the vicinity of Site 426. Site 426 is currently undeveloped open terrain. The population in the area of Site 426 consists of military personnel and civilian workers. The military personnel live in dormitory-style quarters west and northwest of Site 426. Air Force personnel live in a newer dormitory complex (Buildings 2511 to

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2519) completed in 1997, and two of the dormitories (Buildings 2518 and 2519) are located partially inside the western boundary of Site 426. Marine and Air Force personnel also live in four older dormitory buildings (Buildings 2422 to 2425) built in the 1950s and located approximately 450 feet to 800 feet northwest of Site 426. On average there are approximately 750 personnel living in the dormitories at any given time. During the daytime, civilians work at a restaurant (Building 2412) located approximately 300 feet north of the site and at the dormitories. A more complete discussion of the history and activities occurring at Site 426 is provided in Environmental Restoration Program, Remedial Investigation Summary Report, Chemical Warfare Materiel Sites, Operable Unit No. 7, Edwards Air Force Base, California, and is briefly summarized below. Before World War II, the area at Site 426 was undeveloped land located approximately 1.6 miles west of the town of Muroc. Muroc was a small agricultural community that was abandoned during the establishment of Muroc Army Air Field, which eventually became Edwards AFB. In February 1988, a visual survey was conducted in the area of Site 426 for the State of California - The Resources Agency, Department of Parks and Recreation. Three concrete pads, buried water pipes, a system of irrigation ditches, and dead locust trees were features described during the visual survey. In May 1993, a possible homestead water well was described during a field reconnaissance of historic water wells for the Basewide Water Well Closure Program. At that time, a tar-like substance was observed on a concrete pad located near the possible water well. During further field reconnaissance at the possible homestead water well in February 1995, an underground storage tank (UST) containing waste oil was found beneath the concrete pad. In July 1995, the UST and a concrete valve box with associated piping were excavated and removed as part the Underground Storage Tank Investigation (USTI) Program. The UST was a 5,000-gallon concrete tank containing approximately 3,000 gallons of waste oil, which was removed and containerized for transport to an off-site disposal facility. The UST, valve box, and piping were pressure washed, and the UST and valve box were broken into fragments for transport to an off-site hazardous waste facility. The piping, concrete fragments from the UST and valve box, and excavated soil were transported to the McKittrick Waste Disposal Site, McKittrick, California. The containerized waste oil and wash rinseate were transported to DeMenno/Kerdoon, Compton, California for disposal. The removed UST location was designated as Site 419 in 1997. Site 419 is a non-CERCLA petroleum-only site located within the boundary of OU7 CWM Site 426 that was investigated and cleaned up as part of the ERP for OU7 Basewide Miscellaneous sites; and therefore, is not addressed in this ROD. On 10 August 2004, the Kern County Environmental Health Services Department (KCEHSD) closed Site 419 to further action. Research of archival documents and historic aerial photographs indicated that the features found during the field reconnaissance were not associated with a homestead site, but with the WWII CWM Storage Yard (Site 426). The WWII CWM Storage Yard (often identified as a "Toxic Gas Yard" in archival documents) was constructed in late 1942 and encompassed approximately 1.6 acres. By October 1946, the yard was no longer in use, and was subsequently demolished. According to maps obtained from the 95th Civil Engineering Squadron at Edwards AFB, no buildings have been constructed in the area of the former Toxic Gas Yard since that time. Archival records indicate that CWAs and industrial chemicals may have been stored and/or disposed at the former CWM Storage Yard. The CWAs may have included mustard (H), distilled mustard (HD), and lewisite (L). The industrial chemicals may have included tear gas (CNS), gasoline-based incendiaries (napalm, incendiary bomb fill [IM and PT1]), thermite, and smoke (FS). No residual contaminants remain at the site that would limit exposure or restrict use. Site 442, Areas 1, 2, and 3 are Known Explosive Ordnance Division Burial Locations. Areas 1 and 2 are located in the West Range of the PIRA, approximately three miles west of PIRA Range Control

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(Downfall) and approximately one mile south of Mercury Boulevard. Area 3 is located within the East Range of the PIRA, approximately two miles south-southeast of Haystack Butte and one mile north of the southern Base boundary. Site 442, Area 1 is approximately 4.6 acres. Four dirt roads, visible on aerial photographs dating from 1942 to 1952, once provided access to the site. Currently, the roads are overgrown with vegetation, and one of the access roads is barely discernible. Near the entrance to Area 1, a weathered sign marked "EXPLOSIVE AREA" was found lying on the ground surface. In addition, a sign with no distinguishable markings was located at the site. Scattered surface debris at Area 1 includes ordnance scrap, links from .50-caliber metallic link-belts, and canvas parts of cargo parachutes. The ground surface appears to have been disturbed and cleared of vegetation at some time in the past. Site 442, Area 2 is approximately 8.3 acres. The site is posted with a small weathered aluminum sign marked "BOMB BURIAL." Several steel fence posts delineate the destroyed in May 2003 and concrete foundations are located near the entrance to the site. Site 442, Area 3 is approximately 0.5 mile northeast of the center of Precision Bombing (PB) Target PB-5 and encompasses approximately 0.2 acres. Site 442, Areas 1, 2, and 3 are located in Land Use Management Area B (Precision Impact Range Area) as designated in the INRMP for Edwards AFB. Land Use Management Area B covers a large portion of the eastern part of the Base. The area is primarily used to test aircraft targeting equipment and for practice in precision bombing. It is also used for aircraft flight-testing, explosive ordnance disposal, and the placement of communication equipment. Other activities and uses in the PIRA are scheduled around the Range use, are severely restricted, and occur occasionally. The long range plan contained in the Base General Plan (GP) states that the future land use in this Management area will continue to be for industrial purposes. The land at Site 442, Areas 1 and 2 is undeveloped open terrain. The nearest facility continuously staffed with personnel working on Base is PIRA Range Control (Downfall) (Building 9505) located approximately 2.7 miles east-northeast of Site 442, Area 2. The closest active targets (Targets PB-1 and PB-2) are not used for live fire; munitions are dropped with spotting charges. Site 442, Area 1 is 0.7 miles northeast of Target PB-1, and 1.1 miles west-northwest of Target PB-2. Site 442, Area 2 is 1.4 miles northeast of Target PB-1, and 0.7 miles northwest of Target PB-2. The nearest live fire target (Target PB-13) is located 3.5 miles south of Site 442, Area 1. Due to the distances from these targets, the likelihood of an accidental impact at Site 442, Areas 1 and 2 from a bomb dropped by an aircraft intending to use these nearby targets is low. The land at Site 442, Area 3 is undeveloped open terrain. The nearest facility continuously staffed with personnel working on Base is PIRA Range Control (Downfall) (Building 9505), which is located approximately 6.4 miles northwest of Site 442, Area 3. The closest active targets (Targets PB-11 and PB-12) are not used for live fire; munitions are dropped with spotting charges. Site 442, Area 3 is 2.5 miles south of Target PB-11, and 2.8 miles southwest of Target PB-12. Due to the distances from these targets, the likelihood of an accidental impact at Site 442, Area 3 from a bomb dropped by an aircraft intending to use these targets is low. Based on features observed on available aerial photographs, Site 442, Areas 1 and 2 were apparently active from 1942 to 1952. Site 442, Areas 1 and 2 may have been associated with activities that took place at two nearby former bombing targets that were active during that time period, the Precision Bombing Chemical (PB-Chem) Target (Site 430) and West Aberdeen Bombing Mission (ABM) Target (Site 431) . The PB-Chem and West ABM targets were under the control of the ABM, a detachment from the U.S. Army's Aberdeen Proving Ground (APG), Maryland, which was tasked with the testing of CWM. The former bombing targets are also observed on the 1942 aerial photographs. In the late 1980s, canisters (initially thought to contain H) were found near the current Target PB-1;

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however, the contents were determined to be an oily liquid. In mid-1992, a suspected chemical bomb was found near the southwestern corner of the current Target PB-1; however, the bomb fill was not determined. Base EOD personnel detonated the ordnance in place. Site 442, Area 3 may have been associated with activities that took place at Target PB-5. Bomber crews stationed at March Field, Riverside, California, and later at Muroc Army Air Field, used Target PB-5 for day and night bombing practice during the 1940s. An August 1949 memorandum stated that Target PB-5 was heavily bombed with mostly M38A2 practice bombs, some of which were filled with high explosives or incendiaries. By 1957, Target PB-5 may have been inactive according to a standard operating procedure manual for the bombing and gunnery ranges at Edwards AFB. The manual showed the location of Target PB-5, but made no reference to activities conducted at the target, whereas activities conducted at other targets on the PIRA were described. However, based on analysis of aerial photographs taken during the 1960s, an observed change in the configuration of the target center suggests that Target PB-5 was active during this period. The nearest target to Site 442, Area 3 that was formerly under the control of the ABM (the East ABM Target) is located 3.3 miles northeast of Area 3. Burial trenches that may have been associated with the East ABM Target have not been located; therefore, it is possible that CWM dropped at the East ABM Target may have been disposed at Site 442, Area 3. A September 1994 memorandum, which lists the status of unexploded ordnance (UXO) contamination at several Air Force Bases (including Edwards AFB), reported that chemical and non-conventional munitions were found at several target areas (Weston Solutions, Inc. 2003). An attachment entitled "Targets within the Precision Impact Range Area (PIRA)" reported that canisters with H agent were found near Target PB-5; however, there was no information on the exact location where the canisters were found or how they were disposed. Target PB-5 is inactive and is not maintained (i.e., grubbed or graded). However, the target outline is visible on recent aerial photographs and is recognizable during site reconnaissance. The results of the previous RIs conducted to characterize the soil gas, soil, and groundwater contamination at Site 442, Areas 1, 2, and 3. The complete analytical results from the RIs are presented in the OU7 CWM RI SR. A Record of Decision (ROD) for Edwards AFB addresses soil, groundwater, soil gas and debris as Operable Unit (OU) 15 for site 442. This site was placed on the National Priority List (NPL) by The USEPA CERCLIS on 30 August 1990. A Record of Decision (ROD) for Edwards AFB was signed in September 2009.

CERCLIS Assessment History:

Action Code:	001
Action:	DISCOVERY
Date Started:	/ /
Date Completed:	08/01/80
Priority Level:	Not reported
Operable Unit:	SITEWIDE
Primary Responsibility:	EPA Fund-Financed
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	001
Action:	SITE INSPECTION
Date Started:	08/01/80
Date Completed:	04/01/84
Priority Level:	Low priority for further assessment
Operable Unit:	SITEWIDE

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Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: HAZARD RANKING SYSTEM PACKAGE
Date Started: / /
Date Completed: 04/01/84
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: EPA Fund-Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: PRELIMINARY ASSESSMENT
Date Started: / /
Date Completed: 10/01/86
Priority Level: Low priority for further assessment
Operable Unit: SITEWIDE
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 002
Action: PRELIMINARY ASSESSMENT
Date Started: / /
Date Completed: 11/01/86
Priority Level: Low priority for further assessment
Operable Unit: SITEWIDE
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: PROPOSAL TO NATIONAL PRIORITIES LIST
Date Started: / /
Date Completed: 07/14/89
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: EPA Fund-Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: Notice Letters Issued
Date Started: / /

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Date Completed: 03/30/90
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: EPA Fund-Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: FINAL LISTING ON NATIONAL PRIORITIES LIST
Date Started: / /
Date Completed: 08/30/90
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: EPA Fund-Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: INTERAGENCY AGREEMENT NEGOTIATIONS
Date Started: 03/30/90
Date Completed: 09/26/90
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: Federal Enforcement
Planning Status: Alternate
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: FEDERAL INTERAGENCY AGREEMENT
Date Started: 09/26/90
Date Completed: 09/26/90
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: Federal Enforcement
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 003
Action: FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 12/18/92
Date Completed: 03/30/99
Priority Level: Not reported
Operable Unit: BASEWIDE WELLS (HOMESTEAD)
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Action Code: 002
Action: RECORD OF DECISION
Date Started: / /
Date Completed: 09/30/03
Priority Level: Not reported
Operable Unit: BASEWIDE WELLS (HOMESTEAD)
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 008
Action: FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 11/11/03
Date Completed: 09/28/06
Priority Level: Not reported
Operable Unit: NASA DRYDEN
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 018
Action: FEDERAL FACILITY REMEDIAL DESIGN
Date Started: 09/28/06
Date Completed: 09/28/06
Priority Level: Not reported
Operable Unit: NASA DRYDEN
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 004
Action: RECORD OF DECISION
Date Started: / /
Date Completed: 09/28/06
Priority Level: Not reported
Operable Unit: NASA DRYDEN
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 007
Action: FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 01/31/04
Date Completed: 09/24/07
Priority Level: Not reported
Operable Unit: SOUTH AFRL GROUNDWATER
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Action Anomaly: Not reported

Action Code: 003
Action: RECORD OF DECISION
Date Started: / /
Date Completed: 09/24/07
Priority Level: Not reported
Operable Unit: SOUTH AFRL GROUNDWATER
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 018
Action: FEDERAL FACILITY REMEDIAL ACTION
Date Started: 09/28/06
Date Completed: 02/15/08
Priority Level: Not reported
Operable Unit: NASA DRYDEN
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 004
Action: FEDERAL FACILITY REMEDIAL DESIGN
Date Started: 10/18/07
Date Completed: 02/15/08
Priority Level: Not reported
Operable Unit: NASA DRYDEN
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 013
Action: FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 01/31/04
Date Completed: 08/04/08
Priority Level: Not reported
Operable Unit: AFRL SOIL & DEBRIS (OU 4&9)
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 012
Action: RECORD OF DECISION
Date Started: / /
Date Completed: 08/04/08
Priority Level: Not reported
Operable Unit: AFRL SOIL & DEBRIS (OU 4&9)

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 003
Action: FEDERAL FACILITY REMEDIAL DESIGN
Date Started: 09/24/07
Date Completed: 06/12/09
Priority Level: Not reported
Operable Unit: SOUTH AFRL GROUNDWATER
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 09/29/04
Date Completed: 06/24/09
Priority Level: Not reported
Operable Unit: SOUTH BASE
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 019
Action: FEDERAL FACILITY REMEDIAL DESIGN
Date Started: 06/24/09
Date Completed: 06/24/09
Priority Level: Not reported
Operable Unit: SOUTH BASE
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: RECORD OF DECISION
Date Started: / /
Date Completed: 06/24/09
Priority Level: Not reported
Operable Unit: SOUTH BASE
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 004
Action: FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 06/20/06
Date Completed: 09/16/09

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Priority Level: Not reported
Operable Unit: CHEMICAL WEAPONS MATERIEL
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 005
Action: RECORD OF DECISION
Date Started: / /
Date Completed: 09/16/09
Priority Level: Not reported
Operable Unit: CHEMICAL WEAPONS MATERIEL
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 012
Action: FEDERAL FACILITY REMEDIAL DESIGN
Date Started: 08/04/08
Date Completed: 09/28/09
Priority Level: Not reported
Operable Unit: AFRL SOIL & DEBRIS (OU 4&9)
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 005
Action: FEDERAL FACILITY REMEDIAL ACTION
Date Started: 11/06/07
Date Completed: 10/26/09
Priority Level: Not reported
Operable Unit: SOUTH AFRL GROUNDWATER
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 005
Action: FEDERAL FACILITY REMEDIAL DESIGN
Date Started: 09/16/09
Date Completed: 11/09/10
Priority Level: Not reported
Operable Unit: CHEMICAL WEAPONS MATERIEL
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 019

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Action:	FEDERAL FACILITY REMEDIAL ACTION
Date Started:	06/24/09
Date Completed:	11/22/10
Priority Level:	Not reported
Operable Unit:	SOUTH BASE
Primary Responsibility:	Federal Facilities
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	012
Action:	FEDERAL FACILITY REMEDIAL ACTION
Date Started:	08/04/08
Date Completed:	07/27/11
Priority Level:	Not reported
Operable Unit:	AFRL SOIL & DEBRIS (OU 4&9)
Primary Responsibility:	Federal Facilities
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	001
Action:	FEDERAL FACILITY REMOVAL
Date Started:	11/20/09
Date Completed:	08/01/11
Priority Level:	Not reported
Operable Unit:	NORTH BASE
Primary Responsibility:	Federal Facilities
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	001
Action:	FEDERAL FACILITY FIVE YEAR REVIEW
Date Started:	/ /
Date Completed:	09/30/11
Priority Level:	Not reported
Operable Unit:	NASA DRYDEN
Primary Responsibility:	Federal Facilities
Planning Status:	Primary
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	001
Action:	FEDERAL FACILITY FEASIBILITY STUDY
Date Started:	07/03/07
Date Completed:	09/21/12
Priority Level:	Not reported
Operable Unit:	SITE 3 LANDFILL
Primary Responsibility:	Federal Facilities
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Action Code: 015
Action: RECORD OF DECISION
Date Started: / /
Date Completed: 09/21/12
Priority Level: Not reported
Operable Unit: SITE 3 LANDFILL
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: RECORD OF DECISION AMENDMENT
Date Started: / /
Date Completed: 09/27/12
Priority Level: Not reported
Operable Unit: SOUTH BASE
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 003
Action: FEDERAL FACILITY FIVE YEAR REVIEW
Date Started: / /
Date Completed: 09/28/12
Priority Level: Not reported
Operable Unit: SOUTH AFRL GROUNDWATER
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: Explanation Of Significant Differences
Date Started: / /
Date Completed: 06/28/13
Priority Level: Not reported
Operable Unit: AFRL SOIL & DEBRIS (OU 4&9)
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 002
Action: FEDERAL FACILITY FIVE YEAR REVIEW
Date Started: 02/25/13
Date Completed: 09/27/13
Priority Level: Not reported
Operable Unit: AFRL SOIL & DEBRIS (OU 4&9)
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Action Anomaly: Not reported

Action Code: 001
Action: Restoration Advisory Board
Date Started: 02/01/95
Date Completed: / /
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: Not reported
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 012
Action: FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 09/30/96
Date Completed: / /
Priority Level: Not reported
Operable Unit: BASEWIDE MISCELLANEOUS
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 016
Action: FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 01/31/04
Date Completed: / /
Priority Level: Not reported
Operable Unit: NW AFRL - ARROYOS GROUNDWATER
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 002
Action: FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 07/30/04
Date Completed: / /
Priority Level: Not reported
Operable Unit: MAIN BASE/FLIGHTLINE
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 018
Action: FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 08/12/05
Date Completed: / /
Priority Level: Not reported
Operable Unit: AFRL - MARS BLVD GROUNDWATER
Primary Responsibility: Federal Facilities

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 009
Action: FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 08/12/05
Date Completed: / /
Priority Level: Not reported
Operable Unit: NORTHEAST AFRL GROUNDWATER
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 011
Action: FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 08/18/05
Date Completed: / /
Priority Level: Not reported
Operable Unit: NORTHWEST MAIN BASE SOILS
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 005
Action: FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 11/22/06
Date Completed: / /
Priority Level: Not reported
Operable Unit: NORTH BASE
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 006
Action: FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 11/22/06
Date Completed: / /
Priority Level: Not reported
Operable Unit: SITE 25 GROUNDWATER
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 003
Action: FEDERAL FACILITY REMEDIAL ACTION
Date Started: 10/31/07
Date Completed: / /
Priority Level: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Operable Unit: NASA DRYDEN
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: FEDERAL FACILITY REMEDIAL DESIGN
Date Started: 06/24/09
Date Completed: / /
Priority Level: Not reported
Operable Unit: SOUTH BASE
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 003
Action: OPERATIONS AND MAINTENANCE
Date Started: 10/26/09
Date Completed: / /
Priority Level: Not reported
Operable Unit: SOUTH AFRL GROUNDWATER
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 017
Action: FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 02/04/10
Date Completed: / /
Priority Level: Not reported
Operable Unit: SITE 81/102 SKEET RANGES (OU2)
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: FEDERAL FACILITY REMEDIAL ACTION
Date Started: 10/08/10
Date Completed: / /
Priority Level: Interim RA Report
Operable Unit: SOUTH BASE
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 004
Action: FEDERAL FACILITY REMEDIAL ACTION

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Date Started: 12/13/10
Date Completed: / /
Priority Level: Interim RA Report
Operable Unit: CHEMICAL WEAPONS MATERIEL
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 008
Action: OPERATIONS AND MAINTENANCE
Date Started: 07/27/11
Date Completed: / /
Priority Level: Not reported
Operable Unit: AFRL SOIL & DEBRIS (OU 4&9)
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 002
Action: FEDERAL FACILITY REMOVAL
Date Started: 03/07/12
Date Completed: / /
Priority Level: Not reported
Operable Unit: BASEWIDE MILITARY MUNITIONS
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 022
Action: FEDERAL FACILITY REMEDIAL DESIGN
Date Started: 02/06/13
Date Completed: / /
Priority Level: Not reported
Operable Unit: SOUTH BASE
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

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CORRACTS:

EDWARDS AIR FORCE BASE (Continued) **1000155217**

EPA ID: CA1570024504
EPA Region: 9
Area Name: ENTIRE FACILITY
Actual Date: 19840401
Action: CA049SI
NAICS Code(s): 92811
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: OU #1
Actual Date: 19960401
Action: CA200 - RFI Approved
NAICS Code(s): 92811
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: OU #1
Actual Date: 19971201
Action: CA650 - Stabilization Construction Completed
NAICS Code(s): 92811
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: ENTIRE FACILITY
Actual Date: 19910501
Action: CA050RF - RFA Completed, Assessment was an RFA
NAICS Code(s): 92811
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: ENTIRE FACILITY
Actual Date: 19861101
Action: CA049PA
NAICS Code(s): 92811
National Security
Original schedule date: 19881221
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: ENTIRE FACILITY
Actual Date: 19861101
Action: CA075HI - CA Prioritization, Facility or area was assigned a high corrective action priority

EDWARDS AIR FORCE BASE (Continued) **1000155217**

NAICS Code(s): 92811
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: ENTIRE FACILITY
Actual Date: 19861001
Action: CA029SF
NAICS Code(s): 92811
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: ENTIRE FACILITY
Actual Date: 19861001
Action: CA049RE
NAICS Code(s): 92811
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: ENTIRE FACILITY
Actual Date: 19930901
Action: CA070YE - RFA Determination Of Need For An RFI, RFI is Necessary
NAICS Code(s): 92811
National Security
Original schedule date: 19930901
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: ENTIRE FACILITY
Actual Date: 19930901
Action: CA050RF - RFA Completed, Assessment was an RFA
NAICS Code(s): 92811
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: ENTIRE FACILITY
Actual Date: 19930901
Action: CA050 - RFA Completed
NAICS Code(s): 92811
National Security
Original schedule date: 19930901
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Area Name: ENTIRE FACILITY
Actual Date: 20040803
Action: CA725YE - Current Human Exposures Under Control, Yes, Current Human Exposures Under Control has been verified
NAICS Code(s): 92811
National Security
Original schedule date: 20040803
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: ENTIRE FACILITY
Actual Date: 20040803
Action: CA725YE - Current Human Exposures Under Control, Yes, Current Human Exposures Under Control has been verified
NAICS Code(s): 92811
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: ENTIRE FACILITY
Actual Date: 19980406
Action: CA210 - CA Responsibility Referred To A Non-RCRA Federal Authority
NAICS Code(s): 92811
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: ENTIRE FACILITY
Actual Date: 19980406
Action: CA225IN - Stabilization Measures Evaluation, This facility is not, amenable to stabilization activity because of, a lack of technical data. An evaluation has been completed, but further data is necessary to determine stabilization measures, feasibility or appropriateness. This status should be changed when data becomes available
NAICS Code(s): 92811
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: ENTIRE FACILITY
Actual Date: 19980406
Action: CA750NO - Migration of Contaminated Groundwater under Control, Unacceptable migration of contaminated groundwater is observed or expected
NAICS Code(s): 92811
National Security
Original schedule date: 19980406
Schedule end date: Not reported

EPA ID: CA1570024504

EDWARDS AIR FORCE BASE (Continued) **1000155217**

EPA Region: 9
Area Name: ENTIRE FACILITY
Actual Date: 19980406
Action: CA750NO - Migration of Contaminated Groundwater under Control, Unacceptable migration of contaminated groundwater is observed or expected
NAICS Code(s): 92811
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: ENTIRE FACILITY
Actual Date: 19980406
Action: CA725NO - Current Human Exposures Under Control, Current human exposures are NOT under control
NAICS Code(s): 92811
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: ENTIRE FACILITY
Actual Date: 19980406
Action: CA725NO - Current Human Exposures Under Control, Current human exposures are NOT under control
NAICS Code(s): 92811
National Security
Original schedule date: 19980406
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: ENTIRE FACILITY
Actual Date: 20020618
Action: CA750YE - Migration of Contaminated Groundwater under Control, Yes, Migration of Contaminated Groundwater Under Control has been verified
NAICS Code(s): 92811
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: ENTIRE FACILITY
Actual Date: 20020618
Action: CA750YE - Migration of Contaminated Groundwater under Control, Yes, Migration of Contaminated Groundwater Under Control has been verified
NAICS Code(s): 92811
National Security
Original schedule date: 20020618
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Area Name: ENTIRE FACILITY
Actual Date: 19940819
Action: CA075ME - CA Prioritization, Facility or area was assigned a medium corrective action priority
NAICS Code(s): 92811
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: ENTIRE FACILITY
Actual Date: 19940819
Action: CA210SF - CA Responsibility Referred To A Non-RCRA Federal Authority, Corrective Action at the facility or area referred to CERCLA
NAICS Code(s): 92811
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: ENTIRE FACILITY
Actual Date: 20000522
Action: CA750IN - Migration of Contaminated Groundwater under Control, More information is needed to make a determination
NAICS Code(s): 92811
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: ENTIRE FACILITY
Actual Date: 20000522
Action: CA750IN - Migration of Contaminated Groundwater under Control, More information is needed to make a determination
NAICS Code(s): 92811
National Security
Original schedule date: 20000522
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: ENTIRE FACILITY
Actual Date: 20000522
Action: CA725IN - Current Human Exposures Under Control, More information is needed to make a determination
NAICS Code(s): 92811
National Security
Original schedule date: 20000522
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: ENTIRE FACILITY
Actual Date: 20000522

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Action: CA725IN - Current Human Exposures Under Control, More information is needed to make a determination
NAICS Code(s): 92811
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: ENTIRE FACILITY
Actual Date: 19900924
Action: CA250 - CMS Imposition
NAICS Code(s): 92811
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: OU #1
Actual Date: 19900924
Action: CA600GW - Stabilization Measures Implemented, Groundwater extraction and treatment
NAICS Code(s): 92811
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: ENTIRE FACILITY
Actual Date: 19900924
Action: CA100 - RFI Imposition
NAICS Code(s): 92811
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: OU #1
Actual Date: 19900924
Action: CA100 - RFI Imposition
NAICS Code(s): 92811
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA1570024504
EPA Region: 9
Area Name: OU #1
Actual Date: 19900924
Action: CA600SR - Stabilization Measures Implemented, Primary measure is source removal and/or treatment
NAICS Code(s): 92811
National Security
Original schedule date: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Schedule end date: Not reported

RCRA-TSDF:

Date form received by agency:	02/29/2016
Facility name:	EDWARDS AIR FORCE BASE
Facility address:	446 N. ROSAMOND BLVD BLDG 4916 EDWARD, CA 93524
EPA ID:	CA1570024504
Mailing address:	N. ROSAMOND BLVD. STE A BLDG 3735 EDWARD, CA 93524
Contact:	MARC G MINNECI
Contact address:	N. ROSAMOND BLVD. STE A BLDG 3735 EDWARD, CA 93524
Contact country:	US
Contact telephone:	(661) 277-1478
Contact email:	MARC.MINNECI@US.AF.MIL
EPA Region:	09
Land type:	Federal
Classification:	TSDF
Description:	Handler is engaged in the treatment, storage or disposal of hazardous waste
Classification:	Large Quantity Generator
Description:	Handler: generates 1,000 kg or more of hazardous waste during any calendar month; or generates more than 1 kg of acutely hazardous waste during any calendar month; or generates more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month; or generates 1 kg or less of acutely hazardous waste during any calendar month, and accumulates more than 1 kg of acutely hazardous waste at any time; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates more than 100 kg of that material at any time

Owner/Operator Summary:

Owner/operator name:	EDWARDS AFB
Owner/operator address:	Not reported Not reported
Owner/operator country:	Not reported
Owner/operator telephone:	Not reported
Legal status:	Federal
Owner/Operator Type:	Operator
Owner/Op start date:	01/01/1950
Owner/Op end date:	Not reported

Owner/operator name:	EDWARDS AIR FORCE BASE
Owner/operator address:	N. ROSAMOND BLVD. STE A BLDG 3735 EDWARD, CA 93524
Owner/operator country:	US
Owner/operator telephone:	(661) 277-1401
Legal status:	Federal
Owner/Operator Type:	Owner
Owner/Op start date:	01/01/1950

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Owner/Op end date: Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	Yes
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Universal Waste Summary:

Waste type: E
Accumulated waste on-site: Yes
Generated waste on-site: No

Waste type: Batteries
Accumulated waste on-site: Yes
Generated waste on-site: No

Waste type: Lamps
Accumulated waste on-site: Yes
Generated waste on-site: No

Waste type: Thermostats
Accumulated waste on-site: Yes
Generated waste on-site: No

. Waste code: 122
. Waste name: 122

. Waste code: 131
. Waste name: 131

. Waste code: 132
. Waste name: 132

. Waste code: 133
. Waste name: 133

. Waste code: 134
. Waste name: 134

. Waste code: 135
. Waste name: 135

. Waste code: 141
. Waste name: 141

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste code: 151
. Waste name: 151

. Waste code: 172
. Waste name: 172

. Waste code: 181
. Waste name: 181

. Waste code: 212
. Waste name: 212

. Waste code: 213
. Waste name: 213

. Waste code: 214
. Waste name: 214

. Waste code: 223
. Waste name: 223

. Waste code: 241
. Waste name: 241

. Waste code: 252
. Waste name: 252

. Waste code: 281
. Waste name: 281

. Waste code: 291
. Waste name: 291

. Waste code: 331
. Waste name: 331

. Waste code: 342
. Waste name: 342

. Waste code: 343
. Waste name: 343

. Waste code: 352
. Waste name: 352

. Waste code: 512
. Waste name: 512

. Waste code: 551
. Waste name: 551

. Waste code: 561
. Waste name: 561

. Waste code: 611
. Waste name: 611

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste code: 612
. Waste name: 612

. Waste code: 741
. Waste name: 741

. Waste code: 791
. Waste name: 791

. Waste code: 792
. Waste name: 792

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

. Waste code: D003
. Waste name: REACTIVE WASTE

. Waste code: D004
. Waste name: ARSENIC

. Waste code: D005
. Waste name: BARIUM

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D010
. Waste name: SELENIUM

. Waste code: D011
. Waste name: SILVER

. Waste code: D018
. Waste name: BENZENE

. Waste code: D019
. Waste name: CARBON TETRACHLORIDE

. Waste code: D020
. Waste name: CHLORDANE

. Waste code: D022
. Waste name: CHLOROFORM

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLORETHYLENE

. Waste code: F001
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLORETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F002
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: P012
. Waste name: ARSENIC OXIDE AS2O3 (OR) ARSENIC TRIOXIDE

. Waste code: P105
. Waste name: SODIUM AZIDE

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste code: U001
. Waste name: ACETALDEHYDE (I) (OR) ETHANAL (I)

. Waste code: U002
. Waste name: 2-PROPANONE (I) (OR) ACETONE (I)

. Waste code: U003
. Waste name: ACETONITRILE (I,T)

. Waste code: U031
. Waste name: 1-BUTANOL (I) (OR) N-BUTYL ALCOHOL (I)

. Waste code: U034
. Waste name: ACETALDEHYDE, TRICHLORO- (OR) CHLORAL

. Waste code: U041
. Waste name: EPICHLOROHYDRIN (OR) OXIRANE, (CHLOROMETHYL)-

. Waste code: U044
. Waste name: CHLOROFORM (OR) METHANE, TRICHLORO-

. Waste code: U056
. Waste name: BENZENE, HEXAHYDRO- (I) (OR) CYCLOHEXANE (I)

. Waste code: U057
. Waste name: CYCLOHEXANONE (I)

. Waste code: U070
. Waste name: BENZENE, 1,2-DICHLORO- (OR) O-DICHLOROBENZENE

. Waste code: U080
. Waste name: METHANE, DICHLORO- (OR) METHYLENE CHLORIDE

. Waste code: U122
. Waste name: FORMALDEHYDE

. Waste code: U128
. Waste name: 1,3-BUTADIENE, 1,1,2,3,4,4-HEXACHLORO- (OR) HEXACHLOROBUTADIENE

. Waste code: U133
. Waste name: HYDRAZINE (R,T)

. Waste code: U134
. Waste name: HYDROFLUORIC ACID (C,T) (OR) HYDROGEN FLUORIDE (C,T)

. Waste code: U140
. Waste name: 1-PROPANOL, 2-METHYL- (I,T) (OR) ISOBUTYL ALCOHOL (I,T)

. Waste code: U144
. Waste name: ACETIC ACID, LEAD(2+) SALT (OR) LEAD ACETATE

. Waste code: U154
. Waste name: METHANOL (I) (OR) METHYL ALCOHOL (I)

. Waste code: U159
. Waste name: 2-BUTANONE (I,T) (OR) METHYL ETHYL KETONE (MEK) (I,T)

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste code: U182
. Waste name: 1,3,5-TRIOXANE, 2,4,6-TRIMETHYL- (OR) PARALDEHYDE

. Waste code: U188
. Waste name: PHENOL

. Waste code: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO- (OR) METHYL CHLOROFORM

. Waste code: U228
. Waste name: ETHENE, TRICHLORO- (OR) TRICHLOROETHYLENE

. Waste code: U239
. Waste name: BENZENE, DIMETHYL- (I,T) (OR) XYLENE (I)

Historical Generators:
Date form received by agency: 03/01/2014
Site name: EDWARDS AIR FORCE BASE
Classification: Large Quantity Generator

. Waste code: 121
. Waste name: 121

. Waste code: 122
. Waste name: 122

. Waste code: 123
. Waste name: 123

. Waste code: 131
. Waste name: 131

. Waste code: 132
. Waste name: 132

. Waste code: 133
. Waste name: 133

. Waste code: 134
. Waste name: 134

. Waste code: 135
. Waste name: 135

. Waste code: 141
. Waste name: 141

. Waste code: 151
. Waste name: 151

. Waste code: 162
. Waste name: 162

. Waste code: 171
. Waste name: 171

. Waste code: 172

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste name: 172

. Waste code: 181
. Waste name: 181

. Waste code: 211
. Waste name: 211

. Waste code: 212
. Waste name: 212

. Waste code: 213
. Waste name: 213

. Waste code: 214
. Waste name: 214

. Waste code: 221
. Waste name: 221

. Waste code: 222
. Waste name: 222

. Waste code: 223
. Waste name: 223

. Waste code: 241
. Waste name: 241

. Waste code: 251
. Waste name: 251

. Waste code: 252
. Waste name: 252

. Waste code: 261
. Waste name: 261

. Waste code: 271
. Waste name: 271

. Waste code: 272
. Waste name: 272

. Waste code: 281
. Waste name: 281

. Waste code: 291
. Waste name: 291

. Waste code: 311
. Waste name: 311

. Waste code: 321
. Waste name: 321

. Waste code: 322

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste name: 322

. Waste code: 331
. Waste name: 331

. Waste code: 341
. Waste name: 341

. Waste code: 342
. Waste name: 342

. Waste code: 343
. Waste name: 343

. Waste code: 351
. Waste name: 351

. Waste code: 352
. Waste name: 352

. Waste code: 451
. Waste name: 451

. Waste code: 461
. Waste name: 461

. Waste code: 491
. Waste name: 491

. Waste code: 511
. Waste name: 511

. Waste code: 512
. Waste name: 512

. Waste code: 513
. Waste name: 513

. Waste code: 541
. Waste name: 541

. Waste code: 551
. Waste name: 551

. Waste code: 561
. Waste name: 561

. Waste code: 581
. Waste name: 581

. Waste code: 611
. Waste name: 611

. Waste code: 612
. Waste name: 612

. Waste code: 711

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste name: 711

. Waste code: 721
. Waste name: 721

. Waste code: 722
. Waste name: 722

. Waste code: 723
. Waste name: 723

. Waste code: 724
. Waste name: 724

. Waste code: 725
. Waste name: 725

. Waste code: 726
. Waste name: 726

. Waste code: 727
. Waste name: 727

. Waste code: 728
. Waste name: 728

. Waste code: 731
. Waste name: 731

. Waste code: 741
. Waste name: 741

. Waste code: 751
. Waste name: 751

. Waste code: 791
. Waste name: 791

. Waste code: 792
. Waste name: 792

. Waste code: 801
. Waste name: 801

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

. Waste code: D003
. Waste name: REACTIVE WASTE

. Waste code: D004
. Waste name: ARSENIC

. Waste code: D005

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste name: BARIUM

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D009
. Waste name: MERCURY

. Waste code: D011
. Waste name: SILVER

. Waste code: D018
. Waste name: BENZENE

. Waste code: D019
. Waste name: CARBON TETRACHLORIDE

. Waste code: D022
. Waste name: CHLOROFORM

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D037
. Waste name: PENTACHLOROPHENOL

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLORETHYLENE

. Waste code: F001
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLORETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F002
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND

EDWARDS AIR FORCE BASE (Continued) **1000155217**

SPENT SOLVENT MIXTURES.

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: U001
. Waste name: ACETALDEHYDE (I) (OR) ETHANAL (I)

. Waste code: U031
. Waste name: 1-BUTANOL (I) (OR) N-BUTYL ALCOHOL (I)

. Waste code: U056
. Waste name: BENZENE, HEXAHYDRO- (I) (OR) CYCLOHEXANE (I)

Date form received by agency: 09/11/2012
Site name: EDWARDS AIR FORCE BASE
Classification: Large Quantity Generator

. Waste code: 122
. Waste name: 122

. Waste code: 132
. Waste name: 132

. Waste code: 134
. Waste name: 134

. Waste code: 135
. Waste name: 135

. Waste code: 141
. Waste name: 141

. Waste code: 151
. Waste name: 151

. Waste code: 172
. Waste name: 172

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste code: 181
. Waste name: 181

. Waste code: 212
. Waste name: 212

. Waste code: 213
. Waste name: 213

. Waste code: 214
. Waste name: 214

. Waste code: 221
. Waste name: 221

. Waste code: 223
. Waste name: 223

. Waste code: 261
. Waste name: 261

. Waste code: 281
. Waste name: 281

. Waste code: 331
. Waste name: 331

. Waste code: 343
. Waste name: 343

. Waste code: 351
. Waste name: 351

. Waste code: 352
. Waste name: 352

. Waste code: 551
. Waste name: 551

. Waste code: 614
. Waste name: 614

. Waste code: 741
. Waste name: 741

. Waste code: 791
. Waste name: 791

. Waste code: 792
. Waste name: 792

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste code: D003
. Waste name: REACTIVE WASTE

. Waste code: D005
. Waste name: BARIUM

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D009
. Waste name: MERCURY

. Waste code: D011
. Waste name: SILVER

. Waste code: D018
. Waste name: BENZENE

. Waste code: D019
. Waste name: CARBON TETRACHLORIDE

. Waste code: D022
. Waste name: CHLOROFORM

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D037
. Waste name: PENTACHLOROPHENOL

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLORETHYLENE

. Waste code: F002
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT

EDWARDS AIR FORCE BASE (Continued) **1000155217**

MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: P001
. Waste name: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3% (OR) WARFARIN, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%

. Waste code: P048
. Waste name: 2,4-DINITROPHENOL (OR) PHENOL, 2,4-DINITRO-

. Waste code: P077
. Waste name: BENZENAMINE, 4-NITRO- (OR) P-NITROANILINE

. Waste code: U002
. Waste name: 2-PROPANONE (I) (OR) ACETONE (I)

. Waste code: U003
. Waste name: ACETONITRILE (I,T)

. Waste code: U031
. Waste name: 1-BUTANOL (I) (OR) N-BUTYL ALCOHOL (I)

. Waste code: U037
. Waste name: BENZENE, CHLORO- (OR) CHLOROBENZENE

. Waste code: U042
. Waste name: 2-CHLOROETHYL VINYL ETHER (OR) ETHENE, (2-CHLOROETHOXY)-

. Waste code: U057
. Waste name: CYCLOHEXANONE (I)

. Waste code: U070
. Waste name: BENZENE, 1,2-DICHLORO- (OR) O-DICHLOROBENZENE

. Waste code: U076
. Waste name: ETHANE, 1,1-DICHLORO- (OR) ETHYLIDENE DICHLORIDE

. Waste code: U078
. Waste name: 1,1-DICHLOROETHYLENE (OR) ETHENE, 1,1-DICHLORO-

. Waste code: U084
. Waste name: 1,3-DICHLOROPROPENE (OR) 1-PROPENE, 1,3-DICHLORO-

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste code: U112
. Waste name: ACETIC ACID, ETHYL ESTER (I) (OR) ETHYL ACETATE (I)

. Waste code: U133
. Waste name: HYDRAZINE (R,T)

. Waste code: U134
. Waste name: HYDROFLUORIC ACID (C,T) (OR) HYDROGEN FLUORIDE (C,T)

. Waste code: U140
. Waste name: 1-PROPANOL, 2-METHYL- (I,T) (OR) ISOBUTYL ALCOHOL (I,T)

. Waste code: U154
. Waste name: METHANOL (I) (OR) METHYL ALCOHOL (I)

. Waste code: U159
. Waste name: 2-BUTANONE (I,T) (OR) METHYL ETHYL KETONE (MEK) (I,T)

. Waste code: U161
. Waste name: 4-METHYL-2-PENTANONE (I) (OR) METHYL ISOBUTYL KETONE (I) (OR) PENTANOL, 4-METHYL-

. Waste code: U162
. Waste name: 2-PROPENOIC ACID, 2-METHYL-, METHYL ESTER (I,T) (OR) METHYL METHACRYLATE (I,T)

. Waste code: U220
. Waste name: BENZENE, METHYL- (OR) TOLUENE

. Waste code: U239
. Waste name: BENZENE, DIMETHYL- (I,T) (OR) XYLENE (I)

Date form received by agency: 07/13/2010
Site name: EDWARDS AIR FORCE BASE
Classification: Large Quantity Generator

. Waste code: 122
. Waste name: 122

. Waste code: 132
. Waste name: 132

. Waste code: 133
. Waste name: 133

. Waste code: 134
. Waste name: 134

. Waste code: 135
. Waste name: 135

. Waste code: 141
. Waste name: 141

. Waste code: 151
. Waste name: 151

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste code: 172
. Waste name: 172

. Waste code: 181
. Waste name: 181

. Waste code: 212
. Waste name: 212

. Waste code: 213
. Waste name: 213

. Waste code: 214
. Waste name: 214

. Waste code: 223
. Waste name: 223

. Waste code: 261
. Waste name: 261

. Waste code: 331
. Waste name: 331

. Waste code: 343
. Waste name: 343

. Waste code: 351
. Waste name: 351

. Waste code: 352
. Waste name: 352

. Waste code: 551
. Waste name: 551

. Waste code: 725
. Waste name: 725

. Waste code: 741
. Waste name: 741

. Waste code: 791
. Waste name: 791

. Waste code: 792
. Waste name: 792

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

. Waste code: D003
. Waste name: REACTIVE WASTE

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste code: D005
. Waste name: BARIUM

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D009
. Waste name: MERCURY

. Waste code: D011
. Waste name: SILVER

. Waste code: D018
. Waste name: BENZENE

. Waste code: D019
. Waste name: CARBON TETRACHLORIDE

. Waste code: D022
. Waste name: CHLOROFORM

. Waste code: D028
. Waste name: 1,2-DICHLOROETHANE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLORETHYLENE

. Waste code: F002
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED

EDWARDS AIR FORCE BASE (Continued) **1000155217**

SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: P068
. Waste name: HYDRAZINE, METHYL- (OR) METHYL HYDRAZINE

. Waste code: P105
. Waste name: SODIUM AZIDE

. Waste code: U002
. Waste name: 2-PROPANONE (I) (OR) ACETONE (I)

. Waste code: U112
. Waste name: ACETIC ACID, ETHYL ESTER (I) (OR) ETHYL ACETATE (I)

. Waste code: U133
. Waste name: HYDRAZINE (R,T)

. Waste code: U223
. Waste name: BENZENE, 1,3-DIISOCYANATOMETHYL- (R,T) (OR) TOLUENE DIISOCYANATE (R,T)

. Waste code: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO- (OR) METHYL CHLOROFORM

. Waste code: U228
. Waste name: ETHENE, TRICHLORO- (OR) TRICHLOROETHYLENE

Date form received by agency: 02/29/2008
Site name: EDWARDS AIR FORCE BASE
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

. Waste code: D003
. Waste name: REACTIVE WASTE

. Waste code: D004
. Waste name: ARSENIC

. Waste code: D005
. Waste name: BARIUM

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D009
. Waste name: MERCURY

. Waste code: D010
. Waste name: SELENIUM

. Waste code: D011
. Waste name: SILVER

. Waste code: D012
. Waste name: ENDRIN (1,2,3,4,10,10-HEXACHLORO-1,7-EPOXY-1,4,4A,5,6,7,8,8A-OCTAHYDRO-1,4-EN O, ENDO-5,8-DIMETH-ANO-NAPHTHALENE)

. Waste code: D013
. Waste name: LINDANE (1,2,3,4,5,6-HEXA-CHLOROCYCLOHEXANE, GAMMA ISOMER)

. Waste code: D014
. Waste name: METHOXYCHLOR (1,1,1-TRICHLORO-2,2-BIS [P-METHOXYPHENYL] ETHANE)

. Waste code: D015
. Waste name: TOXAPHENE (C10 H10 CL8, TECHNICAL CHLORINATED CAMPHENE, 67-69 PERCENT CHLORINE)

. Waste code: D016
. Waste name: 2,4-D (2,4-DICHLOROPHENOXYACETIC ACID)

. Waste code: D017
. Waste name: 2,4,5-TP SILVEX (2,4,5-TRICHLOROPHENOXYPROPIONIC ACID)

. Waste code: D018
. Waste name: BENZENE

. Waste code: D019
. Waste name: CARBON TETRACHLORIDE

. Waste code: D020
. Waste name: CHLORDANE

. Waste code: D021
. Waste name: CHLOROBENZENE

. Waste code: D022
. Waste name: CHLOROFORM

. Waste code: D023
. Waste name: O-CRESOL

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste code: D024
. Waste name: M-CRESOL

. Waste code: D025
. Waste name: P-CRESOL

. Waste code: D026
. Waste name: CRESOL

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D028
. Waste name: 1,2-DICHLOROETHANE

. Waste code: D029
. Waste name: 1,1-DICHLOROETHYLENE

. Waste code: D030
. Waste name: 2,4-DINITROTOLUENE

. Waste code: D031
. Waste name: HEPTACHLOR (AND ITS EPOXIDE)

. Waste code: D032
. Waste name: HEXACHLOROBENZENE

. Waste code: D033
. Waste name: HEXACHLOROBUTADIENE

. Waste code: D034
. Waste name: HEXACHLOROETHANE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D036
. Waste name: NITROBENZENE

. Waste code: D037
. Waste name: PENTACHLOROPHENOL

. Waste code: D038
. Waste name: PYRIDINE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLORETHYLENE

. Waste code: D041
. Waste name: 2,4,5-TRICHLOROPHENOL

. Waste code: D042
. Waste name: 2,4,6-TRICHLOROPHENOL

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste code: D043
. Waste name: VINYL CHLORIDE

. Waste code: F001
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLORETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F002
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F027
. Waste name: DISCARDED UNUSED FORMULATIONS CONTAINING TRI-, TETRA-, OR PENTACHLOROPHENOL OR DISCARDED UNUSED FORMULATIONS CONTAINING COMPOUNDS DERIVED FROM THESE CHLOROPHENOLS. (THIS LISTING DOES NOT INCLUDE FORMULATIONS CONTAINING HEXACHLOROPHENE SYNTHESIZED FROM PREPURIFIED 2,4,5-TRICHLOROPHENOL AS THE SOLE COMPONENT.)

. Waste code: P001
. Waste name: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3% (OR) WARFARIN, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste code: P003
. Waste name: 2-PROPENAL (OR) ACROLEIN

. Waste code: P005
. Waste name: 2-PROPEN-1-OL (OR) ALLYL ALCOHOL

. Waste code: P012
. Waste name: ARSENIC OXIDE AS2O3 (OR) ARSENIC TRIOXIDE

. Waste code: P014
. Waste name: BENZENETHIOL (OR) THIOPHENOL

. Waste code: P027
. Waste name: 3-CHLOROPROPIONITRILE (OR) PROPANENITRILE, 3-CHLORO-

. Waste code: P028
. Waste name: BENZENE, (CHLOROMETHYL)- (OR) BENZYL CHLORIDE

. Waste code: P029
. Waste name: COPPER CYANIDE (OR) COPPER CYANIDE CU(CN)

. Waste code: P030
. Waste name: CYANIDES (SOLUBLE CYANIDE SALTS), NOT OTHERWISE SPECIFIED

. Waste code: P031
. Waste name: CYANOGEN (OR) ETHANEDINITRILE

. Waste code: P033
. Waste name: CYANOGEN CHLORIDE (OR) CYANOGEN CHLORIDE (CN)CL

. Waste code: P037
. Waste name: 2,7:3,6-DIMETHANONAPHTH[2,3-B]OXIRENE, 3,4,5,6,9,9-HEXACHLORO-1A,2,2A,3,6,6A,7,7A-OCTAHYDRO-, (1AALPHA, 2BETA, 2AALPHA, 3BETA, 6BETA, 6AALPHA, 7BETA, 7AALPHA)- (OR) DIELDRIN

. Waste code: P047
. Waste name: 4,6-DINITRO-O-CRESOL, & SALTS (OR) PHENOL, 2-METHYL-4,6-DINITRO-, & SALTS

. Waste code: P050
. Waste name: 6,9-METHANO-2,4,3-BENZODIOXATHIEPIN,6,7,8,9,10,10-HEXACHLORO-1,5,5A,6, ,9A-HEXAHYDRO-,3-OXIDE (OR) ENDOSULFAN

. Waste code: P051
. Waste name: 2,7:3,6-DIMETHANONAPHTH[2,3-B]OXIRENE, 3,4,5,6,9,9-HEXACHLORO-1A,2,2A,3,6,6A,7,7A-OCTAHYDRO-, (1AALPHA, 2BETA, 2ABETA, 3ALPHA, 6ALPHA, 6ABETA, 7BETA, 7AALPHA)- & METABOLITES (OR) ENDRIN (OR) ENDRIN, & METABOLITES

. Waste code: P056
. Waste name: FLUORINE

. Waste code: P059
. Waste name: 4,7-METHANO-1H-INDENE, 1,4,5,6,7,8,8-HEPTACHLORO-3A,4,7,7A-TETRAHYDRO- (OR) HEPTACHLOR

. Waste code: P063

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste name: HYDROCYANIC ACID (OR) HYDROGEN CYANIDE

. Waste code: P068
. Waste name: HYDRAZINE, METHYL- (OR) METHYL HYDRAZINE

. Waste code: P073
. Waste name: NICKEL CARBONYL (OR) NICKEL CARBONYL NI(CO)4, (T-4)-

. Waste code: P077
. Waste name: BENZENAMINE, 4-NITRO- (OR) P-NITROANILINE

. Waste code: P078
. Waste name: NITROGEN DIOXIDE (OR) NITROGEN OXIDE NO2

. Waste code: P098
. Waste name: POTASSIUM CYANIDE (OR) POTASSIUM CYANIDE K(CN)

. Waste code: P104
. Waste name: SILVER CYANIDE (OR) SILVER CYANIDE AG(CN)

. Waste code: P105
. Waste name: SODIUM AZIDE

. Waste code: U001
. Waste name: ACETALDEHYDE (I) (OR) ETHANAL (I)

. Waste code: U002
. Waste name: 2-PROPANONE (I) (OR) ACETONE (I)

. Waste code: U003
. Waste name: ACETONITRILE (I,T)

. Waste code: U004
. Waste name: ACETOPHENONE (OR) ETHANONE, 1-PHENYL-

. Waste code: U007
. Waste name: 2-PROPENAMIDE (OR) ACRYLAMIDE

. Waste code: U008
. Waste name: 2-PROPENOIC ACID (I) (OR) ACRYLIC ACID (I)

. Waste code: U009
. Waste name: 2-PROPENENITRILE (OR) ACRYLONITRILE

. Waste code: U012
. Waste name: ANILINE (I,T) (OR) BENZENAMINE (I,T)

. Waste code: U019
. Waste name: BENZENE (I,T)

. Waste code: U029
. Waste name: METHANE, BROMO- (OR) METHYL BROMIDE

. Waste code: U031
. Waste name: 1-BUTANOL (I) (OR) N-BUTYL ALCOHOL (I)

. Waste code: U034

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste name: ACETALDEHYDE, TRICHLORO- (OR) CHLORAL

. Waste code: U037
. Waste name: BENZENE, CHLORO- (OR) CHLOROBENZENE

. Waste code: U041
. Waste name: EPICHLOROHYDRIN (OR) OXIRANE, (CHLOROMETHYL)-

. Waste code: U042
. Waste name: 2-CHLOROETHYL VINYL ETHER (OR) ETHENE, (2-CHLOROETHOXY)-

. Waste code: U044
. Waste name: CHLOROFORM (OR) METHANE, TRICHLORO-

. Waste code: U045
. Waste name: METHANE, CHLORO- (I,T) (OR) METHYL CHLORIDE (I,T)

. Waste code: U048
. Waste name: O-CHLOROPHENOL (OR) PHENOL, 2-CHLORO-

. Waste code: U053
. Waste name: 2-BUTENAL (OR) CROTONALDEHYDE

. Waste code: U056
. Waste name: BENZENE, HEXAHYDRO- (I) (OR) CYCLOHEXANE (I)

. Waste code: U060
. Waste name: BENZENE, 1,1'-(2,2-DICHLOROETHYLIDENE)BIS[4-CHLORO- (OR) DDD

. Waste code: U061
. Waste name: BENZENE, 1,1'-(2,2,2-TRICHLOROETHYLIDENE)BIS[4-CHLORO- (OR) DDT

. Waste code: U066
. Waste name: 1,2-DIBROMO-3-CHLOROPROPANE (OR) PROPANE, 1,2-DIBROMO-3-CHLORO-

. Waste code: U067
. Waste name: ETHANE, 1,2-DIBROMO- (OR) ETHYLENE DIBROMIDE

. Waste code: U068
. Waste name: METHANE, DIBROMO- (OR) METHYLENE BROMIDE

. Waste code: U069
. Waste name: 1,2-BENZENEDICARBOXYLIC ACID, DIBUTYL ESTER (OR) DIBUTYL PHTHALATE

. Waste code: U070
. Waste name: BENZENE, 1,2-DICHLORO- (OR) O-DICHLOROBENZENE

. Waste code: U071
. Waste name: BENZENE, 1,3-DICHLORO- (OR) M-DICHLOROBENZENE

. Waste code: U072
. Waste name: BENZENE, 1,4-DICHLORO- (OR) P-DICHLOROBENZENE

. Waste code: U074
. Waste name: 1,4-DICHLORO-2-BUTENE (I,T) (OR) 2-BUTENE, 1,4-DICHLORO- (I,T)

. Waste code: U076

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste name: ETHANE, 1,1-DICHLORO- (OR) ETHYLIDENE DICHLORIDE

. Waste code: U077
. Waste name: ETHANE, 1,2-DICHLORO- (OR) ETHYLENE DICHLORIDE

. Waste code: U078
. Waste name: 1,1-DICHLOROETHYLENE (OR) ETHENE, 1,1-DICHLORO-

. Waste code: U080
. Waste name: METHANE, DICHLORO- (OR) METHYLENE CHLORIDE

. Waste code: U081
. Waste name: 2,4-DICHLOROPHENOL (OR) PHENOL, 2,4-DICHLORO-

. Waste code: U084
. Waste name: 1,3-DICHLOROPROPENE (OR) 1-PROPENE, 1,3-DICHLORO-

. Waste code: U085
. Waste name: 1,2:3,4-DIEPOXYBUTANE (I,T) (OR) 2,2'-BIOXIRANE

. Waste code: U098
. Waste name: 1,1-DIMETHYLHYDRAZINE (OR) HYDRAZINE, 1,1-DIMETHYL-

. Waste code: U101
. Waste name: 2,4-DIMETHYLPHENOL (OR) PHENOL, 2,4-DIMETHYL-

. Waste code: U103
. Waste name: DIMETHYL SULFATE (OR) SULFURIC ACID, DIMETHYL ESTER

. Waste code: U108
. Waste name: 1,4-DIETHYLENEOXIDE (OR) 1,4-DIOXANE

. Waste code: U112
. Waste name: ACETIC ACID, ETHYL ESTER (I) (OR) ETHYL ACETATE (I)

. Waste code: U121
. Waste name: METHANE, TRICHLOROFLUORO- (OR) TRICHLOROMONOFLUOROMETHANE

. Waste code: U122
. Waste name: FORMALDEHYDE

. Waste code: U123
. Waste name: FORMIC ACID (C,T)

. Waste code: U128
. Waste name: 1,3-BUTADIENE, 1,1,2,3,4,4-HEXACHLORO- (OR) HEXACHLOROBUTADIENE

. Waste code: U129
. Waste name: CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-, (1ALPHA, 2ALPHA, 3BETA, 4ALPHA, 5ALPHA, 6BETA)- (OR) LINDANE

. Waste code: U131
. Waste name: ETHANE, HEXACHLORO- (OR) HEXACHLOROETHANE

. Waste code: U134
. Waste name: HYDROFLUORIC ACID (C,T) (OR) HYDROGEN FLUORIDE (C,T)

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste code: U135
. Waste name: HYDROGEN SULFIDE (OR) HYDROGEN SULFIDE H2S

. Waste code: U138
. Waste name: METHANE, IODO- (OR) METHYL IODIDE

. Waste code: U140
. Waste name: 1-PROPANOL, 2-METHYL- (I,T) (OR) ISOBUTYL ALCOHOL (I,T)

. Waste code: U144
. Waste name: ACETIC ACID, LEAD(2+) SALT (OR) LEAD ACETATE

. Waste code: U147
. Waste name: 2,5-FURANDIONE (OR) MALEIC ANHYDRIDE

. Waste code: U149
. Waste name: MALONONITRILE (OR) PROPANEDINITRILE

. Waste code: U150
. Waste name: L-PHENYLALANINE, 4-[BIS(2-CHLOROETHYL)AMINO]- (OR) MELPHALAN

. Waste code: U151
. Waste name: MERCURY

. Waste code: U152
. Waste name: 2-PROPENENITRILE, 2-METHYL- (I,T) (OR) METHACRYLONITRILE (I,T)

. Waste code: U154
. Waste name: METHANOL (I) (OR) METHYL ALCOHOL (I)

. Waste code: U159
. Waste name: 2-BUTANONE (I,T) (OR) METHYL ETHYL KETONE (MEK) (I,T)

. Waste code: U161
. Waste name: 4-METHYL-2-PENTANONE (I) (OR) METHYL ISOBUTYL KETONE (I) (OR) PENTANOL, 4-METHYL-

. Waste code: U162
. Waste name: 2-PROPENOIC ACID, 2-METHYL-, METHYL ESTER (I,T) (OR) METHYL METHACRYLATE (I,T)

. Waste code: U165
. Waste name: NAPHTHALENE

. Waste code: U169
. Waste name: BENZENE, NITRO- (OR) NITROBENZENE (I,T)

. Waste code: U170
. Waste name: P-NITROPHENOL (I,T) (OR) PHENOL, 4-NITRO-

. Waste code: U171
. Waste name: 2-NITROPROPANE (I,T) (OR) PROPANE, 2-NITRO- (I,T)

. Waste code: U172
. Waste name: 1-BUTANAMINE, N-BUTYL-N-NITROSO- (OR) N-NITROSODI-N-BUTYLAMINE

. Waste code: U182

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste name: 1,3,5-TRIOXANE, 2,4,6-TRIMETHYL- (OR) PARALDEHYDE

. Waste code: U184
. Waste name: ETHANE, PENTACHLORO- (OR) PENTACHLOROETHANE

. Waste code: U188
. Waste name: PHENOL

. Waste code: U194
. Waste name: 1-PROPANAMINE (I,T) (OR) N-PROPYLAMINE (I,T)

. Waste code: U196
. Waste name: PYRIDINE

. Waste code: U208
. Waste name: 1,1,1,2-TETRACHLOROETHANE (OR) ETHANE, 1,1,1,2-TETRACHLORO-

. Waste code: U209
. Waste name: 1,1,2,2-TETRACHLOROETHANE (OR) ETHANE, 1,1,2,2-TETRACHLORO-

. Waste code: U210
. Waste name: ETHENE, TETRACHLORO- (OR) TETRACHLOROETHYLENE

. Waste code: U211
. Waste name: CARBON TETRACHLORIDE (OR) METHANE, TETRACHLORO-

. Waste code: U213
. Waste name: FURAN, TETRAHYDRO-(I) (OR) TETRAHYDROFURAN (I)

. Waste code: U219
. Waste name: THIOUREA

. Waste code: U220
. Waste name: BENZENE, METHYL- (OR) TOLUENE

. Waste code: U221
. Waste name: BENZENEDIAMINE, AR-METHYL- (OR) TOLUENEDIAMINE

. Waste code: U222
. Waste name: BENZENAMINE, 2-METHYL-, HYDROCHLORIDE (OR) O-TOLUIDINE HYDROCHLORIDE

. Waste code: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO- (OR) METHYL CHLOROFORM

. Waste code: U227
. Waste name: 1,1,2-TRICHLOROETHANE (OR) ETHANE, 1,1,2-TRICHLORO-

. Waste code: U228
. Waste name: ETHENE, TRICHLORO- (OR) TRICHLOROETHYLENE

. Waste code: U239
. Waste name: BENZENE, DIMETHYL- (I,T) (OR) XYLENE (I)

Date form received by agency: 02/15/2006
Site name: EDWARDS AIR FORCE BASE
Classification: Large Quantity Generator

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste code: 121
. Waste name: 121

. Waste code: 122
. Waste name: 122

. Waste code: 123
. Waste name: 123

. Waste code: 132
. Waste name: 132

. Waste code: 133
. Waste name: 133

. Waste code: 134
. Waste name: 134

. Waste code: 135
. Waste name: 135

. Waste code: 141
. Waste name: 141

. Waste code: 151
. Waste name: 151

. Waste code: 172
. Waste name: 172

. Waste code: 181
. Waste name: 181

. Waste code: 212
. Waste name: 212

. Waste code: 213
. Waste name: 213

. Waste code: 214
. Waste name: 214

. Waste code: 221
. Waste name: 221

. Waste code: 223
. Waste name: 223

. Waste code: 241
. Waste name: 241

. Waste code: 261
. Waste name: 261

. Waste code: 272
. Waste name: 272

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste code: 281
. Waste name: 281

. Waste code: 291
. Waste name: 291

. Waste code: 322
. Waste name: 322

. Waste code: 331
. Waste name: 331

. Waste code: 341
. Waste name: 341

. Waste code: 342
. Waste name: 342

. Waste code: 343
. Waste name: 343

. Waste code: 351
. Waste name: 351

. Waste code: 352
. Waste name: 352

. Waste code: 491
. Waste name: 491

. Waste code: 512
. Waste name: 512

. Waste code: 541
. Waste name: 541

. Waste code: 551
. Waste name: 551

. Waste code: 561
. Waste name: 561

. Waste code: 611
. Waste name: 611

. Waste code: 612
. Waste name: 612

. Waste code: 725
. Waste name: 725

. Waste code: 741
. Waste name: 741

. Waste code: 791
. Waste name: 791

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

. Waste code: D003
. Waste name: REACTIVE WASTE

. Waste code: D005
. Waste name: BARIUM

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D009
. Waste name: MERCURY

. Waste code: D011
. Waste name: SILVER

. Waste code: D018
. Waste name: BENZENE

. Waste code: D019
. Waste name: CARBON TETRACHLORIDE

. Waste code: D022
. Waste name: CHLOROFORM

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D028
. Waste name: 1,2-DICHLOROETHANE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLORETHYLENE

. Waste code: F001
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLORETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF

EDWARDS AIR FORCE BASE (Continued) **1000155217**

ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F002
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: P073
. Waste name: NICKEL CARBONYL (OR) NICKEL CARBONYL NI(CO)4, (T-4)-

. Waste code: U044
. Waste name: CHLOROFORM (OR) METHANE, TRICHLORO-

. Waste code: U069
. Waste name: 1,2-BENZENEDICARBOXYLIC ACID, DIBUTYL ESTER (OR) DIBUTYL PHTHALATE

. Waste code: U151
. Waste name: MERCURY

. Waste code: U161
. Waste name: 4-METHYL-2-PENTANONE (I) (OR) METHYL ISOBUTYL KETONE (I) (OR) PENTANOL, 4-METHYL-

. Waste code: U188
. Waste name: PHENOL

. Waste code: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO- (OR) METHYL CHLOROFORM

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste code: U239
. Waste name: BENZENE, DIMETHYL- (I,T) (OR) XYLENE (I)

Date form received by agency: 02/26/2004
Site name: EDWARDS AIR FORCE BASE
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

. Waste code: D003
. Waste name: REACTIVE WASTE

. Waste code: D004
. Waste name: ARSENIC

. Waste code: D005
. Waste name: BARIUM

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D009
. Waste name: MERCURY

. Waste code: D010
. Waste name: SELENIUM

. Waste code: D011
. Waste name: SILVER

. Waste code: D018
. Waste name: BENZENE

. Waste code: D019
. Waste name: CARBON TETRACHLORIDE

. Waste code: D022
. Waste name: CHLOROFORM

. Waste code: D026
. Waste name: CRESOL

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D028
. Waste name: 1,2-DICHLOROETHANE

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLORETHYLENE

. Waste code: F001
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLORETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F002
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F004
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: CRESOLS, CRESYLIC ACID, AND NITROBENZENE; AND THE STILL BOTTOMS FROM THE RECOVERY OF THESE SOLVENTS; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS

EDWARDS AIR FORCE BASE (Continued) **1000155217**

LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F006
. Waste name: WASTEWATER TREATMENT SLUDGES FROM ELECTROPLATING OPERATIONS, EXCEPT FROM THE FOLLOWING PROCESSES: (1) SULFURIC ACID ANODIZING OF ALUMINUM; (2) TIN PLATING ON CARBON STEEL; (3) ZINC PLATING (SEGREGATED BASIS) ON CARBON STEEL; (4) ALUMINUM OR ZINC-ALUMINUM PLATING ON CARBON STEEL; (5) CLEANING/STRIPPING ASSOCIATED WITH TIN, ZINC, AND ALUMINUM PLATING ON CARBON STEEL; AND (6) CHEMICAL ETCHING AND MILLING OF ALUMINUM.

. Waste code: P068
. Waste name: HYDRAZINE, METHYL- (OR) METHYL HYDRAZINE

. Waste code: U008
. Waste name: 2-PROPENOIC ACID (I) (OR) ACRYLIC ACID (I)

. Waste code: U009
. Waste name: 2-PROPENENITRILE (OR) ACRYLONITRILE

. Waste code: U041
. Waste name: EPICHLOROHYDRIN (OR) OXIRANE, (CHLOROMETHYL)-

. Waste code: U053
. Waste name: 2-BUTENAL (OR) CROTONALDEHYDE

. Waste code: U077
. Waste name: ETHANE, 1,2-DICHLORO- (OR) ETHYLENE DICHLORIDE

. Waste code: U098
. Waste name: 1,1-DIMETHYLHYDRAZINE (OR) HYDRAZINE, 1,1-DIMETHYL-

. Waste code: U103
. Waste name: DIMETHYL SULFATE (OR) SULFURIC ACID, DIMETHYL ESTER

. Waste code: U108
. Waste name: 1,4-DIETHYLENEOXIDE (OR) 1,4-DIOXANE

. Waste code: U121
. Waste name: METHANE, TRICHLOROFLUORO- (OR) TRICHLOROMONOFLUOROMETHANE

. Waste code: U133
. Waste name: HYDRAZINE (R,T)

. Waste code: U134
. Waste name: HYDROFLUORIC ACID (C,T) (OR) HYDROGEN FLUORIDE (C,T)

. Waste code: U152
. Waste name: 2-PROPENENITRILE, 2-METHYL- (I,T) (OR) METHACRYLONITRILE (I,T)

. Waste code: U159
. Waste name: 2-BUTANONE (I,T) (OR) METHYL ETHYL KETONE (MEK) (I,T)

. Waste code: U162
. Waste name: 2-PROPENOIC ACID, 2-METHYL-, METHYL ESTER (I,T) (OR) METHYL METHACRYLATE (I,T)

EDWARDS AIR FORCE BASE (Continued) **1000155217**

. Waste code: U165
. Waste name: NAPHTHALENE

. Waste code: U170
. Waste name: P-NITROPHENOL (I,T) (OR) PHENOL, 4-NITRO-

. Waste code: U196
. Waste name: PYRIDINE

. Waste code: U220
. Waste name: BENZENE, METHYL- (OR) TOLUENE

. Waste code: U228
. Waste name: ETHENE, TRICHLORO- (OR) TRICHLOROETHYLENE

. Waste code: U359
. Waste name: ETHANOL, 2-ETHOXY- (OR) ETHYLENE GLYCOL MONOETHYL ETHER

Date form received by agency: 03/29/2002
Site name: EDWARDS AIRFORCE BASE
Classification: Large Quantity Generator

Date form received by agency: 10/12/2000
Site name: EDWARDS AIR FORCE BASE
Classification: Large Quantity Generator

Date form received by agency: 03/04/1999
Site name: EDWARDS AIR FORCE BASE
Classification: Large Quantity Generator

Date form received by agency: 02/02/1998
Site name: USAF EDWARDS AFB
Classification: Large Quantity Generator

Date form received by agency: 09/01/1996
Site name: USAF EDWARDS AFB
Classification: Large Quantity Generator

Date form received by agency: 03/27/1996
Site name: USAF EDWARDS
Classification: Large Quantity Generator

Date form received by agency: 03/29/1994
Site name: USAF FLIGHT TEST CTR EDWARDS AFB
Classification: Large Quantity Generator

Date form received by agency: 04/25/1992
Site name: EDWARDS AIR FORCE BASE
Classification: Large Quantity Generator

Date form received by agency: 04/27/1990
Site name: EDWARDS AFB/ EXPLOSIVE ORDINACE
Classification: Large Quantity Generator

Date form received by agency: 08/18/1980
Site name: USAF EDWARDS AFB
Classification: Large Quantity Generator

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Date form received by agency: 08/18/1980
Site name: USAF EDWARDS AFB
Classification: Large Quantity Generator

Biennial Reports:

Last Biennial Reporting Year: 2013

Annual Waste Handled:

Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.
Amount (Lbs): 163664

Waste code: D002
Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.
Amount (Lbs): 489910

Waste code: D003
Waste name: A MATERIAL IS CONSIDERED TO BE A REACTIVE HAZARDOUS WASTE IF IT IS NORMALLY UNSTABLE, REACTS VIOLENTLY WITH WATER, GENERATES TOXIC GASES WHEN EXPOSED TO WATER OR CORROSIVE MATERIALS, OR IF IT IS CAPABLE OF DETONATION OR EXPLOSION WHEN EXPOSED TO HEAT OR A FLAME. ONE EXAMPLE OF SUCH WASTE WOULD BY WASTE GUNPOWDER.
Amount (Lbs): 25

Waste code: D005
Waste name: BARIUM
Amount (Lbs): 24318

Waste code: D006
Waste name: CADMIUM
Amount (Lbs): 46967

Waste code: D007
Waste name: CHROMIUM
Amount (Lbs): 132544

Waste code: D008
Waste name: LEAD
Amount (Lbs): 128597

Waste code: D011
Waste name: SILVER
Amount (Lbs): 8988

Waste code: D018

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Waste name: BENZENE
Amount (Lbs): 158716

Waste code: D019
Waste name: CARBON TETRACHLORIDE
Amount (Lbs): 962

Waste code: D022
Waste name: CHLOROFORM
Amount (Lbs): 962

Waste code: D035
Waste name: METHYL ETHYL KETONE
Amount (Lbs): 17056

Waste code: D037
Waste name: PENTRACHLOROPHENOL
Amount (Lbs): 69380

Waste code: D039
Waste name: TETRACHLOROETHYLENE
Amount (Lbs): 1094

Waste code: D040
Waste name: TRICHLOROETHYLENE
Amount (Lbs): 3680

Waste code: F002
Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2-TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE LISTED IN F001, F004, OR F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
Amount (Lbs): 258

Waste code: F003
Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
Amount (Lbs): 299

Waste code: F005
Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF

EDWARDS AIR FORCE BASE (Continued) **1000155217**

ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
Amount (Lbs): 3895

Waste code: P001
Waste name: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%
Amount (Lbs): 13

Waste code: P048
Waste name: 2,4-DINITROPHENOL
Amount (Lbs): 3

Waste code: P077
Waste name: BENZENAMINE, 4-NITRO-
Amount (Lbs): 13

Waste code: U003
Waste name: ACETONITRILE (I,T)
Amount (Lbs): 22

Waste code: U057
Waste name: CYCLOHEXANONE (I)
Amount (Lbs): 22

Waste code: U070
Waste name: BENZENE, 1,2-DICHLORO-
Amount (Lbs): 14

Waste code: U154
Waste name: METHANOL (I)
Amount (Lbs): 22

Waste code: U239
Waste name: BENZENE, DIMETHYL- (I,T)
Amount (Lbs): 22

Corrective Action Summary:
Event date: 04/01/1984
Event: CA049SI

Event date: 10/01/1986
Event: CA029SF

Event date: 10/01/1986
Event: CA049RE

Event date: 11/01/1986
Event: CA049PA

Event date: 11/01/1986
Event: CA Prioritization, Facility or area was assigned a high corrective action priority.

Event date: 09/24/1990

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Event: CMS Imposition

Event date: 09/24/1990
Event: Stabilization Measures Implemented, Primary measure is source removal and/or treatment (e.g., soil or waste excavation, in-situ soil treatment, off-site treatment).

Event date: 09/24/1990
Event: Stabilization Measures Implemented, Groundwater extraction and treatment (e.g., to achieve groundwater containment, to achieve MCL).

Event date: 09/24/1990
Event: RFI Imposition

Event date: 05/01/1991
Event: RFA Completed, Assessment was an RFA.

Event date: 09/01/1993
Event: RFA Completed

Event date: 09/01/1993
Event: RFA Determination Of Need For An RFI, RFI is Necessary;

Event date: 09/01/1993
Event: RFA Completed, Assessment was an RFA.

Event date: 08/19/1994
Event: CA Prioritization, Facility or area was assigned a medium corrective action priority.

Event date: 08/19/1994
Event: CA Responsibility Referred To A Non-RCRA Federal Authority, Corrective Action at the facility or area referred to CERCLA.

Event date: 04/01/1996
Event: RFI Approved

Event date: 12/01/1997
Event: Stabilization Construction Completed

Event date: 04/06/1998
Event: Igration of Contaminated Groundwater under Control, Unacceptable migration of contaminated groundwater is observed or expected.

Event date: 04/06/1998
Event: Stabilization Measures Evaluation,This facility is not amenable to stabilization activity because of a lack of technical data. An evaluation has been completed, but further data is necessary to determine stabilization measures, feasibility or appropriateness. This status should be changed when data becomes available.

Event date: 04/06/1998
Event: CA Responsibility Referred To A Non-RCRA Federal Authority

Event date: 04/06/1998
Event: Igration of Contaminated Groundwater under Control, Unacceptable migration of contaminated groundwater is observed or expected.

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Event date: 04/06/1998
Event: Current Human Exposures under Control, Current human exposures are NOT under control.

Event date: 04/06/1998
Event: Current Human Exposures under Control, Current human exposures are NOT under control.

Event date: 05/22/2000
Event: Igration of Contaminated Groundwater under Control, More information is needed to make a determination.

Event date: 05/22/2000
Event: Igration of Contaminated Groundwater under Control, More information is needed to make a determination.

Event date: 05/22/2000
Event: Current Human Exposures under Control, More information is needed to make a determination.

Event date: 05/22/2000
Event: Current Human Exposures under Control, More information is needed to make a determination.

Event date: 06/18/2002
Event: Igration of Contaminated Groundwater under Control, Yes, Migration of Contaminated Groundwater Under Control has been verified. Based on a review of information contained in the EI determination, it has been determined that migration of contaminated groundwater is under control at the facility. Specifically, this determination indicates that the migration of contaminated groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the existing area of contaminated groundwater. This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

Event date: 06/18/2002
Event: Igration of Contaminated Groundwater under Control, Yes, Migration of Contaminated Groundwater Under Control has been verified. Based on a review of information contained in the EI determination, it has been determined that migration of contaminated groundwater is under control at the facility. Specifically, this determination indicates that the migration of contaminated groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the existing area of contaminated groundwater. This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

Event date: 08/03/2004
Event: Current Human Exposures under Control, Yes, Current Human Exposures Under Control has been verified. Based on a review of information contained in the EI determination, current human exposures are expected to be under control at the facility under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Event date: 08/03/2004
Event: Current Human Exposures under Control, Yes, Current Human Exposures Under Control has been verified. Based on a review of information contained in the EI determination, current human exposures are expected to be under control at the facility under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: HW Management System - Definitions
Date violation determined: 11/18/2014
Date achieved compliance: 11/20/2014
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 11/20/2014
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 262.10-12.A
Area of violation: Generators - General
Date violation determined: 05/04/1994
Date achieved compliance: 08/16/1994
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 05/12/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 4700
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 268 ALL
Area of violation: LDR - General
Date violation determined: 05/04/1994
Date achieved compliance: 08/16/1994
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 05/12/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 4700
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 264.10-18.B
Area of violation: TSD - General
Date violation determined: 05/04/1994
Date achieved compliance: 08/16/1994
Violation lead agency: State

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 05/12/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 4700
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 262.50-60
Area of violation: Generators - General
Date violation determined: 05/04/1994
Date achieved compliance: 08/16/1994
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 05/12/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 4700
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 264.10-18.B
Area of violation: TSD - General
Date violation determined: 04/30/1993
Date achieved compliance: 06/15/1993
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 04/29/1993
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 2200
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 262.50-60
Area of violation: Generators - General
Date violation determined: 04/30/1993
Date achieved compliance: 06/15/1993
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 04/29/1993
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 2200
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 264.50-56.D
Area of violation: TSD - General
Date violation determined: 04/30/1993
Date achieved compliance: 06/15/1993
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Enforcement action date: 04/29/1993
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 2200
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 270
Area of violation: TSD - General
Date violation determined: 11/08/1992
Date achieved compliance: 01/15/1993
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 11/08/1992
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 9000
Final penalty amount: 9000
Paid penalty amount: Not reported

Regulation violated: FR - 270
Area of violation: TSD - General
Date violation determined: 11/08/1992
Date achieved compliance: 01/15/1993
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 04/29/1993
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 2200
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 262.50-60
Area of violation: Generators - General
Date violation determined: 10/10/1991
Date achieved compliance: 01/17/1992
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/06/1991
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 264.10-18.B
Area of violation: TSD - General
Date violation determined: 10/10/1991
Date achieved compliance: 01/17/1992
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/06/1991

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 270
Area of violation: TSD - General
Date violation determined: 10/10/1991
Date achieved compliance: 01/17/1992
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/06/1991
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 264.170-177.I
Area of violation: TSD - General
Date violation determined: 10/10/1991
Date achieved compliance: 01/17/1992
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/06/1991
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 264.50-56.D
Area of violation: TSD - General
Date violation determined: 10/10/1991
Date achieved compliance: 01/17/1992
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/06/1991
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 264.30-37.C
Area of violation: TSD - General
Date violation determined: 10/10/1991
Date achieved compliance: 01/17/1992
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/06/1991
Enf. disposition status: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 270
Area of violation: TSD - General
Date violation determined: 10/04/1990
Date achieved compliance: 10/04/1990
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 08/09/1990
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: F - 268 ALL
Area of violation: LDR - General
Date violation determined: 08/02/1989
Date achieved compliance: 08/20/1991
Violation lead agency: EPA
Enforcement action: Not reported
Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: F - 270
Area of violation: TSD - General
Date violation determined: 08/02/1989
Date achieved compliance: 10/04/1990
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/28/1989
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: F - 268.7
Area of violation: LDR - General
Date violation determined: 08/02/1989
Date achieved compliance: 08/20/1991
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/28/1989
Enf. disposition status: Not reported
Enf. disp. status date: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: F - 268.7
Area of violation: LDR - General
Date violation determined: 08/02/1989
Date achieved compliance: 08/20/1991
Violation lead agency: EPA
Enforcement action: Not reported
Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: F - 268 ALL
Area of violation: LDR - General
Date violation determined: 08/02/1989
Date achieved compliance: 08/20/1991
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/28/1989
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: F - 270
Area of violation: TSD - General
Date violation determined: 08/02/1989
Date achieved compliance: 10/04/1990
Violation lead agency: EPA
Enforcement action: Not reported
Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: F - 270
Area of violation: TSD - General
Date violation determined: 01/23/1989
Date achieved compliance: 10/04/1990
Violation lead agency: EPA
Enforcement action: Not reported
Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: F - 270
Area of violation: TSD - General
Date violation determined: 03/24/1988
Date achieved compliance: 08/21/1988
Violation lead agency: EPA
Enforcement action: Not reported
Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: F - 270
Area of violation: TSD - General
Date violation determined: 03/24/1988
Date achieved compliance: 08/21/1988
Violation lead agency: EPA
Enforcement action: STATE TO EPA ADMINISTRATIVE REFERRAL
Enforcement action date: 08/21/1988
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: F - 264.90-94.F
Area of violation: TSD IS-Ground-Water Monitoring
Date violation determined: 03/24/1988
Date achieved compliance: 08/21/1988
Violation lead agency: EPA
Enforcement action: Not reported
Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: F - 270
Area of violation: TSD - General
Date violation determined: 03/24/1988
Date achieved compliance: 08/21/1988
Violation lead agency: EPA
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 02/09/1989
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: F - 264.90-94.F
Area of violation: TSD IS-Ground-Water Monitoring
Date violation determined: 03/24/1988
Date achieved compliance: 08/21/1988
Violation lead agency: EPA
Enforcement action: STATE TO EPA ADMINISTRATIVE REFERRAL
Enforcement action date: 08/21/1988
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: F - 264.90-94.F
Area of violation: TSD IS-Ground-Water Monitoring
Date violation determined: 03/24/1988
Date achieved compliance: 08/21/1988
Violation lead agency: EPA
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 02/09/1989
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: F - 264.140-150.H
Area of violation: TSD - Financial Requirements
Date violation determined: 02/23/1987
Date achieved compliance: 03/25/1987
Violation lead agency: EPA
Enforcement action: Not reported
Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: F - 270
Area of violation: TSD - General
Date violation determined: 02/23/1987
Date achieved compliance: 03/25/1987
Violation lead agency: EPA
Enforcement action: Not reported
Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Paid penalty amount: Not reported

Evaluation Action Summary:

Evaluation date: 06/14/2016
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 11/18/2014
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: HW Management System - Definitions
Date achieved compliance: 11/20/2014
Evaluation lead agency: State

Evaluation date: 12/10/2013
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 04/16/2013
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 04/02/2012
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 04/12/2011
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 09/30/2009
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 11/19/2008
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 03/04/2008
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Evaluation date: 02/07/2007
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 12/12/2005
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 09/14/2004
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 11/19/2003
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 11/20/2002
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 11/06/2001
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 06/13/2001
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 06/27/2000
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 02/16/1999
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 02/04/1998
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 02/18/1997
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 02/05/1996
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 04/06/1995
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 04/06/1995
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

Evaluation date: 04/06/1994
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA-Initiated Oversight/Observation/Training Actions

Evaluation date: 04/05/1994
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 08/16/1994
Evaluation lead agency: State

Evaluation date: 04/05/1994
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 08/16/1994
Evaluation lead agency: State

Evaluation date: 04/05/1994
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 08/16/1994
Evaluation lead agency: State

Evaluation date: 03/30/1993
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 06/15/1993
Evaluation lead agency: State

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Evaluation date: 03/30/1993
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 06/15/1993
Evaluation lead agency: State

Evaluation date: 11/08/1992
Evaluation: NON-FINANCIAL RECORD REVIEW
Area of violation: TSD - General
Date achieved compliance: 01/15/1993
Evaluation lead agency: State

Evaluation date: 02/19/1992
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 01/17/1992
Evaluation: NOT A SIGNIFICANT NON-COMPLIER
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

Evaluation date: 10/10/1991
Evaluation: SIGNIFICANT NON-COMPLIER
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

Evaluation date: 08/20/1991
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 01/17/1992
Evaluation lead agency: EPA

Evaluation date: 08/20/1991
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 10/04/1990
Evaluation lead agency: EPA

Evaluation date: 08/20/1991
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 01/17/1992
Evaluation lead agency: EPA

Evaluation date: 08/02/1989
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 08/20/1991
Evaluation lead agency: EPA

Evaluation date: 08/02/1989
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Date achieved compliance: 10/04/1990
Evaluation lead agency: EPA

Evaluation date: 01/23/1989
Evaluation: FOCUSED COMPLIANCE INSPECTION
Area of violation: TSD - General
Date achieved compliance: 10/04/1990
Evaluation lead agency: EPA

Evaluation date: 03/24/1988
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 08/21/1988
Evaluation lead agency: EPA

Evaluation date: 03/24/1988
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD IS-Ground-Water Monitoring
Date achieved compliance: 08/21/1988
Evaluation lead agency: EPA

Evaluation date: 03/25/1987
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 02/23/1987
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 03/25/1987
Evaluation lead agency: EPA

Evaluation date: 02/23/1987
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Financial Requirements
Date achieved compliance: 03/25/1987
Evaluation lead agency: EPA

US ENG CONTROLS:
EPA ID: CA1570024504
Site ID: 0902725
Name: EDWARDS AIR FORCE BASE
Address: AFFTC EDWARDS AFB
5 EAST POPSON AVE, BLDG 2650A
EDWARDS AFB, CA 93524
EPA Region: 09
County: KERN
Event Code: Not reported
Actual Date: 09/30/2012
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/24/2009
Operable Unit: 02

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Contaminated Media : Debris
Engineering Control: Disposal
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/24/2009
Operable Unit: 02
Contaminated Media : Debris
Engineering Control: Excavation
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/24/2009
Operable Unit: 02
Contaminated Media : Debris
Engineering Control: Recycling
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/24/2009
Operable Unit: 02
Contaminated Media : Free-phase NAPL
Engineering Control: Air Sparging: Oxygen Enhancement
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/24/2009
Operable Unit: 02
Contaminated Media : Free-phase NAPL
Engineering Control: Bioremediation (in situ)
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/24/2009
Operable Unit: 02
Contaminated Media : Groundwater
Engineering Control: Biosparging
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Action Name: RECORD OF DECISION
Action Completion date: 06/24/2009
Operable Unit: 02
Contaminated Media : Groundwater
Engineering Control: Carbon Adsorption
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/24/2009
Operable Unit: 02
Contaminated Media : Groundwater
Engineering Control: Chemical Oxidation, (N.O.S)
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/24/2009
Operable Unit: 02
Contaminated Media : Groundwater
Engineering Control: Enhanced In-Situ Bioremediation: Oxygen Addition
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/24/2009
Operable Unit: 02
Contaminated Media : Groundwater
Engineering Control: Extraction
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/24/2009
Operable Unit: 02
Contaminated Media : Groundwater
Engineering Control: Hydraulic Control
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/24/2009
Operable Unit: 02
Contaminated Media : Groundwater
Engineering Control: In-Situ Chemical Oxidation (ISCO)
Contact Name: Not reported
Contact Phone and Ext: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/24/2009
Operable Unit: 02
Contaminated Media : Groundwater
Engineering Control: Monitoring
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/24/2009
Operable Unit: 02
Contaminated Media : Groundwater
Engineering Control: Recovery Wells
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/24/2009
Operable Unit: 02
Contaminated Media : Groundwater
Engineering Control: Reinjection
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/24/2009
Operable Unit: 02
Contaminated Media : Soil
Engineering Control: No Action
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/24/2009
Operable Unit: 02
Contaminated Media : Solid Waste
Engineering Control: Cap
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/24/2009
Operable Unit: 02
Contaminated Media : Solid Waste

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Engineering Control: Monitoring
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/24/2009
Operable Unit: 02
Contaminated Media : Solid Waste
Engineering Control: Operations & Maintenance (O&M)
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/24/2009
Operable Unit: 02
Contaminated Media : Solid Waste
Engineering Control: Surface Drainage Control
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 002
Action Name: RECORD OF DECISION
Action Completion date: 09/30/2003
Operable Unit: 03
Contaminated Media : Groundwater
Engineering Control: No Action
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 003
Action Name: RECORD OF DECISION
Action Completion date: 09/24/2007
Operable Unit: 04
Contaminated Media : Groundwater
Engineering Control: Monitoring
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 003
Action Name: RECORD OF DECISION
Action Completion date: 09/24/2007
Operable Unit: 04
Contaminated Media : Soil
Engineering Control: No Action
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 004
Action Name: RECORD OF DECISION

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Action Completion date: 09/28/2006
Operable Unit: 06
Contaminated Media : Groundwater
Engineering Control: In-Situ Chemical Oxidation (ISCO)
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 004
Action Name: RECORD OF DECISION
Action Completion date: 09/28/2006
Operable Unit: 06
Contaminated Media : Groundwater
Engineering Control: Monitoring
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 004
Action Name: RECORD OF DECISION
Action Completion date: 09/28/2006
Operable Unit: 06
Contaminated Media : Soil
Engineering Control: No Action
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 005
Action Name: RECORD OF DECISION
Action Completion date: 09/16/2009
Operable Unit: 15
Contaminated Media : Soil
Engineering Control: No Action
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 005
Action Name: RECORD OF DECISION
Action Completion date: 09/16/2009
Operable Unit: 15
Contaminated Media : Solid Waste
Engineering Control: Monitoring
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 005
Action Name: RECORD OF DECISION
Action Completion date: 09/16/2009
Operable Unit: 15
Contaminated Media : Solid Waste
Engineering Control: Operations & Maintenance (O&M)
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Action ID: 005
Action Name: RECORD OF DECISION
Action Completion date: 09/16/2009
Operable Unit: 15
Contaminated Media : Solid Waste
Engineering Control: Revegetation
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 005
Action Name: RECORD OF DECISION
Action Completion date: 09/16/2009
Operable Unit: 15
Contaminated Media : Solid Waste
Engineering Control: Soil Cover
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 005
Action Name: RECORD OF DECISION
Action Completion date: 09/16/2009
Operable Unit: 15
Contaminated Media : Solid Waste
Engineering Control: Surface Drainage Control
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 012
Action Name: RECORD OF DECISION
Action Completion date: 08/04/2008
Operable Unit: 11
Contaminated Media : Debris
Engineering Control: Disposal
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 012
Action Name: RECORD OF DECISION
Action Completion date: 08/04/2008
Operable Unit: 11
Contaminated Media : Debris
Engineering Control: Engineering Control, (N.O.S.)
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 012
Action Name: RECORD OF DECISION
Action Completion date: 08/04/2008
Operable Unit: 11
Contaminated Media : Debris
Engineering Control: Monitoring
Contact Name: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 012
Action Name: RECORD OF DECISION
Action Completion date: 08/04/2008
Operable Unit: 11
Contaminated Media : Debris
Engineering Control: Operations & Maintenance (O&M)
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 012
Action Name: RECORD OF DECISION
Action Completion date: 08/04/2008
Operable Unit: 11
Contaminated Media : Soil
Engineering Control: Disposal
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 012
Action Name: RECORD OF DECISION
Action Completion date: 08/04/2008
Operable Unit: 11
Contaminated Media : Soil
Engineering Control: Excavation
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 012
Action Name: RECORD OF DECISION
Action Completion date: 08/04/2008
Operable Unit: 11
Contaminated Media : Soil
Engineering Control: Impermeable Barrier
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 012
Action Name: RECORD OF DECISION
Action Completion date: 08/04/2008
Operable Unit: 11
Contaminated Media : Soil
Engineering Control: No Further Action
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 012
Action Name: RECORD OF DECISION
Action Completion date: 08/04/2008
Operable Unit: 11

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Contaminated Media : Soil
Engineering Control: Operations & Maintenance (O&M)
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 015
Action Name: RECORD OF DECISION
Action Completion date: 09/21/2012
Operable Unit: 13
Contaminated Media : Debris
Engineering Control: Disposal
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 015
Action Name: RECORD OF DECISION
Action Completion date: 09/21/2012
Operable Unit: 13
Contaminated Media : Debris
Engineering Control: Recycling
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 015
Action Name: RECORD OF DECISION
Action Completion date: 09/21/2012
Operable Unit: 13
Contaminated Media : Groundwater
Engineering Control: Monitoring
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 015
Action Name: RECORD OF DECISION
Action Completion date: 09/21/2012
Operable Unit: 13
Contaminated Media : Groundwater
Engineering Control: Natural Attenuation
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 015
Action Name: RECORD OF DECISION
Action Completion date: 09/21/2012
Operable Unit: 13
Contaminated Media : Landfill Gas
Engineering Control: Monitoring
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 015

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Action Name: RECORD OF DECISION
Action Completion date: 09/21/2012
Operable Unit: 13
Contaminated Media : Solid Waste
Engineering Control: Consolidate
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 015
Action Name: RECORD OF DECISION
Action Completion date: 09/21/2012
Operable Unit: 13
Contaminated Media : Solid Waste
Engineering Control: Evapotranspiration Cover
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 015
Action Name: RECORD OF DECISION
Action Completion date: 09/21/2012
Operable Unit: 13
Contaminated Media : Solid Waste
Engineering Control: Surface Drainage Control
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: ROD Amendment
Action Completion date: 09/27/2012
Operable Unit: 02
Contaminated Media : Groundwater
Engineering Control: Other, (N.O.S.)
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: ROD Amendment
Action Completion date: 09/27/2012
Operable Unit: 02
Contaminated Media : Soil
Engineering Control: Disposal
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: ROD Amendment
Action Completion date: 09/27/2012
Operable Unit: 02
Contaminated Media : Soil
Engineering Control: Excavation
Contact Name: Not reported
Contact Phone and Ext: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Event Code Description: Not reported

Action ID: 001
Action Name: ROD Amendment
Action Completion date: 09/27/2012
Operable Unit: 02
Contaminated Media : Soil
Engineering Control: Sampling
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: ROD Amendment
Action Completion date: 09/27/2012
Operable Unit: 02
Contaminated Media : Soil
Engineering Control: Surface Drainage Control
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: ROD Amendment
Action Completion date: 09/27/2012
Operable Unit: 02
Contaminated Media : Solid Waste
Engineering Control: Disposal
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: ROD Amendment
Action Completion date: 09/27/2012
Operable Unit: 02
Contaminated Media : Solid Waste
Engineering Control: Excavation
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: ROD Amendment
Action Completion date: 09/27/2012
Operable Unit: 02
Contaminated Media : Solid Waste
Engineering Control: Physical Separation
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: ROD Amendment
Action Completion date: 09/27/2012
Operable Unit: 02
Contaminated Media : Solid Waste

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Engineering Control: Recycling
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

US INST CONTROL:

EPA ID: CA1570024504
Site ID: 0902725
Name: EDWARDS AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: AFFTC EDWARDS AFB
EDWARDS AFB, CA 93524
EPA Region: 09
County: KERN
Event Code: Not reported
Inst. Control: Building, Demolition, or Excavation Regulation
Actual Date: 09/30/2009
Complet. Date: 06/24/2009
Operable Unit: 02
Contaminated Media : Groundwater
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA1570024504
Site ID: 0902725
Name: EDWARDS AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: AFFTC EDWARDS AFB
EDWARDS AFB, CA 93524
EPA Region: 09
County: KERN
Event Code: Not reported
Inst. Control: Groundwater use/well drilling regulation
Actual Date: 09/30/2009
Complet. Date: 06/24/2009
Operable Unit: 02
Contaminated Media : Groundwater
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA1570024504
Site ID: 0902725
Name: EDWARDS AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: AFFTC EDWARDS AFB
EDWARDS AFB, CA 93524
EPA Region: 09
County: KERN
Event Code: Not reported
Inst. Control: Building, demolition, or excavation regulation
Actual Date: 09/30/2009
Complet. Date: 06/24/2009
Operable Unit: 02
Contaminated Media : Soil

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA1570024504
Site ID: 0902725
Name: EDWARDS AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: AFFTC EDWARDS AFB
EDWARDS AFB, CA 93524
EPA Region: 09
County: KERN
Event Code: Not reported
Inst. Control: Access Restriction, Fencing
Actual Date: 09/30/2009
Complet. Date: 06/24/2009
Operable Unit: 02
Contaminated Media : Solid Waste
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA1570024504
Site ID: 0902725
Name: EDWARDS AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: AFFTC EDWARDS AFB
EDWARDS AFB, CA 93524
EPA Region: 09
County: KERN
Event Code: Not reported
Inst. Control: Building, demolition, or excavation regulation
Actual Date: 09/30/2009
Complet. Date: 06/24/2009
Operable Unit: 02
Contaminated Media : Solid Waste
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA1570024504
Site ID: 0902725
Name: EDWARDS AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: AFFTC EDWARDS AFB
EDWARDS AFB, CA 93524
EPA Region: 09
County: KERN
Event Code: Not reported
Inst. Control: Groundwater Use/Well Drilling Regulation
Actual Date: 09/30/2009
Complet. Date: 06/24/2009
Operable Unit: 02
Contaminated Media : Solid Waste
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

EPA ID: CA1570024504
Site ID: 0902725
Name: EDWARDS AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: AFFTC EDWARDS AFB
EDWARDS AFB, CA 93524
EPA Region: 09
County: KERN
Event Code: Not reported
Inst. Control: Base use plan change
Actual Date: 09/30/2007
Complet. Date: 09/24/2007
Operable Unit: 04
Contaminated Media : Groundwater
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA1570024504
Site ID: 0902725
Name: EDWARDS AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: AFFTC EDWARDS AFB
EDWARDS AFB, CA 93524
EPA Region: 09
County: KERN
Event Code: Not reported
Inst. Control: Covenant
Actual Date: 09/30/2007
Complet. Date: 09/24/2007
Operable Unit: 04
Contaminated Media : Groundwater
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA1570024504
Site ID: 0902725
Name: EDWARDS AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: AFFTC EDWARDS AFB
EDWARDS AFB, CA 93524
EPA Region: 09
County: KERN
Event Code: Not reported
Inst. Control: Groundwater use/well drilling regulation
Actual Date: 09/30/2007
Complet. Date: 09/24/2007
Operable Unit: 04
Contaminated Media : Groundwater
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA1570024504
Site ID: 0902725
Name: EDWARDS AIR FORCE BASE

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Action Name: RECORD OF DECISION
Address: AFFTC EDWARDS AFB
EDWARDS AFB, CA 93524
EPA Region: 09
County: KERN
Event Code: Not reported
Inst. Control: Notices to State Regulators Before Changes in Land Ownership
Actual Date: 09/30/2007
Complet. Date: 09/24/2007
Operable Unit: 04
Contaminated Media : Groundwater
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA1570024504
Site ID: 0902725
Name: EDWARDS AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: AFFTC EDWARDS AFB
EDWARDS AFB, CA 93524
EPA Region: 09
County: KERN
Event Code: Not reported
Inst. Control: Building, Demolition, or Excavation Regulation
Actual Date: 09/30/2007
Complet. Date: 09/24/2007
Operable Unit: 04
Contaminated Media : Soil Gas
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA1570024504
Site ID: 0902725
Name: EDWARDS AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: AFFTC EDWARDS AFB
EDWARDS AFB, CA 93524
EPA Region: 09
County: KERN
Event Code: Not reported
Inst. Control: Easement
Actual Date: 09/30/2007
Complet. Date: 09/24/2007
Operable Unit: 04
Contaminated Media : Soil Gas
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA1570024504
Site ID: 0902725
Name: EDWARDS AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: AFFTC EDWARDS AFB
EDWARDS AFB, CA 93524

EDWARDS AIR FORCE BASE (Continued) **1000155217**

EPA Region: 09
County: KERN
Event Code: Not reported
Inst. Control: Land Use Restriction
Actual Date: 09/30/2007
Complet. Date: 09/24/2007
Operable Unit: 04
Contaminated Media : Soil Gas
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA1570024504
Site ID: 0902725
Name: EDWARDS AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: AFFTC EDWARDS AFB
EDWARDS AFB, CA 93524
EPA Region: 09
County: KERN
Event Code: Not reported
Inst. Control: Covenant
Actual Date: 09/30/2006
Complet. Date: 09/28/2006
Operable Unit: 06
Contaminated Media : Groundwater
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA1570024504
Site ID: 0902725
Name: EDWARDS AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: AFFTC EDWARDS AFB
EDWARDS AFB, CA 93524
EPA Region: 09
County: KERN
Event Code: Not reported
Inst. Control: Deed Notices
Actual Date: 09/30/2006
Complet. Date: 09/28/2006
Operable Unit: 06
Contaminated Media : Groundwater
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA1570024504
Site ID: 0902725
Name: EDWARDS AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: AFFTC EDWARDS AFB
EDWARDS AFB, CA 93524
EPA Region: 09
County: KERN
Event Code: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Inst. Control: Groundwater use/well drilling regulation
Actual Date: 09/30/2006
Complet. Date: 09/28/2006
Operable Unit: 06
Contaminated Media : Groundwater
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA1570024504
Site ID: 0902725
Name: EDWARDS AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: AFFTC EDWARDS AFB
EDWARDS AFB, CA 93524
EPA Region: 09
County: KERN
Event Code: Not reported
Inst. Control: Access Restriction, Fencing
Actual Date: 09/30/2009
Complet. Date: 09/16/2009
Operable Unit: 15
Contaminated Media : Solid Waste
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA1570024504
Site ID: 0902725
Name: EDWARDS AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: AFFTC EDWARDS AFB
EDWARDS AFB, CA 93524
EPA Region: 09
County: KERN
Event Code: Not reported
Inst. Control: Land Use Restriction
Actual Date: 09/30/2009
Complet. Date: 09/16/2009
Operable Unit: 15
Contaminated Media : Solid Waste
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA1570024504
Site ID: 0902725
Name: EDWARDS AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: AFFTC EDWARDS AFB
EDWARDS AFB, CA 93524
EPA Region: 09
County: KERN
Event Code: Not reported
Inst. Control: Building, demolition, or excavation regulation
Actual Date: 09/30/2008
Complet. Date: 08/04/2008

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Operable Unit: 11
Contaminated Media : Debris
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA1570024504
Site ID: 0902725
Name: EDWARDS AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: AFFTC EDWARDS AFB
EDWARDS AFB, CA 93524
EPA Region: 09
County: KERN
Event Code: Not reported
Inst. Control: Zoning regulation
Actual Date: 09/30/2008
Complet. Date: 08/04/2008
Operable Unit: 11
Contaminated Media : Debris
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA1570024504
Site ID: 0902725
Name: EDWARDS AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: AFFTC EDWARDS AFB
EDWARDS AFB, CA 93524
EPA Region: 09
County: KERN
Event Code: Not reported
Inst. Control: Building, demolition, or excavation regulation
Actual Date: 09/30/2008
Complet. Date: 08/04/2008
Operable Unit: 11
Contaminated Media : Soil
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA1570024504
Site ID: 0902725
Name: EDWARDS AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: AFFTC EDWARDS AFB
EDWARDS AFB, CA 93524
EPA Region: 09
County: KERN
Event Code: Not reported
Inst. Control: Zoning regulation
Actual Date: 09/30/2008
Complet. Date: 08/04/2008
Operable Unit: 11
Contaminated Media : Soil
Contact Name : Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA1570024504
Site ID: 0902725
Name: EDWARDS AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: AFFTC EDWARDS AFB
EDWARDS AFB, CA 93524
EPA Region: 09
County: KERN
Event Code: Not reported
Inst. Control: Institutional Controls, (N.O.S.)
Actual Date: 09/30/2012
Complet. Date: 09/21/2012
Operable Unit: 13
Contaminated Media : Debris
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA1570024504
Site ID: 0902725
Name: EDWARDS AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: AFFTC EDWARDS AFB
EDWARDS AFB, CA 93524
EPA Region: 09
County: KERN
Event Code: Not reported
Inst. Control: Institutional Controls, (N.O.S.)
Actual Date: 09/30/2012
Complet. Date: 09/21/2012
Operable Unit: 13
Contaminated Media : Groundwater
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA1570024504
Site ID: 0902725
Name: EDWARDS AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: AFFTC EDWARDS AFB
EDWARDS AFB, CA 93524
EPA Region: 09
County: KERN
Event Code: Not reported
Inst. Control: Institutional Controls, (N.O.S.)
Actual Date: 09/30/2012
Complet. Date: 09/21/2012
Operable Unit: 13
Contaminated Media : Landfill Gas
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

EPA ID:	CA1570024504
Site ID:	0902725
Name:	EDWARDS AIR FORCE BASE
Action Name:	RECORD OF DECISION
Address:	AFFTC EDWARDS AFB EDWARDS AFB, CA 93524
EPA Region:	09
County:	KERN
Event Code:	Not reported
Inst. Control:	Access Restriction, Fencing
Actual Date:	09/30/2012
Complet. Date:	09/21/2012
Operable Unit:	13
Contaminated Media :	Solid Waste
Contact Name :	Not reported
Contact Phone and Ext :	Not reported
Event Code Description:	Not reported

EPA ID:	CA1570024504
Site ID:	0902725
Name:	EDWARDS AIR FORCE BASE
Action Name:	RECORD OF DECISION
Address:	AFFTC EDWARDS AFB EDWARDS AFB, CA 93524
EPA Region:	09
County:	KERN
Event Code:	Not reported
Inst. Control:	Institutional Controls, (N.O.S.)
Actual Date:	09/30/2012
Complet. Date:	09/21/2012
Operable Unit:	13
Contaminated Media :	Solid Waste
Contact Name :	Not reported
Contact Phone and Ext :	Not reported
Event Code Description:	Not reported

ENVIROSTOR:

Facility ID:	15970001
Status:	Active
Status Date:	05/01/1986
Site Code:	100052
Site Type:	Federal Superfund
Site Type Detailed:	Open Base
Acres:	300800
NPL:	YES
Regulatory Agencies:	SMBRP, RWQCB 6V - Lahontan, US EPA
Lead Agency:	US EPA
Program Manager:	Kevin Depies
Supervisor:	Peter Bailey
Division Branch:	Cleanup Legacy Landfills
Assembly:	36
Senate:	16
Special Program:	Not reported
Restricted Use:	YES
Site Mgmt Req:	NONE SPECIFIED
Funding:	DERA
Latitude:	34.90604

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Longitude: -117.8825
APN: NONE SPECIFIED
Past Use: AIRCRAFT MAINTENANCE, FUEL - AIRCRAFT STORAGE/ REFUELING, AIRCRAFT MAINTENANCE, RESEARCH - OTHER, AIRCRAFT MAINTENANCE, AIRFIELD OPERATIONS, RESEARCH - OTHER, AEROSPACE ROCKET TESTING/LAUNCH, FUEL - AIRCRAFT STORAGE/ REFUELING, AEROSPACE ROCKET TESTING/LAUNCH, RESEARCH - AEROSPACE, LANDFILL - CONSTRUCTION, LANDFILL - DOMESTIC, LANDFILL - HAZARDOUS WASTE, FUEL - AIRCRAFT STORAGE/ REFUELING, AIRCRAFT MAINTENANCE, FUEL - AIRCRAFT STORAGE/ REFUELING, AEROSPACE ROCKET TESTING/LAUNCH, AEROSPACE ROCKET TESTING/LAUNCH, RESEARCH - AEROSPACE, DEGREASING FACILITY, JET FUEL STORAGE/REFUELING, AIRCRAFT MAINTENANCE, AIRCRAFT MAINTENANCE, AIRFIELD OPERATIONS, DEGREASING FACILITY, DEGREASING FACILITY, ABOVE GROUND STORAGE TANKS, AEROSPACE MANUFACTURING/MAINTENANCE, AEROSPACE ROCKET TESTING/LAUNCH, AIRCRAFT MAINTENANCE, AIRFIELD OPERATIONS, FUEL - AIRCRAFT STORAGE/ REFUELING, AIRCRAFT MAINTENANCE, RESEARCH - CHEMICAL, AEROSPACE MANUFACTURING/MAINTENANCE, FUEL - AIRCRAFT STORAGE/ REFUELING, AEROSPACE ROCKET TESTING/LAUNCH, AIRFIELD OPERATIONS, RESEARCH - CHEMICAL, AEROSPACE MANUFACTURING/MAINTENANCE, AEROSPACE ROCKET TESTING/LAUNCH, RESEARCH - CHEMICAL, RESEARCH - CHEMICAL, DEGREASING FACILITY, AIRCRAFT MAINTENANCE, AIRFIELD OPERATIONS, FUEL - AIRCRAFT STORAGE/ REFUELING, JET FUEL STORAGE/REFUELING, AEROSPACE MANUFACTURING/MAINTENANCE, AEROSPACE ROCKET TESTING/LAUNCH, AEROSPACE MANUFACTURING/MAINTENANCE, AEROSPACE ROCKET TESTING/LAUNCH, AEROSPACE ROCKET TESTING/LAUNCH, DEGREASING FACILITY, FUEL - AIRCRAFT STORAGE/ REFUELING, AIRCRAFT MAINTENANCE, FUEL - AIRCRAFT STORAGE/ REFUELING, DEGREASING FACILITY, AIRCRAFT MAINTENANCE, AEROSPACE ROCKET TESTING/LAUNCH, AIRCRAFT MAINTENANCE, LANDFILL - HAZARDOUS WASTE, OPEN BURN/OPEN DETONATION, RESEARCH - AEROSPACE, RESEARCH - CHEMICAL, AEROSPACE ROCKET TESTING/LAUNCH, RESEARCH - AEROSPACE, AEROSPACE ROCKET TESTING/LAUNCH, RESEARCH - AEROSPACE, WASTE - INDUSTRIAL WASTE LINE, LANDFILL - HAZARDOUS WASTE, AEROSPACE ROCKET TESTING/LAUNCH, AEROSPACE MANUFACTURING/MAINTENANCE, AEROSPACE ROCKET TESTING/LAUNCH
Potential COC: Benzene Benzene Tetrachloroethylene (PCE TPH-JET FUEL 1,1-Dichloroethane 1,2-Dichloroethane (EDC Ethylbenzene 1,1,2,2-Tetrachloroethane Toluene 1,2,4-Trimethylbenzene Xylenes Benzene Methylene chloride Trichloroethylene (TCE Explosives (UXO, MEC Explosives (UXO, MEC Explosives (UXO, MEC Perchlorate Polynuclear aromatic hydrocarbons (PAHs Trichloroethylene (TCE N-Nitrosodimethylamine Methyl tertbutyl ether (MTBE Perchlorate Tetrachloroethylene (PCE Trichloroethylene (TCE Vinyl chloride 1,2-Dichloroethylene (cis 1,4-Dioxane N-Nitrosodimethylamine Perchlorate Perchlorate Polychlorinated biphenyls (PCBs Polychlorinated biphenyls (PCBs Polynuclear aromatic hydrocarbons (PAHs Polynuclear aromatic hydrocarbons (PAHs Polynuclear aromatic hydrocarbons (PAHs Tetrachloroethylene (PCE Carbon tetrachloride Polynuclear aromatic hydrocarbons (PAHs Trichloroethylene (TCE 1,2-Dichloroethylene (cis 1,2-Dichloroethylene (trans Tetrachloroethylene (PCE Trichloroethylene (TCE Tetrachloroethylene (PCE N-Nitrosodimethylamine TPH-gas TPH-JET FUEL TPH-JET FUEL Trichloroethylene (TCE 1,2-Dichloroethylene (cis 1,2-Dichloroethylene (trans 1,1,1-Trichloroethane (TCA 1,1,2-Trichloroethane 1,1-Dichloroethane 1,1-Dichloroethylene 1,2,4-Trimethylbenzene 1,2-Dichloroethane (EDC 1,2-Dichloroethylene (cis 1,3,5-Trimethylbenzene 1,4-Dichlorobenzene 1,4-Dioxane Benzene Chloromethane (methyl chloride Ethylbenzene Methyl tertbutyl ether (MTBE Methylene chloride N-Nitrosodimethylamine Naphthalene

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Tetrachloroethylene (PCE Toluene Trichloroethylene (TCE Xylenes Trichloroethylene (TCE Trichloroethylene (TCE Trichloroethylene (TCE Trichloroethylene (TCE Aluminum Barium and compounds Beryllium and compounds Naphthalene Antimony and compounds Arsenic Molybdenum Nickel Antimony and compounds Cadmium and compounds Lead Mercury and compounds Nickel Antimony and compounds Cadmium and compounds Ethylbenzene Lead Manganese and compounds Polychlorinated biphenyls (PCBs Toluene Xylenes Zinc Beryllium and compounds Beryllium and compounds Beryllium and compounds Chromium III Chromium VI Cobalt Iron Mercury and compounds Thallium and compounds Vanadium and compounds Zinc Chromium III Chromium VI Copper and compounds Iron Lead Nickel Perchlorate Selenium Zinc 1,2-Dichloroethane (EDC Benzene Trichloroethylene (TCE 1,2-Dichloroethane (EDC 1,4-Dichlorobenzene Chloroform Hexachlorobutadiene Nickel Trichloroethylene (TCE 1,2-Dichloroethane (EDC 1,2-Dichloroethylene (cis Benzene Tetrachloroethylene (PCE Trichloroethylene (TCE Vinyl chloride 1,1-Dichloroethylene 1,2-Dichloroethylene (cis Acetone Aluminum Antimony and compounds Arsenic Barium and compounds Beryllium and compounds Bis(2-ethylhexyl)phthalate (DEHP) Cadmium and compounds Chromium III Chromium VI Cobalt Copper and compounds Dieldrin Dimethyl phthalate Endrin Ethylbenzene Fluorine (soluble fluoride Iron Lead Mercury and compounds Methylene chloride Molybdenum Nickel Selenium Silver Toluene Trichloroethylene (TCE Vanadium and compounds Zinc n-Propylbenzene 1,1-Dichloroethylene 1,2-Dichloroethylene (cis 1,2-Dichloroethylene (trans 2,6-Dinitrotoluene (also see Dinitrotoluene mixture Acetone Barium and compounds Benz[a]anthracene Benzo[a]pyrene Benzo[b]fluoranthene Bis(2-ethylhexyl)phthalate (DEHP) Bromomethane (Methyl bromide Cadmium and compounds Chloromethane (methyl chloride Chromium III Chromium VI Chrysene Cobalt Copper and compounds Fluoranthene Indeno[1,2,3-cd]pyrene Iron Manganese and compounds Mercury and compounds Methylene chloride Molybdenum Nickel Nitrate Pyrene Tetrachloroethylene (PCE Thallium and compounds Toluene Trichloroethylene (TCE Vinyl chloride Xylenes Zinc 1,2-Dichloroethylene (cis Benzene Trichloroethylene (TCE 1,1,2-Trichloroethane 1,2-Dibromoethane (EDB Benzene Cadmium and compounds Tetrachloroethylene (PCE Trichloroethylene (TCE 1,1,2-Trichloroethane 1,2-Dibromoethane (EDB Benzene Cadmium and compounds Tetrachloroethylene (PCE Trichloroethylene (TCE 1,2,4-Trimethylbenzene Acetone Beryllium and compounds Bromodichloromethane Bromoform (tribromomethane Chloroform Cobalt Dibromochloromethane Mercury and compounds Trichloroethylene (TCE Xylenes 1,2,4-Trimethylbenzene 1,2-Dichloroethane (EDC 1,2-Dichloroethylene (cis Benzene Ethylbenzene Naphthalene Toluene Trichloroethylene (TCE Vinyl chloride Xylenes

Confirmed COC: Polynuclear aromatic hydrocarbons (PAHs Tetrachloroethylene (PCE Carbon tetrachloride Benzene Methylene chloride Trichloroethylene (TCE Chloroform Cobalt Dibromochloromethane Mercury and compounds Xylenes 1,2,4-Trimethylbenzene Trichloroethylene (TCE Acetone Beryllium and compounds Bromodichloromethane Bromoform (tribromomethane Benzene Cadmium and compounds 1,2-Dibromoethane (EDB 1,1,2-Trichloroethane Tetrachloroethylene (PCE Trichloroethylene (TCE Benzene Cadmium and compounds 1,2-Dibromoethane (EDB 1,1,2-Trichloroethane Tetrachloroethylene (PCE Trichloroethylene (TCE Chromium III Chromium VI Cobalt Mercury and compounds Vanadium and compounds Zinc Iron Thallium and compounds Benzene 1,2-Dichloroethylene (cis Trichloroethylene (TCE Chloroform 1,4-Dichlorobenzene 1,2-Dichloroethane (EDC Nickel

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Hexachlorobutadiene Trichloroethylene (TCE Endrin Lead Arsenic Cadmium and compounds Chromium III Chromium VI Cobalt Copper and compounds 1,1-Dichloroethylene 1,2-Dichloroethylene (cis Dieldrin Mercury and compounds Methylene chloride Molybdenum Nickel Vanadium and compounds Zinc Dimethyl phthalate Ethylbenzene Fluorine (soluble fluoride Iron n-Propylbenzene Selenium Toluene Silver Trichloroethylene (TCE Acetone Aluminum Antimony and compounds Barium and compounds Beryllium and compounds Bis(2-ethylhexyl)phthalate (DEHP) Benzene Ethylbenzene Xylenes 1,1,2,2-Tetrachloroethane 1,2,4-Trimethylbenzene Tetrachloroethylene (PCE 1,1-Dichloroethane 1,2-Dichloroethane (EDC Toluene TPH-JET FUEL Lead Cadmium and compounds Manganese and compounds Xylenes Zinc Ethylbenzene Toluene Polychlorinated biphenyls (PCBs Antimony and compounds Lead Perchlorate Chromium III Chromium VI Copper and compounds Nickel Zinc Iron Selenium Polychlorinated biphenyls (PCBs Benzene Benzene 1,2-Dichloroethane (EDC 1,2-Dichloroethylene (cis Tetrachloroethylene (PCE Trichloroethylene (TCE Vinyl chloride Benzene 1,2-Dichloroethane (EDC Trichloroethylene (TCE Trichloroethylene (TCE Tetrachloroethylene (PCE Trichloroethylene (TCE 30195-NO 30196-NO 3002501-NO 30027-NO Beryllium and compounds No Contaminants found Trichloroethylene (TCE Polynuclear aromatic hydrocarbons (PAHs Polynuclear aromatic hydrocarbons (PAHs No Contaminants found Tetrachloroethylene (PCE N-Nitrosodimethylamine No Contaminants found No Contaminants found Trichloroethylene (TCE Naphthalene Aluminum Barium and compounds Beryllium and compounds TPH-gas TPH-JET FUEL Perchlorate Perchlorate Explosives (UXO, MEC Perchlorate Polynuclear aromatic hydrocarbons (PAHs Trichloroethylene (TCE N-Nitrosodimethylamine Methyl tertbutyl ether (MTBE Benzene Chloromethane (methyl chloride 1,4-Dichlorobenzene 1,1-Dichloroethane 1,2-Dichloroethane (EDC 1,1-Dichloroethylene 1,2-Dichloroethylene (cis Methylene chloride N-Nitrosodimethylamine Xylenes 1,4-Dioxane Ethylbenzene Naphthalene Toluene 1,1,2-Trichloroethane 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Tetrachloroethylene (PCE 1,1,1-Trichloroethane (TCA Trichloroethylene (TCE Benzene 1,2-Dichloroethane (EDC 1,2-Dichloroethylene (cis Xylenes Ethylbenzene Naphthalene Toluene 1,2,4-Trimethylbenzene Trichloroethylene (TCE Vinyl chloride Trichloroethylene (TCE Lead Cadmium and compounds Mercury and compounds Nickel Antimony and compounds Cadmium and compounds Chloromethane (methyl chloride Chromium III Chromium VI Cobalt Copper and compounds 1,1-Dichloroethylene 1,2-Dichloroethylene (cis 1,2-Dichloroethylene (trans Manganese and compounds Mercury and compounds Methylene chloride Molybdenum Nickel Nitrate Xylenes Zinc 2,6-Dinitrotoluene (also see Dinitrotoluene mixture Iron Benz[a]anthracene Benzo[b]fluoranthene Benzo[a]pyrene Chrysene Fluoranthene Indeno[1,2,3-cd]pyrene Pyrene Thallium and compounds Toluene Tetrachloroethylene (PCE Trichloroethylene (TCE Vinyl chloride Acetone Barium and compounds Bis(2-ethylhexyl)phthalate (DEHP) Bromomethane (Methyl bromide Arsenic Molybdenum Nickel Antimony and compounds Explosives (UXO, MEC No Contaminants found Beryllium and compounds Beryllium and compounds Polychlorinated biphenyls (PCBs 30011-NO Polynuclear aromatic hydrocarbons (PAHs Trichloroethylene (TCE 1,2-Dichloroethylene (cis 1,2-Dichloroethylene (trans Methyl tertbutyl ether (MTBE Perchlorate Tetrachloroethylene (PCE 30027-NO Vinyl chloride 1,2-Dichloroethylene (cis 1,4-Dioxane N-Nitrosodimethylamine

Potential Description: OTH, SOIL, OTH, OTH, SOIL, OTH, SOIL, SURFW, OTH, SOIL, SURFW, SOIL,

EDWARDS AIR FORCE BASE (Continued) **1000155217**

OTH, SOIL, OTH, OTH, SOIL, OTH, SOIL, SOIL, SOIL, SOIL, OTH, OTH, SOIL, OTH, OTH, SOIL, OTH, SOIL, IA, OTH, SOIL, SV, OTH, SOIL, SOIL, IA, OTH, SOIL, SV, SV, IA, OTH, OTH, SOIL, OTH, SOIL, OTH, SOIL, OTH, SOIL, OTH, SOIL, OTH, SOIL, SOIL, SOIL, SOIL, SOIL, OTH, SOIL, OTH, SOIL, SV, IA

Alias Name: EDWARDS AFB
Alias Type: Alternate Name
Alias Name: CA1570024504
Alias Type: EPA Identification Number
Alias Name: 110033616120
Alias Type: EPA (FRS #)
Alias Name: DOD100074300
Alias Type: GeoTracker Global ID
Alias Name: DOD100074400
Alias Type: GeoTracker Global ID
Alias Name: DOD100074500
Alias Type: GeoTracker Global ID
Alias Name: DOD100074600
Alias Type: GeoTracker Global ID
Alias Name: DOD100075900
Alias Type: GeoTracker Global ID
Alias Name: DOD100076000
Alias Type: GeoTracker Global ID
Alias Name: DOD100076100
Alias Type: GeoTracker Global ID
Alias Name: DOD100076200
Alias Type: GeoTracker Global ID
Alias Name: DOD100077500
Alias Type: GeoTracker Global ID
Alias Name: DOD100077600
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Alias Name: DOD100077700
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Alias Name: DOD100077800
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Alias Name: DOD100079100
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Alias Name: DOD100079200
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Alias Name: DOD100079300
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Alias Name: DOD100079400
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Alias Name: DOD100080700
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Alias Name: DOD100080800
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Alias Name: DOD100080900
Alias Type: GeoTracker Global ID
Alias Name: DOD100081000
Alias Type: GeoTracker Global ID
Alias Name: DOD100082300
Alias Type: GeoTracker Global ID
Alias Name: DOD100082400
Alias Type: GeoTracker Global ID
Alias Name: DOD100082500
Alias Type: GeoTracker Global ID

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Alias Name:	DOD100082600
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100083900
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100084000
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100084100
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100084200
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Alias Name:	DOD100085500
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Alias Name:	DOD100085800
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Alias Name:	DOD100087100
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100087200
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100087300
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100087400
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100088800
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100088900
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100089000
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100089100
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100090400
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100090500
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100090600
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Alias Name:	DOD100090700
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Alias Name:	DOD100097800
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Alias Name:	DOD100097900
Alias Type:	GeoTracker Global ID
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Alias Type:	GeoTracker Global ID
Alias Name:	DOD100098100
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100098200
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100098300

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Alias Type:	GeoTracker Global ID
Alias Name:	DOD100098400
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100098500
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100098600
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100098700
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Alias Name:	DOD100098800
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Alias Name:	DOD100098900
Alias Type:	GeoTracker Global ID
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Alias Name:	DOD100099100
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Alias Name:	DOD100099200
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100099300
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Alias Name:	DOD100100200
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Alias Name:	DOD100100300
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Alias Name:	DOD100100400
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Alias Name:	DOD100100500
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Alias Name:	DOD100100600
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Alias Name:	DOD100100700
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100100800
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100100900
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100101000
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100101100
Alias Type:	GeoTracker Global ID

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Alias Name: DOD100101200
Alias Type: GeoTracker Global ID
Alias Name: DOD100101300
Alias Type: GeoTracker Global ID
Alias Name: DOD100101400
Alias Type: GeoTracker Global ID
Alias Name: DOD100101500
Alias Type: GeoTracker Global ID
Alias Name: DOD100101600
Alias Type: GeoTracker Global ID
Alias Name: DOD100101700
Alias Type: GeoTracker Global ID
Alias Name: DOD100101800
Alias Type: GeoTracker Global ID
Alias Name: DOD100101900
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Alias Type: GeoTracker Global ID
Alias Name: DOD100102100
Alias Type: GeoTracker Global ID
Alias Name: DOD100102200
Alias Type: GeoTracker Global ID
Alias Name: DOD100102300
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Alias Name: DOD100102700
Alias Type: GeoTracker Global ID
Alias Name: DOD100102800
Alias Type: GeoTracker Global ID
Alias Name: DOD100102900
Alias Type: GeoTracker Global ID
Alias Name: DOD100103000
Alias Type: GeoTracker Global ID
Alias Name: DOD100103100
Alias Type: GeoTracker Global ID
Alias Name: DOD100103200
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Alias Name: DOD100103400
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Alias Name: DOD100103500
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Alias Name: DOD100103600
Alias Type: GeoTracker Global ID
Alias Name: DOD100103700
Alias Type: GeoTracker Global ID
Alias Name: DOD100103800
Alias Type: GeoTracker Global ID
Alias Name: DOD100103900
Alias Type: GeoTracker Global ID
Alias Name: DOD100104000

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Alias Type:	GeoTracker Global ID
Alias Name:	DOD100104100
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100104200
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100104300
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100104400
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100104500
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100104600
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100104700
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100104800
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100104900
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100105000
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100105100
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100105200
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100105300
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100105400
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100105500
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100105600
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100105700
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100105800
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100105900
Alias Type:	GeoTracker Global ID
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Alias Type:	GeoTracker Global ID
Alias Name:	DOD100106100
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100106200
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100106300
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100106400
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100106500
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100106600
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100106700
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100106800
Alias Type:	GeoTracker Global ID

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Alias Name: DOD100106900
Alias Type: GeoTracker Global ID
Alias Name: DOD100107000
Alias Type: GeoTracker Global ID
Alias Name: DOD100107100
Alias Type: GeoTracker Global ID
Alias Name: DOD100107200
Alias Type: GeoTracker Global ID
Alias Name: DOD100107300
Alias Type: GeoTracker Global ID
Alias Name: DOD100107400
Alias Type: GeoTracker Global ID
Alias Name: DOD100107500
Alias Type: GeoTracker Global ID
Alias Name: DOD100107600
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Alias Name: DOD100107700
Alias Type: GeoTracker Global ID
Alias Name: DOD100107800
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Alias Name: DOD100107900
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Alias Name: DOD100108100
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Alias Name: DOD100108200
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Alias Name: DOD100108900
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Alias Name: DOD100109100
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Alias Name: DOD100109200
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Alias Name: DOD100109400
Alias Type: GeoTracker Global ID
Alias Name: DOD100109500
Alias Type: GeoTracker Global ID
Alias Name: DOD100109600
Alias Type: GeoTracker Global ID
Alias Name: DOD100109700

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Alias Type:	GeoTracker Global ID
Alias Name:	DOD100109800
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100109900
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100110000
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100110100
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100110200
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100110300
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Alias Name:	DOD100110400
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Alias Name:	DOD100110500
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Alias Name:	DOD100110600
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Alias Name:	DOD100110900
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Alias Name:	DOD100111000
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Alias Name:	DOD100111100
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Alias Name:	DOD100111200
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Alias Type:	GeoTracker Global ID
Alias Name:	DOD100112300
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100112400
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100112500
Alias Type:	GeoTracker Global ID

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Alias Name:	DOD100112600
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100112700
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100112800
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100112900
Alias Type:	GeoTracker Global ID
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Alias Name:	DOD100113100
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Alias Type:	GeoTracker Global ID
Alias Name:	DOD100115200
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100115300
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100115400

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Alias Type:	GeoTracker Global ID
Alias Name:	DOD100115500
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100115600
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100115700
Alias Type:	GeoTracker Global ID
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Alias Name:	DOD100115900
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Alias Name:	DOD100117500
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Alias Name:	DOD100117700
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Alias Type:	GeoTracker Global ID
Alias Name:	DOD100144200
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100144300
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100144400
Alias Type:	GeoTracker Global ID

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Alias Name:	DOD100144500
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100144600
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100144700
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100144800
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Alias Type:	GeoTracker Global ID
Alias Name:	DOD100147100
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100147200
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100147300

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Alias Type:	GeoTracker Global ID
Alias Name:	DOD100147400
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100147500
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100147600
Alias Type:	GeoTracker Global ID
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Alias Name:	T0602900881
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Alias Name:	T0602900884
Alias Type:	GeoTracker Global ID

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Alias Name: T0602900885
Alias Type: GeoTracker Global ID
Alias Name: T0602900887
Alias Type: GeoTracker Global ID
Alias Name: T0602900890
Alias Type: GeoTracker Global ID
Alias Name: T0602900892
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Alias Name: T0602900894
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Alias Name: T0602900921
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Alias Name: T0602900960
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Alias Name: T0602900965
Alias Type: GeoTracker Global ID
Alias Name: T0602900966
Alias Type: GeoTracker Global ID
Alias Name: T0602900967
Alias Type: GeoTracker Global ID
Alias Name: T0602900968

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Alias Type:	GeoTracker Global ID
Alias Name:	T0602900969
Alias Type:	GeoTracker Global ID
Alias Name:	T0602900970
Alias Type:	GeoTracker Global ID
Alias Name:	T0602900971
Alias Type:	GeoTracker Global ID
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Alias Type:	GeoTracker Global ID
Alias Name:	T0602900975
Alias Type:	GeoTracker Global ID
Alias Name:	T0602900976
Alias Type:	GeoTracker Global ID
Alias Name:	T0602900977
Alias Type:	GeoTracker Global ID
Alias Name:	T0602900978
Alias Type:	GeoTracker Global ID
Alias Name:	T0602900979
Alias Type:	GeoTracker Global ID
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Alias Type:	GeoTracker Global ID
Alias Name:	T0602900984
Alias Type:	GeoTracker Global ID
Alias Name:	T0602900985
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Alias Name:	T0602900986
Alias Type:	GeoTracker Global ID
Alias Name:	T0602900987
Alias Type:	GeoTracker Global ID
Alias Name:	T0602900988
Alias Type:	GeoTracker Global ID
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Alias Type:	GeoTracker Global ID
Alias Name:	T0602900994
Alias Type:	GeoTracker Global ID
Alias Name:	T0602901003
Alias Type:	GeoTracker Global ID
Alias Name:	T0602901007
Alias Type:	GeoTracker Global ID
Alias Name:	T0602901009
Alias Type:	GeoTracker Global ID
Alias Name:	T0602985237
Alias Type:	GeoTracker Global ID
Alias Name:	T0602999269
Alias Type:	GeoTracker Global ID
Alias Name:	T10000001939
Alias Type:	GeoTracker Global ID
Alias Name:	T10000001943
Alias Type:	GeoTracker Global ID
Alias Name:	T10000001944
Alias Type:	GeoTracker Global ID

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Alias Name:	T10000001957
Alias Type:	GeoTracker Global ID
Alias Name:	T10000001958
Alias Type:	GeoTracker Global ID
Alias Name:	T10000001960
Alias Type:	GeoTracker Global ID
Alias Name:	T10000001961
Alias Type:	GeoTracker Global ID
Alias Name:	P12020
Alias Type:	PCode
Alias Name:	100052
Alias Type:	Project Code (Site Code)
Alias Name:	15970001
Alias Type:	Envirostor ID Number
Alias Name:	DOD100117900
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100118000
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100118100
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100118200
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100118300
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Alias Name:	DOD100118400
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Alias Name:	DOD100118500
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100118600
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Alias Name:	DOD100118700
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Alias Type:	GeoTracker Global ID
Alias Name:	DOD100119800
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100119900
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100120000

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Alias Type:	GeoTracker Global ID
Alias Name:	DOD100120100
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100120200
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100120300
Alias Type:	GeoTracker Global ID
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Alias Name:	DOD100120500
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100120600
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Alias Name:	DOD100120800
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Alias Type:	GeoTracker Global ID
Alias Name:	DOD100122600
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100122700
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100122800
Alias Type:	GeoTracker Global ID

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Alias Name: DOD100122900
Alias Type: GeoTracker Global ID
Alias Name: DOD100123000
Alias Type: GeoTracker Global ID
Alias Name: DOD100123100
Alias Type: GeoTracker Global ID
Alias Name: DOD100123200
Alias Type: GeoTracker Global ID
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Alias Type: GeoTracker Global ID
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Alias Type: GeoTracker Global ID
Alias Name: DOD100125700

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Alias Type:	GeoTracker Global ID
Alias Name:	DOD100125800
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100125900
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100126000
Alias Type:	GeoTracker Global ID
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Alias Name:	DOD100128000
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Alias Name:	DOD100128100
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100128200
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100128300
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100128400
Alias Type:	GeoTracker Global ID
Alias Name:	DOD100128500
Alias Type:	GeoTracker Global ID

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Alias Name: DOD100128600
Alias Type: GeoTracker Global ID
Alias Name: DOD100128700
Alias Type: GeoTracker Global ID
Alias Name: DOD100128800
Alias Type: GeoTracker Global ID
Alias Name: DOD100128900
Alias Type: GeoTracker Global ID
Alias Name: DOD100129000
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Alias Name: DOD100129100
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Alias Type: GeoTracker Global ID
Alias Name: DOD100129300
Alias Type: GeoTracker Global ID
Alias Name: DOD100129400
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EDWARDS AIR FORCE BASE (Continued) **1000155217**

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Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Assessment/Site Inspection Report (PA/SI)
Completed Date: 06/01/2016
Comments: Preliminary Assessment Report for Perfluorinated Compounds at EAFB. This report was issued as a final and provided to DTSC only electronically. The Air Force verbalized a request for DTSC input to prepare for the Site Inspection/Investigation scheduled for 2016

Completed Area Name: 8 - Operable Unit 8, Northwest Main Base
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Workplan
Completed Date: 01/15/2010
Comments: Pre-Design Investigation Work Plan, sites 226, 257, and 299. DTSC concurred with the work; however some of our comments may not have been adequately addressed. These includes questions regarding the background value being used for arsenic, the location of the proposed upgradient well at Site 257 and vertical contaminant groundwater control at Site 299.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Site 285
Completed Document Type: Monitoring Report
Completed Date: 08/26/2016
Comments: Not reported

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 76
Completed Document Type: Removal Action Workplan
Completed Date: 10/14/2016
Comments: Not reported

Completed Area Name: 6 - Operable Unit 6, NASA Dryden
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 06/30/2016
Comments: Not reported

Completed Area Name: 6 - Operable Unit 6, NASA Dryden
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Report
Completed Date: 09/21/2016
Comments: Not reported

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Not reported
Completed Document Type: Technical Report
Completed Date: 10/11/2016
Comments: Not reported

Completed Area Name: 4A - AFRL Area

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Completed Sub Area Name: Site 13
Completed Document Type: Long Term Monitoring Report
Completed Date: 06/14/2016
Comments: Site 13 Landfill Annual Compliance Monitoring Report for 2015

Completed Area Name: 4A - AFRL Area
Completed Sub Area Name: Site 13
Completed Document Type: Long Term Monitoring Report
Completed Date: 03/12/2015
Comments: Site 13 Landfill Annual Compliance Monitoring Report for 2013

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 86
Completed Document Type: Remedial Action Implementation Workplan
Completed Date: 10/14/2016
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Enforceable Schedule
Completed Date: 09/12/2016
Comments: Not reported

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Plan
Completed Date: 10/11/2016
Comments: Not reported

Completed Area Name: 6 - Operable Unit 6, NASA Dryden
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction
Completed Date: 10/19/2006
Comments: OU-6 ROD included Land Use Controls to prevent exposure to groundwater during cleanup. Extraction of groundwater for use other than monitoring is prohibited.

Completed Area Name: 8 - Operable Unit 8, Northwest Main Base
Completed Sub Area Name: Not reported
Completed Document Type: Feasibility Study Report
Completed Date: 10/12/2009
Comments: Not reported

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Report
Completed Date: 10/22/2008
Comments: The Final OU 7 RI Report covers 8 sites that moved past the PA/SI phase. Of the 8 sites, 4 sites (Sites 267, 269, 272, and 293) require no further action after review and agreement by the RPMs. Four sites (Sites 3, 280, 294, and 339) will continue on into the Feasibility Study phase.

Completed Area Name: 7 - Operable Unit 7, Basewide Misc. - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Feasibility Study Report
Completed Date: 01/11/2010

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Comments: This is the FS for Sites 280, 294, and 339. The Air Force has evaluated clean-up remedies for the contamination in soil at these sites. DTSC has identified some potential human health risk assessment procedure issues and will work with the Air Force to resolve these.

Completed Area Name: 6 - Operable Unit 6, NASA Dryden
Completed Sub Area Name: Not reported
Completed Document Type: Record of Decision
Completed Date: 10/19/2006
Comments: The OU-6 ROD addresses six sites (N1, N2, N3, N4, N7, and AOC N14). The selected remedy OU6 Soils for all six sites is No Action. The risks associated with the soils were all within the acceptable risk range. Three of the sites (N2, N3, and N7) are the origin of the OU wide commingled groundwater plume. The groundwater contaminants are chlorinated solvents (TCE, cis-1,2 DCE, TCA, etc) and aromatic hydrocarbons (BTEX). The selected remedy for the groundwater is Land Use Controls to prevent exposure, In Situ Chemical Oxidation for chlorinated hydrocarbons, Enhanced Natural Attenuation for aromatic hydrocarbons, and monitored natural attenuation (plume containment) for the dissolved plume. DTSC signed the Declaration page on 10/19/06 and forwarded signature page to Water Board who provided the final signature on 12/28/06.

Completed Area Name: 4/9 - South AFRL
Completed Sub Area Name: Not reported
Completed Document Type: Feasibility Study Report
Completed Date: 03/03/2006
Comments: On March 3, 2006, DTSC concurred with the Final Focused Feasibility Study to support a Technical Impracticability Evaluation/ Containment Zone Application for the South Air Force Research Laboaratory (AFRL) in OU 4 and OU 9. Due to the presence of pure phase trichloroethene (TCE) and tetrachloroethene (PCE) in fractured bedrock at depths exceeding 250 feet, the Focused Feasibility Study recommends requesting a technical impracticability waiver for meeting the cleanup standard of the Maximum Contaminant Level for drinking water (MCL) and applies for a Containment Zone under the State Water Code.

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Not reported
Completed Document Type: Record of Decision
Completed Date: 08/04/2009
Comments: This ROD documents the cleanup action for groundwater for Sites 5, 14, 76, and 86; and the soil cleanup action for Site 29. The remedy to clean up groundwater at combined Sites 5 and 14 is the implementation of in-situ biotreatment to destroy floating free product, injection of chemical reagents to remediate dissolved chlorinated solvents, the continued operation of the Site 14 extraction/treatment system, and the implementation of Land Use Controls to limit potential human exposure. The remedy to clean up groundwater at Sites 76 and 86 is to inject chemical reagents and in-situ biological components, and implement LUCs to limit potential human exposure. The remedy to clean up soil at Site 29 is to remove surface debris, grade the site and install a cover which will contain a soil erosion stabilizer agent, enhance the stormwater management system, install fencing, and implement LUCs. Groundwater monitoring will be performed in perpetuity or until sites are cleaned. DTSC

EDWARDS AIR FORCE BASE (Continued) **1000155217**

signed the ROD on 7/8/09.

Completed Area Name: 426
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Completion Report
Completed Date: 08/06/2004
Comments: RA - S426 -- No Further Action recommendation following the completion of a removal action at Site 426 in OU-7, documented in the Site Interim Removal Action Report, March 2004. Site 426 is an historic WWII Chemical Warfare Material Storage Yard near dormitories where investigation delineated four possible "trenches." An excavation removal action conducted in 2002 identified no hazardous contaminants, only four sets of concrete "rails" which were removed.

Completed Area Name: 4/9 - South AFRL
Completed Sub Area Name: Not reported
Completed Document Type: Record of Decision
Completed Date: 09/26/2007
Comments: Selected Remedy included a waiver of the Drinking Water Cleanup Standard and implementation of land use controls and a "Containment Zone." High Concentrations of TCE and PCE exist in fractured bedrock. Feasibility Study justified a technical impracticability waiver for aquifer clean up. Soil and Groundwater will have land use controls and will be monitored to ensure contaiminants do not migrate past the "Containment Zone." Final ROD document delivered 9/5/2007. Approval signatures from Air Force, USEPA, DTSC, and RWQCB provided on 9/11, 9/24, 9/26, and 10/1/2007 respectively.

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Not reported
Completed Document Type: Feasibility Study Report
Completed Date: 10/21/2008
Comments: DTSC has concurred with finalizing the FS allowing OU 1 to move to the Proposed Plan stage. Thirty six of the 48 sites have been categorized as "No Further Action" either because contamination was not found or the contamination was petroleum-only (which moves these sites to the jurisdiction of the Kern County Health Dept under RWQCB authority). Site 45 has been sufficiently remediated and assigned NFA. As only VOCs are contaminants of concern, the remaining 11 sites have been grouped into the "North Plume/Site 19 Plume", the "South Plume" and the "Site 44 Plume". Remedial alternatives were designed around the remediation of these three plumes.

Completed Area Name: 6 - Operable Unit 6, NASA Dryden
Completed Sub Area Name: Not reported
Completed Document Type: Feasibility Study Report
Completed Date: 10/15/2004
Comments: This FS summarizes the backgrounds, plume characteristics, and remedial action alternatives evaluated for sites recommended for remedial action within Operable Unit 6 (OU-6). The report includes preliminary cleanup goals, technical approach comparisons, and cost comparisons of applicable remedial alternatives. Sites in OU-6 are not currently used for residential purposes, nor is such use anticipated; therefore, the FS focuses on industrial use considerations. The preferred alternative recommended for the Proposed Plan is Source Control and Hydrologic Control with Groundwater Monitoring.

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Completed Area Name: OU-3 Basewide Homestead Wells
Completed Sub Area Name: Not reported
Completed Document Type: Record of Decision
Completed Date: 11/06/2003
Comments: RAP - OU3 -- The U.S. Environmental Protection Agency, the U.S. Air Force, and the State of California have selected No-Action as the remedy for Edwards AFB Operable Unit (OU)3. OU3 is defined as the basewide water wells and originally include 660 potential well sites determined from historical records and archival research. Initial site investigations determined that eight of the 660 wells were suspected as potential contaminant pathways to groundwater and were retained in OU3 for further evaluation. Subsequent investigations determined that none of the eight wells retained in OU3 had contributed to any groundwater contamination and, furthermore, no soil contamination was found in the vicinity of any of the wells.

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: S172
Completed Document Type: Operations and Maintenance Report
Completed Date: 06/30/2003
Comments: OM - S172 -- In January 2000, the Air Force implemented an interim removal action (IRA) consisting of soil vapor extraction (SVE) at Site 172, the outdoor waste sump at Building 8595 in Operable Uit 4, Air Force Research Laboratory. The primary objective of the IRA at Site 172 is to remove contaminant mass and reduce the further migration of volatile organic compounds (VOCs) from contaminated soil into the Site 37 groundwater plume. The SVE system operated with one well initially; two more wells were added in August 2000. Four additional extraction wells were connected to the system, which was brought on line September 12, 2002, extracting vapor from seven wells. The cumulative mass of contaminants removed during the reporting period was 472 pounds. Vapor flow rates averaged approximately 42 standard cubic feet per minute (scfm) during January to August 2002, and 84 scfm during September to December 2002 following expansion of the well field from three to seven wells. The SVE operating cost for the year 2002, excluding labor, was $95,172.

Completed Area Name: 4A - AFRL Area
Completed Sub Area Name: Site 133
Completed Document Type: Removal Action Completion Report
Completed Date: 06/27/2003
Comments: RA - S133 -- Construction of the Groundwater Exttraction Treatment System was completed between 01/09 and 04/18/2001 with testing of the system during the week of 04/23/2001 and startup on 04/30/2001. The system includes three groundwater extraction wells and an aboveground treatment system that uses liquid-phase granular activated carbon to remove volatile organic compounds (VOCs) in the extracted groundwater prior to discharge to the Air Force Research Laboratory (AFRL) sewage treatment plant. The system is designed for a maximum capacity of 50 gallons per minute (gpm); however, the volume of water extracted is limited by a discharge permit to 20 gpm.

Completed Area Name: 8 - 25 Operable Unit - 8 - Site 25 Exotic Fuels
Completed Sub Area Name: Site 25
Completed Document Type: Removal Action Completion Report
Completed Date: 05/13/2003
Comments: RA - STE25 -- This report summarizes the operational maintenance and

EDWARDS AIR FORCE BASE (Continued) **1000155217**

system sampling data collected during the period from December 28, 2001 through July 1, 2002 for the Site 25 Groundwater Extraction and Treatment System (GETS), in Operable Unit No. 8. During the reporting period, approximately 4,483,000 gallons of groundwater were extracted and treated by the Site 25 GETS at an average folwrate of 19.9 gallons per minute. 20.5 pounds (lbs.) of trichloroethene (TCE) were removed from treated groundwater. As of July 1, 2002, the GETS removed a cumulative total of 28.7. lbs. of TCE from treated groundwater. The treatment system effluent is discharged to the base sanitary sewer under an industrial wastewater discharge permit issued by Edwards Air Force Base (AFB).

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL32
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 06/28/2002
Comments: Not reported

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL31
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 06/28/2002
Comments: Not reported

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL30
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 06/28/2002
Comments: PEA - PRL30 -- No Further Investigation (NFI) documents signed by the Edwards Air Force Base Remedial Project Managers for Operable Unit 7 - Basewide Miscellaneous Area of Concern (AOC) Number 400. The NFI determination for this site-specific action means that the AOC has been adequately investigated and that the results justify the determination. PEA - PRL31 -- No Futher Investigation (NFI) documents signed by the Edwards Air Force Base Remedial Project Managers for Operable Unit 1 - Main Base Flight Line Site Number 65. The NFI determination for this site-specific action means that the Site has been adequately investigated and that the results justify the determination. PEA - PRL32 -- No Further Investigation (NFI) documents signed by the Edwards Air Force Base Remedial Project Managers for Operable Unit 2 - Ould South Base Site Number 96. The NFI determination for this site-specific action means that this Site has been adequately investigated and that the results justify the determination.

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL29
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 03/29/2002
Comments: Not reported

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL28
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 03/29/2002
Comments: Not reported

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Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL27
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 03/29/2002
Comments: PEA - PRL27 -- No Further Investigation (NFI) documents signed by the Edwards Air Force Base Remedial Project Manager for Operable Unit 4- Air Force Research Laboratory Site Number 146 and for Operable Unit 9 - East Air Force Research Laboratory Site Number 376. The NFI determination for these site-specific actions means that these Sites have been adequately investigated and that the results justify the determination. PEA - PRL28 -- No Further Investigation (NFI) documents signed by the Edwards Air Force Base Remedial Project Manager for Operable Unit 7 - Basewide Miscellaneous Site Number 353 and Area of Concern (AOC) Numbers 268,368 and 371. The NFI determination for these site-specific actions means that these Sites/AOCs have been adequately investigated and that the results justify the determination. PEA - PRL29 -- No Further Investigation (NFI) documents signed by the Edwards Air Force Base Remedial Project Manager for Operable Unit 4 - Air Force Research Laboratory Site Number 7 and 146, and Area of Concern (AOC) Number 167 and 174. The NFI determination for these site-specific actions means that these Sites/AOCs have been adequately investigated and that the results justify the determination.

Completed Area Name: 426
Completed Sub Area Name: Not reported
Completed Document Type: *Action Memorandum (if <$1M)
Completed Date: 10/11/2001
Comments: RAW - S426 -- RAP of Edwards Air Force Base operable unit 7, site 426, includes both the Engineering Evaluation/Cost Analysis and Action Memorandum. The selected remedy for the chemical warfare site is containment excavation.

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL26
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 12/13/2001
Comments: Not reported

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL25
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 12/13/2001
Comments: Not reported

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL24
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 12/13/2001
Comments: PEA - PRL24 - Preliminary Endangerment Assessment (PEA) of Edwards Air Force Base, Operable Unit 4, sites 7 and 174 and area of concern 167, determined that these sites and of concern pose no environmental or Human Health Threat. This document administratively removes these sites from further investigation. PEA - PRL25 -- Preliminary Endangerment Assessment (PEA) Edwards Air Force Base, Operable Unit 7, Sites 295, 434, 435, 436 441 and area of concern 457, determined that these sites and area of concern pose no Environmental or Human

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Health Threat. This document administratively removes these sites from further investigation. PEA - PRL26 -- Preliminary Endangerment Assessment (PEA) Edwards Air Force Base, Operable Unit 9, Site 179, determined that this site poses no environmental or Human Health Threat. This document administratively removes this site from further investigation.

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL23
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 09/17/2001
Comments: Not reported

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL22
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 09/17/2001
Comments: Not reported

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL21
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 09/17/2001
Comments: PEA - PRL21 -- Concurrence provided on PEA equivalent document for OU7, AOCs 261, 262, 263, 264, and 265. PEA - PRL22 -- Concurrence provided on PEA equivalent document for OU10, Site 279. PEA - PRL23 -- Concurrence provided on PEA equivalent document for OU2, AOCs 458, 459, and 460.

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL20
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 06/11/2001
Comments: PEA - PRL20 -- Concurrence provided on PEA equivalent documents for OU-5 sites 229, 235, 236, 238, 348, and 349 and AOCs 187, 190-192, 230, 246, 251, 253, 281, 283, 287, 288, 403, 420 423.

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL19
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 06/08/2001
Comments: PEA - PRL19 -- concurrence provided on PEA equivalent document for OU4, Site 186.

Completed Area Name: 8 - 25 Operable Unit - 8 - Site 25 Exotic Fuels
Completed Sub Area Name: Site 25
Completed Document Type: *Action Memorandum (if <$1M)
Completed Date: 12/04/2000
Comments: RAW - STE25 -- Concurrance on the proposed interim removal action to treat groundwater contaminated with tetrachloroethylene and N-Nitrosodimethylamine. Extracted groundwater will be treated by carbon absorption and discharged to EAFB's sanitary sewer.

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL18
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 03/15/2001

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Comments: Not reported

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL17
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 03/15/2001
Comments: Not reported

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL16
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 03/15/2001
Comments: PEA - PRL16 -- Concurrence provided on PEA equivalent documents for Operable Unit #4, Site 150 and Area of Concern 168. PEA - PRL17 -- Concurrence provided on PEA equivalent documents for Operable Unit #7 Sites 4 and 34 and Areas of Concern 388 and 394. PEA - PRL18 -- Concurrence provided on PEA equivalent documents for Operable Unit #8,Site 2.

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL15
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 02/07/2001
Comments: Not reported

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL14
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 02/07/2001
Comments: PEA - PRL14 -- Concurrence provided on PEA equivalent documents for Operable Unit #10, Area of Concern 243. PEA - PRL15 -- Concurrence provided on PEA equivalent documents for Operable Unit #1, Sites 46, 55 and 366.

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL13
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 02/08/2001
Comments: PEA - PRL13 -- Concurrence provided on PEA equivalent documents for Operable Unit #4, Site 12 and Areas of Concern 121, 155 and 164.

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: STE18
Completed Document Type: * Remedial or Removal Design
Completed Date: 08/02/1999
Comments: DES - STE18 -- Approval of dual extraction system design for interim removal action to treat TCE contaminated soil and groundwater.

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL12
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 04/21/2000
Comments: PEA -- Concurrance provided on PEA equivalent documents for OU-3, sites 30,412,413,414, and 415.

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL11

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Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 01/05/2000
Comments: Not reported

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL10
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 01/05/2000
Comments: PEA - PRL10 -- Concurrance provided on PEA equivalent documents for OU-4, areas of concern 122, 141, 170, and 171. PEA - PRL11 -- Concurrance provided on PEA equivalent document for OU-5, area of concern 233.

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL9
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 09/29/1999
Comments: PEA - PRL9 -- Concurrence provided on PEA equivalent documents for OU-2, Sites 105, 109, 111, and 364.

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL8
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 09/29/1999
Comments: PEA - PRL8 -- Concurrence provided on PEA equivalent documents for OU-3, Sites 409, 410, 411, and 416.

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL7
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 02/26/1999
Comments: PEA - PRL7 -- Concurrance provided on PEA - equivalent documents for OU-10 sites 228, 232, and 256.

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: S223
Completed Document Type: * Remedial or Removal Design
Completed Date: 02/02/1999
Comments: DES - S223 -- Design for installing, operating and evaluating the SVE and air sparging systems at Site 223 in OU-2.

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: SIT14
Completed Document Type: * Remedial or Removal Design
Completed Date: 02/01/1999
Comments: DES - SIT14 -- Design for installing, operating, and evaluating the groundwater extraction and treatment system at Site 14 in OU-2.

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: B8595
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 01/28/1999
Comments: PEA - B8595 -- Investigation and closure of AOC's 170-172 in Building 8595 in OU-4.

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL6

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Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 10/01/1998
Comments: Not reported

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: SRAM
Completed Document Type: Removal Action Completion Report
Completed Date: 08/03/1998
Comments: RA - SRAM -- Time critical removal action taken to destroy short range attack missile motor.

Completed Area Name: 6 - Operable Unit 6, NASA Dryden
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Plan
Completed Date: 04/27/1999
Comments: OM - OU-6 -- APPROVAL OF THE O&M PLAN FOR OU-6 SITES, N2, N3 AND N7.

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: S133
Completed Document Type: *Action Memorandum (if <$1M)
Completed Date: 10/17/2000
Comments: RAW - S133 -- The proposed Interim Removal Action consists of the extraction of groundwater contaminated with solvents, primarily trichloroethlyene, and treatment by liquid phase granular activated carbon. Treated effluent will be discharged to the Base's sanitary sewer system. A total of 43,200 gallons per day of groundwater will be extracted and treated.

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL5
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 10/01/1998
Comments: PEA - PRL5 -- EAFB has adequately investigated the OU-5 NASA Jet Propulsion laboratory PRL Sites 195, 200, 201, 243, 289 and 350 (collectively, PRL5). DTSC finds that the documents are equivalent to a PEA document. PEA - PRL6 -- EAFB has adequately investigated the OU-2 Old South Base PRL Sites 75, 77, 89, 95, 97 and 99 (collectively, PRL6). DTSC finds that the documents are equivalent to a PEA document.

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL4
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 07/29/1998
Comments: PEA - PRL4 -- Edwards AFB has adequately investigated the OU-2 Old South Base PRL sites 72, 73, 78, 79, 84, 87, 98, 100, 101, 104, 290, 291 and 417 (collectively, PRL4) DTSC finds that the documents are equivalent to a PEA document.

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: PRL1
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 12/12/1996
Comments: Not reported

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: S223

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Completed Document Type: Removal Action Completion Report
Completed Date: 06/01/1999
Comments: RA - S223 -- Implementation of a SVE/Air sparging system to remediate fuel contaminated soil and groundwater.

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 14
Completed Document Type: Removal Action Completion Report
Completed Date: 06/11/1999
Comments: RA - SIT14 -- Implementation of a GW extraction/treatment system to remediate TCE contaminated GW. System implemented consists of 4 extraction wells and an above ground treatment system using carbon adsorption.

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: SIT29
Completed Document Type: Removal Action Completion Report
Completed Date: 06/04/1998
Comments: RA - SIT29-- Removal action consisted of fencing the site for access restriction and conducting long - term groundwater monitoring.

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: S223
Completed Document Type: *Action Memorandum (if <$1M)
Completed Date: 05/07/1998
Comments: RAW - Site 223 -- Petroleum hydrocarbon contamination in soil and groundwater will be treated using soil vapor extraction/vapor treatment for soils and air sparging for groundwater. Monitoring of the system will also be required.

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: SIT14
Completed Document Type: *Action Memorandum (if <$1M)
Completed Date: 05/07/1998
Comments: RAW - SITE14 -- Groundwater at Site 14 contaminated with petroleum hydrocarbon, volatile organics, and semi-volatile organcis will be treated via extraction and treatment by liquid-phase granular activated carbon adsoption, then reinjected into the groundwater aquifer

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: SIT29
Completed Document Type: *Action Memorandum (if <$1M)
Completed Date: 05/07/1998
Comments: RAW - SIT29 -- The South Base abandoned landfill has been fenced and will be monitored.

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Not reported
Completed Document Type: Feasibility Study Report
Completed Date: 02/09/2006
Comments: The FS evaluated alternatives for each site in Operable Unit 2 - South Base. The preferred remedial alternatives for each site are summarized below: Sites 5/14 Contaminant Plume In-situ treatment of the commingled fuel and solvent contamination in groundwater with the maintenance of plume containment, long-term monitoring, and institutional controls. Pilot testing will be conducted to evaluate

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the appropriate method for in-situ treatment. Sites 76 and 86 Active groundwater restoration through the use of in-situ treatment and institutional controls for groundwater contaminated with trichloroethylene. Pilot testing will be conducted to evaluate the appropriate method for in-situ treatment. Site 29 Removal of recently emplaced surface debris, institutional controls, storm water controls, and long-term monitoring for the two former landfill areas. Site 69 Removal and on-base waste disposal of buried and surface debris from the Old South Base North Landfill. Excavated materials will be consolidated within the Main Base active landfill. Sites 81 and 102 Removal and off-site treatment or recycling for skeet target fragments from two former skeet ranges located in the Old South Base area.

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 5
Completed Document Type: Removal Action Completion Report
Completed Date: 12/10/1997
Comments: The Dual Extraction System at the source area of the Sites 5 and 14 plume is in place and operational. The system addresses "Hot Spot" soil and groundwater contamination from leaking USTs.

Completed Area Name: MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Completion Report
Completed Date: 06/30/1997
Comments: RA Site 7 & AOC 167. Beryllium soil contamination consolidated in an on-site waste management unit. Site is capped and revegetated and its location recorded in the Base Comprehensive Plan.

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 16
Completed Document Type: Removal Action Completion Report
Completed Date: 06/30/1997
Comments: SIT16 DES Removal Action Completion - Initial operation of the Dual Extraction System began on March 18, 1997. The system is considered to be fully operational for long term use. The DES is extracting soil vapor and groundwater contaminated with JP-4 from the Building 1820 JP-4 Fuel Spill.

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: SIT45
Completed Document Type: Removal Action Completion Report
Completed Date: 05/22/1997
Comments: Not reported

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 5
Completed Document Type: *Action Memorandum (if >$1M)
Completed Date: 06/30/1997
Comments: RAP, OU-2 Site 5/15 Source Area Action Memorandum. Dual Phase Extraction selected for VOC and Fuel contamination in soil and groundwater.

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: SIT18
Completed Document Type: Remedial Action Plan

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Completed Date: 05/29/1997
Comments: Not reported

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: SIT16
Completed Document Type: Remedial Action Plan
Completed Date: 09/30/1996
Comments: Not reported

Completed Area Name: Sites With No Operable Unit
Completed Sub Area Name: SIT45
Completed Document Type: Remedial Action Plan
Completed Date: 09/30/1996
Comments: Not reported

Completed Area Name: MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Plan
Completed Date: 09/30/1996
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Public Participation Plan / Community Relations Plan
Completed Date: 05/31/1994
Comments: PPP - DTSC approved a Public Participation Plan (revision) for Edwards Air Force Base.

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 16
Completed Document Type: Removal Action Completion Report
Completed Date: 01/30/1993
Comments: Not reported

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Completion Report
Completed Date: 01/30/1993
Comments: RA (OU1BV): Removal of JP-4 fuel in the vadose zone by injection of air underground to provide oxygen to native bacteria which feed on petroleum hydrocarbons. This process is being employed at Site 16 - Fuel Spill and at Site 21 - Jet Engine test cell facility. RA (OU1FP): Installation, development and activation of six scavenger pumps to remove free product from the groundwater surface at Site 16.

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Completion Report
Completed Date: 01/30/1992
Comments: RA (OU1PR): Construction of a new JP-4 jet fuel pipeline to replace existing pipeline from fuel tank farm to flight line (4.5 miles) with double-walled pipe and leak detectors. No contaminated soil was removed with this action.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Public Participation Plan / Community Relations Plan

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Completed Date: 04/30/1991
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Screening
Completed Date: 02/10/1987
Comments: Site Screening Done.

Completed Area Name: 6 - Operable Unit 6, NASA Dryden
Completed Sub Area Name: Not reported
Completed Document Type: Proposed Plan
Completed Date: 06/01/2005
Comments: No significant public comments received.

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 58
Completed Document Type: Removal Action Workplan
Completed Date: 03/25/2005
Comments: This IRA Work plan includes additional characterization to delineate free product jet fuel and installation of a Vapor Extraction System to remediate soil and groundwater and removal of free product.

Completed Area Name: 4/9 - South AFRL
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Report
Completed Date: 06/23/2005
Comments: Final approval letter sent.

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Report
Completed Date: 11/09/2004
Comments: Final RI Report

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.
Completed Sub Area Name: Site CWM-A
Completed Document Type: Feasibility Study Report
Completed Date: 09/14/2007
Comments: Site 442 CWM concurrence letter sent 9/14/07.

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.
Completed Sub Area Name: Site CWM-A
Completed Document Type: Remedial Investigation Report
Completed Date: 08/04/2006
Comments: Final Report received 7/10/2006. Originally 27 sites/AOCs. RPMs agreed that 24 sites and 2 AOCs posed minimal risk to human health and environment due to CWM-related contamination and were either NFA or administratively closed under CERCLA in the Site Inspection phase. DTSC concurrance on Final document by email 8/4/2006. Two sites, Site 426 and Site 442, to be carried forward.

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.
Completed Sub Area Name: Site CWM-A
Completed Document Type: Proposed Plan
Completed Date: 05/01/2008
Comments: Final version received 5/1/2008. Public comment period ended

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6/16/2008.

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.
Completed Sub Area Name: Site CWM-A
Completed Document Type: Record of Decision
Completed Date: 09/25/2009
Comments: This ROD is for the Chemical Warfare Materiel Operable Unit, where miscellaneous former chemical warfare materials were buried in several waste cells at Sites 442-1, -2, and -3. Chemical wastes are not thought to be present in these waste cells, but as a safety precaution, no invasive sampling was performed. Furthermore, the suspected materials are believed to have degraded since disposal. However, as a precaution, a protective remedy was selected. The selected remedy includes grading to redirect surface drainage to limit infiltration, an envirotranspiration surface cap, long term monitoring and land use controls. This ROD also selects "No Further Action" for Site 426 which was once thought to contain chemical warfare materials.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Report
Completed Date: 10/22/2008
Comments: DTSC concurrence on "Final" Operable Unit 5/10 RI Summary Report. 87 sites were identified within OU 5/10, the sites were classified into the following categories: 35 sites were removed from the CERCLA process as requiring No Further Investigation following the PA/SI phase; 15 sites were removed from the CERCLA process on the condition that contaminated soil or groundwater be addressed as part of remedial actions for Site 282 or 285; 23 sites were removed from the CERCLA process as petroleum only sites. Fourteen sites (Sites 1, 231, 233, 239, 240, 242, 274, 275, 278, 279[soil only], 282[groundwater only], 285, 287[groundwater only], and 422[groundwater only]) were evaluated in this document and will continue on through the FS.

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Not reported
Completed Document Type: Proposed Plan
Completed Date: 06/28/2006
Comments: DTSC concurred with the OU2 Proposed Plan concurrence letter. Air Force proposes the following remedies for groundwater at Sites 5, 14, 76, and 86; soil and debris at sites 29, 29, 69, 81, and 102; and NFA remedies at the last four sites, Sites 78, 79, 96, and Area of Concern (AOC) 417

Completed Area Name: 4A - AFRL Area
Completed Sub Area Name: Not reported
Completed Document Type: Feasibility Study Report
Completed Date: 10/25/2006
Comments: DTSC concurrence with the OU-4/9 Soil and Debris Sites Feasibility Study Report. Preferred remedial alternatives include: Site 36 - Land Use Controls only (vehicle gate, warning signs, and land use restrictions. Site 312 - clean closure of the site to residential use standards, off-site disposal of excavated soil and concrete. Site 318 - Land Use Controls. Sites 6 and 113 - Expand existing LUCs and install additional fencing. Site 115 - expand existing LUCs and backfill silos with clean soil and cap with concrete.

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Completed Area Name: 4/9 - South AFRL
Completed Sub Area Name: Not reported
Completed Document Type: Proposed Plan
Completed Date: 03/28/2006
Comments: EPA and DTSC concurred with final version of the OU-4 AFRL Proposed Plan.

Completed Area Name: 4A - AFRL Area
Completed Sub Area Name: Not reported
Completed Document Type: Proposed Plan
Completed Date: 08/03/2007
Comments: Final document concurrence letter sent 8/3/07. No Further Action proposed for Sites 7, 26, 150, 153, 166, 172, 329, and 396, AOCs 170 and 171. Actions required for Sites 13, 36, 167, 312, 318, 6 and 113, and 115. Actions include continued groundwater monitoring, fencing, LUCs to prohibit residential uses and restrict industrial/construction uses.

Completed Area Name: 4/9 - Soil and Debris Sites
Completed Sub Area Name: Not reported
Completed Document Type: Record of Decision
Completed Date: 09/04/2008
Comments: Final ROD addresses the soil and debris media at 16 sites and two areas of concern (AOCs) located within OUs 4 and 9 and also the groundwater medium at Sites 6 and 113. Further Action required for the following sites: OU4 (Sites 13, 36, 167, 312, and 318), OU9 (Sites 6, 113, and 115). Interim remedial actions have reduced formerly high contaminant concentrations to levels acceptable for unrestricted use at Sites or AOCs 7, 26, 153, 166, 170, 171, 172, and 396. These sites will be Certified. No further action determinations were made for Sites 150 and 329 where contaminants were below unrestricted use levels.

Completed Area Name: 4A - AFRL Arroyos
Completed Sub Area Name: Not reported
Completed Document Type: Feasibility Study Report
Completed Date: 01/15/2009
Comments: This Focused Feasibility Study supports a technical impracticability (TI) evaluation and designation of a containment zone (CZ) for groundwater plumes at Sites 162 and 461 at the Air Force Research Lab, Edwards AFB. Chemicals of Concern are present in fractured bedrock at levels that pose an unacceptable risk to human health and the environment, however this FS concludes that it is impracticable to remove the COCs and recommends measures to prevent exposure to contaminated soil and groundwater.

Completed Area Name: 9 - Air Force Research Lab - East
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Report
Completed Date: 02/08/2006
Comments: DTSC concurrence with Final document, no letter sent. Of the 46 original sites in OU-9, 36 sites have been excluded from the CERCLA process and the 10 remaining sites are recommended for remedial action. 29 Sites were recommended for NFA in the Site Inspection Phase, 6 are managed under the UST program, and 1 site remains active. The 10 remaining sites include: Sites 6 and 113 (Abandoned Mine Shafts used for propellant waste disposal) contain waste left in

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place that is unsafe to investigate, and eight groundwater plumes at sites 27, 115, 116, 125, 127, 178, 321, and 325.

Completed Area Name: 8 - Operable Unit 8, Northwest Main Base
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Report
Completed Date: 06/07/2006
Comments: DTSC concurred with RI Summary Report. Site Inspection phase eliminated nine sites from the CERCLA process as NFA. Eight sites are recommended for Feasibility Study.

Completed Area Name: 4/9 - South AFRL
Completed Sub Area Name: Not reported
Completed Document Type: Design/Implementation Workplan
Completed Date: 04/03/2009
Comments: This document presents the work to be peformed to monitor the remedies presented in the OUs 4/9 South AFRL Record of Decision. DTSC worked closely with the document development; all of DTSC concerns have been addressed.

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 5
Completed Document Type: Monitoring Report
Completed Date: 04/17/2006
Comments: DTSC concurred with annual monitoring report and recommendations for continued operation.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Site 285
Completed Document Type: Monitoring Report
Completed Date: 03/17/2006
Comments: Concur with Recommendation to continue operation and monitoring.

Completed Area Name: 4A - AFRL Area
Completed Sub Area Name: Site 312
Completed Document Type: Remedial Investigation Workplan
Completed Date: 04/17/2006
Comments: DTSC concurred with workplan.

Completed Area Name: 4A - AFRL Area
Completed Sub Area Name: Site 37
Completed Document Type: Treatability Study Report
Completed Date: 04/17/2006
Comments: DTSC final concur letter.

Completed Area Name: 9 - Air Force Research Lab - East
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 12/21/2005
Comments: DTSC concurred without comment

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.
Completed Sub Area Name: Site 272
Completed Document Type: Remedial Investigation Workplan
Completed Date: 07/13/2006
Comments: Document not reviewed by DTSC. Work proceeded without DTSC comments.

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Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Base / Site Management Plan
Completed Date: 03/28/2006
Comments: December 2005 Submittal of July-Sept. 2005 Strategy and Status Report

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 66
Completed Document Type: Removal Action Completion Report
Completed Date: 04/26/2006
Comments: DTSC concurred with final Site 66 Treatability Study Report for the Dual Extraction System without comment. SVE System removed 114907 lbs of hydrocarbons before being shut down in February 2005. 4017 lbs were removed during Pilot from vapor and free product.

Completed Area Name: 4A - AFRL Area
Completed Sub Area Name: Site 36
Completed Document Type: Removal Action Completion Report
Completed Date: 05/15/2005
Comments: The former Wastewater Holding Tank and piping, Building 8525 were removed in Aug. 2004. Approximatley 10 cubic yards of perchlorate contaminated soil was removed from beneath the tank for off-site disposal. Residual perchlorate is the only constituent of concern in the soil. Groundwater contains TCE, PCE, DCE, NDMA, and perchlorate. The groundwater will be managed under the OU-4/9 AFRL Arroyos area and Site 162.

Completed Area Name: 4A - AFRL Arroyos
Completed Sub Area Name: Not reported
Completed Document Type: Technical Report
Completed Date: 08/03/2007
Comments: Final document concurrence letter sent 8/3/07.

Completed Area Name: 4A - AFRL Area
Completed Sub Area Name: Site 37
Completed Document Type: Removal Action Completion Report
Completed Date: 05/01/2000
Comments: Construction complete for the Groundwater Extraction and Treatement System (GETS) at Site 37. Primary Chemical of Concern is PCE. Extraction system began operation on 1/25/1999, and consists of groundwater extraction, liquid phase GAC, and discharge to the sewer.

Completed Area Name: 6 - Operable Unit 6, NASA Dryden
Completed Sub Area Name: Not reported
Completed Document Type: Design/Implementation Workplan
Completed Date: 02/16/2008
Comments: DTSC concured with Final Remedial Action Phase 2 Work Plan for OU 6 and finds it acceptable for the Remedial Design to implement Phase 2 of the Remedial Action selected by the September 2006 Record of Decision for Edwards AFB OU 6

Completed Area Name: 6 - Operable Unit 6, NASA Dryden
Completed Sub Area Name: Not reported
Completed Document Type: Remedy Constructed: Operating Properly & Successfully
Completed Date: 04/24/2009
Comments: This report documents the first part of Phase II of the implementation of the groundwater cleanup remedy. Phase I was the

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implementation of a managed Land Use Control program. Phase II comprises the injection and monitoring of chemical oxidants into groundwater. Results are encouraging as VOCs were reduced in portions of the plume. Follow-up injection/monitoring will be performed later in 2009.

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Not reported
Completed Document Type: Public Notice
Completed Date: 09/19/2006
Comments: Public comment period for OU 2 Proposed Plan.

Completed Area Name: 4A - AFRL Arroyos
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 08/03/2007
Comments: Final document concurrence letter sent 8/3/07.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Not reported
Completed Document Type: Risk Assessment Report
Completed Date: 08/03/2007
Comments: The Final OU 5/10 North Base Human Health Risk Assessment document was received by DTSC on 5/9/2007, after resolution of comments submitted by DTSC's risk assessor. Of the 14 sites carried forward into the RI phase and evaluated in this document, 12 sites exceeded the residential scenario benchmarks of 1 x 10-6 cancer risk or a noncancer Hazard Index of 1.

Completed Area Name: Military Munitions Response Program (MMRP) - Basewide
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Assessment/Site Inspection Report (PA/SI)
Completed Date: 08/03/2007
Comments: Phase I Report recommends further investigation for 14 areas: AL 500 - Main Base Closed Range, AL 501 - South Base Ordnance Ranges, North and South; AL 502 - North Base Ordnance Ranges, North and South; AL 503 - Gates Range Areas, North, South, and West; AL 504, 7th AAF Bombing and Gunnery Range; AL 505, Edwards Off-Base Adjacent Areas 1, 2, 3, 4, and 5.

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.
Completed Sub Area Name: Site 3
Completed Document Type: Feasibility Study Report
Completed Date: 10/02/2008
Comments: DTSC accepted the final Site 3 Main Base Inactive Landfill FS. Four alternative were evaluated with combinations of Land Use Controls, Monitored Natural Attenuation, Evapotranspirative Cover, Stormwater Control, and Waste Consolidation.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Not reported
Completed Document Type: Risk Assessment Report
Completed Date: 04/30/2008
Comments: Concurrence on Final document delayed due to workload and higher priority document reviews by DTSC and Fish and Game.

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.

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Completed Sub Area Name: Not reported
Completed Document Type: Risk Assessment Report
Completed Date: 04/30/2008
Comments: Concurrence on Final version of document delayed due to heavy workload and higher priority document reviews by DTSC and Fish and Game.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Inventory Project Report (INPR)
Completed Date: 06/05/1990
Comments: Not reported

Completed Area Name: 4/9 - South AFRL
Completed Sub Area Name: Not reported
Completed Document Type: Pilot Study/Treatability Workplan
Completed Date: 11/20/2008
Comments: This addendum to the OUs 4/9 Workplan provides a summary of information to-date and outlines additional work to be performed for the bioremediation pilot study for the cleanup of plumes in the Arroyos portion of the South AFRL at EAFB.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Site 282
Completed Document Type: Treatability Study Workplan
Completed Date: 01/06/2009
Comments: Comments to Draft Workplan rec'd 8/20/08 were provided on 9/20/08. The Final workplan was received 11/6/08 and approved on 1/6/09.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Risk Assessment Report
Completed Date: 01/16/2009
Comments: This document is the first phase ecological screening evaluation of the sites listed in the title. Site 233, and AOCs 284 and 287 have moved on to the next phase of evaluation while the remaining sites are considered no action for ecological issues.

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.
Completed Sub Area Name: Site 3
Completed Document Type: Proposed Plan
Completed Date: 01/25/2010
Comments: This is the proposed plan for the Air Force's proposed remedy for Site 3 in OU 7. The Air Force proposes a remedy that includes consolidation of some of the landfill cells, capping the cells using an "evapotranspiration cover", and conducting monitored attenuation monitoring. Additionally, land use covenents will be applied to the site.

Completed Area Name: 4A - AFRL Arroyos
Completed Sub Area Name: Not reported
Completed Document Type: Proposed Plan
Completed Date: 09/23/2009
Comments: Document summarizes the investigation/feasibility study, and proposes the clean up remedy of the TCE/perchlorate/other VOC groundwater contamination at the Arroyos which is in OUs 4/9 along the northwestern side of the Edwards Air Force Research Laboratory. The

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proposed remedy is to apply a "Containment Zone" of the contaminated aquifer and if applicable, in the distant future institute active remediation if/when the plume(s) reach the alluvial aquifer.

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.
Completed Sub Area Name: Site 3
Completed Document Type: Well Installation Workplan
Completed Date: 01/29/2009
Comments: This document provides the details for addressing data gaps identified in the FS. Work to be performed includes the installation of downgradient monitoring wells, and landfill soil gas monitoring wells. Draft final and comment resolution handled electronically. DTSC concurred with the final changes; all comments have been addressed. No final concurrence letter needed or sent.

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 16
Completed Document Type: Well Decommissioning Workplan
Completed Date: 02/04/2009
Comments: Document presents the results of the 2007-2008 annual monitoring of the Site 16 (OU 1) SVE system. DTSC comments on the draft were adequately addressed. No concurrence letter on the final document needed or sent.

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 19
Completed Document Type: Treatability Study Report
Completed Date: 01/02/2009
Comments: Documents the status of the Site 19 Bioremediation Treatment Study.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Risk Assessment Report
Completed Date: 04/02/2009
Comments: This document presents the ecological risk assessments for Sites 233 and 284. DTSC and DFG concurs.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Risk Assessment Report
Completed Date: 04/02/2009
Comments: The ecological risk assessment for Site 233, AOC 284, and AOC 287 have been reviewed and accepted by DTSC and DFG. No formal concurrence letter needed or sent.

Completed Area Name: 4/9 - South AFRL
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 02/02/2009
Comments: Document provides the results of the 2007-2008 annual groundwater monitoring perfomred at the AFRL (OUs 4/9. All of DTSC comments on the draft document were addressed; no concurrence letter on the final needed or sent.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Site 285
Completed Document Type: Monitoring Report

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Completed Date: 01/21/2009
Comments: This document presents the results of the 2007-2009 annual groundwater monitoring and groundwater extraction system performance for site 285 at Operable Units 5 and 10. DTSC has reviewed and concurs with the final document; no concurrence letter needed or sent. Not reported

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 02/09/2009
Comments: Report provides the results of the annual groundwater monitoring for Operable Units 5 & 10 at EAFB. No final concurrence letter required or sent.

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Not reported
Completed Document Type: Design/Implementation Workplan
Completed Date: 02/25/2009
Comments: This document presents a sampling plan for data the Air Force will use for designing the planned remedial systems at OU 1. The AF recognizes that without a signed ROD, the remedies have not yet been selected.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Workplan
Completed Date: 09/02/2009
Comments: Documents the proposed installation of various monitoring wells at Sites 282, 285, and AOC 287 at OUs 5/10 at EAFB

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 58
Completed Document Type: Monitoring Report
Completed Date: 09/16/2009
Comments: Not reported

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 16
Completed Document Type: Pilot Study/Treatability Workplan
Completed Date: 01/06/2010
Comments: This workplan is for the study of in-situ bioremediation groundwater treatment at Site 16.

Completed Area Name: 8 - 25 Operable Unit - 8 - Site 25 Exotic Fuels
Completed Sub Area Name: Site 25
Completed Document Type: Monitoring Report
Completed Date: 08/24/2009
Comments: This report presents the results of the December 2007 through November 2008 monitoring of the Site 25 Groundwater and Extraction Treatment System. This includes the monitoring of the VOC groundwater plume.

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 18
Completed Document Type: Monitoring Report
Completed Date: 06/09/2009

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Comments: Documents the results of the annual monitoring of the Site 18 Dual Phase Extraction System. DTSC concurs, no concurrence letter required. Not reported

Completed Area Name: 4A - AFRL Area
Completed Sub Area Name: Site 172
Completed Document Type: Monitoring Report
Completed Date: 06/17/2009
Comments: This report presents the results of the 2008 soil vapor monitoring at Site 172

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 19
Completed Document Type: Well Completion Report
Completed Date: 06/10/2009
Comments: Report was issued as final. DTSC provided input via comment letter.

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 29
Completed Document Type: Monitoring Report
Completed Date: 09/10/2009
Comments: Not reported

Completed Area Name: 8 - 25 Operable Unit - 8 - Site 25 Exotic Fuels
Completed Sub Area Name: Site 25
Completed Document Type: Treatability Study Workplan
Completed Date: 12/07/2009
Comments: This document comprises the workplan to conduct a chem-ox treatability study at Site 25. Chemical oxidents will be leached into the subsurface via infiltration galleries in an attempt to assess the viability of using this method to reduce the amount of VOCs in groundwater. DTSC reviewed and concurred with the responses to DTSC comments on the draft document. There was no draft final issued; DTSC concurs with the final document.

Completed Area Name: 4/9 - Soil and Debris Sites
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Implementation Workplan
Completed Date: 10/08/2009
Comments: This Remedial Action Work Plan (RAWP) focuses on implementation of the remedial actions selected in the Soil and Debris Sites ROD. This RAWP outlines soil excavation, confirmation soil sampling, and/or groundwater well installation at Sites 13, 36, 167, 312, and 318. This RAWP also includes standard operating procedures in a Sampling and Analysis Plan and a Quality Assurance Project Plan (QAPP).

Completed Area Name: 6 - Operable Unit 6, NASA Dryden
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Implementation Workplan
Completed Date: 05/18/2010
Comments: This workplan outlines the installation of additional wells for the remedial action to clean up groundwater at Operable Unit 6.

Completed Area Name: 2 - Operable Unit 2, South Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Long Term Monitoring Report
Completed Date: 11/02/2009

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Comments: Not reported

Completed Area Name: 2 - Operable Unit 2, South Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Pilot/Treatability Study Report
Completed Date: 11/03/2009
Comments: Report presents the results of the second phase of the In-Situ Chem Oxidation Treatability Study and the 2008 groundwater monitoring program. Chem ox treatment is reducing VOC concentrations in groundwater. More applications are forthcoming.

Completed Area Name: 8 - Operable Unit 8, Northwest Main Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Well Installation Workplan
Completed Date: 08/30/2010
Comments: Workplan for obtaining background levels for arsenic and nitrate

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 11/25/2009
Comments: This is the comprehensive 2007 annual groundwater monitoring report for 2007. DTSC has concurred; no concurrence letter required.

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 76
Completed Document Type: Design/Implementation Workplan
Completed Date: 10/20/2010
Comments: Not reported

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.
Completed Sub Area Name: Site 3
Completed Document Type: Feasibility Study Report
Completed Date: 01/07/2010
Comments: This documents the results of the data gaps investigation (additional monitoring wells and groundwater and soil gas (via previously installed permanent vapor wells)sampling to support the FS. Also included was an update to the VOC degradation study and a greater level of details on cleanup alternative cost estimates than was provided in the FS. At DTSC concurrence, no draft final was prepared and instead the Air Force worked with DTSC to address all of DTSC comments on the draft document.

Completed Area Name: 4/9 - South AFRL
Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 10/12/2009
Comments: This report documents the installation and initial monitoring of wells for the South AFRL remedial action. DTSC has identified one potential issue (that of adequate downgradient control for Site 120) which will be addressed by the Air Force.

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 86
Completed Document Type: Remedial Action Implementation Workplan
Completed Date: 11/12/2010
Comments: Document presents the plan to perform the remedy (groundwater

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cleanup) at Site 86.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Site 231
Completed Document Type: Engineering Evaluation / Cost Analysis - Time Critical
Completed Date: 05/10/2010
Comments: This EE/CA presents the case for conducting a Non-Time (subsequently changed to a "Time") Critical Removal Action for lead-contaminated soil at Site 231 in OU 5/10. It will be performed via a "scoop and haul" method with an Air Force goal of achieving a "no further action" designation for this site.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Site 242
Completed Document Type: Engineering Evaluation / Cost Analysis - Time Critical
Completed Date: 05/11/2010
Comments: This EE/CA presents the case for conducting a Non-Time Critical Removal Action for PCB-contaminated soil at Site 242 in OU 5/10. It will be performed via a "scoop and haul" method with an Air Force goal of achieving a "no further action" designation for this site.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Site 231
Completed Document Type: Other Report
Completed Date: 09/20/2011
Comments: This Action Memorandum provides the administratively required justification for completing the lead-impacted soil removal action at Site 231

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Well Installation Workplan
Completed Date: 04/28/2010
Comments: This workplan provides for the installation of monitoring wells at the referenced sites to fill data gaps for the Air Force to proceed to the Feasibility Study.

Completed Area Name: 4/9 AFRL Misc. Documents
Completed Sub Area Name: Not reported
Completed Document Type: Well Completion Report
Completed Date: 03/01/2010
Comments: Report provides the results from the 2008 installation of monitoring wells forthe AFRL Arroyos and Northeast AFRL plumes. Additional wells are needed and a workplan to install these additional wells is under DTSC review.

Completed Area Name: 4/9 - South AFRL
Completed Sub Area Name: Not reported
Completed Document Type: Well Installation Workplan
Completed Date: 02/18/2010
Comments: Provides the Purpose, data quality objectives, and schedule for the next phase (referred to as the "Eco" phase)of wells to be installed at the South AFRL to monitor the plume extents and meet the ROD requirements.

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Not reported

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Completed Document Type: Well Installation Workplan
Completed Date: 05/10/2010
Comments: This workplan is for the installation of monitoring wells to address selected data gaps for the groundwater plumes in OU 1. In April 2010 DTSC participated in a technical workgroup meeting to resolve comments and select final well locations.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Site 285
Completed Document Type: Monitoring Report
Completed Date: 12/02/2009
Comments: This report summarizes the annual (04/08-04/09) operations and monitoring for Site 285 at OUs 5/10. DTSC did not review.

Completed Area Name: 4A - AFRL Area
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 12/22/2009
Comments: Report provides the results of the 2008 annual groundwater monitoring for the Arroyos, Northeast AFRL, and South AFRL at OUs 4/9

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Report
Completed Date: 08/02/2010
Comments: Develops background groundwater concentrations for Nitrate, selected anions, and TDS.

Completed Area Name: 2 - Operable Unit 2, South Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Implementation Workplan
Completed Date: 10/06/2010
Comments: Workplan to initiate in-situ chemical oxidation of VOCs in groundwater at Sites 5 and 14 in Operable Unit 2.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 01/19/2010
Comments: Provides the results of the August 2008-April 2009 Groundwater Monitoring Program for combined Operable Units 5 and 10.

Completed Area Name: Multiple OUs - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Well Installation Workplan
Completed Date: 05/18/2010
Comments: Workplan to install monitoring wells to address groundwater data gaps at the Northeast AFRL and a few of the Mars. Blvd. sites. Does not address all identified data gaps; there will be a future separate workplan for those data gaps.

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Workplan
Completed Date: 01/26/2011
Comments: Workplan to assess the VIP at Sites 16 and 18.

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Completed Area Name: 4A - AFRL Area
Completed Sub Area Name: Site 333A
Completed Document Type: Pilot/Treatability Study Report
Completed Date: 10/01/2010
Comments: Presents the results of the treatability study for groundwater at site 333. Injection of substrate resulted in degradation of primary contaminants to secondary contaminants (1,2-DCE) where degradation stalled even after bioaugmentation was applied. AF has agreed to continue monitoring to see if contaminant degradation continues.

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 58
Completed Document Type: Monitoring Report
Completed Date: 07/26/2010
Comments: Provides the results of the Nov ’08 through Oct ’09 SVE operations.

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 29
Completed Document Type: Other Report
Completed Date: 10/25/2010
Comments: This document presents the results of the surface debris removal and subsurface investigation to delineate the extent of and identify the general contents of the buried debris at Site 29. It was meant to feed into the remedial design. However, the results show that only limited innocuous (generally concrete, bottls, cans, etc.) are present. As a result, the Air Force turned this document into an FS addendum and added an evaluation of removing the buried debris.

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 18
Completed Document Type: Monitoring Report
Completed Date: 08/12/2010
Comments: Annual monitoring report for the OU 1, Site 18 Dual-phase extraction system for the remediation of VOCs in soil and groundwater.

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.
Completed Sub Area Name: Site 3
Completed Document Type: Record of Decision
Completed Date: 09/21/2012
Comments: After significant delay due to unacceptable changes made by the Air Force (AFCEE) in the draft final revision 1 and revision 2, and subsequent negotiation and modifications, the Federal Facility Agreement signatories agreed to finalize and sign the ROD in September 2012. This is a former municipal landfill that contains some (estimated to be small) amount of hazardous wastes that have resulted in a small VOC groundwater plume undergoing natural biodegradation. The remedy is to consolidate some of the more distant waste cells into a cell in the main portion of the landfill, apply land use controls restricting building on and in the vicinity of the landfill, conduct further studies of the bedrock aquifer, and monitor the continued degradation of the VOCs in groundwater.

Completed Area Name: Military Munitions Response Program (MMRP) - Basewide
Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 05/15/2010
Comments: This report is the equivalent of a Remedial Investigation for

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military munitions for areas where the Air Force has identified as "closed" and no longer will be used for range operations. DTSC has reviewed and generally concurred with the results. In an August 2009 meeting, DTSC identified the need for further action in four areas.

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 58
Completed Document Type: Quality Assurance Workplan
Completed Date: 12/03/2010
Comments: Presents the workplan to install an SVE system at OU 1 Site 58.

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 14
Completed Document Type: Monitoring Report
Completed Date: 08/30/2010
Comments: DTSC reviewed the draft annual groundwater monitoring report, and no comments and concurred with finalization.

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Workplan
Completed Date: 06/21/2010
Comments: This workplan describes the plan for collecting and analyzing soil samples in source areas at OU 1. The data will be used in developing potential remedial designs which will be finalized in the Record of Decision

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Site 282
Completed Document Type: Pilot/Treatability Study Report
Completed Date: 09/22/2010
Comments: Reports the status of the treatability study for groundwater at Site 282. DTSC disagrees with the conclusion that the process in not viable for treating groundwater at Site 282 and has conveyed this in a letter on the final document.

Completed Area Name: Multiple OUs - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Treatability Study Report
Completed Date: 10/01/2010
Comments: Presents the results of the Treatability Study for GW contamination at Sites 162, 177, and 325. Study shows that these processess are technically feasible for contaminant clean up and they will be evaluated in the FS as part of remedy option evaluations.

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.
Completed Sub Area Name: Not reported
Completed Document Type: Design/Implementation Workplan
Completed Date: 11/10/2010
Comments: Provides the remedial design for the remedy for Site 442.

Completed Area Name: 4A - AFRL Arroyos
Completed Sub Area Name: Not reported
Completed Document Type: Well Installation Workplan
Completed Date: 08/09/2010
Comments: Workplan to install wells to address data gaps and provide data to support proposed remedy in the draft Arroyos ROD.

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Completed Area Name: Military Munitions Response Program (MMRP) - Basewide
Completed Sub Area Name: Not reported
Completed Document Type: Engineering Evaluation / Cost Analysis - Time Critical
Completed Date: 08/19/2010
Comments: Finalized on 8/19/2010. Some sites will move to either an FS or will undergo removal actions via and Engineering Evaluation/Cost Analysis.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 12/31/2010
Comments: This is the annual GW monitoring report for the period listed in the title. DTSC has concurred w/the final.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Workplan
Completed Date: 07/19/2010
Comments: Work plan on strategy to determine basewide determination of nitrate, seltected anions, and TDS. No new field work proposed; will comprise the analyses of existing data. DTSC did not review; deferred review to the other regulatory agencies.

Completed Area Name: 2 - Operable Unit 2, South Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Workplan
Completed Date: 03/05/2011
Comments: Documents the work to conduct an assessment of the presence of lead shot and skeet fragments at Sites 81 and 102

Completed Area Name: 2 - Operable Unit 2, South Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Workplan
Completed Date: 03/05/2011
Comments: Presents the plan for conducting grid sieving of shallow soil to assess presence of skeet fragments and lead shot in soil at the two sites.

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 29
Completed Document Type: Removal Action Completion Report
Completed Date: 07/27/2010
Comments: This report documents the removal of 94,000 cubic yards of waste debris at Site 29 in Operable Unit 2. Wastes were segregated and either transported to recycling facilities or waste disposal facilities depending upon classification. Action will result in "clean closure" of this site.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Site 285
Completed Document Type: Monitoring Report
Completed Date: 12/01/2010
Comments: Provides the 4/09-4/10 final report for the Site 285 Groundwater Extraction system

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Site 231

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Completed Document Type: Site Characterization Workplan
Completed Date: 09/13/2010
Comments: Workplan to install collect shallow soil gas samples, soil samples, groundwater samples, and install wells for risk screening purposes and source characterization.

Completed Area Name: 8 - Operable Unit 8, Northwest Main Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 02/02/2011
Comments: Annual monitoring report for OU 8 sites

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 02/04/2011
Comments: Not reported

Completed Area Name: 4/9 AFRL Misc. Documents
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 03/14/2011
Comments: Presents the 2009 annual groundwater monitoring results at various AFRL sites.

Completed Area Name: 4/9 - South AFRL
Completed Sub Area Name: Not reported
Completed Document Type: Long Term Monitoring Report
Completed Date: 09/07/2012
Comments: Provides the results of the vapor intrusion sampling and assessment of the South AFRL. There is potential indication of low risk to selected buildings. Because of the transitory nature of soil vapor in the subsurface, the Air Force will conduct an additional monitoring round for the next South AFRL Five Year Review. There is an approximate 5x10-6 risk to occupants of Building 8595. To mitigate, the Air Force has agreed to continue to operate the SVE system to "break" the vapor pathway to the building.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Workplan
Completed Date: 02/18/2011
Comments: Presents the strategy for sampling wells to identify nitrate sources at Edwards AFB

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 08/19/2011
Comments: 2009 Annual Monitoring Results for OU 1

Completed Area Name: 4/9 - Soil and Debris Sites
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Completion Report
Completed Date: 07/01/2011
Comments: Provides the results of the remedial action for the OUs 4 & 9 Soil and Debris Sites ROD. Action is complete for Sites 36, 6, and 113,

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but per DTSC and EPA comments the AF has agreed that a ROD Amendment is needed for Site 312 as they were unable to remove all the PCB-impacted soil.

Completed Area Name: 4/9 - Northeast AFRL
Completed Sub Area Name: Not reported
Completed Document Type: Technical Workplan
Completed Date: 04/08/2011
Comments: Workplan to conduct an aquifer test in the Northeast AFRL for assessing aquifer parameters for future modeling updates.

Completed Area Name: Military Munitions Response Program (MMRP) - Basewide
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Report
Completed Date: 10/13/2010
Comments: Provides the Phase II MMRP investigation of various areas of the base. Conclusions are that several areas will be designated as "No Further Action" while additional areas (AL504, AL505-2), and AL505-4) will undergo Feasibility Study (with required data gaps work) or a removal action via the EE/CA process.

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 29
Completed Document Type: Proposed Plan
Completed Date: 01/18/2011
Comments: Proposed plan to explain the change in the remedy for Site 29. Plan now is to excavate for clean closure.

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.
Completed Sub Area Name: Not reported
Completed Document Type: Risk Assessment Report
Completed Date: 12/20/2010
Comments: PERA for select OU 7 Sites at EAFB.

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.
Completed Sub Area Name: Site 339
Completed Document Type: Site Characterization Workplan
Completed Date: 12/20/2011
Comments: Workplan to fill data gaps at Site 339 so the site can move to the ROD stage.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Workplan
Completed Date: 08/01/2011
Comments: Site Characterization and Plume Delineation Work Plan to fill data gaps at OUs 5/10 Sites 231, 240/241, 275, 282, 285, and 422.

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation / Feasibility Study
Completed Date: 04/01/1996
Comments: 1996 Operable Unit 1 RI Report. Note, there is a subsequent (2004) supplemental OU 1 RI report

Completed Area Name: 4/9 - Northeast AFRL
Completed Sub Area Name: Not reported

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Completed Document Type: Technical Report
Completed Date: 08/30/2014
Comments: Rather than send a letter on the final report, DTSC will provide any needed input in comments on the Draft Northeast AFRL FS as this modeling report is incorporated into the FS

Completed Area Name: 6 - Operable Unit 6, NASA Dryden
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 05/23/2011
Comments: Provides the results of the final phase of the groundwater remedy treatment. Information will be used in the pending 5-year review of the OU 6 ROD remedy.

Completed Area Name: 8 - 25 Operable Unit - 8 - Site 25 Exotic Fuels
Completed Sub Area Name: Site 25
Completed Document Type: Well Installation Workplan
Completed Date: 08/01/2011
Comments: Well installation and geophysics survey to fill data gaps for Feasibility Study.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Site 231
Completed Document Type: Removal Action Completion Report
Completed Date: 08/01/2011
Comments: Documents the results of the (mostly lead) soil contamination cleanup of Site 231 at OUs 5/10

Completed Area Name: Military Munitions Response Program (MMRP) - Basewide
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Workplan
Completed Date: 02/10/2012
Comments: Workplan to conduct a surface clearance of military munitions for 2 offsite areas adjacent to the base and one-site area at EAFB.

Completed Area Name: 4/9 - Soil and Debris Sites
Completed Sub Area Name: Not reported
Completed Document Type: Technical Report
Completed Date: 06/01/1995
Comments: Presents the background levels for various inorganics in soil and bedrock at the AFRL area.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 12/30/2011
Comments: Results of the aquifer tests and associated model update for OU 5/10 sites

Completed Area Name: 4/9 - Northeast AFRL
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Workplan
Completed Date: 08/22/2011
Comments: Workplan to assist in groundwater flow model projections

Completed Area Name: 8 - Operable Unit 8, Northwest Main Base
Completed Sub Area Name: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Completed Document Type: Monitoring Report
Completed Date: 11/07/2011
Comments: Not reported

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 58
Completed Document Type: Monitoring Report
Completed Date: 07/29/2011
Comments: Annual monitoring report for Site 58 SVE system

Completed Area Name: Military Munitions Response Program (MMRP) - Basewide
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Workplan
Completed Date: 02/10/2012
Comments: Action Memo justifying the reason for the non-time critical action for MMRP clearance at surface for 5 parcels.

Completed Area Name: 8 - 25 Operable Unit - 8 - Site 25 Exotic Fuels
Completed Sub Area Name: Site 25
Completed Document Type: Monitoring Report
Completed Date: 01/10/2012
Comments: Site 25 GETS Annual Groundwater Monitoring Report for 2010. Annual monitoring report for the Site 25 Groundwater Extraction Treatment System. DTSC has reiterated a request for the Air Force to restart the GETS system.

Completed Area Name: 4/9 - Northeast AFRL
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Workplan
Completed Date: 05/24/2012
Comments: Workplan to collect data and assess the vapor intrusion pathway at occupied buildings in the Northeast AFRL and Mars Blvd sites in OUs 4/9

Completed Area Name: 8 - Operable Unit 8, Northwest Main Base
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Workplan
Completed Date: 12/19/2011
Comments: Workplan to fill data gaps at Site 61, 299, and 301. FS will be updated pending receipt of the data acquired from this work.

Completed Area Name: 4A - AFRL Arroyos
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Workplan
Completed Date: 04/13/2012
Comments: Provides the workplan for collecting data and assessing the vapor intrusion pathway for occupied buildings at the Arroyos

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 16
Completed Document Type: Pilot/Treatability Study Report
Completed Date: 01/24/2012
Comments: Site 16 In Situ Bioremediation Study Status Report

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 14
Completed Document Type: Operations and Maintenance Report

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Completed Date: 10/13/2011
Comments: Annual report documenting the status of the Site 14 groundwater extraction system. System is operating as planned; however sidegradient and downgradient extent of TCE plume is still undefined. AF is conducting a monitoring well installation program to define the extent of the plume.

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 29
Completed Document Type: Record of Decision - Amendment
Completed Date: 10/16/2012
Comments: Record of Decision Amendment to change the remedy to a "Clean Closure" from the prior remedy of capping and land use covenants.

Completed Area Name: 4A - AFRL Area
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Workplan
Completed Date: 10/28/2011
Comments: Workplan to perform Tracer Test to assess bedrock aquifer fracture zone for modeling and groundwater monitoring.

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 12/29/2011
Comments: Characterization of the Vapor Intrusion Pathway at two selected buildings at Sites 16 and 18. Data indicate low risk to building occupants.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 12/09/2011
Comments: OU 5/10 AGMR

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Site 285
Completed Document Type: Monitoring Report
Completed Date: 01/30/2012
Comments: Annual Monitoring Report for the Site 285 Groundwater Extraction System

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 18
Completed Document Type: Monitoring Report
Completed Date: 12/23/2011
Comments: 2010 Annual report on the Site 18 Groundwater and vapor extraction system

Completed Area Name: 8 - 25 Operable Unit - 8 - Site 25 Exotic Fuels
Completed Sub Area Name: Site 25
Completed Document Type: Pilot/Treatability Study Report
Completed Date: 12/23/2011
Comments: Final report for the ISCO treatability study at Site 25. Results are mixed; some trouble getting delivery of the chemical to the contaminated groundwater. Final decision is to continue to monitor to see if ISCO eventually makes it to the contaminated zone.

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Quality Assurance Workplan
Completed Date: 05/17/2012
Comments: This is the revised Basewide QAPP which includes updated standard operating procedures for field and analytical work at Edwards AFB.

Completed Area Name: 4A - AFRL Area
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 01/30/2012
Comments: AGMR for 2010 Groundwater Monitoring at the Arroyos, NE AFRL, and South AFRL.

Completed Area Name: 4/9 Mars Blvd Sites
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 10/03/2012
Comments: OU 4 & 9 Mars Blvd Sites 2009 & 2010 Annual GWM Reports and 2011 Sampling Plan. Originally, one document, subsequently broken into 3 documents when finalized.

Completed Area Name: 4/9 - South AFRL
Completed Sub Area Name: Not reported
Completed Document Type: Well Completion Report
Completed Date: 03/22/2012
Comments: Provides the well installation information and initial sampling data for monitoring wells installed in 2010-2011 as part of the remedial design. Data will be used for the upcoming five-year review report.

Completed Area Name: Operable Unit 4/9
Completed Sub Area Name: Not reported
Completed Document Type: Well Completion Report
Completed Date: 04/04/2012
Comments: Presents the results of the installation of new monitoring wells at the AFRL Arroyos, Northeast AFRL, and Mars Blvd. Results in a revision to the Conceptual Site Model. The most significant change is at the Arroyos by moving the alluvium/bedrock aquifer transition several hundred feet closer to Leuhman Ridge.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 01/09/2012
Comments: This document provides the over-arching basewide conceptual site model for environmental contamination (including geology and hydrology) at the base and the relationship of on-base environmental issues to potential off-base occupants and water users.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Site 285
Completed Document Type: Operations and Maintenance Plan
Completed Date: 06/01/2012
Comments: Updated sampling plan for the OU 5/10 Groundwater Extraction Treatment System.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Completed Sub Area Name: Site 285
Completed Document Type: Operations and Maintenance Manual
Completed Date: 06/01/2012
Comments: Updated O&M manual for the Site 285 Groundwater Extraction and Treatment System.

Completed Area Name: 6 - Operable Unit 6, NASA Dryden
Completed Sub Area Name: Not reported
Completed Document Type: Risk Assessment Report
Completed Date: 03/01/2003
Comments: OU 6 HHRA Report

Completed Area Name: 4/9 - South AFRL
Completed Sub Area Name: Not reported
Completed Document Type: 5 Year Review Reports
Completed Date: 09/19/2012
Comments: First Five Year Review for the South AFRL ROD. Air Force agrees to accelerate the groundwater monitoring program due to new predictions of plumes moving faster than thought during the ROD plus the need for further assessment of the Vapor Intrusion Pathway at Sites 37 and 133. Not reported

Completed Area Name: 8 - Operable Unit 8, Northwest Main Base
Completed Sub Area Name: Not reported
Completed Document Type: Risk Assessment Report
Completed Date: 03/01/2006
Comments: Ecological risk assessment for Sites 25, 61, 257, and 301 at OU 8

Completed Area Name: 8 - Operable Unit 8, Northwest Main Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Report
Completed Date: 04/24/2008
Comments: Presents the results of the Site 299 and 301 RI investigation addendum.

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Not reported
Completed Document Type: Technical Report
Completed Date: 01/28/2013
Comments: OU 1 2011 Groundwater Modeling Report: Although EAFB finalized this document, there remains significant disagreements in the conceptual site model and associated assumptions/inputs used for this model. EAFB felt that these issues would not be resolved and chose to close out their contract and issue a final document. Rather than outright reject or consider the document incomplete, DTSC will factor outstanding issues into future decision-making for OU 1.

Completed Area Name: 2 - Operable Unit 2, South Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Risk Assessment Report
Completed Date: 11/01/2008
Comments: HHRA Addendum for OU 2 Sites

Completed Area Name: 2 - Operable Unit 2, South Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Risk Assessment Report
Completed Date: 06/01/2003

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Comments: OU 2 HHRA

Completed Area Name: 4/9 - South AFRL
Completed Sub Area Name: Not reported
Completed Document Type: Long Term Monitoring Report
Completed Date: 03/07/2012
Comments: Presents the status of the long-term monitoring of the South AFRL Remedy. Activities included LUC and groundwater monitoring, and SVE which was turned off in 2010. The shut-down of the SVE is compliant with the remedy which allows the Air Force to adjust systems as needed to optimize the remedy.

Completed Area Name: 4A - AFRL Area
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Plan
Completed Date: 06/21/2012
Comments: 2012 groundwater monitoring plan for the OU 4/9 Northeast and South AFRL areas.

Completed Area Name: 6 - Operable Unit 6, NASA Dryden
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Plan
Completed Date: 04/02/2012
Comments: Not reported

Completed Area Name: 8 - 25 Operable Unit - 8 - Site 25 Exotic Fuels
Completed Sub Area Name: Site 25
Completed Document Type: Site Characterization Report
Completed Date: 08/20/2012
Comments: Workplan to conduct the vapor intrusion pathway assessment for the two occupied buildings down slope from Site 25, and overlying the Site 25 groundwater plume.

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 58
Completed Document Type: Monitoring Report
Completed Date: 08/09/2012
Comments: Annual monitoring report for the OU 1 Site 58 SVE system

Completed Area Name: 4A - AFRL Arroyos
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Plan
Completed Date: 06/12/2012
Comments: Sampling plan (schedule) for June 2012 groundwater monitoring at the AFRL Arroyos.

Completed Area Name: 4/9 - Northeast AFRL
Completed Sub Area Name: Not reported
Completed Document Type: Technical Report
Completed Date: 09/27/2012
Comments: DTSC and Air Force remain in disagreement with certain elements of the Conceptual Site Model and resulting interpretation of the aquifer test. This needs to be considered when the Air Force conducts modeling and designs remedial systems for the Northeast AFRL

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 58

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Completed Document Type: Removal Action Workplan
Completed Date: 06/25/2012
Comments: Addendum to the workplan for Site 58 operations

Completed Area Name: 8 - Operable Unit 8, Northwest Main Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 09/25/2012
Comments: 2011 AGMR and 2012 Sampling Plan for OU 8 Groundwater Program

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Completion Report
Completed Date: 09/26/2012
Comments: Presents the status of the ISCO injection portion of the remedy to remediate the Site 5/14 Groundwater Contaminant Plume

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Not reported
Completed Document Type: Well Completion Report
Completed Date: 10/05/2012
Comments: Report that presents the results of the wells installed from 9/10-8/11 Not reported

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 18
Completed Document Type: Monitoring Report
Completed Date: 10/01/2012
Comments: Annual monitoring report for the Site 18 Dual Extraction System. No significant issues.

Completed Area Name: 4A - AFRL Area
Completed Sub Area Name: Not reported
Completed Document Type: Technical Report
Completed Date: 11/13/2012
Comments: Test to assess aquifer parameters in bedrock in the area where the Northeast AFRL plume is projected to migrate from bedrock to the alluvial aquifer.

Completed Area Name: 4A - AFRL Area
Completed Sub Area Name: Site 172
Completed Document Type: Monitoring Report
Completed Date: 08/31/2010
Comments: Site 172 Soil Vapor Extraction System Annual Operations Report for 2009

Completed Area Name: 6 - Operable Unit 6, NASA Dryden
Completed Sub Area Name: Not reported
Completed Document Type: Technical Report
Completed Date: 04/15/2009
Comments: Final Report

Completed Area Name: 8 - Operable Unit 8, Northwest Main Base
Completed Sub Area Name: Not reported
Completed Document Type: Risk Assessment Report
Completed Date: 06/21/2007
Comments: Final HHRA Addendum for OU8

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Completed Area Name: 8 - 25 Operable Unit - 8 - Site 25 Exotic Fuels
Completed Sub Area Name: Site 25
Completed Document Type: Monitoring Report
Completed Date: 12/20/2010
Comments: This is the 2009 Annual Groundwater Monitoring Report for Site 25.

Completed Area Name: 2 - Operable Unit 2, South Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Workplan
Completed Date: 10/16/2012
Comments: In response to regulatory concerns, the Air Force has developed this Workplan to assess the vertical extent of skeet fragments and lead shot in gridded areas where vertical extent is undefined.

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Not reported
Completed Document Type: Design/Implementation Workplan
Completed Date: 04/08/2013
Comments: This document presents the updated sampling plan for Sites 5/14, 76, and 86. Also included are changes to the standard operating procedures for sampling and analyses.

Completed Area Name: 6 - Operable Unit 6, NASA Dryden
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Plan
Completed Date: 03/12/2013
Comments: DTSC Comments on Draft Final OU6 VISP & RA WP submitted to Air Force

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 18
Completed Document Type: Operations and Maintenance Plan
Completed Date: 01/28/2013
Comments: Workplan for the 2012-2013 operation of the DES system and the monitoring of groundwater contamination at Site 18.

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Not reported
Completed Document Type: Pilot Study/Treatability Workplan
Completed Date: 10/18/2012
Comments: Plan to conduct an enhanced in-situ biogeochemical transormation of VOCs pilot study at Site 19

Completed Area Name: 4/9 - Soil and Debris Sites
Completed Sub Area Name: Not reported
Completed Document Type: 5 Year Review Reports
Completed Date: 08/05/2013
Comments: OU 4/9 Soils and Debris Sites Five Year Review Report

Completed Area Name: 6 - Operable Unit 6, NASA Dryden
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Plan Amendment
Completed Date: 04/10/2013
Comments: OU6 Remedial Action Workplan has been finalized.

Completed Area Name: 4/9 Mars Blvd Sites
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Completed Date: 11/19/2013
Comments: 2011 Annual GWM Report OU 4/9 Mars Blvd Sites 6, 27, 39, 113, 115, 116, 118, 125, 127, 178, 321, 333, and 338

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Quality Assurance Workplan
Completed Date: 02/29/2008
Comments: Updated Basewide Quality Assurance Project Plan includes the Basewide FSP and SAP

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Not reported
Completed Document Type: Feasibility Study Report
Completed Date: 07/31/2007
Comments: Data gaps sampling report to obtain additional data for selected sites to finalize the FS

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 5
Completed Document Type: Remedial Investigation Workplan
Completed Date: 05/17/2013
Comments: OU 2 Site 5 Remedial Investigation Workplan to investigate the source of the carbon tetrachloride detected in groundwater downgradient from Site 5. Plan is to conduct a soil vapor survey and groundwater sampling of existing wells to locate the CT source.

Completed Area Name: 4/9 Mars Blvd Sites
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Plan
Completed Date: 04/18/2013
Comments: 2012 Annual Groundwater Monitoring Sampling QAPP Plan. Provides the plan for sampling groundwater in 2012 at the Mars Boulevard Sites.

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.
Completed Sub Area Name: Site 339
Completed Document Type: Feasibility Study Report
Completed Date: 06/20/2013
Comments: Report finalized by AF, but DTSC has documented concerns to be addressed prior to ROD

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 14
Completed Document Type: Design/Implementation Workplan
Completed Date: 12/26/2012
Comments: This is a "letter" workplan addendum for relatively minor remediation system and monitoring modifications.

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Plan
Completed Date: 03/06/2013
Comments: Final 2012 GWMSP Submitted. No further comments.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Plan

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Completed Date: 10/16/2012
Comments: This document provides the groundwater sampling plan for 2012 at OU 5/10

Completed Area Name: 4A - AFRL Area
Completed Sub Area Name: Site 312
Completed Document Type: Record of Decision w/ESD
Completed Date: 07/16/2013
Comments: This Explanation of Significant Difference from the (Soils and Debris Sites) ROD is to document the remedy change for Site 312, an active transformer station on Leuhman Ridge. Because of impacts to the EAFB "Mission", the transformer could be shut down for only a specific period of time for the soil excavation remedy. Air Force attempted "clean closure" but was unable to remove PCB contaminated soil from a small area below the concrete pad and a small area below the adjoining asphalt area. Concentrations of PCBs in soil remaining at the site are above residential cleanup levels necessitating a land use covenant restricting residential use and warning workers of the presence of potentially impacted covered soil.

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Report
Completed Date: 07/01/2004
Comments: This is an update to the 1996 RI report. It incorporates new data acquired since the prior RI report was published.

Completed Area Name: 6 - Operable Unit 6, NASA Dryden
Completed Sub Area Name: Not reported
Completed Document Type: Long Term Monitoring Report
Completed Date: 03/01/2013
Comments: Not reported

Completed Area Name: 8 - 25 Operable Unit - 8 - Site 25 Exotic Fuels
Completed Sub Area Name: Site 25
Completed Document Type: Well Installation Workplan
Completed Date: 03/29/2013
Comments: Not reported

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Not reported
Completed Document Type: Feasibility Study Report
Completed Date: 08/02/2013
Comments: RI/FS Addendum: Site Characterization and Plume Delineation Data Summary Report. Presents the results of data gaps by conducting soil vapor sampling and installing/sampling additional monitoring wells.

Completed Area Name: 8 - Operable Unit 8, Northwest Main Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Report
Completed Date: 09/26/2013
Comments: Remedial Investigation Summary Report Addendum for Sites 61, 299, and 301. DTSC has reviewed and accepts the final document which details the data gaps investigation work at the three OU 8 groundwater plume sites.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Completed Sub Area Name: Site 285
Completed Document Type: Monitoring Report
Completed Date: 04/05/2013
Comments: Site 285 Groundwater Extraction and Treatment System O&M Report for September 2011-September 2012. Presents the O&M activities (including extraction well sampling) for the GETS to remediate perchlorate in groundwater at Site 285.

Completed Area Name: 4A - AFRL Area
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 08/22/2013
Comments: AFRL Arroyos, Northeast AFRL, and Mars Blvd Well Installation Report for 2011-2012

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.
Completed Sub Area Name: Site 442
Completed Document Type: Design/Implementation Workplan
Completed Date: 01/31/2014
Comments: Soil Gas Sampling Workplan, OU 7, Chemical Warfare Material Site 442, Areas 1, 2, and 3. Sampling is needed pursuant to the ROD to ensure protectiveness of possible chemical release from these CWM landfills.

Completed Area Name: 4A - AFRL Area
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 06/14/2013
Comments: Geophysical Surveys to Delineate the Spring Fault and GW Transition from Bedrock to Alluvial Aquifer, Arroyos and NE AFRL Areas

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 12/01/2012
Comments: Revised/updated RAB Charter and Bylaws approved by the RAB in 2012. Primary changes made to meetings (reduced from four to two per year) and incorporation of social media (Facebook) for communications.

Completed Area Name: 4A - AFRL Arroyos
Completed Sub Area Name: Not reported
Completed Document Type: Technical Workplan
Completed Date: 02/13/2013
Comments: Meeting to Develop Workplan for Arroyos Data Gaps. This meeting was held on 2/13/13; DTSC (and other regulatory agencies) provided input and added ideas on the Air Force's plans to address Arroyos and Northeast AFRL data gaps.

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 29
Completed Document Type: Remedial Action Implementation Workplan
Completed Date: 07/25/2013
Comments: Site 29 Remedial Action Work Plan. Presents the workplan to remove the contaminated soil and debris at Site 29.

Completed Area Name: 8 - 25 Operable Unit - 8 - Site 25 Exotic Fuels
Completed Sub Area Name: Site 25
Completed Document Type: Monitoring Report

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Completed Date: 08/06/2013
Comments: Site 25 GETS Biennial Groundwater Monitoring Report-January 2011 to December 2012. Air Force did not issue a draft final. DTSC identified problems with the final and on 8/6/13 issued a draft comment letter.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Workplan
Completed Date: 07/16/2013
Comments: Workplan for Vapor Intrusion Assessment at (high priority buildings at) OU's 1, 4/9, 5/10, and 8

Completed Area Name: 2 - Operable Unit 2, South Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Engineering Evaluation / Cost Analysis - Time Critical
Completed Date: 10/16/2014
Comments: Sites 81 and 102 EE/CA for Removal of Lead Shot and Skeet Fragments. Selected "removal action" will actually be a cap consisting of crushed concrete and areas with soil/vegetation to allow for limited habitat restoration.

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.
Completed Sub Area Name: Site 442
Completed Document Type: Operations and Maintenance Plan
Completed Date: 09/13/2013
Comments: OU 7 Chemical Warfare Material Site 442 O&M Plan for Cap

Completed Area Name: 4/9 - South AFRL
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Plan
Completed Date: 11/11/2013
Comments: South AFRL 2013 Ground Water Sampling Workplan. DTSC disagrees with the number of wells to be sampled; however the Air Force is planning a more comprehensive sampling event in 2014 essentially deferring DTSC concerns.

Completed Area Name: 4A - AFRL Arroyos
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 06/24/2013
Comments: Arroyos 2012 Groundwater Monitoring Report

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 08/12/2013
Comments: OU 5/10 Annual Groundwater Monitoring Report for April-December 2012. Air Force did not address all of DTSC comments on the draft document. Issues will need to be tracked for future relevant documents.

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.
Completed Sub Area Name: Site 442
Completed Document Type: Remedial Action Completion Report
Completed Date: 08/27/2013
Comments: Site 442 Remedial Action Completion Report-Remedial Design and Construction. Air Force did not give DTSC adequate time to review the changes in the draft final and the response to comments on the draft

EDWARDS AIR FORCE BASE (Continued) **1000155217**

report; however a review of the final shows that DTSC concerns on the draft report were addressed.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Public Participation Plan / Community Relations Plan
Completed Date: 03/21/2014
Comments: Community Involvement Plan 2014 update to the Community Relations Plan Not reported

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 58
Completed Document Type: Monitoring Plan
Completed Date: 09/03/2013
Comments: Site 58 Soil Vapor Extraction QAPP Letter Addendum No. 3

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 76
Completed Document Type: Operations and Maintenance Report
Completed Date: 10/30/2013
Comments: Replacement pages recieved from AF

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 86
Completed Document Type: Operations and Maintenance Report
Completed Date: 10/30/2013
Comments: Final Replacement Pages submitted by AF

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Workplan
Completed Date: 09/23/2013
Comments: Basewide Subsurface Nitrate Characterization QAPP (Workplan), OUs 1, 4/9, 7, and 8

Completed Area Name: 8 - Operable Unit 8, Northwest Main Base
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 02/18/2014
Comments: OU 8 - 2012 Annual Groundwater Monitoring Report for Sites 61, 257, 299, and 301. DTSC reviewed the final and determined that all comments were adequately addressed.

Completed Area Name: 8 - 25 Operable Unit - 8 - Site 25 Exotic Fuels
Completed Sub Area Name: Site 25
Completed Document Type: Remedial Investigation Report
Completed Date: 04/03/2014
Comments: OU 8 Site 25 Remedial Investigation Report Addendum. Presents the results of additional geophysics and well installation to characterize the site.

Completed Area Name: 4A - AFRL Area
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 11/22/2013
Comments: OU 4 & 9 2012 Annual Groundwater Monitoring Report for Northeast and South AFRL

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Completed Area Name: 4A - AFRL Arroyos
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Report
Completed Date: 06/29/2014
Comments: Report of 2012 and 2013 Sampling to Evaluate Vapor Intrusion Pathway at the AFRL Arroyos. Outstanding issues were identified in DTSC's 6/30/14 Contingent Concurrence letter. DTSC will work with the Air Force to address outstanding issues. The Arroyos ROD will be the venue for addressing the issues

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Site 285
Completed Document Type: Monitoring Plan
Completed Date: 12/26/2013
Comments: OU 5/10 Site 285 GETS QAPP Adddendum. Update to the Site 285 groundwater treatment plant sampling/monitoring program.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Plan
Completed Date: 04/05/2014
Comments: Basewide Groundwater Monitoring SAP, Vol 1-Long Term Monitoring Optimization Work Plan.

Completed Area Name: 6 - Operable Unit 6, NASA Dryden
Completed Sub Area Name: Not reported
Completed Document Type: Quality Assurance Workplan
Completed Date: 03/06/2014
Comments: Electronic copy recieved 28 March 2014

Completed Area Name: 2 - Operable Unit 2, South Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Implementation Workplan
Completed Date: 10/31/2013
Comments: DTSC Provided email stating no further comments

Completed Area Name: 4/9 - Soil and Debris Sites
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 05/31/2013
Comments: Soils and Debris Sites 2013 Land Use Control Inspection Report

Completed Area Name: 8 - Operable Unit 8, Northwest Main Base
Completed Sub Area Name: Not reported
Completed Document Type: Well Installation Workplan
Completed Date: 09/16/2013
Comments: Sites 61, 299, and 301 Well Installation Letter Workplan Addednum to the RI Workplan Addendum. Workplan to install additional wells at the three sites to address identified data gaps.

Completed Area Name: 9 - Air Force Research Lab - East
Completed Sub Area Name: Site 125
Completed Document Type: Site Characterization Report
Completed Date: 08/22/2013
Comments: Site 125 Results of 2013 Well Installation Letter Report. This "addendum" to the OU 4/9 2011-2012 Well Installation Report (WIR) was finalized as an appendix to the WIR.

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Completed Area Name: 4A - AFRL Area
Completed Sub Area Name: Not reported
Completed Document Type: Well Installation Workplan
Completed Date: 06/23/2014
Comments: Well Installation Workplan-OU 4 Arroyos & South AFRL. Air Force and regulators collaboratively selected well locations. Note however, DTSC has informed the Air Force that these wells may not be sufficient for providing adequate South AFRL and Aroryos plume control Not reported

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 58
Completed Document Type: Monitoring Report
Completed Date: 01/23/2014
Comments: Site 58 Annual Monitoring Report for the Soil Vapor Extraction System Nov '11 through Oct '12.

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.
Completed Sub Area Name: Site 442
Completed Document Type: 5 Year Review Reports
Completed Date: 12/20/2014
Comments: Chemical Warfare Material First Five-Year Review Report. DTSC concurred with (via signing the signature page of) the final Report

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Enforceable Schedule
Completed Date: 10/10/2013
Comments: 2013 Update to the FFA Schedule

Completed Area Name: 4A - AFRL Area
Completed Sub Area Name: Site 312
Completed Document Type: Remedial Action Completion Report
Completed Date: 01/23/2014
Comments: Site 312 Addendum to the Soil and Debris Sites Remedial Action Completion Report. This report documents the remedy for the Site 312 ESD which changed the remedy from "clean closure" to Land Use Controls to protect potential receptors from a small amount of PCB-contaminated soil below the asphalt near the Site 312 transformer. Not reported

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 18
Completed Document Type: Monitoring Report
Completed Date: 02/21/2014
Comments: OU 1 Site 18 Annual Monitoring Report November 2011 through October 2012

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 14
Completed Document Type: Operations and Maintenance Manual
Completed Date: 04/14/2014
Comments: OU2, Site 14 GETS O&M Manual

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 86
Completed Document Type: Operations and Maintenance Manual

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Completed Date: 04/14/2014
Comments: OU2, Site 86 O&M Manual

Completed Area Name: 4A - AFRL Arroyos
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Workplan
Completed Date: 02/17/2014
Comments: OU 4 Arroyos Phase 2 Geophysical Survey Work Plan to Delineate Bedrock Topography and Transition to Alluvial Aquifer. DTSC believes that a reflection survey rather than the proposed refraction survey would be better at identifying the transition zone. AF cited budgetary reasons, but also attempted to make a technical case that the goals will be attained using the porposed refraction survey.

Completed Area Name: 2 - Operable Unit 2, South Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 06/24/2014
Comments: Final OU2 Sites 5/14 Annual RASR received on 24 June 2014

Completed Area Name: 8 - 25 Operable Unit - 8 - Site 25 Exotic Fuels
Completed Sub Area Name: Site 25
Completed Document Type: Remedial Investigation Workplan
Completed Date: 06/23/2012
Comments: Letter Addendum to the Site 25 RI/FS Work Plan Addendum. Workplan to install 7 additional monitoring wells.

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.
Completed Sub Area Name: Site 442
Completed Document Type: Operations and Maintenance Report
Completed Date: 06/16/2014
Comments: Site 442 Annual Remedial Action Status Report March 2013 to October 2013

Completed Area Name: 8 - 25 Operable Unit - 8 - Site 25 Exotic Fuels
Completed Sub Area Name: Site 25
Completed Document Type: Remedial Investigation Report
Completed Date: 08/01/2014
Comments: Site 25 VIP Investigation Summary Report, Buildings 4824 and 4870. Air Force finalized this document on 8/1/14 without resolving selected critical issues. DTSC will carry these issues forward into the FS

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 58
Completed Document Type: Removal Action Workplan Amendment
Completed Date: 06/23/2014
Comments: Site 58 Letter Addendum No. 4 to the QAPP

Completed Area Name: 4/9 Mars Blvd Sites
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 10/02/2014
Comments: 2012 Annual Groundwater Monitoring Report for "Mars Blvd" Sites 6, 27, 39, 113, 115, 116, 118, 125, 127, 178, 321, 333, AND 338

Completed Area Name: 9 - Air Force Research Lab - East

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Completed Sub Area Name: Site 125
Completed Document Type: Remedial Investigation Workplan
Completed Date: 06/02/2014
Comments: 2014 Letter Addendum to the 2010 Well Installation Work Plan For Sites in the Northeast AFRL and Mars Blvd. This addendum, although officially part of the 2010 Well Installation Workplan, is tied directly to the 2013 Letter Addendum to the 2010 Well Installation Workplan. This 2013 addendum was inserted as Appendix F.1 to the 2010 Workplan. The conclusion of the 2014 Letter Addendum is there was no need to install well 125-MW27, contrary to the original purpose of this addendum which was to install 125-MW27. However groundwater sampling conducted subsequent to the draft of this Workplan Addendum showed that 125-MW27 is not needed (at this time).

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.
Completed Sub Area Name: Site 3
Completed Document Type: Remedial Action Implementation Workplan
Completed Date: 08/27/2014
Comments: Geophysical Survey WP to Assess Site 3 Potential Preferential Pathways Affecting GW Flow and Contaminant Transport

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 5
Completed Document Type: Remedial Investigation Report
Completed Date: 11/03/2014
Comments: OU2, Site 5, Remedial Investigation Report will be complted by June 30.

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 76
Completed Document Type: Remedial Action Completion Report
Completed Date: 08/12/2014
Comments: Report title changed to Remedial Action Construction Progress Report

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 86
Completed Document Type: Remedial Action Completion Report
Completed Date: 08/11/2014
Comments: Report Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Plan
Completed Date: 01/20/2015
Comments: Basewide 2014 Groundwater Monitoring Plan-OU1/8, OU4/9, OU5/10 and Site 25

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Site 285
Completed Document Type: Monitoring Report
Completed Date: 10/16/2014
Comments: Site 285 GETS Annual Operation and Maintenance (10/12-9/13) Report

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 18
Completed Document Type: Monitoring Report
Completed Date: 08/14/2014

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Comments: OU 1 Site 18 Annual O&M Report November 2012 through October 2013

Completed Area Name: 2 - Operable Unit 2, South Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Implementation Workplan
Completed Date: 09/08/2014
Comments: Final OU2, Sites 5/14, 76 and 86 RAWP Addendum, Update 1

Completed Area Name: 6 - Operable Unit 6, NASA Dryden
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Report
Completed Date: 05/27/2016
Comments: See previous note regarding replacement of this document with Vapor Intrusion Investigation Report Addendum dated May 2016.

Completed Area Name: 4A - AFRL Area
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Report
Completed Date: 08/12/2014
Comments: Report of 2012 and 2013 Sampling to Evaluate VIP at the Northeast AFRL and Mars Blvd Sites. On 8/12/14 DTSC provided a draft letter to the Air Force outlining outstanding issues for this report; issues that will be carried through to the FS.

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.
Completed Sub Area Name: Site 538
Completed Document Type: Preliminary Assessment/Site Inspection Report (PA/SI)
Completed Date: 02/17/2015
Comments: OU 3 Site 538 Preliminary Assessment/Site Inspection Report (PA/SI). DTSC has determined that further evaluation on the source of TCE in monitoring well 13-MW33 (Site 538) is warranted. Air Force agrees and this will be part of the South AFRL Remedial Action Workplan Version 2 scheduled for late 2015.

Completed Area Name: 4A - AFRL Arroyos
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 07/01/2014
Comments: OU 4/9 Arroyos Phase 2 Geophysical Survey Report

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Completion Report
Completed Date: 10/04/2014
Comments: Non-Time Critical Removal Action MMRP Surface Clearance, Munitions Sites AL504, AL505-2, and AL505-4. This document was issued only as a final report; it comprises a summary of activities and field documentation of the surface clearance actions for the above listed munitions sites.

Completed Area Name: 4/9 - Soil and Debris Sites
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction Monitoring Report
Completed Date: 08/12/2014
Comments: AFRL Soil and Debris Sites Annual LUC Inspection and Maintenance Report Addendum May-December 2013. DTSC has reviewed and concurs with the document. No letter is required for this document issued as final.

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Not reported

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 02/17/2015
Comments: OU 1 GWM and Sampling Report for 2012

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Soil Vapor Extraction Monitoring Report
Completed Date: 09/05/2012
Comments: OU 4&9 Site 37 Building 8595 SVE System Reactivation and Sampling Memorandum

Completed Area Name: Military Munitions Response Program (MMRP) - Basewide
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Workplan
Completed Date: 08/14/2015
Comments: Remedial Investigation Workplan for Munitions Response Sites AL501A, AL504, AL505-2, and AL505-4. This document is the plan for conducting subsurface reconnaissance of areas of potential buried munitions.

Completed Area Name: Military Munitions Response Program (MMRP) - Basewide
Completed Sub Area Name: Not reported
Completed Document Type: Quality Assurance Workplan
Completed Date: 08/14/2015
Comments: MMRP Site Insepction QAPP: Supplemental Comprehensive Site Evaluation Phase II for Munitions Response Sites AL505-3 and AL505-5

Completed Area Name: 4/9 - South AFRL
Completed Sub Area Name: Not reported
Completed Document Type: Long Term Monitoring Report
Completed Date: 05/01/2015
Comments: South AFRL 2013 Annual Groundwater Monitoring Report

Completed Area Name: 8 - Operable Unit 8, Northwest Main Base
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 07/15/2015
Comments: OU 8 Sites 61, 299, and 301 Annual Groundwater Monitoring Report for 2013

Completed Area Name: Military Munitions Response Program (MMRP) - Basewide
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Completion Report
Completed Date: 10/06/2014
Comments: MMRP After Action Report Non-time Critical Removal Action-surface Clearance MRS's AL 504, AL 505-2, and AL 505-4. This document is a compilation of field and laboratory forms documenting the surface clearance removal performed in 2014.

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 86
Completed Document Type: Operations and Maintenance Report
Completed Date: 02/05/2015
Comments: Final Version of OU2 Site 86 ARASR

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Not reported
Completed Document Type: Feasibility Study Workplan
Completed Date: 07/20/2015
Comments: OU 5/10 Feasibility Study Workplan. This Workplan documents addition work to be completed to address data gaps at selected OU 5/10 sites. Not being addressed are additional data gaps identified previously by the regulators in comments on the draft and draft final Feasibility Study. The Air Force intends to address these regulator-identified data gaps in a future workplan.

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 58
Completed Document Type: Monitoring Report
Completed Date: 03/31/2015
Comments: Site 58 Annual Monitoring Report for the Soil Vapor Extraction System Nov ’12 through Oct ’13

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 76
Completed Document Type: Long Term Monitoring Report
Completed Date: 03/04/2015
Comments: Final Site 76 RASR Submitted by AF

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.
Completed Sub Area Name: Site 3
Completed Document Type: Remedial Action Implementation Workplan
Completed Date: 04/16/2016
Comments: Site 3 Remedial Action Workplan Volumes I and II

Completed Area Name: 2 - Operable Unit 2, South Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Record of Decision
Completed Date: 02/09/2015
Comments: Sites 81 and 102 Action Memorandum, Non-time Critical Removal Action. DTSC concurs with the proposed action

Completed Area Name: 2 - Operable Unit 2, South Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Implementation Workplan
Completed Date: 06/17/2015
Comments: Final RAWP Addendum for OU2 Sites 76, 86 and 5/14

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Workplan
Completed Date: 07/10/2015
Comments: Addendum to Workplan for Vapor Intrusion Assessment at (high priority buildings at) OU’s 1, 4/9, 5/10, and 8. DTSC is on record disagreeing with the workplan not including subslab vapor sampling.

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.
Completed Sub Area Name: Site 3
Completed Document Type: Monitoring Plan
Completed Date: 09/11/2015
Comments: Site 3 Pre-Design Groundwater and Landfill Gas 2015 Sampling Plan. This "plan" is actually a one-page memorandum describing sampling

EDWARDS AIR FORCE BASE (Continued) **1000155217**

strategy for the Site 3 Landfill Gas.

Completed Area Name: 4A - AFRL Arroyos
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 10/12/2015
Comments: AFRL Arroyos 2013 GWM Report. DTSC reviewed and finds the final report acceptable.

Completed Area Name: 4/9 - Northeast AFRL
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 07/22/2015
Comments: OU 4/9 Northeast AFRL 2013 GWM Report

Completed Area Name: 7 - Operable Unit 7, Basewide Misc. - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Workplan
Completed Date: 09/01/2015
Comments: Final document issued by AF on 9/1/2015

Completed Area Name: 2 - Operable Unit 2, South Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 05/28/2015
Comments: Final document received by DTSC.

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 58
Completed Document Type: Technical Report
Completed Date: 06/01/2015
Comments: Not reported

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 18
Completed Document Type: Monitoring Report
Completed Date: 05/11/2015
Comments: Site 18 DES Annual O&M Report November 2013-October 2014. DTSC has expressed concern about the system being shut down for a lengthy period of time (the AF shut it down in 2013 to conduct nearby soil vapor sampling as part of a vapor intrusion investigation). The AF has responded that they restart the system monthly as part of routine O&M activities.

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 5
Completed Document Type: Site Characterization Workplan
Completed Date: 08/19/2015
Comments: Change pages from DF to Final received from Air Force.

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Site 285
Completed Document Type: Monitoring Report
Completed Date: 06/24/2015
Comments: Site 285 GETS Annual Operation and Maintenance (10/13-9/14) Report

Completed Area Name: 4A - AFRL Area

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Completed Sub Area Name: Site 37
Completed Document Type: Operations and Maintenance Report
Completed Date: 08/03/2015
Comments: Site 37 SVE O&M and Building 8595 Vapor Intrusion Monitoring Report for 2013. Note that DTSC disagrees with conclusions regarding VI screening numbers and the recommendation to no longer sample subslab VI wells

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Plan
Completed Date: 12/16/2015
Comments: Long-term Monitoring Optimization Volume II-Operable Units 1/8 GWM Sampling and Analysis Plan. There remain some important issues that will need to be resolved as part of the joint Air force-Regulator working group that will evaluate the 2015 groundwater monitoring data and make recommendations for future monitoring needs.

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.
Completed Sub Area Name: Site 442
Completed Document Type: Operations and Maintenance Report
Completed Date: 06/08/2015
Comments: Site 442 Annual (Nov 2013 to Oct 2014) Remedial Action Status Report

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 86
Completed Document Type: Operations and Maintenance Report
Completed Date: 05/28/2015
Comments: Final Version of Site 86 ARASR - 11/12-9/14 Submitted by AF on May 28, 2015.

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 5
Completed Document Type: Remedial Investigation Workplan
Completed Date: 06/04/2015
Comments: AF submitted Interim Draft Final & RTCs. Comments minor. AF approved to finalize document.

Completed Area Name: 2 - Operable Unit 2, South Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Well Installation Workplan
Completed Date: 06/22/2015
Comments: Final document received on 06/22/2015

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline
Completed Sub Area Name: Site 58
Completed Document Type: Monitoring Report
Completed Date: 06/26/2015
Comments: Annual SVE Report, DTSC expressed a desire for the SVE system (currently shut-down) to remain available for being turned on at a future a date if needed.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Risk Assessment Report
Completed Date: 02/28/2016
Comments: OU 1, 4/9, 7, and 8 Subsurface Nitrate Characteization Report.

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Outstanding issue remain; DTSC is relying on the RWQCB to continue to work these issues with the Air Force

Completed Area Name: 1 - Operable Unit 1, Main Base Flightline - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Well Installation Workplan
Completed Date: 08/18/2015
Comments: OU 1/8 Well Installation Workplan

Completed Area Name: 4/9 - South AFRL
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Implementation Workplan
Completed Date: 07/30/2016
Comments: Not reported

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 76
Completed Document Type: Operations and Maintenance Report
Completed Date: 07/20/2015
Comments: Not reported

Completed Area Name: 4/9 AFRL Misc. Documents
Completed Sub Area Name: Not reported
Completed Document Type: Well Completion Report
Completed Date: 07/02/2015
Comments: South & NE AFRL and Mars Blvd Sites Well Installation Report. DTSC had no comments on the draft report.

Completed Area Name: 8 - 25 Operable Unit - 8 - Site 25 Exotic Fuels
Completed Sub Area Name: Site 25
Completed Document Type: Well Completion Report
Completed Date: 01/19/2016
Comments: Site 25 Remedial Investigation Report Addendum No. 2

Completed Area Name: 2 - Operable Unit 2, South Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 08/21/2015
Comments: Final document received by DTSC.

Completed Area Name: 8 - 25 Operable Unit - 8 - Site 25 Exotic Fuels
Completed Sub Area Name: Site 25
Completed Document Type: Monitoring Plan
Completed Date: 10/30/2015
Comments: Site 25 Letter Addendum to the Basewide GW Monitoring UFP-QAPP, 2015 Interim GW Monitoring Plan

Completed Area Name: 4/9 AFRL Misc. Documents
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Plan
Completed Date: 07/23/2015
Comments: OU 4/9 Interim Groundwater Monitoring Plan for 2015-Letter Addendum to the Basewide GWM Plan

Completed Area Name: 5/10 - Operable Units 5 and 10, North Base
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Completed Date: 03/01/2016
Comments: OU 5/10 Annual Groundwater Monitoring Report for 2014

Completed Area Name: 4A - AFRL Area
Completed Sub Area Name: Site 37
Completed Document Type: Operations and Maintenance Report
Completed Date: 06/30/2016
Comments: Site 37 SVE O&M and Building 8595 Vapor Intrusion Monitoring Report for 2014. DTSC has reviewed the final report; there remain outstanding disagreements described in the Responses to Comments table in Appendix E. No letter issued on the final, but DTSC will ensure raised issues are factored into the review of the subsequent 2015 monitoring report.

Completed Area Name: 4/9 Mars Blvd Sites
Completed Sub Area Name: Not reported
Completed Document Type: Long Term Monitoring Report
Completed Date: 04/06/2016
Comments: Sites 6 and 113 Groundwater Monitoring Report for 2014

Completed Area Name: 4/9 Mars Blvd Sites
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 08/23/2016
Comments: Not reported

Completed Area Name: 8 - 25 Operable Unit - 8 - Site 25 Exotic Fuels
Completed Sub Area Name: Site 25
Completed Document Type: Monitoring Report
Completed Date: 07/19/2016
Comments: Site 25 Biennial Groundwater Monitoring Report 2013-2014

Completed Area Name: 4A - AFRL Area
Completed Sub Area Name: Site 13
Completed Document Type: Operations and Maintenance Plan
Completed Date: 11/09/2015
Comments: Site 13 Landfill 2015 Post Closure Maintenance and Monitoring Plan. This site is undergoing post-closure monitoring under the Kern County Health Department; DTSC will review the status as part of the South AFRL Five Year Reviews.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Report
Completed Date: 03/11/2014
Comments: US Fish and Wildlife 03/11/14 Biological Opinion

Completed Area Name: 2 - Operable Unit 2, South Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Workplan
Completed Date: 06/06/2016
Comments: Sites 81 and 102 Supplemental Workplan

Completed Area Name: 7 - Operable Unit 7, Basewide Misc.
Completed Sub Area Name: Site 442
Completed Document Type: Operations and Maintenance Report
Completed Date: 06/16/2016

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Comments: Site 442 Annual Remedial Action Stutus Report November 2014 - September 2015

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 76
Completed Document Type: Monitoring Report
Completed Date: 07/20/2016
Comments: Not reported

Completed Area Name: 4/9 - Soil and Debris Sites
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Implementation Workplan
Completed Date: 05/16/2016
Comments: Not reported

Completed Area Name: 2 - Operable Unit 2, South Base
Completed Sub Area Name: Site 86
Completed Document Type: Monitoring Report
Completed Date: 07/15/2016
Comments: Not reported

Completed Area Name: 4/9 - Soil and Debris Sites
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction Monitoring Report
Completed Date: 02/27/2016
Comments: OU 4/9 Soil and Debris Sites Land Use Controls Inspection/Maintenance Report for 2015. Document issued as final. DTSC reviewed; no comment letter required or distributed by DTSC.

Completed Area Name: 9 - Air Force Research Lab - East - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Long Term Monitoring Report
Completed Date: 07/18/2016
Comments: Sites 6 and 113 Groundwater Monitoring Report for 2015

Completed Area Name: 2 - Operable Unit 2, South Base - MULTIPLE SITES
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 09/16/2016
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Federal Facility Agreement
Completed Date: 10/31/1990
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Discovery
Completed Date: 08/24/1981
Comments: Facility Identified: EPA Superfund Notification List.

Completed Area Name: 4A - AFRL Area
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction
Completed Date: 09/26/2007

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Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Federal Facility Agreement
Completed Date: 09/25/1990
Comments: Not reported

Future Area Name: PROJECT WIDE
Future Sub Area Name: Not reported
Future Document Type: Certification
Future Due Date: 2023
Future Area Name: 8 - 25 Operable Unit - 8 - Site 25 Exotic Fuels
Future Sub Area Name: Site 25
Future Document Type: Feasibility Study Report
Future Due Date: 2017
Future Area Name: PROJECT WIDE
Future Sub Area Name: Not reported
Future Document Type: Site Characterization Report
Future Due Date: 2017
Future Area Name: 4/9 - South AFRL
Future Sub Area Name: Not reported
Future Document Type: Record of Decision w/ESD
Future Due Date: 2017
Future Area Name: 5/10 - Operable Units 5 and 10, North Base
Future Sub Area Name: Not reported
Future Document Type: Proposed Plan
Future Due Date: 2018
Future Area Name: 4/9 Mars Blvd Sites
Future Sub Area Name: Not reported
Future Document Type: Feasibility Study Report
Future Due Date: 2018
Future Area Name: 4/9 - Northeast AFRL
Future Sub Area Name: Not reported
Future Document Type: Feasibility Study Report
Future Due Date: 2018
Future Area Name: 4A - AFRL Arroyos
Future Sub Area Name: Not reported
Future Document Type: Remedial Action Plan
Future Due Date: 2018
Future Area Name: 4/9 - Northeast AFRL
Future Sub Area Name: Not reported
Future Document Type: Proposed Plan
Future Due Date: 2018
Future Area Name: 2 - Operable Unit 2, South Base - MULTIPLE SITES
Future Sub Area Name: Not reported
Future Document Type: Proposed Plan
Future Due Date: 2017
Future Area Name: 4/9 Mars Blvd Sites
Future Sub Area Name: Not reported
Future Document Type: Proposed Plan
Future Due Date: 2018
Future Area Name: 5/10 - Operable Units 5 and 10, North Base
Future Sub Area Name: Not reported
Future Document Type: Feasibility Study Report
Future Due Date: 2017
Future Area Name: 7 - Operable Unit 7, Basewide Misc.

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Future Sub Area Name: Not reported
Future Document Type: Proposed Plan
Future Due Date: 2017
Future Area Name: 8 - 25 Operable Unit - 8 - Site 25 Exotic Fuels
Future Sub Area Name: Site 25
Future Document Type: Record of Decision
Future Due Date: 2019
Future Area Name: 7 - Operable Unit 7, Basewide Misc.
Future Sub Area Name: Not reported
Future Document Type: Record of Decision
Future Due Date: 2018
Future Area Name: 5/10 - Operable Units 5 and 10, North Base
Future Sub Area Name: Not reported
Future Document Type: Proposed Plan
Future Due Date: 2020
Future Area Name: 4A - AFRL Arroyos
Future Sub Area Name: Not reported
Future Document Type: Record of Decision
Future Due Date: 2018
Future Area Name: 5/10 - Operable Units 5 and 10, North Base
Future Sub Area Name: Not reported
Future Document Type: Record of Decision
Future Due Date: 2021
Schedule Area Name: 4A - AFRL Area
Schedule Sub Area Name: Site 37
Schedule Document Type: Operations and Maintenance Report
Schedule Due Date: 03/30/2017
Schedule Revised Date: Not reported
Schedule Area Name: PROJECT WIDE
Schedule Sub Area Name: Not reported
Schedule Document Type: Site Characterization Report
Schedule Due Date: 02/22/2017
Schedule Revised Date: Not reported
Schedule Area Name: 6 - Operable Unit 6, NASA Dryden
Schedule Sub Area Name: Not reported
Schedule Document Type: 5 Year Review Reports
Schedule Due Date: 01/11/2017
Schedule Revised Date: Not reported
Schedule Area Name: 2 - Operable Unit 2, South Base
Schedule Sub Area Name: Site 5
Schedule Document Type: Feasibility Study Report
Schedule Due Date: 04/30/2017
Schedule Revised Date: Not reported
Schedule Area Name: PROJECT WIDE
Schedule Sub Area Name: Not reported
Schedule Document Type: Remedial Investigation Report
Schedule Due Date: 11/01/2016
Schedule Revised Date: Not reported

Calsite:
Region: SACRAMENTO
Facility ID: 15970001
Facility Type: OPEN
Type: OPEN MILITARY BASE
Branch: NO
Branch Name: OMF-NORTHERN CALIF
File Name: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

State Senate District: 05011986
Status: ANNUAL WORKPLAN (AWP) - ACTIVE SITE
Status Name: ANNUAL WORKPLAN - ACTIVE SITE
Lead Agency: DEPT OF TOXIC SUBSTANCES CONTROL
NPL: Listed
SIC Code: 97
SIC Name: NATIONAL SECURITY/INTERNATIONAL AFFAIRS
Access: Not reported
Cortese: Not reported
Hazardous Ranking Score: Not reported
Date Site Hazard Ranked: Not reported
Groundwater Contamination: Confirmed
Staff Member Responsible for Site: JOKANE
Supervisor Responsible for Site: Not reported
Region Water Control Board: LN
Region Water Control Board Name: LAHONTAN
Lat/Long Direction: Not reported
Lat/Long (dms): 0 0 0 / 0 0 0
Lat/long Method: Not reported
Lat/Long Description: MEASURED FROM CENTER POINT OF RUNWAY
State Assembly District Code: 34
State Senate District Code: 18
Facility ID: 15970001
Activity: RIFS
Activity Name: REMEDIAL INVESTIGATION / FEASIBILITY STUDY
AWP Code: OU10
Proposed Budget: 0
AWP Completion Date: 07012007
Revised Due Date: Not reported
Comments Date: Not reported
Est Person-Yrs to complete: 0
Estimated Size: Not reported
Request to Delete Activity: Not reported
Activity Status: AWP
Definition of Status: ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals): 0
Liquids Treated (Gals): 0
Action Included Capping: Not reported
Well Decommissioned: Not reported
Action Included Fencing: Not reported
Removal Action Certification: Not reported
Activity Comments: Not reported
For Commercial Reuse: 0
For Industrial Reuse: 0
For Residential Reuse: 0
Unknown Type: 0
Facility ID: 15970001
Activity: RAP
Activity Name: REMEDIAL ACTION PLAN / RECORD OF DECISION
AWP Code: OU9
Proposed Budget: 0
AWP Completion Date: 07012007
Revised Due Date: Not reported
Comments Date: Not reported
Est Person-Yrs to complete: 0
Estimated Size: Not reported
Request to Delete Activity: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RIFS
Activity Name:	REMEDIAL INVESTIGATION / FEASIBILITY STUDY
AWP Code:	OU9
Proposed Budget:	0
AWP Completion Date:	07012006
Revised Due Date:	Not reported
Comments Date:	Not reported
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RAP
Activity Name:	REMEDIAL ACTION PLAN / RECORD OF DECISION
AWP Code:	OU8
Proposed Budget:	0
AWP Completion Date:	07012007
Revised Due Date:	Not reported
Comments Date:	Not reported
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RIFS
Activity Name:	REMEDIAL INVESTIGATION / FEASIBILITY STUDY
AWP Code:	OU8
Proposed Budget:	0
AWP Completion Date:	07012006
Revised Due Date:	Not reported
Comments Date:	Not reported
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RIFS
Activity Name:	REMEDIAL INVESTIGATION / FEASIBILITY STUDY
AWP Code:	OU7
Proposed Budget:	0
AWP Completion Date:	12312006
Revised Due Date:	Not reported
Comments Date:	Not reported
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RAP
Activity Name:	REMEDIAL ACTION PLAN / RECORD OF DECISION
AWP Code:	OU5
Proposed Budget:	0

EDWARDS AIR FORCE BASE (Continued) **1000155217**

AWP Completion Date:	07012007
Revised Due Date:	Not reported
Comments Date:	Not reported
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RIFS
Activity Name:	REMEDIAL INVESTIGATION / FEASIBILITY STUDY
AWP Code:	OU5
Proposed Budget:	0
AWP Completion Date:	07012006
Revised Due Date:	Not reported
Comments Date:	Not reported
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RIFS
Activity Name:	REMEDIAL INVESTIGATION / FEASIBILITY STUDY
AWP Code:	OU4
Proposed Budget:	0
AWP Completion Date:	06302006
Revised Due Date:	08302005
Comments Date:	Not reported
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RA
Activity Name:	REMOVAL ACTION
AWP Code:	S426
Proposed Budget:	0
AWP Completion Date:	08062004
Revised Due Date:	Not reported
Comments Date:	08062004
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RIFS
Activity Name:	REMEDIAL INVESTIGATION / FEASIBILITY STUDY
AWP Code:	OU1
Proposed Budget:	0
AWP Completion Date:	12012005
Revised Due Date:	Not reported
Comments Date:	Not reported
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Unknown Type:	0
Facility ID:	15970001
Activity:	RIFS
Activity Name:	REMEDIAL INVESTIGATION / FEASIBILITY STUDY
AWP Code:	OU6
Proposed Budget:	0
AWP Completion Date:	09302004
Revised Due Date:	Not reported
Comments Date:	10152004
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	OM
Activity Name:	OPERATION & MAINTENANCE
AWP Code:	S172
Proposed Budget:	0
AWP Completion Date:	06302003
Revised Due Date:	Not reported
Comments Date:	06302003
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RA
Activity Name:	REMOVAL ACTION
AWP Code:	S133
Proposed Budget:	0
AWP Completion Date:	06272003
Revised Due Date:	Not reported
Comments Date:	06272003

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	N
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RA
Activity Name:	REMOVAL ACTION
AWP Code:	STE25
Proposed Budget:	0
AWP Completion Date:	05132003
Revised Due Date:	Not reported
Comments Date:	05132003
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	N
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL32
Proposed Budget:	0
AWP Completion Date:	06282002
Revised Due Date:	Not reported
Comments Date:	06282002
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL31
Proposed Budget:	0
AWP Completion Date:	06282002
Revised Due Date:	Not reported
Comments Date:	06282002
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL30
Proposed Budget:	0
AWP Completion Date:	06282002
Revised Due Date:	Not reported
Comments Date:	06282002
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL29
Proposed Budget:	0
AWP Completion Date:	03292002
Revised Due Date:	Not reported
Comments Date:	03292002
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL28
Proposed Budget:	0
AWP Completion Date:	03292002
Revised Due Date:	Not reported
Comments Date:	03292002
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL27
Proposed Budget:	0
AWP Completion Date:	03292002
Revised Due Date:	Not reported
Comments Date:	03292002
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RAW
Activity Name:	REMOVAL ACTION WORKPLAN
AWP Code:	S426
Proposed Budget:	0
AWP Completion Date:	10112001
Revised Due Date:	Not reported
Comments Date:	10112001
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL26
Proposed Budget:	0
AWP Completion Date:	12132001
Revised Due Date:	Not reported
Comments Date:	12132001
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL25
Proposed Budget:	0
AWP Completion Date:	12132001
Revised Due Date:	Not reported
Comments Date:	12132001
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL24
Proposed Budget:	0
AWP Completion Date:	12132001
Revised Due Date:	Not reported
Comments Date:	12132001
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL23
Proposed Budget:	0

EDWARDS AIR FORCE BASE (Continued) **1000155217**

AWP Completion Date:	09172001
Revised Due Date:	Not reported
Comments Date:	09172001
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL22
Proposed Budget:	0
AWP Completion Date:	09172001
Revised Due Date:	Not reported
Comments Date:	09172001
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL21
Proposed Budget:	0
AWP Completion Date:	09172001
Revised Due Date:	Not reported
Comments Date:	09172001
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL20
Proposed Budget:	0
AWP Completion Date:	06112001
Revised Due Date:	Not reported
Comments Date:	06112001
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL19
Proposed Budget:	0
AWP Completion Date:	06082001
Revised Due Date:	Not reported
Comments Date:	06082001
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Unknown Type:	0
Facility ID:	15970001
Activity:	RAW
Activity Name:	REMOVAL ACTION WORKPLAN
AWP Code:	STE25
Proposed Budget:	0
AWP Completion Date:	12042000
Revised Due Date:	Not reported
Comments Date:	12042000
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL18
Proposed Budget:	0
AWP Completion Date:	03152001
Revised Due Date:	Not reported
Comments Date:	03152001
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL17
Proposed Budget:	0
AWP Completion Date:	03152001
Revised Due Date:	Not reported
Comments Date:	03152001

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL16
Proposed Budget:	0
AWP Completion Date:	03152001
Revised Due Date:	Not reported
Comments Date:	03152001
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL15
Proposed Budget:	0
AWP Completion Date:	02072001
Revised Due Date:	Not reported
Comments Date:	02072001
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL14
Proposed Budget:	0
AWP Completion Date:	02072001
Revised Due Date:	Not reported
Comments Date:	02072001
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL13
Proposed Budget:	0
AWP Completion Date:	02082001
Revised Due Date:	Not reported
Comments Date:	02082001
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	DES

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Name:	DESIGN
AWP Code:	STE18
Proposed Budget:	0
AWP Completion Date:	08021999
Revised Due Date:	Not reported
Comments Date:	08021999
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL12
Proposed Budget:	0
AWP Completion Date:	04212000
Revised Due Date:	Not reported
Comments Date:	04212000
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL11
Proposed Budget:	0
AWP Completion Date:	01052000
Revised Due Date:	Not reported
Comments Date:	01052000
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL10
Proposed Budget:	0
AWP Completion Date:	01052000
Revised Due Date:	Not reported
Comments Date:	01052000
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL9
Proposed Budget:	0
AWP Completion Date:	09291999
Revised Due Date:	Not reported
Comments Date:	09291999
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL8
Proposed Budget:	0
AWP Completion Date:	09291999
Revised Due Date:	Not reported
Comments Date:	09291999
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL7
Proposed Budget:	0
AWP Completion Date:	02261999
Revised Due Date:	Not reported
Comments Date:	02261999
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	DES
Activity Name:	DESIGN
AWP Code:	S223
Proposed Budget:	0

EDWARDS AIR FORCE BASE (Continued) **1000155217**

AWP Completion Date:	02021999
Revised Due Date:	Not reported
Comments Date:	02021999
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	DES
Activity Name:	DESIGN
AWP Code:	SIT14
Proposed Budget:	0
AWP Completion Date:	02011999
Revised Due Date:	Not reported
Comments Date:	02011999
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	B8595
Proposed Budget:	0
AWP Completion Date:	01281999
Revised Due Date:	Not reported
Comments Date:	01281999
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL6
Proposed Budget:	0
AWP Completion Date:	10011998
Revised Due Date:	Not reported
Comments Date:	10011998
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RA
Activity Name:	REMOVAL ACTION
AWP Code:	SRAM
Proposed Budget:	0
AWP Completion Date:	08031998
Revised Due Date:	Not reported
Comments Date:	08031998
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	N
Activity Comments:	REMOVAL ACTION CONSISTED OF DESTRUCTION OF SHORT RANGE ATTACK MISSLE MOTOR.
For Commercial Reuse:	0
For Industrial Reuse:	0

EDWARDS AIR FORCE BASE (Continued) **1000155217**

For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	OM
Activity Name:	OPERATION & MAINTENANCE
AWP Code:	OU-6
Proposed Budget:	0
AWP Completion Date:	04271999
Revised Due Date:	Not reported
Comments Date:	04271999
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RAW
Activity Name:	REMOVAL ACTION WORKPLAN
AWP Code:	S133
Proposed Budget:	0
AWP Completion Date:	10172000
Revised Due Date:	Not reported
Comments Date:	10172000
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL5
Proposed Budget:	0
AWP Completion Date:	10011998
Revised Due Date:	Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Comments Date:	10011998
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL4
Proposed Budget:	0
AWP Completion Date:	07291998
Revised Due Date:	Not reported
Comments Date:	07291998
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PEA
Activity Name:	PRELIMINARY ENDANGERMENT ASSESSMENT
AWP Code:	PRL1
Proposed Budget:	0
AWP Completion Date:	12121996
Revised Due Date:	Not reported
Comments Date:	12121996
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RA
Activity Name:	REMOVAL ACTION
AWP Code:	S223
Proposed Budget:	0
AWP Completion Date:	06011999
Revised Due Date:	Not reported
Comments Date:	06011999
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RA
Activity Name:	REMOVAL ACTION
AWP Code:	SIT14
Proposed Budget:	0
AWP Completion Date:	06111999
Revised Due Date:	Not reported
Comments Date:	06111999
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity:	RA
Activity Name:	REMOVAL ACTION
AWP Code:	SIT29
Proposed Budget:	0
AWP Completion Date:	06041998
Revised Due Date:	Not reported
Comments Date:	06041998
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	X
Removal Action Certification:	N
Activity Comments:	REMOVAL ACTION CONSISTED OF FENCING THE SITE FOR ACCESS RESTRICTION AND CONDUCTING LONG-TERM GROUNDWATER MONITORING.
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RAW
Activity Name:	REMOVAL ACTION WORKPLAN
AWP Code:	S223
Proposed Budget:	0
AWP Completion Date:	05071998
Revised Due Date:	Not reported
Comments Date:	05071998
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RAW
Activity Name:	REMOVAL ACTION WORKPLAN
AWP Code:	SIT14
Proposed Budget:	0
AWP Completion Date:	05071998
Revised Due Date:	Not reported
Comments Date:	05071998
Est Person-Yrs to complete:	0

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RAW
Activity Name:	REMOVAL ACTION WORKPLAN
AWP Code:	SIT29
Proposed Budget:	0
AWP Completion Date:	05071998
Revised Due Date:	Not reported
Comments Date:	05071998
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RIFS
Activity Name:	REMEDIAL INVESTIGATION / FEASIBILITY STUDY
AWP Code:	OU2
Proposed Budget:	0
AWP Completion Date:	11302005
Revised Due Date:	04302005
Comments Date:	Not reported
Est Person-Yrs to complete:	0
Estimated Size:	X
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RA
Activity Name:	REMOVAL ACTION
AWP Code:	5&15
Proposed Budget:	0
AWP Completion Date:	12101997
Revised Due Date:	Not reported
Comments Date:	12101997
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	N
Activity Comments:	INITIAL OPERATION OF THE DUAL EXTRACTION SYSTEM TO REMEDIATE VOC CONTAMINATION COMMENCED ON 4/10/97. AMOUNTS SHOWN ARE FOR THE INITIAL 3 MONTHS OF OPERATION.
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RA
Activity Name:	REMOVAL ACTION
AWP Code:	7&167
Proposed Budget:	0
AWP Completion Date:	06301997
Revised Due Date:	Not reported
Comments Date:	06301997
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	8482
Liquids Treated (Gals):	8482
Action Included Capping:	X
Well Decommissioned:	Not reported
Action Included Fencing:	X
Removal Action Certification:	N
Activity Comments:	BERYLLIUM CONTAMINATED SOILS WERE EXCAVATED AND DEPOSITED ON-SITE UNDER THE DTSC CAMU REGULATIONS AND IN ACCORDANCE WITH THE ARARS CONTAINED IN 23 CCR, CHAPTER 15.
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Unknown Type:	0
Facility ID:	15970001
Activity:	RA
Activity Name:	REMOVAL ACTION
AWP Code:	SIT16
Proposed Budget:	0
AWP Completion Date:	06301997
Revised Due Date:	Not reported
Comments Date:	06301997
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	N
Activity Comments:	INITIAL OPERATION OF THE DULA EXTRACTION SYSTEM BEGAN ON MARCH 18. BASED ON BIMONTHLY MONITORING REPORTS, THE SYSTEM APPEARS TO BE OPERATING PROPERLY. CONTINUED OPERATION WILL BE CONDUCTED UNDER OM.
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RA
Activity Name:	REMOVAL ACTION
AWP Code:	SIT45
Proposed Budget:	0
AWP Completion Date:	05221997
Revised Due Date:	Not reported
Comments Date:	05221997
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	N
Activity Comments:	THE SITE 45 RA CONSISTS OF DTSC'S APPROVAL THAT THE DUAL VAPOR/ GROUNDWATER EXTRACTION SYSTEM IS OPERATING SATISFACTORILY AND THAT THE SYSTEM IS NOW CONSIDERED TO BE IN AN OPERATION AND MAINTENANCE MODE.
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RAP
Activity Name:	REMEDIAL ACTION PLAN / RECORD OF DECISION
AWP Code:	5&15

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Proposed Budget:	0
AWP Completion Date:	06301997
Revised Due Date:	Not reported
Comments Date:	06301997
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RAP
Activity Name:	REMEDIAL ACTION PLAN / RECORD OF DECISION
AWP Code:	SIT18
Proposed Budget:	0
AWP Completion Date:	05291997
Revised Due Date:	Not reported
Comments Date:	05291997
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RAP
Activity Name:	REMEDIAL ACTION PLAN / RECORD OF DECISION
AWP Code:	SIT16
Proposed Budget:	0
AWP Completion Date:	09301996
Revised Due Date:	Not reported
Comments Date:	09301996
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RAP
Activity Name:	REMEDIAL ACTION PLAN / RECORD OF DECISION
AWP Code:	SIT45
Proposed Budget:	0
AWP Completion Date:	09301996
Revised Due Date:	Not reported
Comments Date:	09301996
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RAP
Activity Name:	REMEDIAL ACTION PLAN / RECORD OF DECISION
AWP Code:	7&167
Proposed Budget:	0
AWP Completion Date:	09301996
Revised Due Date:	Not reported
Comments Date:	09301996
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0

EDWARDS AIR FORCE BASE (Continued) **1000155217**

For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PPP
Activity Name:	PUBLIC PARTICIPATION PLAN
AWP Code:	Not reported
Proposed Budget:	0
AWP Completion Date:	05311994
Revised Due Date:	Not reported
Comments Date:	05311994
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RA
Activity Name:	REMOVAL ACTION
AWP Code:	OU1FP
Proposed Budget:	0
AWP Completion Date:	01301993
Revised Due Date:	Not reported
Comments Date:	01301993
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	N
Activity Comments:	INSTALLATION, DEVELOPMENT AND ACTIVATION OF SIX SCAVENGER PUMPS TO REMOVE FREE JP-4 FUEL PRODUCT FROM THE GROUNDWATER SURFACE AT SITE 16.
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RA
Activity Name:	REMOVAL ACTION
AWP Code:	OU1BV
Proposed Budget:	0
AWP Completion Date:	01301993

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Revised Due Date:	Not reported
Comments Date:	01301993
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	N
Activity Comments:	REMOVAL OF JP-4 FUEL IN THE VADOSE ZONE BY INJECTION OF AIR UNDER-GROUND TO PROVIDE OXYGEN TO NATIVE BACTERIA WHICH FEED ON PETROLEUM HYDROCARBONS.
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	RA
Activity Name:	REMOVAL ACTION
AWP Code:	OU1PR
Proposed Budget:	0
AWP Completion Date:	01301992
Revised Due Date:	Not reported
Comments Date:	01301992
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	N
Activity Comments:	CONSTRUCTION OF A NEW JP-4 JET FUEL PIPELINE TO REPLACE EXISTING PIPE-LINE FROM FUEL TANK FARM TO FLIGHT LINE WITH DOUBLE-WALLED PIPE WITHLEAK DETECTORS.
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	PPP
Activity Name:	PUBLIC PARTICIPATION PLAN
AWP Code:	Not reported
Proposed Budget:	0
AWP Completion Date:	04301991
Revised Due Date:	Not reported
Comments Date:	04301991
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	SS
Activity Name:	SITE SCREENING
AWP Code:	Not reported
Proposed Budget:	0
AWP Completion Date:	02101987
Revised Due Date:	Not reported
Comments Date:	02101987
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	CERT
Activity Name:	CERTIFICATION
AWP Code:	BASWD
Proposed Budget:	0
AWP Completion Date:	12312010
Revised Due Date:	Not reported
Comments Date:	Not reported
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	15970001
Activity:	ORDER
Activity Name:	I/SE, IORSE, FFA, FFSRA, VCA, EA
AWP Code:	FFA
Proposed Budget:	0
AWP Completion Date:	Not reported
Revised Due Date:	Not reported
Comments Date:	10311990
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	AWP
Definition of Status:	ANNUAL WORKPLAN - ACTIVE SITE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Alternate Address:	SOUTH OF HIGHWAY 58
Alternate City,St,Zip:	MOJAVE, CA 93501
Alternate Address:	470 SQ MI; 60 MI NE OF LOS ANGELES, CA
Alternate City,St,Zip:	EDWARDS, CA 93523
Alternate Address:	6510 ABG/CC
Alternate City,St,Zip:	EDWARDS, CA 93523
Alternate Address:	AFFTC EDWARDS AFB
Alternate City,St,Zip:	EDWARDS, CA 93523
Alternate Address:	NE OF THE CITY OF LANCASTER
Alternate City,St,Zip:	MOJAVE, CA 93501
Background Info:	Edwards Air Force Base is an Air Force Command Test Center. The p rimary function of Edwards is to test new and existing air- craft and integrate them into the present Air Force inventory. The lan d area occupied by the base is 470 square miles. Within this lan d area there are 3 separate Air Force Bases, complete with runway s and infrastructure; the NASA Dryden Flight Test and Space Shutt le Recovery facilities; the 50+ square mile Phillips Laboratory r ocket test facility; the Precision Impact Range Area; and the Rog ers and Rosamond Dry Lake Beds. In the past, the base was the home of the U.S. Army Helicopter Flight Test Center and the NASA Jet Propulsion Laboratory. During World War II, the base trained P-38 fighter pilots and B-24 bombe crews. After World War II, th e base became a flight test center. The 469 discovered contaminat ed sites are divided into 10 Operable Units (OU): OU-1, Main Base Flightline; OU-2, South Base; OU-3, Basewide Water Wells; OU-4, Phillips Laboratory;OU-5, NASA/Jet Propulsion Laboratory; OU-6, N ASA/Dryden; OU-7, Basewide Miscellaneous; OU-8, NW Main Base Flig htline; OU-9, Phillips Lab- oratory (East); and OU-10, North Base . There is an extensive Archival Research Program underway to lo

EDWARDS AIR FORCE BASE (Continued) **1000155217**

cate information leading to the identification of potential past
chemical weapon activity on the base (40 + or - sites suspected).
There is also an Under- ground Storage Tank removal program (70
0 USTs removed). In the summer of 1989, EPA listed Edwards on
the National Priority List. A Federal Facility Agreement (FFA) b
etween Edwards, EPA, RWQCB, and DTSC was negotiated and became ef
fective in October 1990.

Comments Date: 01052000
Comments: PEA - PRL10 -- Concurrance provided on PEA equivalent documents f
Comments Date: 01052000
Comments: or OU-4, areas of concern 122, 141, 170, and 171. PEA - PRL11 --
Comments Date: 01052000
Comments: Concurrance provided on PEA equivalent document for OU-5, area of
Comments Date: 01052000
Comments: concern 233.
Comments Date: 01281999
Comments: PEA - B8595 -- Investigation and closure of AOC's 170-172 in Buil
Comments Date: 01281999
Comments: ding 8595 in OU-4.
Comments Date: 01301992
Comments: RA (OU1PR): Construction of a new JP-4 jet fuel pipeline to repla
Comments Date: 01301992
Comments: ce existing pipeline from fuel tank farm to flight line (4.5 mile
Comments Date: 01301992
Comments: s) with double-walled pipe and leak detectors. No contaminated so
Comments Date: 01301992
Comments: il was removed with this action.
Comments Date: 01301993
Comments: RA (OU1BV): Removal of JP-4 fuel in the vadose zone by injection
Comments Date: 01301993
Comments: of air underground to provide oxygen to native bacteria which fee
Comments Date: 01301993
Comments: d on petroleum hydrocarbons. This process is being employed at S
Comments Date: 01301993
Comments: ite 16 - Fuel Spill and at Site 21 - Jet Engine test cell facilit
Comments Date: 01301993
Comments: y. RA (OU1FP): Installation, development and activation of six s
Comments Date: 01301993
Comments: cavenger pumps to remove free product from the groundwater surfac
Comments Date: 01301993
Comments: e at Site 16.
Comments Date: 02011999
Comments: DES - SIT14 -- Design for installing, operating, and evaluating t
Comments Date: 02011999
Comments: he groundwater extraction and treatment system at Site 14 in OU-2
Comments Date: 02011999
Comments: .
Comments Date: 02021999
Comments: DES - S223 -- Design for installing, operating and evaluating the
Comments Date: 02021999
Comments: SVE and air sparging systems at Site 223 in OU-2.
Comments Date: 02072001
Comments: PEA - PRL14 -- Concurrence provided on PEA equivalent documents f
Comments Date: 02072001
Comments: or Operable Unit #10, Area of Concern 243. PEA - PRL15 -- Concu
Comments Date: 02072001
Comments: rrence provided on PEA equivalent documents for Operable Unit #1,

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Comments Date: 02072001
Comments: Sites 46, 55 and 366.
Comments Date: 02081983
Comments: Records Search: HWMB/Enforcement actively involved.
Comments Date: 02082001
Comments: PEA - PRL13 -- Concurrence provided on PEA equivalent documents f
Comments Date: 02082001
Comments: or Operable Unit #4, Site 12 and Areas of Concern 121, 155 and 16
Comments Date: 02082001
Comments: 4.
Comments Date: 02101987
Comments: Site Screening Done.
Comments Date: 02261999
Comments: PEA - PRL7 -- Concurrance provided on PEA - equivalent documents
Comments Date: 02261999
Comments: for OU-10 sites 228, 232, and 256.
Comments Date: 03152001
Comments: PEA - PRL16 -- Concurrence provided on PEA equivalent documents f
Comments Date: 03152001
Comments: or Operable Unit #4, Site 150 and Area of Concern 168. PEA - PR
Comments Date: 03152001
Comments: L17 -- Concurrence provided on PEA equivalent documents for Opera
Comments Date: 03152001
Comments: ble Unit #7 Sites 4 and 34 and Areas of Concern 388 and 394. PE
Comments Date: 03152001
Comments: A - PRL18 -- Concurrence provided on PEA equivalent documents for
Comments Date: 03152001
Comments: Operable Unit #8,Site 2.
Comments Date: 03292002
Comments: PEA - PRL27 -- No Further Investigation (NFI) documents signed by
Comments Date: 03292002
Comments: the Edwards Air Force Base Remedial Project Manager for Operable
Comments Date: 03292002
Comments: Unit 4- Air Force Research Laboratory Site Number 146 and for Op
Comments Date: 03292002
Comments: erable Unit 9 - East Air Force Research Laboratory Site Number 37
Comments Date: 03292002
Comments: 6. The NFI determination for these site-specific actions means t
Comments Date: 03292002
Comments: hat these Sites have been adequately investigated and that the re
Comments Date: 03292002
Comments: sults justify the determination. PEA - PRL28 -- No Further Inve
Comments Date: 03292002
Comments: stigation (NFI) documents signed by the Edwards Air Force Base Re
Comments Date: 03292002
Comments: medial Project Manager for Operable Unit 7 - Basewide Miscellaneo
Comments Date: 03292002
Comments: us Site Number 353 and Area of Concern (AOC) Numbers 268,368 and
Comments Date: 03292002
Comments: 371. The NFI determination for these site-specific actions means
Comments Date: 03292002
Comments: that these Sites/AOCs have been adequately investigated and that
Comments Date: 03292002
Comments: the results justify the determination. PEA - PRL29 -- No Furth
Comments Date: 06302003
Comments: apor from seven wells. The cumulative mass of contaminants remov
Comments Date: 06302003

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Comments: ed during the reporting period was 472 pounds. Vapor flow rates
Comments Date: 06302003
Comments: averaged approximately 42 standard cubic feet per minute (scfm) d
Comments Date: 06302003
Comments: uring January to August 2002, and 84 scfm during September to Dec
Comments Date: 06302003
Comments: ember 2002 following expansion of the well field from three to se
Comments Date: 06302003
Comments: ven wells. The SVE operating cost for the year 2002, excluding l
Comments Date: 06302003
Comments: abor, was $95,172.
Comments Date: 07291998
Comments: PEA - PRL4 -- Edwards AFB has adequately investigated the OU-2 Ol
Comments Date: 07291998
Comments: d South Base PRL sites 72, 73, 78, 79, 84, 87, 98, 100, 101, 104,
Comments Date: 07291998
Comments: 290, 291 and 417 (collectively, PRL4) DTSC finds that the docume
Comments Date: 07291998
Comments: nts are equivalent to a PEA document.
Comments Date: 08021999
Comments: DES - STE18 -- Approval of dual extraction system design for inte
Comments Date: 08021999
Comments: rim removal action to treat TCE contaminated soil and groundwater
Comments Date: 08021999
Comments: .
Comments Date: 08031998
Comments: RA - SRAM -- Time critical removal action taken to destroy short
Comments Date: 08031998
Comments: range attack missile motor.
Comments Date: 08062004
Comments: RA - S426 -- No Further Action recommendation following the compl
Comments Date: 08062004
Comments: etion of a removal action at Site 426 in OU-7, documented in the
Comments Date: 08062004
Comments: Site Interim Removal Action Report, March 2004. Site 426 is an h
Comments Date: 08062004
Comments: istoric WWII Chemical Warfare Material Storage Yard near dormitor
Comments Date: 08062004
Comments: ies where investigation delineated frou possible "trenches." An
Comments Date: 08062004
Comments: excavation removal action conducted in 2002 identified no hazardo
Comments Date: 08062004
Comments: us contaminants, only four sets of concrete "rails" which were re
Comments Date: 08062004
Comments: moved.
Comments Date: 08241981
Comments: Facility Identified: EPA Superfund Notification List.
Comments Date: 09172001
Comments: PEA - PRL21 -- Concurrence provided on PEA equivalent document fo
Comments Date: 09172001
Comments: r OU7, AOCs 261, 262, 263, 264, and 265. PEA - PRL22 -- Concurr
Comments Date: 09172001
Comments: ence provided on PEA equivalent document for OU10, Site 279. PE
Comments Date: 09172001
Comments: A - PRL23 -- Concurrence provided on PEA equivalent document for
Comments Date: 09172001
Comments: OU2, AOCs 458, 459, and 460.

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Comments Date: 09281999
Comments: PEA - PRL8 -- Concurrence provided on PEA equivalent documents
Comments Date: 09281999
Comments: for OU-3, Sites 409, 410, 411, and 416.
Comments Date: 09281999
Comments: PEA - PRL9 -- Concurrence provided on PEA equivalent documents
Comments Date: 09281999
Comments: for OU-2, Sites 105, 109, 111, and 364.
Comments Date: 10011998
Comments: PEA - PRL5 -- EAFB has adequately investigated the OU-5 NASA Jet
Comments Date: 10011998
Comments: Propulsion laboratory PRL Sites 195, 200, 201, 243, 289 and 350 (
Comments Date: 10011998
Comments: collectively, PRL5). DTSC finds that the documents are equivalen
Comments Date: 10011998
Comments: t to a PEA document. PEA - PRL6 -- EAFB has adequately investig
Comments Date: 10011998
Comments: ated the OU-2 Old South Base PRL Sites 75, 77, 89, 95, 97 and 99
Comments Date: 10011998
Comments: (collectively, PRL6). DTSC finds that the documents are equivalen
Comments Date: 10011998
Comments: t to a PEA document.
Comments Date: 10112001
Comments: RAW - S426 -- RAP of Edwards Air Force Base operable unit 7, site
Comments Date: 10112001
Comments: 426, includes both the Engineering Evaluation/Cost Analysis and
Comments Date: 10112001
Comments: Action Memorandum. The selected remedy for the chemical warfare
Comments Date: 10112001
Comments: site is containment excavation.
Comments Date: 10152004
Comments: This FS summarizes the backgrounds, plume characteristics, and re
Comments Date: 10152004
Comments: medial action alternatives evaluated for sites recommended for re
Comments Date: 10152004
Comments: medial action within Operable Unit 6 (OU-6). The report includes
Comments Date: 10152004
Comments: preliminary cleanup goals, technical approach comparisons, and c
Comments Date: 10152004
Comments: ost comparisons of applicable remedial alternatives. Sites in OU
Comments Date: 10152004
Comments: -6 are not currently used for residential purposes, nor is such u
Comments Date: 10152004
Comments: se anticipated; therefore, the FS focuses on industrial use consi
Comments Date: 10152004
Comments: derations. The preferred alternative recommended for the Proposed
Comments Date: 10152004
Comments: Plan is Source Control and Hydrologic Control with Groundwater M
Comments Date: 10152004
Comments: onitoring.
Comments Date: 10172000
Comments: RAW - S133 -- The proposed Interim Removal Action consists of the
Comments Date: 10172000
Comments: extraction of groundwater contaminated with solvents, primarily
Comments Date: 10172000
Comments: trichloroethlyene, and treatment by liquid phase granular activat
Comments Date: 10172000

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Comments: ed carbon. Treated effluent will be discharged to the Base's san
Comments Date: 10172000
Comments: itary sewer system. A total of 43,200 gallons per day of groundw
Comments Date: 10172000
Comments: ater will be extracted and treated.
Comments Date: 12042000
Comments: RAW - STE25 -- Concurrance on the proposed interim removal action
Comments Date: 12042000
Comments: to treat groundwater contaminated with telchloroethylene and N-N
Comments Date: 12042000
Comments: iprosodimethylamine. Extracted groundwater will be treated by ca
Comments Date: 12042000
Comments: rbon absorption and discharged to EAFB's sanitary sewer.
Comments Date: 12132001
Comments: PEA - PRL24 - Preliminary Endangerment Assessment (PEA) of Edward
Comments Date: 12132001
Comments: s Air Force Base, Operable Unit 4, sites 7 and 174 and area of co
Comments Date: 12132001
Comments: ncern 167, determined that these sites and of concern pose no env
Comments Date: 12132001
Comments: ironmental or Human Health Threat. This document administratively
Comments Date: 12132001
Comments: removes these sites from further investigation. PEA - PRL25 --
Comments Date: 12132001
Comments: Preliminary Endangerment Assessment (PEA) Edwards Air Force Base
Comments Date: 12132001
Comments: , Operable Unit 7, Sites 295, 434, 435, 436 441 and area of conce
Comments Date: 12132001
Comments: rn 457, determined that these sites and area of concern pose no E
Comments Date: 12132001
Comments: nvironmental or Human Health Threat. This document administrative
Comments Date: 12132001
Comments: ly removes these sites from further investigation. PEA - PRL26
Comments Date: 12132001
Comments: -- Preliminary Endangerment Assessment (PEA) Edwards Air Force Ba
Comments Date: 12132001
Comments: se, Operable Unit 9, Site 179, determined that this site poses no
Comments Date: 12132001
Comments: environmental or Human Health Threat. This document administrati
Comments Date: 12132001
Comments: vely removes this site from further investigation.
Comments Date: 03292002
Comments: er Investigation (NFI) documents signed by the Edwards Air Force
Comments Date: 03292002
Comments: Base Remedial Project Manager for Operable Unit 4 - Air Force Res
Comments Date: 03292002
Comments: earch Laboratory Site Number 7 and 146, and Area of Concern (AOC)
Comments Date: 03292002
Comments: Number 167 and 174. The NFI determination for these site-specif
Comments Date: 03292002
Comments: ic actions means that these Sites/AOCs have been adequately inves
Comments Date: 03292002
Comments: tigated and that the results justify the determination.
Comments Date: 04212000
Comments: PEA -- Concurrance provided on PEA equivalent documents for OU-3,
Comments Date: 04212000
Comments: sites 30,412,413,414, and 415.

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Comments Date: 04271999
Comments: OM - OU-6 -- APPROVAL OF THE O&M PLAN FOR OU-6 SITES, N2, N3 AND
Comments Date: 04271999
Comments: N7.
Comments Date: 05011986
Comments: Records Search: Military air force base. Contaminants
Comments Date: 05011986
Comments: include JP-4, benzene, toluene, xylene, TCE, & PCE.
Comments Date: 05071998
Comments: RAW - SIT9 -- The South Base abandoned landfill has been fenced a
Comments Date: 05071998
Comments: nd will be monitored. RAW - SIT14 -- Groundwater at Site 14 con
Comments Date: 05071998
Comments: taminated with petroleum hydrocarbon, volatile organics, and semi
Comments Date: 05071998
Comments: -volatile organcis will be treated via extraction and treatment b
Comments Date: 05071998
Comments: y liquid-phase granular activated carbon adsoption, then reinject
Comments Date: 05071998
Comments: ed into the groundwater aquifer. RAW - S223 -- Petroleum hydroc
Comments Date: 05071998
Comments: arbon contamination in soil and groundwater will be treated using
Comments Date: 05071998
Comments: soil vapor extraction/vapor treatment for soils and air sparging
Comments Date: 05071998
Comments: for groundwater. Monitoring of the system will also be required.
Comments Date: 05132003
Comments: RA - STE25 -- This report summarizes the operational maintenance
Comments Date: 05132003
Comments: and system sampling data collected during the period from Decembe
Comments Date: 05132003
Comments: r 28, 2001 through July 1, 2002 for the Site 25 Groundwater Extra
Comments Date: 05132003
Comments: ction and Treatment System (GETS), in Operable Unit No. 8. Durin
Comments Date: 05132003
Comments: g the reporting period, approximately 4,483,000 gallons of ground
Comments Date: 05132003
Comments: water were extracted and treated by the Site 25 GETS at an averag
Comments Date: 05132003
Comments: e folwrate of 19.9 gallons per minute. 20.5 pounds (lbs.) of tri
Comments Date: 05132003
Comments: chloroethene (TCE) were removed from treated groundwater. As of
Comments Date: 05132003
Comments: July 1, 2002, the GETS removed a cumulative total of 28.7. lbs.
Comments Date: 05132003
Comments: of TCE from treated groundwater. The treatment system effluent i
Comments Date: 05132003
Comments: s discharged to the base sanitary sewer under an industrial waste
Comments Date: 05132003
Comments: water discharge permit issued by Edwards Air Force Base (AFB).
Comments Date: 05311994
Comments: PPP - DTSC approved a Public Participation Plan (revision) for Ed
Comments Date: 05311994
Comments: wards Air Force Base.
Comments Date: 06011999
Comments: RA - S223 -- Implementation of a SVE/Air sparging system to remed
Comments Date: 06011999

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Comments: iate fuel contaminated soil and groundwater.
Comments Date: 06041998
Comments: RA - SIT29-- Removal action consisted of fencing the site for acc
Comments Date: 06041998
Comments: ess restriction and conducting long - term groundwater monitoring
Comments Date: 06041998
Comments: .
Comments Date: 06082001
Comments: PEA - PRL19 -- concurrence provided on PEA equivalent document fo
Comments Date: 06082001
Comments: r OU4, Site 186.
Comments Date: 06111999
Comments: RA - SIT14 -- Implementation of a GW extraction/treatment system
Comments Date: 06111999
Comments: to remediate TCE contaminated GW. System implemented consists of
Comments Date: 06111999
Comments: 4 extraction wells and an above ground treatment system using ca
Comments Date: 06111999
Comments: rbon adsorption.
Comments Date: 06112001
Comments: PEA - PRL20 -- Concurrence provided on PEA equivalent documents f
Comments Date: 06112001
Comments: or OU-5 sites 229, 235, 236, 238, 348, and 349 and AOCs 187, 190-
Comments Date: 06112001
Comments: 192, 230, 246, 251, 253, 281, 283, 287, 288, 403, 420 423.
Comments Date: 06272003
Comments: RA - S133 -- Construction of the Groundwater Exttraction Treatmen
Comments Date: 06272003
Comments: t System was completed between 01/09 and 04/18/2001 with testing
Comments Date: 06272003
Comments: of the system during the week of 04/23/2001 and startup on 04/30/
Comments Date: 06272003
Comments: 2001. The system includes three groundwater extraction wells and
Comments Date: 06272003
Comments: an aboveground treatment system that uses liquid-phase granular
Comments Date: 06272003
Comments: activated carbon to remove volatile organic compounds (VOCs) in t
Comments Date: 06272003
Comments: he extracted groundwater prior to discharge to the Air Force Rese
Comments Date: 06272003
Comments: arch Laboratory (AFRL) sewage treatment plant. The system is des
Comments Date: 06272003
Comments: igned for a maximum capacity of 50 gallons per minute (gpm); howe
Comments Date: 06272003
Comments: ver, the volume of water extracted is limited by a discharge perm
Comments Date: 06272003
Comments: it to 20 gpm.
Comments Date: 06282002
Comments: PEA - PRL30 -- No Further Investigation (NFI) documents signed by
Comments Date: 06282002
Comments: the Edwards Air Force Base Remedial Project Managers for Operabl
Comments Date: 06282002
Comments: e Unit 7 - Basewide Miscellaneous Area of Concern (AOC) Number 40
Comments Date: 06282002
Comments: 0. The NFI determination for this site-specific action means tha
Comments Date: 06282002
Comments: t the AOC has been adequately investigated and that the results j

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Comments Date: 06282002
Comments: ustify the determination. PEA - PRL31 -- No Futher Investigatio
Comments Date: 06282002
Comments: n (NFI) documents signed by the Edwards Air Force Base Remedial P
Comments Date: 06282002
Comments: roject Managers for Operable Unit 1 - Main Base Flight Line Site
Comments Date: 06282002
Comments: Number 65. The NFI determination for this site-specific action m
Comments Date: 06282002
Comments: eans that the Site has been adequately investigated and that the
Comments Date: 06282002
Comments: results justify the determination. PEA - PRL32 -- No Further In
Comments Date: 06282002
Comments: vestigation (NFI) documents signed by the Edwards Air Force Base
Comments Date: 06282002
Comments: Remedial Project Managers for Operable Unit 2 - Ould South Base S
Comments Date: 06282002
Comments: ite Number 96. The NFI determination for this site-specific acti
Comments Date: 06282002
Comments: on means that this Site has been adequately investigated and that
Comments Date: 06282002
Comments: the results justify the determination.
Comments Date: 06302003
Comments: OM - S172 -- In January 2000, the Air Force implemented an interi
Comments Date: 06302003
Comments: m removal action (IRA) consisting of soil vapor extraction (SVE)
Comments Date: 06302003
Comments: at Site 172, the outdoor waste sump at Building 8595 in Operable
Comments Date: 06302003
Comments: Uit 4, Air Force Research Laboratory. The primary objective of th
Comments Date: 06302003
Comments: e IRA at Site 172 is to remove contaminant mass and reduce the fu
Comments Date: 06302003
Comments: rther migration of volatile organic compounds (VOCs) from contami
Comments Date: 06302003
Comments: nated soil into the Site 37 groundwater plume. The SVE system op
Comments Date: 06302003
Comments: erated with one well initially; two more wells were added in Augu
Comments Date: 06302003
Comments: st 2000. Four additional extraction wells were connected to the s
Comments Date: 06302003
Comments: ystem, which was brought on line September 12, 2002, extracting v
ID Name: EPA IDENTIFICATION NUMBER
ID Value: CA1570024504
ID Name: BEP DATABASE PCODE
ID Value: P12020
Alternate Name: EDWARDS AFB
Alternate Name: EDWARDS AIR FORCE BASE
Alternate Name: Not reported
Special Programs Code: DSMOA
Special Programs Name: DEFENSE MEMORANDUM OF AGREEMENT

DEED:
Envirostor ID: 15970001
Area: 4A - AFRL AREA
Sub Area: Not reported
Site Type: FEDERAL SUPERFUND

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Status: ACTIVE
Agency: Not reported
Covenant Uploaded: Not reported
Deed Date(s): 09/26/2007

Envirostor ID: 15970001
Area: 6 - OPERABLE UNIT 6, NASA DRYDEN
Sub Area: Not reported
Site Type: FEDERAL SUPERFUND
Status: ACTIVE
Agency: Not reported
Covenant Uploaded: Not reported
Deed Date(s): 10/19/2006

ROD:
Full-text of USEPA Record of Decision(s) is available from EDR.

PRP:
PRP name: STATE OF CALIFORNIA/DEPT. OF HEALTH SERVICES
STATE OF CALIFORNIA/DEPT. OF HEALTH SERVICES
STATE OF CALIFORNIA/DEPT. OF WATER QUALITY
STATE OF CALIFORNIA/DEPT. OF WATER QUALITY
U.S. AIR FORCE
U.S. AIR FORCE
U.S. EPA

ICIS:
Enforcement Action ID: CAKCAA200135770
FRS ID: 110000908466
Action Name: MSO for NOV# 101515
Facility Name: USAF - FTC EDWARDS
Facility Address: ALL FACILITIES (BEGIN)
EDWARDS, CA 93523
Enforcement Action Type: Administrative Order
Facility County: KERN
Program System Acronym: AIR
Enforcement Action Forum Desc: Administrative - Formal
EA Type Code: SCAAAO
Facility SIC Code: 9661
Federal Facility ID: Not reported
Latitude in Decimal Degrees: 34.94943
Longitude in Decimal Degrees: -117.8857
Permit Type Desc: Not reported
Program System Acronym: CAKCA0000602900531
Facility NAICS Code: 927110
Tribal Land Code: Not reported

Enforcement Action ID: CAKCAA200135768
FRS ID: 110000908466
Action Name: NOV# 101515
Facility Name: USAF - FTC EDWARDS
Facility Address: ALL FACILITIES (BEGIN)
EDWARDS, CA 93523
Enforcement Action Type: Notice of Violation
Facility County: KERN
Program System Acronym: AIR

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Enforcement Action Forum Desc:	Administrative - Informal
EA Type Code:	NOV
Facility SIC Code:	9661
Federal Facility ID:	Not reported
Latitude in Decimal Degrees:	34.94943
Longitude in Decimal Degrees:	-117.8857
Permit Type Desc:	Not reported
Program System Acronym:	CAKCA0000602900531
Facility NAICS Code:	927110
Tribal Land Code:	Not reported

Enforcement Action ID:	CAKCAA0000060290053100035
FRS ID:	110000908466
Action Name:	USAF - FTC EDWARDS 060290053100035
Facility Name:	USAF - FTC EDWARDS
Facility Address:	ALL FACILITIES (BEGIN) EDWARDS, CA 93523
Enforcement Action Type:	Notice of Violation
Facility County:	KERN
Program System Acronym:	AIR
Enforcement Action Forum Desc:	Administrative - Informal
EA Type Code:	NOV
Facility SIC Code:	9661
Federal Facility ID:	Not reported
Latitude in Decimal Degrees:	34.94943
Longitude in Decimal Degrees:	-117.8857
Permit Type Desc:	Not reported
Program System Acronym:	CAKCA0000602900531
Facility NAICS Code:	927110
Tribal Land Code:	Not reported

US AIRS (AFS):

Envid:	1000155217
Region Code:	09
County Code:	CA029
Programmatic ID:	AIR CAKCA0000602900531
Facility Registry ID:	110000908466
D and B Number:	Not reported
Facility Site Name:	USAF - FTC EDWARDS
Primary SIC Code:	9661
NAICS Code:	927110
Default Air Classification Code:	MAJ
Facility Type of Ownership Code:	FDF
Air CMS Category Code:	TVM
HPV Status:	Not reported

US AIRS (AFS):

Region Code:	09
Programmatic ID:	AIR CAKCA0000602900531
Facility Registry ID:	110000908466
Air Operating Status Code:	OPR
Default Air Classification Code:	MAJ
Air Program:	MACT Standards (40 CFR Part 63)
Activity Date:	2008-08-21 00:00:00
Activity Status Date:	2008-09-23 17:19:32
Activity Group:	Compliance Monitoring

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2015-05-21 00:00:00
Activity Status Date: 2016-05-12 18:59:04
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2015-05-21 00:00:00
Activity Status Date: 2016-05-12 19:00:43
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2015-05-21 00:00:00
Activity Status Date: 2016-05-12 19:02:28
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2004-06-30 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: MACT Standards (40 CFR Part 63)

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Date: 2004-08-24 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2005-04-27 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2005-12-02 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2006-04-27 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2006-10-12 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2007-04-25 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2007-10-30 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2008-04-23 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2008-11-18 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2009-05-31 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 2015-05-21 00:00:00
Activity Status Date: 2016-05-12 18:59:04
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 2015-05-21 00:00:00
Activity Status Date: 2016-05-12 19:00:43
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 2015-05-21 00:00:00
Activity Status Date: 2016-05-12 19:02:28
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 1987-06-08 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 1988-06-16 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 1988-06-22 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 1989-07-03 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 1990-09-05 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 1993-07-10 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Date: 1993-08-31 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 1994-08-09 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 1995-06-28 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 1996-05-16 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 1996-10-15 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 1997-10-17 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 1998-05-06 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 1999-03-03 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 1999-03-05 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 1999-03-09 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 1999-04-15 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 2000-08-03 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 2000-10-18 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 2000-10-19 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 2000-10-24 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 2002-02-21 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 2004-06-30 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 2004-08-24 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 2005-04-27 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Date: 2005-12-02 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 2006-04-27 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 2006-10-12 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 2007-04-25 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 2007-10-30 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 2008-04-23 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 2008-08-21 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 2008-11-18 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
Activity Date: 2009-05-31 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 2015-10-02 00:00:00
Activity Status Date: 2016-04-14 19:06:28
Activity Group: Case File
Activity Type: Case File
Activity Status: Resolved

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 2015-05-21 00:00:00
Activity Status Date: 2016-05-12 18:59:04
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 2015-05-21 00:00:00
Activity Status Date: 2016-05-12 19:00:43
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 2015-05-21 00:00:00
Activity Status Date: 2016-05-12 19:02:28
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 1988-05-25 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 1990-09-05 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 1991-11-18 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 1993-08-31 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 1994-08-09 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 1995-06-28 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Date: 1996-05-16 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 1996-10-15 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 1997-10-17 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 1998-05-06 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 1999-03-03 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 1999-03-05 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 1999-03-09 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 1999-04-15 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 2000-08-03 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 2000-10-18 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 2000-10-19 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 2000-10-24 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 2002-02-21 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 2004-06-30 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 2004-08-24 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 2005-04-27 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 2005-12-02 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 2006-04-27 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 2006-10-12 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Date: 2007-04-25 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 2007-10-30 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 2008-04-23 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 2008-11-18 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 2009-05-31 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Performance Standards
Activity Date: 2016-06-02 00:00:00
Activity Status Date: 2016-06-02 00:00:00
Activity Group: Enforcement Action
Activity Type: Administrative - Formal
Activity Status: Resolved

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Review Permit Requirements
Activity Date: 2015-05-21 00:00:00
Activity Status Date: 2016-05-12 18:59:04
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Review Permit Requirements
Activity Date: 2015-05-21 00:00:00
Activity Status Date: 2016-05-12 19:00:43
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Review Permit Requirements
Activity Date: 2015-05-21 00:00:00
Activity Status Date: 2016-05-12 19:02:28
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Review Permit Requirements
Activity Date: 2004-06-30 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Review Permit Requirements
Activity Date: 2004-08-24 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Review Permit Requirements
Activity Date: 2005-04-27 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Review Permit Requirements
Activity Date: 2005-12-02 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Review Permit Requirements
Activity Date: 2006-04-27 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Review Permit Requirements
Activity Date: 2006-10-12 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Review Permit Requirements
Activity Date: 2007-04-25 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Review Permit Requirements
Activity Date: 2007-10-30 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Review Permit Requirements
Activity Date: 2008-04-23 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Review Permit Requirements
Activity Date: 2008-11-18 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Review Permit Requirements

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Date: 2009-05-31 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: New Source Review Permit Requirements
Activity Date: Not reported
Activity Status Date: 2015-10-15 00:00:00
Activity Group: Enforcement Action
Activity Type: Administrative - Informal
Activity Status: Achieved

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: Not reported
Activity Status Date: 1995-12-14 00:00:00
Activity Group: Case File
Activity Type: Case File
Activity Status: Resolved

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2014-06-06 00:00:00
Activity Status Date: 2015-06-09 13:46:14
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2015-05-21 00:00:00
Activity Status Date: 2016-05-12 18:59:04
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2015-05-21 00:00:00
Activity Status Date: 2016-05-12 19:00:43
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2015-05-21 00:00:00
Activity Status Date: 2016-05-12 19:02:28
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2015-06-23 00:00:00
Activity Status Date: 2015-09-02 13:17:42
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1976-02-10 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1978-08-31 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1979-07-16 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1979-08-17 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1980-06-13 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1981-07-23 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1982-01-10 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1982-07-01 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1983-06-13 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1984-08-21 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1985-08-14 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Date: 1986-05-30 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1987-06-08 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1988-06-16 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1989-07-03 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1989-09-09 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1990-09-05 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1991-11-18 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1993-08-31 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1994-08-09 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1995-06-28 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1996-05-16 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1996-10-15 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1997-10-17 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1998-05-06 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1999-03-03 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1999-03-05 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1999-03-09 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1999-04-15 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2000-08-03 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Date: 2000-10-18 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2000-10-19 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2000-10-24 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2002-02-21 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2004-06-30 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2004-08-24 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2005-04-27 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2005-12-02 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2006-04-27 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2006-10-12 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2007-04-25 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2007-10-30 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2008-04-23 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2008-11-18 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2009-05-31 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2009-12-10 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2010-05-05 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2010-05-26 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2010-05-27 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Date: 2010-10-05 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2011-03-22 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2011-06-22 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2011-06-23 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2011-09-15 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2012-03-18 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2012-06-18 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2012-07-30 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2012-09-28 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2012-10-06 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2013-03-08 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2013-06-24 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2013-06-26 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2013-06-28 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2013-10-06 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2014-02-12 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2014-02-21 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2014-05-21 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2014-05-29 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Date: 2014-06-06 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2014-06-26 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2014-06-29 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1995-08-09 00:00:00
Activity Status Date: 1995-08-09 00:00:00
Activity Group: Enforcement Action
Activity Type: Administrative - Informal
Activity Status: Achieved

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2015-10-02 00:00:00
Activity Status Date: 2016-04-14 19:06:28
Activity Group: Case File
Activity Type: Case File
Activity Status: Resolved

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2014-06-06 00:00:00
Activity Status Date: 2015-06-09 13:46:14
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2015-02-19 00:00:00
Activity Status Date: 2015-07-03 15:48:16
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2015-02-19 00:00:00
Activity Status Date: 2016-07-25 18:30:49
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2015-05-21 00:00:00
Activity Status Date: 2016-05-12 18:59:04
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2015-05-21 00:00:00
Activity Status Date: 2016-05-12 19:00:43
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2015-05-21 00:00:00
Activity Status Date: 2016-05-12 19:02:28
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2015-06-23 00:00:00
Activity Status Date: 2015-09-02 13:17:42
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 1997-10-17 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 1998-05-06 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 1999-03-03 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 1999-03-05 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 1999-03-09 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 1999-04-15 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2000-08-03 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Date: 2000-10-18 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2000-10-19 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2000-10-24 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2000-12-28 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2001-11-28 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2002-02-21 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2002-05-29 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2002-06-09 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2002-07-17 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2002-09-16 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2003-01-24 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2003-02-19 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2003-02-24 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2003-03-24 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2003-04-08 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2003-04-10 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2003-05-29 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2003-06-05 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2003-06-06 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Date: 2003-07-28 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2003-12-18 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2004-05-02 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2004-05-29 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2004-06-30 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2004-08-24 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2005-04-27 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2005-05-29 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2005-12-02 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2006-04-27 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2006-10-12 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2007-04-25 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2007-10-30 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2008-04-23 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2008-11-18 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2009-05-31 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2009-12-10 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2010-05-05 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2010-05-26 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Date: 2010-05-27 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2010-10-05 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2011-03-22 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2011-06-22 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2011-06-23 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2011-09-15 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2012-03-18 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2012-06-18 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2012-07-30 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2012-09-28 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2012-10-06 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2013-03-08 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2013-06-24 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2013-06-26 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2013-06-28 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2013-10-06 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2014-02-12 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2014-02-21 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2014-05-21 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Activity Date: 2014-05-29 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2014-06-06 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2014-06-26 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2014-06-29 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466
Air Operating Status Code: OPR
Default Air Classification Code: MAJ
Air Program: Title V Permits
Activity Date: 2016-06-02 00:00:00
Activity Status Date: 2016-06-02 00:00:00
Activity Group: Enforcement Action
Activity Type: Administrative - Formal
Activity Status: Resolved

Region Code: 09
Programmatic ID: AIR CAKCA0000602900531
Facility Registry ID: 110000908466

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Air Operating Status Code:	OPR
Default Air Classification Code:	MAJ
Air Program:	Title V Permits
Activity Date:	Not reported
Activity Status Date:	2015-10-15 00:00:00
Activity Group:	Enforcement Action
Activity Type:	Administrative - Informal
Activity Status:	Achieved

DOCKET HWC:

Agency:	AIR FORCE
Facility ID:	MDL2724 - 2/12/1988
Reporting Mechanism:	RCRA 3005
Status:	On MDL

CORTESE:

Region:	CORTESE
Envirostor Id:	15970001
Site/Facility Type:	FEDERAL SUPERFUND - LISTED
Cleanup Status:	ACTIVE - LAND USE RESTRICTIONS
Status Date:	05/01/1986
Site Code:	100052
Latitude:	34.906044
Longitude:	-117.88250
Owner:	Not reported
Enf Type:	Not reported
Swat R:	Not reported
Flag:	envirostor
Order No:	Not reported
Waste Discharge System No:	Not reported
Effective Date:	Not reported
Region 2:	Not reported
WID Id:	Not reported
Solid Waste Id No:	Not reported
Waste Management Uit Name:	Not reported

HAZNET:

envid:	1000155217
Year:	2015
GEPAID:	CA1570024504
Contact:	WILLIAM R SMITH
Telephone:	6612771909
Mailing Name:	Not reported
Mailing Address:	BLDG 3735 120 N ROSAMOND BLVD
Mailing City,St,Zip:	EDWARDS AFB, CA 935241130
Gen County:	Kern
TSD EPA ID:	NVT330010000
TSD County:	99
Waste Category:	Unspecified aqueous solution
Disposal Method:	Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Tons:	2.4435
Cat Decode:	Unspecified aqueous solution
Method Decode:	Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Facility County: Kern

envid: 1000155217
Year: 2015
GEPAID: CA1570024504
Contact: WILLIAM R SMITH
Telephone: 6612771909
Mailing Name: Not reported
Mailing Address: BLDG 3735 120 N ROSAMOND BLVD
Mailing City,St,Zip: EDWARDS AFB, CA 935241130
Gen County: Kern
TSD EPA ID: NVT330010000
TSD County: 99
Waste Category: Off-specification, aged or surplus inorganics
Disposal Method: Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Tons: 0.113
Cat Decode: Off-specification, aged or surplus inorganics
Method Decode: Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Facility County: Kern

envid: 1000155217
Year: 2015
GEPAID: CA1570024504
Contact: WILLIAM R SMITH
Telephone: 6612771909
Mailing Name: Not reported
Mailing Address: BLDG 3735 120 N ROSAMOND BLVD
Mailing City,St,Zip: EDWARDS AFB, CA 935241130
Gen County: Kern
TSD EPA ID: NVD980895338
TSD County: 99
Waste Category: Off-specification, aged or surplus organics
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.0035
Cat Decode: Off-specification, aged or surplus organics
Method Decode: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Facility County: Kern

envid: 1000155217
Year: 2015
GEPAID: CA1570024504
Contact: WILLIAM R SMITH
Telephone: 6612771909
Mailing Name: Not reported
Mailing Address: BLDG 3735 120 N ROSAMOND BLVD
Mailing City,St,Zip: EDWARDS AFB, CA 935241130
Gen County: Kern
TSD EPA ID: CAT080025711
TSD County: San Bernardino
Waste Category: Waste oil and mixed oil
Disposal Method: Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Tons: 6.84

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Cat Decode: Waste oil and mixed oil
Method Decode: Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Facility County: Kern

envid: 1000155217
Year: 2015
GEPAID: CA1570024504
Contact: WILLIAM R SMITH
Telephone: 6612771909
Mailing Name: Not reported
Mailing Address: BLDG 3735 120 N ROSAMOND BLVD
Mailing City,St,Zip: EDWARDS AFB, CA 935241130
Gen County: Kern
TSD EPA ID: CAT080013352
TSD County: Los Angeles
Waste Category: Tank bottom waste
Disposal Method: Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Tons: 0.1335
Cat Decode: Tank bottom waste
Method Decode: Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Facility County: Kern

Click this hyperlink while viewing on your computer to access
6862 additional CA_HAZNET: record(s) in the EDR Site Report.

ICE:
Envirostor ID: 3000601
EPA ID: CA1570024504
Site Type: INSPECTION
Facility Status: Pending

Inspection:
Action Type: Compliance Evaluation Inspection - Treatment, Storage and Disposal
Action Date: 11/20/2002
Violation Class: No Violations
RTC Date: Not reported

Action Type: Compliance Evaluation Inspection - Treatment, Storage and Disposal
Action Date: 06/13/2001
Violation Class: No Violations
RTC Date: Not reported

Action Type: Compliance Evaluation Inspection - Treatment, Storage and Disposal
Action Date: 12/12/2005
Violation Class: No Violations
RTC Date: Not reported

Action Type: Compliance Evaluation Inspection - Treatment, Storage and Disposal
Action Date: 11/06/2001
Violation Class: No Violations
RTC Date: Not reported

Action Type: Compliance Evaluation Inspection - Treatment, Storage and Disposal
Action Date: 11/19/2003

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Violation Class: No Violations
RTC Date: Not reported

Action Type: Compliance Evaluation Inspection - Treatment, Storage and Disposal
Action Date: 03/04/2008
Violation Class: No Violations
RTC Date: Not reported

Action Type: Compliance Evaluation Inspection - Treatment, Storage and Disposal
Action Date: 11/19/2008
Violation Class: No Violations
RTC Date: Not reported

Action Type: Compliance Evaluation Inspection - Treatment, Storage and Disposal
Action Date: 04/12/2011
Violation Class: No Violations
RTC Date: Not reported

Action Type: Compliance Evaluation Inspection - Treatment, Storage and Disposal
Action Date: 06/27/2000
Violation Class: No Violations
RTC Date: Not reported

Action Type: Compliance Evaluation Inspection - Treatment, Storage and Disposal
Action Date: 02/16/1999
Violation Class: No Violations
RTC Date: Not reported

Action Type: Compliance Evaluation Inspection - Treatment, Storage and Disposal
Action Date: 09/14/2004
Violation Class: No Violations
RTC Date: Not reported

Action Type: Compliance Evaluation Inspection - Treatment, Storage and Disposal
Action Date: 09/30/2009
Violation Class: No Violations
RTC Date: Not reported

Action Type: Compliance Evaluation Inspection - Treatment, Storage and Disposal
Action Date: 02/07/2007
Violation Class: No Violations
RTC Date: Not reported

Action Type: Compliance Evaluation Inspection - Treatment, Storage and Disposal
Action Date: 04/02/2012
Violation Class: No Violations
RTC Date: Not reported

Action Type: Compliance Evaluation Inspection - Treatment, Storage and Disposal
Action Date: 04/16/2013
Violation Class: No Violations
RTC Date: Not reported

Action Type: Compliance Evaluation Inspection - Treatment, Storage and Disposal
Action Date: 12/10/2013
Violation Class: No Violations
RTC Date: Not reported

EDWARDS AIR FORCE BASE (Continued) **1000155217**

Action Type:	Compliance Evaluation Inspection - Treatment, Storage and Disposal
Action Date:	06/14/2016
Violation Class:	No Violations
RTC Date:	Not reported

Action Type:	Compliance Evaluation Inspection - Treatment, Storage and Disposal
Action Date:	11/18/2014
Violation Class:	Class 2
RTC Date:	11/20/2014

Count: 7 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
KERN COUNTY	S107539382		MOJAVE/ROSAMOND SIERRA HIGHWAY	93501	CDL
MOJAVE	S107538871		HWY 58, 1 MIL N OF MOJAVE	93501	CDL
MOJAVE	S107536416		8 ML E OF MOJAVE TROPILO RD 3		CDL
MOJAVE	S107530460		2 MI E OF MOJAVE RD		CDL
MOJAVE	S107526549		0.8 MILE N OF BACAUS RD/MOJAVE	93501	CDL
MOJAVE	S104574174	FORMER MARINE CORPS AIR STATION -	MOJAVE AIRPORT	93501	LUST
MOJAVE	S107540686		SILVER QUEEN RD, MOJAVE & ROSE	93501	CDL

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 12/05/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 29

Source: EPA
Telephone: N/A
Last EDR Contact: 01/05/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 12/05/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 29

Source: EPA
Telephone: N/A
Last EDR Contact: 01/05/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/05/2016	Source: EPA
Date Data Arrived at EDR: 01/05/2017	Telephone: N/A
Date Made Active in Reports: 02/03/2017	Last EDR Contact: 01/05/2017
Number of Days to Update: 29	Next Scheduled EDR Contact: 04/17/2017
	Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 09/14/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/04/2016	Telephone: 703-603-8704
Date Made Active in Reports: 10/21/2016	Last EDR Contact: 01/05/2017
Number of Days to Update: 17	Next Scheduled EDR Contact: 04/17/2017
	Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/10/2016	Source: EPA
Date Data Arrived at EDR: 10/20/2016	Telephone: 800-424-9346
Date Made Active in Reports: 01/06/2017	Last EDR Contact: 01/06/2017
Number of Days to Update: 78	Next Scheduled EDR Contact: 05/01/2017
	Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 10/10/2016
Date Data Arrived at EDR: 10/20/2016
Date Made Active in Reports: 01/06/2017
Number of Days to Update: 78

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 01/06/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 44

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 44

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 44

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 44

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 44

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/28/2015
Date Data Arrived at EDR: 05/29/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 13

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/13/2017
Next Scheduled EDR Contact: 05/29/2017
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 11/15/2016
Date Data Arrived at EDR: 11/29/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 11/29/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 11/15/2016
Date Data Arrived at EDR: 11/29/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 11/29/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 09/29/2016
Date Made Active in Reports: 11/11/2016
Number of Days to Update: 43

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Annually

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 10/31/2016
Date Data Arrived at EDR: 11/01/2016
Date Made Active in Reports: 01/18/2017
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 10/31/2016
Date Data Arrived at EDR: 11/01/2016
Date Made Active in Reports: 01/18/2017
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 11/14/2016
Date Data Arrived at EDR: 11/15/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 66

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 11/15/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST: Geotracker's Leaking Underground Fuel Tank Report
Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 37
Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 12/14/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Quarterly

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14
Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30
Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29
Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9
Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27
Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 01/07/2016
Date Data Arrived at EDR: 01/08/2016
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 41

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 02/25/2016
Date Data Arrived at EDR: 04/27/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/13/2015
Date Data Arrived at EDR: 10/23/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 118

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 10/09/2015
Date Data Arrived at EDR: 02/12/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 112

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 12/11/2015
Date Data Arrived at EDR: 02/19/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 105

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 02/05/2016
Date Data Arrived at EDR: 04/29/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 35

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/24/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/27/2015
Date Data Arrived at EDR: 10/29/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 67

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 02/17/2016
Date Data Arrived at EDR: 04/27/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 37

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

SLIC: Statewide SLIC Cases

Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 40

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/14/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 12/15/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 12/22/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 01/26/2016
Date Data Arrived at EDR: 02/05/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 119

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 09/23/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 65

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 12/03/2015
Date Data Arrived at EDR: 02/04/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 120

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/20/2015
Date Data Arrived at EDR: 10/29/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 67

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 02/05/2016
Date Data Arrived at EDR: 04/29/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 35

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 01/24/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 11/05/2015
Date Data Arrived at EDR: 11/13/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 52

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 01/07/2016
Date Data Arrived at EDR: 01/08/2016
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 41

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 02/25/2016
Date Data Arrived at EDR: 04/27/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 37

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

State and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 12/27/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 10/31/2016
Date Data Arrived at EDR: 11/01/2016
Date Made Active in Reports: 01/18/2017
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfieds Sites Listing
A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 02/29/2016
Date Data Arrived at EDR: 03/07/2016
Date Made Active in Reports: 05/04/2016
Number of Days to Update: 58

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 01/04/2017
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 12/19/2016
Date Data Arrived at EDR: 12/20/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 12/20/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/14/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 08/25/2016
Date Data Arrived at EDR: 08/26/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 49

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 02/13/2017
Next Scheduled EDR Contact: 05/29/2017
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 10/31/2016
Next Scheduled EDR Contact: 02/13/2017
Data Release Frequency: Varies

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 09/30/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 36

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/29/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 10/31/2016
Date Data Arrived at EDR: 11/01/2016
Date Made Active in Reports: 01/18/2017
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 08/31/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 34

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/30/2016
Date Data Arrived at EDR: 12/05/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 67

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/29/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Quarterly

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 12/01/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 35

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 11/28/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 11/29/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 48

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 01/24/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 12/06/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 45

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 12/06/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/28/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 37

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 01/17/2017
Number of Days to Update: 83

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 01/25/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 37

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/14/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 37

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/14/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 44

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015
Date Data Arrived at EDR: 07/08/2015
Date Made Active in Reports: 10/13/2015
Number of Days to Update: 97

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 12/08/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/29/2017
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 10/11/2016
Date Data Arrived at EDR: 11/16/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 04/22/2013
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 02/10/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/15/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 14

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 12/23/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 11/24/2015
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 133

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 11/22/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 12/06/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 08/01/2016
Date Data Arrived at EDR: 08/22/2016
Date Made Active in Reports: 11/11/2016
Number of Days to Update: 81

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 02/10/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

PADS: PCB Activity Database System
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 01/20/2016
Date Data Arrived at EDR: 04/28/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 127

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 11/17/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 11/17/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Quarterly

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/2016
Date Data Arrived at EDR: 09/08/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 43

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 12/06/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 12/06/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 01/29/2016
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/04/2017
Date Data Arrived at EDR: 01/06/2017
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 35

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 01/06/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 02/01/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 09/30/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 77

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

BRS: Biennial Reporting System
The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 02/24/2015
Date Made Active in Reports: 09/30/2015
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 11/23/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program
DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 07/21/2016
Date Data Arrived at EDR: 07/26/2016
Date Made Active in Reports: 09/23/2016
Number of Days to Update: 59

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites
Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 09/09/2016
Next Scheduled EDR Contact: 12/05/2016
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites
A listing of former lead smelter site locations.

Date of Government Version: 12/05/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 01/05/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites
A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)
The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 12/22/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 12/22/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Annually

US MINES: Mines Master Index File
Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/05/2016
Date Data Arrived at EDR: 09/01/2016
Date Made Active in Reports: 09/23/2016
Number of Days to Update: 22

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 12/01/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing
This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 12/12/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Varies

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/15/2016
Date Data Arrived at EDR: 09/07/2016
Date Made Active in Reports: 11/11/2016
Number of Days to Update: 65

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 12/06/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 06/02/2016
Date Data Arrived at EDR: 06/03/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 91

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 11/28/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 10/25/2015
Date Data Arrived at EDR: 01/29/2016
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 67

Source: Department of Defense
Telephone: 571-373-0407
Last EDR Contact: 01/20/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Varies

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 09/27/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 52

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 09/02/2016
Date Data Arrived at EDR: 09/27/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 79

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 09/23/2016
Date Made Active in Reports: 10/24/2016
Number of Days to Update: 31

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 12/23/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 12/06/2016
Date Data Arrived at EDR: 12/09/2016
Date Made Active in Reports: 01/18/2017
Number of Days to Update: 40

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 04/25/2016
Date Data Arrived at EDR: 04/29/2016
Date Made Active in Reports: 06/21/2016
Number of Days to Update: 53

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 11/16/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 63

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 02/13/2017
Next Scheduled EDR Contact: 05/29/2017
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 10/12/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 64

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Annually

ICE: ICE
Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 11/21/2016
Date Data Arrived at EDR: 11/22/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 62

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 11/22/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List
The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing
Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 11/21/2016
Date Data Arrived at EDR: 11/22/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 62

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/22/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database
A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/12/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 64

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 01/11/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing
A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Varies

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 09/06/2016
Date Data Arrived at EDR: 09/07/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 37

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 12/06/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 05/16/2016
Date Data Arrived at EDR: 05/18/2016
Date Made Active in Reports: 06/23/2016
Number of Days to Update: 36

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 11/15/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing
A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 09/06/2016
Date Data Arrived at EDR: 09/07/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 37

Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 12/06/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/14/2016
Next Scheduled EDR Contact: 12/26/2016
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 09/19/2016
Date Data Arrived at EDR: 09/20/2016
Date Made Active in Reports: 12/16/2016
Number of Days to Update: 87

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 12/16/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: No Update Planned

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30

Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 12/14/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water board?s review found that more than one-third of the region?s active disposal pits are operating without permission.

Date of Government Version: 04/15/2015
Date Data Arrived at EDR: 04/17/2015
Date Made Active in Reports: 06/23/2015
Number of Days to Update: 67

Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 04/24/2047
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Quarterly

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 12/22/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines
An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 06/09/2016
Date Data Arrived at EDR: 06/13/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 81

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 12/09/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information
ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 09/18/2016
Date Data Arrived at EDR: 09/20/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 12/20/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Quarterly

FUELS PROGRAM: EPA Fuels Program Registered Listing
This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 11/21/2016
Date Data Arrived at EDR: 11/22/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 73

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 11/22/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Quarterly

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/14/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 35

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/06/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 10/10/2016
Date Data Arrived at EDR: 10/12/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 90

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2047
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA Facility List

Cupa Facility List

Date of Government Version: 11/10/2016
Date Data Arrived at EDR: 12/13/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 9

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing

Cupa facility list.

Date of Government Version: 10/21/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 23

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 10/25/2016
Date Data Arrived at EDR: 10/27/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 22

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 12/27/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 09/02/2016
Date Data Arrived at EDR: 09/06/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 38

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Varies

CONTRA COSTA COUNTY:

Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 11/17/2016
Date Data Arrived at EDR: 11/22/2016
Date Made Active in Reports: 01/26/2017
Number of Days to Update: 65

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA Facility List
Cupa Facility list

Date of Government Version: 11/01/2016
Date Data Arrived at EDR: 11/03/2016
Date Made Active in Reports: 11/22/2016
Number of Days to Update: 19

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 11/22/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 01/17/2017
Number of Days to Update: 55

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 10/11/2016
Date Data Arrived at EDR: 10/14/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 35

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 01/03/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Semi-Annually

HUMBOLDT COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 10/25/2016
Date Data Arrived at EDR: 10/27/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 22

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 11/21/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

IMPERIAL COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 10/24/2016
Date Data Arrived at EDR: 10/27/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 22

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INYO COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 09/11/2013
Date Made Active in Reports: 10/14/2013
Number of Days to Update: 33

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing

Kern County Sites and Tanks Listing.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 11/08/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 63

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/14/2016
Date Data Arrived at EDR: 12/16/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 6

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 09/08/2016
Date Data Arrived at EDR: 09/09/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 35

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 01/17/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Varies

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 12/15/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: No Update Planned

HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 11/14/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 66

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 10/17/2016
Date Data Arrived at EDR: 10/18/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 58

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 01/18/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Varies

City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2016
Date Data Arrived at EDR: 01/26/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 56

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 01/17/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Varies

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 03/29/2016
Date Data Arrived at EDR: 04/06/2016
Date Made Active in Reports: 06/13/2016
Number of Days to Update: 68

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 01/17/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 03/30/2015
Date Data Arrived at EDR: 04/02/2015
Date Made Active in Reports: 04/13/2015
Number of Days to Update: 11

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 01/17/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 11/04/2015
Date Data Arrived at EDR: 11/13/2015
Date Made Active in Reports: 12/17/2015
Number of Days to Update: 34

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Annually

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 10/04/2016
Date Data Arrived at EDR: 10/11/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 93

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/05/2016
Date Data Arrived at EDR: 12/09/2016
Date Made Active in Reports: 01/19/2017
Number of Days to Update: 41

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 10/19/2016
Date Data Arrived at EDR: 10/25/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 79

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 01/17/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 12/02/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 01/17/2017
Number of Days to Update: 42

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List
CUPA Facility List

Date of Government Version: 11/29/2016
Date Data Arrived at EDR: 12/05/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 17

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 11/28/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 06/24/2016
Date Data Arrived at EDR: 06/27/2016
Date Made Active in Reports: 08/09/2016
Number of Days to Update: 43

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 11/21/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 12/05/2011
Date Data Arrived at EDR: 12/06/2011
Date Made Active in Reports: 02/07/2012
Number of Days to Update: 63

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 11/28/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 11/08/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 44

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 11/03/2016
Date Data Arrived at EDR: 11/11/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 73

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 11/04/2016
Date Data Arrived at EDR: 11/11/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 73

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 11/03/2016
Date Data Arrived at EDR: 11/08/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 65

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/07/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 09/02/2016
Date Data Arrived at EDR: 09/06/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 38

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 10/20/2016
Date Data Arrived at EDR: 10/25/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 51

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/19/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 10/20/2016
Date Data Arrived at EDR: 10/25/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 77

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/19/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 08/22/2016
Date Data Arrived at EDR: 10/04/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 45

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/05/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 08/22/2016
Date Data Arrived at EDR: 10/04/2016
Date Made Active in Reports: 12/16/2016
Number of Days to Update: 73

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/05/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 09/06/2016
Date Data Arrived at EDR: 09/07/2016
Date Made Active in Reports: 10/19/2016
Number of Days to Update: 42

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database
The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 09/23/2013
Date Data Arrived at EDR: 09/24/2013
Date Made Active in Reports: 10/17/2013
Number of Days to Update: 23

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 12/06/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Quarterly

Solid Waste Facilities
San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2015
Date Data Arrived at EDR: 11/07/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 58

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

Environmental Case Listing
The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/16/2016
Date Data Arrived at EDR: 11/21/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 52

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 09/21/2016
Date Data Arrived at EDR: 09/22/2016
Date Made Active in Reports: 10/18/2016
Number of Days to Update: 26

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 12/15/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 11/17/2016
Date Data Arrived at EDR: 11/21/2016
Date Made Active in Reports: 01/19/2017
Number of Days to Update: 59

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

SAN MATEO COUNTY:

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 06/02/2016
Date Data Arrived at EDR: 06/07/2016
Date Made Active in Reports: 06/22/2016
Number of Days to Update: 15

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 06/09/2016
Date Data Arrived at EDR: 06/13/2016
Date Made Active in Reports: 08/09/2016
Number of Days to Update: 57

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 12/09/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List
Cupa facility list

Date of Government Version: 11/16/2016
Date Data Arrived at EDR: 11/21/2016
Date Made Active in Reports: 01/19/2017
Number of Days to Update: 59

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 11/28/2016
Next Scheduled EDR Contact: 03/13/2017
Data Release Frequency: Annually

Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 11/10/2016
Date Made Active in Reports: 01/24/2017
Number of Days to Update: 75

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List
CUPA facility listing.

Date of Government Version: 11/16/2016
Date Data Arrived at EDR: 11/21/2016
Date Made Active in Reports: 01/19/2017
Number of Days to Update: 59

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/15/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 29

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 11/21/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 11/29/2016
Date Data Arrived at EDR: 12/21/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 1

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 12/09/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 11/29/2016
Date Data Arrived at EDR: 12/22/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 19

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 12/09/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List
Cupa Facility list

Date of Government Version: 09/27/2016
Date Data Arrived at EDR: 09/28/2016
Date Made Active in Reports: 11/22/2016
Number of Days to Update: 55

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 12/22/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 10/04/2016
Date Data Arrived at EDR: 10/06/2016
Date Made Active in Reports: 12/16/2016
Number of Days to Update: 71

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 12/22/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 12/02/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 35

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 12/02/2016
Next Scheduled EDR Contact: 03/20/2017
Data Release Frequency: Semi-Annually

TUOLUMNE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 10/27/2016
Date Data Arrived at EDR: 10/28/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 74

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 10/27/2016
Date Made Active in Reports: 01/17/2017
Number of Days to Update: 82

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/30/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 02/13/2017
Next Scheduled EDR Contact: 05/29/2017
Data Release Frequency: Quarterly

Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 10/27/2016
Date Made Active in Reports: 01/24/2017
Number of Days to Update: 89

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 11/28/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 29

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/14/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 11/14/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 55

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 01/03/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Annually

YUBA COUNTY:

CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 10/28/2016
Date Data Arrived at EDR: 11/03/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 42

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013
Date Data Arrived at EDR: 08/19/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 11/11/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 09/29/2016
Date Made Active in Reports: 01/03/2017
Number of Days to Update: 96

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/30/2017
Date Data Arrived at EDR: 02/01/2017
Date Made Active in Reports: 02/13/2017
Number of Days to Update: 12

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 02/01/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 07/22/2016
Date Made Active in Reports: 11/22/2016
Number of Days to Update: 123

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 01/12/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 06/19/2015
Date Made Active in Reports: 07/15/2015
Number of Days to Update: 26

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 11/21/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 04/14/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 50

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 12/12/2016
Next Scheduled EDR Contact: 03/27/2017
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: PennWell Corporation
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data
Source: PennWell Corporation
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

GABRYCH TERRAGEN
APN 244-233-01, APN 244-233-02, APN 429-030-02
MOJAVE, CA 93501

TARGET PROPERTY COORDINATES

Latitude (North):	34.981795 - 34˚ 58’ 54.46’’
Longitude (West):	118.095266 - 118˚ 5’ 42.96’’
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	400028.6
UTM Y (Meters):	3871374.5
Elevation:	2533 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5630785 BISSELL, CA
Version Date:	2012
North Map:	5639204 SANBORN, CA
Version Date:	2012
Southwest Map:	5630773 SOLEDAD MOUNTAIN, CA
Version Date:	2012
Northwest Map:	5639196 MOJAVE, CA
Version Date:	2012

EDR’s GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

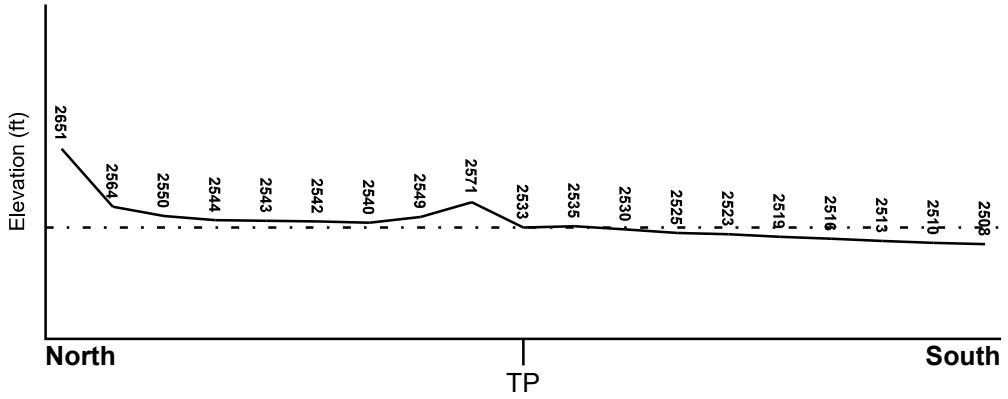
TOPOGRAPHIC INFORMATION

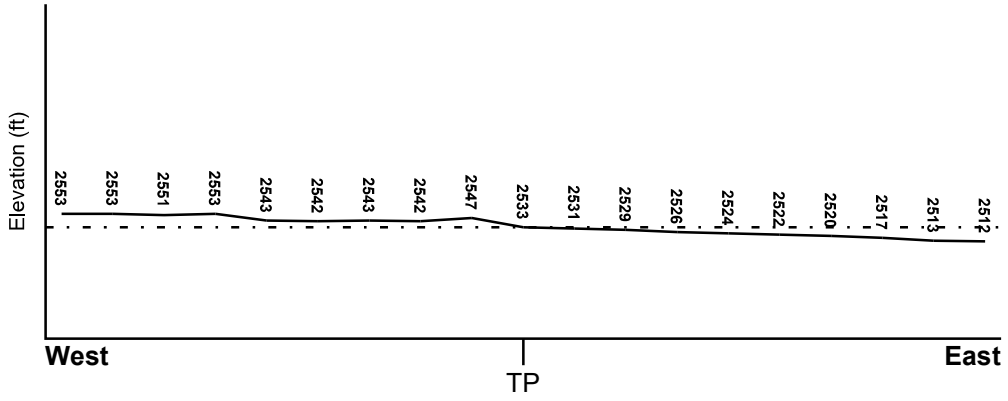
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





Target Property Elevation: 2533 ft.

0 1/2 1 Miles

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06029C3700E	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
Not Reported	

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
BISSELL	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

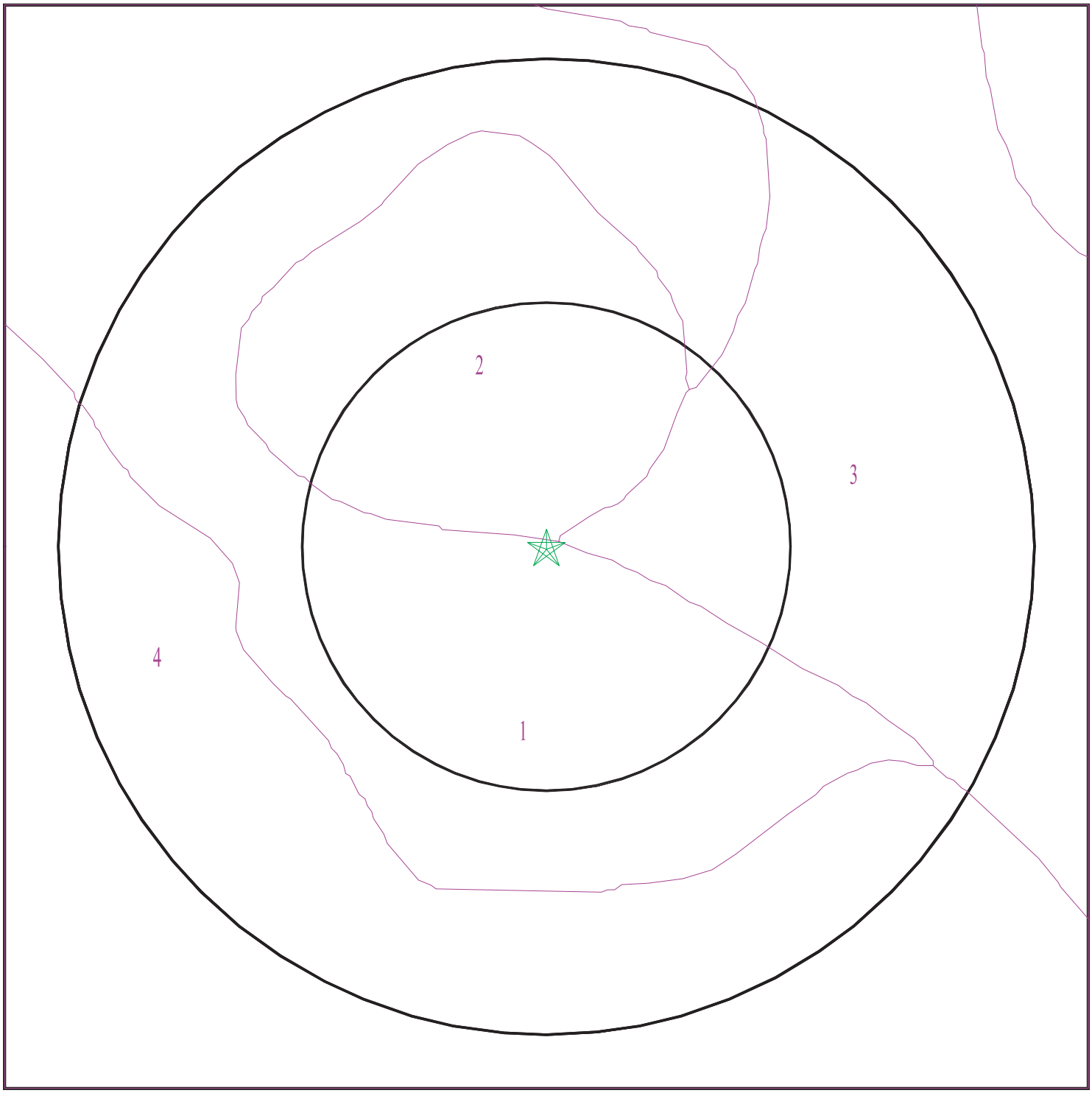
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 4853226.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

SITE NAME:	Gabrych TerraGen	CLIENT:	Partner Engineering and Science, Inc.
ADDRESS:	APN 244-233-01, APN 244-233-02, APN 429-030-02 Mojave CA 93501	CONTACT:	Adrian Rivas
		INQUIRY #:	4853226.2s
LAT/LONG:	34.981795 / 118.095266	DATE:	February 14, 2017 1:42 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: CAJON

Soil Surface Texture:
Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	35 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4
2	35 inches	59 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4

Soil Map ID: 2

Soil Component Name: ROCK OUTCROP

Soil Surface Texture:
Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class:
Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

Soil Map ID: 3

Soil Component Name: ROSAMOND

Soil Surface Texture:
Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	1 inches		Not reported	Not reported	Max: 42 Min: 14	Max: 8.4 Min: 7.9
2	1 inches	14 inches		Not reported	Not reported	Max: 4 Min: 1.4	Max: 8.4 Min: 7.9
3	14 inches	59 inches		Not reported	Not reported	Max: 14 Min: 4	Max: 8.4 Min: 7.9

Soil Map ID: 4

Soil Component Name: GARLOCK

Soil Surface Texture:
Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4
2	11 inches	24 inches		Not reported	Not reported	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4
3	24 inches	33 inches		Not reported	Not reported	Max: 42 Min: 14	Max: 8.4 Min: 7.4
4	33 inches	51 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4
5	51 inches	59 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	2.500
Federal FRDS PWS	Nearest PWS within 1.500 miles
State Database	2.500

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	USGS40000159227	1/2 - 1 Mile SW
B3	USGS40000159026	1 - 2 Miles South
5	USGS40000159439	1 - 2 Miles WNW
C7	USGS40000159151	1 - 2 Miles ESE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

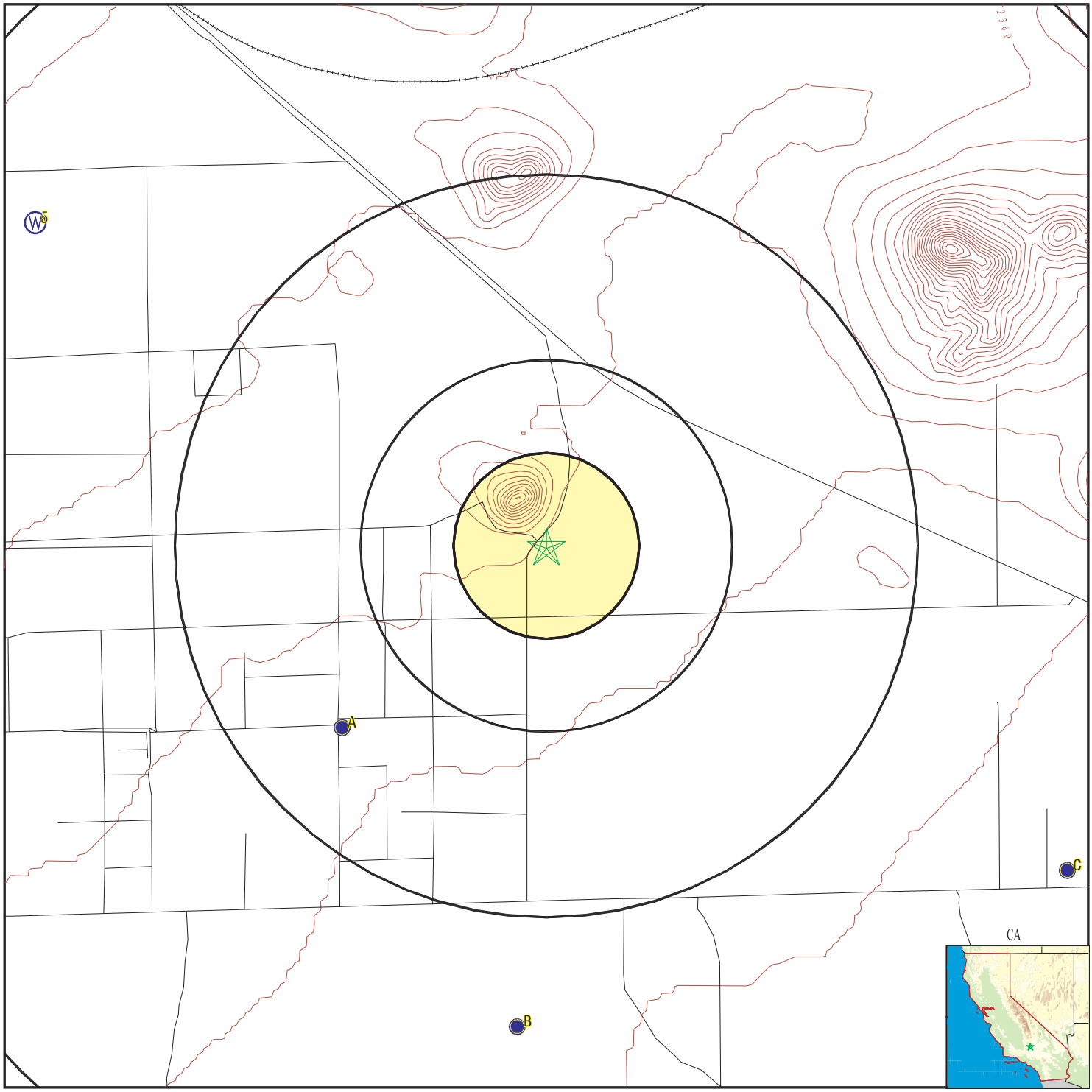
Note: PWS System location is not always the same as well location.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A2	CADW60000028397	1/2 - 1 Mile SW
B4	CADW60000033311	1 - 2 Miles South
C6	CADW60000033310	1 - 2 Miles ESE

PHYSICAL SETTING SOURCE MAP - 4853226.2s



County Boundary
Major Roads
Contour Lines
Earthquake Fault Lines
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

0 1/4 1/2 1 Miles

Groundwater Flow Direction
Indeterminate Groundwater Flow at Location
Groundwater Flow Varies at Location
Closest Hydrogeological Data
Oil, gas or related wells

SITE NAME: Gabrych TerraGen ADDRESS: APN 244-233-01, APN 244-233-02, APN 429-030-02 Mojave CA 93501 LAT/LONG: 34.981795 / 118.095266	CLIENT: Partner Engineering and Science, Inc. CONTACT: Adrian Rivas INQUIRY #: 4853226.2s DATE: February 14, 2017 1:42 pm

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Map ID Direction Distance Elevation	Database	EDR ID Number
A1 **SW** **1/2 - 1 Mile** **Lower**	**FED USGS**	**USGS40000159227**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-345829118061301		
Monloc name:	010N012W12K001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18090206	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	34.9746956
Longitude:	-118.1045179	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	2520.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Basin and Range basin-fill aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	1927	Welldepth:	224
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 27

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
2004-03-29	87.62				
Note: The site had been pumped recently.					
2003-03-24	87.22		2002-03-28	86.93	
2001-03-29	86.32				
2000-03-21	86.27				
Note: The site had been pumped recently.					
1999-03-18	86.33		1998-03-17	85.87	
1997-03-03	86.22				
Note: The site had been pumped recently.					
1996-04-19	87.52				
Note: The site had been pumped recently.					
1995-04-20	86.56				
Note: The site was being pumped.					
1994-04-12	86.18		1993-04-20	85.68	
1992-04-16	85.65		1991-03-21	84.56	
1990-03-15	84.24		1989-03-23	84.10	
1988-03-28	84.00		1987-02-22	83.02	
1986-03-25	82.81		1985-03-25	81.43	
1984-03-06	81.91		1983-04-14	81.81	
1982-02-18	81.71		1981-04-24	81.78	
1980-04-18	81.83		1979-02-28	82.03	
1978-09-14	82.32				

Map ID Direction Distance Elevation	Database	EDR ID Number
A2 **SW** **1/2 - 1 Mile** **Lower**	**CA WELLS**	**CADW60000028397**

Objectid:	28397
Latitude:	34.9747
Longitude:	-118.1054
Site code:	349747N1181054W001
State well numbe:	10N12W12K001S
Local well name:	”
Well use id:	6
Well use descrip:	Unknown
County id:	15
County name:	Kern
Basin code:	’6-44’
Basin desc:	Antelope Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000028397

B3 **South** **1 - 2 Miles** **Lower**	**FED USGS**	**USGS40000159026**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-345747118054301		
Monloc name:	010N012W13H001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18090206	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	34.9630295
Longitude:	-118.0961842	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	2505.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Basin and Range basin-fill aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19560607	Welldepth:	167.9
Welldepth units:	ft	Wellholedepth:	185
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 39

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
2004-03-29	64.31		2003-03-24	64.17	
2002-03-28	63.96		2001-03-29	63.83	

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
2000-03-21	63.68		1999-03-18	63.57	
1998-03-17	63.46		1997-03-03	63.27	
1996-04-18	63.07		1995-04-20	62.88	
1994-04-12	62.70		1993-04-19	59.62	
1992-04-16	62.25		1991-03-21	61.74	
1990-03-15	61.15		1989-03-23	60.62	
1988-03-28	60.12		1987-02-22	59.42	
1986-03-25	59.08		1985-03-25	58.93	
1984-03-06	59.06		1983-04-14	59.15	
1982-02-18	59.19		1981-04-24	59.28	
1980-04-18	59.65		1979-02-28	60.15	
1978-03-30	60.71		1977-03-09	61.55	
1976-02-11	62.28		1975-02-04	63.24	
1974-02-11	62.96		1973-02-12	62.53	
1972-03-14	61.60		1971-03-17	60.63	
1970-03-17	59.36		1969-04-16	58.36	
1968-04-02	56.86		1967-04-13	55.76	
1956-11-08	51.76				

B4
South **CA WELLS** **CADW60000033311**
1 - 2 Miles
Lower

Objectid:	33311
Latitude:	34.963
Longitude:	-118.0971
Site code:	349630N1180971W001
State well numbe:	10N12W13H001S
Local well name:	”
Well use id:	6
Well use descrip:	Unknown
County id:	15
County name:	Kern
Basin code:	’6-44’
Basin desc:	Antelope Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000033311

5
WNW **FED USGS** **USGS40000159439**
1 - 2 Miles
Higher

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-345940118070701		
Monloc name:	010N012W02B001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18090206	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	34.9944169
Longitude:	-118.1195184	Sourcemap scale:	24000

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	Not Reported
Vert measure units:	Not Reported	Vertacc measure val:	Not Reported
Vert accmeasure units:	Not Reported		
Vertcollection method:	Not Reported		
Vert coord refsys:	Not Reported	Countrycode:	US
Aquifername:	Basin and Range basin-fill aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 14

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1976-02-11	151.75		1974-02-11	152.20	
1973-10-04	152.20		1973-03-25	152.09	
1972-10-12	152.11		1972-03-14	151.70	
1971-10-27	151.58		1971-03-16	151.08	
1970-10-21	150.68		1970-03-16	149.64	
1969-04-16	151.56		1968-04-02	148.13	
1967-04-13	146.38		1955-10-27	134.87	

C6
ESE
1 - 2 Miles
Lower

CA WELLS **CADW60000033310**

Objectid:	33310
Latitude:	34.9691
Longitude:	-118.071
Site code:	349691N1180710W001
State well numbe:	10N11W08P001S
Local well name:	”
Well use id:	6
Well use descrip:	Unknown
County id:	15
County name:	Kern
Basin code:	’6-44’
Basin desc:	Antelope Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000033310

C7
ESE
1 - 2 Miles
Lower

FED USGS **USGS40000159151**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-345809118040901		
Monloc name:	010N011W08P001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18090206	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	34.9691404
Longitude:	-118.0700724	Sourcemap scale:	24000

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	2504.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Basin and Range basin-fill aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	1972	Welldepth:	280
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 19

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1992-04-16					
Note: The measurement was discontinued.					
1991-03-21	60.41		1990-03-15	56.81	
1989-03-24	55.87		1988-03-28	57.76	
1987-02-22	57.24		1986-03-25	56.01	
1985-03-25	55.50				
Note: The site had been pumped recently.					
1984-03-06	54.69		1983-04-14	54.70	
1982-02-18	55.12		1981-04-24	54.86	
1979-02-28	54.74		1978-03-30	54.39	
1977-03-09	53.00		1976-02-11	54.55	
1975-02-04	53.90		1974-02-12	57.45	
1974-02-01	57.00				

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
93501	5	0

Federal EPA Radon Zone for KERN County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for KERN COUNTY, CA

Number of sites tested: 94

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	1.422 pCi/L	98%	2%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW[R] Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779
Oil and Gas well locations in the state.

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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APPENDIX D: QUALIFICATIONS/INSURANCE

PARTNER

Jeremy Russell, REA II

Partner Associate

Education

B.S., Geology, University of Texas at Austin

Registrations

California Registered Environmental Assessor II

Summary of Professional Experience

Mr. Russell has 17 years of experience in the environmental service industry. He has significant experience in due diligence assessments for a variety of property types and the needs and requirements of varied number of reporting standards, including ASTM standards, EPA's All Appropriate Inquiry (AAI), and customized client formats. Specifically, Mr. Russell has performed Phase I Environmental Site Assessments, Environmental Transaction Screens, Phase II and III Subsurface Investigations, Remediation Design projects, Limited Asbestos Surveys, Lead-based Paint Surveys, Radon Studies, Mold Assessments, and Lead-in-water sampling and analysis.

Mr. Russell has managed numerous subsurface investigations to assess and cleanup the horizontal and vertical extent of soil and groundwater contamination. Mr. Russell has prepared Remediation Feasibility Studies, Work Plans and Remedial Action Plans for numerous projects that involved soil vapor extraction, LNAPL extraction and bioremediation. Mr. Russell conducted Preliminary Endangerment Assessments to evaluate potential contamination concerns on 10 proposed California public school sites. After review of report findings the California Department of Toxic Substances Control determined all sites were suitable for developments.

Mr. Russell has extensive experience conducting site assessments on large sections of vacant land for the purpose of evaluating and mapping planned developments. Mr. Russell has completed the California Desert Tortoise Environmental Awareness Training.

In addition, Mr. Russell has provided on behalf of clients interface with regulatory agencies and provided regulatory guidance and compliance with Cal-EPA, California Department of Toxic Substances Control (DTSC), California State Water Resources Control Board (SWRCB), and county and municipal regulations.

Finally, Mr. Russell's diversity across residential, industrial, municipal, and commercial environments is a major contribution to Partner Engineering and Science's Associate team in the Southwest region of the United States.

Shawn Askew
Project Manager

Education

Civil Engineering Technology major, Kennesaw State University; Mechanical Engineering major, Georgia Institute of Technology

Training

Certificate of Completion for PCA / PNA 8-Hour Training and Final Exam, including the Structural Module, Roofing Module, MEP Module, ADA / FFHA Module, Red Flag Issues, Cost Tables, and Fannie Mae 4099 Forms

ASTM E1527 Phase I Environmental Site Assessment Course, The Environmental Institute, 2003

OSHA 40-Hour Hazardous Waste Operations Emergency Response (HAZWOPER) Course (with current refreshers), Grant Training Solutions, from 2008

Asbestos Inspector: EPA-Model Accredited Asbestos in Buildings: Inspection & Assessment Course (with current refreshers), The Environmental Institute, from 2004

Lead-Based Paint Inspector: EPA-Target Housing & Child-Occupied Facilities Course, The Environmental Institute, from 2004

Mold Assessment and Remediation in Buildings Course, The Environmental Institute, 2007

Environmental Review Procedures for Responsible Entities Course, U.S. Department of Housing & Urban Development Region IV, 2008

Highlights

13 years of experience in environmental and civil engineering service industries

13 years of experience conducting Phase I Environmental Site Assessments (ESA)

11 years of experience conducting Property Condition Assessments (PCA)/Fannie Mae Physical Needs Assessments (PNA)

Experience Summary

Mr. Askew serves as a Project Manager for Partner Engineering and Science, Inc. (Partner). Mr. Askew's primary responsibilities include internal quality assurance/quality control review of Partner's equity-level ESAs and PCAs.

Mr. Askew performs Phase I Environmental Site Assessments in accordance with the EPA's All Appropriate Inquiry (AAI) and remediation of contaminated sites. An Environmental Professional (EP), Mr. Askew's areas of expertise include assessment and remediation of chlorinated solvents and petroleum hydrocarbons in soil and groundwater. Additionally, Mr. Askew conducts Property Condition Assessments of a variety of commercial real estate types, including Federal Fannie Mae Physical Needs Assessments (PNA) of multi-family residential developments. He has a total of thirteen years of experience in environmental and engineering due diligence, including experience with asbestos (ACM) surveys, lead-based paint (LBP) identification and abatement design, radon measurement and mitigation, mold assessments, lead-in-water sampling and analysis, and development of operations and maintenance (O&M) programs. Mr. Askew has personally managed and performed over 450 Phase I Environmental Site Assessments and Property Condition Assessments in twenty-six and twenty-seven states, respectively.

Project Experience

Phase I Environmental Site Assessments, Numerous Locations

National Center for Civil and Human Rights, Atlanta, Georgia, for Cousins Properties/Gude Management Group. Mr. Askew composed the June 2009 Phase I Environmental Site Assessment of a vacant parcel that became the site of the National Center for Civil and Human Rights museum in downtown Atlanta. Activities included property research at the world headquarters of previous property owner Coca-Cola, a site investigation, compilation of Georgia EPD environmental documentation related to the site, and report writing.

Truett-McConnell College, Cleveland, Georgia, for BB&T Bank. Mr. Askew executed a Phase I Environmental Site Assessment of the entire campus of Truett-McConnell College in Cleveland, Georgia for BB&T Bank in April 2014. Activities included inspections of twenty-eight on-site structures, identification of previously undetected asbestos-containing floor tile, compilation of Georgia EPD environmental documentation related to the site, and report writing.

Property Condition Assessments, Numerous Locations

Sooner Mall, Norman, Oklahoma, for US Bank. Mr. Askew executed a Property Condition Assessment of the entirety of Sooner Mall in Norman, Oklahoma as part of a portfolio for US Bank in March 2013. Activities included inspections of the roof, all interior space, and all major building systems, as well as local code compliance inquiries and report writing.

Platinum Tower, Atlanta, Georgia, for JP Morgan Chase. Mr. Askew executed a Property Condition Assessment of the 17-story Platinum Tower office building in Atlanta, Georgia as part of a portfolio for JP Morgan Chase in July 2011. Activities included inspections of the roof, office space on each of the building's floors, and all major building systems, as well as local code compliance inquiries and report writing.

Fannie Mae Assessments, Numerous Locations

Sandpiper Apartments, Birmingham, Alabama, for Wells Fargo Multifamily Capital. Mr. Askew executed an Environmental Transaction Screen/Physical Needs Assessment of Sandpiper Apartments in Birmingham, Alabama for Wells Fargo Multifamily Capital in February 2013 with follow-up work in April 2013.

Silver Creek Apartments, Chattanooga, Tennessee, for Arbor Commercial Mortgage. Mr. Askew executed a Phase I Environmental Site Assessment/Physical Needs Assessment of Silver Creek Apartments in Chattanooga, Tennessee for Arbor Commercial Mortgage in November 2012.

Donnelly Gardens Apartments, Atlanta, Georgia, for Arbor Commercial Mortgage. Mr. Askew executed a Phase I Environmental Site Assessment/Physical Needs Assessment of Donnelly Gardens Apartments in Atlanta, Georgia for Arbor Commercial Mortgage in October 2013.

The Reserve at Cavalier, Greenville, South Carolina, for Arbor Commercial Mortgage. Mr. Askew executed a Phase I Environmental Site Assessment/Physical Needs Assessment of The Reserve at Cavalier Apartments in Greenville, South Carolina for Arbor Commercial Mortgage in December 2014.

Logan Square Apartments, Auburn, Alabama, for NorthMarq Capital Finance. Mr. Askew executed a Physical Needs Assessment of Logan Square Apartments in Auburn, Alabama for NorthMarq Capital Finance in September 2015.

Contact

saskew@partneresi.com

Education

Bachelor of Arts, Public Administration & Economics, San Diego State University
Executive MBA Program, 2000-2003

Highlights

Over 20 years of experience in the environmental and engineering consulting industry
Property Condition Assessments (PCAs)
Fannie Mae, Freddie Mac, and HUD due diligence

Experience Summary

Mr. Lambson is a true veteran of the commercial real estate services industry. He has over 20 years of experience managing and performing environmental and engineering consulting projects on a national level. Mr. Lambson serves as a Principal for Partner and is located in Partner's San Diego County office. Mr. Lambson currently provides client management and consulting to a nationwide client base and specializes in advising "equity" clients during the acquisition phase of commercial property transactions in the U.S., Mexico, and Canada.

Mr. Lambson has assisted clients on over 10,000 commercial real estate transactions throughout his career. His due diligence resume includes experience at all levels, and includes advising REITs, developers, property managers, retail companies, commercial real estate brokers, mortgage brokers, attorneys, lenders, universities, and real estate investment groups with the following nationwide services:

- Property Condition Assessments (PCAs)
- Individual Building System Inspections for Roof, Mechanical Electrical Plumbing (MEP), Elevator, Structure, Façade, and ADA/Accessibility
- Phase I Environmental Site Assessments (ESAs)
- Phase II Subsurface Investigations (Soil and groundwater sampling and analysis)
- Phase III Environmental Remediation Services
- Asbestos, Lead, Radon, Mold Sampling
- Seismic and Structural Assessments (PMLs)
- Energy Audits, Benchmarking, AB1103 Energy Disclosure, and LEED-related services
- Hydrology, Water Conservation and Efficiency
- Fannie Mae / Freddie Mac / HUD Due Diligence
- Geotechnical and Soils Reports
- Zoning Reports
- ALTA Surveys

Building Sciences

Property Condition Assessment, MEP Report, Roof Report, Elevator Report, Structural and Seismic Assessment for a high-profile Class A office campus acquisition in the San Francisco Bay Area

ADA Compliance and Accessibility Reviews for a national bank branch portfolio

Fannie Mae Property Condition / Physical Needs Assessment services for a 5400-unit multifamily portfolio in Nevada

Environmental Assessments
Phase I and Phase II Environmental Assessments for a 75-acre aerospace facility in the Northwest United States

Over 500 Phase I Environmental Site Assessments for a national fast-food chain

Environmental consulting for over 1 million acres of desert land in California, Nevada, and Arizona

Land Surveys
ALTA Surveys for 2400-unit apartment portfolio in the Midwest

Multi-Site Portfolios
113-site office portfolio acquisition for a national REIT

122-site hotel portfolio for a national lending institution

55-site hotel portfolio acquisition for a private investment group

68-site healthcare portfolio acquisition for a national REIT

50-site country club/golf course acquisition for a private investment group

Energy and Water Efficiency
Energy & Water consulting for a national property owner that operates and manages 30 retail and office centers on the West Coast and Texas

Affiliations
National Association of Real Estate Investment Trusts (NAREIT)
International Council of Shopping Centers (ICSC)
U.S Green Building Council (USGBC)
Society of Industrial and Office Realtors, San Diego County (SIOR)
National Association of Industrial & Office Parks, Southern California (NAIOP)
San Diego Habitat Conservancy, Board of Directors. 2010 - 2014

Speaking
Bisnow Conference, Panel Moderator, La Jolla, CA, October 2014. Moderated panel on Southern California Real Estate Trends.

Globestreet, ICSC Western States Conference, San Diego, CA May 2013. Video interview regarding retail real estate trends and due diligence.

Publications
Shopping Centers Today, 2010. Authored article on LEED applications for shopping centers and retail assets.

Contact
mlambson@partneresi.com

Prepared for:
Edison Mission Energy
Irvine, California

Phase I Environmental Site Assessment, 1008 Acres of Desert Land, Mojave, Kern County, California

ENSR Corporation
October 2008
Document Number: 02450-055-0001

ENSR | AECOM

Prepared for:
Edison Mission Energy
Irvine, California

Phase I Environmental Site Assessment, 1008 Acres of Desert Land, Mojave, Kern County, California

ENSR Corporation
October 2008
Document Number: 02450-055-0001

ENSR | AECOM

EXECUTIVE SUMMARY

Edison Mission Energy (EME) contracted with ENSR Corporation to perform a Phase I Environmental Site Assessment (ESA) of the subject property. This Phase I ESA was performed in conformance with the general scope and limitations of ASTM Standard Practice E 1527-05 for ESAs. Exceptions to, or deletions from, this practice are described in Section 1.3 of this report.

This assessment took place between October 13 and October 24, 2008, with the site visit occurring on October 20, 2008. The subject property consists of eleven contiguous parcels of land, comprising one irregular-shaped, approximately 1,008-acre area of predominantly vacant desert land located in Mojave, California. The subject property is traversed by Purdy Avenue, and East Decatur Avenue. The 58 Freeway is located approximately ½ mile north and northeast of the subject property, and the 14 Freeway is located approximately 1¼ miles west of the subject property.

The majority of the subject property is covered by desert scrub. Miscellaneous trash and debris (e.g., scrap wood, tires, furniture, and household-type debris) were observed at the subject property. An approximately 900-square-foot sand and/or gravel quarry/pit is located in the center portion of the subject property (parcel 428-030-04). A pile of approximately two truck loads of discarded household items (e.g., sofa, broken stereo, toys, wood) was observed inside and along the quarry. Broken concrete debris was also identified in this area.

Natural gas pipelines run along the northern portion of the subject property, parcels 428-020-06 and 428-020-07. Evidence an AT&T utility right-of-way running through the northern portion of the subject property was also observed.

During the site visit no visual evidence of groundwater monitoring wells, or clarifiers was observed on the subject property. In addition, no discolored soil, water, unusual vegetative conditions, staining or visual evidence of a hazardous materials release was observed. However, During the site visit two concrete pads with welded caps were identified on the subject property. One such structure was identified on parcel 428-030-28, near the railroad tracks (see photo 9). The other was identified on parcel 428-030-04, near the quarry/pit area in the center of the subject property (see photo 10). The purpose of these structures is not exactly clear. They could be abandoned wells, cisterns, septic tanks, or other subsurface structures. These "wells" were not identified in the database report.

The subject property is bordered to the north by Texas Street, vacant desert land, two residential structures, and a construction yard, beyond which is the Mojave Barstow Highway (Highway 58). An auto storage facility borders the subject property to the northeast. The subject property is bordered to the east by 10th Street, beyond which is vacant desert land. Sunset Avenue and vacant desert land border the subject property to the south. A railroad right-of-way borders the subject property to the southwest, beyond which is vacant desert land. Sewage Disposal Ponds associated with the Mojave Public Utility District (P.U.D) Waste Treatment Works are located adjacent to the west of the northern portion of the subject property.

Historical research indicates that the subject property has been vacant undeveloped land since from at least 1915 to the early 1980s. More specifically, a 1983 aerial photograph shows a possible structure on the subject property, which is also depicted in a recent Google image. However, during site visit, the structure was identified as an empty concrete building pad. Topographic maps depict intermittent streams traversing the subject property, flowing from the northwest to the southeast. Aerial photographs 1952, 1983, 1994 and 2002 depict the subject property as primarily vacant undeveloped desert, with evidence of intermittent streams. Additionally, the 1973 topographic map depicts current "pipelines" on APN 428-020-06 and 428-030-07. The 1947 topographic map depicts a "water well" on APN 428-030-05 of the subject property,

which then appears as "dry well" in the 1994 topographic map. The water well was not observed during site visit, nor was it identified in the database report.

Based on ENSR's site visit; review of governmental environmental databases, files, and historical documents; a potential recognized environmental condition (RECs) or historical RECs (HRECs) was identified during this assessment.

- Parcels 428-030-28 and 428-030-04 contain underground structures that are not clearly identified. They consist of concrete pads with welded lids and smaller associated piping. They are similar but not exactly the same. After consulting with several engineers and geologists, these structures are likely to be abandoned wells. However there are some features, such as the "fill cap" structure which prevent a definitive determination. As such ENSR recommends further evaluation of these structures to definitively ascertain their identity. Should petroleum or chemical vapors be identified when the lids are removed, additional subsurface investigations may be warranted.

In addition, the following de minimis condition was identified during this assessment:

- Miscellaneous amounts of trash and debris (e.g., scrap wood, tires, couch/house-hold dumping) were observed scattered throughout the subject property. Specifically, a pile of approximately two truck loads of discarded household and construction/demolition items (e.g., sofa, broken stereo, toys, wood, broken concrete) is located inside and along the perimeter of a quarry/pit located in the center portion of the subject property (parcel 428-030-04).

ENSR recommends that this trash, debris, material be removed and disposed of in accordance with applicable regulations prior to site development.

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A Representative Site Photographs

B Environmental Database Report

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1.0 Introduction

1.1 Purpose

The purpose of this ESA is to provide the client with information for use in evaluating potential environmental concerns associated with the subject property.

1.2 Scope of work

The Phase I ESA included a site visit, regulatory research, historical review, and environmental database search of 1,008 acres of predominantly vacant desert land located in Mojave, Kern County, California. In conducting the Phase I ESA, ENSR assessed the subject property for visible signs of possible contamination, researched public records for the subject property, and conducted interviews with representatives of the public and regulatory agencies. This project was performed in general accordance with American Society for Testing and Materials (ASTM) Standard Practice Designation E 1527-05.

ENSR's standard terms and conditions for this report include, in addition to the ASTM Phase I ESA scope of work, visual assessment of potential equipment with the potential to contain polychlorinated biphenyls (PCBs). Conclusions made in this report are based upon the assessment performed and are subject to the study limitations presented in Section 1.3, below.

1.3 Study limitations

This report describes the results of ENSR's due diligence assessment to identify the presence of environmental liabilities materially affecting the subject facility and/or property. In the conduct of this due diligence evaluation, ENSR assessed the presence of such problems within the limits of the established scope of work as described in our letter proposal.

In the conduct of this due diligence investigation, ENSR has attempted to independently assess the presence of such problems within the limits of the established scope of work as described in our proposal. As with any due diligence evaluation, there is a certain degree of dependence upon oral information provided by facility or site representatives which is not readily verifiable through visual observations or supported by any available written documentation. ENSR shall not be held responsible for conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed by facility or site representatives at the time this assessment was performed. In addition, the findings in the Report are subject to certain conditions and assumptions. The conditions and assumptions are noted in the Report, and any party reviewing the findings of the Report must carefully review and consider all such conditions and assumptions.

This report and all field data and notes were gathered and/or prepared by ENSR in accordance with the agreed upon scope of work and generally accepted engineering and scientific practices in effect at the time of ENSR's assessment of the subject site. The statements, conclusions, and opinions contained in this report are only intended to give approximations of the environmental conditions at the subject site.

This report is prepared pursuant to an agreement between the client and ENSR and is for the exclusive use of the client. No other party is entitled to rely on the conclusions, observations, specifications, or data contained herein without first obtaining ENSR's written consent and provided any such party signs an ENSR generated Reliance Letter. A third party's signing of the ENSR Reliance Letter and ENSR's written consent are conditions precedent to any additional use or reliance on this report.

The passage of time may result in changes in technology, economic conditions, site variations, or regulatory provisions which would render the report inaccurate. Reliance on the report after the date of issuance as an accurate representation of current site conditions shall be at the user's sole risk.

It should be noted that it was not possible to visually evaluate the entire subject property during the site reconnaissance due its size and safety concerns due to the potential presences of slips, falls, and trips. Given the similarity of its nature (e.g., desert land), it was determined unnecessary to visually evaluate the entire site. Instead, the site reconnaissance focused on areas of dumping/garbage and debris; and driving the perimeter of the subject property and selected portions of the interior of the subject property. Field binoculars were used during the course of the assessment to ensure that significant site features were visually evaluated.

1.4 Data failure/data gaps

Per ASTM E 1527-05, interviews with past owners, operators, and occupants of the subject property, who are likely to have material information regarding the potential for contamination at the subject property, shall be conducted to the extent that they can be identified and that the information likely to be obtained is not duplicative of information already obtained from other sources. During the ESA process, ENSR was not provided with contact information for the owner(s) of the subject property. This limitation is not expected to change the outcome of the report based on historical information gathered from other sources, which are documented throughout this report.

As specified in the agreed upon scope-of-work, a title search was not conducted as part of this ESA. However, based on the historical disposition of the subject property as vacant desert land, this data gap is not expected to significantly impact the findings presented herein.

2.0 Site Description

2.1 Site location

The subject property is located in Mojave, Kern County, California. The subject property is traversed by unpaved Purdy Avenue, and unpaved East Decatur Avenue. The 58 Freeway is located approximately ½ mile north and northeast of the subject property, and the 14 Freeway is located approximately 1¼ miles west of the subject property. The subject property is comprised predominantly of vacant desert land, including a small sand and/or gravel quarry/pit. The approximate location of the subject property is illustrated on Figure 1 - Site Location Map.

2.2 Site ownership

The subject property consists of eleven contiguous parcels of land. The following table lists the assessor parcel numbers (APNs) associated with the subject property, their respective approximate acreages, and current ownership as listed on a Purchase and Sale Agreement and Joint Escrow Instructions. This information was provided by a representative of the current owner, Cady Solar Array, LLC.

APN	Acreage	Owner
428-030-02	108.64	Cady Solar Array, LLC
428-030-04	160	Cady Solar Array, LLC
428-030-05	120	Cady Solar Array, LLC
428-030-06	80	Cady Solar Array, LLC
428-030-07	40	Cady Solar Array, LLC
428-030-08	40	Cady Solar Array, LLC
428-030-09	40	Cady Solar Array, LLC
428-030-28	2.9	Cady Solar Array, LLC
428-030-31	97.74	Cady Solar Array, LLC
428-020-06	160	Cady Solar Array, LLC
428-020-07	160	Unknown

2.3 Site Visit

Mr. Jonathan Aguayo of ENSR's Camarillo, California, office visited the subject property on October 20, 2008. The weather at the time of the site visit was clear skies, dry conditions, and temperatures in the upper 90 degrees F. Representative photographs taken during the site visit are provided as Appendix A.

The site visit methodology consisted of walking through portions of the subject property, with particular focus being areas of dumping/garbage and debris; and driving the perimeter of the subject property and selected portions of the interior of the subject property. Field binoculars were used during the course of the assessment to ensure that significant site features were visually evaluated. The following sections summarize the results of the site visit.

2.3.1 Site description

The subject property consists of eleven contiguous parcels of land, comprising one irregular-shaped, approximately 1,008-acre area of predominantly vacant desert land. The subject property is traversed by Purdy Avenue, and East Decatur Avenue.

The majority of the subject property is covered by desert scrub. Varying amounts of miscellaneous trash and debris (e.g., scrap wood, tires, furniture, and household-type items) were observed at the subject property.

ENSR observed what appeared to be a sand and/or gravel quarry/pit located in the middle portion of the subject property that comprises approximately 900 square feet. Furthermore, a pile of discarded household items (e.g., sofa, broken stereo, toys, wood) was observed within and around the quarry/pit area (see Photo Nos. 7 and 8). Broken concrete was also observed on this portion of the subject property. No visual evidence of a hazardous materials release was observed within the quarry/pit area.

There is evidence of natural gas pipelines that appear to run along the northern portion of the subject property. An AT&T utility right-of-way, identified by signs, was observed running through the northern portion of the subject property as well.

During the site visit no visual evidence of groundwater monitoring wells, or clarifiers were observed on the subject property. However, two structures that are likely to be abandoned wells were identified on the subject property. In addition, no discolored soil, water, unusual vegetative conditions, staining or visual evidence of hazardous materials release was observed. The approximate layout of the subject property is illustrated on Figure 2 – Site Plan.

2.3.2 Building description

No buildings were observed on the subject property during ENSR's site visit. An empty concrete building pad was observed on parcel 428-030-06. There was no sign of a prior structure on this pad.

2.3.3 Surrounding properties

The subject property is bordered to the north by Texas Street (unpaved), vacant desert land, two residential structures (no address identified), and a construction site (no address identified), beyond which is the Mojave Barstow Highway (Highway 58). An auto storage facility (no address identified) borders the subject property to the northeast across Texas Street. The subject property is bordered to the east by 10th Street (unpaved), beyond which is vacant desert land. Sunset Avenue (unpaved) and vacant desert land border the subject property to the south. A railroad right-of-way borders the subject property to the southwest, beyond which is vacant desert land. Sewage Disposal Ponds associated with the Mojave Public Utility District (P.U.D.) Waste Treatment Works (15844 K Street) are located adjacent to the west of the northern portion of the subject property.

2.3.4 Petroleum hydrocarbons and hazardous materials

No petroleum hydrocarbons or hazardous materials were observed on the subject property during ENSR's site visit.

2.3.5 Aboveground storage tanks (ASTs)

No ASTs were observed on the subject property during ENSR's site visit.

2.3.6 Underground storage tanks (USTs)

ENSR identified two concrete pads on the subject property associated with underground structures. Although these structures are likely to be abandoned wells, they also have what appear to be vent pipes or fill ports. As such, there is the potential, after additional evaluation, for these structures to be USTs. Worthy of note, no USTs were identified in association with the subject property on the State of California Geotracker® database or the environmental database report prepared by EDR and reviewed by ENSR.

2.3.7 Solid Waste

As noted in Section 2.3.1, the on-site quarry/pit is filled with a pile of discarded household and construction related items (see Photo Nos. 7 and 8). No visual evidence of a hazardous materials release was observed in the area of the quarry/pit. Also as noted in Section 2.3.1, miscellaneous trash and debris (e.g., scrap wood, tires, couch/house-hold dumping) was observed scattered throughout the property during the site visit (see Photo No. 3). However, no evidence of hazardous waste was observed.

2.3.8 Stormwater

Based on ENSR's site visit and a review of the topographic maps of the subject property area, stormwater is generally anticipated to flow in a southeasterly direction across the site or infiltrate into the ground.

2.3.9 Utilities

No utilities service the subject property. However, as noted in Section 2.3.1, evidence of natural gas pipelines was observed along the northern portion of the subject property, and an AT&T utility right-of-way was also observed along the northern portion of the subject property.

2.3.10 Polychlorinated biphenyls

No pad-mounted, pole-mounted, or other potential PCB-containing equipment was observed on the subject property.

3.0 Environmental Setting

3.1 Topography

According to the United States Geological Survey (USGS) topographic maps of the subject property area (Mojave, California, quadrangles), the regional topographic gradient of the subject property area is toward the southeast. The elevation of the subject property ranges between approximately 2,644 feet above mean sea level (msl) on the northwestern edge of the subject property to 2,590 feet above msl on the southeastern edge of the subject property. The topographic maps reviewed during the course of this research can be found within the radius report prepared by Environmental Data Resources (EDR).

3.2 Soil

According to information provided by U.S. Department of Agriculture's Soil Conservation Services the subject property is comprised of several different soil types with different infiltration rates. The Garlock soil component consists of deep and moderately deep, moderately well and well drained soils with moderately coarse textures, and moderate infiltration rates; the soil drainage class is well drained. The Rosamond soil component consists of soils with layers impeding downward movement of water, or soils with moderately fine or fine textures, and slow infiltration rates; the soil drainage class is well drained. The soil types discussed above and their respective locations on the subject property are depicted on the soils map within the radius report prepared by EDR.

3.3 Groundwater

The topographic gradient of the subject property is toward the southeast. Based on this information, groundwater beneath the subject property is anticipated to generally flow in a southeasterly direction. Site-specific depth to groundwater information was not identified during the course of this assessment. Based on available well data in this area, groundwater is anticipated to be encountered at depths greater than 200 feet below ground surface.

Five water wells were identified within one mile of the subject property on the State databases searched by EDR. The five water wells are located approximately one mile north, and north northwest of the subject property. One of these was identified as a drinking water well. Records identify it as being operated by the Mojave Public Utilities District (PUD). It is identified as CA Wells # 10430 and is described as a municipal intake/standby treated water well.

3.4 Radon

Radon is a radioactive gas that is generated by the decay of radium in the underlying soil and rocks. Radon gas levels are highly site specific and are influenced by soil and building conditions, including pressure differentials between the soil and the building. The U.S. EPA has established a guideline threshold of 4.0 PicoCuries per liter (pCi/L) of air, above which there may be adverse health risks if exposure continues over a prolonged period of time (generally 70 years).

Review of the EDR report revealed that one State radon test has been conducted in the ZIP code (93501) for the subject property. The results of the test revealed that less than 4.0 pCi/L of radon per liter of air were detected. According to the EDR report the subject property is located in EPA Radon Zone 2 where the indoor average level of radon is greater than or equal to 2 pCi/L of radon per liter of air, but less than or equal to 4.0 pCi/L of radon per liter of air; however, of 94 sites tested in Kern County, the average radon concentration was reported to be 1.422 pCi/L in first floor living areas. No results were provided for

basement or second floor living areas. Based on this information, it is ENSR's opinion that radon does not present a significant environmental concern at the subject property. No site-specific radon testing information was provided for ENSR's review.

3.5 Wetlands

No wetlands-type vegetation (i.e., cattails, etc.) was observed on the subject property during the site visit, nor were wetlands depicted on the USGS map for the site area. However, the United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) dataviewer map, researched during our critical issues analysis of the site identified two irregular shaped surface features on the subject property. They are identified as "palustrine wetlands with unconsolidated shore that is intermittently flooded." Consultation with the USFWS may be prudent in order to determine whether wetland delineation would be required for these features.

During the site visit, ENSR observed Sewage Disposal Ponds on the adjacent property to the northwest. This facility has been present since the early seventies. No staining or visual evidence of liquid discharge or a hazardous materials release was observed within the vicinity of the Sewage Disposal Ponds.

3.6 Floodplains

Washes and drainage features traverse the subject property from northwest to southeast. According to the Federal Emergency Management Agency (FEMA) flood insurance rate map (2004), three of the southwestern parcels, adjacent to the railroad, are impacted by the 100-year flood zone.

4.0 Site and Area History

Historical information for the subject property and surrounding properties is based on ENSR's review of aerial photographs dated 1952, 1983, 1994, 2002, and 2005; and topographic maps dated 1915, 1947, 1956, 1973, 1992, and 1994. According to EDR, no Sanborn® fire insurance maps are available for the subject property.

4.1 Subject property

Historical research indicates that the subject property has been vacant undeveloped land from at least 1915 to the present. Topographic maps depict intermittent streams traversing the subject property, flowing from the northwest to the southeast. Aerial photographs show the subject property as primarily vacant undeveloped desert, with evidence of intermittent streams and dirt roadways traversing the area. Additionally, the 1973 topographic map depicts current "pipelines" on APN 428-020-06 and 428-030-07. The 1947 topographic map depicts a "water well" on APN 428-030-05 of the subject property, which then appears as "dry well" in the 1994 topographic map. Two structures, previously described, that are likely abandoned water wells were observed during ENSR's site visit.

A review of the aerials provided by EDR identifies a single concrete building pad on parcel 428-030-06 from at least 1994. The pad is empty with no indication of a prior structure on the pad.

4.2 Adjacent sites

Historical research indicates that the surrounding sites were largely vacant and undeveloped desert from at least 1915 to the early 1970s. A 1973 topographic map depicts the existing adjacent Sewage Disposal Ponds site. In addition, the subject property is bordered to the west by a railroad as early as 1915. The adjacent existing two residential structures to the north are shown as early as 1992. The adjacent existing construction yard to the northwest is shown as early as 1983.

It should be noted that the presence of the railroad as the southwestern abutting feature could be a source of potential contamination. Railroads utilize herbicides to clear vegetation from the tracks and in the past have used oils on the track ballast to stabilize the stone and reduce dust. Accidental spills and releases from railcars are also known to occur. It is not known whether these materials have been used on these tracks, or whether spills of potentially hazardous materials have occurred on these tracks. There are no records of such uses or spill events.

4.3 Previously prepared environmental reports

ENSR was not provided with previously prepared Phase I Environmental Site Assessment (ESA) reports for review.

5.0 Database and Records Review

5.1 User Provided Information

ENSR provided Mr. Raymond Kelly with EME a brief survey regarding his knowledge of title records, environmental liens, specialized knowledge, and/or real estate value reduction issues associated with the subject property. When the survey is completed and returned the data will be incorporated into this document.

5.2 Title Records/Environmental Liens

ENSR was not provided with Title reports for the subject property. An environmental lien search was not performed as part of this assessment. Based on ENSR's land use and historical research, it is ENSR's opinion that an environmental lien is unlikely to have been placed on the subject property.

5.3 Database information

In accordance with the scope of work and ASTM Standard E-1527-05, a search of various governmental databases was conducted by EDR. The EDR report was reviewed to determine the potential for environmental impacts to the subject property from on-site and/or off-site sources of concern. The database abbreviations are provided in the EDR report. Sites that could not be mapped by EDR were researched by ENSR during the site reconnaissance. A summary of the results of the EDR database search are presented below. A list of the databases searched and the search distances are provided in the EDR report. A copy of the database report is provided in Appendix B.

Based on ENSR's research, the subject property is not located on or within a one-mile radius of tribal lands.

5.3.1 Subject property

The subject property was not identified in the environmental database report.

5.3.2 Surrounding sites

No offsite sources of concern were identified in the environmental database report. Additionally, the EDR report includes various reports detailing database information for each of the sites identified/geocoded within the specified radius. Additional sites with recognized environmental risks were identified, but EDR was not able to map them to specific locations due to insufficient/contradicting address information. These sites were included in EDR's report as *"orphan"* sites. Based upon ENSR's review, there do not appear to be significant concerns associated with the orphan sites.

5.4 Agency review

5.4.1 Kern County Environmental Health

ENSR submitted a Freedom of Information Act (FOIA) request to Kern County Environmental Health (KCEH) Hazardous Materials Program (HMP) (the Certified Unified Program Agency) (CUPA)) to determine if they have files related to aboveground storage tanks, underground storage tanks, hazardous waste treatment, hazardous waste generators, and/or hazardous materials management and response plans associated with the subject property, or a historical hazardous materials release that may have occurred at

the subject property. According to KCEH HMP, based on a search of their records, no information was identified for the subject property.

5.4.2 Department of Toxic Substances Control

ENSR searched the Department of Toxic Substances Control (DTSC) online EnviroStor database for California Cleanup Sites involving the DTSC. The EnviroStor database consists of federal NPL sites, state response sites, voluntary cleanup sites, and school cleanup sites. No records were found for the subject property.

5.4.3 State Water Resources Control Board

ENSR conducted a records search regarding the subject property on the California Environmental Protection Agency's State Water Resources Control Board online Geotracker database. The Geotracker database includes contaminated property investigations consisting of LUFT, SLIC, Land Disposal, DOD (non-UST), Wells, and USTs at sites throughout California. No records were found for the subject property.

ENSR submitted a FOIA to the Regional Water Quality Control Board (RWQCB), Lahontan Region, Victorville Office, to determine if they have files related to possible USTs and/or a historical hazardous materials release that may have occurred at the subject property. According to the Regional Board, they are unable to search their files by assessor parcel number. Based on the results of the Geotracker database review, it is ENSR's opinion that this limitation is unlikely to impact the conclusions or recommendations of this report.

5.4.4 United States Environmental Protection Agency

ENSR searched the US EPA's Enforcement & Compliance History Online (ECHO) and online Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) databases. The ECHO database consists of US EPA compliance history at a site. The CERCLIS database consists of sites being assessed under the Superfund program (NPL sites), hazardous waste sites, and potential hazardous waste sites. No records were found for the subject property.

6.0 Conclusions and Recommendations

ENSR has performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-05 of the subject property. Any exception to, or deletions from, this practice are described in Section 1.0 of the report.

Based on ENSR's site visit; review of governmental environmental databases, files, and historical documents; a potential recognized environmental condition (RECs) or historical RECs (HRECs) was identified during this assessment.

Parcels 428-030-28 and 428-030-04 contain underground structures that are not clearly identified. They consist of concrete pads with welded lids and smaller associated piping. They are similar but not exactly the same. After consulting with several engineers and geologists, these structures are likely to be abandoned wells. However there are some features, such as the "fill cap" structure which prevent a definitive determination.

As such ENSR recommends further evaluation of these structures to definitively ascertain their identity. Should petroleum or chemical vapors be identified when the lids are removed, additional subsurface investigations may be warranted.

In addition, the following de minimis condition was indentified during this assessment:

- Miscellaneous amounts of trash and debris (e.g., scrap wood, tires, couch, house-hold dumping) were observed scattered throughout the subject property. Specifically, a pile of discarded household and construction related items (e.g., sofa, broken stereo, toys, wood, broken concrete) is located inside and along the perimeter of the quarry/pit located along the center portion of the subject property (Parcel 428-030-04).

ENSR recommends that the trash, debris, and material be removed and disposed of in accordance with applicable regulations prior to site development.

7.0 Quality Control/Quality Assurance

7.1 Site visit, research, and report preparation:

The site visit, research and report preparation were conducted by Mr. Jonathan Aguayo, Staff Specialist, in ENSR's Camarillo, California office. Mr. Aguayo completed this report on October 24, 2008. Mr. Aguayo has one year of environmental due diligence experience and has performed Phase I ESAs of commercial and industrial properties in the western United States. Mr. Aguayo's signature is below and his resume is included in Appendix C.

Signature: _____
Jonathan Aguayo, Staff Specialist

7.2 Quality control review

A review of this report was conducted by Ms. Kirsten Bradford, Project Specialist, in ENSR's Camarillo, California, office. Ms. Bradford completed her review of this report on October 23, 2008. Ms. Bradford has over 5 years of environmental due diligence experience and has performed and/or managed Phase I ESAs of commercial and industrial property located throughout the United States. Ms. Bradford's signature is below and her resume is included in Appendix C.

Signature: _____
Kirsten Bradford, Project Specialist

7.3 Environmental professional statement

A second level review of this report was conducted by Ms. Brenda Miller, Senior Project Manager, in ENSR's Camarillo, California, office. Ms. Miller was the Environmental Professional (EP) for this project and she completed her review of this report on October 24, 2008. Ms. Miller has over 15 years of environmental due diligence experience and has performed and/or managed hundreds of Phase I ESAs of commercial and industrial properties located throughout the Untied States. A copy of Ms. Miller's resume is included in Appendix C. Ms. Miller's EP statement and her signature are below.

I declare that, to the best of my professional knowledge and belief, I meet the definition of an EP as defined in §312.10 of 40 CFR and that I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Signature: _____
Brenda Miller, REA
Senior Project Manager

Date: October 24, 2008

8.0 References

8.1 Persons Interviewed/Agencies Contacted

California State Water Resources Control Board, GeoTracker database, Underground Storage Tank, Leaking Underground Storage Tank, and Cleanup and Disposal Sites information, retrieved online at, http://www.geotracker.swrcb.ca.gov.

Public Records Access Request and email correspondence, California Regional Water Quality Control Board, Lahontan Region, 14400 Civic Dr., Suite 200, Victorville, California 92392, (760) 241-6583. Request submitted via email at VVL_Records@waterboards.ca.gov.

Request for Public Records, Kern County Environmental Health Services Department, Resource Management Agency, 2700 "M" Street, Suite 300, Bakersfield, California, 93301-2370, (661) 862-8700. Request submitted via fax at (661) 862-8701.

8.2 Documents Reviewed

Aerial photograph copyrighted 2008 of the subject property. Photograph reviewed online at Google Earth website, http://www.google.com.

Assessor parcel information, Kern County Assessor, 1115 Truxtun Avenue, Bakersfield, California 93301, (661) 868-3485. Information retrieved online at http://assessor.co.kern.ca.us .

Certified Sanborn® Map Report, Purdy Road/Purdy Avenue, California City, California 93501 (no coverage for the subject property area). Inquiry Number 2340044.3. Report prepared by Environmental Data Resources, 440 Wheelers Farms Road, Milford, Connecticut 06461, (800) 352-0050.

Department of Toxic Substances Control, Envirostor, http://www.envirostor.dtsc.ca.gov/public/

Enforcement & Compliance History Online (ECHO), http://www.epa-echo.gov/echo/compliance_report.html.

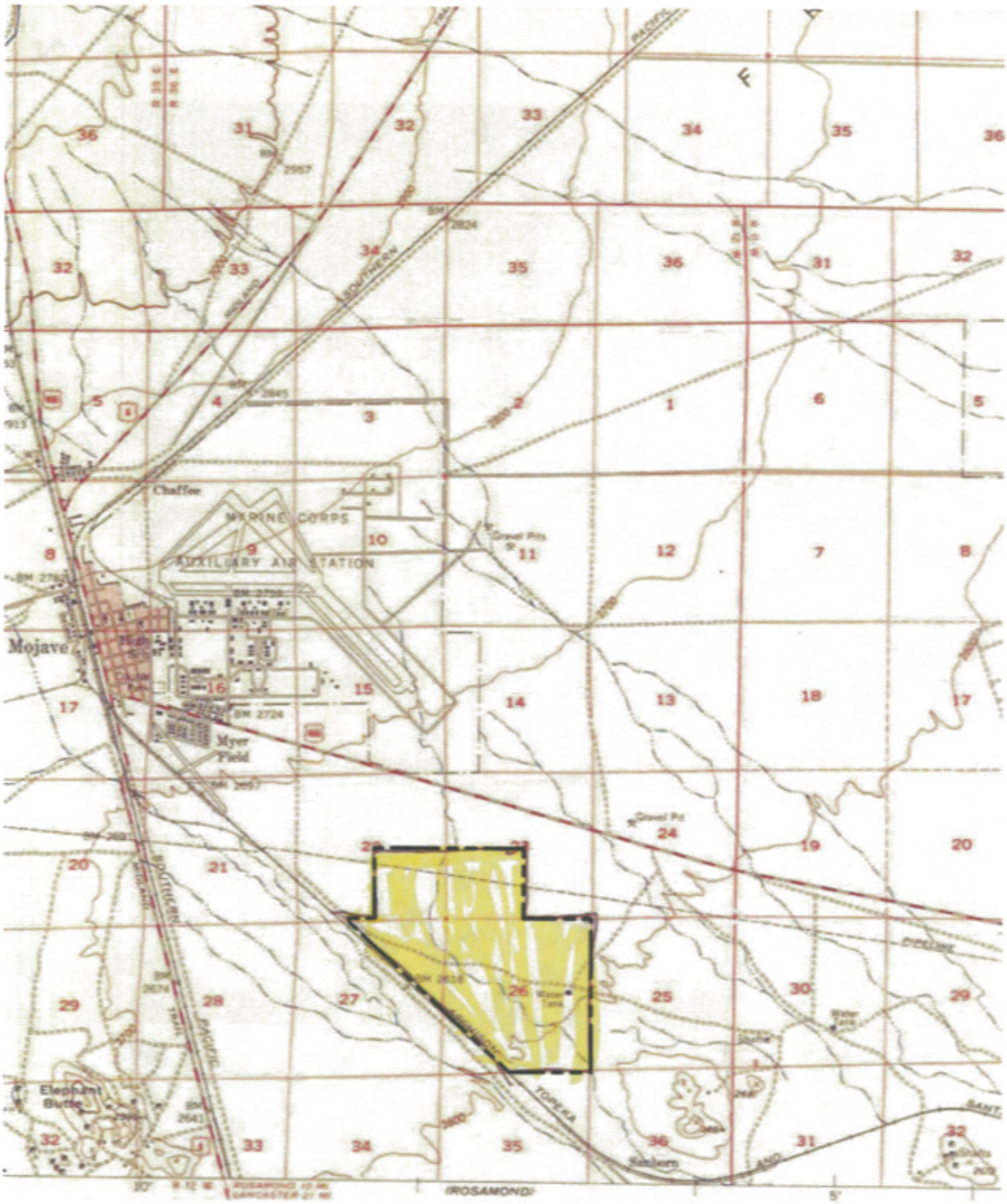
Leaking Underground Fuel Tank Information, reviewed at the State of California Geo Tracker® website, http://geotracker.swrcb.ca.gov/search/addresssearch.htm.

The EDR Aerial Photo Decade Package, dated October 20, 2008, Purdy Road/Purdy Avenue, California City, California 93501. Inquiry Number 2340044.5. Report prepared by Environmental Data Resources, 440 Wheelers Farms Road, Milford, Connecticut 06461, (800) 352-0050.

The EDR Historical Topographic Map Report, dated October 16, 2008, Purdy Road/Purdy Avenue, California City, California 93501. Inquiry Number 2340044.4. Report prepared by Environmental Data Resources, 440 Wheelers Farms Road, Milford, Connecticut 06461, (800) 352-0050.

The EDR Radius Map™ with Geocheck®, dated October 15, 2008, Purdy Road/Purdy Avenue, California City, CA 93501. Inquiry Number 02340044.2r. Report prepared by Environmental Data Resources, 440 Wheelers Farms Road, Milford, Connecticut 06461, (800) 352-0050.

FIGURES



LEGEND

APPROXIMATE PROPERTY BOUNDARY

NOT TO SCALE

ENSR | AECOM

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PHONE: (805) 388-3775
FAX: (805) 388-3577
WEB: HTTP://WWW.ENSR.AECOM.COM

SITE LOCATION MAP

EME PV CA 12
Purdy Road/Purdy Avenue
Mojave, California 93501

FIGURE NUMBER:
1

DRAWN BY:	DATE:	PROJECT NUMBER:	SHEET NUMBER:
T. Burke	10/27/2008	02450-055-0001	X

J:\2008_Projects\02450-EDAW\EME 2 Kern CIAs\CA 12 Phase 1\Figures\Site Location Map.dwg

LEGEND

- PROPERTY BOUNDARY
- OVERHEAD UTILITY LINES
- RAILROAD TRACKS

NOT TO SCALE

ENSR | AECOM

ENSR CORPORATION
1220 AVENIDA ACASO
CAMARILLO, CALIFORNIA 93012
PHONE: (805) 388-3775
FAX: (805) 388-3577
WEB: HTTP://WWW.ENSR.AECOM.COM

SITE PLAN

EME PV CA 12
Purdy Road/Purdy Avenue
Mojave, California 93501

FIGURE NUMBER:
2

DRAWN BY:	DATE:	PROJECT NUMBER:	SHEET NUMBER:
T. Burke	10/27/2008	02450-055-0001	X

J:\2008_Projects\02450-EDAW\EME 2 Kern CIAs\CA 12 Phase 1\Figures\Fig 2 Site Plan.dwg

APPENDIX A
Representative Site Photographs

PHOTOGRAPHIC LOG

ENSR | AECOM

Site Name:	Site Location:	Project No.
1008 Acres of Desert Land	Mojave, Kern County, California	02450-055-0001

Photo No.	Date:
1	10/20/08

Direction Photo Taken:

Southeast

Description:

Typical view of the subject property.

Photo taken from the northwestern portion of the subject property.

Photo No.	Date:
2	10/20/08

Direction Photo Taken:

North

Description:

Typical view of the subject property.

Photo taken in the western portion of the subject property (Parcel 428-030-05 and 428-030-06).

PHOTOGRAPHIC LOG

ENSR | AECOM

Site Name:	Site Location:	Project No.
1008 Acres of Desert Land	Mojave, Kern County, California	02450-055-0001

Photo No.	Date:
3	10/20/08

Direction Photo Taken:

East

Description:

Typical view of debris (e.g., wood) located at the subject property.

Photo taken in the western portion of the subject property.

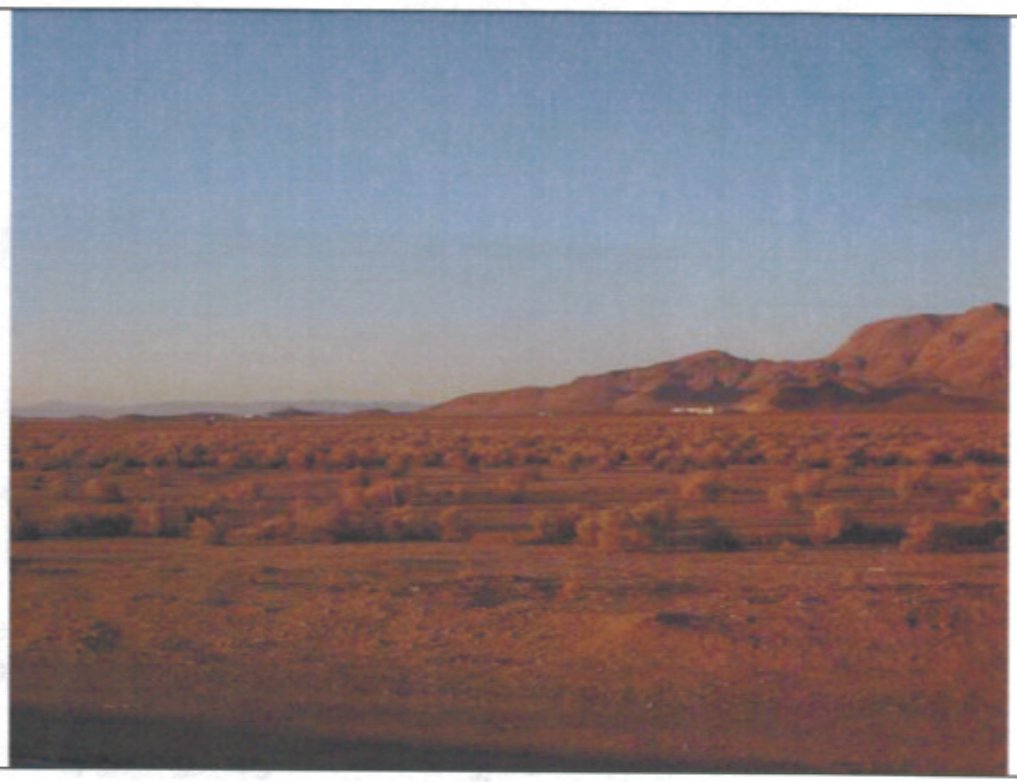
Photo No.	Date:
4	10/20/08

Direction Photo Taken:

West

Description:

View of the adjacent vacant desert land, west of the subject property.



PHOTOGRAPHIC LOG

ENSR | AECOM

Site Name:	Site Location:	Project No.
1008 Acres of Desert Land	Mojave, Kern County, California	02450-055-0001

Photo No.	Date:
5	10/20/08

Direction Photo Taken:

South

Description:

View of the adjacent site (Sewage Disposal Ponds) situated west of parcel 428-020-06, and northwest of parcel 428-030-02, of the subject property.

To note, fencing surrounded the whole adjacent site with no trespassing signs.

Photo No.	Date:
6	10/20/08

Direction Photo Taken:

Northwest

Description:

View of typical patches of land with no vegetation.

To note, no staining or visual evidence of hazardous materials was observed on the subject property.

PHOTOGRAPHIC LOG

ENSR | AECOM

Site Name:	Site Location:	Project No.
1008 Acres of Desert Land	Mojave, Kern County, California	02450-055-0001

Photo No.	Date:
7	10/20/08

Direction Photo Taken:

West

Description:

View of inside the on-site quarry with pile of discarded household items, located on the center portion (parcel 428-030-04) of the subject property.

Photo No.	Date:
8	10/20/08

Direction Photo Taken:

West

Description:

View of the on-site quarry from its southern edge.

PHOTOGRAPHIC LOG

ENSR | AECOM

Site Name:	Site Location:	Project No.
1008 Acres of Desert Land	Mojave, Kern County, California	02450-055-0001

Photo No.	Date:
9	10/20/08

Direction Photo Taken:

Northeast

Description:

View of the on-site abandoned well/cistern structure (parcel 428-030-28) of the subject property.

Photo No.	Date:
10	10/20/08

Direction Photo Taken:

North

Description:

View of the on-site abandoned well/cistern structure (parcel428-030-04) near the quarry/pit in the center of the property.

ENSR | AECOM

APPENDIX B
Environmental Database Report

Purdy Road/Purdy Avenue
Purdy Road/Purdy Avenue
California City, CA 93501

Inquiry Number: 02340044.2r
October 15, 2008

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

FORM-STD-ARB

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

PURDY ROAD/PURDY AVENUE
CALIFORNIA CITY, CA 93501

COORDINATES

Latitude (North):	35.025070 - 35' 1' 30.3"
Longitude (West):	118.142150 - 118' 8' 31.7"
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	395803.9
UTM Y (Meters):	3876221.8
Elevation:	2644 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	35118-A2 MOJAVE, CA
Most Recent Revision:	1973

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

FEDERAL RECORDS

NPL..... National Priority List
Proposed NPL..... Proposed National Priority List Sites
Delisted NPL..... National Priority List Deletions
NPL LIENS..... Federal Superfund Liens
CERCLIS..... Comprehensive Environmental Response, Compensation, and Liability Information System
CERC-NFRAP..... CERCLIS No Further Remedial Action Planned
LIENS 2..... CERCLA Lien Information
CORRACTS..... Corrective Action Report
RCRA-TSDF..... RCRA - Transporters, Storage and Disposal
RCRA-LQG..... RCRA - Large Quantity Generators

EXECUTIVE SUMMARY

RCRA-SQG	RCRA - Small Quantity Generators
RCRA-CESQG	RCRA - Conditionally Exempt Small Quantity Generator
RCRA-NonGen	RCRA - Non Generators
US ENG CONTROLS	Engineering Controls Sites List
US INST CONTROL	Sites with Institutional Controls
ERNS	Emergency Response Notification System
HMIRS	Hazardous Materials Information Reporting System
DOT OPS	Incident and Accident Data
US CDL	Clandestine Drug Labs
US BROWNFIELDS	A Listing of Brownfields Sites
DOD	Department of Defense Sites
FUDS	Formerly Used Defense Sites
LUCIS	Land Use Control Information System
CONSENT	Superfund (CERCLA) Consent Decrees
ROD	Records Of Decision
UMTRA	Uranium Mill Tailings Sites
DEBRIS REGION 9	Torres Martinez Reservation Illegal Dump Site Locations
ODI	Open Dump Inventory
MINES	Mines Master Index File
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
RADINFO	Radiation Information Database
FINDS	Facility Index System/Facility Registry System
RAATS	RCRA Administrative Action Tracking System
SCRD DRYCLEANERS	State Coalition for Redediation of Drycleaners Listing

STATE AND LOCAL RECORDS

HIST Cal-Sites	Historical Calsites Database
CA BOND EXP. PLAN	Bond Expenditure Plan
SCH	School Property Evaluation Program
Toxic Pits	Toxic Pits Cleanup Act Sites
SWF/LF	Solid Waste Information System
WMUDS/SWAT	Waste Management Unit Database
CA WDS	Waste Discharge System
Cortese	"Cortese" Hazardous Waste & Substances Sites List
SWRCY	Recycler Database
LUST	Geotracker's Leaking Underground Fuel Tank Report
CA FID UST	Facility Inventory Database
SLIC	Statewide SLIC Cases
UST	Active UST Facilities
HIST UST	Hazardous Substance Storage Container Database
AST	Aboveground Petroleum Storage Tank Facilities
LIENS	Environmental Liens Listing
SWEEPS UST	SWEEPS UST Listing
CHMIRS	California Hazardous Material Incident Report System
Notify 65	Proposition 65 Records
DEED	Deed Restriction Listing

EXECUTIVE SUMMARY

VCP..... Voluntary Cleanup Program Properties
DRYCLEANERS..... Cleaner Facilities
WIP..... Well Investigation Program Case List
CDL..... Clandestine Drug Labs
RESPONSE..... State Response Sites
HAZNET..... Facility and Manifest Data
EMI..... Emissions Inventory Data
HAULERS..... Registered Waste Tire Haulers Listing
ENVIROSTOR..... EnviroStor Database

TRIBAL RECORDS

INDIAN RESERV..... Indian Reservations
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands
INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land
INDIAN UST..... Underground Storage Tanks on Indian Land
INDIAN VCP..... Voluntary Cleanup Priority Listing

EDR PROPRIETARY RECORDS

Manufactured Gas Plants..... EDR Proprietary Manufactured Gas Plants
EDR Historical Auto Stations.. EDR Proprietary Historic Gas Stations
EDR Historical Cleaners..... EDR Proprietary Historic Dry Cleaners

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were not identified.

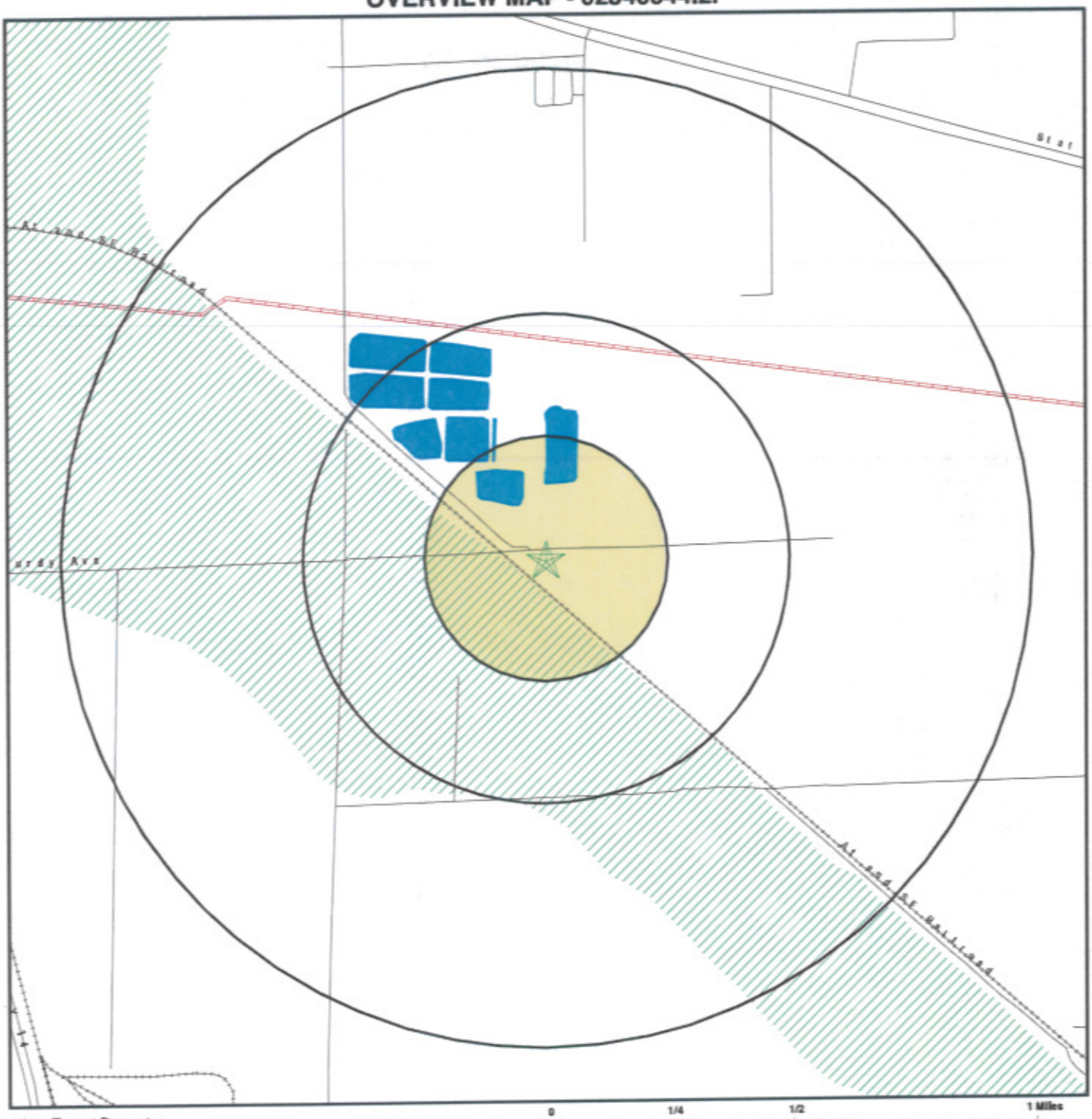
Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
OASIS	SWEEPS UST
CALIFORNIA HIGHWAY PATROL	CA FID UST, SWEEPS UST
FIRE STATION #14	CA FID UST, SWEEPS UST
JAMIESON HILL STATION #703	SWEEPS UST
GILBERT E. COOK	SWEEPS UST
A&W SMELTER AND REFINERS	CERCLIS, RCRA-SQG, FINDS, HAZNET, Cortese
MOJAVE BURN DUMP	CERC-NFRAP
VICTORY MILLSITE (A & W SMELTER)	CERC-NFRAP
BLM-CACTUS GOLD MINES CO.	CERC-NFRAP
CALTRANS MOJAVE MAINTENANCE	LUST
OASIS CENTER	UST
GIANT TRUCK STOP OF MOJAVE	UST
LEONARD CONSTRUCTION	UST
RSI CARDLOCK	UST
OASIS CLUB INC	UST
LA DEPT OF WATER AND POWER MOJAVE	UST
AT AND T (CAO580)	UST
FASTRIP #38	UST
PRICE SAVERS TRUCK STOP	UST
SHAHNAZ ENT	UST
KERN COUNTY FIRE DEPT STATION 14	UST
CALIF HWY PATROL-MOJAVE	UST
MR. LEE PULSIPHER	UST
AT T/PACIFIC BELL(CA7004)	UST
PRICE SAVERS TRUCK STOP/RAPID LUBE	UST
FASTRIP FOOD STORE #38	UST
LA DEPT OF WATER & POWER	UST
MOJAVE SHELL	UST
MOJAVE CHEVRON #91095	UST
MOJAVE STATION	UST
MOJAVE SHELL	UST
SPEEDWAY TRAVEL CENTER	UST
CALTRANS CACHE CREEK BRIDGE	RCRA-SQG, FINDS, HAZNET
TOMRA PACIFIC INC	SWRCY
NEXCYCLE	SWRCY

OVERVIEW MAP - 02340044.2r



0 1/4 1/2 1 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Purdy Road/Purdy Avenue ADDRESS: Purdy Road/Purdy Avenue California City CA 93501 LAT/LONG: 35.0251 / 118.1422	CLIENT: ENSR Consulting & Engineering CONTACT: Jonathan Aguayo INQUIRY #: 02340044.2r DATE: October 15, 2008 12:57 pm

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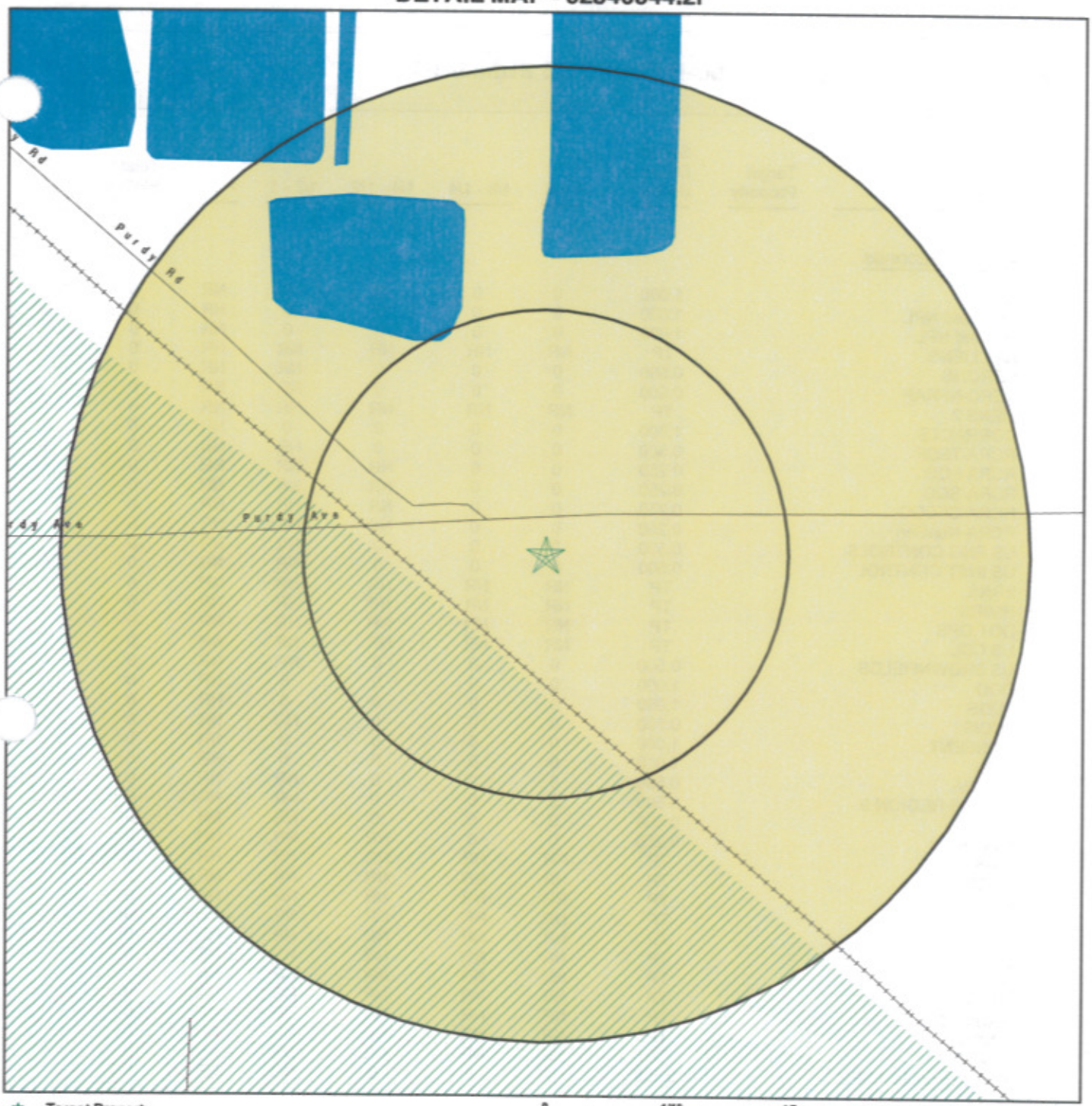
DETAIL MAP - 02340044.2r



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

0 1/16 1/8 1/4 Miles

- Indian Reservations BIA
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Purdy Road/Purdy Avenue ADDRESS: Purdy Road/Purdy Avenue California City CA 93501 LAT/LONG: 35.0251 / 118.1422	CLIENT: ENSR Consulting & Engineering CONTACT: Jonathan Aguayo INQUIRY #: 02340044.2r DATE: October 15, 2008 12:58 pm

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MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FEDERAL RECORDS								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
Delisted NPL		1.000	0	0	0	0	NR	0
NPL LIENS		TP	NR	NR	NR	NR	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
CERC-NFRAP		0.500	0	0	0	NR	NR	0
LIENS 2		TP	NR	NR	NR	NR	NR	0
CORRACTS		1.000	0	0	0	0	NR	0
RCRA-TSDF		0.500	0	0	0	NR	NR	0
RCRA-LQG		0.250	0	0	NR	NR	NR	0
RCRA-SQG		0.250	0	0	NR	NR	NR	0
RCRA-CESQG		0.250	0	0	NR	NR	NR	0
RCRA-NonGen		0.250	0	0	NR	NR	NR	0
US ENG CONTROLS		0.500	0	0	0	NR	NR	0
US INST CONTROL		0.500	0	0	0	NR	NR	0
ERNS		TP	NR	NR	NR	NR	NR	0
HMIRS		TP	NR	NR	NR	NR	NR	0
DOT OPS		TP	NR	NR	NR	NR	NR	0
US CDL		TP	NR	NR	NR	NR	NR	0
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
DOD		1.000	0	0	0	0	NR	0
FUDS		1.000	0	0	0	0	NR	0
LUCIS		0.500	0	0	0	NR	NR	0
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
UMTRA		0.500	0	0	0	NR	NR	0
DEBRIS REGION 9		0.500	0	0	0	NR	NR	0
ODI		0.500	0	0	0	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
HIST FTTS		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
ICIS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
RADINFO		TP	NR	NR	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
SCRD DRYCLEANERS		0.500	0	0	0	NR	NR	0
STATE AND LOCAL RECORDS								
HIST Cal-Sites		1.000	0	0	0	0	NR	0
CA BOND EXP. PLAN		1.000	0	0	0	0	NR	0
SCH		0.250	0	0	NR	NR	NR	0
Toxic Pits		1.000	0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
SWF/LF		0.500	0	0	0	NR	NR	0
WMUDS/SWAT		0.500	0	0	0	NR	NR	0
CA WDS		TP	NR	NR	NR	NR	NR	0
Cortese		0.500	0	0	0	NR	NR	0
SWRCY		0.500	0	0	0	NR	NR	0
LUST		0.500	0	0	0	NR	NR	0
CA FID UST		0.250	0	0	NR	NR	NR	0
SLIC		0.500	0	0	0	NR	NR	0
UST		0.250	0	0	NR	NR	NR	0
HIST UST		0.250	0	0	NR	NR	NR	0
AST		0.250	0	0	NR	NR	NR	0
LIENS		TP	NR	NR	NR	NR	NR	0
SWEEPS UST		0.250	0	0	NR	NR	NR	0
CHMIRS		TP	NR	NR	NR	NR	NR	0
Notify 65		1.000	0	0	0	0	NR	0
DEED		0.500	0	0	0	NR	NR	0
VCP		0.500	0	0	0	NR	NR	0
DRYCLEANERS		0.250	0	0	NR	NR	NR	0
WIP		0.250	0	0	NR	NR	NR	0
CDL		TP	NR	NR	NR	NR	NR	0
RESPONSE		1.000	0	0	0	0	NR	0
HAZNET		TP	NR	NR	NR	NR	NR	0
EMI		TP	NR	NR	NR	NR	NR	0
HAULERS		TP	NR	NR	NR	NR	NR	0
ENVIROSTOR		1.000	0	0	0	0	NR	0
TRIBAL RECORDS								
INDIAN RESERV		1.000	0	0	0	0	NR	0
INDIAN ODI		0.500	0	0	0	NR	NR	0
INDIAN LUST		0.500	0	0	0	NR	NR	0
INDIAN UST		0.250	0	0	NR	NR	NR	0
INDIAN VCP		0.500	0	0	0	NR	NR	0
EDR PROPRIETARY RECORDS								
Manufactured Gas Plants		1.000	0	0	0	0	NR	0
EDR Historical Auto Stations		0.250	0	0	NR	NR	NR	0
EDR Historical Cleaners		0.250	0	0	NR	NR	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

MAP FINDINGS

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number

NO SITES FOUND

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
MOJAVE	1000857527	CALTRANS CACHE CREEK BRIDGE	BR #50-201L P M R107.6 HWY 58	93501	RCRA-SQG, FINDS, HAZNET
MOJAVE	S102426217	CALTRANS MOJAVE MAINTENANCE	HWY 14	93501	LUST
MOJAVE	S106930073	OASIS	16900 HIGHWAY 14	93501	SWEEPS UST
MOJAVE	S109118078	TOMRA PACIFIC INC	16825 HWY 14	93501	SWRCY
MOJAVE	S109118101	NEXCYCLE	16890 HIGHWAY 14	93501	SWRCY
MOJAVE	U003879720	OASIS CENTER	16825 HWY 14	93501	UST
MOJAVE	U003981688	GIANT TRUCK STOP OF MOJAVE	16600 HWY 14	93501	UST
MOJAVE	U004113451	LEONARD CONSTRUCTION	HWY 14 & HWY 58	93501	UST
MOJAVE	U004113894	RSI CARDLOCK	15800 HWY 14 (SIERRA HWY	93501	UST
MOJAVE	U004113897	OASIS CLUB INC	16825 HWY 14	93501	UST
MOJAVE	U004113898	LA DEPT OF WATER AND POWER MOJAVE	17031 HIGHWAY 14	93501	UST
MOJAVE	S106027443	CALIFORNIA HIGHWAY PATROL	1365 HIGHWAY 58	93501	CA FID UST, SWEEPS UST
MOJAVE	S106027449	FIRE STATION #14	1953 HIGHWAY 58	93501	CA FID UST, SWEEPS UST
MOJAVE	U003731285	AT AND T (CAO580)	HWY 58 9 MI E OF MOJAVE	93501	UST
MOJAVE	U003939704	FASTRIP #38	2350 HWY 58	93501	UST
MOJAVE	U003981691	PRICE SAVERS TRUCK STOP	2001 HWY 58	93501	UST
MOJAVE	U004113231	SHAHNAZ ENT	1155 HWY 58	93501	UST
MOJAVE	U004113441	KERN COUNTY FIRE DEPT STATION 14	1953 HWY 58	93501	UST
MOJAVE	U004113445	CALIF HWY PATROL-MOJAVE	1365 HWY 58	93501	UST
MOJAVE	U004113452	MR. LEE PULSIPHER	1875 HWY 58	93501	UST
MOJAVE	U004113874	AT T/PACIFIC BELL(CA7004)	HWY 58 9 MI E OF MOJAVE	93501	UST
MOJAVE	U004113896	PRICE SAVERS TRUCK STOP/RAPID LUBE	2001 HWY 58	93501	UST
MOJAVE	U004113901	FASTRIP FOOD STORE #38	2350 HWY 58	93501	UST
MOJAVE	S106927719	JAMIESON HILL STATION #703	SE CORNER HWY 58 / 14	93501	SWEEPS UST
MOJAVE	1003879873	MOJAVE BURN DUMP	2M S OF HWY 58/2M E OF MOJAVE	93501	CERC-NFRAP
MOJAVE	U003940331	LA DEPT OF WATER & POWER	17031 SIERRA HWY (HWY 14)	93501	UST
MOJAVE	U003981372	MOJAVE SHELL	16048 SIERRA HWY (HWY 14)	93501	UST
MOJAVE	U003981451	MOJAVE CHEVRON #91095	15800 SIERRA HWY (HWY 14)	93501	UST
MOJAVE	U004113437	MOJAVE STATION	15887 N SIERRA HWY	93501	UST
MOJAVE	U004113890	MOJAVE SHELL	16048 SIERRA HWY (HWY 14)	93501	UST
MOJAVE	U004113892	SPEEDWAY TRAVEL CENTER	16660 SIERRA HWY	93501	UST
MOJAVE	1000131928	A&W SMELTER AND REFINERS	SILVER QUEEN RD	93501	CERCLIS, RCRA-SQG, FINDS, HAZNET, Cortese
MOJAVE	1003879941	VICTORY MILLSITE (A & W SMELTER)	SILVER QUEEN ROAD	93501	CERC-NFRAP
MOJAVE	1003879733	BLM-CACTUS GOLD MINES CO.	STAR RTE 1-BACKUS RD & TEHACHAPI-WILLOW	93501	CERC-NFRAP
MOJAVE	S106926720	GILBERT E. COOK	STAR RT 1 BOX 54E	93501	SWEEPS UST

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

FEDERAL RECORDS

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 08/13/2008
Date Data Arrived at EDR: 08/27/2008
Date Made Active in Reports: 09/23/2008
Number of Days to Update: 27

Source: EPA
Telephone: N/A
Last EDR Contact: 09/29/2008
Next Scheduled EDR Contact: 10/27/2008
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 10
Telephone 206-553-8665

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 04/30/2008
Date Data Arrived at EDR: 05/06/2008
Date Made Active in Reports: 06/09/2008
Number of Days to Update: 34

Source: EPA
Telephone: N/A
Last EDR Contact: 08/27/2008
Next Scheduled EDR Contact: 10/27/2008
Data Release Frequency: Quarterly

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 08/14/2008
Date Data Arrived at EDR: 08/27/2008
Date Made Active in Reports: 09/23/2008
Number of Days to Update: 27

Source: EPA
Telephone: N/A
Last EDR Contact: 09/29/2008
Next Scheduled EDR Contact: 10/27/2008
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/18/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: No Update Planned

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 07/09/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 08/25/2008
Number of Days to Update: 34

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 09/19/2008
Next Scheduled EDR Contact: 12/15/2008
Data Release Frequency: Quarterly

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 12/03/2007
Date Data Arrived at EDR: 12/06/2007
Date Made Active in Reports: 02/20/2008
Number of Days to Update: 76

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 09/15/2008
Next Scheduled EDR Contact: 12/15/2008
Data Release Frequency: Quarterly

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 08/19/2008
Date Data Arrived at EDR: 08/29/2008
Date Made Active in Reports: 09/09/2008
Number of Days to Update: 11

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 08/18/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: Varies

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 06/25/2008
Date Data Arrived at EDR: 06/30/2008
Date Made Active in Reports: 08/25/2008
Number of Days to Update: 56

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/02/2008
Next Scheduled EDR Contact: 12/01/2008
Data Release Frequency: Quarterly

RCRA-TSDF: RCRA - Transporters, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 08/20/2008
Date Data Arrived at EDR: 08/21/2008
Date Made Active in Reports: 09/09/2008
Number of Days to Update: 19

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/23/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: Quarterly

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 08/20/2008
Date Data Arrived at EDR: 08/21/2008
Date Made Active in Reports: 09/09/2008
Number of Days to Update: 19

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/23/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 08/20/2008
Date Data Arrived at EDR: 08/21/2008
Date Made Active in Reports: 09/09/2008
Number of Days to Update: 19

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/23/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 08/20/2008
Date Data Arrived at EDR: 08/21/2008
Date Made Active in Reports: 09/09/2008
Number of Days to Update: 19

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/23/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: Varies

RCRA-NonGen: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 08/20/2008
Date Data Arrived at EDR: 08/21/2008
Date Made Active in Reports: 09/09/2008
Number of Days to Update: 19

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/23/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 07/23/2008
Date Data Arrived at EDR: 07/29/2008
Date Made Active in Reports: 08/25/2008
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 09/29/2008
Next Scheduled EDR Contact: 12/29/2008
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 07/23/2008
Date Data Arrived at EDR: 07/29/2008
Date Made Active in Reports: 08/25/2008
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 06/30/2008
Next Scheduled EDR Contact: 09/29/2008
Data Release Frequency: Varies

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 01/23/2008
Date Made Active in Reports: 03/17/2008
Number of Days to Update: 54

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 07/25/2008
Next Scheduled EDR Contact: 10/20/2008
Data Release Frequency: Annually

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 04/30/2008
Date Data Arrived at EDR: 07/15/2008
Date Made Active in Reports: 08/25/2008
Number of Days to Update: 41

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 07/15/2008
Next Scheduled EDR Contact: 10/13/2008
Data Release Frequency: Annually

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 05/14/2008
Date Data Arrived at EDR: 05/28/2008
Date Made Active in Reports: 08/08/2008
Number of Days to Update: 72

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 08/29/2008
Next Scheduled EDR Contact: 11/24/2008
Data Release Frequency: Varies

CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 12/28/2007
Number of Days to Update: 25

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 09/23/2008
Next Scheduled EDR Contact: 12/22/2008
Data Release Frequency: Quarterly

US BROWNFIELDS: A Listing of Brownfields Sites

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 08/25/2008
Date Made Active in Reports: 09/09/2008
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 07/15/2008
Next Scheduled EDR Contact: 10/13/2008
Data Release Frequency: Semi-Annually

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 703-692-8801
Last EDR Contact: 08/08/2008
Next Scheduled EDR Contact: 11/03/2008
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 09/05/2008
Date Made Active in Reports: 09/23/2008
Number of Days to Update: 18

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 09/05/2008
Next Scheduled EDR Contact: 12/29/2008
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 09/09/2008
Next Scheduled EDR Contact: 12/08/2008
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 04/25/2008
Date Data Arrived at EDR: 06/12/2008
Date Made Active in Reports: 08/25/2008
Number of Days to Update: 74

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 07/21/2008
Next Scheduled EDR Contact: 10/20/2008
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 06/18/2008
Date Data Arrived at EDR: 07/11/2008
Date Made Active in Reports: 08/25/2008
Number of Days to Update: 45

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 09/29/2008
Next Scheduled EDR Contact: 12/29/2008
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 07/13/2007
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 09/15/2008
Next Scheduled EDR Contact: 12/15/2008
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 03/25/2008
Date Data Arrived at EDR: 04/17/2008
Date Made Active in Reports: 05/15/2008
Number of Days to Update: 28

Source: EPA, Region 9
Telephone: 415-972-3336
Last EDR Contact: 09/22/2008
Next Scheduled EDR Contact: 12/22/2008
Data Release Frequency: Varies

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 05/28/2008
Date Data Arrived at EDR: 06/25/2008
Date Made Active in Reports: 08/25/2008
Number of Days to Update: 61

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 09/23/2008
Next Scheduled EDR Contact: 12/22/2008
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 09/19/2008
Next Scheduled EDR Contact: 12/15/2008
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2002
Date Data Arrived at EDR: 04/14/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 46

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 10/14/2008
Next Scheduled EDR Contact: 01/12/2009
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/12/2008
Date Data Arrived at EDR: 07/18/2008
Date Made Active in Reports: 08/25/2008
Number of Days to Update: 38

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 09/15/2008
Next Scheduled EDR Contact: 12/15/2008
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 07/12/2008
Date Data Arrived at EDR: 07/18/2008
Date Made Active in Reports: 08/25/2008
Number of Days to Update: 38

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 09/15/2008
Next Scheduled EDR Contact: 12/15/2008
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 03/14/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 10/14/2008
Next Scheduled EDR Contact: 01/12/2009
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/31/2008
Date Data Arrived at EDR: 08/13/2008
Date Made Active in Reports: 09/09/2008
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 10/14/2008
Next Scheduled EDR Contact: 01/12/2009
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 12/04/2007
Date Data Arrived at EDR: 02/07/2008
Date Made Active in Reports: 03/17/2008
Number of Days to Update: 39

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 09/18/2008
Next Scheduled EDR Contact: 11/03/2008
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/08/2008
Date Data Arrived at EDR: 08/05/2008
Date Made Active in Reports: 08/25/2008
Number of Days to Update: 20

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 09/29/2008
Next Scheduled EDR Contact: 12/29/2008
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/29/2008
Date Data Arrived at EDR: 07/31/2008
Date Made Active in Reports: 08/25/2008
Number of Days to Update: 25

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 07/31/2008
Next Scheduled EDR Contact: 10/27/2008
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/09/2008
Date Made Active in Reports: 08/25/2008
Number of Days to Update: 47

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 09/29/2008
Next Scheduled EDR Contact: 12/29/2008
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/06/2007
Date Made Active in Reports: 04/13/2007
Number of Days to Update: 38

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 09/12/2008
Next Scheduled EDR Contact: 12/08/2008
Data Release Frequency: Biennially

SCRD DRYCLEANERS: State Coalition for Redediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 09/08/2008
Date Data Arrived at EDR: 09/10/2008
Date Made Active in Reports: 09/23/2008
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 08/25/2008
Next Scheduled EDR Contact: 11/10/2008
Data Release Frequency: Varies

STATE AND LOCAL RECORDS

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 08/25/2008
Next Scheduled EDR Contact: 11/24/2008
Data Release Frequency: No Update Planned

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 08/25/2008
Date Data Arrived at EDR: 08/27/2008
Date Made Active in Reports: 09/03/2008
Number of Days to Update: 7

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/27/2008
Next Scheduled EDR Contact: 11/24/2008
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 07/28/2008
Next Scheduled EDR Contact: 10/27/2008
Data Release Frequency: No Update Planned

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 09/08/2008
Date Data Arrived at EDR: 09/09/2008
Date Made Active in Reports: 09/18/2008
Number of Days to Update: 9

Source: Integrated Waste Management Board
Telephone: 916-341-6320
Last EDR Contact: 09/09/2008
Next Scheduled EDR Contact: 12/08/2008
Data Release Frequency: Quarterly

CA WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 09/29/2008
Next Scheduled EDR Contact: 12/15/2008
Data Release Frequency: Quarterly

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 10/14/2008
Next Scheduled EDR Contact: 12/01/2008
Data Release Frequency: Quarterly

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites). This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 05/29/2001
Date Made Active in Reports: 07/26/2001
Number of Days to Update: 58

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 07/21/2008
Next Scheduled EDR Contact: 10/20/2008
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 07/09/2008
Date Data Arrived at EDR: 07/10/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 21

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 10/08/2008
Next Scheduled EDR Contact: 01/05/2009
Data Release Frequency: Quarterly

LUST: Geotracker's Leaking Underground Fuel Tank Report
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 07/03/2008
Date Data Arrived at EDR: 07/11/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 20

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 10/07/2008
Next Scheduled EDR Contact: 01/05/2009
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/18/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 10/06/2008
Next Scheduled EDR Contact: 01/05/2009
Data Release Frequency: Quarterly

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 08/11/2008
Next Scheduled EDR Contact: 11/10/2008
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/23/2008
Next Scheduled EDR Contact: 12/22/2008
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/22/2008
Next Scheduled EDR Contact: 10/20/2008
Data Release Frequency: Quarterly

LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/02/2008
Next Scheduled EDR Contact: 12/01/2008
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/29/2008
Next Scheduled EDR Contact: 12/29/2008
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/18/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 10/14/2008
Next Scheduled EDR Contact: 01/12/2009
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/04/2008
Next Scheduled EDR Contact: 11/03/2008
Data Release Frequency: Varies

CA FID UST: Facility Inventory Database
The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SLIC: Statewide SLIC Cases
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 07/03/2008
Date Data Arrived at EDR: 07/11/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 20

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 10/07/2008
Next Scheduled EDR Contact: 01/05/2009
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/18/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 10/06/2008
Next Scheduled EDR Contact: 01/05/2009
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 08/11/2008
Next Scheduled EDR Contact: 11/10/2008
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/21/2008
Next Scheduled EDR Contact: 10/20/2008
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/29/2008
Next Scheduled EDR Contact: 12/29/2008
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 09/29/2008
Next Scheduled EDR Contact: 12/29/2008
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 09/02/2008
Next Scheduled EDR Contact: 12/01/2008
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/18/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/29/2008
Next Scheduled EDR Contact: 12/29/2008
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/25/2008
Next Scheduled EDR Contact: 11/24/2008
Data Release Frequency: Annually

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 07/10/2008
Date Data Arrived at EDR: 07/10/2008
Date Made Active in Reports: 07/25/2008
Number of Days to Update: 15

Source: SWRCB
Telephone: 916-480-1028
Last EDR Contact: 10/07/2008
Next Scheduled EDR Contact: 01/05/2009
Data Release Frequency: Semi-Annually

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 06/23/2008
Date Data Arrived at EDR: 06/23/2008
Date Made Active in Reports: 07/02/2008
Number of Days to Update: 9

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 10/06/2008
Next Scheduled EDR Contact: 12/22/2008
Data Release Frequency: Varies

HIST UST: Hazardous Substance Storage Container Database
The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

AST: Aboveground Petroleum Storage Tank Facilities
Registered Aboveground Storage Tanks.

Date of Government Version: 11/01/2007
Date Data Arrived at EDR: 11/27/2007
Date Made Active in Reports: 02/14/2008
Number of Days to Update: 79

Source: State Water Resources Control Board
Telephone: 916-341-5712
Last EDR Contact: 07/28/2008
Next Scheduled EDR Contact: 10/27/2008
Data Release Frequency: Quarterly

LIENS: Environmental Liens Listing
A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 08/04/2008
Date Data Arrived at EDR: 08/08/2008
Date Made Active in Reports: 09/03/2008
Number of Days to Update: 26

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/04/2008
Next Scheduled EDR Contact: 11/03/2008
Data Release Frequency: Varies

SWEEPS UST: SWEEPS UST Listing
Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 05/09/2008
Date Made Active in Reports: 06/20/2008
Number of Days to Update: 42

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 08/18/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: Varies

NOTIFY 65: Proposition 65 Records

Proposition 65 Notification Records. NOTIFY 65 contains facility notifications about any release which could impact drinking water and thereby expose the public to a potential health risk.

Date of Government Version: 10/21/1993
Date Data Arrived at EDR: 11/01/1993
Date Made Active in Reports: 11/19/1993
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 10/14/2008
Next Scheduled EDR Contact: 01/12/2009
Data Release Frequency: No Update Planned

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 09/30/2008
Date Data Arrived at EDR: 09/30/2008
Date Made Active in Reports: 10/13/2008
Number of Days to Update: 13

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 09/30/2008
Next Scheduled EDR Contact: 12/29/2008
Data Release Frequency: Semi-Annually

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 08/25/2008
Date Data Arrived at EDR: 08/27/2008
Date Made Active in Reports: 09/03/2008
Number of Days to Update: 7

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/27/2008
Next Scheduled EDR Contact: 11/24/2008
Data Release Frequency: Quarterly

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 09/23/2008
Date Data Arrived at EDR: 09/24/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 5

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 09/23/2008
Next Scheduled EDR Contact: 12/29/2008
Data Release Frequency: Annually

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 02/26/2008
Date Data Arrived at EDR: 04/23/2008
Date Made Active in Reports: 05/06/2008
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 07/25/2008
Next Scheduled EDR Contact: 10/20/2008
Data Release Frequency: Varies

CDL: Clandestine Drug Labs
A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 09/30/2008
Date Data Arrived at EDR: 10/06/2008
Date Made Active in Reports: 10/13/2008
Number of Days to Update: 7

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 09/29/2008
Next Scheduled EDR Contact: 10/20/2008
Data Release Frequency: Varies

RESPONSE: State Response Sites
Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 08/25/2008
Date Data Arrived at EDR: 08/27/2008
Date Made Active in Reports: 09/03/2008
Number of Days to Update: 7

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/27/2008
Next Scheduled EDR Contact: 11/24/2008
Data Release Frequency: Quarterly

HAZNET: Facility and Manifest Data
Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 10/04/2007
Date Made Active in Reports: 11/07/2007
Number of Days to Update: 34

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 08/08/2008
Next Scheduled EDR Contact: 11/03/2008
Data Release Frequency: Annually

EMI: Emissions Inventory Data
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 04/17/2007
Date Made Active in Reports: 05/10/2007
Number of Days to Update: 23

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 04/18/2008
Next Scheduled EDR Contact: 07/14/2008
Data Release Frequency: Varies

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 09/22/2008
Date Data Arrived at EDR: 09/22/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 7

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 09/08/2008
Next Scheduled EDR Contact: 12/08/2008
Data Release Frequency: Varies

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 08/25/2008
Date Data Arrived at EDR: 08/27/2008
Date Made Active in Reports: 09/03/2008
Number of Days to Update: 7

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/27/2008
Next Scheduled EDR Contact: 11/24/2008
Data Release Frequency: Quarterly

TRIBAL RECORDS

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 08/08/2008
Next Scheduled EDR Contact: 11/03/2008
Data Release Frequency: Semi-Annually

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 08/25/2008
Next Scheduled EDR Contact: 11/24/2008
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/21/2008
Date Data Arrived at EDR: 09/04/2008
Date Made Active in Reports: 09/09/2008
Number of Days to Update: 5

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 08/18/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 03/17/2008
Date Data Arrived at EDR: 03/27/2008
Date Made Active in Reports: 05/06/2008
Number of Days to Update: 40

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 08/18/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 03/17/2008
Date Data Arrived at EDR: 03/27/2008
Date Made Active in Reports: 05/06/2008
Number of Days to Update: 40

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 08/18/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 03/12/2008
Date Data Arrived at EDR: 03/14/2008
Date Made Active in Reports: 03/20/2008
Number of Days to Update: 6

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/18/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 07/11/2008
Date Data Arrived at EDR: 07/11/2008
Date Made Active in Reports: 08/08/2008
Number of Days to Update: 28

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 08/18/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 08/22/2008
Date Data Arrived at EDR: 08/22/2008
Date Made Active in Reports: 09/09/2008
Number of Days to Update: 18

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 08/18/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: Quarterly

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 09/05/2008
Date Data Arrived at EDR: 09/05/2008
Date Made Active in Reports: 09/23/2008
Number of Days to Update: 18

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 08/18/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land
A listing of underground storage tank locations on Indian Land.

Date of Government Version: 03/12/2008
Date Data Arrived at EDR: 03/14/2008
Date Made Active in Reports: 03/20/2008
Number of Days to Update: 6

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/18/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
No description is available for this data

Date of Government Version: 03/17/2008
Date Data Arrived at EDR: 03/27/2008
Date Made Active in Reports: 05/06/2008
Number of Days to Update: 40

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 08/18/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land
No description is available for this data

Date of Government Version: 12/21/2007
Date Data Arrived at EDR: 12/21/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 34

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 08/18/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land
No description is available for this data

Date of Government Version: 09/05/2008
Date Data Arrived at EDR: 09/05/2008
Date Made Active in Reports: 09/23/2008
Number of Days to Update: 18

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 08/18/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: Semi-Annually

INDIAN UST R7: Underground Storage Tanks on Indian Land
No description is available for this data

Date of Government Version: 06/01/2007
Date Data Arrived at EDR: 06/14/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 21

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 08/18/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land
No description is available for this data

Date of Government Version: 08/21/2008
Date Data Arrived at EDR: 09/04/2008
Date Made Active in Reports: 09/09/2008
Number of Days to Update: 5

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 08/18/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land
No description is available for this data

Date of Government Version: 07/11/2008
Date Data Arrived at EDR: 07/11/2008
Date Made Active in Reports: 08/08/2008
Number of Days to Update: 28

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 08/18/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land
No description is available for this data

Date of Government Version: 08/22/2008
Date Data Arrived at EDR: 08/22/2008
Date Made Active in Reports: 09/09/2008
Number of Days to Update: 18

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 08/18/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 04/02/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 07/21/2008
Next Scheduled EDR Contact: 10/20/2008
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 07/21/2008
Next Scheduled EDR Contact: 10/20/2008
Data Release Frequency: Varies

EDR PROPRIETARY RECORDS

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Historical Auto Stations: EDR Proprietary Historic Gas Stations
EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Historical Cleaners: EDR Proprietary Historic Dry Cleaners
EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites
A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 08/21/2008
Date Data Arrived at EDR: 08/22/2008
Date Made Active in Reports: 09/03/2008
Number of Days to Update: 12

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 08/20/2008
Next Scheduled EDR Contact: 10/20/2008
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 08/21/2008
Date Data Arrived at EDR: 08/22/2008
Date Made Active in Reports: 08/29/2008
Number of Days to Update: 7

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 08/20/2008
Next Scheduled EDR Contact: 10/20/2008
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

Site List

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 09/03/2008
Date Data Arrived at EDR: 09/04/2008
Date Made Active in Reports: 09/18/2008
Number of Days to Update: 14

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 08/25/2008
Next Scheduled EDR Contact: 11/24/2008
Data Release Frequency: Semi-Annually

FRESNO COUNTY:

CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 08/07/2008
Date Data Arrived at EDR: 08/08/2008
Date Made Active in Reports: 09/03/2008
Number of Days to Update: 26

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 08/04/2008
Next Scheduled EDR Contact: 11/03/2008
Data Release Frequency: Semi-Annually

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing

Kern County Sites and Tanks Listing.

Date of Government Version: 09/15/2008
Date Data Arrived at EDR: 09/16/2008
Date Made Active in Reports: 10/01/2008
Number of Days to Update: 15

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 09/15/2008
Next Scheduled EDR Contact: 12/01/2008
Data Release Frequency: Quarterly

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 07/07/1999
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 10/14/2008
Next Scheduled EDR Contact: 01/12/2009
Data Release Frequency: No Update Planned

HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 04/30/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 08/11/2008
Next Scheduled EDR Contact: 11/10/2008
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 08/12/2008
Date Data Arrived at EDR: 08/22/2008
Date Made Active in Reports: 09/03/2008
Number of Days to Update: 12

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 08/13/2008
Next Scheduled EDR Contact: 11/10/2008
Data Release Frequency: Varies

City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/01/2008
Date Data Arrived at EDR: 03/20/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 25

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 09/08/2008
Next Scheduled EDR Contact: 12/08/2008
Data Release Frequency: Varies

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 02/14/2008
Date Data Arrived at EDR: 04/10/2008
Date Made Active in Reports: 05/06/2008
Number of Days to Update: 26

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 08/11/2008
Next Scheduled EDR Contact: 11/10/2008
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 05/27/2008
Date Data Arrived at EDR: 06/10/2008
Date Made Active in Reports: 07/02/2008
Number of Days to Update: 22

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 09/10/2008
Next Scheduled EDR Contact: 11/10/2008
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/28/2003
Date Data Arrived at EDR: 10/23/2003
Date Made Active in Reports: 11/26/2003
Number of Days to Update: 34

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 08/18/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 08/26/2008
Date Data Arrived at EDR: 09/11/2008
Date Made Active in Reports: 10/01/2008
Number of Days to Update: 20

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 09/10/2008
Next Scheduled EDR Contact: 11/10/2008
Data Release Frequency: Semi-Annually

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 08/04/2008
Date Data Arrived at EDR: 08/29/2008
Date Made Active in Reports: 09/15/2008
Number of Days to Update: 17

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 07/28/2008
Next Scheduled EDR Contact: 10/27/2008
Data Release Frequency: Semi-Annually

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 07/09/2008
Date Data Arrived at EDR: 07/09/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 22

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 09/22/2008
Next Scheduled EDR Contact: 12/22/2008
Data Release Frequency: Semi-Annually

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 09/22/2008
Next Scheduled EDR Contact: 12/22/2008
Data Release Frequency: Annually

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 09/02/2008
Date Data Arrived at EDR: 09/16/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 13

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 09/04/2008
Next Scheduled EDR Contact: 12/01/2008
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 09/02/2008
Date Data Arrived at EDR: 09/17/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 12

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 09/04/2008
Next Scheduled EDR Contact: 12/01/2008
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 09/02/2008
Date Data Arrived at EDR: 09/25/2008
Date Made Active in Reports: 10/01/2008
Number of Days to Update: 6

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 09/04/2008
Next Scheduled EDR Contact: 12/01/2008
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 07/23/2007
Date Data Arrived at EDR: 07/23/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 17

Source: Placer County Health and Human Services
Telephone: 530-889-7312
Last EDR Contact: 09/15/2008
Next Scheduled EDR Contact: 12/15/2008
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 07/15/2008
Date Data Arrived at EDR: 07/18/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 13

Source: Department of Public Health
Telephone: 951-358-5055
Last EDR Contact: 10/14/2008
Next Scheduled EDR Contact: 01/12/2009
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 07/02/2008
Date Data Arrived at EDR: 07/29/2008
Date Made Active in Reports: 08/29/2008
Number of Days to Update: 31

Source: Health Services Agency
Telephone: 951-358-5055
Last EDR Contact: 10/14/2008
Next Scheduled EDR Contact: 01/12/2009
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Contaminated Sites
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 08/08/2008
Date Data Arrived at EDR: 08/08/2008
Date Made Active in Reports: 09/03/2008
Number of Days to Update: 26

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 07/28/2008
Next Scheduled EDR Contact: 10/27/2008
Data Release Frequency: Quarterly

ML - Regulatory Compliance Master List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 08/08/2008
Date Data Arrived at EDR: 08/08/2008
Date Made Active in Reports: 09/03/2008
Number of Days to Update: 26

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 07/28/2008
Next Scheduled EDR Contact: 10/27/2008
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 10/01/2008
Date Data Arrived at EDR: 10/06/2008
Date Made Active in Reports: 10/13/2008
Number of Days to Update: 7

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 09/02/2008
Next Scheduled EDR Contact: 12/01/2008
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 05/16/2005
Date Data Arrived at EDR: 05/18/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 29

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 10/02/2008
Next Scheduled EDR Contact: 12/29/2008
Data Release Frequency: Quarterly

Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 08/01/2007
Date Data Arrived at EDR: 02/05/2008
Date Made Active in Reports: 02/14/2008
Number of Days to Update: 9

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 09/02/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: Varies

Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 06/04/2008
Date Data Arrived at EDR: 07/25/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 6

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 09/30/2008
Next Scheduled EDR Contact: 12/29/2008
Data Release Frequency: Varies

SAN FRANCISCO COUNTY:

Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 09/15/2008
Next Scheduled EDR Contact: 12/01/2008
Data Release Frequency: Quarterly

Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 10/01/2008
Number of Days to Update: 12

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 09/15/2008
Next Scheduled EDR Contact: 12/01/2008
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 08/26/2008
Date Data Arrived at EDR: 08/27/2008
Date Made Active in Reports: 09/15/2008
Number of Days to Update: 19

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 10/14/2008
Next Scheduled EDR Contact: 01/12/2009
Data Release Frequency: Semi-Annually

SAN MATEO COUNTY:

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 06/18/2008
Date Data Arrived at EDR: 06/18/2008
Date Made Active in Reports: 06/20/2008
Number of Days to Update: 2

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 10/06/2008
Next Scheduled EDR Contact: 01/05/2009
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 10/06/2008
Date Data Arrived at EDR: 10/07/2008
Date Made Active in Reports: 10/13/2008
Number of Days to Update: 6

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 10/06/2008
Next Scheduled EDR Contact: 01/05/2009
Data Release Frequency: Semi-Annually

SANTA CLARA COUNTY:

HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 09/22/2008
Next Scheduled EDR Contact: 12/22/2008
Data Release Frequency: No Update Planned

LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 09/24/2008
Date Data Arrived at EDR: 09/25/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 4

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 09/22/2008
Next Scheduled EDR Contact: 12/22/2008
Data Release Frequency: Varies

Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 09/02/2008
Date Data Arrived at EDR: 09/04/2008
Date Made Active in Reports: 09/18/2008
Number of Days to Update: 14

Source: City of San Jose Fire Department
Telephone: 408-277-4659
Last EDR Contact: 09/02/2008
Next Scheduled EDR Contact: 12/01/2008
Data Release Frequency: Annually

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 09/22/2008
Date Data Arrived at EDR: 10/06/2008
Date Made Active in Reports: 10/13/2008
Number of Days to Update: 7

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 09/22/2008
Next Scheduled EDR Contact: 12/22/2008
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 06/22/2008
Date Data Arrived at EDR: 07/03/2008
Date Made Active in Reports: 07/25/2008
Number of Days to Update: 22

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 09/22/2008
Next Scheduled EDR Contact: 12/22/2008
Data Release Frequency: Quarterly

SONOMA COUNTY:

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 07/21/2008
Next Scheduled EDR Contact: 10/20/2008
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 05/04/2007
Date Data Arrived at EDR: 05/04/2007
Date Made Active in Reports: 05/24/2007
Number of Days to Update: 20

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 09/29/2008
Next Scheduled EDR Contact: 12/29/2008
Data Release Frequency: Semi-Annually

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 09/10/2008
Next Scheduled EDR Contact: 12/08/2008
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 08/01/2008
Date Data Arrived at EDR: 09/04/2008
Date Made Active in Reports: 09/18/2008
Number of Days to Update: 14

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/18/2008
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 09/09/2008
Next Scheduled EDR Contact: 09/08/2008
Data Release Frequency: Quarterly

Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 06/27/2008
Date Data Arrived at EDR: 07/11/2008
Date Made Active in Reports: 07/25/2008
Number of Days to Update: 14

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 10/08/2008
Next Scheduled EDR Contact: 01/05/2009
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 08/11/2008
Date Data Arrived at EDR: 08/29/2008
Date Made Active in Reports: 09/15/2008
Number of Days to Update: 17

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 10/14/2008
Next Scheduled EDR Contact: 01/12/2009
Data Release Frequency: Annually

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 06/15/2007
Date Made Active in Reports: 08/20/2007
Number of Days to Update: 66

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 09/12/2008
Next Scheduled EDR Contact: 12/08/2008
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 09/30/2007
Date Data Arrived at EDR: 12/04/2007
Date Made Active in Reports: 12/31/2007
Number of Days to Update: 27

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 08/08/2008
Next Scheduled EDR Contact: 11/03/2008
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 07/23/2008
Date Data Arrived at EDR: 08/28/2008
Date Made Active in Reports: 09/11/2008
Number of Days to Update: 14

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 08/28/2008
Next Scheduled EDR Contact: 11/24/2008
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 09/11/2008
Date Made Active in Reports: 10/02/2008
Number of Days to Update: 21

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 09/08/2008
Next Scheduled EDR Contact: 12/08/2008
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 06/03/2008
Date Made Active in Reports: 08/07/2008
Number of Days to Update: 65

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 09/15/2008
Next Scheduled EDR Contact: 12/15/2008
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 08/22/2008
Date Made Active in Reports: 09/08/2008
Number of Days to Update: 17

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 10/06/2008
Next Scheduled EDR Contact: 01/05/2009
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: PennWell Corporation
Telephone: (800) 823-6277
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

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GEOCHECK®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

PURDY ROAD/PURDY AVENUE
PURDY ROAD/PURDY AVENUE
CALIFORNIA CITY, CA 93501

TARGET PROPERTY COORDINATES

Latitude (North):	35.02507 - 35' 1' 30.3"
Longitude (West):	118.14215 - 118' 8' 31.7"
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	395803.9
UTM Y (Meters):	3876221.8
Elevation:	2644 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	35118-A2 MOJAVE, CA
Most Recent Revision:	1973

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

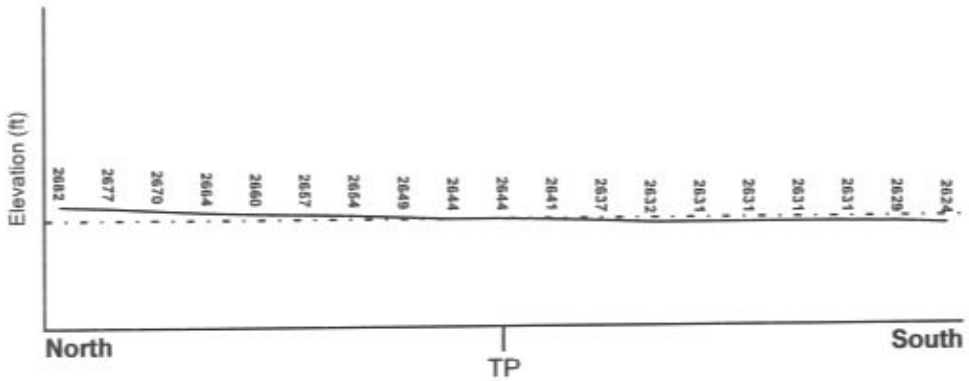
TOPOGRAPHIC INFORMATION

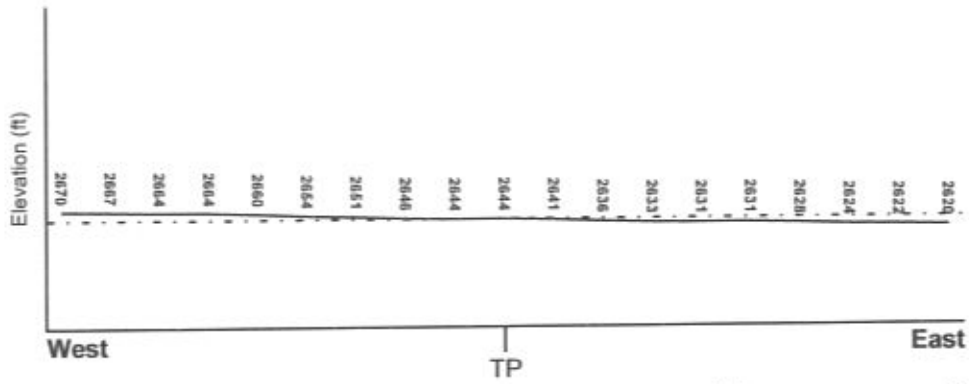
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





Target Property Elevation: 2644 ft.

0 1/2 1 Miles

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
KERN, CA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property:	0600751600C
Additional Panels in search area:	0600751590C 0600751825B

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
MOJAVE	Not Available

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site-specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

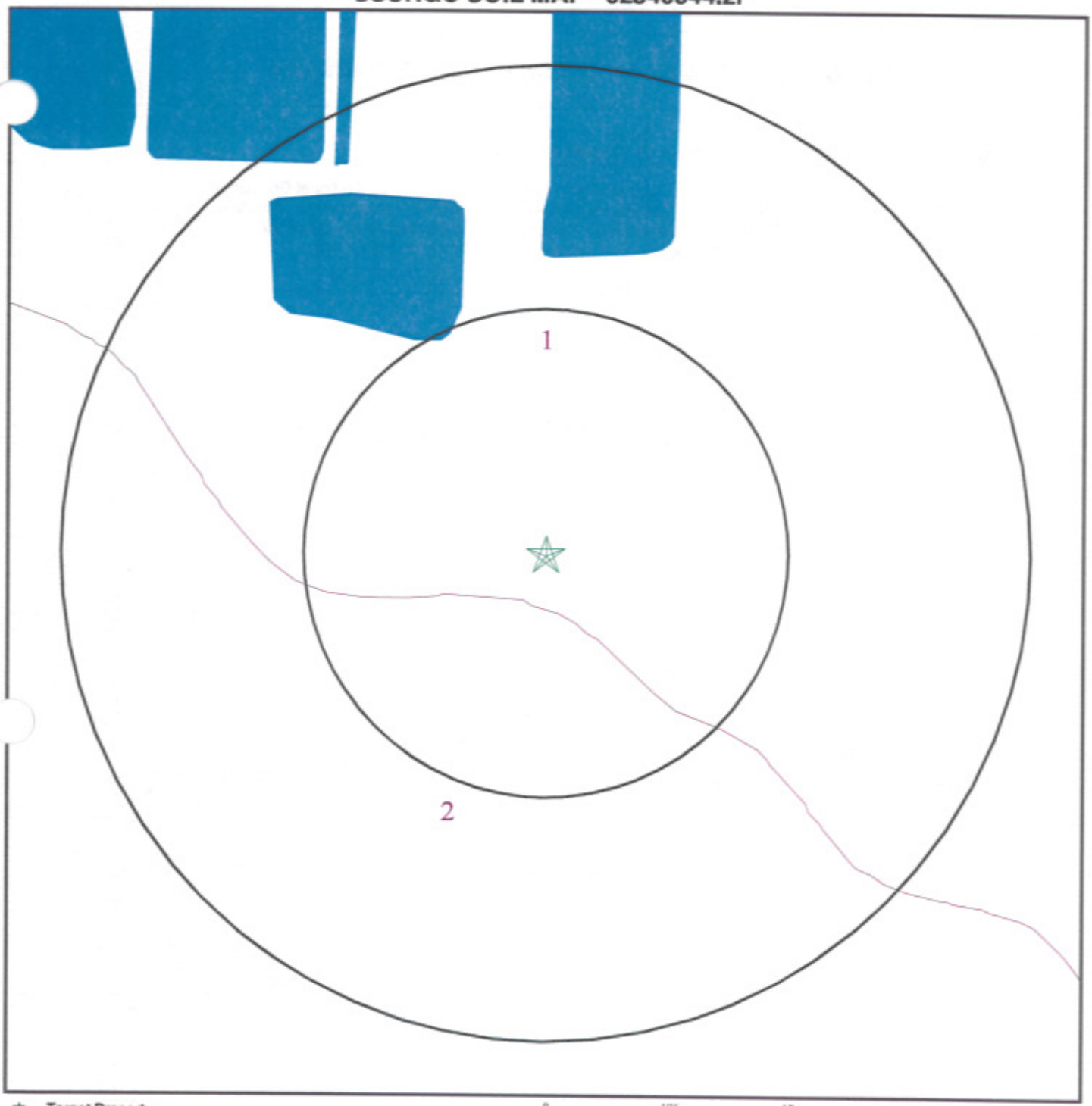
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 02340044.2r



★ Target Property

SSURGO Soil

Water

0 1/16 1/8 1/4 Miles

SITE NAME: Purdy Road/Purdy Avenue ADDRESS: Purdy Road/Purdy Avenue California City CA 93501 LAT/LONG: 35.0251 / 118.1422	CLIENT: ENSR Consulting & Engineering CONTACT: Jonathan Aguayo INQUIRY #: 02340044.2r DATE: October 15, 2008 12:58 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: GARLOCK

Soil Surface Texture:
Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4
2	11 inches	24 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4
3	24 inches	33 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4
4	33 inches	51 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4
5	51 inches	59 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4

Soil Map ID: 2

Soil Component Name: ROSAMOND

Soil Surface Texture:
Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	1 inches		Not reported	Not reported	Max: 14 Min: 4	Max: 8.4 Min: 7.9
2	1 inches	14 inches		Not reported	Not reported	Max: 14 Min: 4	Max: 8.4 Min: 7.9
3	14 inches	59 inches		Not reported	Not reported	Max: 14 Min: 4	Max: 8.4 Min: 7.9

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A3	USGS3162419	1/2 - 1 Mile North
B4	USGS3162423	1/2 - 1 Mile North

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

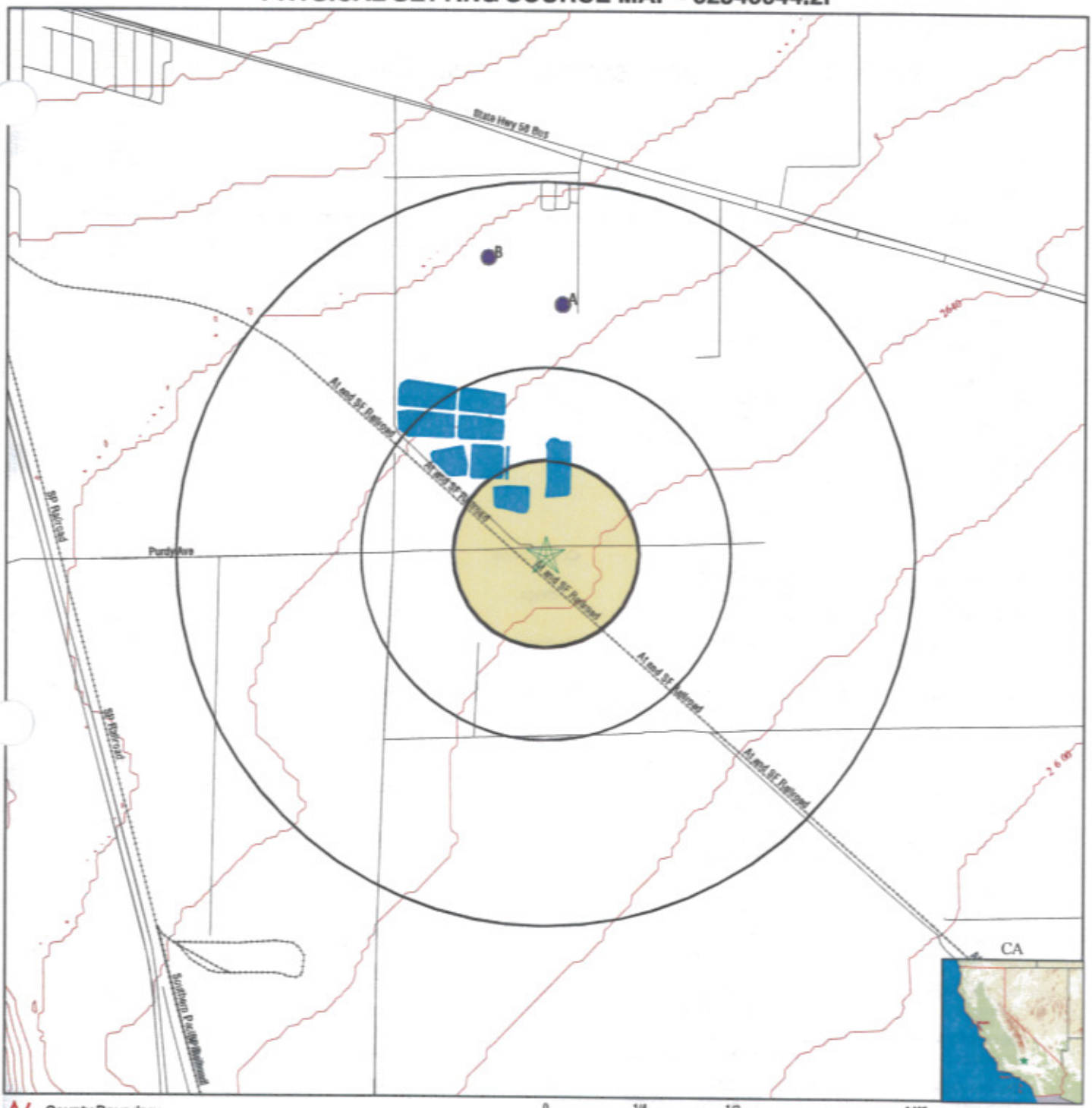
Note: PWS System location is not always the same as well location.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	10430	1/2 - 1 Mile North
A2	CADW20000019133	1/2 - 1 Mile North
B5	CADW20000019145	1/2 - 1 Mile NNW

PHYSICAL SETTING SOURCE MAP - 02340044.2r



County Boundary
Major Roads
Contour Lines
Earthquake Fault Lines
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

0 1/4 1/2 1 Miles

Groundwater Flow Direction
GI Indeterminate Groundwater Flow at Location
GV Groundwater Flow Varies at Location
HD Closest Hydrogeological Data
Oil, gas or related wells

SITE NAME: Purdy Road/Purdy Avenue ADDRESS: Purdy Road/Purdy Avenue California City CA 93501 LAT/LONG: 35.0251 / 118.1422	CLIENT: ENSR Consulting & Engineering CONTACT: Jonathan Aguayo INQUIRY #: 02340044.2r DATE: October 15, 2008 12:58 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
A1 **North** **1/2 - 1 Mile** **Higher**		**CA WELLS**	**10430**

Water System Information:

Prime Station Code:	11N/12W-22F01 S	User ID:	CYA
FRDS Number:	1510014007	County:	Kern
District Number:	12	Station Type:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Water Type:	Well/Groundwater	Well Status:	Standby Treated
Source Lat/Long:	350204.9 1180826.4	Precision:	1,000 Feet (10 Seconds)
Source Name:	WELL 30 - STANDBY - TREATED		
System Number:	1510014		
System Name:	MOJAVE PUD		
Organization That Operates System:	15844 K STREET MOJAVE, CA 93501		
Pop Served:	4500	Connections:	1243
Area Served:	MOJAVE AND VICINITY		
Sample Collected:	12/20/2007 00:00:00	Findings:	4.3 UG/L
Chemical:	ARSENIC		
Sample Collected:	12/04/2007 00:00:00	Findings:	52 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	12/13/2004 00:00:00	Findings:	.97 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	12/13/2004 00:00:00	Findings:	.29 PCI/L
Chemical:	RADIUM 228 COUNTING ERROR		
Sample Collected:	12/13/2004 00:00:00	Findings:	2.4 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	12/13/2004 00:00:00	Findings:	1.04 PCI/L
Chemical:	URANIUM COUNTING ERROR		
Sample Collected:	09/21/2004 00:00:00	Findings:	1.67 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	09/21/2004 00:00:00	Findings:	.92 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	09/21/2004 00:00:00	Findings:	.24 PCI/L
Chemical:	RADIUM 228 COUNTING ERROR		
Sample Collected:	09/21/2004 00:00:00	Findings:	.79 PCI/L
Chemical:	URANIUM COUNTING ERROR		
Sample Collected:	06/15/2004 00:00:00	Findings:	.71 PCI/L
Chemical:	URANIUM COUNTING ERROR		
Sample Collected:	06/15/2004 00:00:00	Findings:	1.19 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	06/15/2004 00:00:00	Findings:	.92 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	06/15/2004 00:00:00	Findings:	.32 PCI/L
Chemical:	RADIUM 228 COUNTING ERROR		
Sample Collected:	06/15/2004 00:00:00	Findings:	1.03 PCI/L
Chemical:	RADIUM 228		
Sample Collected:	06/15/2004 00:00:00	Findings:	.12 PCI/L
Chemical:	RADIUM 226 COUNTING ERROR		

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Sample Collected:	06/15/2004 00:00:00	Findings:	.44 PCI/L
Chemical:	COMBINED RA 226 + RA 228 COUNTING ERROR		
Sample Collected:	03/24/2004 00:00:00	Findings:	1.8 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	03/24/2004 00:00:00	Findings:	.08 PCI/L
Chemical:	RADIUM 226 COUNTING ERROR		
Sample Collected:	03/24/2004 00:00:00	Findings:	.74 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	03/24/2004 00:00:00	Findings:	.23 PCI/L
Chemical:	RADIUM 228 COUNTING ERROR		
Sample Collected:	03/24/2004 00:00:00	Findings:	.76 PCI/L
Chemical:	URANIUM COUNTING ERROR		
Sample Collected:	12/02/2003 00:00:00	Findings:	110 UG/L
Chemical:	BORON		
Sample Collected:	12/02/2003 00:00:00	Findings:	6.5 UG/L
Chemical:	VANADIUM		
Sample Collected:	07/29/2003 00:00:00	Findings:	6.5 UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	07/29/2003 00:00:00	Findings:	10 UG/L
Chemical:	VANADIUM		
Sample Collected:	07/29/2003 00:00:00	Findings:	240 UG/L
Chemical:	BORON		
Sample Collected:	06/04/2003 00:00:00	Findings:	1 UNITS
Chemical:	COLOR		
Sample Collected:	06/04/2003 00:00:00	Findings:	590 US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	06/04/2003 00:00:00	Findings:	8.28
Chemical:	PH, LABORATORY		
Sample Collected:	06/04/2003 00:00:00	Findings:	110 MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	06/04/2003 00:00:00	Findings:	130 MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	06/04/2003 00:00:00	Findings:	2.9 MG/L
Chemical:	CARBONATE ALKALINITY		
Sample Collected:	06/04/2003 00:00:00	Findings:	179 MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	06/04/2003 00:00:00	Findings:	57 MG/L
Chemical:	CALCIUM		
Sample Collected:	06/04/2003 00:00:00	Findings:	8.9 MG/L
Chemical:	MAGNESIUM		
Sample Collected:	06/04/2003 00:00:00	Findings:	50 MG/L
Chemical:	SODIUM		
Sample Collected:	06/04/2003 00:00:00	Findings:	1.7 MG/L
Chemical:	POTASSIUM		
Sample Collected:	06/04/2003 00:00:00	Findings:	48 MG/L
Chemical:	CHLORIDE		
Sample Collected:	06/04/2003 00:00:00	Findings:	.25 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	06/04/2003 00:00:00	Findings:	3.1 UG/L
Chemical:	ARSENIC		

Sample Collected:	06/04/2003 00:00:00	Findings:	1.37 PCI/L
Chemical:	GROSS BETA		
Sample Collected:	06/04/2003 00:00:00	Findings:	98 UG/L
Chemical:	ACENAPHTHYLENE		
Sample Collected:	06/04/2003 00:00:00	Findings:	107 UG/L
Chemical:	ACENAPHTHENE		
Sample Collected:	06/04/2003 00:00:00	Findings:	98 UG/L
Chemical:	ALDRIN		
Sample Collected:	06/04/2003 00:00:00	Findings:	366 MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	06/04/2003 00:00:00	Findings:	21.9 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	06/04/2003 00:00:00	Findings:	.8 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	06/04/2003 00:00:00	Findings:	83 UG/L
Chemical:	ALDICARB SULFONE		
Sample Collected:	06/19/2002 00:00:00	Findings:	11.9 MG/L
Chemical:	NITRATE (AS NO3)		

A2
North
1/2 - 1 Mile
Higher

CA WELLS **CADW20000019133**

Longitude:	118.1409
Latitude:	35.035
Stwellno:	11N12W22F001S
Districtco:	3
Welluseco:	P
Countycode:	15
Gwcode:	604400
Site id:	CADW20000019133

A3
North
1/2 - 1 Mile
Higher

FED USGS **USGS3162419**

Agency cd:	USGS	Site no:	350206118082401
Site name:	011N012W22F001S		
Latitude:	350206		
Longitude:	1180824	Dec lat:	35.03497075
Dec lon:	-118.14090801	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	06
State:	06	County:	029
Country:	US	Land net:	Not Reported
Location map:	Not Reported	Map scale:	Not Reported
Altitude:	2660.00		
Altitude method:	Level or other surveying method		
Altitude accuracy:	.1		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	AntelopeFremont Valleys. California. Area = 3310 sq.mi.		
Topographic:	Flat surface		
Site type:	Ground-water other than Spring	Date construction:	19680101
Date inventoried:	Not Reported	Mean greenwich time offset:	PST

Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	381	Hole depth:	395
Source of depth data:	Not Reported		
Project number:	9479335800		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	1973-03-01
Water quality data end date:	1973-03-01	Water quality data count:	1
Ground water data begin date:	1968-12-14	Ground water data end date:	1974-06-03
Ground water data count:	2		

Ground-water levels, Number of Measurements: 2

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1974-06-03	255				
Note: Other conditions existed that would affect the measured water level.					
1968-12-14	223				

B4
North
1/2 - 1 Mile
Higher

FED USGS **USGS3162423**

Agency cd:	USGS	Site no:	350212118083701
Site name:	011N012W22F002S		
Latitude:	350212		
Longitude:	1180837	Dec lat:	35.03663734
Dec lon:	-118.14451922	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	06
State:	06	County:	029
Country:	US	Land net:	Not Reported
Location map:	MOJAVE	Map scale:	24000
Altitude:	2663.00		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	10		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	AntelopeFremont Valleys. California. Area = 3310 sq.mi.		
Topographic:	Flat surface		
Site type:	Ground-water other than Spring	Date construction:	19681208
Date inventoried:	Not Reported	Mean greenwich time offset:	PST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	346	Hole depth:	350
Source of depth data:	driller		
Project number:	Not Reported		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	0000-00-00
Water quality data end date:	0000-00-00	Water quality data count:	0
Ground water data begin date:	1968-12-08	Ground water data end date:	2004-03-29
Ground water data count:	31		

Ground-water levels, Number of Measurements: 31

Date	Feet below Surface	Feet to Sealevel
2004-03-29	241.66	
2002-03-26	243.51	
2000-03-21	242.28	
1998-03-17	242.73	
1996-04-18	243.39	
1994-04-13	244.04	
1992-04-16	244.84	
1990-03-14	245.81	
1988-03-28	246.82	
1986-03-26	248.07	
1984-03-06	248.81	
1982-02-18	250.10	
1980-03-26	251.52	
1978-03-30	252.48	
1976-02-11	255.10	
1968-12-08	258.50	
2003-03-24	242.32	
2001-03-29	241.96	
1999-03-17	242.53	
1997-03-04	243.38	
1995-06-16	243.39	
1993-04-19	244.41	
1991-03-22	245.64	
1989-03-22	245.92	
1987-02-22	247.02	
1985-03-26	248.29	
1983-04-14	250.00	
1981-04-17	250.74	
1979-02-14	251.90	
1977-03-09	253.13	
1974-06-03	260.50	

B5
NNW
1/2 - 1 Mile
Higher

CA WELLS **CADW20000019145**

Longitude:	118.1445
Latitude:	35.0366
Stwellno:	11N12W22F002S
Districtco:	3
Welluseco:	Z
Countycode:	15
Gwcode:	604400
Site id:	CADW20000019145

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RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zip	Total Sites	> 4 Pci/L	Pct. > 4 Pci/L
93501	1	0	0.00

Federal EPA Radon Zone for KERN County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for KERN COUNTY, CA

Number of sites tested: 94

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	1.422 pCi/L	98%	2%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW[R] Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Health Services
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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APPENDIX C
Qualifications of Environmental Professionals

.Jonathan Aguayo

Staff Specialist 1

Years Experience: 1

Technical Specialties

- Environmental Site Assessments
- Groundwater Sampling
- Spill Prevention Control and Countermeasure Planning
- Soil Sampling
- Storm Water Pollution Prevention Planning

Professional History

- ENSR International

Education

- BS (Environmental Science & Resource Management) California State University, Channel Islands, California

Training

- 40-hour OSHA HAZWOPER
- Contractors' Safety Orientation – TRONOX
- Conoco Phillips database
- Environmental Due Diligence
- First Aid, CPR, and Blood borne Pathogens
- Loss Prevention System (LPS)
- Safety Stand Down

Representative Project Experience

Environmental Site Assessments

Confidential Property Owner, Phase I Environmental Site Assessment, Los Angeles County, California. Conducted assessment of a private/independent school facility located in the city of Los Angeles, California. Assessment included review of local government records to identify historical improvements and uses. Furthermore, on-site improvements were investigated by conducting file reviews and interviews with government and regulatory agencies.

Inland Energy, Palmdale, California. Helped conduct assessment of a vacant land. Assistant also included in reviewing of local government records to identify historical improvements and uses.

Phase I Environmental Site Assessments, Los Angeles County, California. Helped conduct assessment of three office buildings located in the city of Chatsworth,

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California. On-site assessment included loading dock areas, warehouse areas, fuel-powered generators, storage areas, and offices when available. Focused research was conducted into on-site historical tenant activities.

Spill Contingency Plans

Southern California Gas Company, Integrated Storm Water/Oil Spill Prevention Control and Countermeasure (SPCC) Plan Updates Portfolio, Oxnard. Accompanied lead assessor in conducting site reconnaissance of two natural gas compression facilities in order to reconcile and update their existing integrated SWPP (stormwater) and SPCC (oil spill) plans.

Groundwater Monitoring and Sampling

UNOCAL. Monitoring on groundwater, gauging wells, and vapor extraction units, Southern California. Performed groundwater monitoring and sampling at various former service station sites, soil boring logging and sampling at various service station sites.

Soil Monitoring and Sampling

TRONOX, LLC, Henderson, Nevada. Monitoring and collecting soil. Soil is impacted with perchlorate and chromium.

Kirsten G. Bradford

Environmental Analyst

Years Experience: 4

Technical Specialties

- Environmental Site Assessments
- Storm Water Pollution Prevention Planning
- Oil Spill Control and Countermeasure Planning
- Field Sampling

Professional History

- ENSR International
- Lee & Pierce, Inc.
- Environmental Investigation Services, Inc.
- QTL Biosystems, LLC
- New Mexico Department of Health, Scientific Laboratory Division
- New Mexico Institute of Mining and Technology Atmospheric & Environmental Chemistry Research Lab
- New Mexico Bureau of Mining & Mineral Resources, Chemistry Division

Education

- BS (Chemistry) New Mexico Institute of Mining & Technology (New Mexico Tech)

Training

- 40-hour OSHA HAZWOPER
- Refresher &/or Initial General Site Worker Requirements
- Standard First Aid
- CPR - Adult
- Bloodborne Pathogens
- Hydrogen Sulfide Awareness For Exposure In Oil & Gas Prod. Fields & Industrial Facilities
- Environmental Due Diligence
- Effective Scientific and Technical Writing
- Environmental Auditor
- 9th Annual California Certified Unified Program Agency (Cal-CUPA)
- PARCEL eLearning
- Leading an Engaged Workforce

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Representative Project Experience

Compliance

Teachers Insurance & Annuity Association (TIAA), Limited Compliance Assessment and Desktop Review, Ventura County, California. Conducted a limited compliance assessment of two apartment home complexes. On-site improvements and activities were related to office buildings, hydraulic-powered elevators, pool and spa systems, maintenance shops, and storage areas.

Visual inspections of the on-site operations, reviews of facility files and records, reviews of federal and state governmental incident databases and files, and interviews with property personnel and governmental officials to evaluate the relative degree of compliance of on-site operations with key federal and state environmental regulations as they relate to hazardous waste; solid waste and asbestos-containing materials; conventional and toxic air emissions; underground and above ground storage tanks; wastewater discharges including storm water; and PCB management.

Johnson & Johnson, Phase I Environmental Site & Limited Compliance Assessment, Orange County, California. Conducted assessment of a research and development (R&D) company that designs therapeutic health devices. On-site operations included laboratory and machine shop activities.

Limited compliance applied included Hazardous Materials Business Planning and Inventorying principles to comply with California legislation to meet the requirements of Sections 311 and 312 of the Emergency Planning and Community Right-to-Know Act (EPCRA) (SARA Title III); and wastewater discharge permitting principles to comply with local industrial waste program.

BOC Edwards, Phase I Environmental Site Assessment and Compliance Evaluation, Maricopa County, Arizona. Conducted a Phase I ESA of two industrial facilities located in Maricopa County, Arizona that clean and coat parts in support of semiconductor equipment and considered compliance with laws and permits with respect to the following issues as a minimum: Aqueous abstractions and discharges; Atmospheric emissions; Solid and hazardous waste management; Above and below ground tank management; Nuisance; Asbestos; Poly Chlorinated Biphenyls (PCBs). Information provided by the sites was further studied and correlated with existing information to determine findings and to prepare a Phase I ESA report.

Emergency Hazardous Material Spill Response

Nutro Products, Inc., Hazardous Materials Business Response Plan, Victorville County, California. Assessed on-site hazardous chemical storage and operations and prepared completed agency plan forms for a dry dog food manufacturing plant. On-site hazardous materials and wastes inventoried included lubricating oils, insecticide mixture oil concentrate, diesel fuel, product ingredients containing oil, bulk storage of vegetable oil, and bulk storage of poultry fat.

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Environmental Site Assessments

Gibson Dunn & Crutcher, Phase I Environmental Site Assessment, Maricopa County, Arizona. Assessment was conducted of warehouse, repair, and maintenance facilities for heavy-duty trucks and truck parts. Historical setting included on-site fueling operations and remedial action closure activities.

Public Storage, Inc., Environmental Support with File Review, San Diego County, California. Conducted site assessment and file review to establish historical on-site remedial action activities including groundwater monitoring, and current site case status with local regulatory agency. Made recommendations for activities directed toward achieving site case closure, and in complying with State of California Geotracker database requirements.

Teachers Insurance & Annuity Association (TIAA), Phase I Environmental Site Assessment, Maricopa County, Arizona. Conducted assessment of a multi-story corporate office building. On-site improvements assessed included hydraulic-powered elevators, stormwater retention areas and on-site dry wells, a fuel-powered generator, storage areas, and a rooftop cooling plant. Focused assessment was conducted into observing each on-site tenant space. Assessment activities included American Society Testing Materials (ASTM) 1527 additional scope issues including visual observation for evidences of suspect asbestos-containing materials and of water intrusion and mold growth. Additionally, on-site improvements were investigated by conducting file reviews and interviews with government and regulatory agencies.

Weil, Gotshal & Manges LLP, Phase I Environmental Site Assessment, Clackamas & Washington Counties, Oregon. Conducted an assessment of warehouse distribution and office facilities.

On-site retail warehousing activities included an on-site truck wash, a trailer maintenance shop, a fueling island; and fuel-powered generators, hydraulic-powered lifts, and storage areas including for lead-acid (wet-type) batteries to power forklifts.

International Paper Company, Timberlands Environmental Site Assessment, Alabama. Conducted assessment of 215,000 acres of timberland in accordance with American Society for Testing and Materials Standard (ASTM) Practice E 2247-02. Used GIS tracking to record routes and mark specific areas of potential environmental concern including log yards and camps, fuel use and storage, pesticide and herbicide use, burning practices, logging roads, sand and gravel pits, hunting camps and leases, and landfills.

First Industrial Realty Trust, Phase I Environmental Site Assessment, Los Angeles County, California. Conducted assessment of an office/warehouse facility including an ancillary former hazardous materials storage building and truck loading docks. Assessment included review of local government records to identify historical improvements and uses.

Acushnet Company, Phase I Environmental Site Assessment, San Diego County, California. Conducted assessment of agricultural property including historical fuel storage areas.

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General Electric, Phase I Environmental Site Assessments, Santa Barbara County, California. Conducted assessment of tenant spaces located in three office buildings in the City of Santa Barbara. Presented findings on detailed predetermined form format provided by the user/client. Research included a detailed review of building department permit site record history.

Quality Project Management, Phase I Environmental Site Assessment & File Reviews, San Diego County, California. Conducted assessment of two vacant parcels previously developed. Performed 1,500 page file review of site and adjoining sites based on their historically uses as former gasoline service stations, each with historical unauthorized releases affecting groundwater. Analyzed historical soil sampling, remediation activities, and groundwater monitoring data to identify potential environmental impacts to the site from historical uses associated with on-site contamination sources or from off-site contamination sources.

U.S. Filter Operating Services, Phase I Environmental Site Assessment, Kern County, California. Conducted assessment of an equipment and maintenance yard including an outdoor storage area for portable equipment used for petroleum dewatering applications, and including two shop buildings in support of metal fabrication and welding of heavy portable equipment, and oil research and development (R&D) laboratory activities.

Phase I Environmental Site Assessment Portfolio, Los Angeles County, California. Was the lead assessor in a series of seven Phase I ESAs within the Phase I ESA portfolio which included assessment of non-scope ASTM 1527 items, including methane gas.

SunTrust, Phase I Environmental Site Assessments, Florida and South Carolina. Assisted in completing a company-wide environmental due diligence portfolio as a report author of multiple sites located in Florida and South Carolina by using an online database Phase I ESA report collection and preparation tool, PARCEL.

Algonquin Power, Oil Spill Assessment Portfolio, Southern California. Conducted oil spill assessments of landfill gas to energy facilities located in Southern California.

Air Liquide, Phase I Environmental Site Assessment, Salt Lake County, UT and Sweetwater County, WY. Conducted a Phase I ESA of two planned plant location sites. In conducting the Phase I ESA, ENSR assessed the sites for visible signs of possible contamination, researched public records for the sites, and conducted interviews with representatives of regulatory agencies, the client, and those people deemed knowledgeable of the sites. ENSR successfully observed the sites during extreme weather conditions including snow cover and freezing temperatures.

Eagle Burgmann Industries LP, Phase I Environmental Site Assessments, Harris and Brazoria Counties, TX. Conducted two Phase I ESAs of warehouse properties in conformance to the American Society for Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments (E 1527-05), which meets the requirements of 40 CFR Part 312 and is intended to constitute all appropriate inquiry for purposes of the landowner liability protections (LLPs).

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Public Storage, Inc., Phase I Environmental Site Assessment, Southern, California. Conducted assessments of multiple self storage facilities.

Sargent & Lundy, Phase I Environmental Site Assessment, San Diego County, California. Conducted assessment in support of Environmental Due Diligence study for the purchase of a site being developed for a future gas-fired power plant. Site characteristics included existing biological and archeological conservation easements. Historical on-site activities investigated included cement truck cleanouts, refueling operations, and grading.

T.A. Realty Corporation, Phase I Environmental Site Assessments, Southern and Northern California. Conducted assessments of corporate office buildings (e.g. multi-story, multi-tenant) and distribution warehouses.

On-site improvements assessed have included hydraulic-powered elevators and lifts, loading dock areas, fuel-powered generators, storage areas, and warehouse areas. Focused research was conducted into on-site historical tenant activities. Assessment activities have included American Society Testing Materials (ASTM) 1527 additional scope issues included visual observation for evidences of suspect asbestos-containing materials and of water intrusion and mold growth.

Additionally, off-site potential sources of environmental concern (e.g. abutting CERCLA sites with impacted groundwater from historical site operations) were identified and investigated by conducting regulatory file reviews and interviews with regulatory agencies.

NPDES Permitting

Bendix Commercial Vehicle Systems, LLC, Storm Water Pollution Prevention Plan (SWPPP), Fresno County, California. Prepared a Storm Water Pollution Prevention Plan (SWPPP) for a heavy-vehicle brake manufacturing facility in Fresno County, California while addressing the current National Pollutant Discharge Elimination System (NPDES) regulations, 40 CFR Section 122.26, and complying with California's General Permit. Incorporated recently proposed changes for the storm water program in California, and made every effort to ensure that the SWPPP developed for the facility would comply with the new requirements. Tasks involved included a site visit, a Best Management Practice (BMP) assessment, and preparation of the Plan.

ExxonMobil Oil Corporation, Storm Water Pollution Prevention Plan (SWPPP), Los Angeles County, CA. Supported the completion of a Storm Water Pollution Prevention Plan (SWPPP) for a project site located within a State right-of-way, and the acquisition of an Encroachment Permit from the California Department of Transportation (CalTrans) that is in compliance with requirements of its National Pollutant Discharge Elimination System (NPDES) permit in regards to its submission to the Regional Water Quality Control Board (RWQCB).

ExxonMobil Oil Corporation, Storm Water Pollution Prevention Plan (SWPPP) Training, Los Angeles County, CA. Provided training on how to implement the Storm Water Pollution Prevention Plan (SWPPP) and associated Best Management Practices (BMPs) to client staff and contractors at a pre-construction meeting for the client's proposed project. Tasks included preparation of a PowerPoint presentation as well as attendance at the client's pre-construction meetings.

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Soil Borings

Yardi Systems, Inc., Limited Phase II Environmental Site Assessment, Santa Barbara County, California. Conducted an assessment of a vacant parcel to evaluate soil and groundwater conditions in the area of a former on-site diesel-fuel underground storage tank (UST). Assessment activities included coordination of Geoprobe sampling to a depth of approximately 20 feet below ground surface, and an analysis of laboratory analytical soil and groundwater sample results including total petroleum hydrocarbons in gasoline (TPH-G) and diesel-fuel (TPH-D) and for volatile organic compounds (VOCs).

Becker Industrial Coatings, Limited Phase II Environmental Site Assessment, San Bernardino County, California. Conducted a limited Phase II ESA including eight soil borings at an industrial facility and oversaw a contracted truck mounted, hydraulically operated Geoprobe® sampling system and crew. Attempts to advanced the borings to the proposed depth of 20 feet bgs had to be negotiated as cobbles and/or boulders were encountered at drilling depths. Collected soil samples were screened with a photoionization detector (PID). The collected soil samples were preserved and extracted in accordance with U.S. EPA Method 5035.

Soil Vapor & Air Quality Surveys

Department of Toxic Substances Control, Start-Up Testing of Methane Mitigation System, Ventura County, California. Supported start-up testing of a methane mitigation system by monitoring for methane concentrations in the field using portable hand-held methane-specific instruments such as a flame-ionization detector (FID) and the LANDTEC Gem, 2000 Landfill Gas Indicator or equivalent instruments. Recorded barometric pressure will with a barometer and measured subsurface concentrations of methane, oxygen, and carbon dioxide using a combination of the FID and LGI instruments. Measured indoor vent-riser pipes with the FID and LGI for methane concentrations.

Spill Contingency Plans

County of Ventura, Department of Airports, Spill Prevention Control and Countermeasure Plan (SPCC), Ventura County, California. Assessed on-site petroleum storage facilities and operations and prepared a plan based on SPCC requirements for a general aviation reliever airport. On-site potential petroleum pollutant sources evaluated included an aviation fuel tank farm, diesel fuel aboveground tanks associated with a deluge fire protection system, diesel fuel associated with an emergency backup generator, and used-oil storage.

Nutro Products, Inc., Spill Prevention Control and Countermeasure Plan (SPCC), Victorville County, California. Assessed on-site petroleum storage facilities and operations and prepared a plan based on SPCC requirements for a dry dog food manufacturing plant. On-site potential petroleum pollutant sources evaluated included lubricating oils, insecticide mixture oil concentrate, diesel fuel, product ingredients containing oil, bulk storage of vegetable oil, and bulk storage of poultry fat.

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Southern California Gas Company, Integrated Storm Water/Oil Spill Prevention Control and Countermeasure (SPCC) Plan Updates Portfolio, Southern California. Conducted site reconnaissance and modified original draft documents of a dozen natural gas compression facilities in order to reconcile and update their existing Integrated SWPP (stormwater) and SPCC (oil spill) Plans.

Publications

Detection of Single Nucleotide Mismatches via Fluorescent Polymer Superquenching
Kushon, S.A.; Bradford, K.; Marin, V.; Suhrada, C.; Armitage, B.A.; McBranch, D.; Whitten, D.; Langmuir; (Article); 2003; ASAP Article; DOI: 10.1021/la034323v

Detection of DNA Hybridization via Fluorescent Polymer Superquenching
Kushon, S.A.; Ley, K.D.; Bradford, K.; Jones, R.M.; McBranch, D.; Whitten, D.; Langmuir; (Communication); 2002; 18 (20); 7245-7249. DOI: 10.1021/la026211u

Bateman, Kirsten G.,?K/Fe Ratio in Wood-Smoke?, Sigma-Xi Poster Session, Albuquerque, NM, November 2000.

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Brenda Miller, REA I

Senior Project Manager

Years Experience: 20

Technical Specialties

- Conducting/Managing Real Property Due Diligence, including Phase I and Phase II ESAs, and Asbestos Surveys
- Environmental Regulatory Compliance Evaluations
- Hazardous Materials Management and Emergency Response Plans (aka Business Plans)
- California Environmental Quality Act - Initial Studies and Negative Declarations
- Technical Writing/Editing

Professional History

- ENSR

Education

- BA (Theater Arts) University of California, Los Angeles
- Certificate (Hazardous Materials Management) University of California, Santa Barbara

Professional Registrations and Affiliations

- Registered Environmental Assessor I, California

Representative Project Experience

Public Storage, Inc., Phase I ESAs, Throughout United States. Performed approximately 50 environmental due diligence site assessments of self-storage facilities, business parks, restaurants, and current and/or historically industrial facilities (e.g., oil well fields, tanneries, petroleum products distribution facilities, and aerospace manufacturing facilities, etc.) located throughout California, Hawaii, Arizona, Florida, Colorado, Minnesota, Nevada, and Texas. Assessments focused on determining the potential for an environmental liability to be affecting the subject sites due to current or former on-site activities and off-site sources. Tasks involved included site inspection, agency file searches and agency interviews, database review, historical research, and report generation.

Public Storage, Inc., Mini-storage Phase I ESAs, Throughout United States. Responsible for the coordination and management of Phase I ESA research investigations at approximately 200 mini-warehouse properties located throughout the United States. Assessments focused on determining the potential for an environmental liability to be affecting the subject sites due to current or former on-site activities and off-site sources. Historical uses of sites included leather tanning, plating, underground storage tanks; aerospace research, development, and manufacturing; etching, railroad yards, and oil well fields. Responsible for staffing, quality control, and financial management.

Teachers Insurance and Annuity Association, Various Phase I ESA and Compliance Assessments, California, Nevada, Washington, Arizona. Conducted over 30 environmental site assessments and regulatory compliance evaluations of shopping malls, office buildings, industrial business parks, manufacturing facilities, retail/residential complexes, and hotels in Nevada, Washington, and California. Site uses included storage and use of hazardous and acutely hazardous materials and facilities where historical and industrial uses occurred for over 100 years. Conducted site inspection, agency and historical research, audited facility environmental files, evaluated current and historical on-site activities with regard to potential liabilities affecting the site, and prepared written reports.

Foley and Lardner, Phase I ESA and EH&S Compliance Evaluation, Springfield, Oregon. Performed a Phase I environmental site assessment and environmental, health, and safety compliance evaluation of an industrial phenol and formaldehyde resin manufacturing plant, including the manufacture of formaldehyde. Regulatory compliance activities included the evaluation of air, hazardous waste, storm water, industrial wastewater, and hazardous materials management, in addition to select OSHA considerations.

Primary Energy, Phase I Environmental Site Assessment and Regulatory Compliance Review, California, Colorado, and New Jersey. Conducted and/or managed Phase I environmental site assessments and environmental regulatory compliance reviews of five cogeneration plans located in San Diego and Oxnard, California; Greeley, Colorado; and Kenilworth, New Jersey. The three sites in San Diego are located on Department of Defense military bases and involved research and interaction with base staff in addition to other governmental entities. On-site issues included long-term use of the sites for industrial purposes, above and underground storage of chemicals and fuels, former PCB-containing equipment, and releases of hazardous materials.

Public Storage, Inc., Business Park Asbestos O & M Plans, Throughout United States. Responsible for the coordination of O & M Plan preparation of eight self-storage or business park facilities located in California, Texas, Oklahoma, Tennessee, and Georgia. Responsible for client interaction, staffing, and quality control.

Fleet Financial Group, Railroad Yard Phase I ESA, Los Angeles, California. Phase I ESA of the former Union Pacific Railroad Taylor Yard that was in operation for approximately 100 years. Through review of agency documents, historical sources, and previous contamination investigations conducted on-site, evaluated the potential liabilities associated with remaining on-site contamination. Conducted site visit, research, interviews and report generation.

ARCO Pipe Line Company, Pipeline Pump Station Phase I ESAs, Arizona and California. Performed site assessments at pipeline pump stations located in Oatman and Kingman, Arizona, and Danby, California. Assessments focused on determining the potential for an environmental liability to be affecting the subject sites due to current or former on-site activities and off-site sources. Tasks involved included site inspection, agency file searches and agency interviews, historical research, database review, and report generation.

PS Business Parks, Phase I ESA, Signal Hill, California. Phase I ESA of three former oil field sites located in Signal Hill, California. Historical uses at each site included oil well exploration and production activities dating back to the early 1920s. On-site issues involved determination of former oil well locations and associated activities, including former underground storage tanks and piping, and oil well sumps.

Nutro Products, Inc., Phase I ESA, Compliance Evaluation, SPCC, and SWPPP, Tennessee and California. Conducted and/or managed Phase I ESAs with compliance evaluations (including updates) at dog food manufacturing facilities located in Lebanon, Tennessee, and City of Industry, California. Issues identified included the need for Spill Prevention, Control and Countermeasures plans and Storm Water Pollution Prevention Plans at both facilities. Subsequent to the initial Phase I and compliance evaluation, ENSR prepared the SPCC plans and SWPPPs for the two facilities.

Gibson, Dunn & Crutcher, Phase I ESA and Compliance Evaluation, Seattle and Tacoma, Washington. Conducted a Phase I ESA and compliance evaluation of a commercial fleet truck refurbishing/reconditioning facility, including storage and sales/distribution of new and reconditioned truck parts (drive shafts, transmissions, differentials, and brake shoes). Reconditioning/refurbishing operations had been conducted on site for over 30 years and included brake de-shearing, machining, painting, welding. On-site current and historical activities included the use and storage of hazardous materials and the generation of hazardous waste.

Dinsmore & Shohl, Phase I ESAs and Compliance Assessments, Metal Manufacturing/Fabricating Facilities, Compton, California. Managed and/or conducted site investigations and regulatory compliance assessments of metal manufacturing/fabricating facilities located in Compton and Carson, California. Conducted site inspection, agency and historical investigation, audited facility environmental files, and prepared written report. Responsible for quality control, client interaction, and financial management.

Whittaker Corporation, Electronics Manufacturing Phase I ESA and Compliance Assessment, Simi Valley, California. Conducted preliminary site assessment and regulatory compliance evaluation of an electronic cables and connectors manufacturing facility located in Simi Valley, California. Conducted site inspection, agency and historical research, audited facility environmental files, and prepared written report.

Public Storage, Clandestine Drug Lab Cleanups, Oregon and Washington. Managed the assessment, cleanup, and closure of clandestine methamphetamine drug labs discovered at approximately 10 self-storage facilities located in Oregon and Washington. Duties included identifying qualified subcontractors and agency interaction.

Treno, Inc., HVAC Facilities Phase I ESAs, California, Arizona, Utah, and Nevada. Performed site assessment at heating, ventilation, and air conditioning businesses conducting manufacturing, installation, and service operations located near Salt Lake City, Utah; Phoenix, Arizona; Las Vegas, Nevada; and Los Angeles, California. Assessments focused on determining the potential for an environmental liability to be affecting the subject sites due to current or former on-site activities and off-site sources.

General Electric Capital Corporation, Computer Distribution Facilities Phase I ESAs, Maryland and England. Performed site assessments at two computer assembly/warehouse/distribution centers located in Gaithersburg, Maryland, and at five computer assembly/warehouse distribution centers and/or offices throughout England. Assessments focused on determining the potential for an environmental liability to be affecting the subject sites due to current or former on-site activities and off-site sources. Tasks involved included site inspection, agency file searches and interviews, database review, historical research, and report generation.

Heitman Properties, Ltd./Kennedy-Wilson Properties, 52-acre Shopping Center Phase I ESA Update, Portland, Oregon. Performed a due diligence examination (excluding historical research) of a 52-acre shopping center located in Portland, Oregon. Purpose of the update was to document and identify any evidence of hazardous substances or environmental conditions that would affect the economic value or marketability of the property. Tasks involved included site inspection, agency file reviews and agency interviews, database review, and report generation.

Automotive Realty Trust Association, Auto Dealerships Phase I ESAs, Van Nuys, California. Due diligence assessments of three automotive dealership facilities where current and/or historical USTs and LUSTs were located. Project tasks included site inspection, agency and historical research, database review and evaluation, and report generation. Responsible for client interaction and financial management.

InterBank Brenner, Hotel/Resort Complex Phase I ESA, Honolulu, Hawaii. Conducted a Phase I ESA of the Hilton Hawaiian Village resort. Project tasks included review and evaluation of documents regarding historical leaking USTs, asbestos-containing materials, and lead-based paint to determine potential liabilities currently associated with the site. Conducted agency and historical research, database review and evaluation, site inspection, and report generation.

Chase Manhattan Bank, Warehouse/Retail Facility Phase I ESA, Reno, Nevada. Performed a Phase I due diligence assessment of a retail and warehouse facility located in Reno, Nevada. Assessment included a site reconnaissance, research, and interviews with representatives of the public, property management, and regulatory agencies, and report generation.

Appendix I

Hydrology and Water Quality Technical Report

ESA

HYDROLOGY AND WATER QUALITY TECHNICAL REPORT
for the
Sanborn Solar Project
Kern County, California

Prepared for:

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NOVEMBER 2018

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
BMP	best management practice
cfs	cubic feet per second
DEM	Digital Elevation Model
DWR	California Department of Water Resources
EIR	environmental impact report
FEMA	Federal Emergency Management Agency
FVGB	Fremont Valley Groundwater Basin
gen-tie line	generator tie line
HEC-HMS	U.S. Army Corps of Engineers Hydrologic Engineering Center's Hydrologic Modeling System
KCHM	Kern County Hydrology Manual
mg/L	milligrams per liter
NRCS	Natural Resources Conservation Service
O&M	operations and maintenance
SR	State Route
SWPPP	stormwater pollution prevention plan
TDS	total dissolved solids
USGS	U.S. Geological Survey
WQO	water quality objective

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1 INTRODUCTION

1.1 Scope and Purpose

This Hydrology and Water Quality Technical Report (study) was prepared for the Sanborn Solar Project (project) in support of the environmental impact report (EIR) and in accordance with the Kern County Hydrology Manual (KCHM) (County of Kern n.d.). The purpose of this study is to identify hydrology and water quality impacts of the project and to recommend feasible and appropriate best management practices (BMPs) that can mitigate potential short- and long-term hydrology and water quality impacts.

Specifically, hydrology and water quality components evaluated in this study consist of the following:

- A comparison of the existing versus proposed project site peak runoff rates and volumes for the 100-year, 24-hour storm event using the unit hydrograph method protocol established in the KCHM and the U.S. Army Corps of Engineers Hydrologic Engineering Center's Hydrologic Modeling System (HEC-HMS)
- An evaluation of the project's impact on flood hazards using the Flood Insurance Rate Maps and Special Flood Hazard Areas mapped by the Federal Emergency Management Agency (FEMA)
- A synthesis and evaluation of water quality impacts using standards and criteria contained in the Water Quality Control Plan (Basin Plan) for the Lahontan Region, and the post-construction requirements of the statewide *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit) (Lahontan RWQCB 2016; SWRCB 2012)

This study uses the KCHM unit hydrograph method to quantify the peak discharge for existing and proposed conditions for the 100-year 24-hour storm event. The tools used to evaluate existing conditions and anticipated project impacts are ArcGIS (to delineate contributing watershed conditions) and HEC-HMS (to develop runoff hydrographs for the 100-year 24-hour rainfall event). In addition, the project is evaluated in the context of water quality standards contained in the Basin Plan for the Lahontan Region (Lahontan RWQCB 2016).

This study is based on project plans and specifications that are not approved for construction purposes. As such, contractors shall refer to the final approved construction documents, which will be developed as the project plans are finalized. Because preliminary construction plans were used for the hydrological calculations, this study provides an estimate of the hydrological conditions that are likely to exist at the project location following construction completion.

1.2 Project Location

The project site is in the southern portion of Kern County (County), in central California, as shown on Figure 1-1, Project Vicinity. The project site is located at the western edge of the Antelope Valley, directly south of the community of Mojave. The solar generation sites and 1.3 miles of the generator tie (gen-tie) line are east of State Route (SR) 14 (Antelope Valley Freeway) and the remainder of the gen-tie line is west of SR-14. The northern section is less than 1 mile southwest of SR-58 (West Avenue D) and south of the Mojave Air and Space Port. The BNSF Railway forms the western edge of the northern section. The southern section is directly north of Edwards Air Force Base. The northern section lies in the Sanborn and Mojave U.S. Geological Survey (USGS) 7.5-minute quadrangles, Sections 22, 23, 26, 27, 34, and 35, Township 11 North, Range 12 West, San Bernardino Base and Meridian. The southern section lies in the Bissell USGS 7.5-minute quadrangle, Sections 1, 6, 7, and 12, Township 10 North, Ranges 12 West and 11 West, San Bernardino Base and Meridian.

The project is located on generally undeveloped land that has been historically used for grazing operations and that consists entirely of privately owned parcels. The solar generation sites consist of 14 total parcels. Figure 1-2, Project Site, depicts the project boundaries.

1.3 Project Description and Activity

The project will develop 300 megawatts of renewable electrical energy and/or energy storage capacity on approximately 2,102 acres of private agricultural lands in southeastern Kern County. The project will consist of two operating facilities, the northern section with approximately 1,118 acres and the southern section with approximately 983 acres (Figure 1-2). Each site will consist of photovoltaic modules (solar panels) on a fixed-mount array or a single-axis tracker system, mounted on pile-driven steel support posts. The existing site layout precludes the installation of solar panels within mapped jurisdictional waters of the United States (Dudek 2018).

While the panels themselves are impervious, the ground surface beneath them will remain pervious. Water collected on the solar panels will concentrate along their drip lines, but should disperse laterally through the soils. Solar panels will be connected to inverters set on impervious pads through above- and/or belowground wiring.

Site topography and soil infiltration will be maintained through minimum-impact grading during the installation of the solar panels. The surface of the ground will be evened and the upper layer of soil compacted to a recommended level for structural support. Access roads will be compacted an additional 90% or greater. To minimize dust, natural vegetation will be maintained where

possible in addition to mow-and-roll vegetation clearance, wind-control fencing placement, and the application of water and dust suppressants.

The main impacts to site infiltration (e.g., hydrology) will be through the installation of approximately 105 acres of access roads (unpaved, but compacted), and the 12-acre operations and maintenance (O&M) yard, which includes the project substation and an 8,000-square-foot building (with accompanying parking area). The collector substation would be an open-air substation with a footprint of about 360 feet by 360 feet.

The primary access to the northern section would be provided by Lone Butte Road or 10th Street from SR-58. Access to the southern section would be provided by Silver Queen Road or Reed Avenue from United Street off SR-14. Each project section would be surrounded by fencing for security and gates would be installed at the entrances. New unpaved roads up to 25 feet wide with up to 10-foot-wide shoulders would be constructed as access roads from the existing road network. Any remaining dirt roads within project boundaries that are not subject to a written easement would be closed to any third-party use.

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2 GEOGRAPHIC SETTING

This section describes the project's local and regional geographic characteristics related to hydrology and water quality.

2.1 Surface Water Hydrology

The project site falls within the Chafee and Gloster Hydrologic Areas (HAs) located within the Antelope Hydrologic Unit (HU) in Antelope Valley. The HU and HA information presented in Table 2-1 was obtained from the 2004 California Interagency Watershed Map (Calwater 2004). These watersheds are used as a way to identify beneficial uses and associated water quality objectives in the Lahontan Region Basin Plan (Lahontan RWQCB 2016). It should be noted that the HU and HAs identified herein are defined at a very coarse scale, and are not the same (or as detailed) as watershed designations by the USGS Watershed Boundary Dataset or groundwater basins as defined by the California Department of Water Resources (DWR). The project-specific (i.e., fine-scale) delineation of watersheds is described in Section 3.1.1, Existing Topography.

Figure 2-1, Regional Hydrologic Setting, shows the location of the project site with reference to the Antelope HU. A comparison of the proposed project area with respect to the acreage of the Chafee and Gloster HAs is presented in Table 2-1. The proposed project area is approximately 2.0% of the area encompassed by the affected hydrologic subarea.[1]

Table 2-1
Project Contribution to Hydrologic Subarea

Hydrologic Area	Area (Acres)	Approximate Proposed Project Area (Acres)	Estimated Project Contribution (Percent)
Chafee (626.10)	63,000 (Chafee)	1,235 (Chafee)	1.96
Gloster (626.20)	44,000 (Gloster)	867 (Gloster)	1.97

Source: Calwater 2004.

The region's hydrology is shaped by the infrequent rainfall events (approximately 7 inches annually, with half of this amount falling between December and February; NOAA 2018a), sparse vegetation cover, and stark topographic shifts between the Tehachapi Mountains to the Northwest and the flat undefined valley floor of Antelope Valley. All of the hydrologic features within the project area are ephemeral. During rainfall events with sufficient intensity and/or duration to produce overland flow, runoff concentrates in the defined channels of the Tehachapi Mountains and/or stormwater conveyance systems within/around the Town of Mojave, through the project

[1] The proposed project area composes 0.1% of the entire Antelope HU watershed area.

site, and into Rogers Dry Lake, an endorheic basin (i.e., an enclosed basin with no drainage outlet) 12 miles east of the project site.

Signs of surface flow within the project site are limited to poorly defined/shallow swales (often apparent only by an increase in shrub density) and discontinuous ephemeral channels primarily located along the medians of paved roads, within unmaintained dirt roads, and alongside the railroad embankment (which separates the northern and southern project sections). Throughout the project site, drainage features are scattered and discontinuous, in that defined channels can abruptly become indistinguishable from the valley floor as concentrated flow is dispersed as sheet flow. This morphology suggests that there is a propensity for surface runoff events to be both brief and infrequent, with rapid infiltration into the sandy substrate, and/or shallow ponding in low-lying areas quickly followed by high evaporation. Figure 2-2, Project Site Hydrologic Setting, shows areas where the hummocky terrain has caused surface flows to be impounded in small ephemeral playas. A well-defined continuous channel does not take shape until approximately 1.5 miles downstream from the project's easternmost boundary. This channel parallels Mojave Boulevard until it reaches the community of Edwards Air Force Base where flow is conveyed through drainage ditches paralleling streets until it reaches Rogers Dry Lake.

2.2 Floodplain

FEMA Flood Insurance Rate Maps identify flood zones and areas that are susceptible to 100-year floods. As shown on FEMA Flood Insurance Rate Map panels 06029C3295E and 06029C3700E (FEMA 2008), approximately 25 acres of the northern section and 100 acres of the southern section of the proposed project site are located within a FEMA Special Flood Hazard Area, which includes all types of 100-year flood zones, such as floodways and shallow flooding (i.e., Zone A, AE, AH, AO, AR, A99, V, or VE). The 100-year flood zone is depicted on Figure 2-2.

2.3 Groundwater

A groundwater basin is defined by DWR as a hydrogeologic unit containing one large aquifer, or a series of stacked aquifers, with definitive lateral and horizontal boundaries (DWR 2003). This project site is located at the southern end of the Fremont Valley Groundwater Basin (FVGB, or DWR Basin No. 6-46). As defined by DWR, the FVGB covers an estimated 2,370,000 acres, and is bounded to the south and southeast by the Antelope Valley Groundwater Basin; to the east by the crystalline rocks of Red Mountain, the Rand Mountains, Castle Butte, the Bissell Hills, and the Rosamond Hills; and to the west and north by the Sierra Nevada, the Tehachapi Mountains, and the El Paso Mountains (DWR 2004). The boundary between the FVGB and the Antelope Valley Groundwater Basin occurs along a groundwater divide approximated by a line connecting the mouth of Oak Creek through Middle Butte to the exposed basement rock near Gem Hill, and to the southeast of California City.

Natural recharge of the basin includes percolation of ephemeral streams that flow in from the Sierra Nevada. The general groundwater flow direction is toward Koehn Lake at the center of the Fremont Valley (one basin north of the Antelope Valley HU), with no appreciable quantity of groundwater flowing out of the basin (DWR 2004). Within the project area, the general pattern of groundwater flow is in a northerly to northeasterly direction (USGS 1967). It should be noted that this groundwater flow direction is offset approximately −90° to the direction of surface water flow.

Groundwater quality is generally adequate for domestic, agricultural, and municipal uses, being of sodium bicarbonate character in the southeastern part of the basin and of sodium bicarbonate or calcium–sodium sulfate character in the southwest part of the basin (DWR 2004). Historical total dissolved solids (TDS) content has ranged from 400 to 700 milligrams per liter (mg/L) in the southeastern part of the FVGB, and from 800 to 1,000 mg/L in the southwestern part of the FVGB (DWR 2004). Data from 10 public supply wells in the basin show an average TDS content of 596 mg/L and a range of 398 to 1,400 mg/L (DWR 2004). Groundwater in parts of the FVGB is locally impaired with high concentrations of fluoride and sodium; however, these impairments are more common in the northern and central subunits, especially in the Koehn Subunit. A well just north of the project site (Mojave Public Utilities District Well 30) is known to have nitrate concentrations that exceed maximum contaminant levels for drinking water, and thus is limited to non-potable use (MPUD 2017).

2.4 Water Quality

Although there are no impaired water bodies (SWRCB 2015) within the project's watershed, a number of beneficial uses and water quality objectives (WQOs) have been designated for surface and ground waters. The Lahontan RWQCB implements the Basin Plan for the Lahontan Region (Lahontan RWQCB 2016), which designates beneficial uses, establishes WQOs, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan (California Water Code, Sections 13240–13247). The Water Quality Control Plan provides quantitative and narrative criteria for a range of water quality constituents applicable to certain receiving water bodies and groundwater basins within the Lahontan Region. Specific criteria are provided for the larger designated water bodies within the region, as well as general criteria or guidelines for surface and groundwater. In general, the narrative criteria require that degradation of water quality not occur due to increases in pollutant loads that will adversely affect the designated beneficial uses of a water body. Surface waters and groundwaters within the Chafee and Gloster HAs (626.10 and 626.20, respectively), Rogers Lake Wetland (626.00) and the Fremont Valley Groundwater Basin (6-46), have been assigned beneficial uses in the Basin Plan as shown in

Table 2-2. The beneficial uses identified in Table 2-2 are defined in the Lahontan Region Basin Plan as follows:

- **Municipal and Domestic Supply (MUN) –** Beneficial uses of waters used for community, military, or individual water supply systems including, but not limited to, drinking water supply.
- **Agricultural Supply (AGR)** – Beneficial uses of waters used for farming, horticulture, or ranching, including, but not limited to, irrigation, stock watering, and support of vegetation for range grazing.
- **Industrial Service Supply (IND)** – Beneficial uses of waters used for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, geothermal energy production, hydraulic conveyance, gravel washing, fire protection, or oil well re-pressurization.
- **Ground Water Recharge (GWR)** – Beneficial uses of waters used for natural or artificial recharge of ground water for purposes of future extraction, maintenance or water quality, or halting of saltwater intrusion into freshwater aquifers.
- **Freshwater Replenishment (FRSH)** – Beneficial uses of waters used for natural or artificial maintenance of surface water quantity or quality (e.g., salinity).
- **Contact Water Recreation (REC-1)** – Beneficial uses of waters used for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and SCUBA diving, surfing, white water activities, fishing, and use of natural hot springs.
- **Non-Contact Water Recreation (REC-2)** – Beneficial uses of waters used for recreational activities involving proximity to water, but not normally involving body contact with water where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, and aesthetic enjoyment in conjunction with the above activities.
- **Commercial and Sportfishing (COMM) –** Beneficial uses of waters used for commercial or recreational collection of fish or other organisms including, but not limited to, uses involving organisms intended for human consumption.
- **Warm Freshwater Habitat (WARM)** – Beneficial uses of waters that support warmwater ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

- **Cold Freshwater Habitat (COLD)** – Beneficial uses of waters that support coldwater ecosystems including, but not limited to, preservation and enhancement of aquatic habitats, vegetation, fish, and wildlife, including invertebrates.
- **Inland Saline Water Habitat (SAL)** – Beneficial uses of waters that support inland saline water ecosystems including, but not limited to, preservation and enhancement of aquatic saline habitats, vegetation, fish, and wildlife, including invertebrates.
- **Wildlife Habitat (WILD)** – Beneficial uses of waters that support wildlife habitat including, but not limited to, the preservation and enhancement of vegetation and prey species used by wildlife, such as waterfowl.
- **Water Quality Enhancement (WQE)** – Beneficial uses of waters that support natural enhancement or improvement of water quality in or downstream of a water body including, but not limited to, erosion control, filtration and purification of naturally occurring water pollutants, streambank stabilization, maintenance of channel integrity, and siltation control.
- **Flood Peak Attenuation/Flood Water Storage (FLD)** – Beneficial uses of riparian wetlands in floodplain areas and other wetlands that receive natural surface drainage and buffer its passage to receiving waters.

Table 2-2
Beneficial Uses for Surface Waters and Groundwaters

Surface Water and Groundwater Body	Hydrologic Unit Basin Number	Beneficial Use													
		MUN	*AGR*	*IND*	*GWR*	*FRSH*	*REC-1*	*REC-2*	*COMM*	*WARM*	*COLD*	*SAL*	*WILD*	*WQE*	*FLD*
Antelope HU: Rogers Lake Wetland	626.00	●					●	●		●		●	●	●	●
Chafee and Gloster HA Minor Surface Waters	626.10 and 626.20	●	●		●		●	●	●	●	●		●		
Chafee and Gloster HA Minor Wetlands	626.10 and 626.20	●	●		●	●	●	●		●			●	●	●
Fremont Valley Groundwater Basin	6-46	●	●	●		●									

Source: Lahontan Region RWQCB 2016.
Notes: MUN = Municipal and Domestic Supply; AGR = Agricultural Supply; IND = Industrial Service Supply; GWR = Ground Water Recharge; FRSH = Freshwater Replenishment; REC-1 = Water-Contact Recreation; REC-2 = Noncontact Water Recreation; COMM = Commercial and Sportfishing; WARM = Warm Freshwater Habitat; COLD = Cold Freshwater Habitat; SAL = Inland Saline Water Habitat; WILD = Wildlife Habitat; WQE = Water Quality Enhancement; FLD = Flood Peak Attenuation/Flood Water Storage; HU = Hydrologic Unit; ● = existing beneficial uses; HA = Hydrologic Area.

All surface water bodies within the Lahontan Region are subject to a suite of general WQOs designed to preserve each water's beneficial use. While a majority of the WQOs are not applicable for the discontinuous ephemeral streams and the proposed project activities (e.g., biostimulatory substances, total residual chlorine, radioactivity, taste, and odor), those related to potential increases in sediment loading are. Current WQOs require that sediment loading "not be altered in such a manner as to cause nuisance or adversely affect the water for beneficial uses," while turbidity shall not exceed 10% of existing conditions. Additional WQOs which are applicable to ancillary O&M activities include standards for floating materials and oil and grease. No additional WQOs have been established for the discontinuous ephemeral streams and Rogers Dry Lake in the Antelope Valley HU.

3 SANBORN SOLAR – HYDROLOGY

The project site hydrology was assessed following KCHM unit hydrograph methodology in order to characterize potential project impacts to hydrology and water quality resources as they relate to surface waters (i.e., modify natural drainage patterns, increase flooding, accelerate erosion, and degrade water quality). Hydrology study methods are provided in detail in Section 3.1, followed by a comparison of results for the existing and proposed conditions.

3.1 Hydrology Study – Methods

Peak discharge resultant from the 100-year 24-hour rainfall event was calculated for the project's four concentration points[2] using the unit hydrograph method as defined in the KCHM. Drainage design specifications established in Section E.2 of the KCHM (County of Kern n.d.) require that projects with watershed areas greater than 640 acres have their peak flows calculated using the unit hydrograph method. The total discharge volume for a given rainfall event is calculated in this method using the curve number method from the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) (County of Kern n.d., Section C). The total discharge volume is then distributed temporally using a County-provided S-graph (County of Kern n.d., Figure E-3a) and a watershed-specific lag time (County of Kern n.d., Equation E.2) in the U.S. Army Corps of Engineers' HEC-HMS. The HEC-HMS "User Specified S-Graph" transformation produces a runoff hydrograph by first calculating each time-step's total runoff (based on effective rainfall and basin area), and then temporally distributes discharge based on basin lag-time and the County-provided S-Graph. This procedure is repeated for each time-step (which was set at 5 minutes in this study), creating a series of hydrographs offset by one time-step (5 minutes). The summation of these hydrographs results in a final runoff hydrograph that provides a peak-discharge value in cubic feet per second (cfs).

While results derived from this analysis likely exaggerate the volume and peak discharge for the 100-year 24-hour event in this region,[3] this method is still an accurate tool for assessing project impacts to hydrology relative to existing and proposed conditions (e.g., percent increase/decrease in peak discharge). The data necessary for completing this analysis includes elevation, watershed area/shape and flow paths, soils, land use, and design storm rainfall hyetograph (a graph plotting rainfall depth over time). The development of the hydrology model components for each watershed, and their results, are provided in Sections 3.1.1 through 3.1.4.

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2 The concentration point is the point at which all flow from the project area discharges downstream. This point also includes upland flow from areas outside the project boundary.

3 The unit hydrograph method does not include flow attenuation via transmission losses and/or evaporation, which are key components to the hydrology of this region (as apparent from the abundance of discontinuous ephemeral streams and ephemeral playas – see Figure 2-2).

3.1.1 Existing Topography

Topographic data were derived from a USGS 1/3 arc-second (10-meter) Digital Elevation Model (DEM) (USGS 2013). The elevation at the highest point on the project site (northwest corner) is 2,660 feet above mean sea level and at the lowest point (5.6 miles to the southeast) is 2,500 feet above mean sea level. The proposed project site primarily slopes towards the east-southeast at an approximate average grade of 0.5%. The existing topography of the project site and its surroundings is presented in Figure 3-1, Existing Conditions.

Project Watershed Delineation

The four watersheds contributing run-on to and receiving runoff from the project were delineated using ArcHydro GIS analyses on the 1/3 arc-second (10-meter) USGS DEM (USGS 2013) (Figure 3-1). Flow from all four watersheds converges approximately 1.5 miles downstream from the project area in a well-defined channel that ultimately discharges into Rogers Dry Lake (Figure 2-1). A site visit was conducted on May 8, 2017, to verify watershed boundaries derived in GIS and to identify drainage features not captured within the 10-meter DEM. The basins are described in the following paragraphs.

Basin 100

Basin 100 encompasses 2,670 acres north of the northern section. A berm located at the northwest boundary of the basin directs flow generated in the Tehachapi Mountains southwest through a stormwater conveyance system in the Town of Mojave (Basin 200). There are no National Hydrography Dataset flowlines (USGS 2017) or FEMA flood zones (FEMA 2008) mapped in Basin 100 in the northern section (Figures 2-1 and 2-2), indicating a lack of hydrologic activity in this area. Despite this, an incised channel has formed along the north–south-oriented road downstream from SR-58. This feature is the result of runoff generated within the Mojave Air and Space Port (Figures 2-1 and 2-2). The incised channel continues due south along this road for approximately 1,300 feet into the middle of the northern section until the channel's gradient flattens and concentrated flows disperse into broad sheet flow, where they are likely lost to infiltration and/or evaporation.

Basin 200

Basin 200 encompasses 3,710 acres northwest of the northern section. Runoff in this basin is captured from a small section of the Tehachapi Mountain range and the Town of Mojave before reaching the western boundary of the northern section (Figure 2-1). Flow from this watershed

concentrates along the north side of the railroad embankment and parallels this feature (which serves as a berm)[4] until it discharges at the southeast corner of the northern section.

Basin 300

Basin 300 is the largest of the project watersheds, encompassing 29,440 acres, and collects runoff generated from 25,460 acres west-northwest of the southern site between the Tehachapi Mountains and SR-14. Discontinuous ephemeral channels were observed throughout this watershed during the May 2017 site visit, primarily along the medians of roads or within unmaintained dirt roads. Flow coalesces along SR-14 prior to entering a series of culverts just north of Purdy Avenue that drain to the east. From here, surface flows travel east along the northern margin of Purdy Avenue until finally reaching the railroad embankment. Flows parallel the south side of the railroad embankment, fluctuating between a defined channel and sheet flow (discontinuous ephemeral channel), prior to discharging to the southern section. Water disperses into sheet flow and/or ponds within ephemeral playas throughout the southern section before continuing down to the southeastern section where topography steepens and one fairly well-defined channel exists downstream of Dalton Avenue.

Basin 400

Basin 400 encompasses a small area (940 acres) and has poorly defined drainage features. This is the only watershed where surface flows do not originate on the other side of a state highway.

3.1.2 Hydrologic Soil Groups and Land Cover

The two components required for developing a basin's curve number are the spatial distribution of the basin's soils and land cover. Figure C-2 of the KCHM (County of Kern n.d.) provides a table linking soil hydrologic group types with land cover types and was used in developing weighted curve numbers for each basin.

Soils are classified by NRCS (USDA 2017) into four Hydrologic Soil Groups based on the soil's runoff potential. The four Hydrologic Soil Groups are A, B, C and D. Group A generally has the smallest runoff potential and Group D the greatest. The Hydrologic Soil Groups are defined as follows:

[4] A wooden culvert is located along the railroad embankment in order to convey elevated flows from north of the embankment (Basin 200) to the south (Basin 300). During the May 5, 2017, site visit, the physical drainage feature paralleling the embankment in Basin 200 did not lead to the culvert, but proceeded down the northern side of the embankment toward the northern section. Based on initial site visit observations, it is assumed that the culvert is set higher than the drainage feature in Basin 200 and that only water reaching a specific stage will pass through this feature (based on current grading). For this analysis, it is assumed that the railroad embankment serves as a barrier between Basins 200 and 300.

- **Group A.** Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well-drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.
- **Group B.** Soils having a moderate infiltration rate when thoroughly wet. These consist primarily of moderately deep or deep, moderately well-drained or well-drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.
- **Group C.** Soils having a slow infiltration rate when thoroughly wet. These consist mostly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.
- **Group D.** Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist largely of clays that have a high shrink–swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

The project does not propose to import fill, and will employ minimally invasive grading techniques; therefore, it is assumed that the only impacts to soil hydrology will occur where impervious structures are proposed (e.g., transformer pads, O&M building), and within the O&M yard and along the unpaved access roads and in the assumed D soils. Soil classifications for each of the four project watersheds for existing and proposed conditions are shown in Figure 3-1, Existing Conditions, and Figure 3-2, Proposed Conditions. A comparison of existing and proposed Soil Hydrologic Group areas is provided in Table 3-1.

Table 3-1
Soil Hydrologic Groups

Project Watershed	A Soil (%)		B Soil (%)		C Soil (%)		D Soil (%)	
	Existing	*Proposed*	*Existing*	*Proposed*	*Existing*	*Proposed*	*Existing*	*Proposed*
Basin 100	6.1	6.1	0	0	93.9	92.5	0	1.4
Basin 200	45.7	45.7	0	0	54.3	53.5	0	0.8
Basin 300	60.8	60.8	1.2	1.2	38.0	37.9	0	0.1
Basin 400	7.8	7.7	0	0	92.2	90.0	0	2.2

The land uses for each project basin were characterized using the 2011 National Land Cover Database (NLCD 2011a), as well as the NLCD Percent Developed Imperviousness Collection (NLCD 2011b), in ArcGIS. These land cover classifications were then converted to match the descriptions in Figure C-2 of the KCHM (e.g., shrub/scrub = open brush; County of Kern n.d.).

The dominant land cover for each basin is characterized as shrub/scrub (assumed in "fair" condition for this analysis), where the Town of Mojave and surrounding low-density residential areas compose the remainder of the project basins' land cover. Basin 100 has the highest percentage of impervious surfaces (10%), while Basin 400 has the lowest (0.1%).

While the northern and southern project sections are classified as entirely shrub/scrub in the 2011 NLCD (excluding a few small patches of herbaceous cover in the northern section), the dirt roads are captured in the 2011 NLCD Percent Developed Imperviousness Collection, and are included in calculating the overall imperviousness of each basin.

Changes in site conditions as a result of the project will be confined to the impervious features, the O&M area, and the access roads. For the proposed conditions hydrology study, 105 acres of access roads, 12 acres for the O&M area, and an additional 0.7 acres of impervious surfaces (O&M building and project concrete slabs) replaced the shrub/scrub covers within the four basins (5.6% of the total project area). The soils and land cover beneath the solar panels will be temporarily impacted during construction, but will return to natural conditions and are treated as such in the proposed condition hydrology study. Existing and proposed basin curve numbers are provided in Table 3-2.

Table 3-2
Basin Losses

Basin	Curve Number	Runoff Yield Fraction	Low Loss Fraction	Maximum Loss Rate (in/hr; Fm)
100	79.5	0.51	0.49	0.43
200	64.0	0.29	0.71	0.64
300	58.7	0.21	0.79	0.75
400	72.8	0.27	0.73	0.56

In/hr = inches per hour; Fm = maximum loss rate.

3.1.3 Basin Losses and Design Rainfall Event

Per the KCHM, basin discharge is modeled using "effective rainfall," or the fraction of precipitation that becomes surface flow (County of Kern n.d.). To calculate effective rainfall, "losses" (i.e., precipitation that infiltrates the soil rather than being converted to surface flow) are subtracted from the design 24-hour storm depth. Losses are calculated using the infiltration properties of soil and land cover in a basin.

Each basin's weighted soil hydrologic groups (USDA 2018) and land cover types (Homer et al. 2015) are assigned area-weighted curve numbers following the NRCS methodology established in the

KCHM (County of Kern n.d., Section C, Figure C-2). A Level II Antecedent Moisture Condition was used in developing the curve number for each basin; this is a conservative approach, as it assumes soil moisture content is near field capacity, which is infrequent in this arid region. Low loss rates (F*, a loss rate proportional to rainfall intensity) and maximum loss rates (Fm, which the calculated loss rates may not exceed) are then calculated and applied to each time increment in basin's design rainfall event to create a hyetograph of only effective rainfall. Area-weighted components for calculating each basin's existing condition losses are provided in Table 3-2.

The development of a design rainfall event for an individual basin incorporates information from isohyetal maps, the basin area, and a critical storm pattern specified in the KCHM. First, the 100-year 24-hour total rainfall depth was identified at the centroid of each basin with the National Oceanic and Atmospheric Administration's Atlas-14 Point Precipitation Frequency Estimates (Appendix A, Project Basin Rainfall Depths/Frequencies – NOAA Atlas 14) (NOAA 2018b).

Second, per the KCHM, point precipitation values must be adjusted to account for area as watersheds increase in size. This depth-area adjusted 100-year 24-hour rainfall event was created following KCHM's protocol (County of Kern n.d., Figures E-4 and E-5). Area-averaged rainfall depths for each basin are provided in Table 3-3.

Table 3-3
NOAA Atlas-14 Rainfall Depths and Depth-Area Adjusted Depths
100-Year Rainfall Event

Basin	NOAA Atlas-14 Rainfall Depth (in) Storm Duration						Depth-Area Adjusted Rainfall Depth (in) Storm Duration					
	5-min	*30-min*	*1-hr*	*3-hr*	*6-hr*	*24-hr*	*5-min*	*30-min*	*1-hr*	*3-hr*	*6-hr*	*24-hr*
100	0.31	0.73	1.03	1.73	2.26	3.95	0.27	0.63	0.89	1.70	2.24	3.91
200	0.33	0.77	1.08	1.81	2.40	4.27	0.27	0.64	0.90	1.76	2.35	4.23
300	0.33	0.77	1.09	1.78	2.41	4.56	0.15	0.37	0.56	1.51	2.24	4.38
400	0.27	0.64	0.90	1.44	1.91	3.70	0.27	0.63	0.89	1.43	1.89	3.70

Source: NOAA 2018b.
Notes: NOAA = National Oceanic and Atmospheric Administration; in = inches; min = minute; hr = hour.

Third, this total volume is distributed across a synthetic 24-hour critical storm pattern (County of Kern n.d., Figure E-5) to create a rainfall hyetograph. Lastly, basin losses (Table 3-2) are subtracted from the total rainfall to create a rainfall hyetograph consisting only of effective rainfall (County of Kern n.d., Section E.7). The final design rainfall events for each basin are then loaded into the HEC-HMS model as time-series data.

3.1.4 Lag Time and S-Graph

The remaining components required for developing each basin's unit hydrograph are lag and summation hydrographs with time expressed as percent of lag (S-Graphs). Lag was calculated for each basin using the KCHM's equation E.2, which used watershed slope, shape, longest flow path length (both total length and length from the watershed centroid), and basin factor as defined in Figure E-2 of the KCHM (a basin factor of 0.025 was assigned to each basin in this study). The longest lag-time was calculated for Basin 300 at 1.66 hours, while the shortest was for Basin 400 at 0.73 hours.

Lastly, the KCHM provides five previously developed S-Graphs for regions within Kern County. The S-Graph developed for the Desert Region (County of Kern n.d., Figure E-3a) was used for this study.

Along with basin area, these components are used to define each basin in the HEC-HMS model. Runoff hydrographs were developed within HEC-HMS using these basin attributes with user-specified S-Graph transformation and the design rainfall event time-series discussed previously. Because natural flow paths would be maintained for the proposed project, lag times and S-Graphs used for existing and proposed hydrology models would be the same.

3.2 Hydrology Study – Results

Total 100-year 24-hour rainfall event peak discharge (cfs) and runoff volume (acre-feet) modeled at each basin's concentration point are provided in Table 3-4. Hydrologic modeling results are included in Appendix B, HEC-HMS Hydrographs.

The project will result in a measured increase in peak discharge for two of the four basins. Basin 100 will experience an increase in peak discharge of 0.4% (7.3 cfs), while Basin 400 will experience a 1.2% increase (9.5 cfs). Likewise for total runoff volume, there is an anticipated increase in runoff volume only from Basins 100 (4.1 acre-feet, or 0.8%) and 400 (3.4 acre-feet, or 2.2%). The cumulative impact from the four basins, to the point where flow coalesces in a channel 1.5 miles downstream from the project site, is a 0.1% increase in both peak discharge (16.8 cfs) and total runoff volume (7.5 acre-feet).

Table 3-4
100-Year 24-Hour Hydrology – Peak Discharge and Runoff Volume

Basin	Area (acres)	Existing Conditions[a]	Proposed Conditions[a]	Difference[a]	Percentage Difference
Peak Discharge (cubic feet per second) – 100-Year 24-Hour Event					
100	2,670	1,627.5	*1,634.8*	7.3	0.4
200	3,710	1,257.1	*1,257.1*	0	0.0

Table 3-4
100-Year 24-Hour Hydrology – Peak Discharge and Runoff Volume

Basin	Area (acres)	Existing Conditions[a]	Proposed Conditions[a]	Difference[a]	Percentage Difference
300	29,440	3,975.1	*3,975.1*	0	0.0
400	940	781.8	*791.3*	9.5	1.2
	Total	7,641.5	*7,658.3*	16.8	0.1
Runoff Volume (acre-feet) – 100-Year 24-Hour Event					
100	2,670	496	*500.1*	4.1	0.8
200	3,710	422	*422*	0	0.0
300	29,440	2,185.5	*2,185.5*	0	0.0
400	940	156.1	*159.5*	3.4	2.2
	Total	3,259.6	*3,267.1*	7.5	0.1

[a] Existing conditions, proposed conditions, and difference for peak discharge are in cubic feet per second and for runoff volume are in acre-feet.

4 CHARACTERIZATION OF PROJECT RUNOFF

This section provides a characterization of the project runoff as it relates to water quality. Runoff from the proposed project travels through a network of disconnected ephemeral drainages and may discharge to the Rogers Dry Lake, providing sufficient flows for overcoming losses due to channel transmission and evaporative demands. Neither Rogers Dry Lake nor the ephemeral drainages on the project site are listed as impaired water bodies according to the 2012 California Integrated Report published by the California Environmental Protection Agency and the State Water Resources Control Board (SWRCB 2015). Beneficial uses have been established for hydrologic features in the project's HAs (see Section 2.4, Water Quality), including Freshwater Replenishment and Wildlife Habitat. Project design and management will need to ensure the preservation of the beneficial uses identified in Table 2-2. Potential pollutants associated with the operation of the project facilities are summarized in this section.

Potential Pollutants

The pollutant most likely to be generated by the project would be increased sediment loading if surface flows were to concentrate along the access roads or develop beneath the drip lines of the solar panels. On-site grading should focus on minimizing soil compaction, allow for proper drainage of access roads, and maintain existing drainage patterns/topographic orientation to prevent the development of new drainage features.

During operation and maintenance of the project facilities, small quantities of hazardous materials may be periodically or routinely transported, used, and disposed of. These materials would consist primarily of minor amounts of petroleum products (fuels and lubricating oils) to fuel and maintain vehicles and power construction equipment. Additional wastes may include waste paint, spent construction solvents, waste cleaners, waste oil, oily rags, waste batteries, and spent welding materials. Workers would be trained to properly identify and handle all hazardous materials. Hazardous waste would be either recycled or disposed of at a permitted and licensed treatment and/or disposal facility. All hazardous waste shipped off site for recycling or disposal would be transported by a licensed and permitted hazardous waste hauler.

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5 PROJECT DESIGN CONSIDERATIONS

Project site plans include preservation of the existing drainage patterns and require no additional conveyance or detention structures. Nevertheless, the potential for generating pollutants exists. To address potential water quality issues to receiving waters (see Chapter 4, Characterization of Project Runoff), stormwater BMPs will be implemented during construction of the project. The BMPs are referenced from the California Department of Transportation (Caltrans) Treatment BMP Technology Report, and are recommended based on the preliminary project plans (Table 5-1).

Table 5-1
Recommended Project BMPs

Type of BMP	Design Concept	Description Applicable to the Proposed Project
Source Control BMPs	Non-Stormwater Discharge Controls	• Solar Panel and Equipment Washing: When possible, dry methods of solar panel and equipment washing will be applied. When the use of wet methods or acid-based solvents are required for equipment cleaning, direct application techniques will be used to limit non-stormwater discharges and other potential impacts to the drainage area.
	Good Housekeeping	• Site Maintenance: Recurring site inspections will be established to identify potential maintenance needs. • Material Storage: The collection or stockpiling of project materials/debris will need to take place within a secure facility that eliminates the exposure and transport of potential pollutants. If hazardous materials are involved, this will require the implementation of a secondary containment system.
	Non-Toxic Roofing Materials	Building materials that do not require toxic materials for weatherproofing (e.g., tar) will be used where possible.
Low Impact Development	Native Trees/Shrubs	Native vegetation can be incorporated across the proposed project site to reduce the hydrograph volume by increasing local evapotranspiration and can also reduce the peak hydrograph through rainfall interception. This can consist of low-lying groundcover that would not interfere with solar panel operations.
	Minimization of Impervious Footprint	Impermeable surfaces will be reduced through efficient site design.
	Construction Considerations	Soil compaction will be minimized (e.g., through the use of large treads, mow and roll grading), the site will be graded to promote sheet flow/preclude concentrated flows, and the scour channel that enters the northern section of the project site from SR-58 culverts will be stabilized.
	Maintenance of Natural Drainage Patterns and Avoidance of Flood Flow Interference	Solar trackers will not be installed within any area delineated as state jurisdictional waters. Access roads across such areas will be constructed in a manner that does not constrict or place fill in the cross-sectional area of the channel. Perimeter fencing will be designed in a manner that does not trap trash and/or debris during flood flows and that allows the free flow of water.

Source: Caltrans 2010.
Notes: BMP = best management practice; SR = State Route.

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6 PROJECT IMPACTS

This section presents the potential impacts associated with the project, as referenced by the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.). Where feasible, these impacts will be mitigated through application of various construction and post-development techniques, BMPs, and other operational practices.

6.1 CEQA Significance Criteria

Based on CEQA Guidelines Section 15382, a "significant effect on the environment" includes any substantial, or potentially substantial, impact on all environmental resources by a project. This section lists significance criteria related to hydrology and water quality impact analysis from the CEQA Guidelines, Appendix G. A project's impacts on hydrology and water quality would be considered significant if the project would:

1. Violate any water quality standards or waste discharge requirements.
2. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).
3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off site.
4. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site.
5. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
6. Otherwise substantially degrade water quality.
7. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.
8. Place within a 100-year flood hazard area structures which would impede or redirect flood flows.

9. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.
10. Inundation by seiche, tsunami, or mudflow.

6.2 Impacts Analysis

For the purpose of the discussion of project impacts below, it is assumed that the BMPs listed in Chapter 5, Project Design Considerations, will be made a project condition of approval through the conditional use permit application process. Therefore, these design considerations are considered elements of the project rather than mitigation measures.

1. Would the project violate any water quality standards or waste discharge requirements?

Based on the characterization of water quality impairments, potential project-related pollutant sources, comparison of existing versus proposed project runoff rates, and the implementation of stormwater BMPs identified in Chapter 5, the project's impact on water quality standards and waste discharge requirements would be less than significant. Potential construction-related water quality impacts of the project would be eliminated or substantially reduced by the requirements of the statewide Construction General Permit (SWRCB 2012), which is outside the scope of this report but will be developed separately and submitted with grading permit documents as a condition of approval.

2. Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

Based on the Water Supply Assessment (Dudek, 2018), the project will not adversely affect local groundwater resources.

3. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off site?

The project would not alter the course of a stream or river, but could result in slight alterations in the volume and velocity of stormwater runoff exiting the site. The issue of erosion and siltation impacts would be addressed through implementation of a construction stormwater pollution prevention plan (SWPPP), implementation of the project design considerations in Chapter 5, and grading the site to preclude the development of concentrated flows (e.g., mimicking the natural topography).

4. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site?

The project would not alter the course of a stream or river, but could result in slight alterations in the volume and velocity of stormwater runoff exiting the site. The overall 0.1% increase in peak discharge and total runoff discharge from the project is not considered substantial.

5. Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

The project is not located in an area that has an existing or planned stormwater drainage system (on site or downstream), and would not provide substantial additional sources of polluted runoff. Therefore, this issue is not applicable to the project.

6. Would the project otherwise substantially degrade water quality?

Other than those addressed by stormwater BMPs identified in Chapter 5, there are no elements of the project that would substantially degrade water quality.

7. Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

The project does not involve housing. There would be no impact with regard to this issue.

8. Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows?

The placement of structures within a 100-year flood hazard area is only a significant impact if it results in additional public exposure to flood hazards. This can occur if the activity is sufficient in scale to change the boundaries of a Special Flood Hazard Area as mapped by FEMA, or if the activity places residences or other permanent public uses within a flood zone. The potential for the existing 100-year flood to damage on-site facilities and structures is outside the scope of CEQA review because it represents a significant impact of the environment on the project, as opposed to a project impact on the environment.

As shown on Figure 3-2, approximately 125 acres of the project site is located within a 100-year flood hazard zone mapped by FEMA. In order to impede or redirect flood flows, there would need to be an appreciable change to the cross-sectional area of the flood zone within the project site,

such as might occur with significant grading (i.e., alteration of topography) or installation of large/bulky structures. Solar tracker masts along the western boundary of the northern section and through the center of the southern section would be located within the 100-year flood zone, but not within areas mapped as state jurisdictional waters (i.e., defined stream channels). What this means is that the solar panels installed within the floodplain would be within the portion of the floodplain that is expected to experience, shallow, slow-moving floodwaters. Therefore, the FEMA 100-year floodplain might intersect the tracker masts, but would not intersect the panels themselves. The tracker masts would constitute a negligible portion of the flood zone's cross-sectional area and thus would not appreciably impede or redirect flood flows. In addition, the project involves the use of minimally invasive grading techniques that would not change the elevation contours of the site. Finally, the O&M yard and structures would be located outside the mapped flood hazard zone.

The change in land use may result in a slight increase in peak discharge, as described in Section 3.2, Hydrology Study – Results. However, this increase would not result in a significant risk of loss, injury, or death resulting from flooding. The increase in peak discharge calculated for Basins 100 and 400 is minor (0.4% and 1.2%, respectively). These basins discharge to the east into discontinuous ephemeral streams and ephemeral playas. The closest infrastructure is 12 miles east-southeast at Edwards Air Force Base, at which point the total increase to peak discharge will be 0.1% at most (see Section 3.2).

Should a significant flood occur and result in damage to the solar trackers, it would be a maintenance and repair issue for the applicant rather than a significant impact on public health and safety or the environment. Therefore, the impact of the project with respect to impedance or redirection of flood flows would be less than significant.

9. Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?

There are no dams or levees upstream (i.e., within the watershed) of the project site. Therefore, the project is not located in a flood hazard zone in relation to dam or levee failure. There would be no impact with regard to this issue.

10. Would the project increase the risk of inundation by seiche, tsunami, or mudflow?

The project is not located in a flood hazard zone, including floods resulting from dam or levee failure. There would be no impact with regard to this issue.

7 CONCLUSIONS

Based on this study, the proposed project would have minimal impacts on hydrology and water quality within, and downstream from, the project site. The primary findings of this study are summarized as follows:

1. The proposed project would result in a cumulative increase in stormwater generated for the 100-year rainfall events by 0.1%. This increase in volume is not substantial.
2. While none of the project infrastructure is proposed within the active drainage channels (jurisdictional waters), portions of the project are located within the 100-year flood zone. Based on the FEMA Flood Insurance Rate Maps, surface flows within these areas are anticipated to be less than 1 foot deep and should have low velocities (e.g., low scouring potential).
3. Based on the low average annual rainfall and high annual evapotranspiration demand for this region, recharge at the site is considered negligible except during years with above-average rainfall. With the use of low-impact construction techniques to minimize soil compaction (e.g., use of large tread and mow-and-roll grading), the existing groundwater recharge potential for the site should remain comparable between pre- and post-development conditions.
4. With the incorporation of a construction SWPPP, site-grading project design considerations, and good housekeeping, the proposed project would not have a substantial impact with regard to water quality.

With the application of appropriate Source Control and Low-Impact Development BMPs, the proposed project would not have substantial impacts on the hydrology and water quality resources within, or downstream of, the project site.

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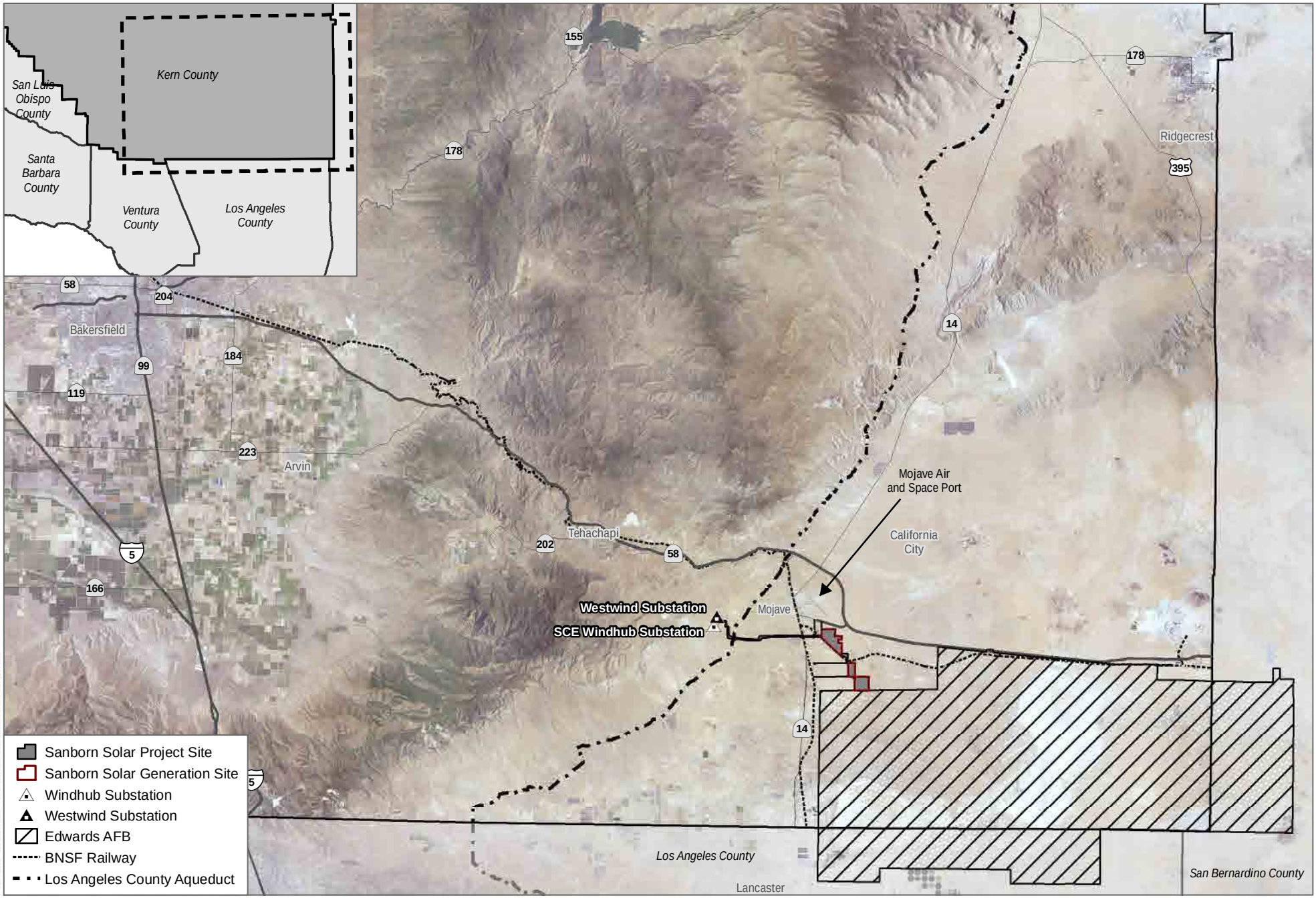

SOURCE: TerraGen 2017, 2018; County of Kern 2018; BLM 2018; ESRI 2018; NAIP 2016

DUDEK

0 5 10 Miles

FIGURE 1-1

Project Vicinity

Sanborn Solar Hydrology and Water Quality Technical Report

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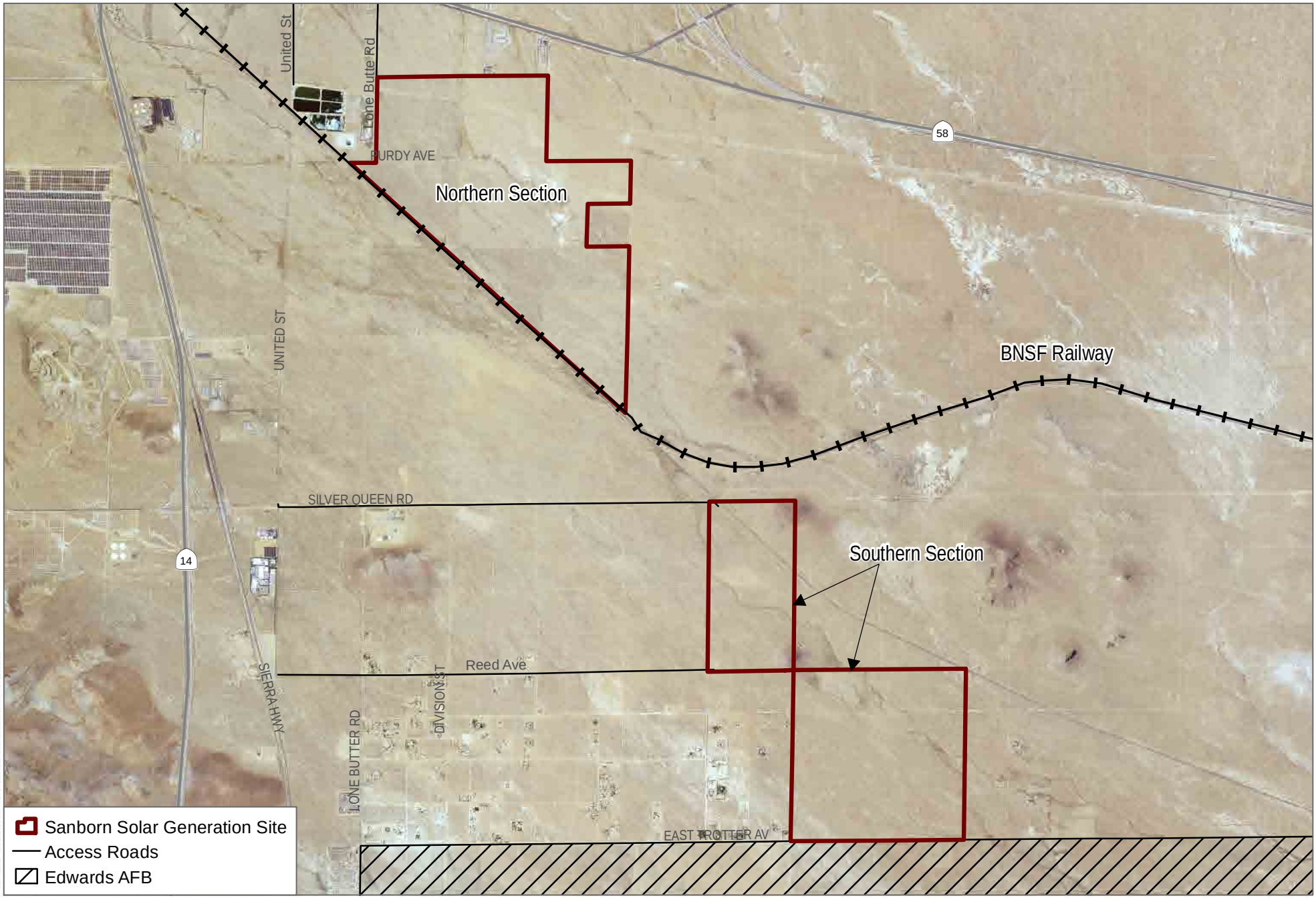

SOURCE: TerraGen 2017, 2018; County of Kern 2018; BLM 2018; ESRI 2018; NAIP 2016

DUDEK

0 0.5 1 Miles

FIGURE 1-2

Project Site

Sanborn Solar Hydrology and Water Quality Technical Report

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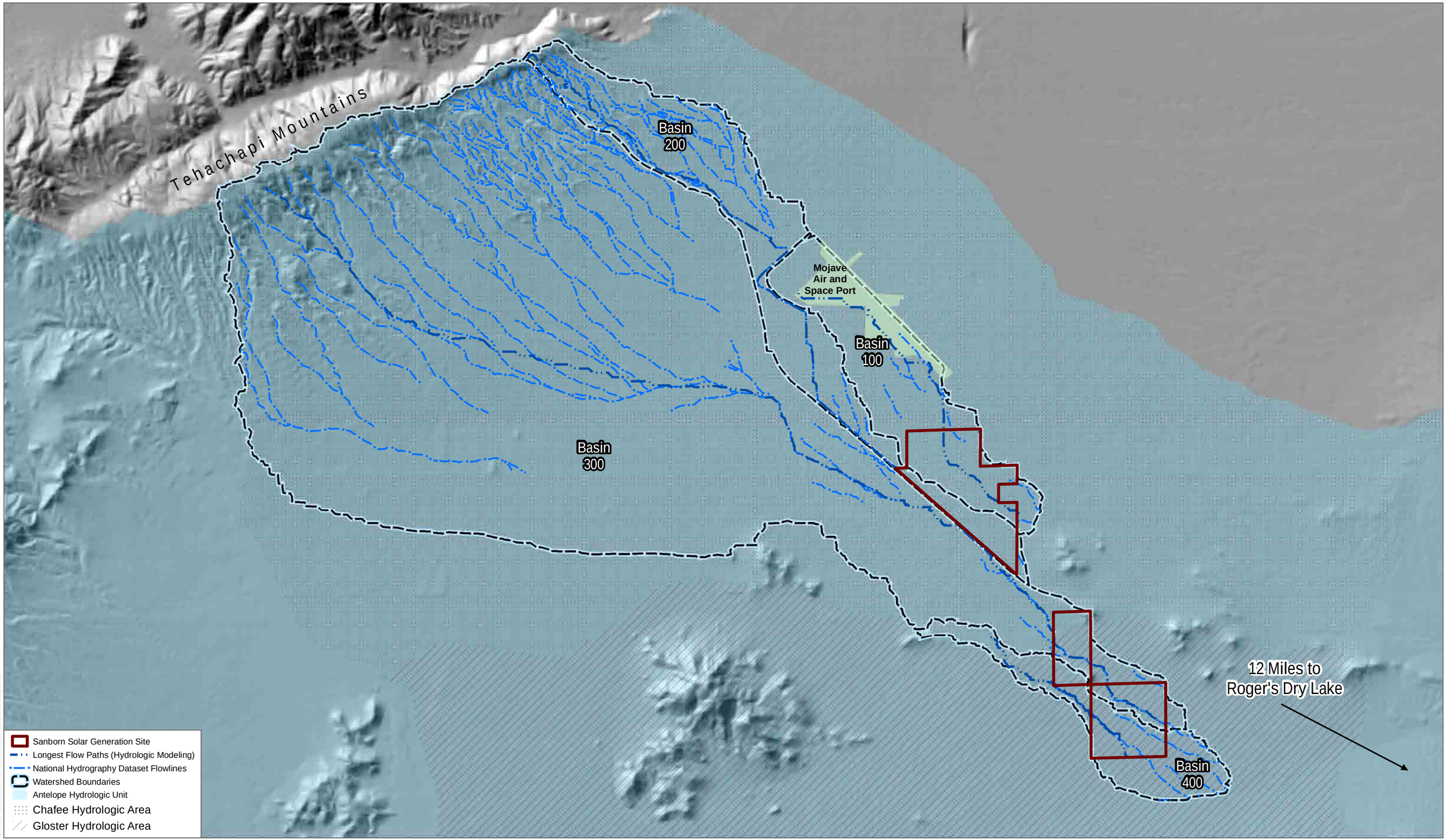

SOURCE: TerrGen 2018; USGS 2013

DUDEK

0 0.5 1 Miles

FIGURE 2-1

Regional Hydrologic Setting

Sanborn Solar Hydrology and Water Quality Technical Report

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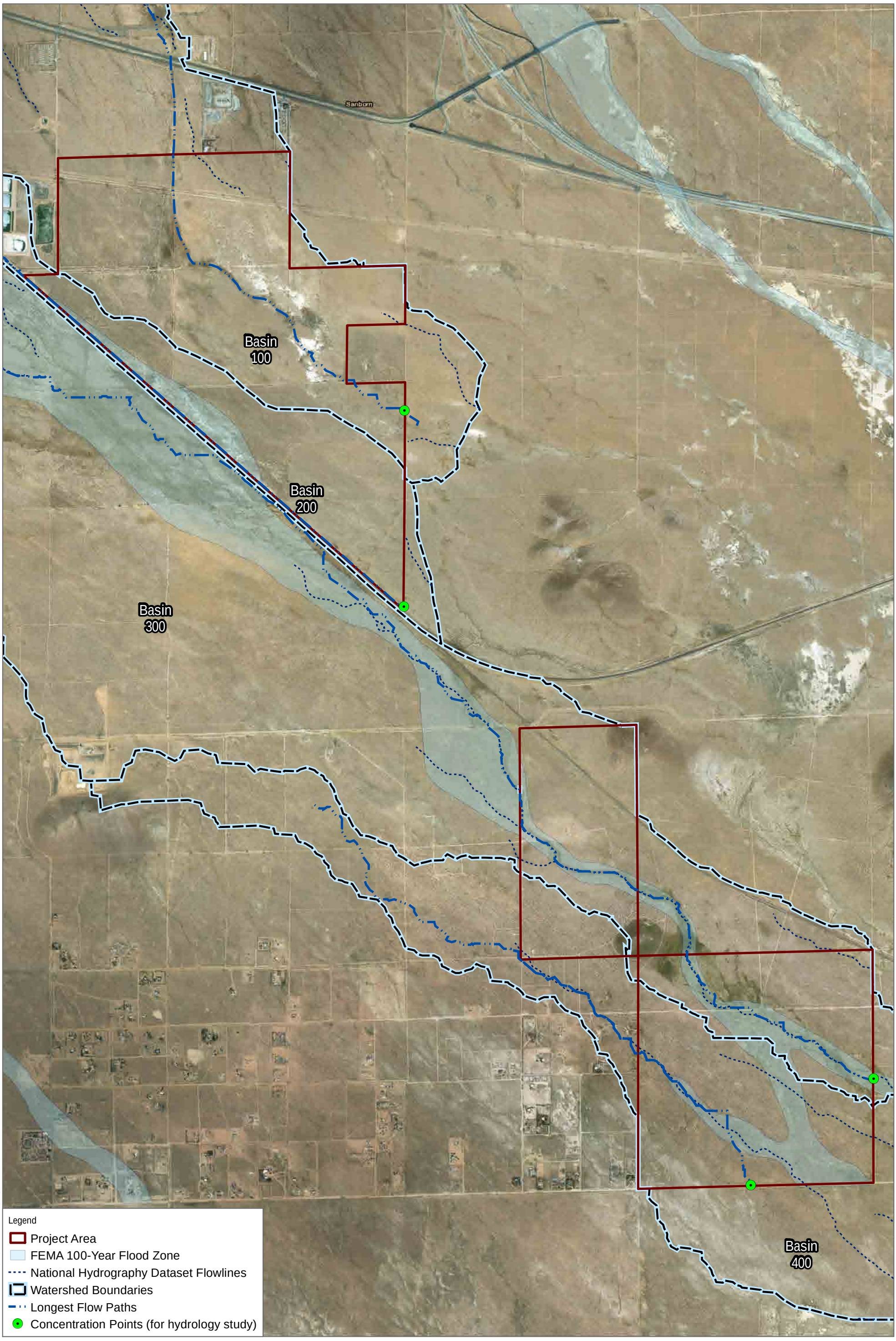

SOURCE: TerraGen 2018; USGS 2013; FEMA 2008

DUDEK

0 1,000 2,000 Feet

FIGURE 2-2

Project Site Hydrologic Setting

Sanborn Solar Hydrology and Water Quality Technical Report

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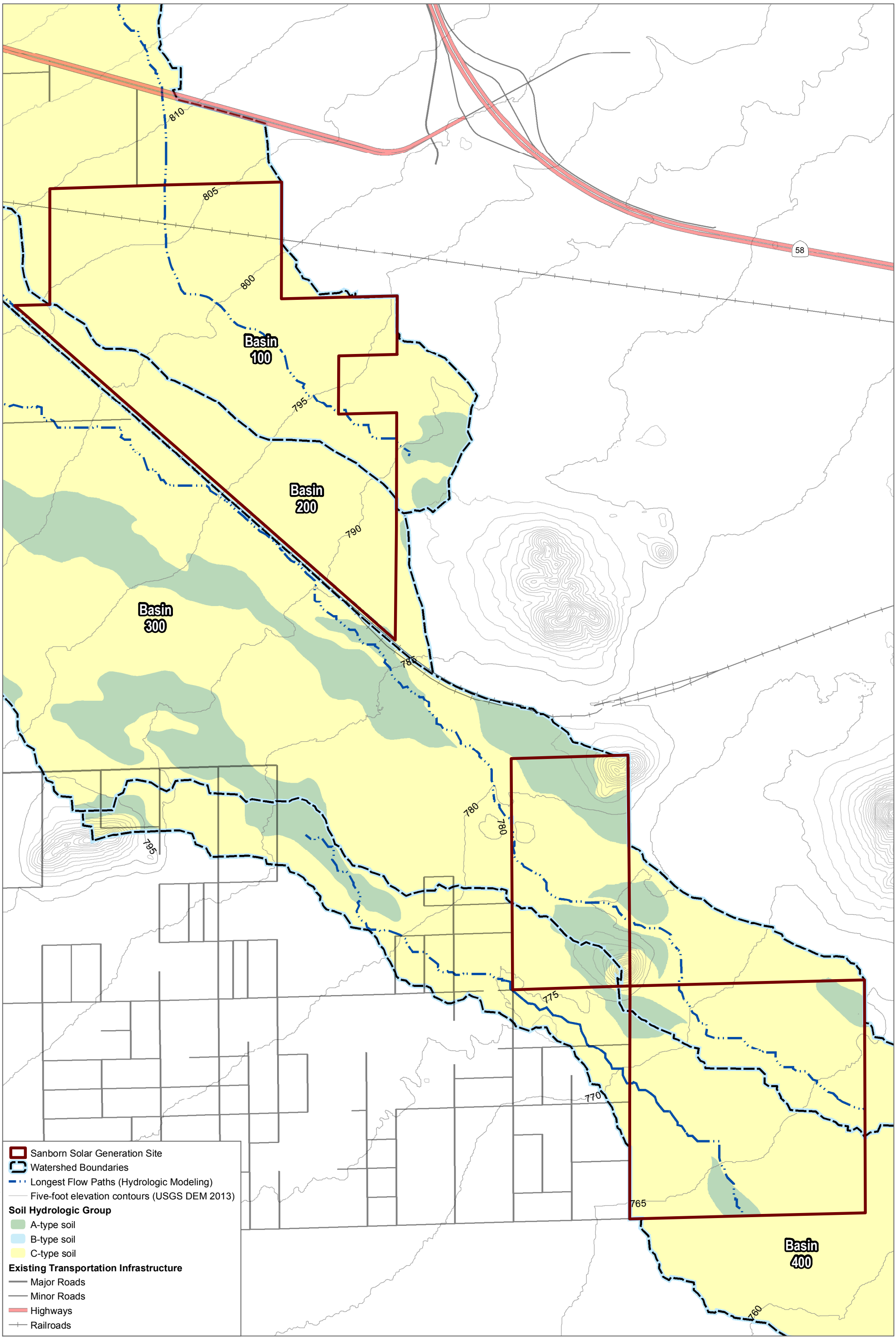

SOURCE: TerraGen 2018; USGS 2013; USDA 2017

DUDEK

0 1,000 2,000 Feet

FIGURE 3-1

Existing Conditions

Sanborn Solar Hydrology and Water Quality Technical Report

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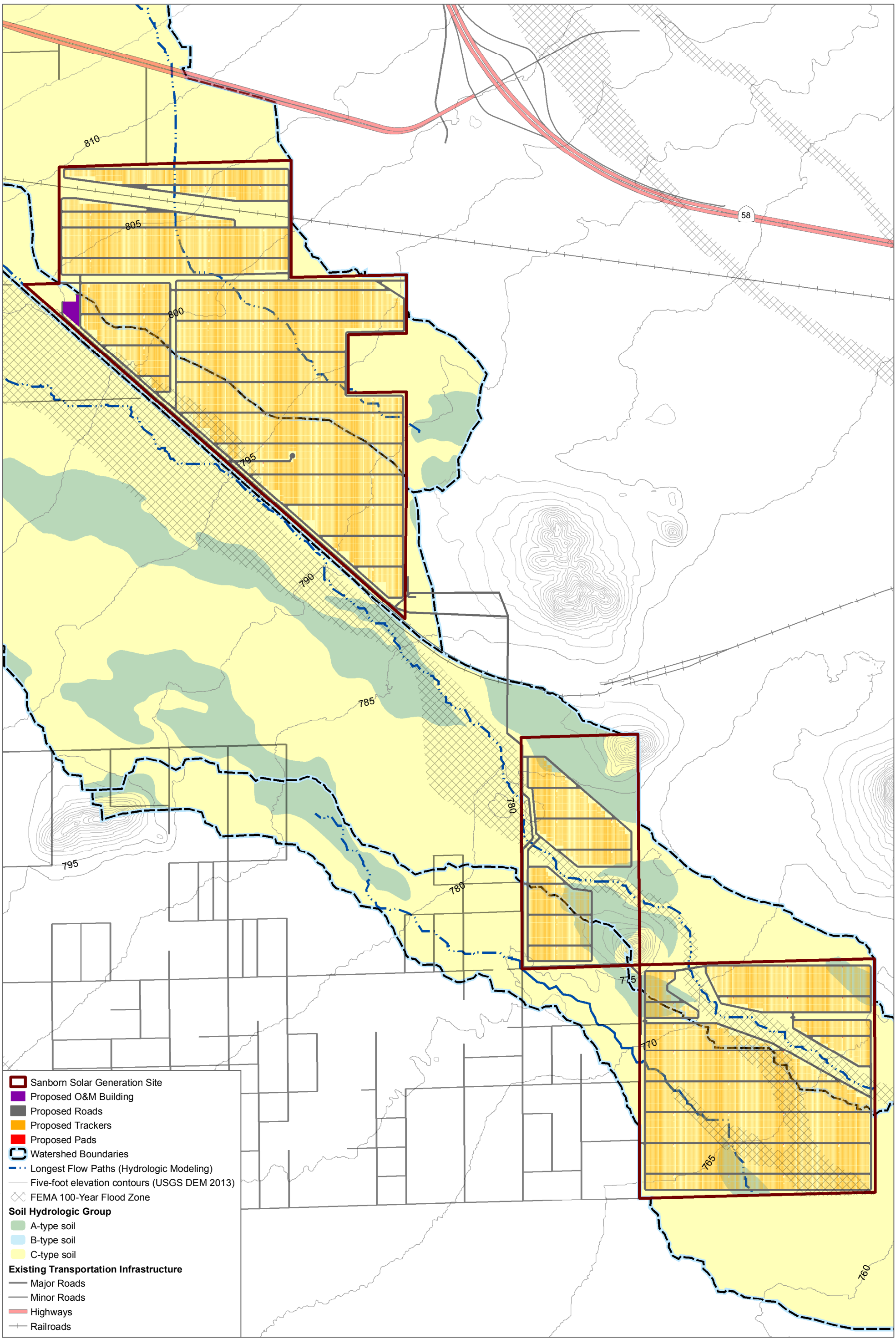

SOURCE: TerraGen 2018; Revamp Engineering Inc., 2018; USGS 2013; USDA 2017

DUDEK

0 1,000 2,000 Feet

FIGURE 3-2

Proposed Conditions

Sanborn Solar Hydrology and Water Quality Technical Report

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APPENDIX A

Project Basin Rainfall Depths/Frequencies
NOAA Atlas 14

Point Precipitation Frequency Estimates for

BASIN 100

NOAA Atlas 14

5/17/2017

NOAA Atlas 14, Volume 6, Version 2
Location name: Mojave, California, USA*
Latitude: 35.0418°, Longitude: -118.1419°
Elevation: 2688.44 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.073 (0.060-0.089)	0.099 (0.081-0.122)	0.137 (0.112-0.169)	0.170 (0.138-0.212)	0.221 (0.173-0.283)	0.263 (0.203-0.345)	0.310 (0.233-0.417)	0.363 (0.265-0.501)	0.441 (0.310-0.635)	0.508 (0.345-0.756)
10-min	0.104 (0.086-0.128)	0.142 (0.116-0.174)	0.196 (0.160-0.242)	0.244 (0.198-0.303)	0.316 (0.249-0.406)	0.377 (0.291-0.495)	0.445 (0.334-0.597)	0.520 (0.380-0.718)	0.632 (0.444-0.909)	0.728 (0.494-1.08)
15-min	0.126 (0.104-0.155)	0.171 (0.141-0.211)	0.237 (0.194-0.292)	0.295 (0.240-0.367)	0.382 (0.301-0.491)	0.456 (0.351-0.598)	0.538 (0.404-0.722)	0.629 (0.460-0.868)	0.765 (0.537-1.10)	0.881 (0.598-1.31)
30-min	0.172 (0.141-0.211)	0.234 (0.192-0.287)	0.323 (0.264-0.398)	0.402 (0.327-0.500)	0.521 (0.410-0.669)	0.621 (0.479-0.815)	0.732 (0.551-0.984)	0.856 (0.626-1.18)	1.04 (0.731-1.50)	1.20 (0.814-1.79)
60-min	0.242 (0.199-0.297)	0.329 (0.270-0.404)	0.454 (0.372-0.560)	0.566 (0.460-0.704)	0.733 (0.577-0.942)	0.875 (0.674-1.15)	1.03 (0.775-1.39)	1.21 (0.882-1.67)	1.47 (1.03-2.11)	1.69 (1.15-2.51)
2-hr	0.369 (0.304-0.453)	0.494 (0.406-0.608)	0.670 (0.549-0.827)	0.824 (0.669-1.02)	1.05 (0.824-1.35)	1.23 (0.949-1.62)	1.43 (1.08-1.92)	1.65 (1.21-2.28)	1.97 (1.38-2.83)	2.23 (1.51-3.32)
3-hr	0.459 (0.378-0.564)	0.613 (0.503-0.754)	0.827 (0.677-1.02)	1.01 (0.821-1.26)	1.28 (1.00-1.64)	1.49 (1.15-1.96)	1.73 (1.30-2.32)	1.98 (1.45-2.73)	2.34 (1.64-3.36)	2.64 (1.79-3.92)
6-hr	0.613 (0.504-0.753)	0.820 (0.673-1.01)	1.10 (0.904-1.36)	1.35 (1.09-1.67)	1.69 (1.33-2.17)	1.97 (1.51-2.58)	2.26 (1.70-3.03)	2.57 (1.88-3.55)	3.01 (2.12-4.34)	3.37 (2.29-5.02)
12-hr	0.777 (0.639-0.955)	1.05 (0.865-1.30)	1.43 (1.17-1.76)	1.75 (1.42-2.17)	2.20 (1.73-2.82)	2.55 (1.97-3.35)	2.93 (2.20-3.93)	3.33 (2.43-4.60)	3.89 (2.73-5.59)	4.34 (2.95-6.46)
24-hr	1.00 (0.889-1.15)	1.38 (1.22-1.59)	1.90 (1.68-2.19)	2.33 (2.05-2.71)	2.95 (2.50-3.55)	3.44 (2.85-4.23)	3.95 (3.20-4.98)	4.50 (3.54-5.83)	5.27 (3.97-7.12)	5.88 (4.29-8.24)
2-day	1.20 (1.06-1.38)	1.67 (1.48-1.93)	2.33 (2.06-2.69)	2.89 (2.54-3.37)	3.70 (3.14-4.46)	4.36 (3.62-5.36)	5.06 (4.10-6.38)	5.81 (4.58-7.54)	6.89 (5.20-9.32)	7.78 (5.66-10.9)

3-day	**1.30** (1.16-1.50)	**1.83** (1.62-2.11)	**2.57** (2.27-2.97)	**3.21** (2.81-3.73)	**4.13** (3.50-4.97)	**4.88** (4.05-6.01)	**5.69** (4.61-7.18)	**6.57** (5.17-8.52)	**7.84** (5.92-10.6)	**8.89** (6.48-12.5)
4-day	**1.36** (1.21-1.56)	**1.92** (1.70-2.21)	**2.70** (2.38-3.11)	**3.37** (2.95-3.92)	**4.33** (3.68-5.22)	**5.12** (4.25-6.30)	**5.97** (4.83-7.52)	**6.88** (5.42-8.92)	**8.20** (6.18-11.1)	**9.28** (6.76-13.0)
7-day	**1.53** (1.36-1.76)	**2.16** (1.92-2.48)	**3.02** (2.67-3.49)	**3.75** (3.29-4.36)	**4.78** (4.05-5.76)	**5.61** (4.65-6.90)	**6.48** (5.24-8.16)	**7.40** (5.83-9.60)	**8.71** (6.57-11.8)	**9.76** (7.11-13.7)
10-day	**1.59** (1.41-1.83)	**2.24** (1.99-2.58)	**3.13** (2.77-3.61)	**3.87** (3.40-4.50)	**4.91** (4.17-5.91)	**5.74** (4.76-7.05)	**6.59** (5.34-8.31)	**7.49** (5.90-9.72)	**8.75** (6.60-11.8)	**9.86** (7.18-13.8)
20-day	**1.89** (1.68-2.17)	**2.70** (2.39-3.10)	**3.78** (3.35-4.37)	**4.69** (4.11-5.45)	**5.94** (5.04-7.15)	**6.93** (5.75-8.52)	**7.94** (6.43-10.0)	**9.01** (7.09-11.7)	**10.5** (7.90-14.2)	**11.6** (8.46-16.3)
30-day	**2.11** (1.87-2.42)	**3.03** (2.69-3.49)	**4.28** (3.79-4.94)	**5.32** (4.67-6.19)	**6.77** (5.74-8.15)	**7.92** (6.57-9.73)	**9.09** (7.36-11.5)	**10.3** (8.13-13.4)	**12.0** (9.07-16.3)	**13.4** (9.74-18.7)
45-day	**2.45** (2.17-2.82)	**3.54** (3.14-4.08)	**5.03** (4.45-5.80)	**6.28** (5.50-7.30)	**8.03** (6.81-9.66)	**9.42** (7.82-11.6)	**10.9** (8.80-13.7)	**12.4** (9.74-16.1)	**14.5** (10.9-19.6)	**16.2** (11.8-22.6)
60-day	**2.70** (2.40-3.11)	**3.91** (3.46-4.49)	**5.56** (4.91-6.41)	**6.95** (6.10-8.09)	**8.93** (7.57-10.7)	**10.5** (8.72-12.9)	**12.2** (9.85-15.3)	**13.9** (10.9-18.0)	**16.3** (12.3-22.1)	**18.3** (13.3-25.6)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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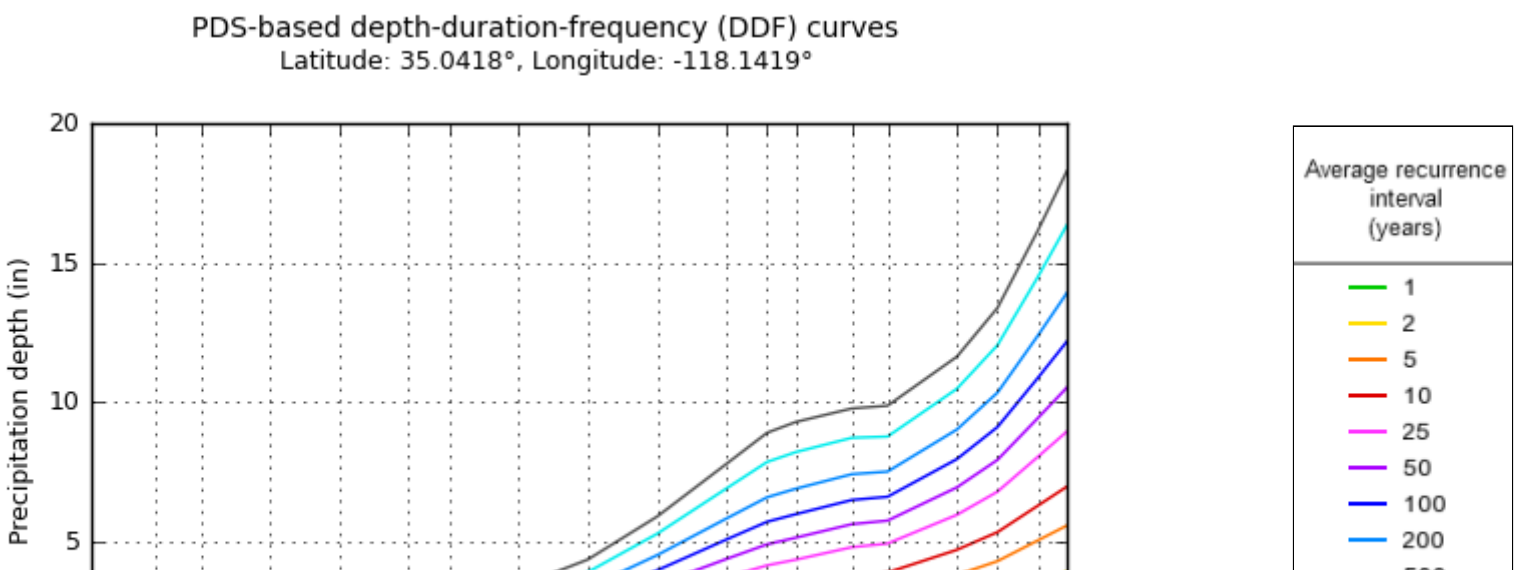
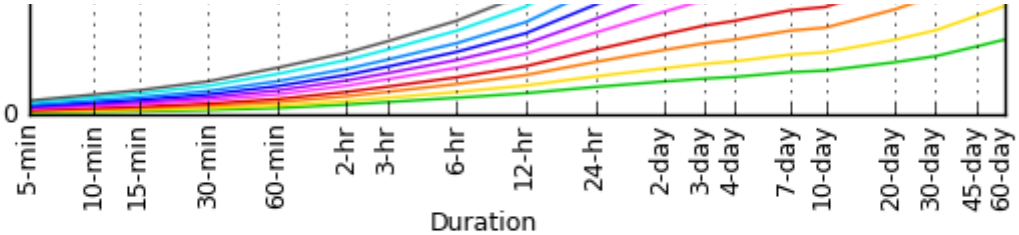
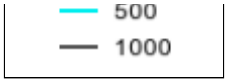
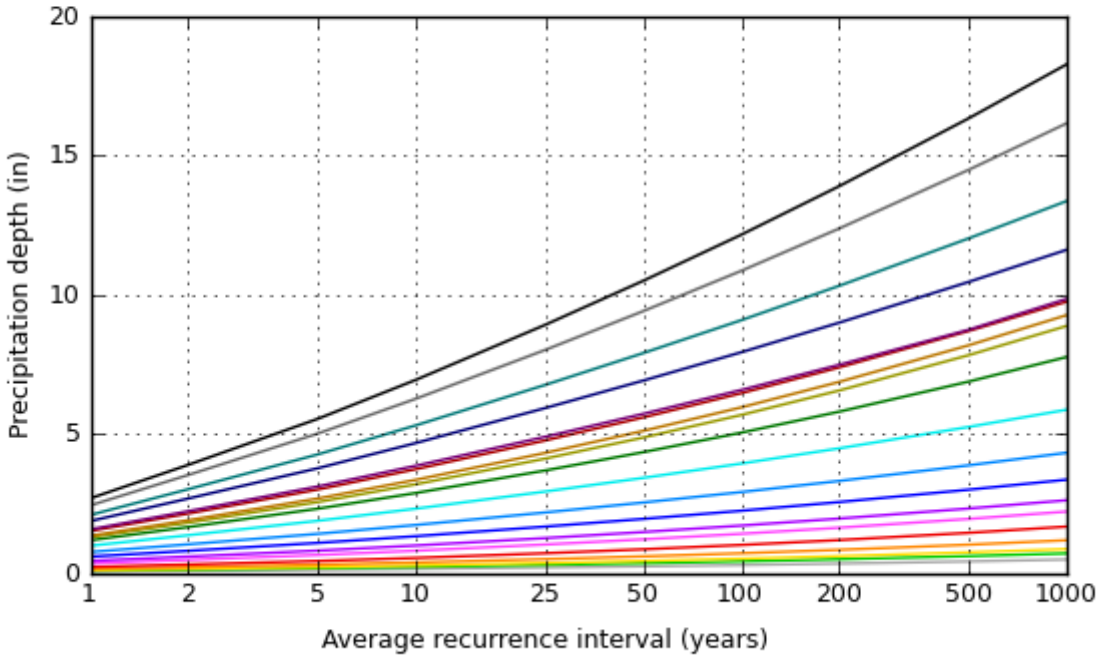
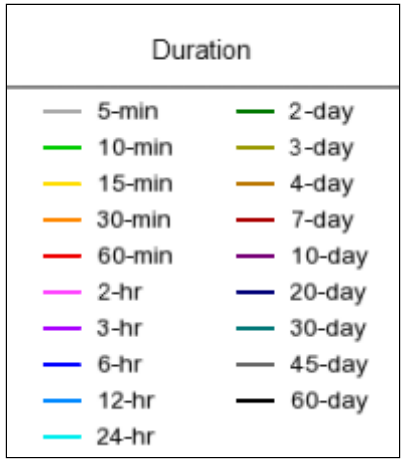
PF graphical











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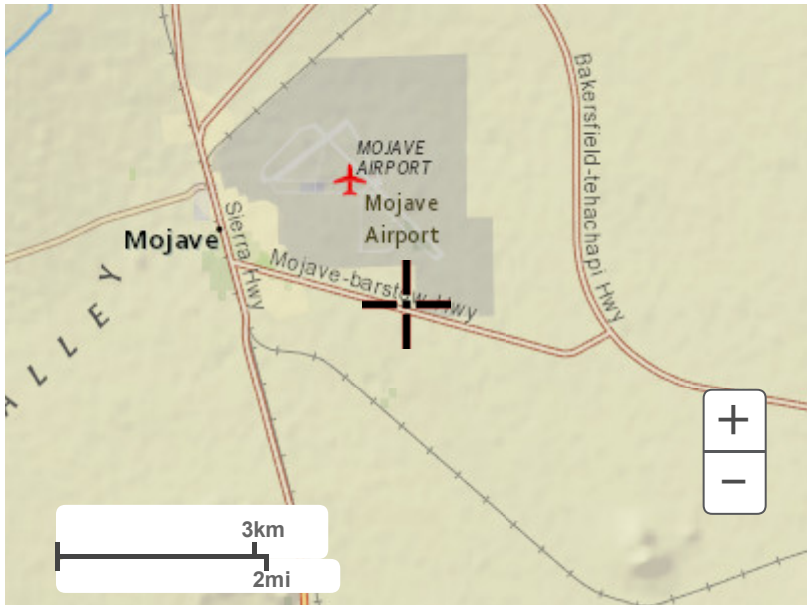
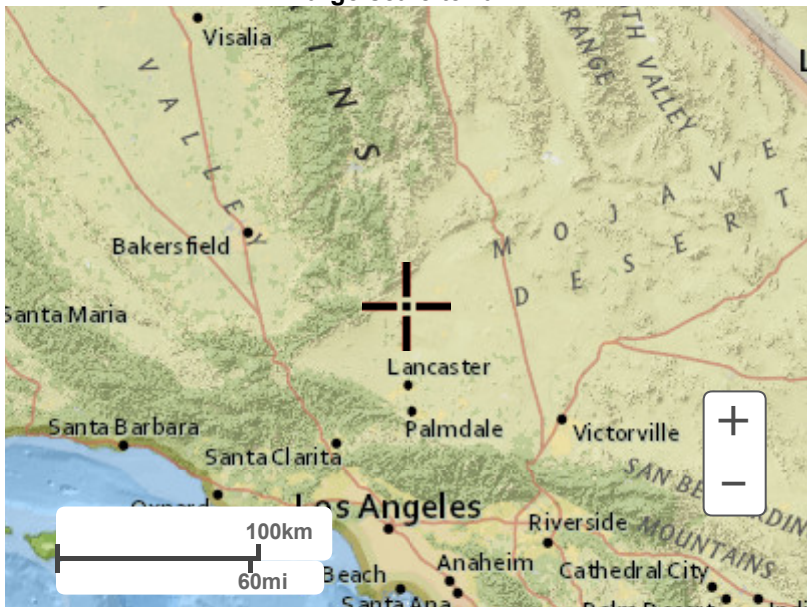
Maps & aerials

Small scale terrain



Large scale terrain



Large scale map

Large scale aerial

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US Department of Commerce
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National Weather Service
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Silver Spring, MD 20910
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Point Precipitation Frequency Estimates for

BASIN 200

NOAA Atlas 14

5/17/2017

NOAA Atlas 14, Volume 6, Version 2
Location name: Mojave, California, USA*
Latitude: 35.0686°, Longitude: -118.1784°
Elevation: 2856.22 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.076 (0.063-0.094)	0.104 (0.085-0.128)	0.143 (0.117-0.177)	0.179 (0.145-0.222)	0.231 (0.182-0.297)	0.276 (0.213-0.362)	0.325 (0.245-0.437)	0.381 (0.278-0.526)	0.463 (0.325-0.667)	0.534 (0.363-0.795)
10-min	0.109 (0.090-0.134)	0.149 (0.122-0.183)	0.206 (0.168-0.254)	0.256 (0.208-0.319)	0.332 (0.261-0.426)	0.396 (0.305-0.519)	0.466 (0.351-0.627)	0.546 (0.399-0.754)	0.664 (0.466-0.955)	0.766 (0.520-1.14)
15-min	0.132 (0.109-0.163)	0.180 (0.148-0.221)	0.249 (0.204-0.307)	0.310 (0.252-0.385)	0.401 (0.315-0.515)	0.479 (0.369-0.628)	0.564 (0.424-0.758)	0.660 (0.483-0.911)	0.803 (0.564-1.16)	0.926 (0.628-1.38)
30-min	0.180 (0.148-0.222)	0.245 (0.201-0.302)	0.339 (0.278-0.418)	0.422 (0.343-0.525)	0.547 (0.430-0.703)	0.652 (0.503-0.856)	0.769 (0.578-1.03)	0.899 (0.658-1.24)	1.10 (0.768-1.58)	1.26 (0.857-1.88)
60-min	0.254 (0.209-0.312)	0.345 (0.284-0.425)	0.477 (0.391-0.589)	0.595 (0.483-0.739)	0.770 (0.605-0.989)	0.919 (0.708-1.21)	1.08 (0.814-1.46)	1.27 (0.926-1.75)	1.54 (1.08-2.22)	1.78 (1.21-2.65)
2-hr	0.385 (0.317-0.474)	0.517 (0.424-0.636)	0.701 (0.574-0.865)	0.861 (0.700-1.07)	1.10 (0.861-1.41)	1.29 (0.992-1.69)	1.50 (1.13-2.01)	1.73 (1.26-2.38)	2.06 (1.44-2.96)	2.34 (1.59-3.48)
3-hr	0.481 (0.395-0.591)	0.643 (0.528-0.790)	0.867 (0.710-1.07)	1.06 (0.861-1.32)	1.34 (1.05-1.72)	1.57 (1.21-2.06)	1.81 (1.36-2.43)	2.07 (1.52-2.86)	2.46 (1.72-3.53)	2.77 (1.88-4.12)
6-hr	0.650 (0.535-0.799)	0.871 (0.715-1.07)	1.17 (0.961-1.45)	1.43 (1.16-1.78)	1.80 (1.41-2.31)	2.09 (1.61-2.74)	2.40 (1.81-3.23)	2.73 (2.00-3.78)	3.21 (2.25-4.62)	3.60 (2.44-5.35)
12-hr	0.835 (0.686-1.03)	1.13 (0.929-1.39)	1.53 (1.26-1.89)	1.87 (1.52-2.33)	2.35 (1.85-3.02)	2.74 (2.11-3.59)	3.14 (2.36-4.22)	3.57 (2.61-4.93)	4.18 (2.93-6.01)	4.67 (3.17-6.94)
24-hr	1.09 (0.965-1.25)	1.50 (1.33-1.72)	2.05 (1.81-2.37)	2.52 (2.21-2.93)	3.18 (2.70-3.83)	3.71 (3.08-4.56)	4.27 (3.45-5.38)	4.86 (3.82-6.30)	5.70 (4.30-7.70)	6.37 (4.64-8.93)
2-day	1.31 (1.16-1.50)	1.82 (1.61-2.09)	2.53 (2.24-2.92)	3.14 (2.75-3.65)	4.01 (3.40-4.83)	4.73 (3.92-5.81)	5.49 (4.44-6.92)	6.31 (4.97-8.19)	7.50 (5.66-10.1)	8.47 (6.17-11.9)

3-day	**1.43** (1.27-1.64)	**2.00** (1.77-2.30)	**2.79** (2.47-3.22)	**3.48** (3.05-4.05)	**4.48** (3.80-5.39)	**5.30** (4.40-6.52)	**6.19** (5.01-7.80)	**7.15** (5.63-9.28)	**8.55** (6.45-11.6)	**9.71** (7.07-13.6)
4-day	**1.50** (1.33-1.72)	**2.10** (1.87-2.42)	**2.95** (2.60-3.40)	**3.67** (3.22-4.27)	**4.73** (4.01-5.69)	**5.59** (4.64-6.88)	**6.52** (5.28-8.22)	**7.53** (5.93-9.77)	**8.99** (6.78-12.2)	**10.2** (7.43-14.3)
7-day	**1.70** (1.51-1.95)	**2.38** (2.11-2.74)	**3.31** (2.93-3.82)	**4.10** (3.60-4.77)	**5.22** (4.43-6.29)	**6.13** (5.08-7.53)	**7.08** (5.73-8.93)	**8.11** (6.38-10.5)	**9.56** (7.22-12.9)	**10.8** (7.83-15.1)
10-day	**1.78** (1.58-2.05)	**2.50** (2.21-2.87)	**3.45** (3.05-3.98)	**4.26** (3.73-4.95)	**5.38** (4.57-6.48)	**6.28** (5.21-7.72)	**7.22** (5.85-9.11)	**8.22** (6.47-10.7)	**9.63** (7.26-13.0)	**10.8** (7.84-15.1)
20-day	**2.13** (1.90-2.45)	**3.01** (2.67-3.46)	**4.17** (3.69-4.81)	**5.14** (4.50-5.97)	**6.47** (5.48-7.78)	**7.51** (6.24-9.24)	**8.60** (6.96-10.8)	**9.74** (7.67-12.6)	**11.3** (8.55-15.3)	**12.6** (9.19-17.7)
30-day	**2.42** (2.15-2.78)	**3.43** (3.04-3.94)	**4.76** (4.21-5.49)	**5.87** (5.14-6.82)	**7.39** (6.27-8.90)	**8.59** (7.13-10.6)	**9.84** (7.97-12.4)	**11.2** (8.78-14.5)	**13.0** (9.81-17.6)	**14.5** (10.6-20.3)
45-day	**2.84** (2.52-3.26)	**4.03** (3.57-4.63)	**5.61** (4.96-6.47)	**6.93** (6.07-8.06)	**8.75** (7.42-10.5)	**10.2** (8.46-12.5)	**11.7** (9.47-14.7)	**13.3** (10.5-17.2)	**15.5** (11.7-21.0)	**17.4** (12.6-24.3)
60-day	**3.16** (2.81-3.63)	**4.48** (3.97-5.15)	**6.23** (5.51-7.19)	**7.70** (6.75-8.95)	**9.74** (8.26-11.7)	**11.4** (9.43-14.0)	**13.1** (10.6-16.5)	**14.9** (11.7-19.3)	**17.5** (13.2-23.6)	**19.6** (14.2-27.4)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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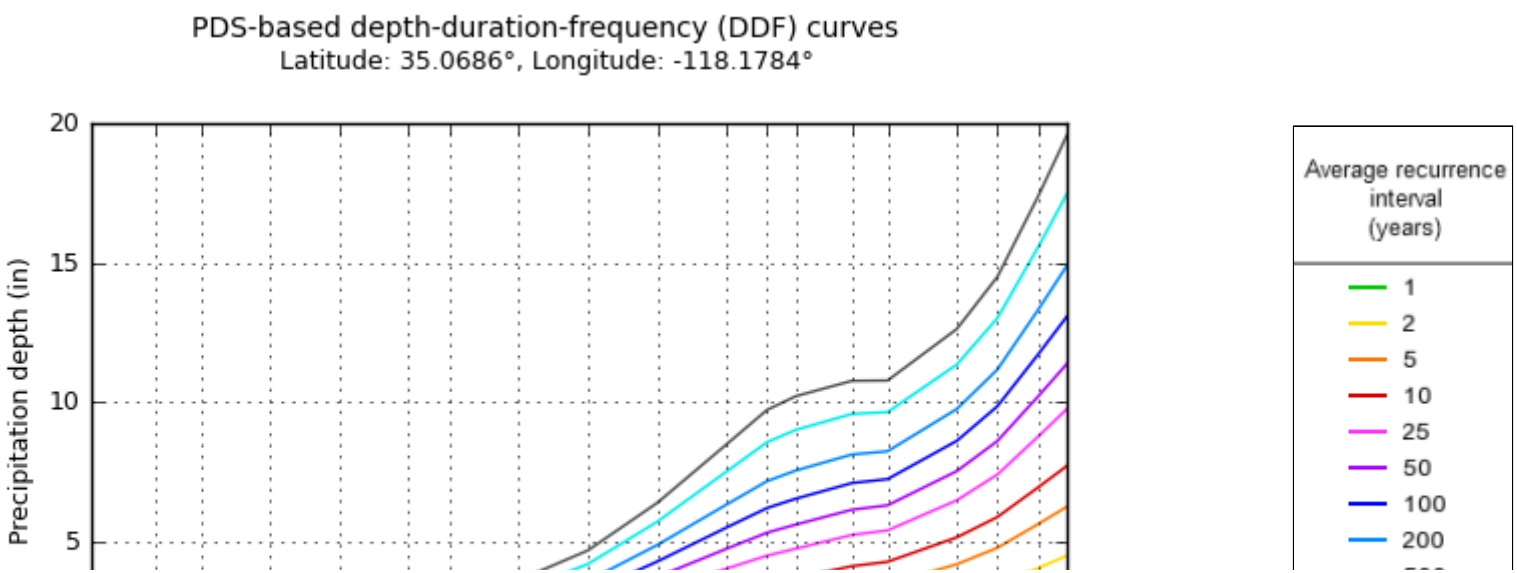
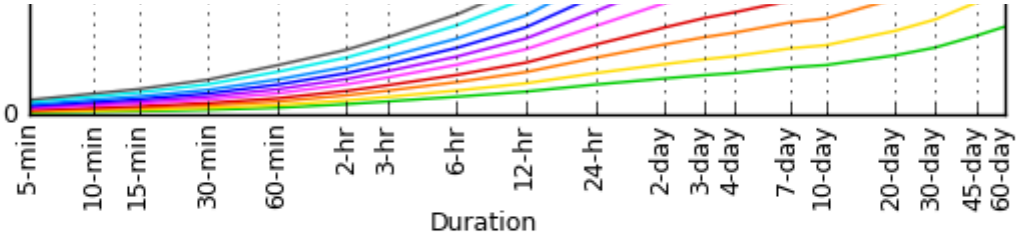
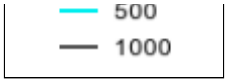
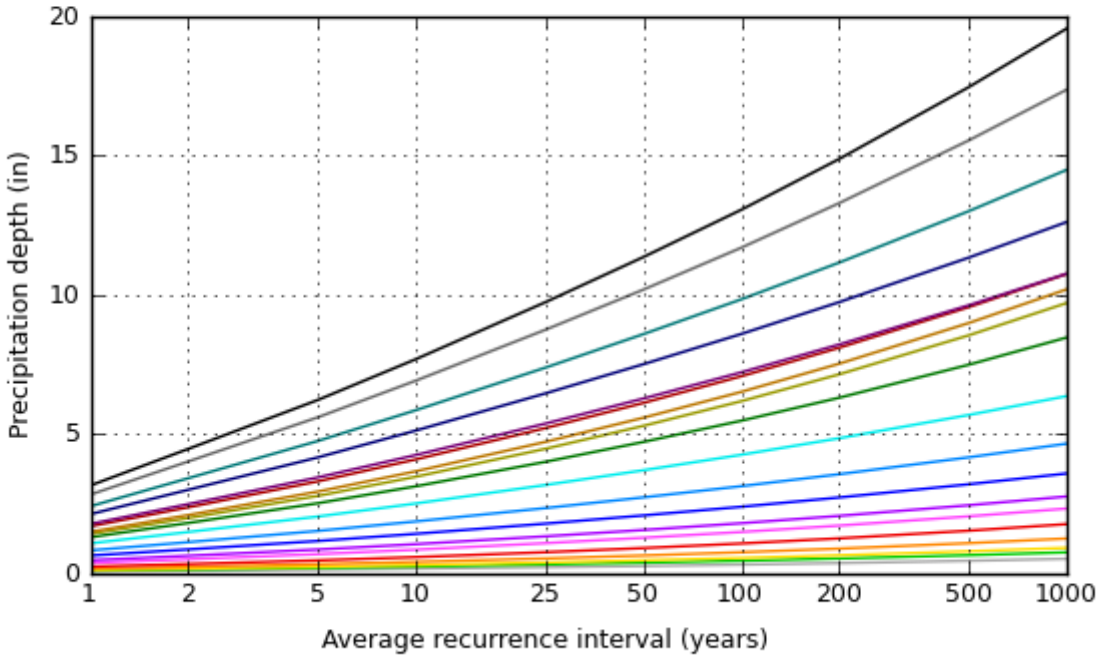
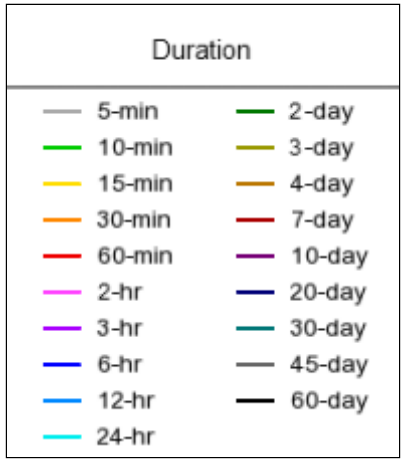
PF graphical











NOAA Atlas 14, Volume 6, Version 2

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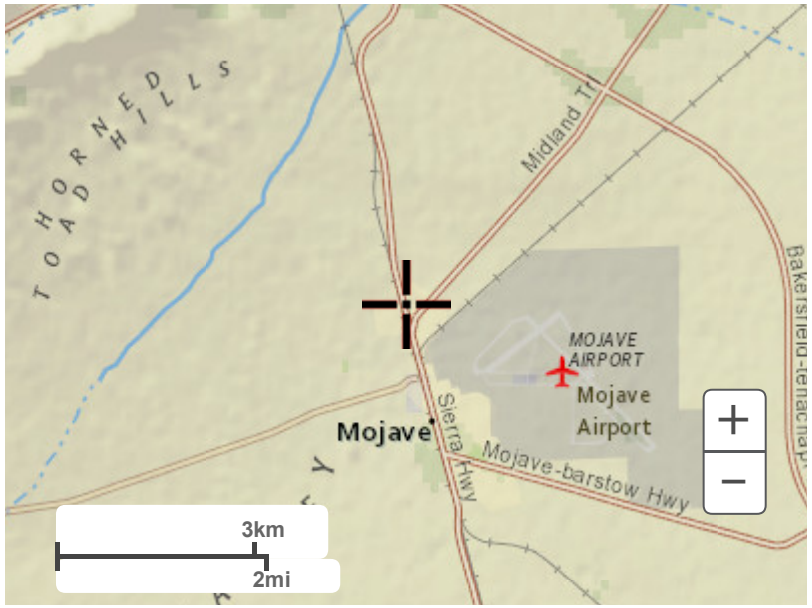
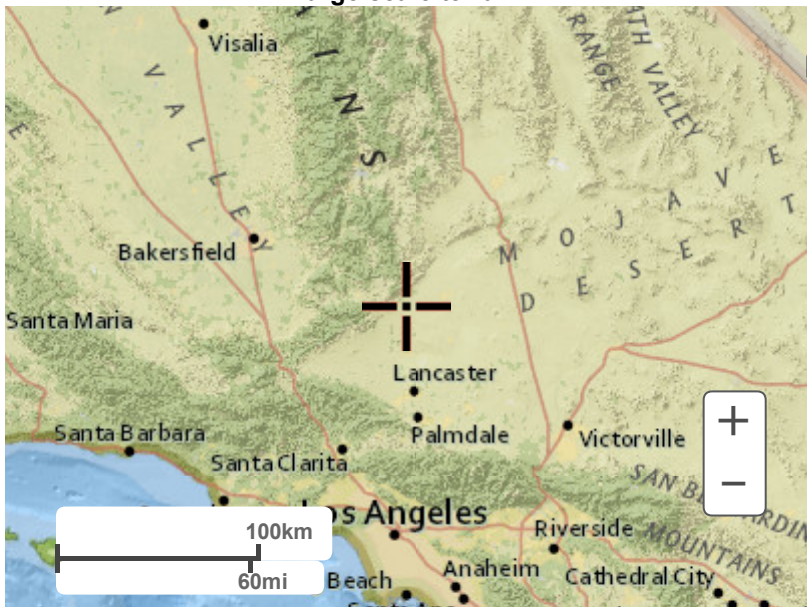
Maps & aerials

Small scale terrain



Large scale terrain



Large scale map

Large scale aerial

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National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Point Precipitation Frequency Estimates for

BASIN 300

NOAA Atlas 14

5/17/2017

NOAA Atlas 14, Volume 6, Version 2
Location name: Mojave, California, USA*
Latitude: 35.0457°, Longitude: -118.2223°
Elevation: 2987.73 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.079** (0.065-0.097)	**0.106** (0.087-0.130)	**0.144** (0.118-0.178)	**0.179** (0.146-0.223)	**0.232** (0.182-0.297)	**0.276** (0.213-0.362)	**0.326** (0.245-0.438)	**0.383** (0.280-0.529)	**0.469** (0.330-0.675)	**0.546** (0.370-0.813)
10-min	**0.113** (0.093-0.139)	**0.151** (0.124-0.186)	**0.207** (0.170-0.255)	**0.257** (0.209-0.319)	**0.332** (0.261-0.426)	**0.396** (0.305-0.519)	**0.468** (0.352-0.628)	**0.549** (0.402-0.758)	**0.673** (0.472-0.968)	**0.783** (0.531-1.17)
15-min	**0.137** (0.112-0.168)	**0.183** (0.150-0.225)	**0.250** (0.205-0.308)	**0.311** (0.252-0.386)	**0.401** (0.316-0.515)	**0.479** (0.369-0.628)	**0.566** (0.425-0.760)	**0.664** (0.486-0.917)	**0.813** (0.571-1.17)	**0.946** (0.642-1.41)
30-min	**0.186** (0.153-0.229)	**0.250** (0.205-0.307)	**0.341** (0.280-0.421)	**0.424** (0.344-0.527)	**0.548** (0.431-0.703)	**0.654** (0.504-0.857)	**0.772** (0.581-1.04)	**0.906** (0.663-1.25)	**1.11** (0.779-1.60)	**1.29** (0.876-1.92)
60-min	**0.263** (0.216-0.322)	**0.352** (0.289-0.432)	**0.481** (0.394-0.592)	**0.597** (0.485-0.741)	**0.771** (0.607-0.990)	**0.920** (0.709-1.21)	**1.09** (0.817-1.46)	**1.27** (0.933-1.76)	**1.56** (1.10-2.25)	**1.82** (1.23-2.71)
2-hr	**0.399** (0.328-0.490)	**0.526** (0.432-0.646)	**0.704** (0.577-0.867)	**0.859** (0.698-1.07)	**1.09** (0.854-1.39)	**1.27** (0.981-1.67)	**1.48** (1.11-1.98)	**1.70** (1.24-2.35)	**2.03** (1.42-2.92)	**2.31** (1.57-3.43)
3-hr	**0.499** (0.411-0.613)	**0.656** (0.539-0.806)	**0.873** (0.716-1.08)	**1.06** (0.862-1.32)	**1.33** (1.05-1.71)	**1.55** (1.19-2.03)	**1.78** (1.34-2.40)	**2.04** (1.49-2.82)	**2.41** (1.69-3.47)	**2.72** (1.84-4.05)
6-hr	**0.684** (0.563-0.840)	**0.905** (0.743-1.11)	**1.21** (0.988-1.49)	**1.46** (1.19-1.81)	**1.82** (1.43-2.34)	**2.11** (1.62-2.76)	**2.41** (1.81-3.24)	**2.74** (2.00-3.78)	**3.20** (2.24-4.60)	**3.57** (2.42-5.31)
12-hr	**0.877** (0.722-1.08)	**1.19** (0.981-1.47)	**1.62** (1.33-1.99)	**1.97** (1.60-2.45)	**2.46** (1.94-3.16)	**2.85** (2.20-3.74)	**3.26** (2.45-4.38)	**3.69** (2.70-5.09)	**4.29** (3.01-6.16)	**4.76** (3.23-7.09)
24-hr	**1.14** (1.01-1.31)	**1.60** (1.42-1.84)	**2.21** (1.95-2.55)	**2.72** (2.38-3.16)	**3.43** (2.90-4.12)	**3.98** (3.31-4.90)	**4.56** (3.69-5.75)	**5.17** (4.07-6.71)	**6.02** (4.54-8.15)	**6.70** (4.88-9.39)
2-day	**1.39** (1.23-1.59)	**1.95** (1.73-2.24)	**2.71** (2.40-3.13)	**3.36** (2.95-3.91)	**4.29** (3.64-5.16)	**5.04** (4.18-6.19)	**5.83** (4.72-7.34)	**6.67** (5.25-8.65)	**7.88** (5.94-10.7)	**8.86** (6.46-12.4)

3-day	**1.53** (1.36-1.76)	**2.14** (1.90-2.47)	**2.99** (2.65-3.46)	**3.73** (3.27-4.33)	**4.78** (4.05-5.75)	**5.64** (4.68-6.93)	**6.56** (5.31-8.26)	**7.55** (5.94-9.79)	**8.98** (6.77-12.1)	**10.2** (7.40-14.2)
4-day	**1.63** (1.44-1.87)	**2.28** (2.02-2.62)	**3.18** (2.81-3.67)	**3.96** (3.47-4.61)	**5.08** (4.30-6.11)	**5.99** (4.97-7.36)	**6.96** (5.63-8.77)	**8.01** (6.31-10.4)	**9.53** (7.19-12.9)	**10.8** (7.85-15.1)
7-day	**1.85** (1.64-2.12)	**2.58** (2.29-2.97)	**3.57** (3.16-4.12)	**4.41** (3.86-5.13)	**5.59** (4.74-6.73)	**6.55** (5.43-8.05)	**7.56** (6.12-9.52)	**8.64** (6.80-11.2)	**10.2** (7.67-13.8)	**11.4** (8.32-16.0)
10-day	**1.95** (1.73-2.24)	**2.71** (2.41-3.12)	**3.73** (3.30-4.31)	**4.59** (4.03-5.34)	**5.79** (4.91-6.97)	**6.74** (5.60-8.29)	**7.74** (6.27-9.76)	**8.81** (6.93-11.4)	**10.3** (7.77-13.9)	**11.5** (8.39-16.1)
20-day	**2.33** (2.07-2.68)	**3.26** (2.89-3.75)	**4.49** (3.97-5.18)	**5.50** (4.83-6.40)	**6.90** (5.85-8.31)	**8.00** (6.64-9.84)	**9.15** (7.41-11.5)	**10.4** (8.15-13.4)	**12.1** (9.09-16.3)	**13.4** (9.77-18.8)
30-day	**2.68** (2.38-3.08)	**3.75** (3.33-4.32)	**5.16** (4.57-5.96)	**6.33** (5.55-7.36)	**7.93** (6.73-9.55)	**9.20** (7.63-11.3)	**10.5** (8.51-13.3)	**11.9** (9.37-15.4)	**13.9** (10.5-18.8)	**15.5** (11.3-21.7)
45-day	**3.17** (2.82-3.65)	**4.44** (3.94-5.11)	**6.12** (5.41-7.06)	**7.51** (6.59-8.74)	**9.42** (7.99-11.3)	**10.9** (9.07-13.4)	**12.5** (10.1-15.8)	**14.2** (11.2-18.4)	**16.6** (12.5-22.4)	**18.5** (13.5-25.9)
60-day	**3.57** (3.17-4.10)	**4.97** (4.41-5.72)	**6.83** (6.04-7.88)	**8.37** (7.34-9.73)	**10.5** (8.90-12.6)	**12.2** (10.1-15.0)	**14.0** (11.3-17.6)	**15.9** (12.5-20.6)	**18.6** (14.0-25.1)	**20.8** (15.2-29.1)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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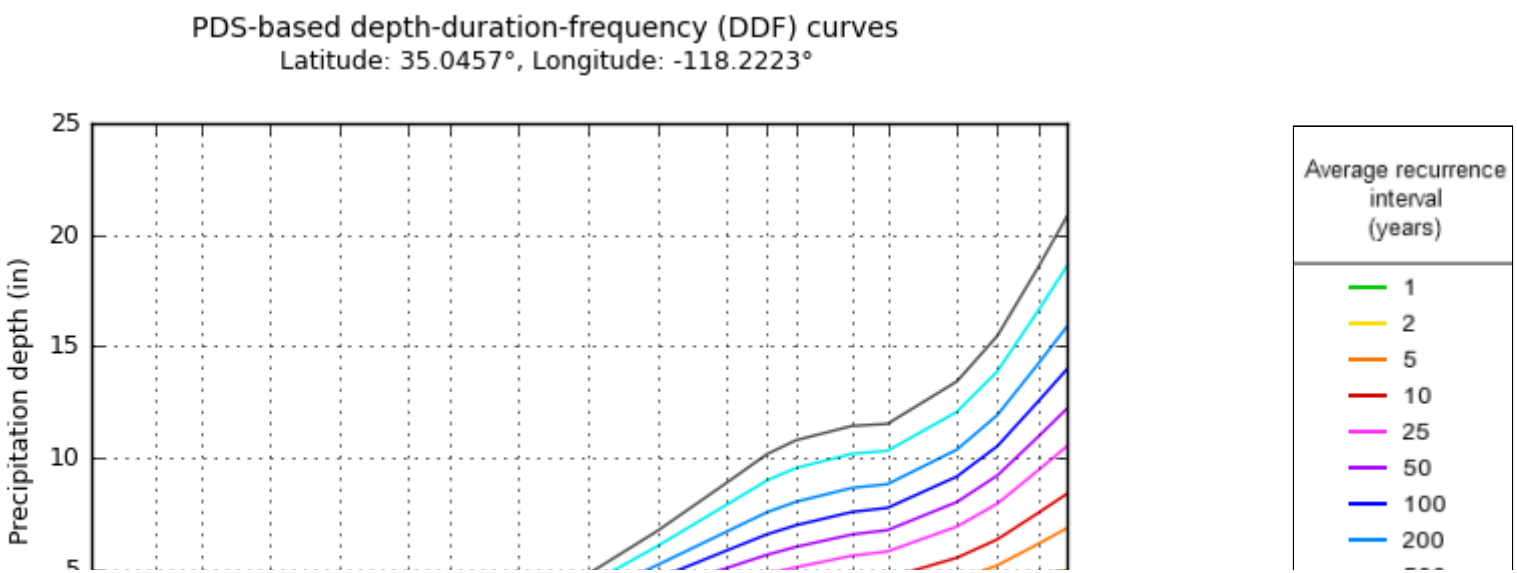
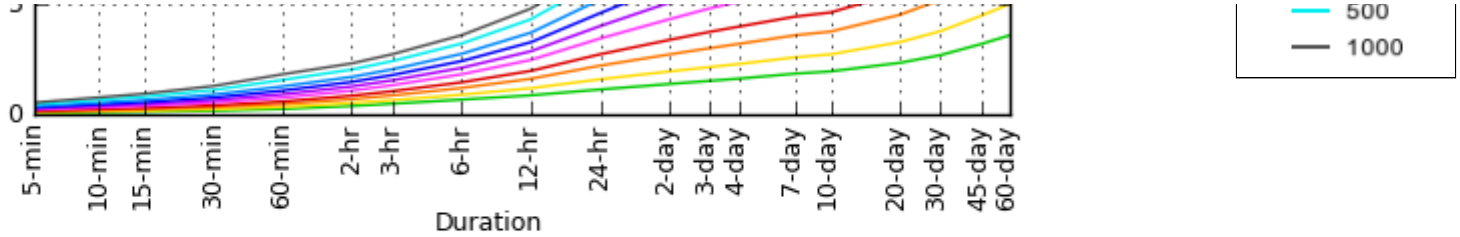
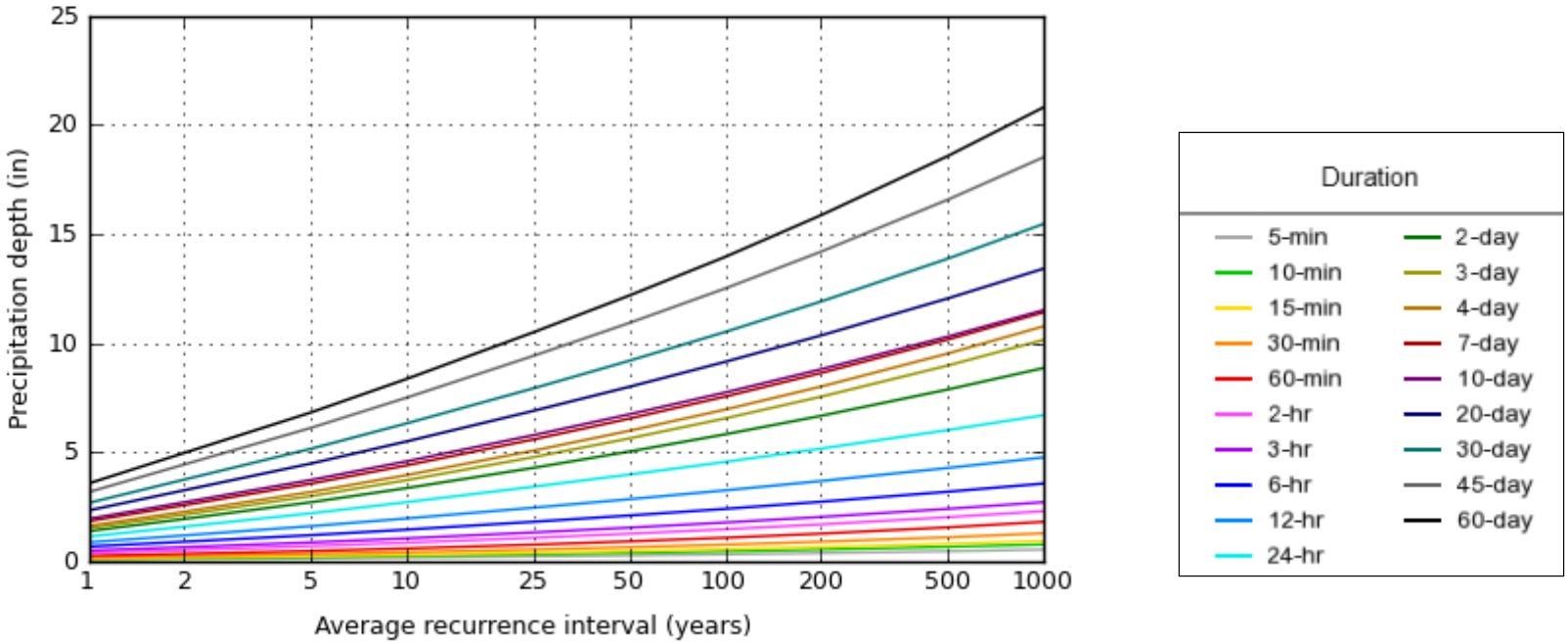
PF graphical







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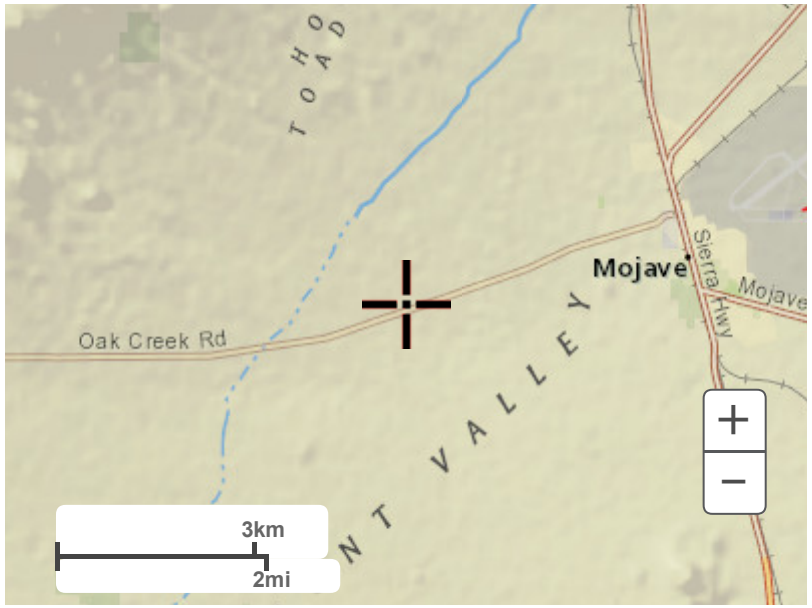
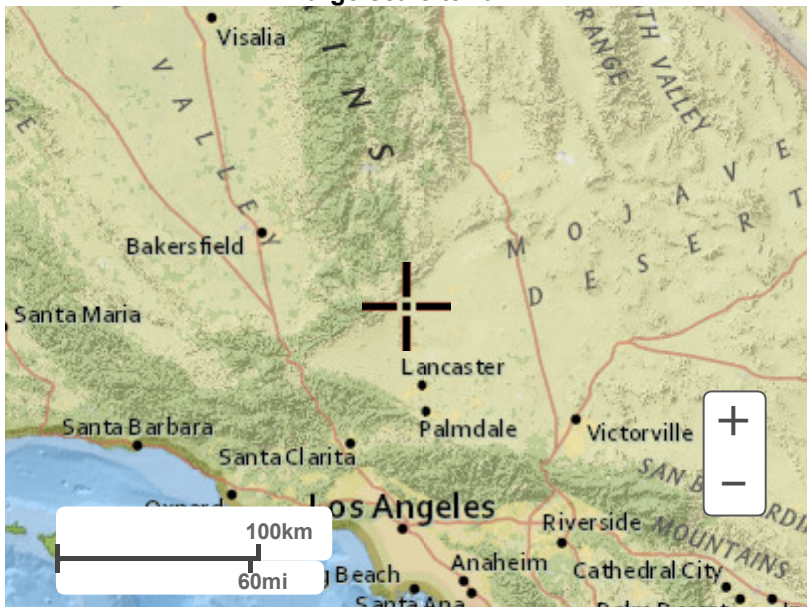
Maps & aerials

Small scale terrain



Large scale terrain



Large scale map

Large scale aerial

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Disclaimer

Point Precipitation Frequency Estimates for

BASIN 400

NOAA Atlas 14

5/17/2017

NOAA Atlas 14, Volume 6, Version 2
Location name: Mojave, California, USA*
Latitude: 34.9737°, Longitude: -118.0912°
Elevation: 2513.56 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.068** (0.056-0.083)	**0.090** (0.074-0.111)	**0.122** (0.100-0.150)	**0.151** (0.123-0.187)	**0.194** (0.153-0.249)	**0.232** (0.179-0.304)	**0.273** (0.206-0.367)	**0.321** (0.235-0.443)	**0.393** (0.276-0.565)	**0.457** (0.310-0.679)
10-min	**0.097** (0.080-0.120)	**0.129** (0.106-0.158)	**0.175** (0.143-0.215)	**0.216** (0.176-0.268)	**0.278** (0.219-0.357)	**0.332** (0.256-0.435)	**0.392** (0.295-0.526)	**0.460** (0.336-0.634)	**0.563** (0.395-0.809)	**0.655** (0.444-0.974)
15-min	**0.118** (0.097-0.145)	**0.156** (0.128-0.192)	**0.211** (0.173-0.261)	**0.261** (0.212-0.324)	**0.337** (0.265-0.432)	**0.401** (0.309-0.526)	**0.474** (0.356-0.636)	**0.556** (0.407-0.767)	**0.680** (0.478-0.979)	**0.792** (0.537-1.18)
30-min	**0.160** (0.132-0.196)	**0.211** (0.174-0.260)	**0.287** (0.235-0.353)	**0.354** (0.288-0.440)	**0.457** (0.359-0.586)	**0.545** (0.420-0.714)	**0.643** (0.484-0.863)	**0.754** (0.552-1.04)	**0.923** (0.648-1.33)	**1.07** (0.729-1.60)
60-min	**0.225** (0.185-0.276)	**0.297** (0.245-0.366)	**0.403** (0.331-0.497)	**0.498** (0.405-0.619)	**0.642** (0.505-0.825)	**0.766** (0.590-1.00)	**0.904** (0.680-1.21)	**1.06** (0.776-1.46)	**1.30** (0.912-1.87)	**1.51** (1.02-2.25)
2-hr	**0.343** (0.282-0.421)	**0.444** (0.365-0.545)	**0.586** (0.481-0.722)	**0.710** (0.578-0.882)	**0.892** (0.702-1.14)	**1.04** (0.803-1.37)	**1.20** (0.906-1.62)	**1.38** (1.01-1.91)	**1.64** (1.15-2.36)	**1.86** (1.26-2.76)
3-hr	**0.426** (0.350-0.523)	**0.550** (0.452-0.676)	**0.722** (0.592-0.890)	**0.870** (0.708-1.08)	**1.08** (0.852-1.39)	**1.26** (0.969-1.65)	**1.44** (1.08-1.94)	**1.64** (1.20-2.26)	**1.93** (1.35-2.77)	**2.16** (1.47-3.21)
6-hr	**0.569** (0.468-0.699)	**0.743** (0.611-0.913)	**0.979** (0.802-1.21)	**1.18** (0.957-1.46)	**1.46** (1.15-1.87)	**1.68** (1.29-2.20)	**1.91** (1.44-2.56)	**2.15** (1.57-2.97)	**2.49** (1.75-3.58)	**2.76** (1.88-4.11)
12-hr	**0.699** (0.575-0.858)	**0.963** (0.792-1.18)	**1.31** (1.08-1.62)	**1.60** (1.30-1.99)	**1.99** (1.57-2.56)	**2.30** (1.77-3.01)	**2.61** (1.96-3.50)	**2.93** (2.15-4.05)	**3.37** (2.37-4.85)	**3.71** (2.52-5.52)
24-hr	**0.877** (0.779-1.01)	**1.27** (1.13-1.47)	**1.80** (1.59-2.08)	**2.22** (1.95-2.59)	**2.80** (2.38-3.37)	**3.25** (2.70-4.00)	**3.70** (3.00-4.67)	**4.17** (3.28-5.41)	**4.80** (3.62-6.50)	**5.29** (3.86-7.41)
2-day	**1.06** (0.944-1.22)	**1.53** (1.36-1.76)	**2.16** (1.91-2.49)	**2.69** (2.36-3.13)	**3.42** (2.90-4.11)	**3.99** (3.31-4.91)	**4.59** (3.71-5.78)	**5.21** (4.10-6.76)	**6.08** (4.59-8.22)	**6.77** (4.93-9.47)

3-day	**1.18** (1.05-1.36)	**1.69** (1.50-1.94)	**2.38** (2.11-2.75)	**2.97** (2.60-3.45)	**3.79** (3.21-4.56)	**4.44** (3.68-5.46)	**5.12** (4.15-6.46)	**5.85** (4.61-7.59)	**6.87** (5.19-9.30)	**7.70** (5.61-10.8)
4-day	**1.25** (1.11-1.44)	**1.78** (1.58-2.05)	**2.52** (2.22-2.90)	**3.13** (2.75-3.64)	**4.00** (3.39-4.81)	**4.69** (3.89-5.76)	**5.41** (4.38-6.82)	**6.18** (4.87-8.02)	**7.27** (5.48-9.83)	**8.14** (5.93-11.4)
7-day	**1.38** (1.23-1.59)	**1.97** (1.74-2.26)	**2.76** (2.44-3.19)	**3.43** (3.01-3.99)	**4.36** (3.69-5.24)	**5.09** (4.22-6.25)	**5.84** (4.73-7.36)	**6.63** (5.22-8.60)	**7.72** (5.83-10.4)	**8.58** (6.25-12.0)
10-day	**1.42** (1.26-1.64)	**2.03** (1.80-2.34)	**2.86** (2.53-3.30)	**3.54** (3.11-4.12)	**4.49** (3.81-5.41)	**5.24** (4.34-6.44)	**6.00** (4.85-7.56)	**6.79** (5.34-8.80)	**7.87** (5.94-10.6)	**8.71** (6.35-12.2)
20-day	**1.68** (1.49-1.93)	**2.42** (2.14-2.78)	**3.43** (3.03-3.95)	**4.27** (3.74-4.96)	**5.44** (4.61-6.54)	**6.35** (5.27-7.81)	**7.29** (5.90-9.18)	**8.25** (6.50-10.7)	**9.56** (7.22-12.9)	**10.6** (7.71-14.8)
30-day	**1.89** (1.68-2.17)	**2.74** (2.43-3.15)	**3.91** (3.46-4.51)	**4.89** (4.29-5.69)	**6.27** (5.32-7.55)	**7.35** (6.10-9.04)	**8.46** (6.85-10.7)	**9.61** (7.56-12.5)	**11.2** (8.43-15.1)	**12.4** (9.01-17.3)
45-day	**2.23** (1.98-2.57)	**3.25** (2.88-3.74)	**4.66** (4.12-5.37)	**5.85** (5.13-6.80)	**7.54** (6.39-9.08)	**8.89** (7.38-10.9)	**10.3** (8.32-12.9)	**11.7** (9.22-15.2)	**13.7** (10.3-18.5)	**15.2** (11.1-21.3)
60-day	**2.48** (2.20-2.85)	**3.60** (3.19-4.14)	**5.16** (4.57-5.96)	**6.51** (5.70-7.57)	**8.42** (7.14-10.1)	**9.95** (8.26-12.2)	**11.5** (9.35-14.6)	**13.2** (10.4-17.1)	**15.5** (11.7-20.9)	**17.2** (12.6-24.2)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

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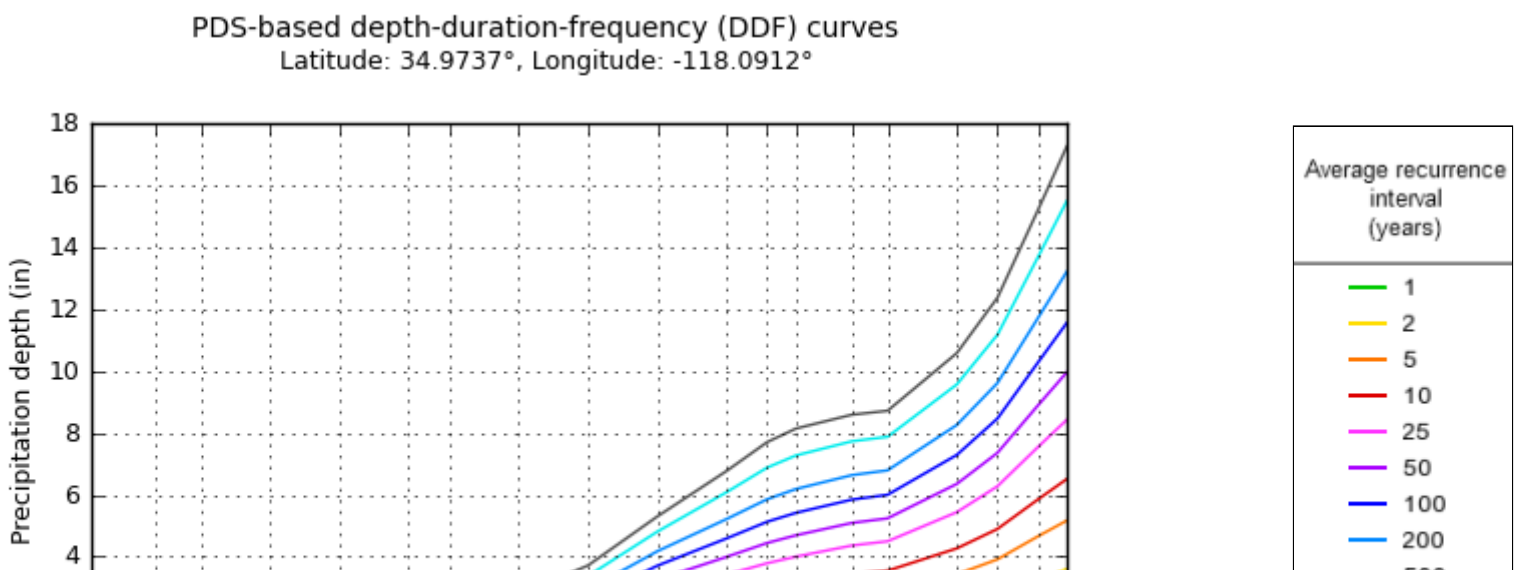
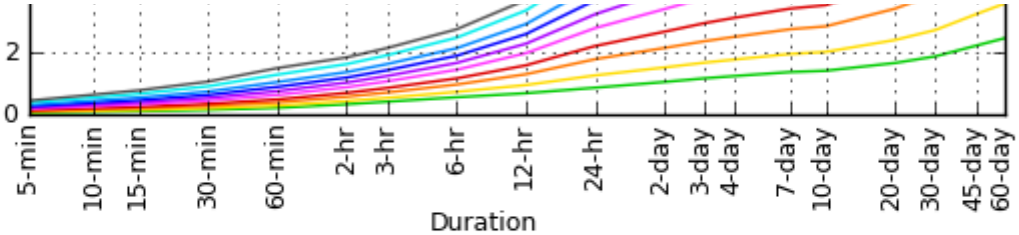
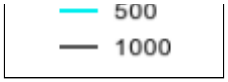
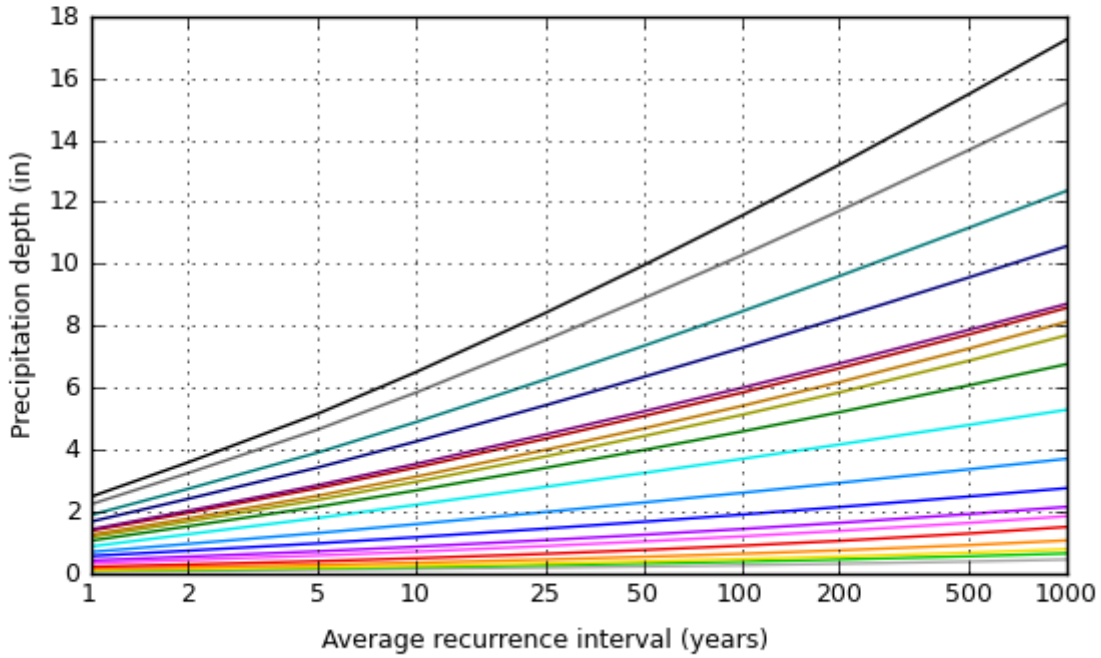
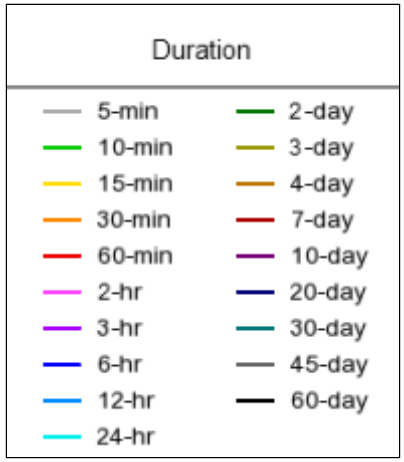
PF graphical











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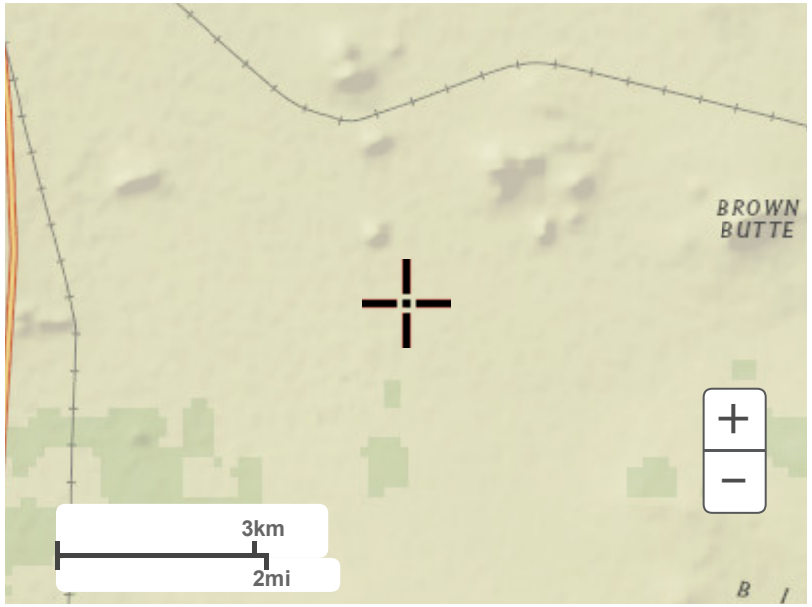
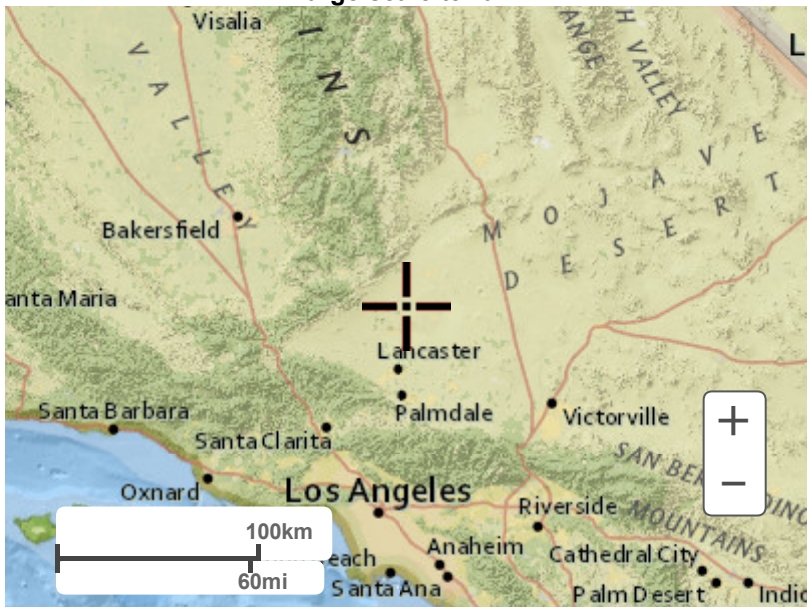
Maps & aerials

Small scale terrain



Large scale terrain



Large scale map

Large scale aerial

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1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

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APPENDIX B

HEC-HMS Hydrographs

Project: Sanborn_WholeWatershed Simulation Run: Basin 100_2018.03.16

Subbasin: Basin 100

Start of Run:	01Jan2000, 00:00	Basin Model:	Basin 100
End of Run:	02Jan2000, 00:00	Meteorologic Model:	Basin 100 Met
Compute Time:	22Mar2018, 14:43:26	Control Specifications:	DesStorm

Volume Units: AC-FT

Computed Results

Peak Discharge:	1627.5 (CFS)	Date/Time of Peak Discharge:	01Jan2000, 16:45
Precipitation Volume:	513.7 (AC-FT)	Direct Runoff Volume:	496.0 (AC-FT)
Loss Volume:	0.0 (AC-FT)	Baseflow Volume:	0.0 (AC-FT)
Excess Volume:	513.7 (AC-FT)	Discharge Volume:	496.0 (AC-FT)

Project: Sanborn_WholeWatershed Simulation Run: Basin 100_PostCnstr_2018032

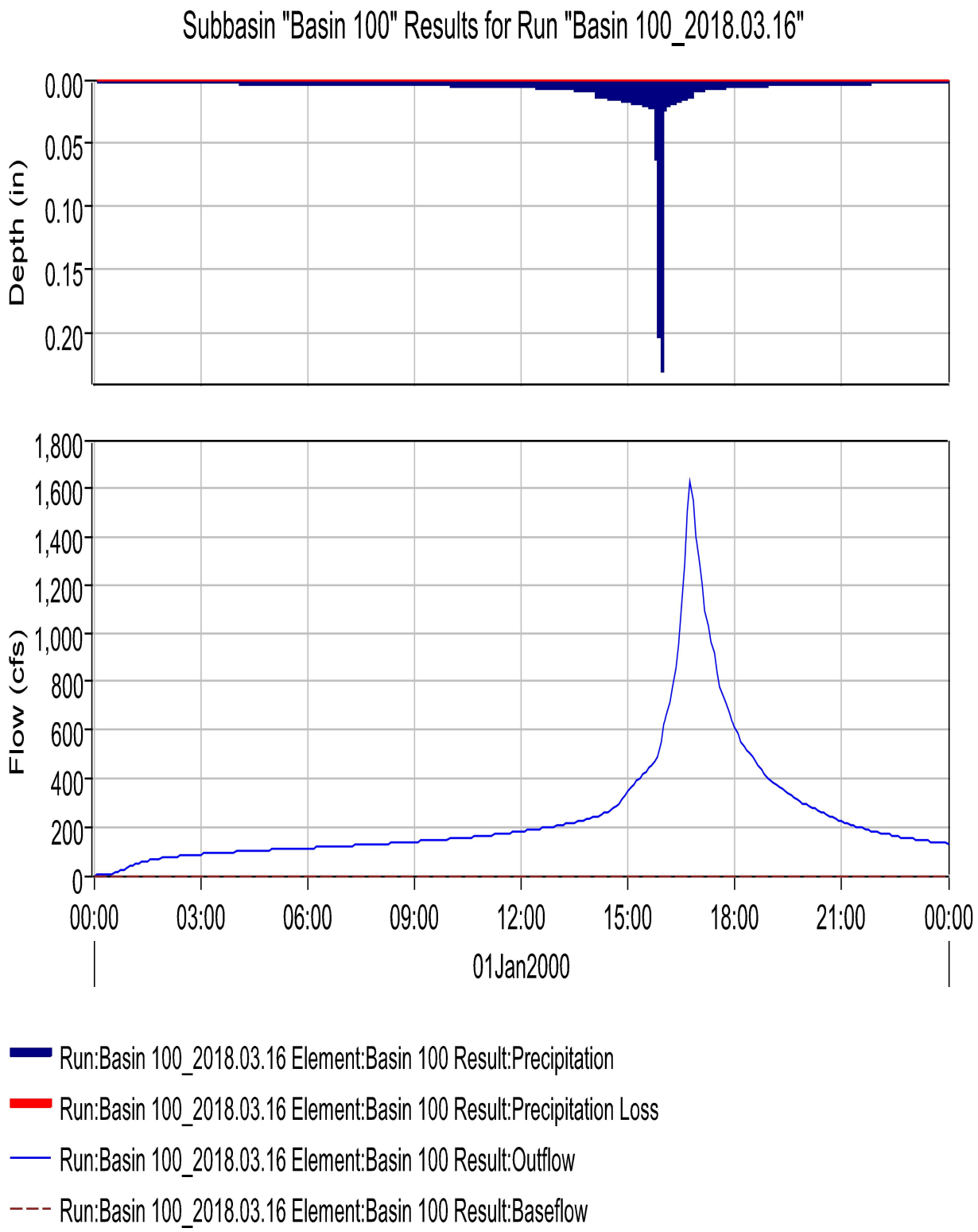
Subbasin: Basin 100

Start of Run:	01Jan2000, 00:00	Basin Model:	Basin 100
End of Run:	02Jan2000, 00:00	Meteorologic Model:	Basin 100 Met_PostConstr
Compute Time:	22Mar2018, 14:55:56	Control Specifications:	DesStorm

Volume Units: AC-FT

Computed Results

Peak Discharge:	1634.8 (CFS)	Date/Time of Peak Discharge:	01Jan2000, 16:45
Precipitation Volume:	518.1 (AC-FT)	Direct Runoff Volume:	500.1 (AC-FT)
Loss Volume:	0.0 (AC-FT)	Baseflow Volume:	0.0 (AC-FT)
Excess Volume:	518.1 (AC-FT)	Discharge Volume:	500.1 (AC-FT)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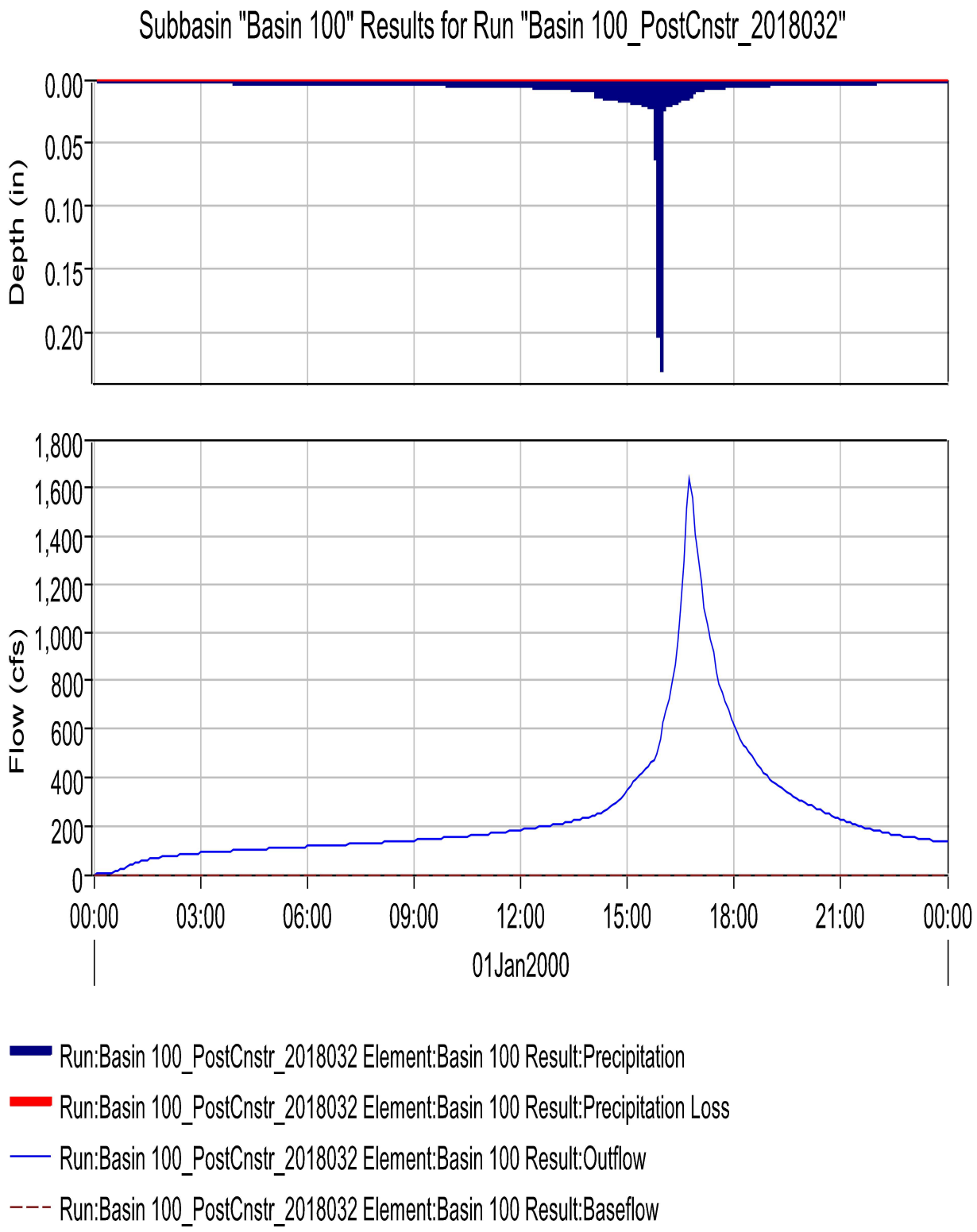
Depth (in)
0.00
0.05
0.10
0.15
0.20
Flow (cfs)
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Jan2000
Run:Basin 100_2018.03.16 Element:Basin 100 Result:Precipitation
Run:Basin 100_2018.03.16 Element:Basin 100 Result:Precipitation Loss
Run:Basin 100_2018.03.16 Element:Basin 100 Result:Outflow
Run:Basin 100_2018.03.16 Element:Basin 100 Result:Baseflow


Subbasin "Basin 100" Results for Run "Basin 100_PostCnstr_2018032"
Depth (in)
0.00
0.05
0.10
0.15
0.20
Flow (cfs)
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Jan2000
Run:Basin 100_PostCnstr_2018032 Element:Basin 100 Result:Precipitation
Run:Basin 100_PostCnstr_2018032 Element:Basin 100 Result:Precipitation Loss
Run:Basin 100_PostCnstr_2018032 Element:Basin 100 Result:Outflow
Run:Basin 100_PostCnstr_2018032 Element:Basin 100 Result:Baseflow

Project: Sanborn_WholeWatershed Simulation Run: Basin 200_2018.03.16

Subbasin: Basin-200

Start of Run:	01Jan2000, 00:00	Basin Model:	Basin 200
End of Run:	02Jan2000, 00:00	Meteorologic Model:	Basin 200 Met
Compute Time:	22Mar2018, 14:43:44	Control Specifications:	DesStorm

Volume Units: AC-FT

Computed Results

Peak Discharge:	1257.1 (CFS)	Date/Time of Peak Discharge:	01Jan2000, 16:50
Precipitation Volume:	440.9 (AC-FT)	Direct Runoff Volume:	422.0 (AC-FT)
Loss Volume:	0.0 (AC-FT)	Baseflow Volume:	0.0 (AC-FT)
Excess Volume:	440.9 (AC-FT)	Discharge Volume:	422.0 (AC-FT)

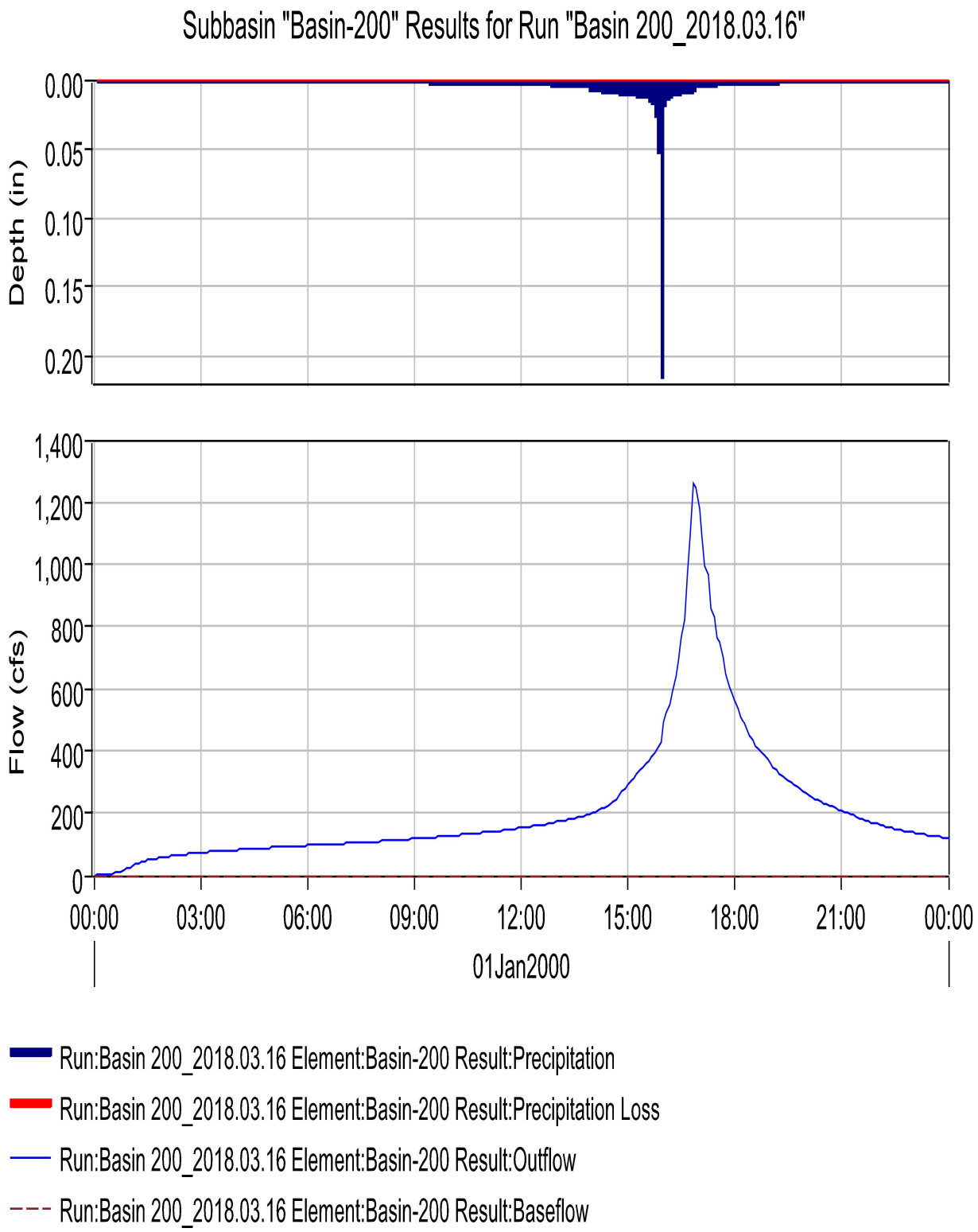
Project: Sanborn_WholeWatershed Simulation Run: Basin 200_PostCnstr_2018032
Subbasin: Basin-200

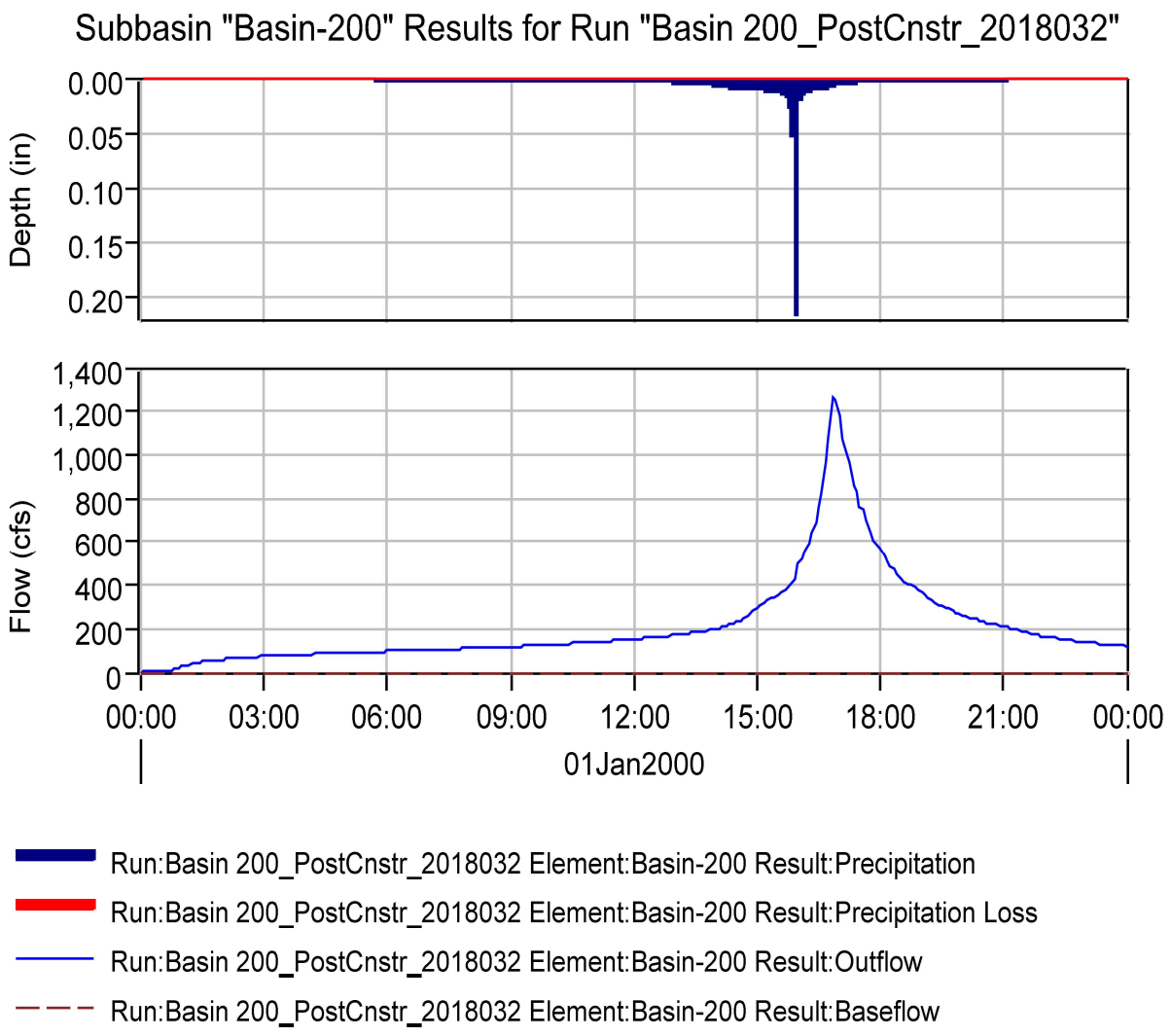
Start of Run:	01Jan2000, 00:00	Basin Model:	Basin 200
End of Run:	02Jan2000, 00:00	Meteorologic Model:	Basin 200 Met_PostConstr
Compute Time:	22Mar2018, 14:56:06	Control Specifications:	DesStorm

Volume Units: AC-FT

Computed Results

Peak Discharge:	1257.1 (CFS)	Date/Time of Peak Discharge:	01Jan2000, 16:50
Precipitation Volume:	440.9 (AC-FT)	Direct Runoff Volume:	422.0 (AC-FT)
Loss Volume:	0.0 (AC-FT)	Baseflow Volume:	0.0 (AC-FT)
Excess Volume:	440.9 (AC-FT)	Discharge Volume:	422.0 (AC-FT)


Subbasin "Basin-200" Results for Run "Basin 200_2018.03.16"
Depth (in)
0.00
0.05
0.10
0.15
0.20
Flow (cfs)
1,400
1,200
1,000
800
600
400
200
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Jan2000
Run:Basin 200_2018.03.16 Element:Basin-200 Result:Precipitation
Run:Basin 200_2018.03.16 Element:Basin-200 Result:Precipitation Loss
Run:Basin 200_2018.03.16 Element:Basin-200 Result:Outflow
Run:Basin 200_2018.03.16 Element:Basin-200 Result:Baseflow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0.10
0.15
0.20
Flow (cfs)
1,400
1,200
1,000
800
600
400
200
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Jan2000
Run:Basin 200_PostCnstr_2018032 Element:Basin-200 Result:Precipitation
Run:Basin 200_PostCnstr_2018032 Element:Basin-200 Result:Precipitation Loss
Run:Basin 200_PostCnstr_2018032 Element:Basin-200 Result:Outflow
Run:Basin 200_PostCnstr_2018032 Element:Basin-200 Result:Baseflow

Project: Sanborn_WholeWatershed Simulation Run: Basin 300_2018.03.16

Subbasin: Basin-300

Start of Run:	01Jan2000, 00:00	Basin Model:	Basin 300
End of Run:	02Jan2000, 00:00	Meteorologic Model:	Basin 300 Met
Compute Time:	22Mar2018, 14:43:54	Control Specifications:	DesStorm

Volume Units: AC-FT

Computed Results

Peak Discharge:	3975.1 (CFS)	Date/Time of Peak Discharge:	01Jan2000, 17:10
Precipitation Volume:	2343.1 (AC-FT)	Direct Runoff Volume:	2185.5 (AC-FT)
Loss Volume:	0.0 (AC-FT)	Baseflow Volume:	0.0 (AC-FT)
Excess Volume:	2343.1 (AC-FT)	Discharge Volume:	2185.5 (AC-FT)

Project: Sanborn_WholeWatershed Simulation Run: Basin 300_PostCnstr_2018032

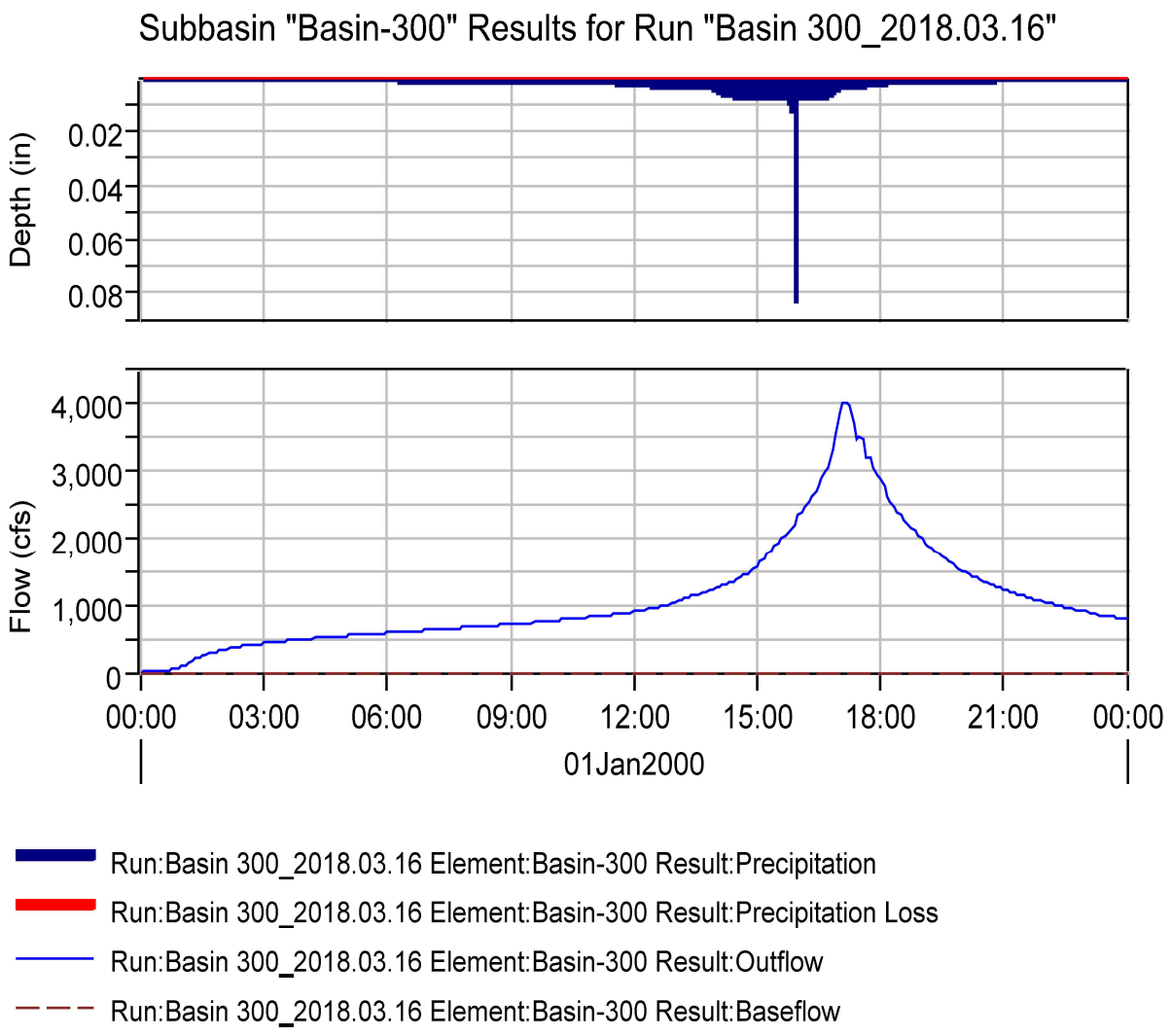
Subbasin: Basin-300

Start of Run:	01Jan2000, 00:00	Basin Model:	Basin 300
End of Run:	02Jan2000, 00:00	Meteorologic Model:	Basin 300 Met_PostConstr
Compute Time:	22Mar2018, 14:56:14	Control Specifications:	DesStorm

Volume Units: AC-FT

Computed Results

Peak Discharge:	3975.1 (CFS)	Date/Time of Peak Discharge:	01Jan2000, 17:10
Precipitation Volume:	2343.1 (AC-FT)	Direct Runoff Volume:	2185.5 (AC-FT)
Loss Volume:	0.0 (AC-FT)	Baseflow Volume:	0.0 (AC-FT)
Excess Volume:	2343.1 (AC-FT)	Discharge Volume:	2185.5 (AC-FT)


Subbasin "Basin-300" Results for Run "Basin 300_2018.03.16"
Depth (in)
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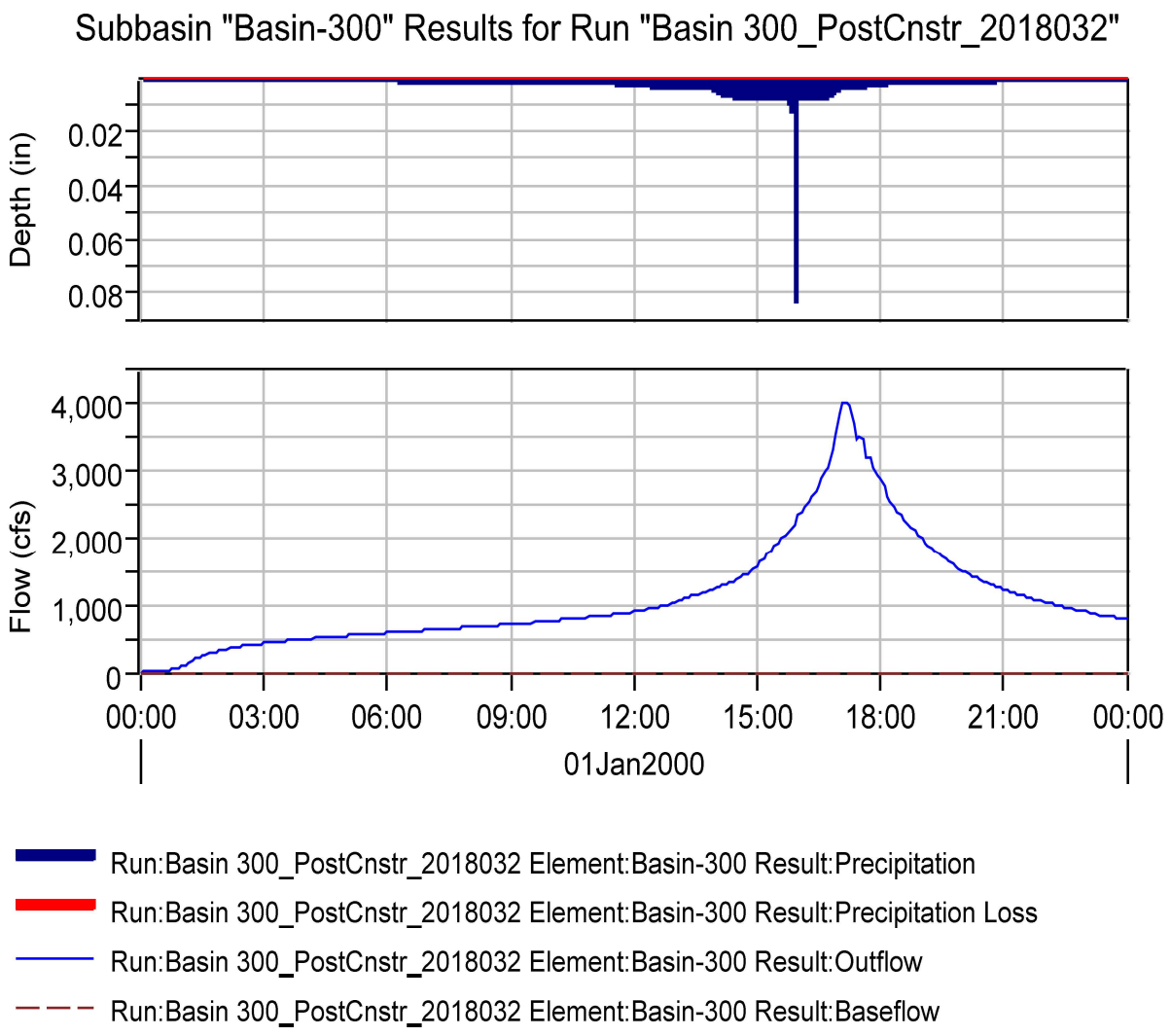
0.04
0.06
0.08
Flow (cfs)
4,000
3,000
2,000
1,000
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Jan2000
Run:Basin 300_2018.03.16 Element:Basin-300 Result:Precipitation
Run:Basin 300_2018.03.16 Element:Basin-300 Result:Precipitation Loss
Run:Basin 300_2018.03.16 Element:Basin-300 Result:Outflow
Run:Basin 300_2018.03.16 Element:Basin-300 Result:Baseflow


Subbasin "Basin-300" Results for Run "Basin 300_PostCnstr_2018032"
Depth (in)
0.02
0.04
0.06
0.08
Flow (cfs)
4,000
3,000
2,000
1,000
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Jan2000
Run:Basin 300_PostCnstr_2018032 Element:Basin-300 Result:Precipitation
Run:Basin 300_PostCnstr_2018032 Element:Basin-300 Result:Precipitation Loss
Run:Basin 300_PostCnstr_2018032 Element:Basin-300 Result:Outflow
Run:Basin 300_PostCnstr_2018032 Element:Basin-300 Result:Baseflow

Project: Sanborn_WholeWatershed Simulation Run: Basin 400_2018.03.16

Subbasin: Basin-400

Start of Run:	01Jan2000, 00:00	Basin Model:	Basin 400
End of Run:	02Jan2000, 00:00	Meteorologic Model:	Basin 400 Met
Compute Time:	22Mar2018, 14:44:04	Control Specifications:	DesStorm

Volume Units: AC-FT

Computed Results

Peak Discharge:	781.8 (CFS)	Date/Time of Peak Discharge:	01Jan2000, 16:30
Precipitation Volume:	159.3 (AC-FT)	Direct Runoff Volume:	156.1 (AC-FT)
Loss Volume:	0.0 (AC-FT)	Baseflow Volume:	0.0 (AC-FT)
Excess Volume:	159.3 (AC-FT)	Discharge Volume:	156.1 (AC-FT)

Project: Sanborn_WholeWatershed Simulation Run: Basin 400_PostCnstr_2018032

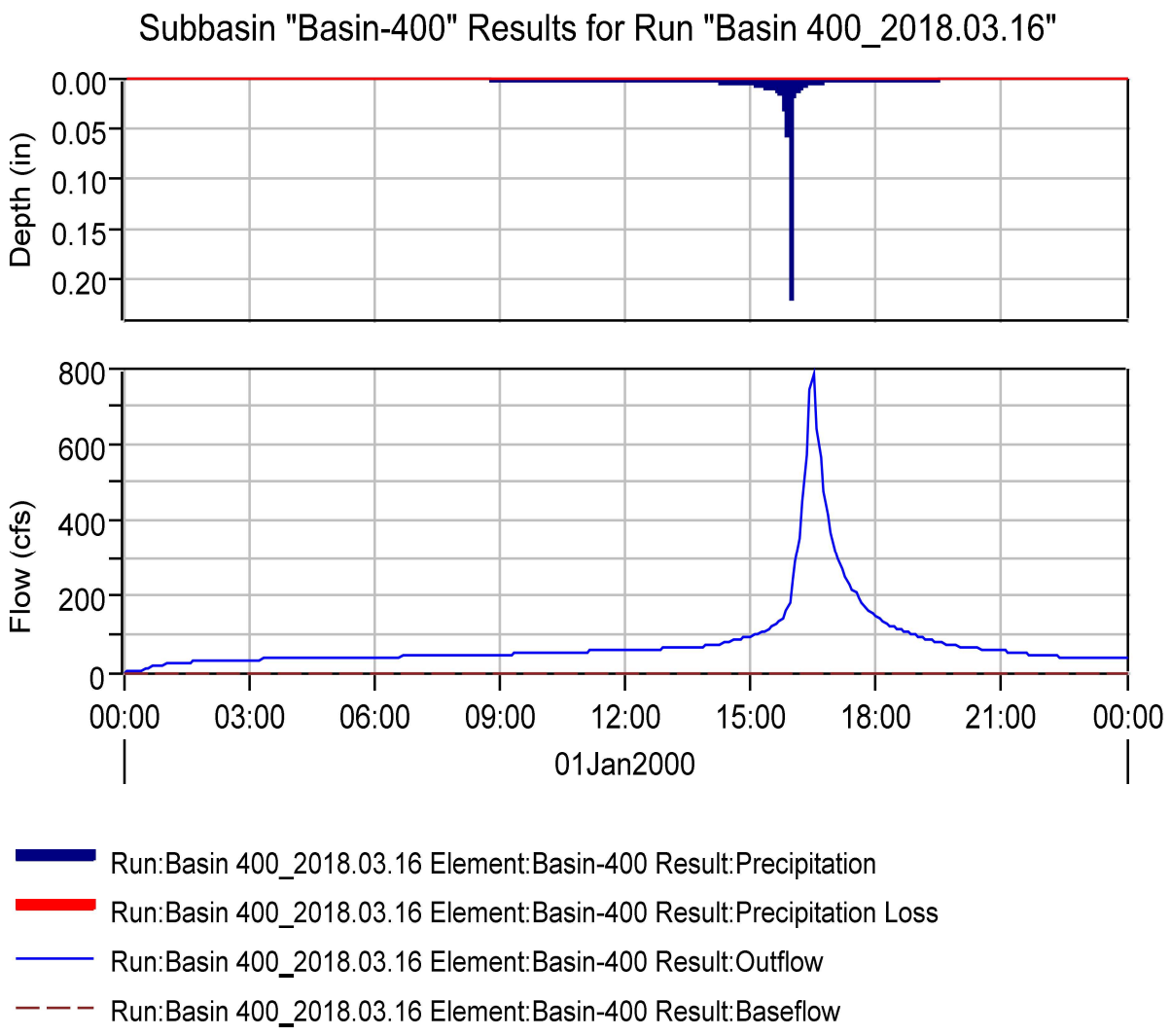
Subbasin: Basin-400

Start of Run:	01Jan2000, 00:00	Basin Model:	Basin 400
End of Run:	02Jan2000, 00:00	Meteorologic Model:	Basin 400 Met_PostConstr
Compute Time:	22Mar2018, 14:56:22	Control Specifications:	DesStorm

Volume Units: AC-FT

Computed Results

Peak Discharge:	791.3 (CFS)	Date/Time of Peak Discharge:	01Jan2000, 16:30
Precipitation Volume:	162.7 (AC-FT)	Direct Runoff Volume:	159.5 (AC-FT)
Loss Volume:	0.0 (AC-FT)	Baseflow Volume:	0.0 (AC-FT)
Excess Volume:	162.7 (AC-FT)	Discharge Volume:	159.5 (AC-FT)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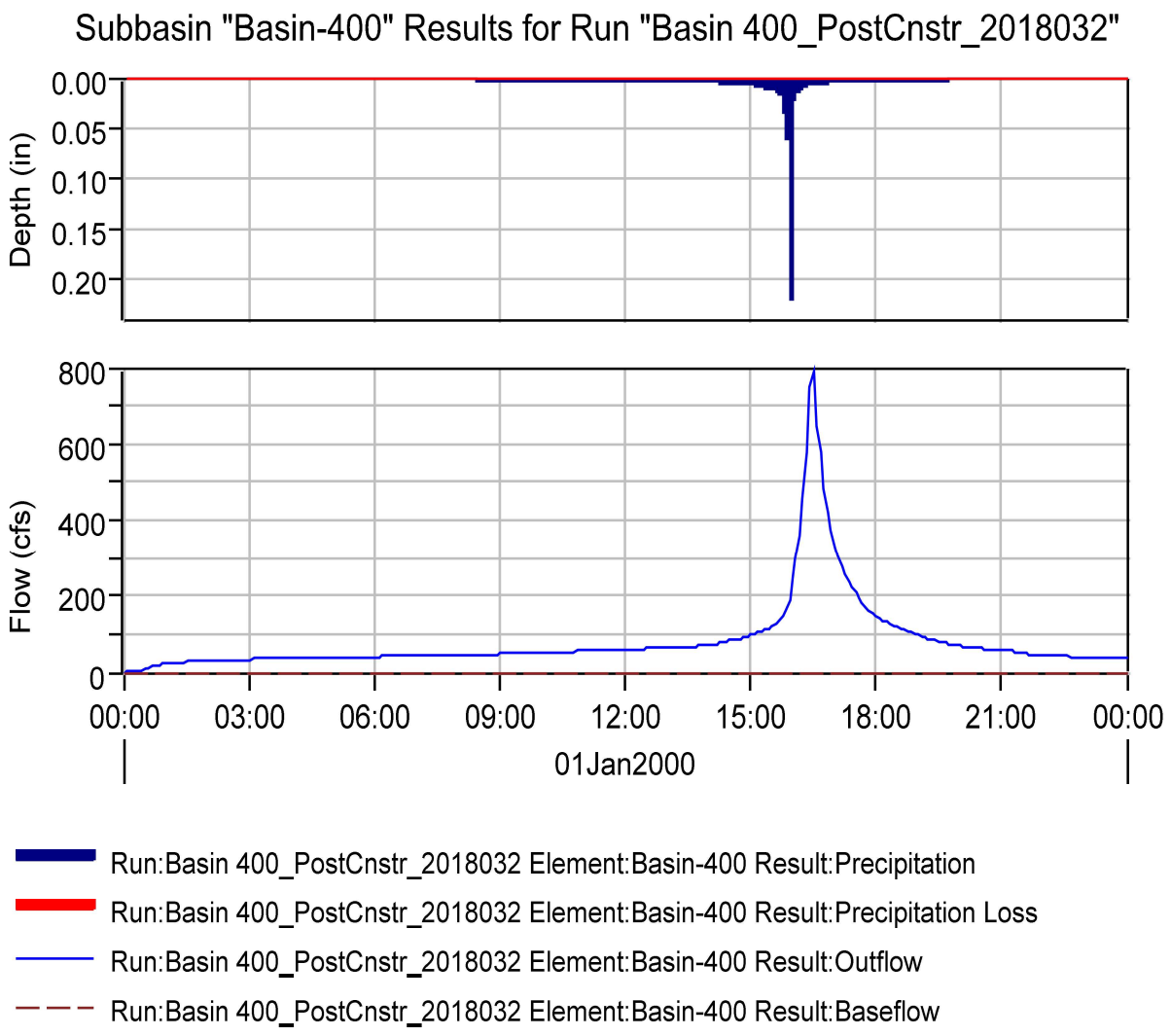
Depth (in)
0.00
0.05
0.10
0.15
0.20
Flow (cfs)
800
600
400
200
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Jan2000
Run:Basin 400_2018.03.16 Element:Basin-400 Result:Precipitation
Run:Basin 400_2018.03.16 Element:Basin-400 Result:Precipitation Loss
Run:Basin 400_2018.03.16 Element:Basin-400 Result:Outflow
Run:Basin 400_2018.03.16 Element:Basin-400 Result:Baseflow


Subbasin "Basin-400" Results for Run "Basin 400_PostCnstr_2018032"
Depth (in)
0.00
0.05
0.10
0.15
0.20
Flow (cfs)
800
600
400
200
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Jan2000
Run:Basin 400_PostCnstr_2018032 Element:Basin-400 Result:Precipitation
Run:Basin 400_PostCnstr_2018032 Element:Basin-400 Result:Precipitation Loss
Run:Basin 400_PostCnstr_2018032 Element:Basin-400 Result:Outflow
Run:Basin 400_PostCnstr_2018032 Element:Basin-400 Result:Baseflow

Appendix J

Noise Assessment Technical Report

ESA

FINAL

NOISE ASSESSMENT TECHNICAL REPORT
for the
Sanborn Solar Project,
Kern County, California

Prepared for:

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AUGUST 2019

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Meaning
AC	alternating current
ANSI	American National Standards Institute
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNEL	community noise equivalent level
County	Kern County
dB	decibel
dBA	A-weighted decibel
DC	direct current
gen-tie	generator tie-in
HVAC	heating-ventilation-air-conditioning
kV	kilovolt
L_{dn}	day-night sound level
L_{eq}	equivalent sound level
L_{max}	maximum sound level
L_{min}	minimum sound level
LT	long-term roadway noise measurement location
L_{xx}	percentile-exceeded sound levels
NSLU	noise-sensitive land use
O&M	operations and maintenance
OSHA	Occupational Safety and Health Act
PPV	peak particle velocity
PV	photovoltaic
RMS	root mean square
SCADA	supervisory control and data acquisition
SCE	Southern California Edison
SR	State Route
ST	short-term roadway noise measurement location
VdB	vibration decibels

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1 INTRODUCTION

1.1 Project Overview

The project consists of two discontinuous sites, each of which would contain solar and energy storage facilities, which together would compose the project site. The northern site is approximately 1,118 acres, and the southern site is approximately 983 acres. The northern site is directly east of the BNSF Railway, south of State Route (SR-) 58, and west of southern 10th Street. The southern site is directly north of Edwards Air Force Base, east of 15th Street, and 0.2 miles south of the BNSF Railway; its eastern edge follows an unnamed dirt road. A generator tie-in (gen-tie) line would connect the energy generated on site to either the Windhub Substation, owned and operated by Southern California Edison (SCE), and/or the privately owned Westwind Substation.

The project includes two options for delivering power to the Windhub Substation or Westwind Substation. Potential options include the following:

- **Option 1: 230-kilovolt (kV) Gen-Tie from On-Site Substation.** Under this interconnection option, a 230-kV gen-tie line would be constructed from an on-site project substation located near Lone Butte Road and then would either tap into existing transmission lines with line tap equipment situated on up to 5 acres of land at the corner of United Street and Purdy Avenue or travel west to the Windhub and/or Westwind Substation.
- **Option 2: United Street 34.5-kV to 230-kV Step-Up Conversion Station.** Under this interconnection option, a 34.5-kV collection line would be constructed from the western limits of the project site near Lone Butte Road and travel west to a step-up conversion station situated on up to approximately 5 acres and located within the gen-tie line corridor. At the United Street step-up conversion station, the 34.5-kV power would be stepped-up to 230-kV power for delivery to the Windhub and/or Westwind Substation.

The northern site would be accessed by Lone Butte Road or 10th Street from SR-58, and the southern site would be accessed by Silver Queen Road or Reed Avenue from United Street.

1.2 Project Location

The project site is in the southern portion of Kern County (County), in Central California, as shown on Figure 1, Project Vicinity. The project site is located at the western edge of the Antelope Valley, directly south of the community of Mojave. The solar generation sites and 1.3 miles of the gen-tie line are east of SR-14 (Antelope Valley Freeway), and the remainder of the gen-tie line is west of SR-14. The northern site is less than 1 mile southwest of SR-58 (West Avenue D) and south of the Mojave Air and Space Port. The BNSF Railway forms the western edge of the northern, site and

the gen-tie line crosses the BNSF Railway in two locations. The western extent of the gen-tie line is approximately 38 miles east of Interstate 5. The gen-tine line crosses the Los Angeles Aqueduct approximately 1.5 miles east of the Windhub Substation. The southern site is directly north of Edwards Air Force Base. The northern site lies in the Sanborn and Mojave U.S. Geological Survey 7.5-minute quadrangles; Sections 22, 23, 26, 27, 34, and 35; Township 11 North; Range 12 West; San Bernardino Base and Meridian. The southern site lies in the Bissell U.S. Geological Survey 7.5-minute quadrangles; Sections 1, 6, 7, and 12; Township 10 North; Ranges 12 West and 11 West; San Bernardino Base and Meridian.

The project is located on generally undeveloped land that has been historically used for grazing operations and consists entirely of 14 privately owned parcels. Figure 2, Project Site, depicts the project boundaries, including the gen-tie alignments.

1.3 Project Characteristics

Project Overview and Design

The project would include the development of solar facilities and associated infrastructure with the capacity to generate up to a combined 300-MW renewable electric energy and/or energy storage capacity. Power generated by the project would be transferred to the Windhub Substation and/or Westwind Substation within the gen-tie line corridor. The solar facilities would use photovoltaic (PV) technology and consist of solar arrays mounted on either fixed or tracking structures mounted to vertical posts. The solar facilities would operate year-round and would generate electricity during the daylight hours. The site plan for the project is shown on Figure 3, Site Plan.

The project consists of two development areas that compose the project site and would be built in several phases pending power purchase agreements. Combined, the solar facilities would generate up to 300 MW of renewable electrical energy and/or energy storage capacity. Each of the project's facilities would include solar panels/modules, inverters, internal service roads, and telecommunication equipment, including underground and overhead electrical collection systems and fiber optics. Electrical collection systems would be installed in conjunction with panel arrays within the project site, connecting each solar panel to a feeder circuit; each feeder circuit would in turn be connected to the collector substation. The different solar panel circuits would gather into 34.5-kV circuits and either step up to 230 kV at the United Street conversion station and/or step up to 230 kV at the on-site substation. The power would then be delivered through 230-kV circuits to a grid interconnection point at the Windhub Substation and/or Westwind Substation.

The combined project would include the following components, which are described in more detail following:

- **Solar PV Generating Facilities and Solar Modules**: Installation of solar facilities capable of up to a combined 300 MW of renewable electrical energy and/or energy storage through PV modules made of thin film or polycrystalline silicon material covered by glass, mounted on a galvanized metal fixed-tilt or single-axis racking system, and connected to inverters and/or a commercially viable energy storage facility
- **Energy Storage Facility**: Installation of an energy storage facility and appurtenances that would provide energy storage capacity for the electric grid
- **Collector Substation**: A collector substation, including circuit breakers, disconnect switches, metering and protection equipment, and main step-up transformers
- **Operations and Maintenance (O&M) Building**: An O&M building to maintain the facilities
- **Electrical Collector System and Inverters**: Overhead and underground collection systems throughout the solar facilities (The collection systems would be aggregated at multiple circuit breakers or medium-voltage switchgear positions within the project facilities, leading to the collector substation.)
- **Gen-Tie Power Line and Interconnection with the Statewide Grid**: 34.5-kV to 230-kV step-up conversion station and/or a 230 kV gen-tie line to connect to the Windhub Substation and/or Westwind Substation
- **Telecommunication Facilities**: Telecommunication equipment, including underground and overhead fiber optics, and meteorological data collection systems or supervisory control and data acquisition (SCADA)
- **Site Access and Security**: On-site access roads and perimeter security fencing and nighttime directional lighting

The facilities are intended to operate year-round and would be designed to produce up to a combined 300 MW of solar power and/or energy storage capacity at the point of interconnection to the transmission grid.

Solar PV Generating Facilities and Solar Modules

The project would use system blocks to convert solar energy directly to electrical power for export to the electrical grid. The project would include installation of PV modules that would be mounted on steel support posts that would be pile driven into the ground and connected to inverters. The modules would be made of a thin film material or polycrystalline silicon material covering the

glass panels, which would be dark in color, highly absorptive, and have minimum reflectivity. The modules would be manufactured at an off-site location and transported to the project site.

Solar modules for the project would be provided on either a fixed-mount array system or a single-axis tracker system. Depending on the type of technology (modules) used, the panels would measure between 4 and 7 feet in length, and the total height of the panel system measured from ground surface would be approximately 7 to 12 feet. The length of each row of panels would be approximately 300 feet and would be oriented in the east–west direction in the case of a fixed-mount array being used and in the north–south direction in the case of single-axis trackers being used.

Access roads would be located throughout the project area. Spacing between each row would be approximately 8 to 22 feet. Single-axis tracking systems would employ a motor mechanism that would allow the arrays to track the path of the sun (from east to west) throughout the day. The motors would be installed after the horizontal cross-members are in place. In the morning, the panels would face east. Throughout the day, the panels would slowly move to the upright position at noon and west at sundown. The panels would reset to the east in the evening or early morning to receive sunlight at sunrise.

Energy Storage Facility

Energy storage systems are proposed adjacent to the on-site collector substation and/or throughout the solar arrays. The energy storage batteries would be housed in a structure or within Conex boxes. In the event a single structure is constructed near the on-site substation, a height (including any screening for heating, ventilation, and air conditioning (HVAC)) of approximately 30 feet is anticipated as a worst-case scenario. The batteries under this configuration are housed in open-air-style racking (similar to computer racking) 10 to 12 feet high. The associated inverters, transformers, and switchgear would be located immediately adjacent to the structure on concrete pads.

The energy storage structure would also have a fire rating in conformance with County standards and specialized fire suppression systems installed for the battery rooms. All non-battery rooms would have County-approved standard sprinkler systems. The structure would also have HVAC cooling in the battery room to maintain energy efficiency. Power to the HVAC and lighting would be provided through a connection to the on-site substation service transformer with connection lines installed above ground and/or below ground. The energy storage system would be unmanned, with remote operational control and periodic inspections and maintenance performed as necessary.

If Conex boxes are employed instead, up to 50 Conex boxes could be used for the energy storage system, each equipped with an HVAC system, inverter, and transformer to enable alternating current (AC) to be converted to direct current (DC) for storage, and then back to AC current for transmission off site. Noise generation from 50 individual energy storage Conex boxes would be greater than for a consolidated structure, and therefore the Conex box configuration will be examined in this noise analysis, as the worst case scenario. Information from the vendor for a similar energy storage project (Rugged LLC 2014) indicates the HVAC unit that is supplied as standard equipment for the storage containers produces 68 A-weighted decibels (dBA) at a distance of 50 feet during full operation (NACO Model 30RB120). The anticipated step-up transformer has a sound rating of 60 decibels (dB) at 5 feet based on National Electric Manufactures Association ratings for the size of transformer anticipated to be used with storage battery systems (NEMA 2000). The anticipated power inverter is a Xantrex model, or equivalent, which has a noise level rating of 77 dB at 6 feet (Schneider Electric 2011).

Option 1–Collector Substation On Site

The on-site collector substation is the termination point of the collection system of 34.5-kV AC electricity. The output of the entire field is passed through a final interconnection step-up transformer to convert it to the grid-tie voltage at 230 kV. Additionally, the project substation would host the grid intertie safety equipment and switches required to interconnect to the high-voltage transmission system. The open-air substation would likely be constructed on the western border of the solar array. The footprint of the on-site substation would be approximately 360 feet by 360 feet. The project substation would consist of components up to 55 feet in height, and feeders would be overhead lines constructed with 45- and 60-foot-tall poles for the single and double circuits, respectively.

Option 2: United Street Step-Up Conversion Station

Option 2 would consist of constructing a step-up conversion station on up to approximately 5 acres at United Street and Purdy Avenue, within the gen-tie line corridor. The step-up conversion station would be the termination point of the collection system of 34.5-kV AC electricity. The output of the entire field would be passed through a final interconnection step-up transformer to convert it to the grid-tie voltage at 230 kV at this location. The equipment would be similar to the facilities described for Option 1.

<u>Operations and Maintenance Building</u>

The O&M building would be up to approximately 8,000 square feet and is expected to be co-located with the proposed collector substation. It is anticipated that a maximum of six permanent

staff employees would use the O&M building for ongoing facility monitoring, equipment storage, and repairs. The O&M building is expected to be a prefabricated commercial structure that measures up to 100 feet by 80 feet in area and 12 feet high. Within the O&M building, an office space of not more than 2,000 square feet would be provided, which would have climate control. One 3.5-ton capacity package HVAC unit would be anticipated to serve the office area, anticipated to be mounted on the facility roof. Dudek used published sound power ratings for a representative HVAC package unit of this capacity (York XP Series 2018), which has a sound generation level of 48 dBA at a distance of 50 feet.

Permanent restroom facilities with septic tanks and/or portable toilets would be used for sanitary purposes at the O&M building, and a permanent water source in the form of trucked water, well water, or bottled water would be provided for the staff. The proposed building would include the requisite number of parking spaces for staff members' vehicles and O&M equipment.

Electrical Collection System and Inverters

The solar panels would be electrically connected to each other through aboveground and underground wiring. Underground electrical cables (underground collection system) would be installed from groups of PV arrays that would be arranged into power blocks. The cables would convey DC electricity to inverters, which convert the DC electricity to AC. Electrical inverters and the transformers would be installed on prefabricated metal skids that sit on steel pier foundations or concrete foundations, depending on the design. The proposed inverters would be the TMEIC 3.2-megawatt (MW) capacity model (Solar Ware 3200) or equivalent. This is a new model, for which the manufacturer has not completed sound testing. For the purpose of noise assessment, Dudek used a similar model (Sunny Central 2500-EV) which has a noise level rating of 64.3 dB at 10 meters (SMA Solar Technology 2016). Based on the anticipated capacity of transformers to accompany the 3.2-MW inverters, the transformers have an anticipated sound rating of 60 dB at 5 feet based on National Electric Manufactures Association (NEMA 2000).

Figure 3, Site Plan, indicates the distribution of the individual inverter/transformer pads. The northern site includes a total of 45 inverter/transformers, whereas the southern site includes a total of 34. The inverter pad transformers would step up the voltage of the array output, which would be collected at the on-site circuit breakers or switchgear positions. From the circuit breakers or switchgear positions, the medium-voltage collector lines would be routed to the on-site solar substation or United Street step-up conversation station and transformed through high-voltage transformers to 230 kV and exported to the SCE Windhub Substation and/or Westwind Substation.

Generation Tie-In Line

The energy generated would be transmitted from the on-site step-up conversion station through a 230 kV gen-tie line to existing transmission lines either through a line tap at the corner of United Street and Purdy Avenue or directly to the Windhub Substation and/or Westwind Substation through a new 230-kV line.

Alternatively, rather than a line tap at United Street and Purdy Avenue, a standalone 230-kV conversion substation would be constructed and tap into existing transmission lines or through a new standalone 230-kV gen-tie line to the Windhub Substation and/or Westwind Substation. Using new pole structures and necessitating the installation of a communication line (see following discussion), the gen-tie line alignment is shown on Figure 2.

The 230-kV gen-tie line would consist of approximately 90 structures with up to 185-foot-tall concrete or steel poles spaced on an average of approximately every 600 feet. The poles would carry one conductor per phase and would allow the line to maintain a minimum 30-foot vertical clearance to ground. The number and height of the poles, as well as the type of conductor, will be finalized during detailed design.

Telecommunications Facilities

The project would also require telecommunication facilities to meet the communication requirements for interconnecting with the Windhub Substation and/or Westwind Substation and to support remote project operations monitoring. To provide for communication with the Windhub Substation and/or Westwind Substation, a fiber-optic cable would be placed on the gen-tie line or along the gen-tie line corridor connecting the project site switchyard and/or United Street step-up conversion station with the Windhub Substation and/or Westwind Substation. Utility interconnection regulations require the installation of a second, separate, redundant fiber-optic cable. The redundant fiber-optic cable would also be installed within the project footprint and gen-tie line corridor. Within contiguous portions of the solar project and the gen-tie line corridor, the fiber-optic cable is anticipated to be placed underground in trenches approximately 1 foot wide and 18 inches to 4 feet deep. Portions of the redundant fiber-optic cable may be placed aboveground along the gen-tie line corridor.

The project would use local exchange carrier services with AT&T for telecommunication to support remote monitoring requirements. The project would connect to telecommunication fiber-optic lines owned and managed by AT&T. The cabinet holding the connection equipment would have a base of approximately 4 feet by 2 feet and would be approximately 5 feet in height. From

the point of demarcation, an underground fiber-optic cable would be installed within the project footprint to connect the cabinet to the SCADA equipment within the solar collector substation.

The SCADA system is critical to the California Independent System Operator and SCE utility interconnection and for the proper operation and maintenance of the project, which uses proprietary software; a fiber-optic transmission system; a telephone, radio, and/or microwave communication network; and other means of communication, such as radio links and phase loop communication systems. The SCADA system functions as a remote start, stop, reset, and tag out for the facility, minimizing the workers needed and site diagnostic information generated from the panels. The SCADA system would also control the substations, allowing for fully centralized operation of the project to meet California Independent System Operator and utility interconnection requirements.

Site Access and Security

The project site can be accessed from various separate roadways. Interstate 5 is the largest highway that would provide regional access to the project site from the north and south. SR-58 intersects with Interstate 5 and SR-14 and runs west of the project site; both SR-58 and SR-14 provide primary access. The northern solar facility would be accessed by Lone Butte Road or 10th Street from SR-58. The southern solar facility would be accessed by Silver Queen Road or Reed Avenue from United Street off SR-14.

Although the existing roadways would be used to the greatest extent possible, new unpaved roads would be constructed to serve as access roads from the existing road network to the solar array blocks. Access roads would be up to 25 feet wide with up to 10-foot-wide shoulders on both sides of the road and would be cleared and compacted for travel and access to the solar blocks. These site access roads would remain in place for ongoing O&M activities after construction is complete. Cut slopes and other road construction activities would be constructed in a similar fashion. Dirt roads that are located within the boundaries of the project and that are not the subject of a written easement would be closed to third-party use for vehicular or other access. Any such third parties that may currently use these dirt roads would be rerouted to the major access routes, which would remain open.

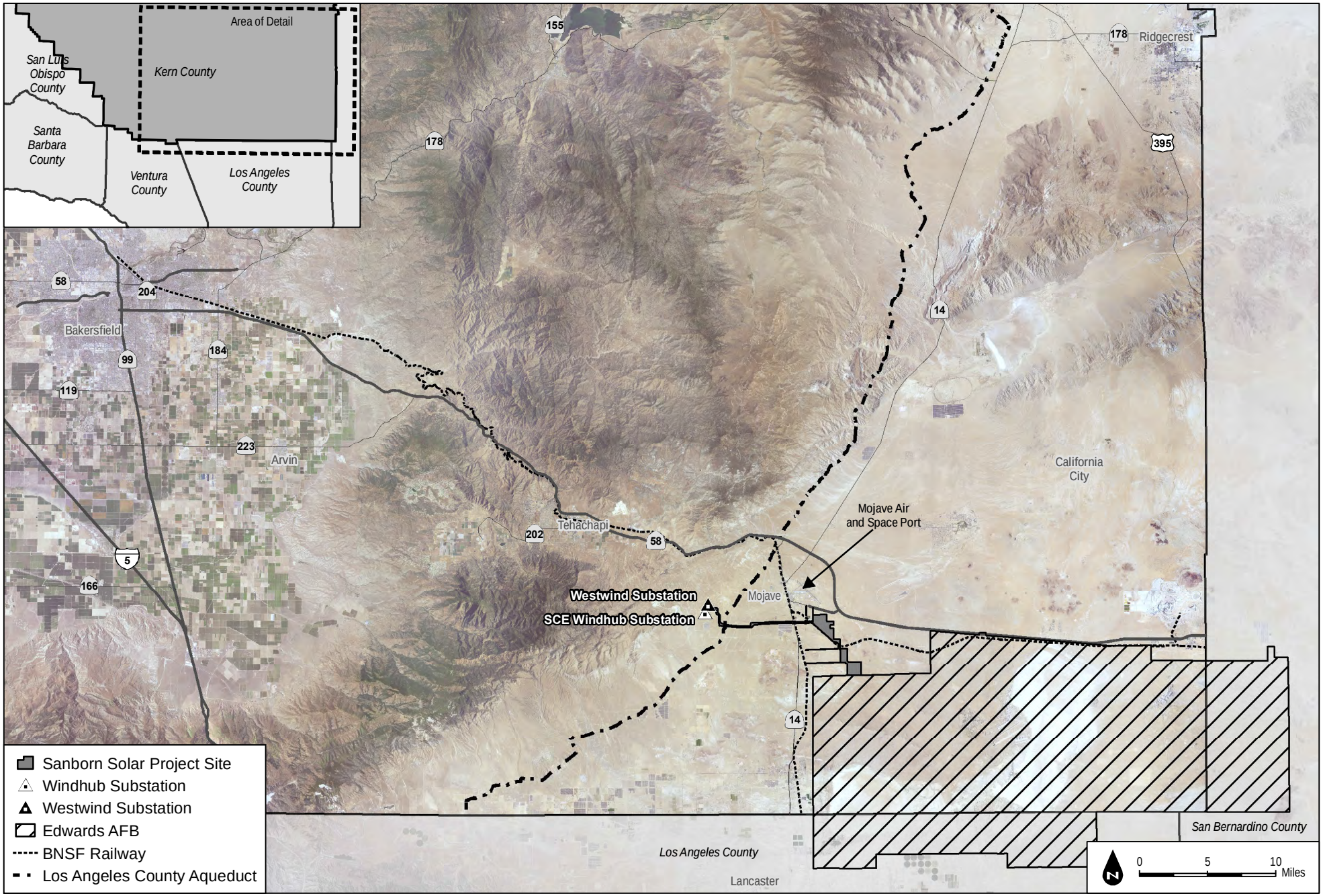

Figure 1: PROJECT VICINITY

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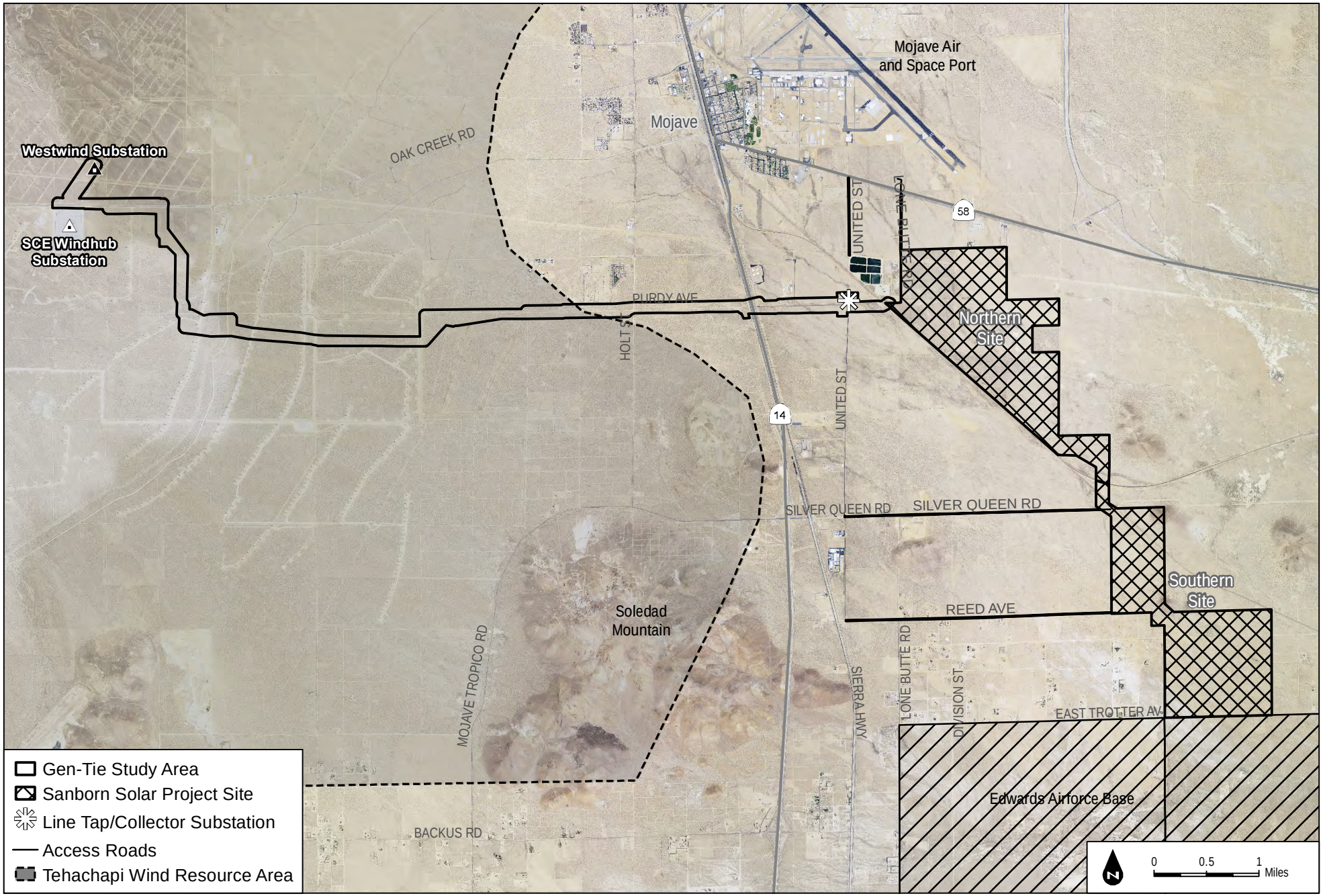

Figure 2: PROJECT SITE

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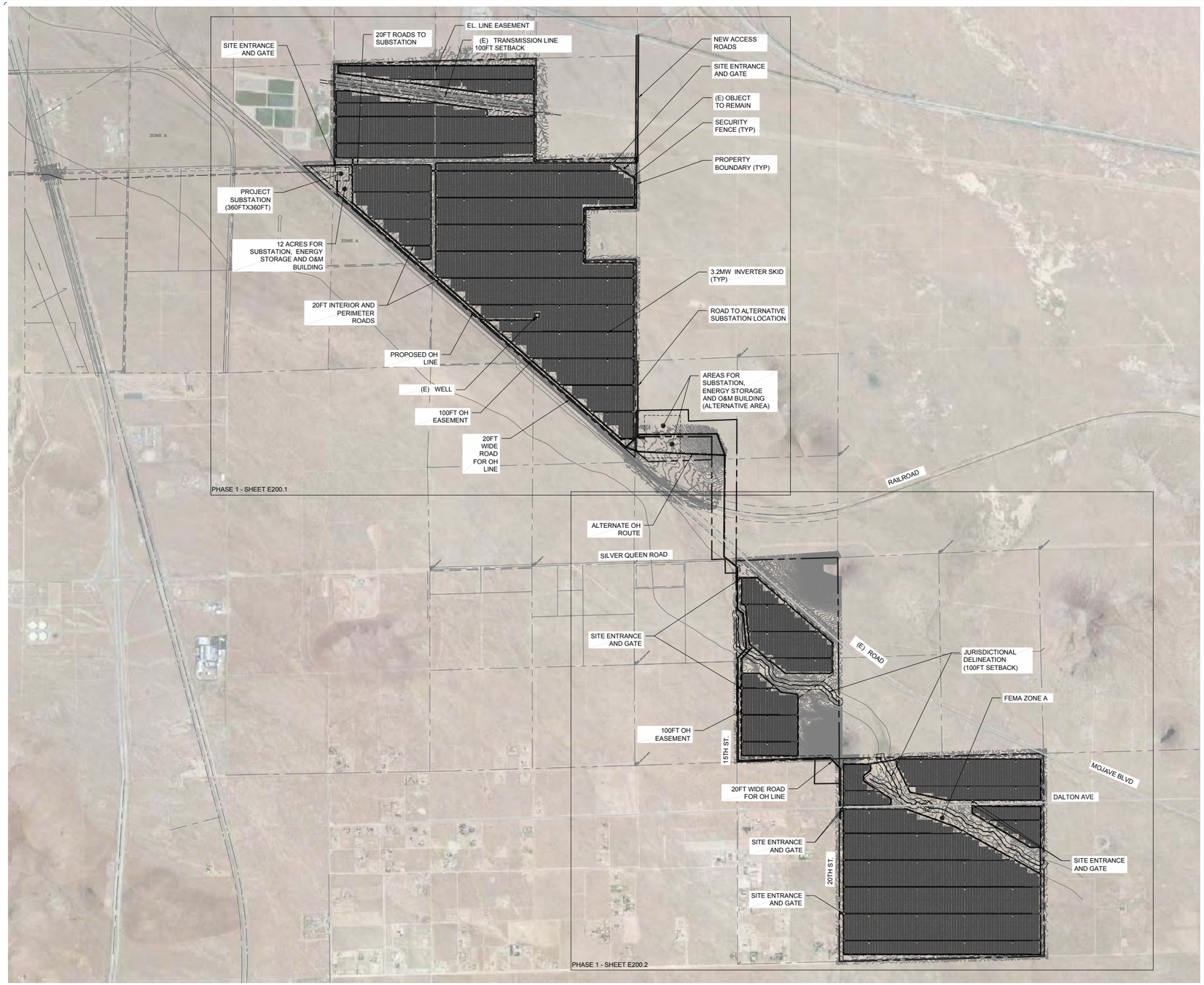

SHEET NOTES:

1. LOCATIONS SHOWN ARE FOR GENERAL GUIDANCE ONLY. SLOPES OF THE SITE ARE NOT DEPICTED AND LOCATIONS MUST BE VERIFIED ON SITE BEFORE INSTALLATION.

SYSTEM SPECIFICATIONS:

SYSTEM STC DC RATING (MW)	312.86
SYSTEM AC CAPACITY (MW)	252.80
SYSTEM AC RATING AT POI (MW)	235.00
DC/AC RATIO AT POI	1.331
MODULE MODEL	FIRST SOLAR 430
MODULE STC DC RATING (W)	430
MODULE COUNT	727578
MODULES PER STRING	6
STRING COUNT	121263
INVERTER MODEL	1MHC Solar Water 3200 PVH 1.3700GR
INVERTER RATING (MW)	3.20
QUANTITY OF INVERTERS	79
TRANSFORMER RATING (MVA)	1.20
QUANTITY OF TRANSFORMERS	79
DC SYSTEM VOLTAGE (V)	1500
INTERCONNECTION VOLTAGE (KV)	230
TRANSMISSION LENGTH (MILES)	9.5
RACKING SYSTEM	TRACKER (1 PORTRAIT)
MODULE TILT	+/- 60°
AZIMUTH	180°
GCR	0.34
ROW TO ROW SPACING (FT)	19.35
ASHRAE 2% DESIGN BULB TEMP MAX (°C)	40°
ASHRAE EXTREME ANNUAL MEAN MINIMUM DRY BULB TEMP	10°
PROPERTY AREA (ACRES)	2183
FENCED AREA (ACRES)	1675
FENCING LENGTH (L.F.)	97626
ROADS (L.F.)	241460

LEGEND

- PROPERTY LINE
- FENCE LINE
- ROAD
- OVERHEAD ELECTRICAL
- SETBACK / WATERS
- RIGHT OF WAY (ROW)

KEY MAP
SCALE: NTS

N

Figure 3 : SITE PLAN

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Final service road alignments would depend on the final placement of the solar panels and the results of field investigations, including topography and any other site-specific details to be incorporated into the final design. Should access roads be required to cross streambed areas under the jurisdiction of the California Department of Fish and Wildlife, appropriate crossings would be installed to minimize impacts to these jurisdictional areas and to comply with all California Department of Fish and Wildlife Code requirements, including authorization through a Streambed Alteration Agreement as appropriate.

Permanent, motion-sensitive, directional security lights would be installed to provide adequate illumination around the substation areas and points of ingress/egress. Lighting would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties. Lighting would also conform to applicable County night-sky ordinance requirements. Lighting would be used from dusk to dawn once the facilities are operational. Motion-sensitive cameras would also be installed throughout each solar facility at the inverters and along the fence line for added security. The cameras would be mounted on poles of approximately 20 feet in height.

Potential SCE Off-Site Upgrades

To accommodate the project's interconnection, potential SCE and/or California Independent System Operator off-site upgrades may be necessary to implement the project. The network facility modifications necessary to support the development of the project may include, but are not limited to, upgrades to the existing Windhub Substation and/or Westwind Substation and installation of new circuits, lines, switches, and utility poles.

1.4 Noise Background and Terminology

Fundamentals of Environmental Noise

Vibrations, traveling as waves through air from a source, exert a force perceived by the human ear as sound. Sound pressure level (referred to as sound level) is measured on a logarithmic scale in dB that represent the fluctuation of air pressure above and below atmospheric pressure. Frequency, or pitch, is a physical characteristic of sound and is expressed in units of cycles per second or hertz. The normal frequency range of hearing for most people extends from about 20 to 20,000 hertz. The human ear is more sensitive to middle and high frequencies, especially when the noise levels are quieter. As noise levels get louder, the human ear starts to hear the frequency spectrum more evenly. To accommodate for this phenomenon, a weighting system to evaluate how loud a noise level is to a human was developed. The frequency weighting, called "A" weighting, is typically used for quieter noise levels, which de-emphasizes the low-frequency components of the sound in

a manner similar to the response of a human ear. This A-weighted sound level is called the "noise level" and is referenced in units of dBA.

Since sound is measured on a logarithmic scale, a doubling of sound energy results in a 3-dBA increase in the noise level. Changes in a community noise level of less than 3 dBA are not typically noticed by the human ear (Caltrans 2009). Changes from 3 to 5 dBA may be noticed by some individuals who are extremely sensitive to changes in noise. A 5-dBA increase is readily noticeable (EPA 1974). The human ear perceives a 10-dBA increase in sound level as a doubling of the sound level (i.e., 65 dBA sounds twice as loud as 55 dBA to a human ear).

An individual's noise exposure occurs over a period of time; however, noise level is a measure of noise at a given instant in time. Community noise sources vary continuously, being the product of many noise sources at various distances, all of which constitute a relatively stable background or ambient noise environment. The background, or ambient, noise level gradually changes throughout a typical day, corresponding to distant noise sources such as traffic volume and changes in atmospheric conditions.

Noise levels are generally higher during the daytime and early evening when traffic (including airplanes), commercial, and industrial activity is the greatest. However, noise sources experienced during night-time hours when background levels are generally lower can be potentially more conspicuous and irritating to the receiver. To evaluate noise in a way that considers periodic fluctuations experienced throughout the day and night, a concept termed "community noise equivalent level" (CNEL) was developed, wherein noise measurements are weighted, added, and averaged over a 24-hour period to reflect magnitude, duration, frequency, and time of occurrence. A complete definition of CNEL is provided as follows.

Different types of measurements are used to characterize the time-varying nature of sound. These measurements include the equivalent sound level (L_{eq}), the minimum and maximum sound levels (L_{min} and L_{max}, respectively), percentile-exceeded sound level (L_{xx}), the day-night sound level (L_{dn}), and the CNEL. The following list provides brief definitions of noise terminology used in this report:

- **Decibel** (dB) is a unitless measure of sound on a logarithmic scale, which indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micropascals.
- **A-weighted decibel** (dBA) is an overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.

- **Equivalent sound level** (L_{eq}) is the constant level that, over a given time period, transmits the same amount of acoustic energy as the actual time-varying sound. Equivalent sound levels are the basis for both the L_{dn} and CNEL scales.
- **Maximum sound level** (L_{max}) is the maximum sound level measured during the measurement period.
- **Minimum sound level** (L_{min}) is the minimum sound level measured during the measurement period.
- **Percentile-exceeded sound level** (L_{xx}) is the sound level exceeded X% of a specific time period. L_{10} is the sound level exceeded 10% of the time.
- **Day-Night Average Sound Level** (L_{dn}) The County of Kern describes community noise levels in terms of the L_{dn} (as well as CNEL (see following definition). The L_{dn} is a 24-hour average A-weighted sound level with a 10 dB penalty added to the nighttime hours from 10:00 p.m. to 7:00 a.m. The 10 dB penalty is applied to account for increased noise sensitivity during the nighttime hours.
- **Community Noise Equivalent Level** (CNEL) is the average equivalent A-weighted sound level during a 24-hour day. CNEL accounts for the increased noise sensitivity during the evening hours (7:00 p.m. to 10:00 p.m.) and nighttime hours (10:00 p.m. to 7:00 a.m.) by adding 5 dB to the sound levels in the evening and 10 dB to the sound levels at night.

Exterior Noise Distance Attenuation

Noise sources are classified in two forms: (1) point sources, such as stationary equipment or a group of construction vehicles and equipment working within a spatially limited area at a given time; and (2) line sources, such as a roadway with a large number of pass-by sources (motor vehicles). Sound generated by a point source typically diminishes (attenuates) at a rate of 6.0 dBA for each doubling of distance from the source to the receptor at acoustically "hard" sites and at a rate of 7.5 dBA for each doubling of distance from source to receptor at acoustically "soft" sites (Caltrans 2009). Sound generated by a line source (i.e., a roadway) typically attenuates at a rate of 3 dBA and 4.5 dBA per doubling distance, for hard and soft sites, respectively (Caltrans 2009). Sound levels can also be attenuated by man-made or natural barriers. For the purpose of a sound attenuation discussion, a hard or reflective site does not provide any excess ground-effect attenuation and is characteristic of asphalt or concrete ground surfaces, as well as very hard-packed soils. An acoustically soft or absorptive site is characteristic of unpaved loose soil or vegetated ground.

With respect to examples of this distance-attenuation relationship for exterior noise, a 60-dBA noise level measured at 50 feet from a transformer within a paved substation site would diminish to 54 dBA at 100 feet from the source, and to 48 dBA at 200 feet from the source. This scenario is

addressed by the point source attenuation for a hard site (6 dBA with each doubling of the distance). For the scenario where soft-site conditions exist between the point source and receptor, represented by a corridor of vegetation or open ground along the substation perimeter, an attenuation rate of 7.5 dBA per doubling of distance would apply; the transformer noise measured as a 60 dBA at 50 feet would diminish to 52.5 dBA at 100 feet from the source and to 45 dBA at 200 feet from the source, where soft ground with or without vegetation exists between the sound source and the receptor location.

Structural Noise Attenuation

Sound levels can also be attenuated by man-made or natural barriers. Solid walls, berms, or elevation differences typically reduce noise levels in the range of approximately 5 to 15 dBA (Caltrans 2009). Structures can also provide noise reduction by insulating interior spaces from outdoor noise. The outside-to-inside noise attenuation provided by typical structures in California ranges between 17 to 30 dBA with open and closed windows, respectively, as shown in Table 1.

Table 1
Outside-to-Inside Noise Attenuation (dBA)

Building Type	Open Windows	Closed Windows[1]
Residences	17	25
Schools	17	25
Churches	20	30
Hospitals/offices/hotels	17	25
Theaters	17	25

Source: Transportation Research Board, National Research Council, 1971.
Notes: dBA = A-weighted decibel
1 As shown, structures with closed windows can attenuate exterior noise by a minimum of 25 to 30 dBA.

Fundamentals of Vibration

Vibration is an oscillatory motion that can be described in terms of displacement, velocity, or acceleration. The response of humans to vibration is very complex. However, it is generally accepted that human response is best approximated by the vibration velocity level associated with the vibration occurrence.

Heavy equipment operation, including stationary equipment that produces substantial oscillation or construction equipment that causes percussive action against the ground surface, may be perceived by building occupants as perceptible vibration. It is also common for groundborne vibration to cause windows, pictures on walls, or items on shelves to rattle. Although the perceived

vibration from such equipment operation can be intrusive to building occupants, the vibration is seldom of sufficient magnitude to cause even minor cosmetic damage to buildings.

When evaluating human response, groundborne vibration is usually expressed in terms of root mean square (RMS) vibration velocity. RMS is defined as the average of the squared amplitude of the vibration signal. As for sound, it is common to express vibration amplitudes in terms of dB defined as:

$$L_v = 20 \log \left(\frac{v_{rms}}{v_{ref}} \right)$$

where V_{rms} is the RMS vibration velocity amplitude in inches/second and V_{ref} is the dB reference of $1x10^{-6}$ inches/second.

To avoid confusion with sound dB, the abbreviation VdB is used for vibration decibels. The vibration threshold of perception for most people is around 65 VdB. Vibration levels in the 70–75 VdB range are often noticeable but generally deemed acceptable, and levels in excess of 80 VdB are often considered unacceptable (FTA 2006).

Health Effects of Noise

Noise is known to have a number of different adverse effects on humans. Based upon these recognized adverse effects of noise, criteria have been established to help protect the public health and safety and prevent disruption of certain human activities. These criteria are based on effects of noise on people such as hearing loss (not generally associated with community noise), communication interference, sleep interference, physiological responses, and annoyance.

1.5 Noise Regulation and Management

1.5.1 Federal

Department of Defense

Edwards Air Force Base Air Installation Compatible Use Zones

The Department of Defense requires military aviation facilities to prepare an Air Installation Compatible Use Zones study. The principle purpose of the Air Installation Compatible Use Zones study is to protect community safety and health, promote appropriate development in the vicinity of military airfields, and protect taxpayer's investment in national defense. The currently adopted Air Installation Compatible Use Zones for Edwards Air Force Base indicates areas affected by current noise and safety impacts are confined within the boundaries of the installation.

Federal Aviation Administration Standards

Enforced by the Federal Aviation Administration, Code of Federal Regulations (CFR) Title 14, Part 150, prescribes the procedures, standards, and methodology governing the development, submission, and review of airport noise exposure maps and airport noise compatibility programs, including the process for evaluating and approving or disapproving those programs. Title 14 also identifies those land uses that are normally compatible with various levels of exposure to noise by individuals. The Federal Aviation Administration has determined that interior sound levels up to 45 dBA L_{dn} (or CNEL) are acceptable within residential buildings. The Federal Aviation Administration also considers residential land uses to be compatible with exterior noise levels at or less than 65 dBA L_{dn} (or CNEL).

Federal Highway Administration Standards

CFR Title 23, Part 772, sets procedures for the abatement of highway traffic noise and construction noise. Title 23 is implemented by the federal Department of Transportation Federal Highway Administration. The purpose of this regulation is to provide procedures for noise studies and noise abatement measures to help protect the public health and welfare, to supply noise abatement criteria, and to establish requirements for information to be given to local officials for use in the planning and design of highways. All highway projects that are developed in conformance with this regulation shall be deemed to be in conformance with the Department of Transportation–Federal Highway Administration Noise Standards. Title 23 establishes a noise abatement criteria of 67 dBA $L_{eq(h)}$ applicable to federal highway projects for evaluating impacts to land uses, including residences, recreational uses, hotels, hospitals, and libraries (23 CFR Chapter 1, Part 772, Section 772.19). Additionally, Federal Highway Administration requires that individual states establish an allowable noise level increase (at or above which the increase is deemed to be "substantial" and abatement should be considered) for Type 1[1] highway projects. Currently, the definition of a "substantial increase" ranges from 5 to 15 dB, depending upon the state.

[1] A Type I project as defined in 23 CFR 772, is a federal or federal-aid project for:
1. The construction of a highway on a new location;
2. The physical alteration of an existing highway where there is either: a. Substantial horizontal alteration; b. Substantial vertical alteration;
3. The addition of a through-traffic lane(s).
4. The addition of an auxiliary lane, except for when the auxiliary lane is a turn lane;
5. The addition or relocation of interchange lanes or ramps added to a quadrant to complete an existing partial interchange;
6. Restriping existing pavement for the purpose of adding a through traffic lane or an auxiliary lane;
7. The addition of a new or substantial alteration of a weigh station, rest stop, ride-share lot, or toll plaza.

Federal Transit Administration and Federal Railroad Administration Standards

Although the Federal Transit Administration standards are intended for federally funded mass-transit projects, the impact assessment procedures and criteria included in the Federal Transit Administration *Transit Noise and Vibration Impact Assessment* (May 2006) are routinely used for projects proposed by local jurisdictions. The Federal Transit Administration and Federal Railroad Administration have published guidelines for assessing the impacts of groundborne vibration associated with rail projects, which have been applied by other jurisdictions to other types of projects. The Federal Transit Administration measure of the threshold of architectural damage for conventional sensitive structures is 0.2 inches/second peak particle velocity (PPV).

Federal Occupational Safety and Health Act

Under the Occupational Safety and Health Act of 1970 (OSHA) (29 U.S.C. Section 651 et seq.), the U.S. Department of Labor, OSHA adopted regulations (29 CFR Section 1910.95) designed to protect workers against the effects of occupational noise exposure. These regulations list limits on noise exposure levels as a function of the amount of time during which the worker is exposed. The regulations further specify requirements for a hearing conservation program (Section 1910.95(c)), a monitoring program (Section 1910.95(d)), an audiometric testing program (Section 1910.95(g)), and hearing protection (Section 1910.95(i)).

1.5.2 State

California Noise Control Act of 1973

Sections 46000 through 46080 of the California Health and Safety Code, known as the California Noise Control Act of 1973, declares that excessive noise is a serious hazard to the public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also identifies a continuous and increasing bombardment of noise in the urban, suburban, and rural areas. The California Noise Control Act declares that the State of California has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the state to provide an environment for all Californians free from noise that jeopardizes their health or welfare.

California Environmental Quality Act

California Environmental Quality Act (CEQA) requires that all environmental effects of a project be analyzed, including environmental noise. Under CEQA, a project has a potentially significant impact if the project exposes people to noise levels in excess of standards established in the local general plan or noise ordinance. Additionally, under CEQA, a project has a potentially significant

impact if the project creates a substantial increase in the ambient noise levels in the project vicinity above levels existing without the project. If a project has a significant impact, mitigation measures must be prescribed.

1.5.3 Kern County

Kern County General Plan – Noise Element

The following goal and policies from the County General Plan, Noise Element are applicable to the proposed project.

Goals

Goal 1. Ensure that residents of Kern County are protected from excessive noise and that moderate levels of noise are maintained.

Policies

Policy 1. Review discretionary industrial, commercial, or other noise generating land use projects for compatibility with nearby noise-sensitive land uses.

Policy 4. Utilize good land use planning principles to reduce conflicts related to noise emissions.

Policy 5. Prohibit new noise-sensitive land uses in noise-impacted areas unless effective mitigation measures are incorporated into the project design. Such mitigation shall be designed to reduce noise to the following levels:

a) 65 dB L_{dn} or less in outdoor activity areas.

b) 45 dB L_{dn} or less within living spaces or other noise sensitive interior spaces.

Policy 7. Employ the best available methods of noise control.

Implementation Measures

Implementation Measure A. Utilize zoning regulations to assist in achieving noise compatible land use patterns.

Implementation Measure C. Review discretionary development plans, programs and proposals, including those initiated by both the public and private sectors, to ascertain and ensure their conformance to the policies outlined in this element.

Implementation Measure F. Require proposed commercial and industrial uses or operations to be designed or arranged so that they will not subject residential or other noise sensitive land uses to exterior noise levels in excess of 65 dB L_{dn} and interior noise levels in excess of 45 dB L_{dn}.

Implementation Measure G. At the time of any discretionary approval, such as a request for a General Plan Amendment, zone change or subdivision, the developer may be required to submit an acoustical report indicating the means by which the developer proposes to comply with the noise standards. The acoustical report shall:

a) Be the responsibility of the applicant.
b) Be prepared by a qualified acoustical consultant experienced in the fields of environmental noise assessment and architectural acoustics.
c) Be subject to the review and approval of the Kern County Planning Department and the Environmental Health Services Department. All recommendations therein shall be complied with prior to final approval of the project.

Implementation Measure I. Noise analyses shall include recommended mitigation, if required, and shall:

a) Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.
b) Include estimated noise levels for existing and projected future (10–20 years hence) conditions, with a comparison made to the adopted policies of the Noise Element.
c) Include recommendations for appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element.
d) Include estimates of noise exposure after the prescribed mitigation measures have been implemented. If compliance with the adopted standards and policies of the Noise Element will not be achieved, a rationale for acceptance of the project must be provided.

Implementation Measure J. Develop implementation procedures to ensure that requirements imposed pursuant to the findings of an acoustical analysis are conducted as part of the project permitting process.

The County includes working landscapes that have background noise levels from on-site as well as off-site (e.g., highway) uses and also have periodic construction-related or seasonal noise levels. These ambient noise levels vary by location and over time but are considered part of the County's setting for CEQA purposes. The County's General Plan Noise Element establishes the applicable CEQA significance threshold for noise impacts, and there is no actual or implied "zero decibel" or "any audible noise increase" that is appropriate or applicable to the study area.

Kern County General Plan – Energy Element

The County General Plan also requires the analysis of noise impacts relating to energy development that has the potential to impact sensitive land uses.

Policy 10. The County should require acoustical analysis for energy project proposals that might impact sensitive and highly-sensitive uses in accordance with the Noise Element of the General Plan.

Kern County Zoning Ordinance

Section 19.04.252 of the County Zoning Ordinance defines "exterior noise level" as "the noise level near the exterior of a structure usually within fifty (50) feet of the structure."

Section 19.80.030.S (1) restricts noise generated by commercial or industrial uses within 500 feet of a residential use or residential zone district. The commercial or industrial use shall not generate noise that exceeds an average 65 dB L_{dn} between the hours of 7:00 a.m. and 10:00 p.m. and shall not generate noise that exceeds 65 dB, or which would result in an increase of 5 dB or more from ambient sound levels, whichever is greater, between the hours of 10:00 p.m. and 7:00 a.m. Commercial or industrial facilities that are located in the M-3 zone district are exempt from these noise-generation restrictions.

Kern County Noise Ordinance

Section 8.36.020 of the County Municipal Code (Noise Ordinance) establishes construction noise control standards that would apply to any project construction activity. Construction activity noise restrictions are as follows:

8.36.020 – Prohibited sounds.

It is unlawful for any person to do, or cause to be done, any of the following acts within the unincorporated areas of the county:

H. To create noise from construction, between the hours of nine (9:00) p.m. and six (6:00) a.m. on weekdays and nine (9:00) p.m. and eight (8:00) a.m. on weekends, which is audible to a person with average hearing faculties or capacity at a distance of one hundred fifty (150) feet from the construction site, if the construction site is within one thousand (1,000) feet of an occupied residential dwelling except as provided below:

1. The development services agency director or his designated representative may for good cause exempt some construction work for a limited time.
2. Emergency work is exempt from this section.

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2 ENVIRONMENTAL SETTING

2.1 Sensitive Receptors

Noise-sensitive land uses (NSLUs) are land uses that may be subject to stress and/or interference from excessive noise. The Noise Element of the County General Plan (County of Kern 2004) identifies residences, schools, hospitals, parks, churches, and other similar land uses to be NSLUs. Industrial and commercial land uses are generally not considered sensitive to noise, with the exception of commercial lodging facilities. Land uses especially sensitive to vibration include concert halls, hospitals, libraries, vibration-sensitive research operations, residential areas, schools, and offices.

NSLUs in close proximity to the project site primarily consist of rural residences. With respect to the northern site, there are four residential structures immediately adjacent to the site, the nearest of which is 58 feet north of the site. With respect to the southern site, there are 8 residences within 1,500 feet of the site, the closest being approximately 65 feet west of the site, on the north side of Trotter Avenue. Some of these residences may be unoccupied or abandoned, but noise levels were evaluated at each location in order to be conservative (which addresses existing occupancy as well as the potential for re-occupation of any of the closest structures). Figure 4 illustrates the location of these noise-sensitive receptors (i.e, rural residential structures) adjacent to the project site, that were selected for specific noise modeling, as being representative of the worst-case noise exposure levels from the proposed project.

NSLUs located in the vicinity of the proposed gen-tie alignment are also primarily rural residences. Table 2 provides a summary of the rural residences located in proximity to the proposed gen-tie alignment, including the separation distance between the residences and the gen-tie alignment. There are no rural residences or other noise sensitive land uses in proximity to either of the alternative substations to which the gen-tie could connect.

Table 2
Gen-Tie Noise-Sensitive Land Uses

Arizona Avenue	14 homes 1,440 to 2,600 feet north of alignment
Winchester Road	Approximately 100 homes 1,195 feet north of alignment

Notes: gen-tie = generator tie-in.

As described in Table 2 and illustrated in Figure 5, the closest homes to the gen-tie alignments are from 1,195 to 2,600 feet away, clustered in neighborhoods around Arizona Avenue and Winchester Road (north of Purdy Avenue and west of SR-14).

2.2 Proximate Vibration-Sensitive Land Uses

Land uses in which groundborne vibration could potentially interfere with operations or equipment, such as research, manufacturing, hospitals, and university research operations (FTA 2006) are considered "vibration-sensitive." The degree of sensitivity depends on the specific equipment that would be affected by the groundborne vibration. Excessive levels of groundborne vibration of either a regular or an intermittent nature can result in annoyance to residential uses. There are no known vibration-sensitive land uses within 10 miles of the study area.

2.3 Existing Noise Levels

Existing (pre-project) noise conditions present in the study area were inventoried by Dudek in June 2017. Two types of sound-level measurements were taken: two 24-hour measurements were performed, one apiece in the general vicinity of the northern site and the southern site, at locations removed from existing paved roadways; and, three short-term (varying from 6 to 15 minutes) measurements were performed along the east-west gen-tie alignment, including one measurement adjacent to S-R14, which included manual traffic counts. Noise measurement locations are depicted on Figure 6.

Sound-level measurements were performed using a total of four different integrating sound-level meters: A Larson Davis Model 800 American National Standards Institute (ANSI) Type I, a Larson Davis Model 720 ANSI Type II, and two SoftdB Piccolo Models ANSI Type II. ANSI Type I and Type II sound-level meters both have sufficient accuracy to be used for environmental noise evaluation. Sound level meters were operated on tri-pods at a height of 5 feet above ground level, consistent with standards for environmental noise assessment. The sound-level meters were calibrated before and after each series of measurements using a Larson Davis Model CAL150 calibrator.

A total of two long-term measurements (24-hour duration) were taken in quiet areas removed from major roads to establish ambient noise levels in the region. Long-term roadway noise measurement location (LT) 1 was located near Decatur Road and 15th Street, due east of the northern site. LT2 was located near Division Road and Reed Road, in an area to the west of the southern site. Table 3 summarizes the minimum (L_{min}) and maximum (L_{max}) sound levels recorded for each monitor location during the 24-hour measurement, as well as the calculated 24-hour weighted average noise level (L_{dn}).

The sound monitor location description, dates of the measurement, and sound sources affecting the monitoring location are also provided in Table 3 for each monitor location. The long-term monitoring locations are illustrated on Figure 6.

Table 3
Ambient Sound Level Measurements (dBA)

Site	Location	Noise Sources	Dates	L_{dn}	L_{max}	L_{min}
LT1	East of northern site	Distant vehicular traffic on SR-58	06.14.17–06.15.17	64	64	38
LT2	West of southern site	Distant vehicular traffic on SR-14	06.14.17–06.15.17	63	61	38

Notes: dBA = decibel; LT = long-term roadway noise measurement location; L_{dn} = day-night sound level; L_{max} = maximum sound level; L_{min} = minimum sound level; SR = State Route.

The results of the ambient noise survey from long-term measurements reflect noise levels that range between 63 and 64 dBA L_{dn} (or CNEL) in the general vicinity of the northern site and southern site comprising the project. The primary noise source contributing to the ambient noise environment was traffic, despite the selection of noise monitor locations distant from principal roadways. SR-14 and SR-58 are major roadways and contributors to the ambient noise environment in the vicinity of the study area. As described previously, NSLU should not be exposed to noise levels exceeding 65 dBA L_{dn} (or CNEL); the ambient noise levels recorded at each of the long-term monitor locations would fall within acceptable levels for NSLU as specified in the County General Plan.

One important source of noise generation in the project study area are wind turbines. The gen-tie alignment passes through a sizable wind farm and would also cross SR-14. Short-term noise measurements were conducted within the wind farm along the gen-tie alignment; a short-term noise measurement with manual traffic counts was also completed adjacent to SR-14 along the gen-tie alignment. The results of these short-term noise measurements are presented in Table 4. The short-term roadway noise measurement locations are illustrated on Figure 6.

Table 4
Short-Term Ambient Noise Level Measurements (Existing) (dBA)

Site	Measurement Date	Measurement Time Period	L_{eq}	L_{max}	L_{min}	Remarks
ST1	06.14.17	3:25 p.m.–3:35 p.m.	34	51	31	Purdy Road at Holt Street, several turbines
ST2	06.14.17	3:45 p.m.–4:00 p.m.	52	58	51	Purdy Road at 54th Street, many turbines
ST3	06.14.17	4:30 p.m.–4:36 p.m.	75	82	59	SR-14 50 feet from edge of pavement, 202 cars, 18 heavy trucks, 7 medium trucks

Notes: dBA = decibel; L_{eq} = equivalent sound level; L_{max} = maximum sound level; L_{min} = minimum sound level; SR = State Route ST = short-term roadway noise measurement location.

The highest recorded average noise level (75 dBA L_{eq}) was associated with traffic on SR-14 at a distance of approximately 50 feet from the edge of pavement. Based on an outdoor attenuation rate

of 4.5 dBA with a doubling of distance from a roadway (applying soft-site conditions), noise levels would diminish to 65 dBA L_{eq} at approximately 230 feet from the edge of pavement. The measurements conducted within various areas of the existing wind farm had average noise levels ranging from 34 to 52 dBA L_{eq}. With the exception of areas within 230 feet of SR-14, current average noise levels in the study area would generally not exceed acceptable levels for NSLU.

Noise measurement data is provided in Appendix A, and existing CNEL calculation worksheets are provided in Appendix B.

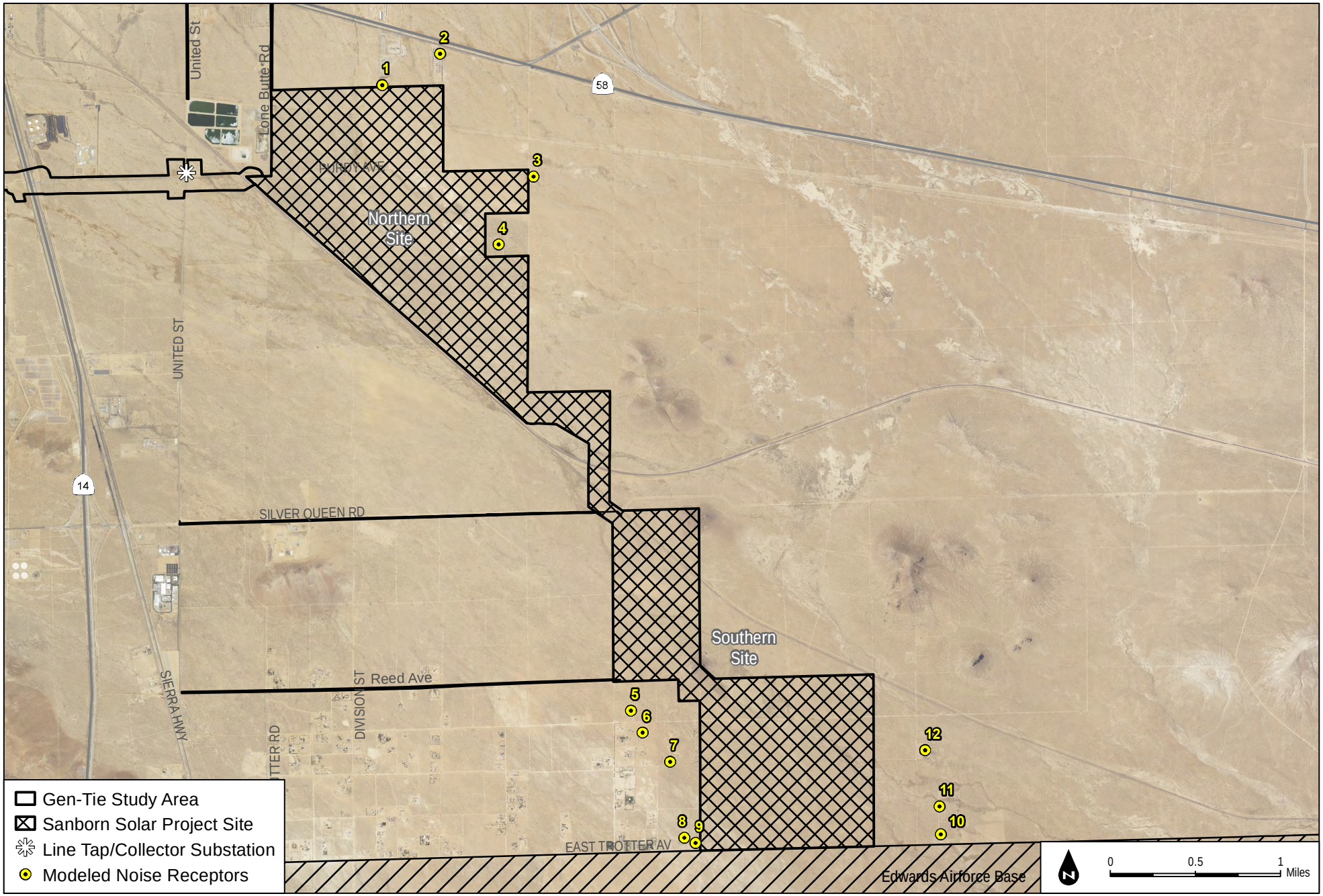

Figure 4: NOISE SENSITIVE RECEPTOR LOCATIONS ADJACENT TO PROJECT

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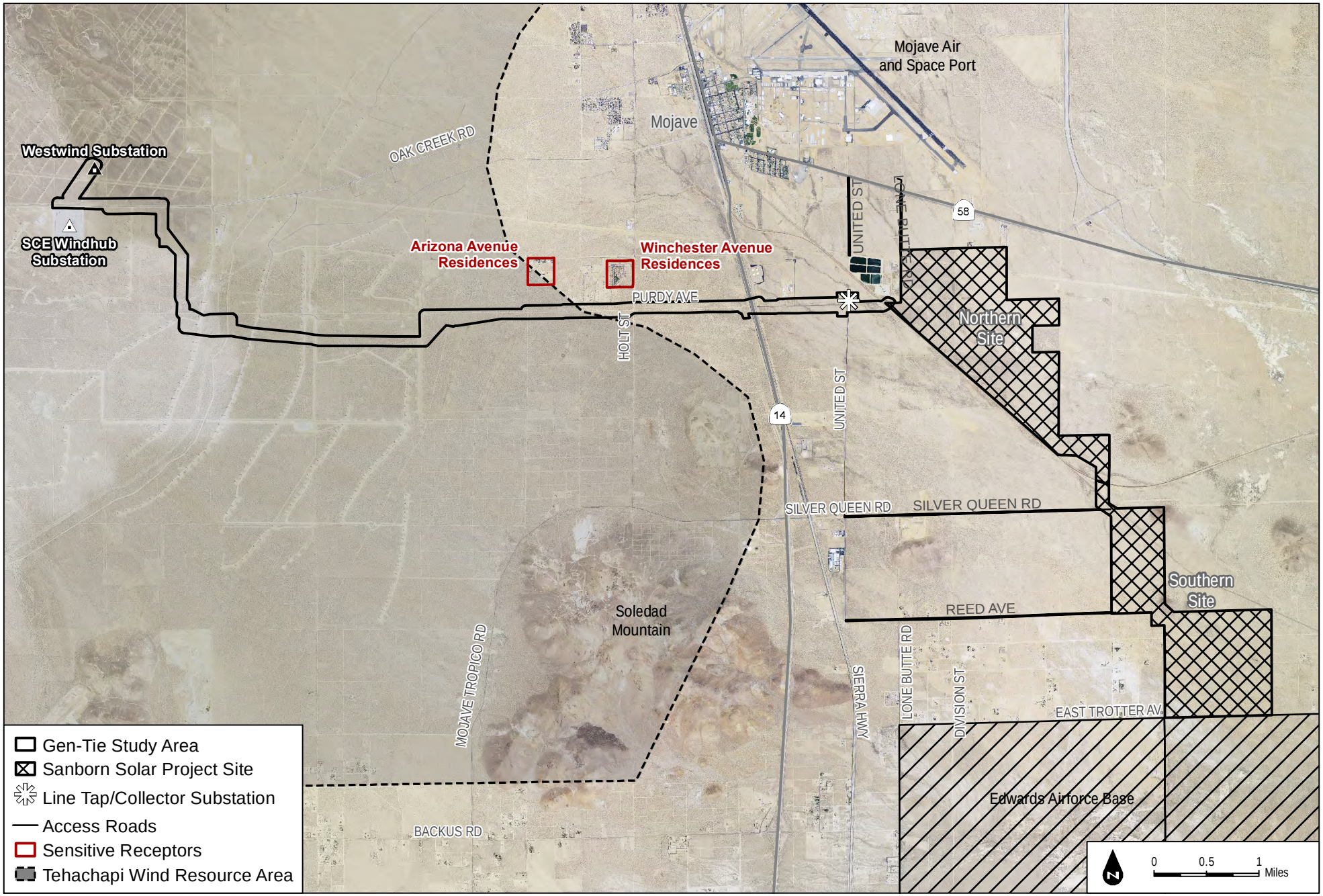

Figure 5: SENSITIVE RECEPTORS: GEN-TIE ALIGNMENT

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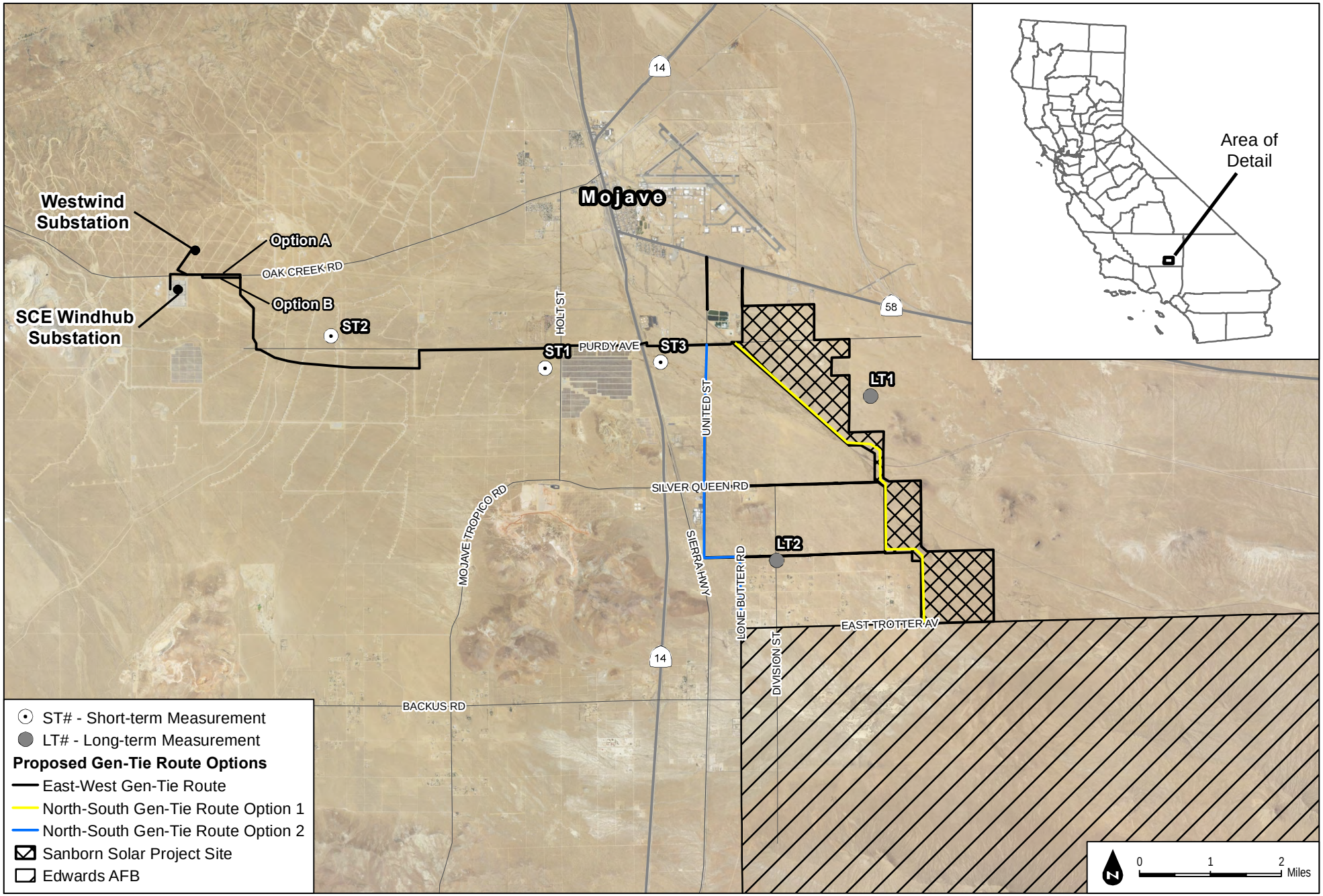

Figure 6: NOISE MEASUREMENT LOCATIONS

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3 SIGNIFICANCE CRITERIA

Based on the criteria identified in Appendix G of the CEQA Guidelines, the proposed project would have a significant impact on noise if it would result in:

1. The exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
2. The exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?
3. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?
4. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

3.1 County of Kern Noise Significance Criteria

Section 3.2 of the Noise Element of the County General Plan (County of Kern 2004) defines noise-sensitive areas to include:

- Residential areas
- Schools
- Convalescent and acute care hospitals
- Parks and recreational areas
- Churches

As previously discussed, these types of occupancies or development are also commonly referred to as NSLUs.

Based on Policy 1 of the Noise Element of the County General Plan (County of Kern 2004), impacts relating to operational noise are considered significant when proposed project-related commercial or industrial noise would result in exposure of NSLUs to noise levels exceeding 65 dBA L_{dn} (or CNEL).

For transportation-related noise, impacts are considered significant if proposed project-generated traffic exposes existing or potential NSLU to sound levels in excess of 65 dBA L_{dn} (or CNEL). In areas where the ambient noise exceeds 65 dBA L_{dn} (or CNEL), a 3 dBA L_{dn} (or CNEL) or greater increase due to the proposed project is considered significant.

With respect to noise generation during construction, Section 8.36.020 of the County Municipal Code (Noise Ordinance) establishes construction noise control standards that would apply to any proposed project construction activity. Generally, noise-generating construction activities are restricted to the period between 6:00 a.m. and 9:00 p.m. weekdays and between 8:00 a.m. and 9:00 p.m. on weekends. Construction noise outside these allowable periods would be considered significant if it is audible to a person at a distance of 150 feet of the construction activity, if the construction site is within 1,000 feet of an occupied residential dwelling.

Impacts related to excessive groundborne vibration would be significant if the proposed project results in the exposure of persons to or generation of excessive groundborne vibration equal to or in excess of 0.2 inches/second PPV. Construction activities within 200 feet and pile driving within 600 feet would be potentially disruptive to vibration-sensitive operations (Caltrans 2004).

4 IMPACTS AND MITIGATION

4.1 Project Operational Noise Generation

4.1.1 Equipment Noise Levels at Existing Sensitive Receptors

On-site noise sources associated with the project would include pad-mounted inverters and transformers, substation transformers, HVAC equipment for the O&M building, and components of the energy storage system, including inverters, transformers, and HVAC units. The inverter and transformer pads would be distributed throughout the site among the PV modules, and the energy storage and substation area would be located in the northwestern corner of the northern site of the project, as shown on Figure 3. An alternate site for the energy storage and substation area would be located in the southeastern corner of the northern site of the Project, also shown on Figure 3.

Based on Policy 1 of the Noise Element of the County General Plan (County of Kern 2004), impacts relating to operational noise are considered significant when proposed project-related commercial or industrial noise would result in exposure of NSLUs to noise levels exceeding 65 dBA L_{dn} (or CNEL). Figure 4 depicts the NSLUs in the immediate project vicinity and also identifies the NSLU locations selected for modeling of operational noise levels from on-site operations.

The resulting project operational noise level at each receptor was modeled based upon the published sound level for each piece of equipment, standard outdoor distance attenuation rates for point sources and hard-site conditions (most conservative) applied to the distance between each equipment location and the receiver, and the logarithmic sum of individual noise levels at the given receptor. Because of the distance between the northern site and southern site, only the equipment proposed to be located within each site was used for the noise-level calculations addressing the receptors adjacent to that site. However, because the major noise sources would be associated with the substation and energy storage systems, these noise sources were included in the noise level evaluation at every receptor location.

Table 5 summarizes the project components/equipment included in the assessment of total operational project noise levels at each receptor location. The receptor locations are depicted on Figure 4.

Table 5
Project Components/Equipment Modeled at Each Sensitive Receptor

Receptor ID	Transformers / Inverters	Energy Storage System: (HVAC, Inverters, Transformers)	Substation / O&M HVAC and Transformers
Proposed Location for Substation, Energy Storage System, O&M Building			
1, 2, 3, 4	45 apiece (northern site)	50 HVAC, 50 inverters, 50 transformers northwest corner of northern site	1 HVAC, 2 transformers northwest corner of northern site
5, 6, 7, 8, 9, 10, 11, 12	34 apiece (southern site)	50 HVAC, 50 inverters, 50 transformers northwest corner of northern site	1 HVAC, 2 transformers northwest corner of northern site
Alternate Location for Substation, Energy Storage System, O&M Building			
1, 2, 3, 4	45 apiece (northern site)	50 HVAC, 50 inverters, 50 transformers southeast corner of northern site	1 HVAC, 2 transformers southeast corner of northern site
5, 6, 7, 8, 9, 10, 11, 12	34 apiece (southern site)	50 HVAC, 50 inverters, 50 transformers southeast corner of northern site	1 HVAC, 2 transformers southeast corner of northern site

Notes: O&M = operations and maintenance; HVAC = heating, ventilation, and air conditioning.

The noise levels from all the noted equipment were combined and calculated at each of the receptor locations, assuming no shielding would be present (i.e., an absence of structures, barriers, or berms between the equipment locations and the receptor locations). The O&M building, individual Conex containers, and inverters would each provide some shielding between certain equipment noise sources and selected receptors, but this shielding effect was ignored to provide a conservative assessment of total operational noise levels at each receptor. Noise levels were calculated both for the proposed location of the substation, energy system, and O&M building (at the northwest corner of the northern site) and for the alternate location of the substation, energy system, and O&M building (at the southeast corner of the northern site).

The results of the operation noise analysis are presented in Table 6. The one-hour average sound levels would range up to approximately 49 dBA at the worst-case receptor (Receptor ID No. 4). This would be the highest combined operational level for all equipment at any receptor location, and this receptor location would experience the same noise level under either of the alternative sites considered for the substation, energy system, and O&M building. Overall operational noise levels would range from 37 to 49 dBA at existing sensitive noise receptors in the project vicinity, as illustrated in Table 6.

Table 6
Project Operational Noise Level Summary for Existing Sensitive Receptors

Receptor ID	Noise Level Proposed Location Substation, O&M, and ESS dBA L_{eq}	Noise Level Alternate Location Substation, O&M, and ESS dBA L_{eq}
1	48	44
2	44	41
3	44	45
4	49	49
5	39	42
6	39	42
7	40	42
8	40	41
9	41	42
10	37	38
11	37	39
12	38	40

Notes: O&M = operations and maintenance; ESS = energy storage system; dBA = A-weighted decibel; L_{eq} = equivalent sound level over a given period.

Assuming operation of all equipment simultaneously at the project site, the values illustrated in Table 6 would also represent the hourly average noise levels for project operation at each receptor. Solar panel inverters and transformers would only operate during daylight hours and would not generate noise after dark. However, inverters and transformers for the energy storage system could operate after dark. Using a worst-case scenario that is unrealistic for anticipated operating characteristics, noise levels for 24-hour continuous operation were calculated. If all of the equipment were to run continuously for 24-hours, the noise level at the worst-case receptor (Receptor ID No. 4) would result in a CNEL of 56 dBA (L_{dn} of 55 dBA). Thus, even using a continuous 24-hour full operations schedule, the project would not have the potential to expose noise sensitive receptors to noise levels above 65 dBA CNEL.

According to the 24-hour measurements conducted at LT1 and LT2, hourly average L_{eq} values ranged from 38 dBA to 64 dBA at LT1 and from 38 dBA to 61 dBA at LT2. The calculated 24-hour noise level for ambient conditions was 65 dBA CNEL at LT1 and 63 dBA CNEL at LT2. Consequently, project operational noise level of 56 dBA CNEL (worst-case receptor, and unrealistic worst-case 24-hour operations) would be well below the existing ambient noise levels in the project area. Consequently, operations on the project site would not have the potential to create an operational noise level of 65 dBA CNEL or to increase ambient noise levels greater than 5 dBA above ambient.

4.1.2 Gen-Tie Transmission Noise Levels at Existing Sensitive Receptors

Operation of the gen-tie transmission lines would have little potential for the generation of substantial noise. However, transmission lines are subject to a phenomena called "Corona discharge noise." Corona discharge results from the partial breakdown of the electrical insulating properties of the air surrounding electricity conductors. When the intensity of the electric field at the surface of the conductor exceeds the insulating strength of the surrounding air, a corona discharge occurs at the conductor surface, representing a small dissipation of heat and energy. Some of the energy may dissipate in the form of small local pressure changes that result in audible noise or in radio or television interference. Audible noise generated by corona discharge is characterized as a hissing or crackling sound that may be accompanied by a hum.

Slight irregularities or water droplets on the conductor and/or insulator surface accentuate the electric field strength near the conductor surface, making corona discharge and the associated audible noise more likely. Therefore, audible noise from transmission lines is generally a foul weather (wet conductor) phenomenon. Based on precipitation data from the Western Regional Climate Center, the Mojave region receives approximately 6.7 inches of precipitation a year, with daily highs of less than 0.10 inches per day (WRCC 2017). Because the number of days and amount of precipitation per year would be minimal, corona events would be rare and intermittent.

Nonetheless, to dismiss the potential significance of corona noise, research was conducted to determine the sound level associated with this phenomenon. Veneklasen Associates conducted noise measurements of a 500-kV double-circuit transmission line. Since corona noise is relative to the capacity of the transmission line, the noise levels from a 500-kV line would be greater than for the project's 230-kV transmission line. Veneklasen conducted noise measurements on a 15-minute average for a 500-kV double-circuit transmission line near Serrano Substation in Anaheim Hills, when humidity was greater than 80%, and temperatures were in the range of 60°F (conditions contributing to high corona noise). Directly under the transmission line tower, the measured level of corona noise, when ideal conditions existed for this phenomenon to occur, were 46 dBA (Dudek 2007). Beyond 100 feet of the transmission line, the corona noise level drops at a rate of approximately 4 dB for each doubling of the distance. At a distance of approximately 1,200 feet from the transmission line (the closest residence, refer to Figure 5), the corona discharge noise level would be approximately 33 dBA, which is lower than the existing ambient noise levels in the project area. Consequently, corona noise would not have the potential to create an operational noise level of 65 dBA CNEL, or to increase noise levels greater than 5 dBA above ambient.

The project would install polymer (silicon rubber) insulators on any new gen-tie transmission line connections. This material is hydrophobic (repels water) and minimizes the accumulation of surface contaminants such as soot and dirt, which in turn reduces the potential for corona noise to

be generated at the insulators. With consideration of these standard practices, noise from coronal discharge would not represent a substantial increase in noise levels in the project vicinity. On-site operational noise calculation worksheets are provided as Appendix C.

4.1.3 Mitigation – Project Noise Generation

The operation of the Sanborn solar facility would not be anticipated to generate noise levels which exceed County Standards nor which would cause a substantial increase in ambient noise levels compared to existing conditions. Therefore mitigation would not be required for on-site project operational noise.

The proposed gen-tie transmission line operation would also not be anticipated to generate noise levels which exceed County Standards nor which would cause a substantial increase in ambient noise levels compared to existing conditions. Therefore, mitigation would not be required for gen-tie operational noise.

Residual Significance After Mitigation

Potential impacts associated with operational noise would remain less than significant, with no need for mitigations to be implemented.

4.2 Construction Noise

Construction of the Sanborn Solar facility and gen-tie transmission lines would generate noise that could expose nearby receptors to elevated noise levels that may disrupt communication and routine activities. The magnitude of the impact would depend on the type of construction activity, equipment, duration of the construction phase, distance between the noise source and receiver, and intervening structures.

Noise from construction equipment generally exhibits point-source acoustical characteristics. A point-source sound is attenuated (i.e., reduced) at a rate of 6 dB per doubling of distance from the source for hard-site conditions and at 7.5 dB per doubling of distance for soft-site conditions (Caltrans 2009). The Sanborn solar site and gen-tie alignments are located in areas that currently exhibit soft-site conditions, including dirt roads and open areas with native vegetation. These standard outdoor attenuation rules apply to the propagation of sound waves with no obstacles between source and receivers such as topography (ridges or berms) or structures.

The range of maximum noise levels for various types of construction equipment is depicted in Table 7. Typical operating cycles may involve 2 minutes of full power, followed by 3 or 4 minutes at lower levels.

Table 7
Construction Equipment Noise Emission Levels

Equipment	Typical Sound Level (dB) – 50 feet from Source
Air Compressor	81
Backhoe	80
Compactor	82
Concrete mixer	85
Concrete pump	82
Concrete vibrator	76
Crane, derrick	88
Crane, mobile	83
Dozer	85
Generator	81
Grader	85
Impact wrench	85
Jack hammer	88
Loader	85
Paver	89
Pneumatic tool	85
Pump	76
Roller	74
Saw	76
Scraper	89
Truck	88

Source: FHWA 2011a, 2011b.
Notes: dB = decibel.

4.2.1 Sanborn Solar Facility Construction

Construction activities would occur during the County's allowable hours of operation. The noise levels generated by construction equipment would vary greatly depending upon factors such as the type and specific model of the equipment, the operation being performed and the condition of the equipment. The average sound level of the construction activity also depends upon the amount of time that the equipment operates and the intensity of the construction during the time period.

Construction equipment would likely include graders, scrapers, backhoes, loaders, cranes, dozers, water trucks, portable generators and air compressors, and miscellaneous trucks. The maximum noise level ranges for various pieces of construction equipment at a distance of 50 feet are depicted in Table 7. The average noise levels at 50 feet for typical equipment would range up to 89 dB for the type of equipment normally used for this type of project, based upon the loudest two to three

pieces of equipment being used (Caltrans 2009). The hourly average noise levels would vary, but construction noise levels of up to approximately 75–80 dB at 50 feet are typical for the anticipated construction activities, assuming a single piece of equipment in operation or that the loudest piece of equipment is the dominant noise source; for multiple pieces of equipment with similar sound level generation, combined noise levels associated with typical construction activities can reach levels of up to approximately 84 dBA Leq at 50 feet (EPA 1971).

As illustrated on Figure 4, a number of rural residences exist to the west, north, and east of the project site. There are several homes within approximately 50 feet of the facility boundary, and therefore within 50 feet of potential construction activities. With average construction noise levels during grading and other typical construction activities ranging up to 84 dBA L_{eq} (hourly) at 50 feet from the construction activity, even the closest residences would not be exposed to extreme construction noise.

Although the adjacent residences could be exposed to high construction noise levels that could result in annoyance, the exposure would be short term, would occur during the less sensitive daytime period, and would cease upon proposed project construction completion. It is anticipated that construction activities associated with build-out of the proposed project would take place between 6:00 a.m. and 9:00 p.m. weekdays and between 8 a.m. and 9 p.m. on weekends, which is the limit specified in the County noise ordinance. However, construction activities could take place outside these time periods for portions of the proposed project where technical requirements dictate (such as completion of a continuous pour of concrete for the O&M building floor). There are several homes within approximately 50 feet of the facility boundary, and therefore within 50 feet of construction activities that could potentially occur (on an infrequent basis) outside of the allowable construction time periods. With average construction noise levels during typical construction activities ranging up to 84 dBA L_{eq} at 50 feet, the closest residences could experience night-time construction noise levels well above ambient noise levels. As a result, a significant construction noise impact could potentially occur in regard to the Sanborn Solar facility.

4.2.1 Gen-Tie Construction

Construction of the gen-tie transmission line would involve clearing and grubbing of the existing vegetation at the pole locations; grading necessary for construction of dirt access roads, where necessary, and transmission pole foundations; and stringing of the transmission cable. Clearing of vegetation at a proposed pole location, and the construction of a foundation for the pole, would require approximately 2–3 construction days, with the erection of the pole requiring approximately one day. Access road construction to selected pole locations would require 1-2 days, as distance from existing roads would be very limited. Finally, stringing of the transmission line for any given gen-tie segment would likely occur in a single day. Compiled together, the construction activity

for the gen-tie development would account for between approximately 4–6 days associated with any given pole location. Depending upon the average pole separation distance, any given residence might fall within 1,000 feet of active construction for only 4–6 days out of the total gen-tie construction period, where the proposed alignment is within 1,000 feet of residences.

The closest residences to the gen-tie alignment are a minimum of 1,195 feet. The County of Kern ordinance would therefore not restrict the construction schedule for the gen-tie lines. As seen from Table 7, the average noise levels at 50 feet for typical equipment used in this type of project would range up to 89 dBA, based upon the loudest two to three pieces of equipment being used (Caltrans 2009). This noise level would diminish to approximately 55 dBA at 1,195 feet from the gen-tie construction alignment. This noise level would probably not be readily noticeable over day-time ambient levels. Construction activities for the gen-tie at night are considered unlikely, for safety reasons. Consequently, even though construction of the gen-tie lines would not be subject to County noise ordinances, it is not likely that construction would result in significant nuisance noise impacts at the closest sensitive receptors to the alignment.

4.2.3 Mitigation – Construction Noise

Implementation of the following mitigation measure would reduce temporary noise impacts from construction activities.

Noise-1 **Construction Activity Limits**. Construction activity occurring within 1,000 feet of any occupied residential or other NSLU shall be restricted to the hours between 6:00 a.m. and 9:00 p.m. weekdays and between 8:00 a.m. and 9:00 p.m. on weekends.

Residual Significance After Mitigation

Implementation of the Noise-1 measure would reduce potential impacts associated with construction noise to a less than significant level.

4.3 Cumulative Construction Noise Impacts

Construction noise impacts are localized in nature because they are limited to the construction site where construction equipment is operating. As previously discussed, sound levels from typical construction equipment range from 74 dBA to 89 dBA L_{eq} at 50 feet from the source (FHWA 2011). Construction noise decreases approximately 6 dBA (urban area, hard-site conditions) to 7.5 dBA (undeveloped area with loose dirt or vegetated ground cover) with every doubling of distance. Therefore, construction noise would be reduced to less than 60 dBA approximately 0.25 miles from the construction site, assuming worst-case construction noise of

89 dBA L_{eq}, hard-site conditions, and no intervening topography or structures. Additionally, construction noise is temporary and would cease at completion of each of the projects within the cumulative project "area of influence". Consequently, only construction projects occurring simultaneously within 0.25 miles of each other could result in a significant cumulative temporary noise impact. The project site and gen-tie alignments are separated from more populated portions of the region via distance and open spaces with soft soil and or native vegetation, which provides a noise buffer between on-site construction activities and off-site future construction projects. Therefore, construction of the proposed Sanborn Solar facility and gen-tie transmission lines would not be located in close proximity to another construction project(s) and would not contribute to a significant cumulative temporary ambient noise impact.

4.4 Groundborne Vibration

4.4.1 Impacts

The main concern associated with groundborne vibration is annoyance; however, vibration-sensitive instruments and operations, such as those found in hospitals and laboratories, can be disrupted at much lower levels. In extreme cases, vibration can cause damage to buildings, particularly those that are old or otherwise fragile. No vibration-sensitive land uses are proposed as part of the proposed project; however, excessive levels of groundborne vibration may be an annoyance to residences. Some common sources of groundborne vibration are trains, and construction activities such as blasting, pile-driving and heavy earth-moving equipment. The primary source of groundborne vibration occurring as part of the proposed project is construction activity.

According to Caltrans, the highest measured vibration level during highway construction was 2.88 inches/second PPV at 10 feet from a pavement breaker. Other typical construction activities and equipment such as 8 and D-9 Caterpillars, earthmovers, and trucks have not exceeded 0.10 inches/second PPV at 10 feet. Vibration-sensitive instruments and operations may require special consideration during construction. Vibration criteria for sensitive equipment and operations are not defined and are often case specific. As a guide, major construction activity within 200 feet and pile driving within 600 feet may be potentially disruptive to sensitive operations (Caltrans 2004). No pile driving is anticipated to be necessary. There are no known vibration-sensitive land uses (i.e., research, manufacturing, or medical facilities using vibration-sensitive devices) within 10 miles of the study area.

The Sanborn Solar facility construction would have the potential to expose existing residences to groundborne vibration, because construction activities would take place within 200 feet of some residences. Ground vibrations from construction activities do not often reach the levels that can damage structures or affect activities that are not vibration-sensitive, although the

vibrations may be felt by nearby persons in close proximity and result in annoyance (FTA 2006). In addition, the construction activity that would occur in close proximity to occupied residences would not include pile driving and would therefore not result in a significant impact related to groundborne vibration.

4.4.2 Mitigation Measures

The proposed project would not result in a significant groundborne vibration impact; therefore, no mitigation is required.

Significance After Mitigation

Mitigation is not required, because impacts would be less than significant without mitigation.

4.5 Cumulative Vibration Impacts

As previously described, major construction activity within 200 feet may be potentially disruptive to sensitive operations (Caltrans 2004). To result in a cumulative vibration impact, major construction activities would have to be located within 200 feet of another project. Due to the localized nature of vibration impacts and the fact that all construction would not occur at the same time or at the same location, cumulative development in the surrounding County would not result in the exposure of people to or the generation of excessive groundborne vibration and/or noise levels. Therefore, a cumulative groundborne vibration impact would not occur.

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APPENDIX A

Noise Measurement Data

DUDEK

FIELD NOISE MEASUREMENT DATA

PROJECT	SANBORN SOLAR	PROJECT #	10303
SITE ID	EAST-WEST GEN-TIE ALIGNMENT		
SITE ADDRESS	PURDY EAST OF 54TH	OBSERVER(S)	JVL, NLL
START DATE	6/14	END DATE	6/14
START TIME	3:45	END TIME	4:00

METEOROLOGICAL CONDITIONS

TEMP 92 F HUMIDITY ____ % R.H. WIND CALM (LIGHT) MODERATE

WINDSPD ____ MPH DIR. N NE (S) SE S SW W NW VARIABLE (STEADY) GUSTY

SKY (SUNNY) (CLEAR) OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS

MEAS. INSTRUMENT LD 870 TYPE (1) 2 SERIAL # 1534

CALIBRATOR LD CAL 200 SERIAL # 4496

CALIBRATION CHECK PRE-TEST 114 dBA SPL POST-TEST 114 dBA SPL WINDSCRN ✓

SETTINGS A-WTD SLOW FAST FRONTAL RANDOM ANSI OTHER: ____

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
1	3:45	4:00	52.0	58.0	50.5	51.5	53.0	55.5	

COMMENTS NUMEROUS VICINITY WIND TURBINES IS NOISE SOURCE

SOURCE INFO AND TRAFFIC COUNTS

PRIMARY NOISE SOURCE TRAFFIC AIRCRAFT RAIL INDUSTRIAL OTHER: ____

ROADWAY TYPE: ____ DIST. TO RDWY C/L OR EOP: ____

TRAFFIC COUNT DURATION: ____ MIN SPEED ____ MIN SPEED

COUNT 1 (OR RDWY 1) DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB	IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE ____	COUNT 2 (OR RDWY 2)	NB/EB	SB/WB	NB/EB	SB/WB
AUTOS										
MED TRKS										
HVY TRKS										
BUSES										
MOTRCLS										

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE

POSTED SPEED LIMIT SIGNS SAY:

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT RUSTLING LEAVES DIST. BARKING DOGS BIRDS DIST. INDUSTRIAL DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING DIST. TRAFFIC (LIST RDWYS BELOW) DISTD GARDENERS/LANDSCAPING NOISE

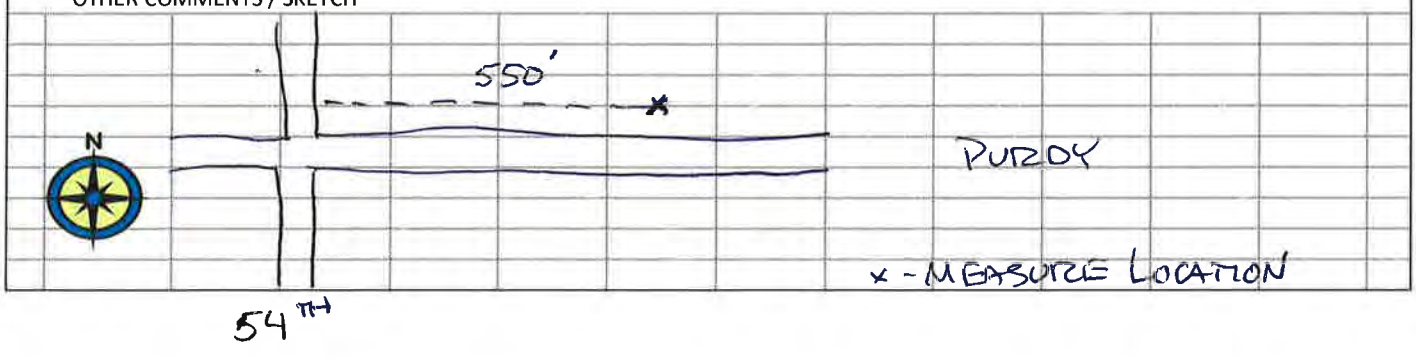
OTHER: ____

DESCRIPTION / SKETCH

TERRAIN HARD (SOFT) MIXED FLAT OTHER: ____

PHOTOS ____

OTHER COMMENTS / SKETCH



DUDEK

FIELD NOISE MEASUREMENT DATA

PROJECT	SANBORN SOLAR	PROJECT #	10303
SITE ID	NORTH-SOUTH ALIGNMENT		
SITE ADDRESS	PURDY @ HOLT	OBSERVER(S)	JVL, NLL
START DATE	6/14	END DATE	6/14
START TIME	3:25	END TIME	3:35

METEOROLOGICAL CONDITIONS

TEMP 92 F HUMIDITY _____ % R.H. WIND CALM (LIGHT) MODERATE

WINDSPD _____ MPH DIR. N NE (S) SE S SW W NW VARIABLE (STEADY) GUSTY

SKY (SUNNY) (CLEAR) OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS

MEAS. INSTRUMENT LD 820 TYPE (1) 2 SERIAL # 1534

CALIBRATOR LD CAL 200 SERIAL # 4496

CALIBRATION CHECK PRE-TEST 114 dBA SPL POST-TEST 114 dBA SPL WINDSCRN ✓

SETTINGS A-WTD SLOW FAST FRONTAL RANDOM ANSI OTHER: _____

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
1	3:25	3:35	34.0	50.5	31.0	32.0	33.5	39.0	

COMMENTS

WIND TURBINE (1) IS NOISE SOURCE.

SOURCE INFO AND TRAFFIC COUNTS

PRIMARY NOISE SOURCE TRAFFIC AIRCRAFT RAIL INDUSTRIAL OTHER: _____

ROADWAY TYPE: _____ DIST. TO RDWY C/L OR EOP: _____

TRAFFIC COUNT DURATION: ____ MIN SPEED ____ MIN SPEED

COUNT 1 (OR RDWY 1) DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB	IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE ____	COUNT 2 (OR RDWY 2) NB/EB	SB/WB	NB/EB	SB/WB
AUTOS									
MED TRKS									
HVY TRKS									
BUSES									
MOTRCLS									

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE

POSTED SPEED LIMIT SIGNS SAY:

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT RUSTLING LEAVES DIST. BARKING DOGS BIRDS DIST. INDUSTRIAL DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING DIST. TRAFFIC (LIST RDWYS BELOW) DISTD GARDENERS/LANDSCAPING NOISE

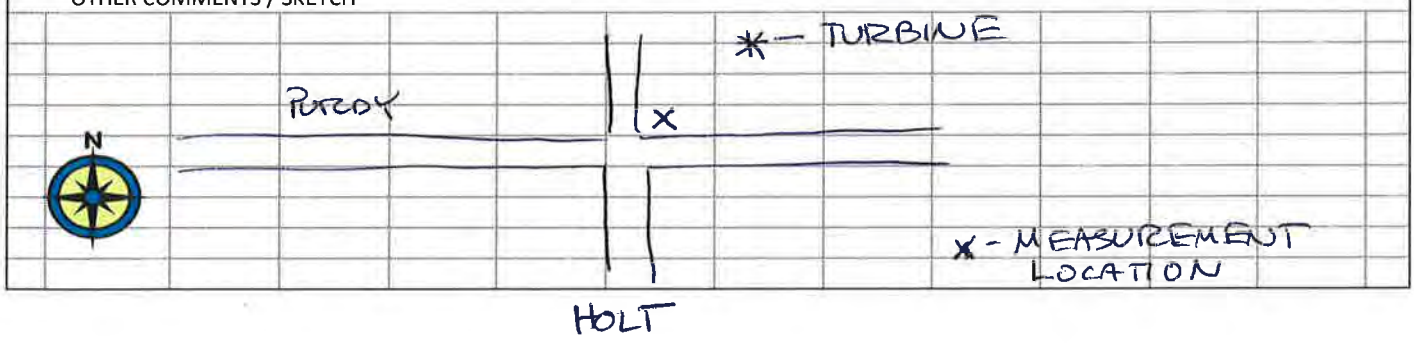
OTHER: DISTANT AIRPLANE, TRAIN WHISTLE

DESCRIPTION / SKETCH

TERRAIN HARD (SOFT) MIXED FLAT OTHER: _____

PHOTOS _____

OTHER COMMENTS / SKETCH



DUDEK

FIELD NOISE MEASUREMENT DATA

PROJECT	SANBORN SOLAR	PROJECT #	10303
SITE ID	EAST-WEST ALIGN AT SR-14		
SITE ADDRESS	WEST SIDE SR-14 AT PURDY	OBSERVER(S)	JVL, NLL
START DATE	6/14/17	END DATE	6/14/17
START TIME	4:30	END TIME	4:36

METEOROLOGICAL CONDITIONS

TEMP 92 F HUMIDITY _____ % R.H. WIND CALM (LIGHT) MODERATE

WINDSPD _____ MPH DIR. N NE (S) SE S SW W NW VARIABLE (STEADY) GUSTY

SKY (SUNNY) (CLEAR) OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS

MEAS. INSTRUMENT LD 700 TYPE (1) 2 SERIAL # 2132

CALIBRATOR LD CAL 200 SERIAL # 4496

CALIBRATION CHECK PRE-TEST 114 dBA SPL POST-TEST 114 dBA SPL WINDSCRN ✓

SETTINGS A-WTD SLOW FAST FRONTAL RANDOM ANSI OTHER: _____

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
1	4:30	4:36	74.6	82.2	59.3	65.5	73.4	78.0	L1 81.1

COMMENTS

SOURCE INFO AND TRAFFIC COUNTS

PRIMARY NOISE SOURCE (TRAFFIC) AIRCRAFT RAIL INDUSTRIAL OTHER: _____

ROADWAY TYPE: 4-LANE HIGHWAY DIST. TO RDWY C/L OR (EOP) 50 FEET

TRAFFIC COUNT DURATION: ____ MIN SPEED ____ MIN SPEED

COUNT 1 (OR RDWY 1) DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB	IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE	COUNT 2 (OR RDWY 2) NB/EB	SB/WB	NB/EB	SB/WB
AUTOS	202								
MED TRKS	7								
HVY TRKS	18								
BUSES	0								
MOTRCLS	0								

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE

POSTED SPEED LIMIT SIGNS SAY:

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT RUSTLING LEAVES DIST. BARKING DOGS BIRDS DIST. INDUSTRIAL DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING DIST. TRAFFIC (LIST RDWYS BELOW) DISTD GARDENERS/LANDSCAPING NOISE

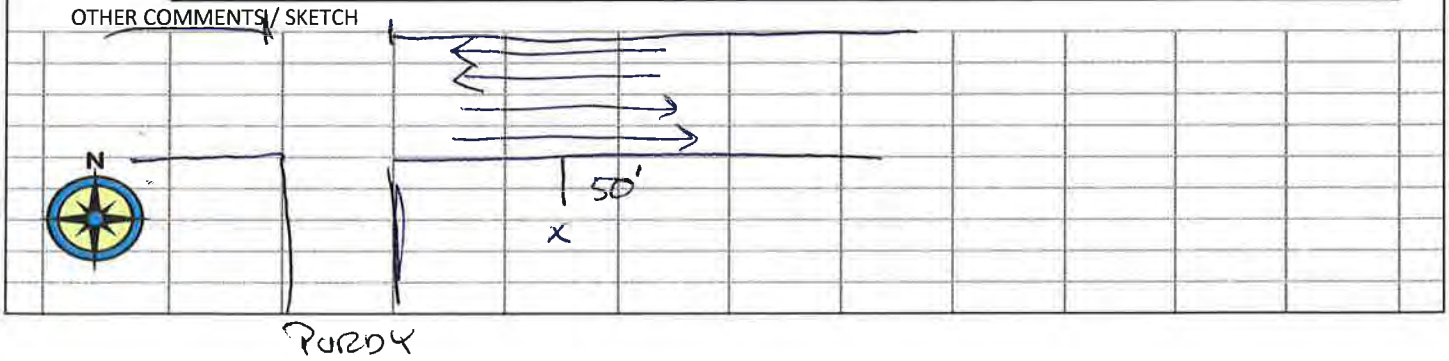
OTHER: _____

DESCRIPTION / SKETCH

TERRAIN HARD (SOFT) MIXED FLAT OTHER: _____

PHOTOS _____

OTHER COMMENTS / SKETCH



Rec 2 to 26	Slow Response		dBA weighting		2.0 dB resolution stats					
Date hh:mm:ss	LeqPeriod	Leq	Lmax	Lmin	L1%	L5%	L10%	L25%	L50%	L90%
6/14/2017 13:34	1.0 hour	45.6	67.8	37.7	57	47	45	41	39	39
6/14/2017 14:34	1.0 hour	45.8	69.7	37.7	55	49	45	39	37	37
6/14/2017 15:34	1.0 hour	49.7	70.5	37.7	61	57	53	43	39	37
6/14/2017 16:34	1.0 hour	60.7	71.7	39.5	67	65	63	61	57	49
6/14/2017 17:34	1.0 hour	64.3	77.9	45.4	71	67	67	65	61	55
6/14/2017 18:34	1.0 hour	63.8	81.5	42.4	71	67	67	63	59	53
6/14/2017 19:34	1.0 hour	62.9	79.3	42.3	71	67	65	63	59	51
6/14/2017 20:34	1.0 hour	58.7	71.2	37.5	67	65	63	59	51	41
6/14/2017 21:34	1.0 hour	53.8	66.9	37.6	61	59	57	53	49	43
6/14/2017 22:34	1.0 hour	58.6	76.9	37.3	69	65	63	53	47	41
6/14/2017 23:34	1.0 hour	59.9	75.6	39.3	69	65	63	59	55	45
6/15/2017 0:34	1.0 hour	56.9	71.7	39.4	67	61	59	55	51	45
6/15/2017 1:34	1.0 hour	58.3	76.6	39.5	65	63	61	57	55	45
6/15/2017 2:34	1.0 hour	56.4	74.9	37.7	67	63	59	53	47	41
6/15/2017 3:34	1.0 hour	63.6	82.6	39	71	67	67	63	59	51
6/15/2017 4:34	1.0 hour	47	59.7	37	55	53	51	47	43	37
6/15/2017 5:34	1.0 hour	38.9	51.7	34.7	45	41	39	39	37	37
6/15/2017 6:34	1.0 hour	38.6	51.9	34.7	45	41	39	37	37	35
6/15/2017 7:34	1.0 hour	38.4	51	36.2	45	41	39	37	37	37
6/15/2017 8:34	1.0 hour	42.7	61.3	37.7	51	47	45	41	39	37
6/15/2017 9:34	1.0 hour	39.8	50.2	37.7	47	43	41	39	37	37
6/15/2017 10:34	1.0 hour	40.2	59.1	37.7	47	43	41	39	37	37
6/15/2017 11:34	1.0 hour	40.5	53.7	37.7	47	43	41	39	37	37
6/15/2017 12:34	1.0 hour	41.6	56.4	37.6	49	45	43	41	39	37

Rec 2 to 26	Slow Response		dBA weighting		2.0 dB resolution stats					
Date hh:mm:ss	LeqPeriod	Leq	Lmax	Lmin	L1%	L5%	L10%	L25%	L50%	L90%
6/14/2017 14:26	1.0 hour	40.9	61.2	37.7	49	43	41	39	37	37
6/14/2017 15:26	1.0 hour	38.6	50	37.8	43	39	39	37	37	37
6/14/2017 16:26	1.0 hour	52.4	66.3	37.7	61	57	57	53	43	37
6/14/2017 17:26	1.0 hour	56	66.6	41.8	61	59	59	57	53	47
6/14/2017 18:26	1.0 hour	58.4	70.4	39.9	65	63	61	59	55	47
6/14/2017 19:26	1.0 hour	54.2	69	37.4	61	59	57	55	51	43
6/14/2017 20:26	1.0 hour	52.7	70.6	34.8	61	57	55	53	47	39
6/14/2017 21:26	1.0 hour	49.7	65	34.8	57	55	53	49	45	37
6/14/2017 22:26	1.0 hour	38.3	54.6	34.8	45	41	39	37	35	35
6/14/2017 23:26	1.0 hour	45.2	63.8	34.8	55	51	47	43	39	35
6/15/2017 0:26	1.0 hour	45.7	61	34.8	55	51	49	45	41	37
6/15/2017 1:26	1.0 hour	59.2	72.6	37.2	67	63	63	59	55	47
6/15/2017 2:26	1.0 hour	60.9	73.7	39.6	69	65	63	61	57	51
6/15/2017 3:26	1.0 hour	60.8	72.8	43.9	67	65	63	61	57	51
6/15/2017 4:26	1.0 hour	60.1	71.1	41.1	67	65	63	61	57	51
6/15/2017 5:26	1.0 hour	54.6	69.8	36.4	63	59	57	53	49	41
6/15/2017 6:26	1.0 hour	53.8	65.3	37.8	61	59	57	53	47	39
6/15/2017 7:26	1.0 hour	47.2	65.7	37.6	59	51	49	43	39	37
6/15/2017 8:26	1.0 hour	42.5	59.6	34.8	51	47	45	41	37	37
6/15/2017 9:26	1.0 hour	41.6	56.7	34.8	49	47	43	41	37	35
6/15/2017 10:26	1.0 hour	47.6	68	34.8	59	53	49	45	39	37
6/15/2017 11:26	1.0 hour	51.6	66.8	36.7	59	57	55	51	47	39
6/15/2017 12:26	1.0 hour	55.4	68.2	37.7	63	61	59	55	51	41
6/15/2017 13:26	1.0 hour	53.8	68.7	37.8	63	59	57	53	47	39

APPENDIX B

Existing Community Noise Equivalent Level Calculation Worksheets

Leq	Time	Adjustment					
56.9	Midnight	10	66.9	66.9			
58.3	1	10	68.3	68.3			
56.4	2	10	66.4	66.4			
63.6	3	10	73.6	73.6			
47	4	10	57	57			
38.9	5	10	48.9	48.9			
38.6	6	10	48.6	48.6			
38.4	7am		38.4	38.4			
42.7	8		42.7	42.7			
39.8	9		39.8	39.8			
40.2	10		40.2	40.2			
40.5	11		40.5	40.5			
41.6	noon		41.6	41.6			
45.6	1		45.6	45.6			
45.8	2		45.8	45.8			
49.7	3		49.7	49.7			
60.7	4		60.7	60.7			
64.3	5		64.3	64.3			
63.8	6		63.8	63.8			
62.9	7	5	67.9	62.9			
58.7	8	5	63.7	58.7			
53.8	9	5	58.8	53.8			
58.6	10	10	68.6	68.6			
59.9	11	10	69.9	69.9			
			64.8	64.4			
			CNEL	LDN			

Leq	Time	Adjustment					
45.7	Midnight	10	55.7	55.7			
59.2	1	10	69.2	69.2			
60.9	2	10	70.9	70.9			
60.8	3	10	70.8	70.8			
60.1	4	10	70.1	70.1			
54.6	5	10	64.6	64.6			
53.8	6	10	63.8	63.8			
47.2	7am		47.2	47.2			
42.5	8		42.5	42.5			
41.6	9		41.6	41.6			
47.6	10		47.6	47.6			
51.6	11		51.6	51.6			
55.4	noon		55.4	55.4			
53.8	1		53.8	53.8			
40.9	2		40.9	40.9			
38.6	3		38.6	38.6			
52.4	4		52.4	52.4			
56	5		56	56			
58.4	6		58.4	58.4			
54.2	7	5	59.2	54.2			
52.7	8	5	57.7	52.7			
49.7	9	5	54.7	49.7			
38.3	10	10	48.3	48.3			
45.2	11	10	55.2	55.2			
			63.4	63.3			
			CNEL	LDN			

APPENDIX C

On-Site Operational Noise Calculation Worksheets

Scenario: Receiver 1
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
1	Inverter	64.3	32.8	1	3010	39.3	25.0
	Transformer (pad mounted)	60	5	1	3010	55.6	4.4
2	Inverter	64.3	32.8	1	3165	39.7	24.6
	Transformer (pad mounted)	60	5	1	3165	56.0	4.0
3	Inverter	64.3	32.8	1	3561	40.7	23.6
	Transformer (pad mounted)	60	5	1	3561	57.1	2.9
4	Inverter	64.3	32.8	1	4076	41.9	22.4
	Transformer (pad mounted)	60	5	1	4076	58.2	1.8
5	Inverter	64.3	32.8	1	1681	34.2	30.1
	Transformer (pad mounted)	60	5	1	1681	50.5	9.5
6	Inverter	64.3	32.8	1	1976	35.6	28.7
	Transformer (pad mounted)	60	5	1	1976	51.9	8.1
7	Inverter	64.3	32.8	1	2206	36.6	27.7
	Transformer (pad mounted)	60	5	1	2206	52.9	7.1
8	Inverter	64.3	32.8	1	2744	38.4	25.9
	Transformer (pad mounted)	60	5	1	2744	54.8	5.2
9	Inverter	64.3	32.8	1	3386	40.3	24.0
	Transformer (pad mounted)	60	5	1	3386	56.6	3.4
10	Inverter	64.3	32.8	1	4019	41.8	22.5
	Transformer (pad mounted)	60	5	1	4019	58.1	1.9
11	Inverter	64.3	32.8	1	4672	43.1	21.2
	Transformer (pad mounted)	60	5	1	4672	59.4	0.6
12	Inverter	64.3	32.8	1	600	25.2	39.1
	Transformer (pad mounted)	60	5	1	600	41.6	18.4
13	Inverter	64.3	32.8	1	1550	33.5	30.8
	Transformer (pad mounted)	60	5	1	1550	49.8	10.2
14	Inverter	64.3	32.8	1	2250	36.7	27.6
	Transformer (pad mounted)	60	5	1	2250	53.1	6.9
15	Inverter	64.3	32.8	1	3000	39.2	25.1
	Transformer (pad mounted)	60	5	1	3000	55.6	4.4
16	Inverter	64.3	32.8	1	3700	41.0	23.3
	Transformer (pad mounted)	60	5	1	3700	57.4	2.6

Scenario: Receiver 1
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
17	Inverter	64.3	32.8	1	4400	42.6	21.7
	Transformer (pad mounted)	60	5	1	4400	58.9	1.1
18	Inverter	64.3	32.8	1	5100	43.8	20.5
	Transformer (pad mounted)	60	5	1	5100	60.2	0.0
19	Inverter	64.3	32.8	1	5800	45.0	19.3
	Transformer (pad mounted)	60	5	1	5800	61.3	0.0
20	Inverter	64.3	32.8	1	1360	32.4	31.9
	Transformer (pad mounted)	60	5	1	1360	48.7	11.3
21	Inverter	64.3	32.8	1	1973	35.6	28.7
	Transformer (pad mounted)	60	5	1	1973	51.9	8.1
22	Inverter	64.3	32.8	1	3239	39.9	24.4
	Transformer (pad mounted)	60	5	1	3239	56.2	3.8
23	Inverter	64.3	32.8	1	3896	41.5	22.8
	Transformer (pad mounted)	60	5	1	3896	57.8	2.2
24	Inverter	64.3	32.8	1	4566	42.9	21.4
	Transformer (pad mounted)	60	5	1	4566	59.2	0.8
25	Inverter	64.3	32.8	1	5244	44.1	20.2
	Transformer (pad mounted)	60	5	1	5244	60.4	0.0
26	Inverter	64.3	32.8	1	5927	45.1	19.2
	Transformer (pad mounted)	60	5	1	5927	61.5	0.0
27	Inverter	64.3	32.8	1	6614	46.1	18.2
	Transformer (pad mounted)	60	5	1	6614	62.4	0.0
28	Inverter	64.3	32.8	1	7106	46.7	17.6
	Transformer (pad mounted)	60	5	1	7106	63.1	0.0
29	Inverter	64.3	32.8	1	3918	41.5	22.8
	Transformer (pad mounted)	60	5	1	3918	57.9	2.1
30	Inverter	64.3	32.8	1	4477	42.7	21.6
	Transformer (pad mounted)	60	5	1	4477	59.0	1.0
31	Inverter	64.3	32.8	1	5071	43.8	20.5
	Transformer (pad mounted)	60	5	1	5071	60.1	0.0
32	Inverter	64.3	32.8	1	5689	44.8	19.5
	Transformer (pad mounted)	60	5	1	5689	61.1	0.0
33	Inverter	64.3	32.8	1	6324	45.7	18.6

Scenario: Receiver 1
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
	Transformer (pad mounted)	60	5	1	6324	62.0	0.0
34	Inverter	64.3	32.8	1	6971	46.5	17.8
	Transformer (pad mounted)	60	5	1	6971	62.9	0.0
35	Inverter	64.3	32.8	1	7628	47.3	17.0
	Transformer (pad mounted)	60	5	1	7628	63.7	0.0
36	Inverter	64.3	32.8	1	8245	48.0	16.3
	Transformer (pad mounted)	60	5	1	8245	64.3	0.0
37	Inverter	64.3	32.8	1	4841	43.4	20.9
	Transformer (pad mounted)	60	5	1	4841	59.7	0.3
38	Inverter	64.3	32.8	1	5304	44.2	20.1
	Transformer (pad mounted)	60	5	1	5304	60.5	0.0
39	Inverter	64.3	32.8	1	6685	46.2	18.1
	Transformer (pad mounted)	60	5	1	6685	62.5	0.0
40	Inverter	64.3	32.8	1	6934	46.5	17.8
	Transformer (pad mounted)	60	5	1	6934	62.8	0.0
41	Inverter	64.3	32.8	1	7529	47.2	17.1
	Transformer (pad mounted)	60	5	1	7529	63.6	0.0
42	Inverter	64.3	32.8	1	8141	47.9	16.4
	Transformer (pad mounted)	60	5	1	8141	64.2	0.0
43	Inverter	64.3	32.8	1	8721	48.5	15.8
	Transformer (pad mounted)	60	5	1	8721	64.8	0.0
44	Inverter	64.3	32.8	1	9356	49.1	15.2
	Transformer (pad mounted)	60	5	1	9356	65.4	0.0
45	Inverter	64.3	32.8	1	10046	49.7	14.6
	Transformer (pad mounted)	60	5	1	10046	66.1	0.0
ESS	Battery Storage HVAC Module	68	50	50	4672	39.4	45.6
	Stepup Transformer	60	5	50	4672	59.4	17.6
	Power Inverter	77	6	50	4672	57.8	36.2
O&M	HVAC	48	50	1	4422	38.9	9.1
Sub	Stepup Transformer	60	5	2	4422	58.9	4.1
						Total	**47.8**

Scenario: Receiver 2
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
1	Inverter	64.3	32.8	1	5074	43.8	20.5
	Transformer (pad mounted)	60	5	1	5074	60.1	0.0
2	Inverter	64.3	32.8	1	5237	44.1	20.2
	Transformer (pad mounted)	60	5	1	5237	60.4	0.0
3	Inverter	64.3	32.8	1	5614	44.7	19.6
	Transformer (pad mounted)	60	5	1	5614	61.0	0.0
4	Inverter	64.3	32.8	1	6082	45.4	18.9
	Transformer (pad mounted)	60	5	1	6082	61.7	0.0
5	Inverter	64.3	32.8	1	3741	41.1	23.2
	Transformer (pad mounted)	60	5	1	3741	57.5	2.5
6	Inverter	64.3	32.8	1	4038	41.8	22.5
	Transformer (pad mounted)	60	5	1	4038	58.1	1.9
7	Inverter	64.3	32.8	1	4241	42.2	22.1
	Transformer (pad mounted)	60	5	1	4241	58.6	1.4
8	Inverter	64.3	32.8	1	4699	43.1	21.2
	Transformer (pad mounted)	60	5	1	4699	59.5	0.5
9	Inverter	64.3	32.8	1	5250	44.1	20.2
	Transformer (pad mounted)	60	5	1	5250	60.4	0.0
10	Inverter	64.3	32.8	1	5804	45.0	19.3
	Transformer (pad mounted)	60	5	1	5804	61.3	0.0
11	Inverter	64.3	32.8	1	6387	45.8	18.5
	Transformer (pad mounted)	60	5	1	6387	62.1	0.0
12	Inverter	64.3	32.8	1	2425	37.4	26.9
	Transformer (pad mounted)	60	5	1	2425	53.7	6.3
13	Inverter	64.3	32.8	1	3142	39.6	24.7
	Transformer (pad mounted)	60	5	1	3142	56.0	4.0
14	Inverter	64.3	32.8	1	3737	41.1	23.2
	Transformer (pad mounted)	60	5	1	3737	57.5	2.5
15	Inverter	64.3	32.8	1	4409	42.6	21.7
	Transformer (pad mounted)	60	5	1	4409	58.9	1.1
16	Inverter	64.3	32.8	1	5056	43.8	20.5
	Transformer (pad mounted)	60	5	1	5056	60.1	0.0

Scenario: Receiver 2
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
17	Inverter	64.3	32.8	1	5716	44.8	19.5
	Transformer (pad mounted)	60	5	1	5716	61.2	0.0
18	Inverter	64.3	32.8	1	6384	45.8	18.5
	Transformer (pad mounted)	60	5	1	6384	62.1	0.0
19	Inverter	64.3	32.8	1	7058	46.7	17.6
	Transformer (pad mounted)	60	5	1	7058	63.0	0.0
20	Inverter	64.3	32.8	1	1725	34.4	29.9
	Transformer (pad mounted)	60	5	1	1725	50.8	9.2
21	Inverter	64.3	32.8	1	2640	38.1	26.2
	Transformer (pad mounted)	60	5	1	2640	54.5	5.5
22	Inverter	64.3	32.8	1	4067	41.9	22.4
	Transformer (pad mounted)	60	5	1	4067	58.2	1.8
23	Inverter	64.3	32.8	1	4760	43.2	21.1
	Transformer (pad mounted)	60	5	1	4760	59.6	0.4
24	Inverter	64.3	32.8	1	5456	44.4	19.9
	Transformer (pad mounted)	60	5	1	5456	60.8	0.0
25	Inverter	64.3	32.8	1	6152	45.5	18.8
	Transformer (pad mounted)	60	5	1	6152	61.8	0.0
26	Inverter	64.3	32.8	1	6850	46.4	17.9
	Transformer (pad mounted)	60	5	1	6850	62.7	0.0
27	Inverter	64.3	32.8	1	7547	47.2	17.1
	Transformer (pad mounted)	60	5	1	7547	63.6	0.0
28	Inverter	64.3	32.8	1	8046	47.8	16.5
	Transformer (pad mounted)	60	5	1	8046	64.1	0.0
29	Inverter	64.3	32.8	1	4089	41.9	22.4
	Transformer (pad mounted)	60	5	1	4089	58.3	1.7
30	Inverter	64.3	32.8	1	4780	43.3	21.0
	Transformer (pad mounted)	60	5	1	4780	59.6	0.4
31	Inverter	64.3	32.8	1	5473	44.4	19.9
	Transformer (pad mounted)	60	5	1	5473	60.8	0.0
32	Inverter	64.3	32.8	1	6167	45.5	18.8
	Transformer (pad mounted)	60	5	1	6167	61.8	0.0
33	Inverter	64.3	32.8	1	6863	46.4	17.9

Scenario: Receiver 2
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
	Transformer (pad mounted)	60	5	1	6863	62.8	0.0
34	Inverter	64.3	32.8	1	7559	47.3	17.0
	Transformer (pad mounted)	60	5	1	7559	63.6	0.0
35	Inverter	64.3	32.8	1	8256	48.0	16.3
	Transformer (pad mounted)	60	5	1	8256	64.4	0.0
36	Inverter	64.3	32.8	1	8904	48.7	15.6
	Transformer (pad mounted)	60	5	1	8904	65.0	0.0
37	Inverter	64.3	32.8	1	4495	42.7	21.6
	Transformer (pad mounted)	60	5	1	4495	59.1	0.9
38	Inverter	64.3	32.8	1	5131	43.9	20.4
	Transformer (pad mounted)	60	5	1	5131	60.2	0.0
39	Inverter	64.3	32.8	1	6825	46.4	17.9
	Transformer (pad mounted)	60	5	1	6825	62.7	0.0
40	Inverter	64.3	32.8	1	7112	46.7	17.6
	Transformer (pad mounted)	60	5	1	7112	63.1	0.0
41	Inverter	64.3	32.8	1	7786	47.5	16.8
	Transformer (pad mounted)	60	5	1	7786	63.8	0.0
42	Inverter	64.3	32.8	1	8465	48.2	16.1
	Transformer (pad mounted)	60	5	1	8465	64.6	0.0
43	Inverter	64.3	32.8	1	9098	48.9	15.4
	Transformer (pad mounted)	60	5	1	9098	65.2	0.0
44	Inverter	64.3	32.8	1	9782	49.5	14.8
	Transformer (pad mounted)	60	5	1	9782	65.8	0.0
45	Inverter	64.3	32.8	1	10517	50.1	14.2
	Transformer (pad mounted)	60	5	1	10517	66.5	0.0
ESS	Battery Storage HVAC Module	68	50	50	6673	42.5	42.5
	Stepup Transformer	60	5	50	6673	62.5	14.5
	Power Inverter	77	6	50	6673	60.9	33.1
O&M	HVAC	48	50	1	6454	42.2	5.8
Sub	Stepup Transformer	60	5	2	6454	62.2	0.8
						Total	**44.1**

Scenario: Receiver 3
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
1	Inverter	64.3	32.8	1	7630	47.3	17.0
	Transformer (pad mounted)	60	5	1	7630	63.7	0.0
2	Inverter	64.3	32.8	1	7564	47.3	17.0
	Transformer (pad mounted)	60	5	1	7564	63.6	0.0
3	Inverter	64.3	32.8	1	7480	47.2	17.1
	Transformer (pad mounted)	60	5	1	7480	63.5	0.0
4	Inverter	64.3	32.8	1	7463	47.1	17.2
	Transformer (pad mounted)	60	5	1	7463	63.5	0.0
5	Inverter	64.3	32.8	1	6645	46.1	18.2
	Transformer (pad mounted)	60	5	1	6645	62.5	0.0
6	Inverter	64.3	32.8	1	6471	45.9	18.4
	Transformer (pad mounted)	60	5	1	6471	62.2	0.0
7	Inverter	64.3	32.8	1	6393	45.8	18.5
	Transformer (pad mounted)	60	5	1	6393	62.1	0.0
8	Inverter	64.3	32.8	1	6294	45.7	18.6
	Transformer (pad mounted)	60	5	1	6294	62.0	0.0
9	Inverter	64.3	32.8	1	6273	45.6	18.7
	Transformer (pad mounted)	60	5	1	6273	62.0	0.0
10	Inverter	64.3	32.8	1	6334	45.7	18.6
	Transformer (pad mounted)	60	5	1	6334	62.1	0.0
11	Inverter	64.3	32.8	1	6471	45.9	18.4
	Transformer (pad mounted)	60	5	1	6471	62.2	0.0
12	Inverter	64.3	32.8	1	5189	44.0	20.3
	Transformer (pad mounted)	60	5	1	5189	60.3	0.0
13	Inverter	64.3	32.8	1	4863	43.4	20.9
	Transformer (pad mounted)	60	5	1	4863	59.8	0.2
14	Inverter	64.3	32.8	1	4732	43.2	21.1
	Transformer (pad mounted)	60	5	1	4732	59.5	0.5
15	Inverter	64.3	32.8	1	4704	43.1	21.2
	Transformer (pad mounted)	60	5	1	4704	59.5	0.5
16	Inverter	64.3	32.8	1	4785	43.3	21.0
	Transformer (pad mounted)	60	5	1	4785	59.6	0.4

Scenario: Receiver 3
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
17	Inverter	64.3	32.8	1	4965	43.6	20.7
	Transformer (pad mounted)	60	5	1	4965	59.9	0.1
18	Inverter	64.3	32.8	1	5233	44.1	20.2
	Transformer (pad mounted)	60	5	1	5233	60.4	0.0
19	Inverter	64.3	32.8	1	5576	44.6	19.7
	Transformer (pad mounted)	60	5	1	5576	60.9	0.0
20	Inverter	64.3	32.8	1	4117	42.0	22.3
	Transformer (pad mounted)	60	5	1	4117	58.3	1.7
21	Inverter	64.3	32.8	1	3698	41.0	23.3
	Transformer (pad mounted)	60	5	1	3698	57.4	2.6
22	Inverter	64.3	32.8	1	3486	40.5	23.8
	Transformer (pad mounted)	60	5	1	3486	56.9	3.1
23	Inverter	64.3	32.8	1	3594	40.8	23.5
	Transformer (pad mounted)	60	5	1	3594	57.1	2.9
24	Inverter	64.3	32.8	1	3830	41.3	23.0
	Transformer (pad mounted)	60	5	1	3830	57.7	2.3
25	Inverter	64.3	32.8	1	4171	42.1	22.2
	Transformer (pad mounted)	60	5	1	4171	58.4	1.6
26	Inverter	64.3	32.8	1	4595	42.9	21.4
	Transformer (pad mounted)	60	5	1	4595	59.3	0.7
27	Inverter	64.3	32.8	1	5079	43.8	20.5
	Transformer (pad mounted)	60	5	1	5079	60.1	0.0
28	Inverter	64.3	32.8	1	5454	44.4	19.9
	Transformer (pad mounted)	60	5	1	5454	60.8	0.0
29	Inverter	64.3	32.8	1	2189	36.5	27.8
	Transformer (pad mounted)	60	5	1	2189	52.8	7.2
30	Inverter	64.3	32.8	1	2358	37.1	27.2
	Transformer (pad mounted)	60	5	1	2358	53.5	6.5
31	Inverter	64.3	32.8	1	2704	38.3	26.0
	Transformer (pad mounted)	60	5	1	2704	54.7	5.3
32	Inverter	64.3	32.8	1	3169	39.7	24.6
	Transformer (pad mounted)	60	5	1	3169	56.0	4.0
33	Inverter	64.3	32.8	1	3708	41.1	23.2

Scenario: Receiver 3
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
	Transformer (pad mounted)	60	5	1	3708	57.4	2.6
34	Inverter	64.3	32.8	1	4294	42.3	22.0
	Transformer (pad mounted)	60	5	1	4294	58.7	1.3
35	Inverter	64.3	32.8	1	4910	43.5	20.8
	Transformer (pad mounted)	60	5	1	4910	59.8	0.2
36	Inverter	64.3	32.8	1	5500	44.5	19.8
	Transformer (pad mounted)	60	5	1	5500	60.8	0.0
37	Inverter	64.3	32.8	1	922	29.0	35.3
	Transformer (pad mounted)	60	5	1	922	45.3	14.7
38	Inverter	64.3	32.8	1	1273	31.8	32.5
	Transformer (pad mounted)	60	5	1	1273	48.1	11.9
39	Inverter	64.3	32.8	1	2846	38.8	25.5
	Transformer (pad mounted)	60	5	1	2846	55.1	4.9
40	Inverter	64.3	32.8	1	3132	39.6	24.7
	Transformer (pad mounted)	60	5	1	3132	55.9	4.1
41	Inverter	64.3	32.8	1	3808	41.3	23.0
	Transformer (pad mounted)	60	5	1	3808	57.6	2.4
42	Inverter	64.3	32.8	1	4491	42.7	21.6
	Transformer (pad mounted)	60	5	1	4491	59.1	0.9
43	Inverter	64.3	32.8	1	5130	43.9	20.4
	Transformer (pad mounted)	60	5	1	5130	60.2	0.0
44	Inverter	64.3	32.8	1	5820	45.0	19.3
	Transformer (pad mounted)	60	5	1	5820	61.3	0.0
45	Inverter	64.3	32.8	1	6562	46.0	18.3
	Transformer (pad mounted)	60	5	1	6562	62.4	0.0
ESS	Battery Storage HVAC Module	68	50	50	7877	43.9	41.0
	Stepup Transformer	60	5	50	7877	63.9	13.0
	Power Inverter	77	6	50	7877	62.4	31.6
O&M	HVAC	48	50	1	7928	44.0	4.0
Sub	Stepup Transformer	60	5	2	7928	64.0	0.0
						Total	**44.2**

Scenario: Receiver 4
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
1	Inverter	64.3	32.8	1	6631	46.1	18.2
	Transformer (pad mounted)	60	5	1	6631	62.5	0.0
2	Inverter	64.3	32.8	1	6555	46.0	18.3
	Transformer (pad mounted)	60	5	1	6555	62.4	0.0
3	Inverter	64.3	32.8	1	6458	45.9	18.4
	Transformer (pad mounted)	60	5	1	6458	62.2	0.0
4	Inverter	64.3	32.8	1	6438	45.9	18.4
	Transformer (pad mounted)	60	5	1	6438	62.2	0.0
5	Inverter	64.3	32.8	1	5688	44.8	19.5
	Transformer (pad mounted)	60	5	1	5688	61.1	0.0
6	Inverter	64.3	32.8	1	5484	44.5	19.8
	Transformer (pad mounted)	60	5	1	5484	60.8	0.0
7	Inverter	64.3	32.8	1	5392	44.3	20.0
	Transformer (pad mounted)	60	5	1	5392	60.7	0.0
8	Inverter	64.3	32.8	1	5274	44.1	20.2
	Transformer (pad mounted)	60	5	1	5274	60.5	0.0
9	Inverter	64.3	32.8	1	5249	44.1	20.2
	Transformer (pad mounted)	60	5	1	5249	60.4	0.0
10	Inverter	64.3	32.8	1	5322	44.2	20.1
	Transformer (pad mounted)	60	5	1	5322	60.5	0.0
11	Inverter	64.3	32.8	1	5484	44.5	19.8
	Transformer (pad mounted)	60	5	1	5484	60.8	0.0
12	Inverter	64.3	32.8	1	4283	42.3	22.0
	Transformer (pad mounted)	60	5	1	4283	58.7	1.3
13	Inverter	64.3	32.8	1	3882	41.5	22.8
	Transformer (pad mounted)	60	5	1	3882	57.8	2.2
14	Inverter	64.3	32.8	1	3716	41.1	23.2
	Transformer (pad mounted)	60	5	1	3716	57.4	2.6
15	Inverter	64.3	32.8	1	3680	41.0	23.3
	Transformer (pad mounted)	60	5	1	3680	57.3	2.7
16	Inverter	64.3	32.8	1	3784	41.2	23.1
	Transformer (pad mounted)	60	5	1	3784	57.6	2.4

Scenario: Receiver 4
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
17	Inverter	64.3	32.8	1	4008	41.7	22.6
	Transformer (pad mounted)	60	5	1	4008	58.1	1.9
18	Inverter	64.3	32.8	1	4335	42.4	21.9
	Transformer (pad mounted)	60	5	1	4335	58.8	1.2
19	Inverter	64.3	32.8	1	4744	43.2	21.1
	Transformer (pad mounted)	60	5	1	4744	59.5	0.5
20	Inverter	64.3	32.8	1	3297	40.0	24.3
	Transformer (pad mounted)	60	5	1	3297	56.4	3.6
21	Inverter	64.3	32.8	1	2755	38.5	25.8
	Transformer (pad mounted)	60	5	1	2755	54.8	5.2
22	Inverter	64.3	32.8	1	2463	37.5	26.8
	Transformer (pad mounted)	60	5	1	2463	53.9	6.1
23	Inverter	64.3	32.8	1	2615	38.0	26.3
	Transformer (pad mounted)	60	5	1	2615	54.4	5.6
24	Inverter	64.3	32.8	1	2930	39.0	25.3
	Transformer (pad mounted)	60	5	1	2930	55.4	4.6
25	Inverter	64.3	32.8	1	3364	40.2	24.1
	Transformer (pad mounted)	60	5	1	3364	56.6	3.4
26	Inverter	64.3	32.8	1	3876	41.5	22.8
	Transformer (pad mounted)	60	5	1	3876	57.8	2.2
27	Inverter	64.3	32.8	1	4440	42.6	21.7
	Transformer (pad mounted)	60	5	1	4440	59.0	1.0
28	Inverter	64.3	32.8	1	4865	43.4	20.9
	Transformer (pad mounted)	60	5	1	4865	59.8	0.2
29	Inverter	64.3	32.8	1	1172	31.1	33.2
	Transformer (pad mounted)	60	5	1	1172	47.4	12.6
30	Inverter	64.3	32.8	1	1464	33.0	31.3
	Transformer (pad mounted)	60	5	1	1464	49.3	10.7
31	Inverter	64.3	32.8	1	1973	35.6	28.7
	Transformer (pad mounted)	60	5	1	1973	51.9	8.1
32	Inverter	64.3	32.8	1	2574	37.9	26.4
	Transformer (pad mounted)	60	5	1	2574	54.2	5.8
33	Inverter	64.3	32.8	1	3215	39.8	24.5

Scenario: Receiver 4
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
	Transformer (pad mounted)	60	5	1	3215	56.2	3.8
34	Inverter	64.3	32.8	1	3876	41.5	22.8
	Transformer (pad mounted)	60	5	1	3876	57.8	2.2
35	Inverter	64.3	32.8	1	4549	42.8	21.5
	Transformer (pad mounted)	60	5	1	4549	59.2	0.8
36	Inverter	64.3	32.8	1	5180	44.0	20.3
	Transformer (pad mounted)	60	5	1	5180	60.3	0.0
37	Inverter	64.3	32.8	1	236	17.1	47.2
	Transformer (pad mounted)	60	5	1	236	33.5	26.5
38	Inverter	64.3	32.8	1	909	28.9	35.4
	Transformer (pad mounted)	60	5	1	909	45.2	14.8
39	Inverter	64.3	32.8	1	2703	38.3	26.0
	Transformer (pad mounted)	60	5	1	2703	54.7	5.3
40	Inverter	64.3	32.8	1	3003	39.2	25.1
	Transformer (pad mounted)	60	5	1	3003	55.6	4.4
41	Inverter	64.3	32.8	1	3702	41.1	23.2
	Transformer (pad mounted)	60	5	1	3702	57.4	2.6
42	Inverter	64.3	32.8	1	4402	42.6	21.7
	Transformer (pad mounted)	60	5	1	4402	58.9	1.1
43	Inverter	64.3	32.8	1	5052	43.8	20.5
	Transformer (pad mounted)	60	5	1	5052	60.1	0.0
44	Inverter	64.3	32.8	1	5751	44.9	19.4
	Transformer (pad mounted)	60	5	1	5751	61.2	0.0
45	Inverter	64.3	32.8	1	6501	45.9	18.4
	Transformer (pad mounted)	60	5	1	6501	62.3	0.0
ESS	Battery Storage HVAC Module	68	50	50	6856	42.7	42.2
	Stepup Transformer	60	5	50	6856	62.7	14.2
	Power Inverter	77	6	50	6856	61.2	32.8
O&M	HVAC	48	50	1	6904	42.8	5.2
Sub	Stepup Transformer	60	5	2	6904	62.8	0.2
						Total	**49.4**

Scenario: Receiver 5
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
1	Inverter	64.3	32.8	1	5109	43.8	20.5
	Transformer (pad mounted)	60	5	1	5109	60.2	0.0
2	Inverter	64.3	32.8	1	4410	42.6	21.7
	Transformer (pad mounted)	60	5	1	4410	58.9	1.1
3	Inverter	64.3	32.8	1	2915	39.0	25.3
	Transformer (pad mounted)	60	5	1	2915	55.3	4.7
4	Inverter	64.3	32.8	1	2220	36.6	27.7
	Transformer (pad mounted)	60	5	1	2220	52.9	7.1
5	Inverter	64.3	32.8	1	1530	33.4	30.9
	Transformer (pad mounted)	60	5	1	1530	49.7	10.3
6	Inverter	64.3	32.8	1	4665	43.1	21.2
	Transformer (pad mounted)	60	5	1	4665	59.4	0.6
7	Inverter	64.3	32.8	1	4012	41.7	22.6
	Transformer (pad mounted)	60	5	1	4012	58.1	1.9
8	Inverter	64.3	32.8	1	3020	39.3	25.0
	Transformer (pad mounted)	60	5	1	3020	55.6	4.4
9	Inverter	64.3	32.8	1	3034	39.3	25.0
	Transformer (pad mounted)	60	5	1	3034	55.7	4.3
10	Inverter	64.3	32.8	1	3132	39.6	24.7
	Transformer (pad mounted)	60	5	1	3132	55.9	4.1
11	Inverter	64.3	32.8	1	3400	40.3	24.0
	Transformer (pad mounted)	60	5	1	3400	56.7	3.3
12	Inverter	64.3	32.8	1	3780	41.2	23.1
	Transformer (pad mounted)	60	5	1	3780	57.6	2.4
13	Inverter	64.3	32.8	1	4243	42.2	22.1
	Transformer (pad mounted)	60	5	1	4243	58.6	1.4
14	Inverter	64.3	32.8	1	4802	43.3	21.0
	Transformer (pad mounted)	60	5	1	4802	59.6	0.4
15	Inverter	64.3	32.8	1	4426	42.6	21.7
	Transformer (pad mounted)	60	5	1	4426	58.9	1.1
16	Inverter	64.3	32.8	1	4314	42.4	21.9
	Transformer (pad mounted)	60	5	1	4314	58.7	1.3

Scenario: Receiver 5
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
17	Inverter	64.3	32.8	1	4393	42.5	21.8
	Transformer (pad mounted)	60	5	1	4393	58.9	1.1
18	Inverter	64.3	32.8	1	4588	42.9	21.4
	Transformer (pad mounted)	60	5	1	4588	59.3	0.7
19	Inverter	64.3	32.8	1	4876	43.4	20.9
	Transformer (pad mounted)	60	5	1	4876	59.8	0.2
20	Inverter	64.3	32.8	1	5243	44.1	20.2
	Transformer (pad mounted)	60	5	1	5243	60.4	0.0
21	Inverter	64.3	32.8	1	5705	44.8	19.5
	Transformer (pad mounted)	60	5	1	5705	61.1	0.0
22	Inverter	64.3	32.8	1	5698	44.8	19.5
	Transformer (pad mounted)	60	5	1	5698	61.1	0.0
23	Inverter	64.3	32.8	1	5611	44.7	19.6
	Transformer (pad mounted)	60	5	1	5611	61.0	0.0
24	Inverter	64.3	32.8	1	5672	44.8	19.5
	Transformer (pad mounted)	60	5	1	5672	61.1	0.0
25	Inverter	64.3	32.8	1	5824	45.0	19.3
	Transformer (pad mounted)	60	5	1	5824	61.3	0.0
26	Inverter	64.3	32.8	1	6054	45.3	19.0
	Transformer (pad mounted)	60	5	1	6054	61.7	0.0
27	Inverter	64.3	32.8	1	6353	45.7	18.6
	Transformer (pad mounted)	60	5	1	6353	62.1	0.0
28	Inverter	64.3	32.8	1	6740	46.3	18.0
	Transformer (pad mounted)	60	5	1	6740	62.6	0.0
29	Inverter	64.3	32.8	1	6831	46.4	17.9
	Transformer (pad mounted)	60	5	1	6831	62.7	0.0
30	Inverter	64.3	32.8	1	6759	46.3	18.0
	Transformer (pad mounted)	60	5	1	6759	62.6	0.0
31	Inverter	64.3	32.8	1	6810	46.3	18.0
	Transformer (pad mounted)	60	5	1	6810	62.7	0.0
32	Inverter	64.3	32.8	1	7131	46.7	17.6
	Transformer (pad mounted)	60	5	1	7131	63.1	0.0
33	Inverter	64.3	32.8	1	7387	47.1	17.2

Scenario: Receiver 5
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
	Transformer (pad mounted)	60	5	1	7387	63.4	0.0
34	Inverter	64.3	32.8	1	7722	47.4	16.9
	Transformer (pad mounted)	60	5	1	7722	63.8	0.0
ESS	Battery Storage HVAC Module	68	50	50	18974	51.6	33.4
	Stepup Transformer	60	5	50	18974	71.6	5.4
	Power Inverter	77	6	50	18974	70.0	24.0
O&M	HVAC	48	50	1	19367	51.8	0.0
Sub	Stepup Transformer	60	5	2	19367	71.8	0.0
						Total	**39.4**

Scenario: Receiver 6
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
1	Inverter	64.3	32.8	1	5753	44.9	19.4
	Transformer (pad mounted)	60	5	1	5753	61.2	0.0
2	Inverter	64.3	32.8	1	5054	43.8	20.5
	Transformer (pad mounted)	60	5	1	5054	60.1	0.0
3	Inverter	64.3	32.8	1	3556	40.7	23.6
	Transformer (pad mounted)	60	5	1	3556	57.0	3.0
4	Inverter	64.3	32.8	1	2857	38.8	25.5
	Transformer (pad mounted)	60	5	1	2857	55.1	4.9
5	Inverter	64.3	32.8	1	2159	36.4	27.9
	Transformer (pad mounted)	60	5	1	2159	52.7	7.3
6	Inverter	64.3	32.8	1	5158	43.9	20.4
	Transformer (pad mounted)	60	5	1	5158	60.3	0.0
7	Inverter	64.3	32.8	1	4475	42.7	21.6
	Transformer (pad mounted)	60	5	1	4475	59.0	1.0
8	Inverter	64.3	32.8	1	2693	38.3	26.0
	Transformer (pad mounted)	60	5	1	2693	54.6	5.4
9	Inverter	64.3	32.8	1	2508	37.7	26.6
	Transformer (pad mounted)	60	5	1	2508	54.0	6.0
10	Inverter	64.3	32.8	1	2512	37.7	26.6
	Transformer (pad mounted)	60	5	1	2512	54.0	6.0
11	Inverter	64.3	32.8	1	2674	38.2	26.1
	Transformer (pad mounted)	60	5	1	2674	54.6	5.4
12	Inverter	64.3	32.8	1	2995	39.2	25.1
	Transformer (pad mounted)	60	5	1	2995	55.5	4.5
13	Inverter	64.3	32.8	1	3431	40.4	23.9
	Transformer (pad mounted)	60	5	1	3431	56.7	3.3
14	Inverter	64.3	32.8	1	3982	41.7	22.6
	Transformer (pad mounted)	60	5	1	3982	58.0	2.0
15	Inverter	64.3	32.8	1	4163	42.1	22.2
	Transformer (pad mounted)	60	5	1	4163	58.4	1.6
16	Inverter	64.3	32.8	1	3929	41.6	22.7
	Transformer (pad mounted)	60	5	1	3929	57.9	2.1

Scenario: Receiver 6
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
17	Inverter	64.3	32.8	1	3808	41.3	23.0
	Transformer (pad mounted)	60	5	1	3808	57.6	2.4
18	Inverter	64.3	32.8	1	3917	41.5	22.8
	Transformer (pad mounted)	60	5	1	3917	57.9	2.1
19	Inverter	64.3	32.8	1	4143	42.0	22.3
	Transformer (pad mounted)	60	5	1	4143	58.4	1.6
20	Inverter	64.3	32.8	1	4468	42.7	21.6
	Transformer (pad mounted)	60	5	1	4468	59.0	1.0
21	Inverter	64.3	32.8	1	4904	43.5	20.8
	Transformer (pad mounted)	60	5	1	4904	59.8	0.2
22	Inverter	64.3	32.8	1	5376	44.3	20.0
	Transformer (pad mounted)	60	5	1	5376	60.6	0.0
23	Inverter	64.3	32.8	1	5197	44.0	20.3
	Transformer (pad mounted)	60	5	1	5197	60.3	0.0
24	Inverter	64.3	32.8	1	5106	43.8	20.5
	Transformer (pad mounted)	60	5	1	5106	60.2	0.0
25	Inverter	64.3	32.8	1	5188	44.0	20.3
	Transformer (pad mounted)	60	5	1	5188	60.3	0.0
26	Inverter	64.3	32.8	1	5360	44.3	20.0
	Transformer (pad mounted)	60	5	1	5360	60.6	0.0
27	Inverter	64.3	32.8	1	5615	44.7	19.6
	Transformer (pad mounted)	60	5	1	5615	61.0	0.0
28	Inverter	64.3	32.8	1	5968	45.2	19.1
	Transformer (pad mounted)	60	5	1	5968	61.5	0.0
29	Inverter	64.3	32.8	1	6477	45.9	18.4
	Transformer (pad mounted)	60	5	1	6477	62.2	0.0
30	Inverter	64.3	32.8	1	6329	45.7	18.6
	Transformer (pad mounted)	60	5	1	6329	62.0	0.0
31	Inverter	64.3	32.8	1	6255	45.6	18.7
	Transformer (pad mounted)	60	5	1	6255	61.9	0.0
32	Inverter	64.3	32.8	1	6464	45.9	18.4
	Transformer (pad mounted)	60	5	1	6464	62.2	0.0
33	Inverter	64.3	32.8	1	6677	46.2	18.1

Scenario: Receiver 6
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
	Transformer (pad mounted)	60	5	1	6677	62.5	0.0
34	Inverter	64.3	32.8	1	6977	46.6	17.7
	Transformer (pad mounted)	60	5	1	6977	62.9	0.0
ESS	Battery Storage HVAC Module	68	50	50	19793	52.0	33.0
	Stepup Transformer	60	5	50	19793	72.0	5.0
	Power Inverter	77	6	50	19793	70.4	23.6
O&M	HVAC	48	50	1	20185	52.1	0.0
Sub	Stepup Transformer	60	5	2	20185	72.1	0.0
						Total	**39.4**

Scenario: Receiver 7
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
1	Inverter	64.3	32.8	1	6668	46.2	18.1
	Transformer (pad mounted)	60	5	1	6668	62.5	0.0
2	Inverter	64.3	32.8	1	5976	45.2	19.1
	Transformer (pad mounted)	60	5	1	5976	61.5	0.0
3	Inverter	64.3	32.8	1	4501	42.7	21.6
	Transformer (pad mounted)	60	5	1	4501	59.1	0.9
4	Inverter	64.3	32.8	1	3820	41.3	23.0
	Transformer (pad mounted)	60	5	1	3820	57.7	2.3
5	Inverter	64.3	32.8	1	3147	39.6	24.7
	Transformer (pad mounted)	60	5	1	3147	56.0	4.0
6	Inverter	64.3	32.8	1	5908	45.1	19.2
	Transformer (pad mounted)	60	5	1	5908	61.4	0.0
7	Inverter	64.3	32.8	1	5209	44.0	20.3
	Transformer (pad mounted)	60	5	1	5209	60.4	0.0
8	Inverter	64.3	32.8	1	2547	37.8	26.5
	Transformer (pad mounted)	60	5	1	2547	54.1	5.9
9	Inverter	64.3	32.8	1	2041	35.9	28.4
	Transformer (pad mounted)	60	5	1	2041	52.2	7.8
10	Inverter	64.3	32.8	1	1850	35.0	29.3
	Transformer (pad mounted)	60	5	1	1850	51.4	8.6
11	Inverter	64.3	32.8	1	1753	34.6	29.7
	Transformer (pad mounted)	60	5	1	1753	50.9	9.1
12	Inverter	64.3	32.8	1	1924	35.4	28.9
	Transformer (pad mounted)	60	5	1	1924	51.7	8.3
13	Inverter	64.3	32.8	1	2305	36.9	27.4
	Transformer (pad mounted)	60	5	1	2305	53.3	6.7
14	Inverter	64.3	32.8	1	2850	38.8	25.5
	Transformer (pad mounted)	60	5	1	2850	55.1	4.9
15	Inverter	64.3	32.8	1	3976	41.7	22.6
	Transformer (pad mounted)	60	5	1	3976	58.0	2.0
16	Inverter	64.3	32.8	1	3567	40.7	23.6
	Transformer (pad mounted)	60	5	1	3567	57.1	2.9

Scenario: Receiver 7
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
17	Inverter	64.3	32.8	1	3108	39.5	24.8
	Transformer (pad mounted)	60	5	1	3108	55.9	4.1
18	Inverter	64.3	32.8	1	3052	39.4	24.9
	Transformer (pad mounted)	60	5	1	3052	55.7	4.3
19	Inverter	64.3	32.8	1	3153	39.7	24.6
	Transformer (pad mounted)	60	5	1	3153	56.0	4.0
20	Inverter	64.3	32.8	1	3399	40.3	24.0
	Transformer (pad mounted)	60	5	1	3399	56.6	3.4
21	Inverter	64.3	32.8	1	3790	41.3	23.0
	Transformer (pad mounted)	60	5	1	3790	57.6	2.4
22	Inverter	64.3	32.8	1	5042	43.7	20.6
	Transformer (pad mounted)	60	5	1	5042	60.1	0.0
23	Inverter	64.3	32.8	1	4727	43.2	21.1
	Transformer (pad mounted)	60	5	1	4727	59.5	0.5
24	Inverter	64.3	32.8	1	4391	42.5	21.8
	Transformer (pad mounted)	60	5	1	4391	58.9	1.1
25	Inverter	64.3	32.8	1	4351	42.5	21.8
	Transformer (pad mounted)	60	5	1	4351	58.8	1.2
26	Inverter	64.3	32.8	1	4423	42.6	21.7
	Transformer (pad mounted)	60	5	1	4423	58.9	1.1
27	Inverter	64.3	32.8	1	4601	42.9	21.4
	Transformer (pad mounted)	60	5	1	4601	59.3	0.7
28	Inverter	64.3	32.8	1	4897	43.5	20.8
	Transformer (pad mounted)	60	5	1	4897	59.8	0.2
29	Inverter	64.3	32.8	1	6062	45.3	19.0
	Transformer (pad mounted)	60	5	1	6062	61.7	0.0
30	Inverter	64.3	32.8	1	5803	45.0	19.3
	Transformer (pad mounted)	60	5	1	5803	61.3	0.0
31	Inverter	64.3	32.8	1	5533	44.5	19.8
	Transformer (pad mounted)	60	5	1	5533	60.9	0.0
32	Inverter	64.3	32.8	1	5558	44.6	19.7
	Transformer (pad mounted)	60	5	1	5558	60.9	0.0
33	Inverter	64.3	32.8	1	5701	44.8	19.5

Scenario: Receiver 7
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
	Transformer (pad mounted)	60	5	1	5701	61.1	0.0
34	Inverter	64.3	32.8	1	5942	45.2	19.1
	Transformer (pad mounted)	60	5	1	5942	61.5	0.0
ESS	Battery Storage HVAC Module	68	50	50	20919	52.4	32.6
	Stepup Transformer	60	5	50	20919	72.4	4.6
	Power Inverter	77	6	50	20919	70.8	23.1
O&M	HVAC	48	50	1	21311	52.6	0.0
Sub	Stepup Transformer	60	5	2	21311	72.6	0.0
						Total	**40.4**

Scenario: Receiver 8
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
1	Inverter	64.3	32.8	1	8965	48.7	15.6
	Transformer (pad mounted)	60	5	1	8965	65.1	0.0
2	Inverter	64.3	32.8	1	8273	48.0	16.3
	Transformer (pad mounted)	60	5	1	8273	64.4	0.0
3	Inverter	64.3	32.8	1	6796	46.3	18.0
	Transformer (pad mounted)	60	5	1	6796	62.7	0.0
4	Inverter	64.3	32.8	1	6110	45.4	18.9
	Transformer (pad mounted)	60	5	1	6110	61.7	0.0
5	Inverter	64.3	32.8	1	5428	44.4	19.9
	Transformer (pad mounted)	60	5	1	5428	60.7	0.0
6	Inverter	64.3	32.8	1	8170	47.9	16.4
	Transformer (pad mounted)	60	5	1	8170	64.3	0.0
7	Inverter	64.3	32.8	1	7470	47.1	17.2
	Transformer (pad mounted)	60	5	1	7470	63.5	0.0
8	Inverter	64.3	32.8	1	4351	42.5	21.8
	Transformer (pad mounted)	60	5	1	4351	58.8	1.2
9	Inverter	64.3	32.8	1	3603	40.8	23.5
	Transformer (pad mounted)	60	5	1	3603	57.2	2.8
10	Inverter	64.3	32.8	1	3193	39.8	24.5
	Transformer (pad mounted)	60	5	1	3193	56.1	3.9
11	Inverter	64.3	32.8	1	2582	37.9	26.4
	Transformer (pad mounted)	60	5	1	2582	54.3	5.7
12	Inverter	64.3	32.8	1	2030	35.8	28.5
	Transformer (pad mounted)	60	5	1	2030	52.2	7.8
13	Inverter	64.3	32.8	1	1598	33.8	30.5
	Transformer (pad mounted)	60	5	1	1598	50.1	9.9
14	Inverter	64.3	32.8	1	1400	32.6	31.7
	Transformer (pad mounted)	60	5	1	1400	48.9	11.1
15	Inverter	64.3	32.8	1	5525	44.5	19.8
	Transformer (pad mounted)	60	5	1	5525	60.9	0.0
16	Inverter	64.3	32.8	1	4926	43.5	20.8
	Transformer (pad mounted)	60	5	1	4926	59.9	0.1

Scenario: Receiver 8
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
17	Inverter	64.3	32.8	1	3940	41.6	22.7
	Transformer (pad mounted)	60	5	1	3940	57.9	2.1
18	Inverter	64.3	32.8	1	3464	40.5	23.8
	Transformer (pad mounted)	60	5	1	3464	56.8	3.2
19	Inverter	64.3	32.8	1	3074	39.4	24.9
	Transformer (pad mounted)	60	5	1	3074	55.8	4.2
20	Inverter	64.3	32.8	1	2808	38.6	25.7
	Transformer (pad mounted)	60	5	1	2808	55.0	5.0
21	Inverter	64.3	32.8	1	2700	38.3	26.0
	Transformer (pad mounted)	60	5	1	2700	54.6	5.4
22	Inverter	64.3	32.8	1	6264	45.6	18.7
	Transformer (pad mounted)	60	5	1	6264	62.0	0.0
23	Inverter	64.3	32.8	1	5742	44.9	19.4
	Transformer (pad mounted)	60	5	1	5742	61.2	0.0
24	Inverter	64.3	32.8	1	4923	43.5	20.8
	Transformer (pad mounted)	60	5	1	4923	59.9	0.1
25	Inverter	64.3	32.8	1	4551	42.8	21.5
	Transformer (pad mounted)	60	5	1	4551	59.2	0.8
26	Inverter	64.3	32.8	1	4262	42.3	22.0
	Transformer (pad mounted)	60	5	1	4262	58.6	1.4
27	Inverter	64.3	32.8	1	4073	41.9	22.4
	Transformer (pad mounted)	60	5	1	4073	58.2	1.8
28	Inverter	64.3	32.8	1	4000	41.7	22.6
	Transformer (pad mounted)	60	5	1	4000	58.1	1.9
29	Inverter	64.3	32.8	1	7054	46.7	17.6
	Transformer (pad mounted)	60	5	1	7054	63.0	0.0
30	Inverter	64.3	32.8	1	6595	46.1	18.2
	Transformer (pad mounted)	60	5	1	6595	62.4	0.0
31	Inverter	64.3	32.8	1	5896	45.1	19.2
	Transformer (pad mounted)	60	5	1	5896	61.4	0.0
32	Inverter	64.3	32.8	1	5356	44.3	20.0
	Transformer (pad mounted)	60	5	1	5356	60.6	0.0
33	Inverter	64.3	32.8	1	5207	44.0	20.3

Scenario: Receiver 8
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
	Transformer (pad mounted)	60	5	1	5207	60.4	0.0
34	Inverter	64.3	32.8	1	5150	43.9	20.4
	Transformer (pad mounted)	60	5	1	5150	60.3	0.0
ESS	Battery Storage HVAC Module	68	50	50	22999	53.3	31.7
	Stepup Transformer	60	5	50	22999	73.3	3.7
	Power Inverter	77	6	50	22999	71.7	22.3
O&M	HVAC	48	50	1	23398	53.4	0.0
Sub	Stepup Transformer	60	5	2	23398	73.4	0.0
						Total	**39.9**

Scenario: Receiver 9
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
1	Inverter	64.3	32.8	1	9316	49.1	15.2
	Transformer (pad mounted)	60	5	1	9316	65.4	0.0
2	Inverter	64.3	32.8	1	8629	48.4	15.9
	Transformer (pad mounted)	60	5	1	8629	64.7	0.0
3	Inverter	64.3	32.8	1	7167	46.8	17.5
	Transformer (pad mounted)	60	5	1	7167	63.1	0.0
4	Inverter	64.3	32.8	1	6490	45.9	18.4
	Transformer (pad mounted)	60	5	1	6490	62.3	0.0
5	Inverter	64.3	32.8	1	5819	45.0	19.3
	Transformer (pad mounted)	60	5	1	5819	61.3	0.0
6	Inverter	64.3	32.8	1	8465	48.2	16.1
	Transformer (pad mounted)	60	5	1	8465	64.6	0.0
7	Inverter	64.3	32.8	1	7766	47.5	16.8
	Transformer (pad mounted)	60	5	1	7766	63.8	0.0
8	Inverter	64.3	32.8	1	4501	42.7	21.6
	Transformer (pad mounted)	60	5	1	4501	59.1	0.9
9	Inverter	64.3	32.8	1	3723	41.1	23.2
	Transformer (pad mounted)	60	5	1	3723	57.4	2.6
10	Inverter	64.3	32.8	1	3290	40.0	24.3
	Transformer (pad mounted)	60	5	1	3290	56.4	3.6
11	Inverter	64.3	32.8	1	2628	38.1	26.2
	Transformer (pad mounted)	60	5	1	2628	54.4	5.6
12	Inverter	64.3	32.8	1	1991	35.7	28.6
	Transformer (pad mounted)	60	5	1	1991	52.0	8.0
13	Inverter	64.3	32.8	1	1416	32.7	31.6
	Transformer (pad mounted)	60	5	1	1416	49.0	11.0
14	Inverter	64.3	32.8	1	996	29.6	34.7
	Transformer (pad mounted)	60	5	1	996	46.0	14.0
15	Inverter	64.3	32.8	1	5574	44.6	19.7
	Transformer (pad mounted)	60	5	1	5574	60.9	0.0
16	Inverter	64.3	32.8	1	4942	43.6	20.7
	Transformer (pad mounted)	60	5	1	4942	59.9	0.1

Scenario: Receiver 9
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
17	Inverter	64.3	32.8	1	3871	41.4	22.9
	Transformer (pad mounted)	60	5	1	3871	57.8	2.2
18	Inverter	64.3	32.8	1	3326	40.1	24.2
	Transformer (pad mounted)	60	5	1	3326	56.5	3.5
19	Inverter	64.3	32.8	1	2850	38.8	25.5
	Transformer (pad mounted)	60	5	1	2850	55.1	4.9
20	Inverter	64.3	32.8	1	2483	37.6	26.7
	Transformer (pad mounted)	60	5	1	2483	53.9	6.1
21	Inverter	64.3	32.8	1	2270	36.8	27.5
	Transformer (pad mounted)	60	5	1	2270	53.1	6.9
22	Inverter	64.3	32.8	1	6214	45.5	18.8
	Transformer (pad mounted)	60	5	1	6214	61.9	0.0
23	Inverter	64.3	32.8	1	5654	44.7	19.6
	Transformer (pad mounted)	60	5	1	5654	61.1	0.0
24	Inverter	64.3	32.8	1	4746	43.2	21.1
	Transformer (pad mounted)	60	5	1	4746	59.5	0.5
25	Inverter	64.3	32.8	1	4313	42.4	21.9
	Transformer (pad mounted)	60	5	1	4313	58.7	1.3
26	Inverter	64.3	32.8	1	3958	41.6	22.7
	Transformer (pad mounted)	60	5	1	3958	58.0	2.0
27	Inverter	64.3	32.8	1	3702	41.1	23.2
	Transformer (pad mounted)	60	5	1	3702	57.4	2.6
28	Inverter	64.3	32.8	1	3563	40.7	23.6
	Transformer (pad mounted)	60	5	1	3563	57.1	2.9
29	Inverter	64.3	32.8	1	6935	46.5	17.8
	Transformer (pad mounted)	60	5	1	6935	62.8	0.0
30	Inverter	64.3	32.8	1	6438	45.9	18.4
	Transformer (pad mounted)	60	5	1	6438	62.2	0.0
31	Inverter	64.3	32.8	1	5658	44.7	19.6
	Transformer (pad mounted)	60	5	1	5658	61.1	0.0
32	Inverter	64.3	32.8	1	5015	43.7	20.6
	Transformer (pad mounted)	60	5	1	5015	60.0	0.0
33	Inverter	64.3	32.8	1	4816	43.3	21.0

Scenario: Receiver 9
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
	Transformer (pad mounted)	60	5	1	4816	59.7	0.3
34	Inverter	64.3	32.8	1	4710	43.1	21.2
	Transformer (pad mounted)	60	5	1	4710	59.5	0.5
ESS	Battery Storage HVAC Module	68	50	50	23479	53.4	31.6
	Stepup Transformer	60	5	50	23479	73.4	3.6
	Power Inverter	77	6	50	23479	71.9	22.1
O&M	HVAC	48	50	1	23876	53.6	0.0
Sub	Stepup Transformer	60	5	2	23876	73.6	0.0
						Total	**40.8**

Scenario: Receiver 10
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
1	Inverter	64.3	32.8	1	12802	51.8	12.5
	Transformer (pad mounted)	60	5	1	12802	68.2	0.0
2	Inverter	64.3	32.8	1	12328	51.5	12.8
	Transformer (pad mounted)	60	5	1	12328	67.8	0.0
3	Inverter	64.3	32.8	1	11392	50.8	13.5
	Transformer (pad mounted)	60	5	1	11392	67.2	0.0
4	Inverter	64.3	32.8	1	10998	50.5	13.8
	Transformer (pad mounted)	60	5	1	10998	66.8	0.0
5	Inverter	64.3	32.8	1	10636	50.2	14.1
	Transformer (pad mounted)	60	5	1	10636	66.6	0.0
6	Inverter	64.3	32.8	1	11420	50.8	13.5
	Transformer (pad mounted)	60	5	1	11420	67.2	0.0
7	Inverter	64.3	32.8	1	10932	50.5	13.8
	Transformer (pad mounted)	60	5	1	10932	66.8	0.0
8	Inverter	64.3	32.8	1	7727	47.4	16.9
	Transformer (pad mounted)	60	5	1	7727	63.8	0.0
9	Inverter	64.3	32.8	1	7334	47.0	17.3
	Transformer (pad mounted)	60	5	1	7334	63.3	0.0
10	Inverter	64.3	32.8	1	7143	46.8	17.5
	Transformer (pad mounted)	60	5	1	7143	63.1	0.0
11	Inverter	64.3	32.8	1	6894	46.5	17.8
	Transformer (pad mounted)	60	5	1	6894	62.8	0.0
12	Inverter	64.3	32.8	1	6709	46.2	18.1
	Transformer (pad mounted)	60	5	1	6709	62.6	0.0
13	Inverter	64.3	32.8	1	6593	46.1	18.2
	Transformer (pad mounted)	60	5	1	6593	62.4	0.0
14	Inverter	64.3	32.8	1	6550	46.0	18.3
	Transformer (pad mounted)	60	5	1	6550	62.3	0.0
15	Inverter	64.3	32.8	1	7114	46.7	17.6
	Transformer (pad mounted)	60	5	1	7114	63.1	0.0
16	Inverter	64.3	32.8	1	6661	46.2	18.1
	Transformer (pad mounted)	60	5	1	6661	62.5	0.0

Scenario: Receiver 10
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
17	Inverter	64.3	32.8	1	5974	45.2	19.1
	Transformer (pad mounted)	60	5	1	5974	61.5	0.0
18	Inverter	64.3	32.8	1	5673	44.8	19.5
	Transformer (pad mounted)	60	5	1	5673	61.1	0.0
19	Inverter	64.3	32.8	1	5447	44.4	19.9
	Transformer (pad mounted)	60	5	1	5447	60.7	0.0
20	Inverter	64.3	32.8	1	5303	44.2	20.1
	Transformer (pad mounted)	60	5	1	5303	60.5	0.0
21	Inverter	64.3	32.8	1	5250	44.1	20.2
	Transformer (pad mounted)	60	5	1	5250	60.4	0.0
22	Inverter	64.3	32.8	1	6216	45.6	18.7
	Transformer (pad mounted)	60	5	1	6216	61.9	0.0
23	Inverter	64.3	32.8	1	5693	44.8	19.5
	Transformer (pad mounted)	60	5	1	5693	61.1	0.0
24	Inverter	64.3	32.8	1	4871	43.4	20.9
	Transformer (pad mounted)	60	5	1	4871	59.8	0.2
25	Inverter	64.3	32.8	1	4497	42.7	21.6
	Transformer (pad mounted)	60	5	1	4497	59.1	0.9
26	Inverter	64.3	32.8	1	4208	42.2	22.1
	Transformer (pad mounted)	60	5	1	4208	58.5	1.5
27	Inverter	64.3	32.8	1	4021	41.8	22.5
	Transformer (pad mounted)	60	5	1	4021	58.1	1.9
28	Inverter	64.3	32.8	1	3950	41.6	22.7
	Transformer (pad mounted)	60	5	1	3950	58.0	2.0
29	Inverter	64.3	32.8	1	5557	44.6	19.7
	Transformer (pad mounted)	60	5	1	5557	60.9	0.0
30	Inverter	64.3	32.8	1	4965	43.6	20.7
	Transformer (pad mounted)	60	5	1	4965	59.9	0.1
31	Inverter	64.3	32.8	1	3995	41.7	22.6
	Transformer (pad mounted)	60	5	1	3995	58.1	1.9
32	Inverter	64.3	32.8	1	3153	39.7	24.6
	Transformer (pad mounted)	60	5	1	3153	56.0	4.0
33	Inverter	64.3	32.8	1	2899	38.9	25.4

Scenario: Receiver 10
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
	Transformer (pad mounted)	60	5	1	2899	55.3	4.7
34	Inverter	64.3	32.8	1	2800	38.6	25.7
	Transformer (pad mounted)	60	5	1	2800	55.0	5.0
ESS	Battery Storage HVAC Module	68	50	50	28081	55.0	30.0
	Stepup Transformer	60	5	50	28081	75.0	2.0
	Power Inverter	77	6	50	28081	73.4	20.6
O&M	HVAC	48	50	1	28429	55.1	0.0
Sub	Stepup Transformer	60	5	2	28429	75.1	0.0
						Total	**36.7**

Scenario: Receiver 11
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
1	Inverter	64.3	32.8	1	12230	51.4	12.9
	Transformer (pad mounted)	60	5	1	12230	67.8	0.0
2	Inverter	64.3	32.8	1	11784	51.1	13.2
	Transformer (pad mounted)	60	5	1	11784	67.4	0.0
3	Inverter	64.3	32.8	1	10918	50.4	13.9
	Transformer (pad mounted)	60	5	1	10918	66.8	0.0
4	Inverter	64.3	32.8	1	10563	50.2	14.1
	Transformer (pad mounted)	60	5	1	10563	66.5	0.0
5	Inverter	64.3	32.8	1	10243	49.9	14.4
	Transformer (pad mounted)	60	5	1	10243	66.2	0.0
6	Inverter	64.3	32.8	1	10830	50.4	13.9
	Transformer (pad mounted)	60	5	1	10830	66.7	0.0
7	Inverter	64.3	32.8	1	10371	50.0	14.3
	Transformer (pad mounted)	60	5	1	10371	66.3	0.0
8	Inverter	64.3	32.8	1	7312	47.0	17.3
	Transformer (pad mounted)	60	5	1	7312	63.3	0.0
9	Inverter	64.3	32.8	1	6993	46.6	17.7
	Transformer (pad mounted)	60	5	1	6993	62.9	0.0
10	Inverter	64.3	32.8	1	6849	46.4	17.9
	Transformer (pad mounted)	60	5	1	6849	62.7	0.0
11	Inverter	64.3	32.8	1	6678	46.2	18.1
	Transformer (pad mounted)	60	5	1	6678	62.5	0.0
12	Inverter	64.3	32.8	1	6577	46.0	18.3
	Transformer (pad mounted)	60	5	1	6577	62.4	0.0
13	Inverter	64.3	32.8	1	6551	46.0	18.3
	Transformer (pad mounted)	60	5	1	6551	62.3	0.0
14	Inverter	64.3	32.8	1	6605	46.1	18.2
	Transformer (pad mounted)	60	5	1	6605	62.4	0.0
15	Inverter	64.3	32.8	1	6570	46.0	18.3
	Transformer (pad mounted)	60	5	1	6570	62.4	0.0
16	Inverter	64.3	32.8	1	6175	45.5	18.8
	Transformer (pad mounted)	60	5	1	6175	61.8	0.0

Scenario: Receiver 11
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
17	Inverter	64.3	32.8	1	5618	44.7	19.6
	Transformer (pad mounted)	60	5	1	5618	61.0	0.0
18	Inverter	64.3	32.8	1	5409	44.3	20.0
	Transformer (pad mounted)	60	5	1	5409	60.7	0.0
19	Inverter	64.3	32.8	1	5284	44.1	20.2
	Transformer (pad mounted)	60	5	1	5284	60.5	0.0
20	Inverter	64.3	32.8	1	5251	44.1	20.2
	Transformer (pad mounted)	60	5	1	5251	60.4	0.0
21	Inverter	64.3	32.8	1	5318	44.2	20.1
	Transformer (pad mounted)	60	5	1	5318	60.5	0.0
22	Inverter	64.3	32.8	1	5586	44.6	19.7
	Transformer (pad mounted)	60	5	1	5586	61.0	0.0
23	Inverter	64.3	32.8	1	5115	43.9	20.4
	Transformer (pad mounted)	60	5	1	5115	60.2	0.0
24	Inverter	64.3	32.8	1	4427	42.6	21.7
	Transformer (pad mounted)	60	5	1	4427	58.9	1.1
25	Inverter	64.3	32.8	1	4158	42.1	22.2
	Transformer (pad mounted)	60	5	1	4158	58.4	1.6
26	Inverter	64.3	32.8	1	3995	41.7	22.6
	Transformer (pad mounted)	60	5	1	3995	58.1	1.9
27	Inverter	64.3	32.8	1	3951	41.6	22.7
	Transformer (pad mounted)	60	5	1	3951	58.0	2.0
28	Inverter	64.3	32.8	1	4040	41.8	22.5
	Transformer (pad mounted)	60	5	1	4040	58.1	1.9
29	Inverter	64.3	32.8	1	4842	43.4	20.9
	Transformer (pad mounted)	60	5	1	4842	59.7	0.3
30	Inverter	64.3	32.8	1	4290	42.3	22.0
	Transformer (pad mounted)	60	5	1	4290	58.7	1.3
31	Inverter	64.3	32.8	1	3441	40.4	23.9
	Transformer (pad mounted)	60	5	1	3441	56.8	3.2
32	Inverter	64.3	32.8	1	2864	38.8	25.5
	Transformer (pad mounted)	60	5	1	2864	55.2	4.8
33	Inverter	64.3	32.8	1	2802	38.6	25.7

Scenario: Receiver 11
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
	Transformer (pad mounted)	60	5	1	2802	55.0	5.0
34	Inverter	64.3	32.8	1	2926	39.0	25.3
	Transformer (pad mounted)	60	5	1	2926	55.3	4.7
ESS	Battery Storage HVAC Module	68	50	50	27502	54.8	30.2
	Stepup Transformer	60	5	50	27502	74.8	2.2
	Power Inverter	77	6	50	27502	73.2	20.8
O&M	HVAC	48	50	1	27845	54.9	0.0
Sub	Stepup Transformer	60	5	2	27845	74.9	0.0
						Total	**37.1**

Scenario: Receiver 12
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
1	Inverter	64.3	32.8	1	10834	50.4	13.9
	Transformer (pad mounted)	60	5	1	10834	66.7	0.0
2	Inverter	64.3	32.8	1	10446	50.1	14.2
	Transformer (pad mounted)	60	5	1	10446	66.4	0.0
3	Inverter	64.3	32.8	1	9733	49.4	14.9
	Transformer (pad mounted)	60	5	1	9733	65.8	0.0
4	Inverter	64.3	32.8	1	9463	49.2	15.1
	Transformer (pad mounted)	60	5	1	9463	65.5	0.0
5	Inverter	64.3	32.8	1	9238	49.0	15.3
	Transformer (pad mounted)	60	5	1	9238	65.3	0.0
6	Inverter	64.3	32.8	1	9411	49.2	15.1
	Transformer (pad mounted)	60	5	1	9411	65.5	0.0
7	Inverter	64.3	32.8	1	9016	48.8	15.5
	Transformer (pad mounted)	60	5	1	9016	65.1	0.0
8	Inverter	64.3	32.8	1	6330	45.7	18.6
	Transformer (pad mounted)	60	5	1	6330	62.0	0.0
9	Inverter	64.3	32.8	1	6190	45.5	18.8
	Transformer (pad mounted)	60	5	1	6190	61.9	0.0
10	Inverter	64.3	32.8	1	6155	45.5	18.8
	Transformer (pad mounted)	60	5	1	6155	61.8	0.0
11	Inverter	64.3	32.8	1	6166	45.5	18.8
	Transformer (pad mounted)	60	5	1	6166	61.8	0.0
12	Inverter	64.3	32.8	1	6257	45.6	18.7
	Transformer (pad mounted)	60	5	1	6257	61.9	0.0
13	Inverter	64.3	32.8	1	6422	45.8	18.5
	Transformer (pad mounted)	60	5	1	6422	62.2	0.0
14	Inverter	64.3	32.8	1	6677	46.2	18.1
	Transformer (pad mounted)	60	5	1	6677	62.5	0.0
15	Inverter	64.3	32.8	1	5326	44.2	20.1
	Transformer (pad mounted)	60	5	1	5326	60.5	0.0
16	Inverter	64.3	32.8	1	5077	43.8	20.5
	Transformer (pad mounted)	60	5	1	5077	60.1	0.0

Scenario: Receiver 12
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
17	Inverter	64.3	32.8	1	4856	43.4	20.9
	Transformer (pad mounted)	60	5	1	4856	59.7	0.3
18	Inverter	64.3	32.8	1	4871	43.4	20.9
	Transformer (pad mounted)	60	5	1	4871	59.8	0.2
19	Inverter	64.3	32.8	1	4984	43.6	20.7
	Transformer (pad mounted)	60	5	1	4984	60.0	0.0
20	Inverter	64.3	32.8	1	5191	44.0	20.3
	Transformer (pad mounted)	60	5	1	5191	60.3	0.0
21	Inverter	64.3	32.8	1	5503	44.5	19.8
	Transformer (pad mounted)	60	5	1	5503	60.8	0.0
22	Inverter	64.3	32.8	1	4176	42.1	22.2
	Transformer (pad mounted)	60	5	1	4176	58.4	1.6
23	Inverter	64.3	32.8	1	3854	41.4	22.9
	Transformer (pad mounted)	60	5	1	3854	57.7	2.3
24	Inverter	64.3	32.8	1	3559	40.7	23.6
	Transformer (pad mounted)	60	5	1	3559	57.0	3.0
25	Inverter	64.3	32.8	1	3578	40.8	23.5
	Transformer (pad mounted)	60	5	1	3578	57.1	2.9
26	Inverter	64.3	32.8	1	3732	41.1	23.2
	Transformer (pad mounted)	60	5	1	3732	57.5	2.5
27	Inverter	64.3	32.8	1	4003	41.7	22.6
	Transformer (pad mounted)	60	5	1	4003	58.1	1.9
28	Inverter	64.3	32.8	1	4400	42.6	21.7
	Transformer (pad mounted)	60	5	1	4400	58.9	1.1
29	Inverter	64.3	32.8	1	3256	39.9	24.4
	Transformer (pad mounted)	60	5	1	3256	56.3	3.7
30	Inverter	64.3	32.8	1	2830	38.7	25.6
	Transformer (pad mounted)	60	5	1	2830	55.1	4.9
31	Inverter	64.3	32.8	1	2413	37.3	27.0
	Transformer (pad mounted)	60	5	1	2413	53.7	6.3
32	Inverter	64.3	32.8	1	2661	38.2	26.1
	Transformer (pad mounted)	60	5	1	2661	54.5	5.5
33	Inverter	64.3	32.8	1	3030	39.3	25.0

Scenario: Receiver 12
Proposed Sub-station & Energy Storage Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
	Transformer (pad mounted)	60	5	1	3030	55.7	4.3
34	Inverter	64.3	32.8	1	3538	40.7	23.6
	Transformer (pad mounted)	60	5	1	3538	57.0	3.0
ESS	Battery Storage HVAC Module	68	50	50	26049	54.3	30.7
	Stepup Transformer	60	5	50	26049	74.3	2.7
	Power Inverter	77	6	50	26049	72.8	21.2
O&M	HVAC	48	50	1	26381	54.4	0.0
Sub	Stepup Transformer	60	5	2	26381	74.4	0.0
						Total	**38.0**

Scenario: Receiver 1
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
1	Inverter	64.3	32.8	1	3010	39.3	25.0
	Transformer (pad mounted)	60	5	1	3010	55.6	4.4
2	Inverter	64.3	32.8	1	3165	39.7	24.6
	Transformer (pad mounted)	60	5	1	3165	56.0	4.0
3	Inverter	64.3	32.8	1	3561	40.7	23.6
	Transformer (pad mounted)	60	5	1	3561	57.1	2.9
4	Inverter	64.3	32.8	1	4076	41.9	22.4
	Transformer (pad mounted)	60	5	1	4076	58.2	1.8
5	Inverter	64.3	32.8	1	1681	34.2	30.1
	Transformer (pad mounted)	60	5	1	1681	50.5	9.5
6	Inverter	64.3	32.8	1	1976	35.6	28.7
	Transformer (pad mounted)	60	5	1	1976	51.9	8.1
7	Inverter	64.3	32.8	1	2206	36.6	27.7
	Transformer (pad mounted)	60	5	1	2206	52.9	7.1
8	Inverter	64.3	32.8	1	2744	38.4	25.9
	Transformer (pad mounted)	60	5	1	2744	54.8	5.2
9	Inverter	64.3	32.8	1	3386	40.3	24.0
	Transformer (pad mounted)	60	5	1	3386	56.6	3.4
10	Inverter	64.3	32.8	1	4019	41.8	22.5
	Transformer (pad mounted)	60	5	1	4019	58.1	1.9
11	Inverter	64.3	32.8	1	4672	43.1	21.2
	Transformer (pad mounted)	60	5	1	4672	59.4	0.6
12	Inverter	64.3	32.8	1	600	25.2	39.1
	Transformer (pad mounted)	60	5	1	600	41.6	18.4
13	Inverter	64.3	32.8	1	1550	33.5	30.8
	Transformer (pad mounted)	60	5	1	1550	49.8	10.2
14	Inverter	64.3	32.8	1	2250	36.7	27.6
	Transformer (pad mounted)	60	5	1	2250	53.1	6.9
15	Inverter	64.3	32.8	1	3000	39.2	25.1
	Transformer (pad mounted)	60	5	1	3000	55.6	4.4
16	Inverter	64.3	32.8	1	3700	41.0	23.3
	Transformer (pad mounted)	60	5	1	3700	57.4	2.6

Scenario: Receiver 1
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
17	Inverter	64.3	32.8	1	4400	42.6	21.7
	Transformer (pad mounted)	60	5	1	4400	58.9	1.1
18	Inverter	64.3	32.8	1	5100	43.8	20.5
	Transformer (pad mounted)	60	5	1	5100	60.2	0.0
19	Inverter	64.3	32.8	1	5800	45.0	19.3
	Transformer (pad mounted)	60	5	1	5800	61.3	0.0
20	Inverter	64.3	32.8	1	1360	32.4	31.9
	Transformer (pad mounted)	60	5	1	1360	48.7	11.3
21	Inverter	64.3	32.8	1	1973	35.6	28.7
	Transformer (pad mounted)	60	5	1	1973	51.9	8.1
22	Inverter	64.3	32.8	1	3239	39.9	24.4
	Transformer (pad mounted)	60	5	1	3239	56.2	3.8
23	Inverter	64.3	32.8	1	3896	41.5	22.8
	Transformer (pad mounted)	60	5	1	3896	57.8	2.2
24	Inverter	64.3	32.8	1	4566	42.9	21.4
	Transformer (pad mounted)	60	5	1	4566	59.2	0.8
25	Inverter	64.3	32.8	1	5244	44.1	20.2
	Transformer (pad mounted)	60	5	1	5244	60.4	0.0
26	Inverter	64.3	32.8	1	5927	45.1	19.2
	Transformer (pad mounted)	60	5	1	5927	61.5	0.0
27	Inverter	64.3	32.8	1	6614	46.1	18.2
	Transformer (pad mounted)	60	5	1	6614	62.4	0.0
28	Inverter	64.3	32.8	1	7106	46.7	17.6
	Transformer (pad mounted)	60	5	1	7106	63.1	0.0
29	Inverter	64.3	32.8	1	3918	41.5	22.8
	Transformer (pad mounted)	60	5	1	3918	57.9	2.1
30	Inverter	64.3	32.8	1	4477	42.7	21.6
	Transformer (pad mounted)	60	5	1	4477	59.0	1.0
31	Inverter	64.3	32.8	1	5071	43.8	20.5
	Transformer (pad mounted)	60	5	1	5071	60.1	0.0
32	Inverter	64.3	32.8	1	5689	44.8	19.5
	Transformer (pad mounted)	60	5	1	5689	61.1	0.0
33	Inverter	64.3	32.8	1	6324	45.7	18.6

Scenario: Receiver 1
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
	Transformer (pad mounted)	60	5	1	6324	62.0	0.0
34	Inverter	64.3	32.8	1	6971	46.5	17.8
	Transformer (pad mounted)	60	5	1	6971	62.9	0.0
35	Inverter	64.3	32.8	1	7628	47.3	17.0
	Transformer (pad mounted)	60	5	1	7628	63.7	0.0
36	Inverter	64.3	32.8	1	8245	48.0	16.3
	Transformer (pad mounted)	60	5	1	8245	64.3	0.0
37	Inverter	64.3	32.8	1	4841	43.4	20.9
	Transformer (pad mounted)	60	5	1	4841	59.7	0.3
38	Inverter	64.3	32.8	1	5304	44.2	20.1
	Transformer (pad mounted)	60	5	1	5304	60.5	0.0
39	Inverter	64.3	32.8	1	6685	46.2	18.1
	Transformer (pad mounted)	60	5	1	6685	62.5	0.0
40	Inverter	64.3	32.8	1	6934	46.5	17.8
	Transformer (pad mounted)	60	5	1	6934	62.8	0.0
41	Inverter	64.3	32.8	1	7529	47.2	17.1
	Transformer (pad mounted)	60	5	1	7529	63.6	0.0
42	Inverter	64.3	32.8	1	8141	47.9	16.4
	Transformer (pad mounted)	60	5	1	8141	64.2	0.0
43	Inverter	64.3	32.8	1	8721	48.5	15.8
	Transformer (pad mounted)	60	5	1	8721	64.8	0.0
44	Inverter	64.3	32.8	1	9356	49.1	15.2
	Transformer (pad mounted)	60	5	1	9356	65.4	0.0
45	Inverter	64.3	32.8	1	10046	49.7	14.6
	Transformer (pad mounted)	60	5	1	10046	66.1	0.0
ESS	Battery Storage HVAC Module	68	50	50	11529	47.3	37.7
	Stepup Transformer	60	5	50	11529	67.3	9.7
	Power Inverter	77	6	50	11529	65.7	28.3
O&M	HVAC	48	50	1	10986	46.8	1.2
Sub	Stepup Transformer	60	5	2	10986	66.8	0.0
						Total	**44.2**

Scenario: Receiver 2
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
1	Inverter	64.3	32.8	1	5074	43.8	20.5
	Transformer (pad mounted)	60	5	1	5074	60.1	0.0
2	Inverter	64.3	32.8	1	5237	44.1	20.2
	Transformer (pad mounted)	60	5	1	5237	60.4	0.0
3	Inverter	64.3	32.8	1	5614	44.7	19.6
	Transformer (pad mounted)	60	5	1	5614	61.0	0.0
4	Inverter	64.3	32.8	1	6082	45.4	18.9
	Transformer (pad mounted)	60	5	1	6082	61.7	0.0
5	Inverter	64.3	32.8	1	3741	41.1	23.2
	Transformer (pad mounted)	60	5	1	3741	57.5	2.5
6	Inverter	64.3	32.8	1	4038	41.8	22.5
	Transformer (pad mounted)	60	5	1	4038	58.1	1.9
7	Inverter	64.3	32.8	1	4241	42.2	22.1
	Transformer (pad mounted)	60	5	1	4241	58.6	1.4
8	Inverter	64.3	32.8	1	4699	43.1	21.2
	Transformer (pad mounted)	60	5	1	4699	59.5	0.5
9	Inverter	64.3	32.8	1	5250	44.1	20.2
	Transformer (pad mounted)	60	5	1	5250	60.4	0.0
10	Inverter	64.3	32.8	1	5804	45.0	19.3
	Transformer (pad mounted)	60	5	1	5804	61.3	0.0
11	Inverter	64.3	32.8	1	6387	45.8	18.5
	Transformer (pad mounted)	60	5	1	6387	62.1	0.0
12	Inverter	64.3	32.8	1	2425	37.4	26.9
	Transformer (pad mounted)	60	5	1	2425	53.7	6.3
13	Inverter	64.3	32.8	1	3142	39.6	24.7
	Transformer (pad mounted)	60	5	1	3142	56.0	4.0
14	Inverter	64.3	32.8	1	3737	41.1	23.2
	Transformer (pad mounted)	60	5	1	3737	57.5	2.5
15	Inverter	64.3	32.8	1	4409	42.6	21.7
	Transformer (pad mounted)	60	5	1	4409	58.9	1.1
16	Inverter	64.3	32.8	1	5056	43.8	20.5
	Transformer (pad mounted)	60	5	1	5056	60.1	0.0

Scenario: Receiver 2
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
17	Inverter	64.3	32.8	1	5716	44.8	19.5
	Transformer (pad mounted)	60	5	1	5716	61.2	0.0
18	Inverter	64.3	32.8	1	6384	45.8	18.5
	Transformer (pad mounted)	60	5	1	6384	62.1	0.0
19	Inverter	64.3	32.8	1	7058	46.7	17.6
	Transformer (pad mounted)	60	5	1	7058	63.0	0.0
20	Inverter	64.3	32.8	1	1725	34.4	29.9
	Transformer (pad mounted)	60	5	1	1725	50.8	9.2
21	Inverter	64.3	32.8	1	2640	38.1	26.2
	Transformer (pad mounted)	60	5	1	2640	54.5	5.5
22	Inverter	64.3	32.8	1	4067	41.9	22.4
	Transformer (pad mounted)	60	5	1	4067	58.2	1.8
23	Inverter	64.3	32.8	1	4760	43.2	21.1
	Transformer (pad mounted)	60	5	1	4760	59.6	0.4
24	Inverter	64.3	32.8	1	5456	44.4	19.9
	Transformer (pad mounted)	60	5	1	5456	60.8	0.0
25	Inverter	64.3	32.8	1	6152	45.5	18.8
	Transformer (pad mounted)	60	5	1	6152	61.8	0.0
26	Inverter	64.3	32.8	1	6850	46.4	17.9
	Transformer (pad mounted)	60	5	1	6850	62.7	0.0
27	Inverter	64.3	32.8	1	7547	47.2	17.1
	Transformer (pad mounted)	60	5	1	7547	63.6	0.0
28	Inverter	64.3	32.8	1	8046	47.8	16.5
	Transformer (pad mounted)	60	5	1	8046	64.1	0.0
29	Inverter	64.3	32.8	1	4089	41.9	22.4
	Transformer (pad mounted)	60	5	1	4089	58.3	1.7
30	Inverter	64.3	32.8	1	4780	43.3	21.0
	Transformer (pad mounted)	60	5	1	4780	59.6	0.4
31	Inverter	64.3	32.8	1	5473	44.4	19.9
	Transformer (pad mounted)	60	5	1	5473	60.8	0.0
32	Inverter	64.3	32.8	1	6167	45.5	18.8
	Transformer (pad mounted)	60	5	1	6167	61.8	0.0
33	Inverter	64.3	32.8	1	6863	46.4	17.9

Scenario: Receiver 2
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
	Transformer (pad mounted)	60	5	1	6863	62.8	0.0
34	Inverter	64.3	32.8	1	7559	47.3	17.0
	Transformer (pad mounted)	60	5	1	7559	63.6	0.0
35	Inverter	64.3	32.8	1	8256	48.0	16.3
	Transformer (pad mounted)	60	5	1	8256	64.4	0.0
36	Inverter	64.3	32.8	1	8904	48.7	15.6
	Transformer (pad mounted)	60	5	1	8904	65.0	0.0
37	Inverter	64.3	32.8	1	4495	42.7	21.6
	Transformer (pad mounted)	60	5	1	4495	59.1	0.9
38	Inverter	64.3	32.8	1	5131	43.9	20.4
	Transformer (pad mounted)	60	5	1	5131	60.2	0.0
39	Inverter	64.3	32.8	1	6825	46.4	17.9
	Transformer (pad mounted)	60	5	1	6825	62.7	0.0
40	Inverter	64.3	32.8	1	7112	46.7	17.6
	Transformer (pad mounted)	60	5	1	7112	63.1	0.0
41	Inverter	64.3	32.8	1	7786	47.5	16.8
	Transformer (pad mounted)	60	5	1	7786	63.8	0.0
42	Inverter	64.3	32.8	1	8465	48.2	16.1
	Transformer (pad mounted)	60	5	1	8465	64.6	0.0
43	Inverter	64.3	32.8	1	9098	48.9	15.4
	Transformer (pad mounted)	60	5	1	9098	65.2	0.0
44	Inverter	64.3	32.8	1	9782	49.5	14.8
	Transformer (pad mounted)	60	5	1	9782	65.8	0.0
45	Inverter	64.3	32.8	1	10517	50.1	14.2
	Transformer (pad mounted)	60	5	1	10517	66.5	0.0
ESS	Battery Storage HVAC Module	68	50	50	11765	47.4	37.6
	Stepup Transformer	60	5	50	11765	67.4	9.6
	Power Inverter	77	6	50	11765	65.8	28.1
O&M	HVAC	48	50	1	11219	47.0	1.0
Sub	Stepup Transformer	60	5	2	11219	67.0	0.0
						Total	**41.0**

Scenario: Receiver 3
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
1	Inverter	64.3	32.8	1	7630	47.3	17.0
	Transformer (pad mounted)	60	5	1	7630	63.7	0.0
2	Inverter	64.3	32.8	1	7564	47.3	17.0
	Transformer (pad mounted)	60	5	1	7564	63.6	0.0
3	Inverter	64.3	32.8	1	7480	47.2	17.1
	Transformer (pad mounted)	60	5	1	7480	63.5	0.0
4	Inverter	64.3	32.8	1	7463	47.1	17.2
	Transformer (pad mounted)	60	5	1	7463	63.5	0.0
5	Inverter	64.3	32.8	1	6645	46.1	18.2
	Transformer (pad mounted)	60	5	1	6645	62.5	0.0
6	Inverter	64.3	32.8	1	6471	45.9	18.4
	Transformer (pad mounted)	60	5	1	6471	62.2	0.0
7	Inverter	64.3	32.8	1	6393	45.8	18.5
	Transformer (pad mounted)	60	5	1	6393	62.1	0.0
8	Inverter	64.3	32.8	1	6294	45.7	18.6
	Transformer (pad mounted)	60	5	1	6294	62.0	0.0
9	Inverter	64.3	32.8	1	6273	45.6	18.7
	Transformer (pad mounted)	60	5	1	6273	62.0	0.0
10	Inverter	64.3	32.8	1	6334	45.7	18.6
	Transformer (pad mounted)	60	5	1	6334	62.1	0.0
11	Inverter	64.3	32.8	1	6471	45.9	18.4
	Transformer (pad mounted)	60	5	1	6471	62.2	0.0
12	Inverter	64.3	32.8	1	5189	44.0	20.3
	Transformer (pad mounted)	60	5	1	5189	60.3	0.0
13	Inverter	64.3	32.8	1	4863	43.4	20.9
	Transformer (pad mounted)	60	5	1	4863	59.8	0.2
14	Inverter	64.3	32.8	1	4732	43.2	21.1
	Transformer (pad mounted)	60	5	1	4732	59.5	0.5
15	Inverter	64.3	32.8	1	4704	43.1	21.2
	Transformer (pad mounted)	60	5	1	4704	59.5	0.5
16	Inverter	64.3	32.8	1	4785	43.3	21.0
	Transformer (pad mounted)	60	5	1	4785	59.6	0.4

Scenario: Receiver 3
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
17	Inverter	64.3	32.8	1	4965	43.6	20.7
	Transformer (pad mounted)	60	5	1	4965	59.9	0.1
18	Inverter	64.3	32.8	1	5233	44.1	20.2
	Transformer (pad mounted)	60	5	1	5233	60.4	0.0
19	Inverter	64.3	32.8	1	5576	44.6	19.7
	Transformer (pad mounted)	60	5	1	5576	60.9	0.0
20	Inverter	64.3	32.8	1	4117	42.0	22.3
	Transformer (pad mounted)	60	5	1	4117	58.3	1.7
21	Inverter	64.3	32.8	1	3698	41.0	23.3
	Transformer (pad mounted)	60	5	1	3698	57.4	2.6
22	Inverter	64.3	32.8	1	3486	40.5	23.8
	Transformer (pad mounted)	60	5	1	3486	56.9	3.1
23	Inverter	64.3	32.8	1	3594	40.8	23.5
	Transformer (pad mounted)	60	5	1	3594	57.1	2.9
24	Inverter	64.3	32.8	1	3830	41.3	23.0
	Transformer (pad mounted)	60	5	1	3830	57.7	2.3
25	Inverter	64.3	32.8	1	4171	42.1	22.2
	Transformer (pad mounted)	60	5	1	4171	58.4	1.6
26	Inverter	64.3	32.8	1	4595	42.9	21.4
	Transformer (pad mounted)	60	5	1	4595	59.3	0.7
27	Inverter	64.3	32.8	1	5079	43.8	20.5
	Transformer (pad mounted)	60	5	1	5079	60.1	0.0
28	Inverter	64.3	32.8	1	5454	44.4	19.9
	Transformer (pad mounted)	60	5	1	5454	60.8	0.0
29	Inverter	64.3	32.8	1	2189	36.5	27.8
	Transformer (pad mounted)	60	5	1	2189	52.8	7.2
30	Inverter	64.3	32.8	1	2358	37.1	27.2
	Transformer (pad mounted)	60	5	1	2358	53.5	6.5
31	Inverter	64.3	32.8	1	2704	38.3	26.0
	Transformer (pad mounted)	60	5	1	2704	54.7	5.3
32	Inverter	64.3	32.8	1	3169	39.7	24.6
	Transformer (pad mounted)	60	5	1	3169	56.0	4.0
33	Inverter	64.3	32.8	1	3708	41.1	23.2

Scenario: Receiver 3
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
	Transformer (pad mounted)	60	5	1	3708	57.4	2.6
34	Inverter	64.3	32.8	1	4294	42.3	22.0
	Transformer (pad mounted)	60	5	1	4294	58.7	1.3
35	Inverter	64.3	32.8	1	4910	43.5	20.8
	Transformer (pad mounted)	60	5	1	4910	59.8	0.2
36	Inverter	64.3	32.8	1	5500	44.5	19.8
	Transformer (pad mounted)	60	5	1	5500	60.8	0.0
37	Inverter	64.3	32.8	1	922	29.0	35.3
	Transformer (pad mounted)	60	5	1	922	45.3	14.7
38	Inverter	64.3	32.8	1	1273	31.8	32.5
	Transformer (pad mounted)	60	5	1	1273	48.1	11.9
39	Inverter	64.3	32.8	1	2846	38.8	25.5
	Transformer (pad mounted)	60	5	1	2846	55.1	4.9
40	Inverter	64.3	32.8	1	3132	39.6	24.7
	Transformer (pad mounted)	60	5	1	3132	55.9	4.1
41	Inverter	64.3	32.8	1	3808	41.3	23.0
	Transformer (pad mounted)	60	5	1	3808	57.6	2.4
42	Inverter	64.3	32.8	1	4491	42.7	21.6
	Transformer (pad mounted)	60	5	1	4491	59.1	0.9
43	Inverter	64.3	32.8	1	5130	43.9	20.4
	Transformer (pad mounted)	60	5	1	5130	60.2	0.0
44	Inverter	64.3	32.8	1	5820	45.0	19.3
	Transformer (pad mounted)	60	5	1	5820	61.3	0.0
45	Inverter	64.3	32.8	1	6562	46.0	18.3
	Transformer (pad mounted)	60	5	1	6562	62.4	0.0
ESS	Battery Storage HVAC Module	68	50	50	7398	43.4	41.6
	Stepup Transformer	60	5	50	7398	63.4	13.6
	Power Inverter	77	6	50	7398	61.8	32.2
O&M	HVAC	48	50	1	6872	42.8	5.2
Sub	Stepup Transformer	60	5	2	6872	62.8	0.2
						Total	**44.5**

Scenario: Receiver 4
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
1	Inverter	64.3	32.8	1	6631	46.1	18.2
	Transformer (pad mounted)	60	5	1	6631	62.5	0.0
2	Inverter	64.3	32.8	1	6555	46.0	18.3
	Transformer (pad mounted)	60	5	1	6555	62.4	0.0
3	Inverter	64.3	32.8	1	6458	45.9	18.4
	Transformer (pad mounted)	60	5	1	6458	62.2	0.0
4	Inverter	64.3	32.8	1	6438	45.9	18.4
	Transformer (pad mounted)	60	5	1	6438	62.2	0.0
5	Inverter	64.3	32.8	1	5688	44.8	19.5
	Transformer (pad mounted)	60	5	1	5688	61.1	0.0
6	Inverter	64.3	32.8	1	5484	44.5	19.8
	Transformer (pad mounted)	60	5	1	5484	60.8	0.0
7	Inverter	64.3	32.8	1	5392	44.3	20.0
	Transformer (pad mounted)	60	5	1	5392	60.7	0.0
8	Inverter	64.3	32.8	1	5274	44.1	20.2
	Transformer (pad mounted)	60	5	1	5274	60.5	0.0
9	Inverter	64.3	32.8	1	5249	44.1	20.2
	Transformer (pad mounted)	60	5	1	5249	60.4	0.0
10	Inverter	64.3	32.8	1	5322	44.2	20.1
	Transformer (pad mounted)	60	5	1	5322	60.5	0.0
11	Inverter	64.3	32.8	1	5484	44.5	19.8
	Transformer (pad mounted)	60	5	1	5484	60.8	0.0
12	Inverter	64.3	32.8	1	4283	42.3	22.0
	Transformer (pad mounted)	60	5	1	4283	58.7	1.3
13	Inverter	64.3	32.8	1	3882	41.5	22.8
	Transformer (pad mounted)	60	5	1	3882	57.8	2.2
14	Inverter	64.3	32.8	1	3716	41.1	23.2
	Transformer (pad mounted)	60	5	1	3716	57.4	2.6
15	Inverter	64.3	32.8	1	3680	41.0	23.3
	Transformer (pad mounted)	60	5	1	3680	57.3	2.7
16	Inverter	64.3	32.8	1	3784	41.2	23.1
	Transformer (pad mounted)	60	5	1	3784	57.6	2.4

Scenario: Receiver 4
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
17	Inverter	64.3	32.8	1	4008	41.7	22.6
	Transformer (pad mounted)	60	5	1	4008	58.1	1.9
18	Inverter	64.3	32.8	1	4335	42.4	21.9
	Transformer (pad mounted)	60	5	1	4335	58.8	1.2
19	Inverter	64.3	32.8	1	4744	43.2	21.1
	Transformer (pad mounted)	60	5	1	4744	59.5	0.5
20	Inverter	64.3	32.8	1	3297	40.0	24.3
	Transformer (pad mounted)	60	5	1	3297	56.4	3.6
21	Inverter	64.3	32.8	1	2755	38.5	25.8
	Transformer (pad mounted)	60	5	1	2755	54.8	5.2
22	Inverter	64.3	32.8	1	2463	37.5	26.8
	Transformer (pad mounted)	60	5	1	2463	53.9	6.1
23	Inverter	64.3	32.8	1	2615	38.0	26.3
	Transformer (pad mounted)	60	5	1	2615	54.4	5.6
24	Inverter	64.3	32.8	1	2930	39.0	25.3
	Transformer (pad mounted)	60	5	1	2930	55.4	4.6
25	Inverter	64.3	32.8	1	3364	40.2	24.1
	Transformer (pad mounted)	60	5	1	3364	56.6	3.4
26	Inverter	64.3	32.8	1	3876	41.5	22.8
	Transformer (pad mounted)	60	5	1	3876	57.8	2.2
27	Inverter	64.3	32.8	1	4440	42.6	21.7
	Transformer (pad mounted)	60	5	1	4440	59.0	1.0
28	Inverter	64.3	32.8	1	4865	43.4	20.9
	Transformer (pad mounted)	60	5	1	4865	59.8	0.2
29	Inverter	64.3	32.8	1	1172	31.1	33.2
	Transformer (pad mounted)	60	5	1	1172	47.4	12.6
30	Inverter	64.3	32.8	1	1464	33.0	31.3
	Transformer (pad mounted)	60	5	1	1464	49.3	10.7
31	Inverter	64.3	32.8	1	1973	35.6	28.7
	Transformer (pad mounted)	60	5	1	1973	51.9	8.1
32	Inverter	64.3	32.8	1	2574	37.9	26.4
	Transformer (pad mounted)	60	5	1	2574	54.2	5.8
33	Inverter	64.3	32.8	1	3215	39.8	24.5

Scenario: Receiver 4
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
	Transformer (pad mounted)	60	5	1	3215	56.2	3.8
34	Inverter	64.3	32.8	1	3876	41.5	22.8
	Transformer (pad mounted)	60	5	1	3876	57.8	2.2
35	Inverter	64.3	32.8	1	4549	42.8	21.5
	Transformer (pad mounted)	60	5	1	4549	59.2	0.8
36	Inverter	64.3	32.8	1	5180	44.0	20.3
	Transformer (pad mounted)	60	5	1	5180	60.3	0.0
37	Inverter	64.3	32.8	1	236	17.1	47.2
	Transformer (pad mounted)	60	5	1	236	33.5	26.5
38	Inverter	64.3	32.8	1	909	28.9	35.4
	Transformer (pad mounted)	60	5	1	909	45.2	14.8
39	Inverter	64.3	32.8	1	2703	38.3	26.0
	Transformer (pad mounted)	60	5	1	2703	54.7	5.3
40	Inverter	64.3	32.8	1	3003	39.2	25.1
	Transformer (pad mounted)	60	5	1	3003	55.6	4.4
41	Inverter	64.3	32.8	1	3702	41.1	23.2
	Transformer (pad mounted)	60	5	1	3702	57.4	2.6
42	Inverter	64.3	32.8	1	4402	42.6	21.7
	Transformer (pad mounted)	60	5	1	4402	58.9	1.1
43	Inverter	64.3	32.8	1	5052	43.8	20.5
	Transformer (pad mounted)	60	5	1	5052	60.1	0.0
44	Inverter	64.3	32.8	1	5751	44.9	19.4
	Transformer (pad mounted)	60	5	1	5751	61.2	0.0
45	Inverter	64.3	32.8	1	6501	45.9	18.4
	Transformer (pad mounted)	60	5	1	6501	62.3	0.0
ESS	Battery Storage HVAC Module	68	50	50	7571	43.6	41.4
	Stepup Transformer	60	5	50	7571	63.6	13.4
	Power Inverter	77	6	50	7571	62.0	32.0
O&M	HVAC	48	50	1	7029	43.0	5.0
Sub	Stepup Transformer	60	5	2	7029	63.0	0.1
						Total	**49.2**

Scenario: Receiver 5
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
1	Inverter	64.3	32.8	1	5109	43.8	20.5
	Transformer (pad mounted)	60	5	1	5109	60.2	0.0
2	Inverter	64.3	32.8	1	4410	42.6	21.7
	Transformer (pad mounted)	60	5	1	4410	58.9	1.1
3	Inverter	64.3	32.8	1	2915	39.0	25.3
	Transformer (pad mounted)	60	5	1	2915	55.3	4.7
4	Inverter	64.3	32.8	1	2220	36.6	27.7
	Transformer (pad mounted)	60	5	1	2220	52.9	7.1
5	Inverter	64.3	32.8	1	1530	33.4	30.9
	Transformer (pad mounted)	60	5	1	1530	49.7	10.3
6	Inverter	64.3	32.8	1	4665	43.1	21.2
	Transformer (pad mounted)	60	5	1	4665	59.4	0.6
7	Inverter	64.3	32.8	1	4012	41.7	22.6
	Transformer (pad mounted)	60	5	1	4012	58.1	1.9
8	Inverter	64.3	32.8	1	3020	39.3	25.0
	Transformer (pad mounted)	60	5	1	3020	55.6	4.4
9	Inverter	64.3	32.8	1	3034	39.3	25.0
	Transformer (pad mounted)	60	5	1	3034	55.7	4.3
10	Inverter	64.3	32.8	1	3132	39.6	24.7
	Transformer (pad mounted)	60	5	1	3132	55.9	4.1
11	Inverter	64.3	32.8	1	3400	40.3	24.0
	Transformer (pad mounted)	60	5	1	3400	56.7	3.3
12	Inverter	64.3	32.8	1	3780	41.2	23.1
	Transformer (pad mounted)	60	5	1	3780	57.6	2.4
13	Inverter	64.3	32.8	1	4243	42.2	22.1
	Transformer (pad mounted)	60	5	1	4243	58.6	1.4
14	Inverter	64.3	32.8	1	4802	43.3	21.0
	Transformer (pad mounted)	60	5	1	4802	59.6	0.4
15	Inverter	64.3	32.8	1	4426	42.6	21.7
	Transformer (pad mounted)	60	5	1	4426	58.9	1.1
16	Inverter	64.3	32.8	1	4314	42.4	21.9
	Transformer (pad mounted)	60	5	1	4314	58.7	1.3

Scenario: Receiver 5
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
17	Inverter	64.3	32.8	1	4393	42.5	21.8
	Transformer (pad mounted)	60	5	1	4393	58.9	1.1
18	Inverter	64.3	32.8	1	4588	42.9	21.4
	Transformer (pad mounted)	60	5	1	4588	59.3	0.7
19	Inverter	64.3	32.8	1	4876	43.4	20.9
	Transformer (pad mounted)	60	5	1	4876	59.8	0.2
20	Inverter	64.3	32.8	1	5243	44.1	20.2
	Transformer (pad mounted)	60	5	1	5243	60.4	0.0
21	Inverter	64.3	32.8	1	5705	44.8	19.5
	Transformer (pad mounted)	60	5	1	5705	61.1	0.0
22	Inverter	64.3	32.8	1	5698	44.8	19.5
	Transformer (pad mounted)	60	5	1	5698	61.1	0.0
23	Inverter	64.3	32.8	1	5611	44.7	19.6
	Transformer (pad mounted)	60	5	1	5611	61.0	0.0
24	Inverter	64.3	32.8	1	5672	44.8	19.5
	Transformer (pad mounted)	60	5	1	5672	61.1	0.0
25	Inverter	64.3	32.8	1	5824	45.0	19.3
	Transformer (pad mounted)	60	5	1	5824	61.3	0.0
26	Inverter	64.3	32.8	1	6054	45.3	19.0
	Transformer (pad mounted)	60	5	1	6054	61.7	0.0
27	Inverter	64.3	32.8	1	6353	45.7	18.6
	Transformer (pad mounted)	60	5	1	6353	62.1	0.0
28	Inverter	64.3	32.8	1	6740	46.3	18.0
	Transformer (pad mounted)	60	5	1	6740	62.6	0.0
29	Inverter	64.3	32.8	1	6831	46.4	17.9
	Transformer (pad mounted)	60	5	1	6831	62.7	0.0
30	Inverter	64.3	32.8	1	6759	46.3	18.0
	Transformer (pad mounted)	60	5	1	6759	62.6	0.0
31	Inverter	64.3	32.8	1	6810	46.3	18.0
	Transformer (pad mounted)	60	5	1	6810	62.7	0.0
32	Inverter	64.3	32.8	1	7131	46.7	17.6
	Transformer (pad mounted)	60	5	1	7131	63.1	0.0
33	Inverter	64.3	32.8	1	7387	47.1	17.2

Scenario: Receiver 5
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
	Transformer (pad mounted)	60	5	1	7387	63.4	0.0
34	Inverter	64.3	32.8	1	7722	47.4	16.9
	Transformer (pad mounted)	60	5	1	7722	63.8	0.0
ESS	Battery Storage HVAC Module	68	50	50	9158	45.3	39.7
	Stepup Transformer	60	5	50	9158	65.3	11.7
	Power Inverter	77	6	50	9158	63.7	30.3
O&M	HVAC	48	50	1	9702	45.8	2.2
Sub	Stepup Transformer	60	5	2	9702	65.8	0.0
						Total	**42.2**

Scenario: Receiver 6
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
1	Inverter	64.3	32.8	1	5753	44.9	19.4
	Transformer (pad mounted)	60	5	1	5753	61.2	0.0
2	Inverter	64.3	32.8	1	5054	43.8	20.5
	Transformer (pad mounted)	60	5	1	5054	60.1	0.0
3	Inverter	64.3	32.8	1	3556	40.7	23.6
	Transformer (pad mounted)	60	5	1	3556	57.0	3.0
4	Inverter	64.3	32.8	1	2857	38.8	25.5
	Transformer (pad mounted)	60	5	1	2857	55.1	4.9
5	Inverter	64.3	32.8	1	2159	36.4	27.9
	Transformer (pad mounted)	60	5	1	2159	52.7	7.3
6	Inverter	64.3	32.8	1	5158	43.9	20.4
	Transformer (pad mounted)	60	5	1	5158	60.3	0.0
7	Inverter	64.3	32.8	1	4475	42.7	21.6
	Transformer (pad mounted)	60	5	1	4475	59.0	1.0
8	Inverter	64.3	32.8	1	2693	38.3	26.0
	Transformer (pad mounted)	60	5	1	2693	54.6	5.4
9	Inverter	64.3	32.8	1	2508	37.7	26.6
	Transformer (pad mounted)	60	5	1	2508	54.0	6.0
10	Inverter	64.3	32.8	1	2512	37.7	26.6
	Transformer (pad mounted)	60	5	1	2512	54.0	6.0
11	Inverter	64.3	32.8	1	2674	38.2	26.1
	Transformer (pad mounted)	60	5	1	2674	54.6	5.4
12	Inverter	64.3	32.8	1	2995	39.2	25.1
	Transformer (pad mounted)	60	5	1	2995	55.5	4.5
13	Inverter	64.3	32.8	1	3431	40.4	23.9
	Transformer (pad mounted)	60	5	1	3431	56.7	3.3
14	Inverter	64.3	32.8	1	3982	41.7	22.6
	Transformer (pad mounted)	60	5	1	3982	58.0	2.0
15	Inverter	64.3	32.8	1	4163	42.1	22.2
	Transformer (pad mounted)	60	5	1	4163	58.4	1.6
16	Inverter	64.3	32.8	1	3929	41.6	22.7
	Transformer (pad mounted)	60	5	1	3929	57.9	2.1

Scenario: Receiver 6
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
17	Inverter	64.3	32.8	1	3808	41.3	23.0
	Transformer (pad mounted)	60	5	1	3808	57.6	2.4
18	Inverter	64.3	32.8	1	3917	41.5	22.8
	Transformer (pad mounted)	60	5	1	3917	57.9	2.1
19	Inverter	64.3	32.8	1	4143	42.0	22.3
	Transformer (pad mounted)	60	5	1	4143	58.4	1.6
20	Inverter	64.3	32.8	1	4468	42.7	21.6
	Transformer (pad mounted)	60	5	1	4468	59.0	1.0
21	Inverter	64.3	32.8	1	4904	43.5	20.8
	Transformer (pad mounted)	60	5	1	4904	59.8	0.2
22	Inverter	64.3	32.8	1	5376	44.3	20.0
	Transformer (pad mounted)	60	5	1	5376	60.6	0.0
23	Inverter	64.3	32.8	1	5197	44.0	20.3
	Transformer (pad mounted)	60	5	1	5197	60.3	0.0
24	Inverter	64.3	32.8	1	5106	43.8	20.5
	Transformer (pad mounted)	60	5	1	5106	60.2	0.0
25	Inverter	64.3	32.8	1	5188	44.0	20.3
	Transformer (pad mounted)	60	5	1	5188	60.3	0.0
26	Inverter	64.3	32.8	1	5360	44.3	20.0
	Transformer (pad mounted)	60	5	1	5360	60.6	0.0
27	Inverter	64.3	32.8	1	5615	44.7	19.6
	Transformer (pad mounted)	60	5	1	5615	61.0	0.0
28	Inverter	64.3	32.8	1	5968	45.2	19.1
	Transformer (pad mounted)	60	5	1	5968	61.5	0.0
29	Inverter	64.3	32.8	1	6477	45.9	18.4
	Transformer (pad mounted)	60	5	1	6477	62.2	0.0
30	Inverter	64.3	32.8	1	6329	45.7	18.6
	Transformer (pad mounted)	60	5	1	6329	62.0	0.0
31	Inverter	64.3	32.8	1	6255	45.6	18.7
	Transformer (pad mounted)	60	5	1	6255	61.9	0.0
32	Inverter	64.3	32.8	1	6464	45.9	18.4
	Transformer (pad mounted)	60	5	1	6464	62.2	0.0
33	Inverter	64.3	32.8	1	6677	46.2	18.1

Scenario: Receiver 6
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
	Transformer (pad mounted)	60	5	1	6677	62.5	0.0
34	Inverter	64.3	32.8	1	6977	46.6	17.7
	Transformer (pad mounted)	60	5	1	6977	62.9	0.0
ESS	Battery Storage HVAC Module	68	50	50	9915	45.9	39.0
	Stepup Transformer	60	5	50	9915	65.9	11.0
	Power Inverter	77	6	50	9915	64.4	29.6
O&M	HVAC	48	50	1	10460	46.4	1.6
Sub	Stepup Transformer	60	5	2	10460	66.4	0.0
						Total	**41.9**

Scenario: Receiver 7
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
1	Inverter	64.3	32.8	1	6668	46.2	18.1
	Transformer (pad mounted)	60	5	1	6668	62.5	0.0
2	Inverter	64.3	32.8	1	5976	45.2	19.1
	Transformer (pad mounted)	60	5	1	5976	61.5	0.0
3	Inverter	64.3	32.8	1	4501	42.7	21.6
	Transformer (pad mounted)	60	5	1	4501	59.1	0.9
4	Inverter	64.3	32.8	1	3820	41.3	23.0
	Transformer (pad mounted)	60	5	1	3820	57.7	2.3
5	Inverter	64.3	32.8	1	3147	39.6	24.7
	Transformer (pad mounted)	60	5	1	3147	56.0	4.0
6	Inverter	64.3	32.8	1	5908	45.1	19.2
	Transformer (pad mounted)	60	5	1	5908	61.4	0.0
7	Inverter	64.3	32.8	1	5209	44.0	20.3
	Transformer (pad mounted)	60	5	1	5209	60.4	0.0
8	Inverter	64.3	32.8	1	2547	37.8	26.5
	Transformer (pad mounted)	60	5	1	2547	54.1	5.9
9	Inverter	64.3	32.8	1	2041	35.9	28.4
	Transformer (pad mounted)	60	5	1	2041	52.2	7.8
10	Inverter	64.3	32.8	1	1850	35.0	29.3
	Transformer (pad mounted)	60	5	1	1850	51.4	8.6
11	Inverter	64.3	32.8	1	1753	34.6	29.7
	Transformer (pad mounted)	60	5	1	1753	50.9	9.1
12	Inverter	64.3	32.8	1	1924	35.4	28.9
	Transformer (pad mounted)	60	5	1	1924	51.7	8.3
13	Inverter	64.3	32.8	1	2305	36.9	27.4
	Transformer (pad mounted)	60	5	1	2305	53.3	6.7
14	Inverter	64.3	32.8	1	2850	38.8	25.5
	Transformer (pad mounted)	60	5	1	2850	55.1	4.9
15	Inverter	64.3	32.8	1	3976	41.7	22.6
	Transformer (pad mounted)	60	5	1	3976	58.0	2.0
16	Inverter	64.3	32.8	1	3567	40.7	23.6
	Transformer (pad mounted)	60	5	1	3567	57.1	2.9

Scenario: Receiver 7
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
17	Inverter	64.3	32.8	1	3108	39.5	24.8
	Transformer (pad mounted)	60	5	1	3108	55.9	4.1
18	Inverter	64.3	32.8	1	3052	39.4	24.9
	Transformer (pad mounted)	60	5	1	3052	55.7	4.3
19	Inverter	64.3	32.8	1	3153	39.7	24.6
	Transformer (pad mounted)	60	5	1	3153	56.0	4.0
20	Inverter	64.3	32.8	1	3399	40.3	24.0
	Transformer (pad mounted)	60	5	1	3399	56.6	3.4
21	Inverter	64.3	32.8	1	3790	41.3	23.0
	Transformer (pad mounted)	60	5	1	3790	57.6	2.4
22	Inverter	64.3	32.8	1	5042	43.7	20.6
	Transformer (pad mounted)	60	5	1	5042	60.1	0.0
23	Inverter	64.3	32.8	1	4727	43.2	21.1
	Transformer (pad mounted)	60	5	1	4727	59.5	0.5
24	Inverter	64.3	32.8	1	4391	42.5	21.8
	Transformer (pad mounted)	60	5	1	4391	58.9	1.1
25	Inverter	64.3	32.8	1	4351	42.5	21.8
	Transformer (pad mounted)	60	5	1	4351	58.8	1.2
26	Inverter	64.3	32.8	1	4423	42.6	21.7
	Transformer (pad mounted)	60	5	1	4423	58.9	1.1
27	Inverter	64.3	32.8	1	4601	42.9	21.4
	Transformer (pad mounted)	60	5	1	4601	59.3	0.7
28	Inverter	64.3	32.8	1	4897	43.5	20.8
	Transformer (pad mounted)	60	5	1	4897	59.8	0.2
29	Inverter	64.3	32.8	1	6062	45.3	19.0
	Transformer (pad mounted)	60	5	1	6062	61.7	0.0
30	Inverter	64.3	32.8	1	5803	45.0	19.3
	Transformer (pad mounted)	60	5	1	5803	61.3	0.0
31	Inverter	64.3	32.8	1	5533	44.5	19.8
	Transformer (pad mounted)	60	5	1	5533	60.9	0.0
32	Inverter	64.3	32.8	1	5558	44.6	19.7
	Transformer (pad mounted)	60	5	1	5558	60.9	0.0
33	Inverter	64.3	32.8	1	5701	44.8	19.5

Scenario: Receiver 7
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
	Transformer (pad mounted)	60	5	1	5701	61.1	0.0
34	Inverter	64.3	32.8	1	5942	45.2	19.1
	Transformer (pad mounted)	60	5	1	5942	61.5	0.0
ESS	Battery Storage HVAC Module	68	50	50	10948	46.8	38.2
	Stepup Transformer	60	5	50	10948	66.8	10.2
	Power Inverter	77	6	50	10948	65.2	28.8
O&M	HVAC	48	50	1	11495	47.2	0.8
Sub	Stepup Transformer	60	5	2	11495	67.2	0.0
						Total	**42.1**

Scenario: Receiver 8
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
1	Inverter	64.3	32.8	1	8965	48.7	15.6
	Transformer (pad mounted)	60	5	1	8965	65.1	0.0
2	Inverter	64.3	32.8	1	8273	48.0	16.3
	Transformer (pad mounted)	60	5	1	8273	64.4	0.0
3	Inverter	64.3	32.8	1	6796	46.3	18.0
	Transformer (pad mounted)	60	5	1	6796	62.7	0.0
4	Inverter	64.3	32.8	1	6110	45.4	18.9
	Transformer (pad mounted)	60	5	1	6110	61.7	0.0
5	Inverter	64.3	32.8	1	5428	44.4	19.9
	Transformer (pad mounted)	60	5	1	5428	60.7	0.0
6	Inverter	64.3	32.8	1	8170	47.9	16.4
	Transformer (pad mounted)	60	5	1	8170	64.3	0.0
7	Inverter	64.3	32.8	1	7470	47.1	17.2
	Transformer (pad mounted)	60	5	1	7470	63.5	0.0
8	Inverter	64.3	32.8	1	4351	42.5	21.8
	Transformer (pad mounted)	60	5	1	4351	58.8	1.2
9	Inverter	64.3	32.8	1	3603	40.8	23.5
	Transformer (pad mounted)	60	5	1	3603	57.2	2.8
10	Inverter	64.3	32.8	1	3193	39.8	24.5
	Transformer (pad mounted)	60	5	1	3193	56.1	3.9
11	Inverter	64.3	32.8	1	2582	37.9	26.4
	Transformer (pad mounted)	60	5	1	2582	54.3	5.7
12	Inverter	64.3	32.8	1	2030	35.8	28.5
	Transformer (pad mounted)	60	5	1	2030	52.2	7.8
13	Inverter	64.3	32.8	1	1598	33.8	30.5
	Transformer (pad mounted)	60	5	1	1598	50.1	9.9
14	Inverter	64.3	32.8	1	1400	32.6	31.7
	Transformer (pad mounted)	60	5	1	1400	48.9	11.1
15	Inverter	64.3	32.8	1	5525	44.5	19.8
	Transformer (pad mounted)	60	5	1	5525	60.9	0.0
16	Inverter	64.3	32.8	1	4926	43.5	20.8
	Transformer (pad mounted)	60	5	1	4926	59.9	0.1

Scenario: Receiver 8
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
17	Inverter	64.3	32.8	1	3940	41.6	22.7
	Transformer (pad mounted)	60	5	1	3940	57.9	2.1
18	Inverter	64.3	32.8	1	3464	40.5	23.8
	Transformer (pad mounted)	60	5	1	3464	56.8	3.2
19	Inverter	64.3	32.8	1	3074	39.4	24.9
	Transformer (pad mounted)	60	5	1	3074	55.8	4.2
20	Inverter	64.3	32.8	1	2808	38.6	25.7
	Transformer (pad mounted)	60	5	1	2808	55.0	5.0
21	Inverter	64.3	32.8	1	2700	38.3	26.0
	Transformer (pad mounted)	60	5	1	2700	54.6	5.4
22	Inverter	64.3	32.8	1	6264	45.6	18.7
	Transformer (pad mounted)	60	5	1	6264	62.0	0.0
23	Inverter	64.3	32.8	1	5742	44.9	19.4
	Transformer (pad mounted)	60	5	1	5742	61.2	0.0
24	Inverter	64.3	32.8	1	4923	43.5	20.8
	Transformer (pad mounted)	60	5	1	4923	59.9	0.1
25	Inverter	64.3	32.8	1	4551	42.8	21.5
	Transformer (pad mounted)	60	5	1	4551	59.2	0.8
26	Inverter	64.3	32.8	1	4262	42.3	22.0
	Transformer (pad mounted)	60	5	1	4262	58.6	1.4
27	Inverter	64.3	32.8	1	4073	41.9	22.4
	Transformer (pad mounted)	60	5	1	4073	58.2	1.8
28	Inverter	64.3	32.8	1	4000	41.7	22.6
	Transformer (pad mounted)	60	5	1	4000	58.1	1.9
29	Inverter	64.3	32.8	1	7054	46.7	17.6
	Transformer (pad mounted)	60	5	1	7054	63.0	0.0
30	Inverter	64.3	32.8	1	6595	46.1	18.2
	Transformer (pad mounted)	60	5	1	6595	62.4	0.0
31	Inverter	64.3	32.8	1	5896	45.1	19.2
	Transformer (pad mounted)	60	5	1	5896	61.4	0.0
32	Inverter	64.3	32.8	1	5356	44.3	20.0
	Transformer (pad mounted)	60	5	1	5356	60.6	0.0
33	Inverter	64.3	32.8	1	5207	44.0	20.3

Scenario: Receiver 8
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
	Transformer (pad mounted)	60	5	1	5207	60.4	0.0
34	Inverter	64.3	32.8	1	5150	43.9	20.4
	Transformer (pad mounted)	60	5	1	5150	60.3	0.0
ESS	Battery Storage HVAC Module	68	50	50	13218	48.4	36.5
	Stepup Transformer	60	5	50	13218	68.4	8.5
	Power Inverter	77	6	50	13218	66.9	27.1
O&M	HVAC	48	50	1	13764	48.8	0.0
Sub	Stepup Transformer	60	5	2	13764	68.8	0.0
						Total	**41.2**

Scenario: Receiver 9
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
1	Inverter	64.3	32.8	1	9316	49.1	15.2
	Transformer (pad mounted)	60	5	1	9316	65.4	0.0
2	Inverter	64.3	32.8	1	8629	48.4	15.9
	Transformer (pad mounted)	60	5	1	8629	64.7	0.0
3	Inverter	64.3	32.8	1	7167	46.8	17.5
	Transformer (pad mounted)	60	5	1	7167	63.1	0.0
4	Inverter	64.3	32.8	1	6490	45.9	18.4
	Transformer (pad mounted)	60	5	1	6490	62.3	0.0
5	Inverter	64.3	32.8	1	5819	45.0	19.3
	Transformer (pad mounted)	60	5	1	5819	61.3	0.0
6	Inverter	64.3	32.8	1	8465	48.2	16.1
	Transformer (pad mounted)	60	5	1	8465	64.6	0.0
7	Inverter	64.3	32.8	1	7766	47.5	16.8
	Transformer (pad mounted)	60	5	1	7766	63.8	0.0
8	Inverter	64.3	32.8	1	4501	42.7	21.6
	Transformer (pad mounted)	60	5	1	4501	59.1	0.9
9	Inverter	64.3	32.8	1	3723	41.1	23.2
	Transformer (pad mounted)	60	5	1	3723	57.4	2.6
10	Inverter	64.3	32.8	1	3290	40.0	24.3
	Transformer (pad mounted)	60	5	1	3290	56.4	3.6
11	Inverter	64.3	32.8	1	2628	38.1	26.2
	Transformer (pad mounted)	60	5	1	2628	54.4	5.6
12	Inverter	64.3	32.8	1	1991	35.7	28.6
	Transformer (pad mounted)	60	5	1	1991	52.0	8.0
13	Inverter	64.3	32.8	1	1416	32.7	31.6
	Transformer (pad mounted)	60	5	1	1416	49.0	11.0
14	Inverter	64.3	32.8	1	996	29.6	34.7
	Transformer (pad mounted)	60	5	1	996	46.0	14.0
15	Inverter	64.3	32.8	1	5574	44.6	19.7
	Transformer (pad mounted)	60	5	1	5574	60.9	0.0
16	Inverter	64.3	32.8	1	4942	43.6	20.7
	Transformer (pad mounted)	60	5	1	4942	59.9	0.1

Scenario: Receiver 9
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
17	Inverter	64.3	32.8	1	3871	41.4	22.9
	Transformer (pad mounted)	60	5	1	3871	57.8	2.2
18	Inverter	64.3	32.8	1	3326	40.1	24.2
	Transformer (pad mounted)	60	5	1	3326	56.5	3.5
19	Inverter	64.3	32.8	1	2850	38.8	25.5
	Transformer (pad mounted)	60	5	1	2850	55.1	4.9
20	Inverter	64.3	32.8	1	2483	37.6	26.7
	Transformer (pad mounted)	60	5	1	2483	53.9	6.1
21	Inverter	64.3	32.8	1	2270	36.8	27.5
	Transformer (pad mounted)	60	5	1	2270	53.1	6.9
22	Inverter	64.3	32.8	1	6214	45.5	18.8
	Transformer (pad mounted)	60	5	1	6214	61.9	0.0
23	Inverter	64.3	32.8	1	5654	44.7	19.6
	Transformer (pad mounted)	60	5	1	5654	61.1	0.0
24	Inverter	64.3	32.8	1	4746	43.2	21.1
	Transformer (pad mounted)	60	5	1	4746	59.5	0.5
25	Inverter	64.3	32.8	1	4313	42.4	21.9
	Transformer (pad mounted)	60	5	1	4313	58.7	1.3
26	Inverter	64.3	32.8	1	3958	41.6	22.7
	Transformer (pad mounted)	60	5	1	3958	58.0	2.0
27	Inverter	64.3	32.8	1	3702	41.1	23.2
	Transformer (pad mounted)	60	5	1	3702	57.4	2.6
28	Inverter	64.3	32.8	1	3563	40.7	23.6
	Transformer (pad mounted)	60	5	1	3563	57.1	2.9
29	Inverter	64.3	32.8	1	6935	46.5	17.8
	Transformer (pad mounted)	60	5	1	6935	62.8	0.0
30	Inverter	64.3	32.8	1	6438	45.9	18.4
	Transformer (pad mounted)	60	5	1	6438	62.2	0.0
31	Inverter	64.3	32.8	1	5658	44.7	19.6
	Transformer (pad mounted)	60	5	1	5658	61.1	0.0
32	Inverter	64.3	32.8	1	5015	43.7	20.6
	Transformer (pad mounted)	60	5	1	5015	60.0	0.0
33	Inverter	64.3	32.8	1	4816	43.3	21.0

Scenario: Receiver 9
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
	Transformer (pad mounted)	60	5	1	4816	59.7	0.3
34	Inverter	64.3	32.8	1	4710	43.1	21.2
	Transformer (pad mounted)	60	5	1	4710	59.5	0.5
ESS	Battery Storage HVAC Module	68	50	50	13620	48.7	36.3
	Stepup Transformer	60	5	50	13620	68.7	8.3
	Power Inverter	77	6	50	13620	67.1	26.9
O&M	HVAC	48	50	1	14167	49.0	0.0
Sub	Stepup Transformer	60	5	2	14167	69.0	0.0
						Total	**41.8**

Scenario: Receiver 10
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
1	Inverter	64.3	32.8	1	12802	51.8	12.5
	Transformer (pad mounted)	60	5	1	12802	68.2	0.0
2	Inverter	64.3	32.8	1	12328	51.5	12.8
	Transformer (pad mounted)	60	5	1	12328	67.8	0.0
3	Inverter	64.3	32.8	1	11392	50.8	13.5
	Transformer (pad mounted)	60	5	1	11392	67.2	0.0
4	Inverter	64.3	32.8	1	10998	50.5	13.8
	Transformer (pad mounted)	60	5	1	10998	66.8	0.0
5	Inverter	64.3	32.8	1	10636	50.2	14.1
	Transformer (pad mounted)	60	5	1	10636	66.6	0.0
6	Inverter	64.3	32.8	1	11420	50.8	13.5
	Transformer (pad mounted)	60	5	1	11420	67.2	0.0
7	Inverter	64.3	32.8	1	10932	50.5	13.8
	Transformer (pad mounted)	60	5	1	10932	66.8	0.0
8	Inverter	64.3	32.8	1	7727	47.4	16.9
	Transformer (pad mounted)	60	5	1	7727	63.8	0.0
9	Inverter	64.3	32.8	1	7334	47.0	17.3
	Transformer (pad mounted)	60	5	1	7334	63.3	0.0
10	Inverter	64.3	32.8	1	7143	46.8	17.5
	Transformer (pad mounted)	60	5	1	7143	63.1	0.0
11	Inverter	64.3	32.8	1	6894	46.5	17.8
	Transformer (pad mounted)	60	5	1	6894	62.8	0.0
12	Inverter	64.3	32.8	1	6709	46.2	18.1
	Transformer (pad mounted)	60	5	1	6709	62.6	0.0
13	Inverter	64.3	32.8	1	6593	46.1	18.2
	Transformer (pad mounted)	60	5	1	6593	62.4	0.0
14	Inverter	64.3	32.8	1	6550	46.0	18.3
	Transformer (pad mounted)	60	5	1	6550	62.3	0.0
15	Inverter	64.3	32.8	1	7114	46.7	17.6
	Transformer (pad mounted)	60	5	1	7114	63.1	0.0
16	Inverter	64.3	32.8	1	6661	46.2	18.1
	Transformer (pad mounted)	60	5	1	6661	62.5	0.0

Scenario: Receiver 10
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
17	Inverter	64.3	32.8	1	5974	45.2	19.1
	Transformer (pad mounted)	60	5	1	5974	61.5	0.0
18	Inverter	64.3	32.8	1	5673	44.8	19.5
	Transformer (pad mounted)	60	5	1	5673	61.1	0.0
19	Inverter	64.3	32.8	1	5447	44.4	19.9
	Transformer (pad mounted)	60	5	1	5447	60.7	0.0
20	Inverter	64.3	32.8	1	5303	44.2	20.1
	Transformer (pad mounted)	60	5	1	5303	60.5	0.0
21	Inverter	64.3	32.8	1	5250	44.1	20.2
	Transformer (pad mounted)	60	5	1	5250	60.4	0.0
22	Inverter	64.3	32.8	1	6216	45.6	18.7
	Transformer (pad mounted)	60	5	1	6216	61.9	0.0
23	Inverter	64.3	32.8	1	5693	44.8	19.5
	Transformer (pad mounted)	60	5	1	5693	61.1	0.0
24	Inverter	64.3	32.8	1	4871	43.4	20.9
	Transformer (pad mounted)	60	5	1	4871	59.8	0.2
25	Inverter	64.3	32.8	1	4497	42.7	21.6
	Transformer (pad mounted)	60	5	1	4497	59.1	0.9
26	Inverter	64.3	32.8	1	4208	42.2	22.1
	Transformer (pad mounted)	60	5	1	4208	58.5	1.5
27	Inverter	64.3	32.8	1	4021	41.8	22.5
	Transformer (pad mounted)	60	5	1	4021	58.1	1.9
28	Inverter	64.3	32.8	1	3950	41.6	22.7
	Transformer (pad mounted)	60	5	1	3950	58.0	2.0
29	Inverter	64.3	32.8	1	5557	44.6	19.7
	Transformer (pad mounted)	60	5	1	5557	60.9	0.0
30	Inverter	64.3	32.8	1	4965	43.6	20.7
	Transformer (pad mounted)	60	5	1	4965	59.9	0.1
31	Inverter	64.3	32.8	1	3995	41.7	22.6
	Transformer (pad mounted)	60	5	1	3995	58.1	1.9
32	Inverter	64.3	32.8	1	3153	39.7	24.6
	Transformer (pad mounted)	60	5	1	3153	56.0	4.0
33	Inverter	64.3	32.8	1	2899	38.9	25.4

Scenario: Receiver 10
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
	Transformer (pad mounted)	60	5	1	2899	55.3	4.7
34	Inverter	64.3	32.8	1	2800	38.6	25.7
	Transformer (pad mounted)	60	5	1	2800	55.0	5.0
ESS	Battery Storage HVAC Module	68	50	50	17258	50.8	34.2
	Stepup Transformer	60	5	50	17258	70.8	6.2
	Power Inverter	77	6	50	17258	69.2	24.8
O&M	HVAC	48	50	1	17769	51.0	0.0
Sub	Stepup Transformer	60	5	2	17769	71.0	0.0
						Total	**38.1**

Scenario: Receiver 11
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
1	Inverter	64.3	32.8	1	12230	51.4	12.9
	Transformer (pad mounted)	60	5	1	12230	67.8	0.0
2	Inverter	64.3	32.8	1	11784	51.1	13.2
	Transformer (pad mounted)	60	5	1	11784	67.4	0.0
3	Inverter	64.3	32.8	1	10918	50.4	13.9
	Transformer (pad mounted)	60	5	1	10918	66.8	0.0
4	Inverter	64.3	32.8	1	10563	50.2	14.1
	Transformer (pad mounted)	60	5	1	10563	66.5	0.0
5	Inverter	64.3	32.8	1	10243	49.9	14.4
	Transformer (pad mounted)	60	5	1	10243	66.2	0.0
6	Inverter	64.3	32.8	1	10830	50.4	13.9
	Transformer (pad mounted)	60	5	1	10830	66.7	0.0
7	Inverter	64.3	32.8	1	10371	50.0	14.3
	Transformer (pad mounted)	60	5	1	10371	66.3	0.0
8	Inverter	64.3	32.8	1	7312	47.0	17.3
	Transformer (pad mounted)	60	5	1	7312	63.3	0.0
9	Inverter	64.3	32.8	1	6993	46.6	17.7
	Transformer (pad mounted)	60	5	1	6993	62.9	0.0
10	Inverter	64.3	32.8	1	6849	46.4	17.9
	Transformer (pad mounted)	60	5	1	6849	62.7	0.0
11	Inverter	64.3	32.8	1	6678	46.2	18.1
	Transformer (pad mounted)	60	5	1	6678	62.5	0.0
12	Inverter	64.3	32.8	1	6577	46.0	18.3
	Transformer (pad mounted)	60	5	1	6577	62.4	0.0
13	Inverter	64.3	32.8	1	6551	46.0	18.3
	Transformer (pad mounted)	60	5	1	6551	62.3	0.0
14	Inverter	64.3	32.8	1	6605	46.1	18.2
	Transformer (pad mounted)	60	5	1	6605	62.4	0.0
15	Inverter	64.3	32.8	1	6570	46.0	18.3
	Transformer (pad mounted)	60	5	1	6570	62.4	0.0
16	Inverter	64.3	32.8	1	6175	45.5	18.8
	Transformer (pad mounted)	60	5	1	6175	61.8	0.0

Scenario: Receiver 11
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
17	Inverter	64.3	32.8	1	5618	44.7	19.6
	Transformer (pad mounted)	60	5	1	5618	61.0	0.0
18	Inverter	64.3	32.8	1	5409	44.3	20.0
	Transformer (pad mounted)	60	5	1	5409	60.7	0.0
19	Inverter	64.3	32.8	1	5284	44.1	20.2
	Transformer (pad mounted)	60	5	1	5284	60.5	0.0
20	Inverter	64.3	32.8	1	5251	44.1	20.2
	Transformer (pad mounted)	60	5	1	5251	60.4	0.0
21	Inverter	64.3	32.8	1	5318	44.2	20.1
	Transformer (pad mounted)	60	5	1	5318	60.5	0.0
22	Inverter	64.3	32.8	1	5586	44.6	19.7
	Transformer (pad mounted)	60	5	1	5586	61.0	0.0
23	Inverter	64.3	32.8	1	5115	43.9	20.4
	Transformer (pad mounted)	60	5	1	5115	60.2	0.0
24	Inverter	64.3	32.8	1	4427	42.6	21.7
	Transformer (pad mounted)	60	5	1	4427	58.9	1.1
25	Inverter	64.3	32.8	1	4158	42.1	22.2
	Transformer (pad mounted)	60	5	1	4158	58.4	1.6
26	Inverter	64.3	32.8	1	3995	41.7	22.6
	Transformer (pad mounted)	60	5	1	3995	58.1	1.9
27	Inverter	64.3	32.8	1	3951	41.6	22.7
	Transformer (pad mounted)	60	5	1	3951	58.0	2.0
28	Inverter	64.3	32.8	1	4040	41.8	22.5
	Transformer (pad mounted)	60	5	1	4040	58.1	1.9
29	Inverter	64.3	32.8	1	4842	43.4	20.9
	Transformer (pad mounted)	60	5	1	4842	59.7	0.3
30	Inverter	64.3	32.8	1	4290	42.3	22.0
	Transformer (pad mounted)	60	5	1	4290	58.7	1.3
31	Inverter	64.3	32.8	1	3441	40.4	23.9
	Transformer (pad mounted)	60	5	1	3441	56.8	3.2
32	Inverter	64.3	32.8	1	2864	38.8	25.5
	Transformer (pad mounted)	60	5	1	2864	55.2	4.8
33	Inverter	64.3	32.8	1	2802	38.6	25.7

Scenario: Receiver 11
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
	Transformer (pad mounted)	60	5	1	2802	55.0	5.0
34	Inverter	64.3	32.8	1	2926	39.0	25.3
	Transformer (pad mounted)	60	5	1	2926	55.3	4.7
ESS	Battery Storage HVAC Module	68	50	50	16645	50.4	34.5
	Stepup Transformer	60	5	50	16645	70.4	6.5
	Power Inverter	77	6	50	16645	68.9	25.1
O&M	HVAC	48	50	1	17149	50.7	0.0
Sub	Stepup Transformer	60	5	2	17149	70.7	0.0
						Total	**38.5**

Scenario: Receiver 12
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
1	Inverter	64.3	32.8	1	10834	50.4	13.9
	Transformer (pad mounted)	60	5	1	10834	66.7	0.0
2	Inverter	64.3	32.8	1	10446	50.1	14.2
	Transformer (pad mounted)	60	5	1	10446	66.4	0.0
3	Inverter	64.3	32.8	1	9733	49.4	14.9
	Transformer (pad mounted)	60	5	1	9733	65.8	0.0
4	Inverter	64.3	32.8	1	9463	49.2	15.1
	Transformer (pad mounted)	60	5	1	9463	65.5	0.0
5	Inverter	64.3	32.8	1	9238	49.0	15.3
	Transformer (pad mounted)	60	5	1	9238	65.3	0.0
6	Inverter	64.3	32.8	1	9411	49.2	15.1
	Transformer (pad mounted)	60	5	1	9411	65.5	0.0
7	Inverter	64.3	32.8	1	9016	48.8	15.5
	Transformer (pad mounted)	60	5	1	9016	65.1	0.0
8	Inverter	64.3	32.8	1	6330	45.7	18.6
	Transformer (pad mounted)	60	5	1	6330	62.0	0.0
9	Inverter	64.3	32.8	1	6190	45.5	18.8
	Transformer (pad mounted)	60	5	1	6190	61.9	0.0
10	Inverter	64.3	32.8	1	6155	45.5	18.8
	Transformer (pad mounted)	60	5	1	6155	61.8	0.0
11	Inverter	64.3	32.8	1	6166	45.5	18.8
	Transformer (pad mounted)	60	5	1	6166	61.8	0.0
12	Inverter	64.3	32.8	1	6257	45.6	18.7
	Transformer (pad mounted)	60	5	1	6257	61.9	0.0
13	Inverter	64.3	32.8	1	6422	45.8	18.5
	Transformer (pad mounted)	60	5	1	6422	62.2	0.0
14	Inverter	64.3	32.8	1	6677	46.2	18.1
	Transformer (pad mounted)	60	5	1	6677	62.5	0.0
15	Inverter	64.3	32.8	1	5326	44.2	20.1
	Transformer (pad mounted)	60	5	1	5326	60.5	0.0
16	Inverter	64.3	32.8	1	5077	43.8	20.5
	Transformer (pad mounted)	60	5	1	5077	60.1	0.0

Scenario: Receiver 12
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
17	Inverter	64.3	32.8	1	4856	43.4	20.9
	Transformer (pad mounted)	60	5	1	4856	59.7	0.3
18	Inverter	64.3	32.8	1	4871	43.4	20.9
	Transformer (pad mounted)	60	5	1	4871	59.8	0.2
19	Inverter	64.3	32.8	1	4984	43.6	20.7
	Transformer (pad mounted)	60	5	1	4984	60.0	0.0
20	Inverter	64.3	32.8	1	5191	44.0	20.3
	Transformer (pad mounted)	60	5	1	5191	60.3	0.0
21	Inverter	64.3	32.8	1	5503	44.5	19.8
	Transformer (pad mounted)	60	5	1	5503	60.8	0.0
22	Inverter	64.3	32.8	1	4176	42.1	22.2
	Transformer (pad mounted)	60	5	1	4176	58.4	1.6
23	Inverter	64.3	32.8	1	3854	41.4	22.9
	Transformer (pad mounted)	60	5	1	3854	57.7	2.3
24	Inverter	64.3	32.8	1	3559	40.7	23.6
	Transformer (pad mounted)	60	5	1	3559	57.0	3.0
25	Inverter	64.3	32.8	1	3578	40.8	23.5
	Transformer (pad mounted)	60	5	1	3578	57.1	2.9
26	Inverter	64.3	32.8	1	3732	41.1	23.2
	Transformer (pad mounted)	60	5	1	3732	57.5	2.5
27	Inverter	64.3	32.8	1	4003	41.7	22.6
	Transformer (pad mounted)	60	5	1	4003	58.1	1.9
28	Inverter	64.3	32.8	1	4400	42.6	21.7
	Transformer (pad mounted)	60	5	1	4400	58.9	1.1
29	Inverter	64.3	32.8	1	3256	39.9	24.4
	Transformer (pad mounted)	60	5	1	3256	56.3	3.7
30	Inverter	64.3	32.8	1	2830	38.7	25.6
	Transformer (pad mounted)	60	5	1	2830	55.1	4.9
31	Inverter	64.3	32.8	1	2413	37.3	27.0
	Transformer (pad mounted)	60	5	1	2413	53.7	6.3
32	Inverter	64.3	32.8	1	2661	38.2	26.1
	Transformer (pad mounted)	60	5	1	2661	54.5	5.5
33	Inverter	64.3	32.8	1	3030	39.3	25.0

Scenario: Receiver 12
Sub-station & Energy Storage Alternate Location

Group #	Source	Source Noise Level	Source Reference Distance	Number of Representative Units	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Receiver
	Transformer (pad mounted)	60	5	1	3030	55.7	4.3
34	Inverter	64.3	32.8	1	3538	40.7	23.6
	Transformer (pad mounted)	60	5	1	3538	57.0	3.0
ESS	Battery Storage HVAC Module	68	50	50	15153	49.6	35.4
	Stepup Transformer	60	5	50	15153	69.6	7.4
	Power Inverter	77	6	50	15153	68.0	25.9
O&M	HVAC	48	50	1	15643	49.9	0.0
Sub	Stepup Transformer	60	5	2	15643	69.9	0.0
						Total	**39.5**

Appendix K
Traffic Impact Analysis

ESA

TRAFFIC IMPACT ANALYSIS
SANBORN SOLAR PROJECT, KERN COUNTY

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AUGUST 2019

Printed on 30% post-consumer recycled material.

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1 Introduction

The purpose of this Traffic Impact Analysis (TIA) is to identify potential construction-related traffic impacts associated with the proposed Sanborn Solar project (Project) and generator tie-in line (gen-tie) route. The purpose of this TIA is to evaluate the construction-level impacts related to the solar generation site and gen-tie route and to:

- Document existing traffic conditions including roadway segment and intersection levels of service along or in proximity to the solar generation site and gen-tie route;
- Estimate trip generation and trip characteristics for construction-related activities of the solar generation site and gen-tie;
- Analyze the potential for traffic impacts to occur as a result of construction of the solar generation site and gen-tie;
- Describe the significance of the potential impacts; and
- Identify mitigation measures, for construction-related traffic impacts.

1.1 Project Description

The proposed project consists of the development of a photovoltaic solar facility and associated infrastructure necessary to generate up to a combined 300 megawatts of renewable electrical energy. The proposed project consists of two sites, each of which would contain solar and energy storage facilities, which together would compose the project site. The northern site is approximately 1,118 acres and the southern site is approximately 983 acres. The northern site is directly east of the Burlington Northern and Santa Fe (BNSF) Railway and south of State Route 58 (SR-58). The southern site is directly north of Edwards Air Force Base and south of the BNSF Railway. A gen-tie line would connect the energy generated on site to either the Windhub Substation, which is owned and operated by Southern California Edison (SCE), and/or the privately owned Westwind Substation. Both the substations are located off Oak Creek Road.

Figure 1 shows the project's regional location, proposed northern and southern solar generation sites and the gen-tie route and the study area. The proposed project is located in the southeastern portion of the Kern County (County). Major highways in the project vicinity include State Route 14 (SR-14), and SR-58 that provide access to the proposed project via Backus Road and Lone Butte Road, respectively. Additionally, Purdy Avenue provides access to the gen-tie route in the study area. The major north-south roadways in the region is SR-14, a four-lane highway that bi-sects the gen-tie line. SR 58 is north and northeast of the project site and is less than one mile from the northern site. The project area is primarily accessible by exiting SR-14.

Based on proposed solar generation site and gen-tie route shown in Figure 1, the following project components were analyzed for construction-related traffic impacts.

Northern Solar Site

The northern solar generation site is located east of SR-14 and south of SR-58. Construction-related traffic (i.e., workers and truck traffic) would access the study area via SR-58 and its intersection with Lone Butte Road. Project traffic would travel south along Lone Butte Road to access solar generation site work areas. The project site would be accessed from gates from a private access easement along the alignment of Lone Butte Road, from SR 58 south

to the edge of the northern site boundary. The BNSF Railway forms the western edge of the northern site and the gen-tie line crosses the BNSF Railway in two locations.

Southern Solar Site

The southern solar generation site is located east of SR-14 and is directly north of Edwards Air Force Base (EAFB). Construction-related traffic (i.e., workers and truck traffic) would access the study area via SR-14 and its intersections with Backus Road. Since Backus Road does not have a railroad crossing at its intersection with Sierra Highway, the project traffic would travel south towards the Sierra Highway/Sopp Road intersection where there is an existing railroad crossing on Sopp Road. Then vehicles will travel east along Sopp Road and finally north along Lone Butte Road to access the project site via Trotter Avenue, Reed Avenue or Silver Queen Road.

Gen-Tie Line

The gen-tie route alignment is located both east and west of SR-14. Construction-related traffic (i.e., workers and truck traffic) would access the study area via SR-14 and its intersection with Purdy Avenue. Construction-related activities would occur on both, east and west, sides of SR-14, along Purdy Avenue and Oak Creek Road. This includes the gen-tie crossing the south side of Purdy Avenue at its intersection with SR-14. Construction-related activities across SR-14, and any other State highway facilities, will be required to be conducted consistent with the Caltrans Encroachment Permit process.

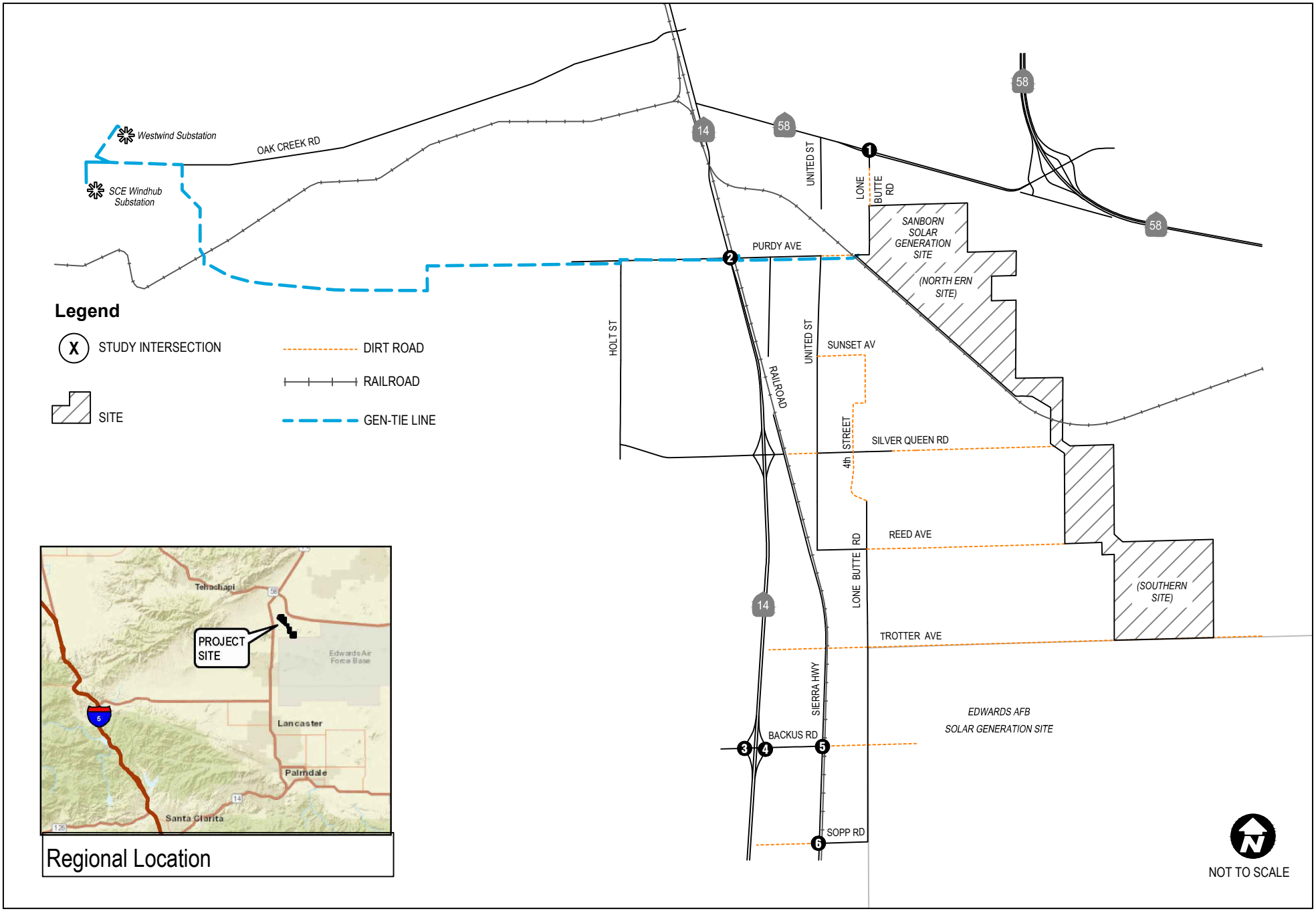

FIGURE 1

Project Location and Study Area

Traffic Impact Analysis Sanborn Solar Project

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1.2 Construction of Solar Generation Site and Gen-Tie Line

Construction activities, schedule and an estimate of related workers and trucks for the proposed project are shown in Table 1.

Based on Table 1, the proposed schedule for construction modeling of solar facility is approximately 18 months from February 2020 to August 2021. The proposed schedule of construction for gen-tie is approximately four months from April 2021 to August 2021. Overlap of Phases 1, 2, 3, and 4 during construction activities of solar generation site is estimated to generate peak worker and truck traffic (i.e., 475 workers, 65 vendor trucks and 52 haul trucks). The overlap of Phases 1-4 would last approximately 9 weeks or 45 days (assuming 5 work days per week). Additionally, construction of gen-tie line is estimated to require 60 workers, 1 vendor truck and 2 haul trucks. Overall the project would require approximately 50 on-site trucks that may be required for on-site equipment and material delivery as well as on-site transportation from laydown and parking areas to specific locations along the project sites and the gen-tie line.

Table 1 Construction Phasing and Schedule

No.	Phase	Start	End	No. of Workers	Daily Vendor Trucks	Total Haul Trucks
1	Site Preparation – Clearing and Grubbing	2-Jan-20	22-Apr-20	80	0	16
2	System Installation	10-Feb-20	4-Apr-21	300	48	32
3	Perimeter fence installation	24-Feb-20	24-Jul-20	50	16	2
4	Underground work (trenching)	24-Feb-20	16-Apr-21	45	1	2
5	Gen-Tie Line Construction	1-Sep-20	21-Dec-20	60	1	2
6	Testing, Commissioning, Site Clean up and restoration	26-Apr-21	30-Jul-21	60	8	8
Peak Construction Scenario (assuming overlap of Phases 1–4)				475	65	52
Construction of Gen-tie				60	1	2

Source: Dudek 2018

1.2.1 Operation and Maintenance Solar Generation Site and Gen-Tie Line

During the operation and maintenance (O&M) phase of the proposed project, the northern solar facility would be accessed by Lone Butte Road or 10th Street from SR-58. The southern solar facility would be accessed by Silver Queen Road or Reed Avenue from United Street off SR-14. Although the existing roadways would be used to the greatest extent possible, new unpaved roads would be constructed to serve as access roads from the existing road network to the solar array blocks. Access roads would be up to 25 feet wide with up to 10-foot-wide shoulders on both sides of the road and would be cleared and compacted for travel and access to the solar blocks. These site access roads would remain in place for ongoing O&M activities after construction is completed.

Operation and maintenance of the solar facility would require trucks, forklifts, and loaders for routine and unscheduled maintenance, and water trucks for solar panel washing. The solar facility may require 6 full-time personnel for operation, maintenance and security. Additional maintenance and security personnel would be dispatched to the solar facility, as needed.

Activities associated with the operation and maintenance of the gen-tie line would be only be as needed and are not likely to generate significant daily or peak hour traffic.

Hence, this TIA focusses only on construction-related traffic impacts of the proposed solar generation site and the gen-tie route.

1.3 Study Area and Scope

As illustrated in Figure 2, the project includes the northern solar generation site, southern solar generation site, and one east-west gen-tie route. Access to the solar generation sites would be primarily via Lone Butte Road and Backus Road, and their intersections with SR-58 and SR-14, respectively. Access to gen-tie route would be primarily via Purdy Avenue and its intersection with SR-14. Therefore, for the purposes of the traffic analysis, the study area was defined along Lone Butte Road, Backus Road, Purdy Avenue, and SR-14. The study area is comprised of six intersections, 10 roadway segments, including three freeway segments (SR-14) that would be most impacted by construction of the proposed project.

The study area intersections include:

1. Lone Butte Road/SR-58
2. SR-14/Purdy Avenue
3. SR-14 southbound ramps/Backus Road
4. SR-14 northbound ramps/Backus Road
5. Sierra Highway/Backus Road
6. Sierra Highway/Sopp Road

The study area roadway/freeway segments include:

1. Lone Butte Road, south of Trotter Avenue
2. Lone Butte Road, north of Trotter Avenue
3. United Street, from Purdy Avenue and Reed Avenue
4. Sierra Highway, from Silver Queen Road and Trotter Avenue
5. Holt Street, from Purdy Avenue and Silver Queen Road
6. Purdy Avenue, east of SR-14
7. Oak Creek Road, near Westwind and Windhub Substations
8. SR-14, north of SR-58
9. SR-14, between SR-58 and Silver Queen Road
10. SR-14, south of Silver Queen Road

This analysis focuses on both the average daily traffic (24 hour) and the weekday AM (7:00 to 9:00 a.m.) peak period and the PM (4:00 to 6:00 p.m.) peak period. The peak periods represent the highest cumulative total traffic for the adjacent street system. The study area roadway segments and intersections were analyzed for the following study scenarios:

Existing Conditions

This TIA includes a description of existing conditions in the site vicinity, including existing street system, existing weekday AM and PM peak hour traffic volumes, existing roadway segment daily traffic volumes and traffic operations. The Existing Conditions are representative of the year 2017 and 2018.

Existing plus Project

Existing plus Project conditions are similar to Existing Conditions. It includes analysis of weekday AM and PM peak hour traffic volumes, roadway daily traffic volumes and traffic operations with project traffic added to the existing conditions. Project traffic comprises of construction-related traffic generated from the northern solar generation site, southern solar generation site, and gen-tie line. This traffic was distributed and assigned to the roadway segments and intersections in the study area and analyzed under Existing plus Project conditions.

Cumulative Conditions

The Cumulative conditions (representative of the year 2020) include a description of traffic conditions within a short-term, two-year horizon period where the proposed project is still under construction. Traffic volumes in this scenario are estimated by applying a growth rate derived from historic Caltrans average daily traffic volumes along SR-14, plus the addition of traffic generated by other approved and pending projects within one mile of the study area. These approved or pending projects are developments in the review process, but not yet fully approved; or, projects that have been approved, but not fully constructed or occupied.

Cumulative plus Project

This condition includes analysis of traffic operations under Cumulative conditions with project-related traffic added to the AM and PM peak hour traffic volumes, and roadway segments daily traffic volumes.

1.4 Congestion Management Program

The Kern Council of Governments (COG) is designated as the Congestion Management Agency in the County. The purpose of the COG is to establish level of service (LOS) standards for the Congestion Management road network in Kern County. California Government Code Section 65089(b)(1)(B) requires that level of service standards be established at no worse than LOS E, or LOS F if that is the current level of service. LOS E has been established as the minimum system-wide LOS traffic standard in the Kern COG Congestion Management Plan (CMP). Those roads currently experiencing worse traffic congestion have been accepted at their existing traffic level of LOS F.

In the study area, SR-14 is part of the CMP network. There are no CMP intersections identified in the study area per Kern COG 2018 Regional Transportation Plan. CMP generally requires evaluation of all CMP intersections where the project adds 50 or more new peak hour trips and all CMP freeway mainline where the project adds 150 or more peak hour trips.

The project construction generates more than 150 peak hour trips, and therefore would add more than 150 trips to SR-14 facility.

1.5 Methodology

Level of service (LOS) is commonly used as a qualitative description of roadway segments and intersection operations and is based on the capacity and the volume of traffic using the segment or the intersection.

1.5.1 Intersections

The County of Kern and Caltrans utilize the Highway Capacity Manual (HCM) intersection analysis methodology to analyze the operation of signalized and unsignalized study intersections. It should be noted that all study intersections are currently unsignalized. The HCM analysis methodology describes the operation of an intersection using a range of LOS from LOS A (free-flow conditions) to LOS F (severely congested conditions), based on the corresponding control delay experienced per vehicle for unsignalized intersections.

At unsignalized intersections, as well as all Caltrans study area intersections, the level of service was calculated using the HCM 2010 methodology. The Synchro 10 LOS software was used to determine intersection LOS for all study scenarios. Synchro is consistent with the HCM 2010 methodology (Transportation Research Board 2010). HCM methodology utilizes average control delay per vehicle for subject lane to determine LOS for intersections. Table 2 shows the LOS for unsignalized and signalized intersections under the HCM methodology (delay).

Table 2 Levels of Service for Intersections using HCM Methodology

Level of Service	Unsignalized Intersections Control Delay (in seconds)	Signalized Intersections Control Delay (in seconds)
A	< 10.0	< 10.0
B	> 10.0 to < 15.0	> 10.0 to < 20.0
C	> 15.0 to < 25.0	> 20.0 to < 35.0
D	> 25.0 to < 35.0	> 35.0 to < 55.0
E	> 35.0 to < 50.0	> 55.0 to < 80.0
F	> 50.0	> 80.0

Source: HCM 2010

1.5.2 Roadway Segments

Kern County uses the Florida Department of Transportation's (FDOT) 2012 Quality/Level of Handbook (Florida Tables) to evaluate roadway segment LOS. Table 3 presents the roadway segment LOS thresholds by facility type in the study area as provided in the Florida Tables.

Table 3 FDOT Daily Roadway Segment LOS Thresholds

All Roadway Facilities	LOS A	LOS B	LOS C	LOS D	LOS E
Volumes-to-Capacity (V/C)	<0.6	0.6–0.7	0.70–0.8	0.8–0.9	0.9–1.0
	Two-way Average Traffic (ADT) Threshold				
Roadway Configuration	*LOS A*	*LOS B*	*LOS C*	*LOS D*	*LOS E*
2 Lane Undivided	-	4,700	8,400	14,300	28,600
4 lane Divided	-	25,700	40,300	51,1000	57,900

Source: FDOT 2012 Generalized Average Annual Daily Volumes for Rural Undeveloped Areas and Cities - Table 3
Thresholds based on 2012 FDOT Quality/Level of Service Handbook, Florida Department of Transportation. Adjustments made according to appropriate area conditions, following FDOT guidelines.
All volumes are approximate and assume typical roadway characteristics. Actual threshold volumes for each LOS listed above may vary depending on a variety of factors including (but not limited to) roadway curvature and grade, intersection or interchange spacing, driveway spacing, percentage of trucks and other heavy vehicles, travel lane widths, signal timing characteristics, on-street parking, volume of cross traffic and pedestrians, etc.

1.5.3 Significance Criteria

Kern County

The Kern County General Plan Circulation Element has established the following significance criteria for traffic impacts:

- A significant project impact occurs and mitigation is required if development causes affected roadways to fall below LOS D.

The proposed project is located within the County and hence this TIA uses the significance criteria provided in the Kern County General Plan Circulation Element that is to maintain a minimum level of service of LOS D for all roads throughout the County.

Caltrans

The freeway facility of SR-14 and its intersection with Backus Road in the study area are under the jurisdiction of Caltrans. SR-58 and its intersection with Lone Butte Road also under the jurisdiction of Caltrans. As stated in the Caltrans Guide for the Preparation of Traffic Impact Studies, December 2002, the level of service for operating State highway facilities is based upon measures of effectiveness. These MOEs describe the measures best suited for analyzing State highway facilities (i.e., freeway segments, signalized intersections, on- or off-ramps, etc.). Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D on State highway facilities; however, Caltrans acknowledges that this may not always be feasible and if an existing State highway facility is operating at less than the appropriate target LOS, the existing MOE should be maintained.

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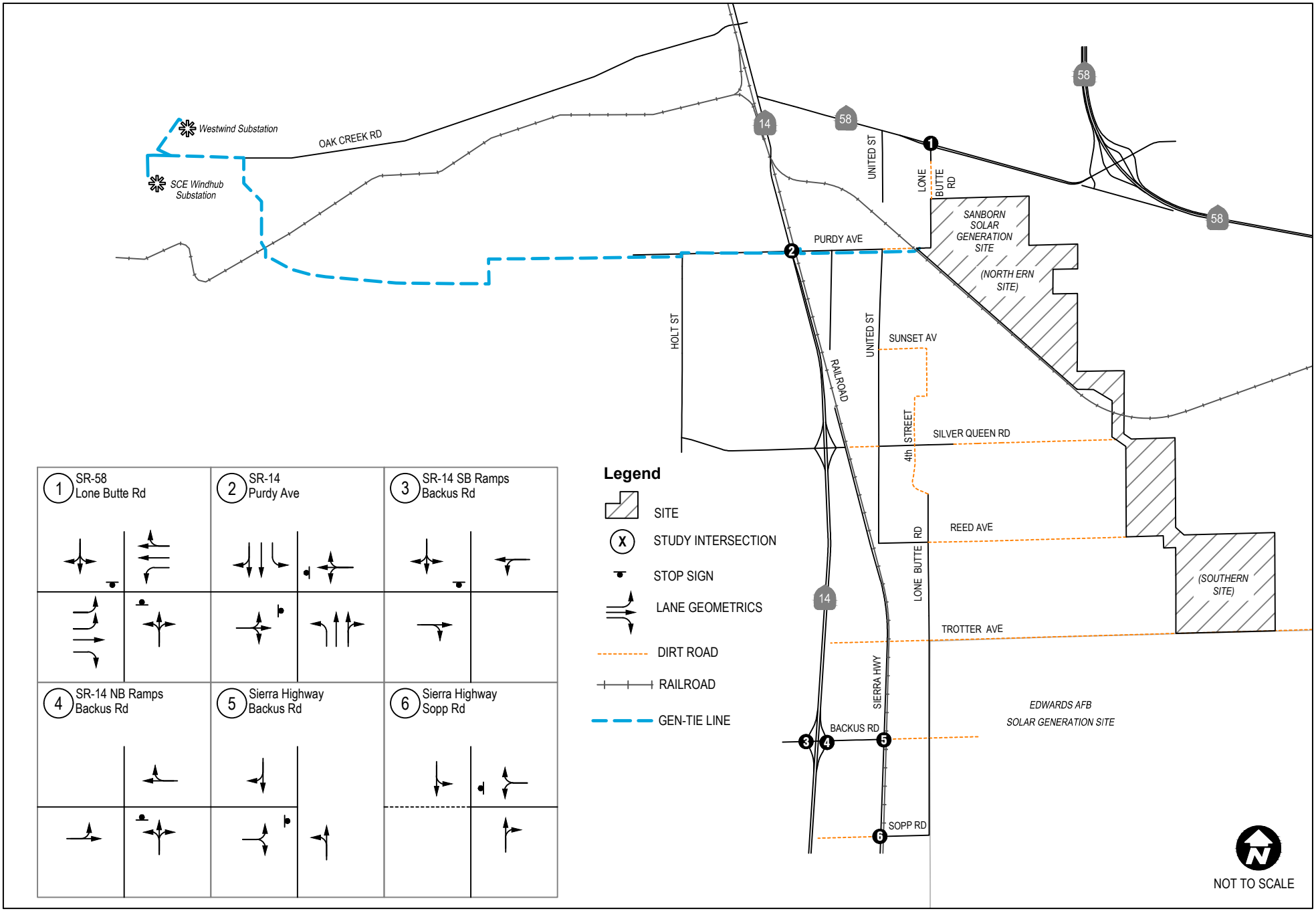

FIGURE 2

Existing Roadways and Intersection Conditions

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2 Existing Conditions

This section describes existing conditions within the identified study area. Characteristics are provided for the existing street system, daily roadway segment traffic volumes, peak hour traffic volumes, and traffic operations.

2.1 Existing Street System

The existing traffic controls and geometrics at the study area intersections are shown in Figure 2. All the intersections identified in the study area are unsignalized. Characteristics of the existing street system in the study are described below.

State Route 14 (SR-14) begins at Interstate 5 (I-5) just north of the San Fernando Valley, and continues north into Kern County where it ends at Highway 395 (US-395) north of Inyokern. SR-14 heads north to Mojave, and south to Rosamond. The freeway varies between two and four lanes (or one to two lanes in each direction). Near the project site, SR-14 is a four-lane divided highway and would provide access to most of the construction-related traffic for the southern solar site.

State Route 58 (SR-58) in the study area is a business route of SR-58 and is also known as the Mojave-Barstow Highway. SR-58 is an east-west freeway that provides connection between US Route 101 (US-101) and Interstate 15 (I-15). It is a four-lane highway in the study area and its intersection with Lone Butte Road would provide access to most of the construction-related traffic for the northern solar site.

Backus Road is a two-lane, east-west road that provides access to industrial areas primarily west of Sierra Highway. Backus Road has an interchange with SR-14 Road that would be utilized by most of the construction-related traffic for the southern solar site.

Sierra Highway is mainly a two-lane north south road that provides greater local circulation within the vicinity of the proposed project since it serves as a parallel route to SR-14. Sierra Highway is a main thoroughfare within the county, which begins south of the City of Palmdale, and travels northward following SR-14 before terminating into Silver Queen Road. In the study area, Sierra Highway is between SR-14 and the Southern Pacific Railroad (SPRR) tracks.

Lone Butte Road is a two-lane, north-south road that provides access to the study area from SR-58. It also serves as a local connection for industrial uses east of SR-14. At its most southern point, Lone Butte Road feeds into Sopp Road. While travelling northward, the paved portion of the roadway ends by merging into Reed Avenue (also paved). Unpaved portions continue northward to facilitate travel for several homes.

United Street is also a two-lane, north-south road that functions as a local route for industrial uses east of SR-14. South of SR-58, United Street is generally an unpaved, dirt road and is intercepted by BNSF Railway. South of the railroad, it is generally paved and it provides a connection to SR-14 through its northern terminus with Purdy Avenue and travels southward to Reed Avenue.

Sopp Road is a two-lane, east-west road that provides access to industrial areas east of Sierra Highway via a railroad crossing intersection. Sopp Road connects to Lone Butte Road and provides paved access to most of the construction-related traffic for the southern solar site.

Purdy Avenue is a two-lane, east-west road that primarily provides access to industrial uses, solar facilities, and wind turbines located west of SR-14. From its western edge, the road is mainly unpaved, until SR-14 after which, Purdy Avenue feeds directly into United Street. Most of the gen-tie related construction traffic would utilize Purdy Avenue and its intersection with SR-14.

2.2 Transit System

Kern Transit provides passenger bus service between, and within, the rural communities of Kern County. There are 17 fixed transit routes, and Dial-A-Ride (DAR) service is available in most communities. The transit system offers intercity service along with local transit service as well as connections to Metrolink in Lancaster. Currently, there are no transit stops located in the study area.

2.3 Traffic Volumes

2.3.1 Existing Traffic Volumes

Existing peak hour counts and average daily traffic (ADT) counts at the study intersections and roadway segments were conducted in November 2017 and April 2018 during a typical non-holiday week. Raw traffic count worksheets are provided in Appendix A. Existing weekday AM and PM peak hour and ADTs are summarized on Figure 3.

2.4 Existing Traffic Conditions

2.4.1 Existing Intersection Conditions

An intersection LOS analysis was prepared for the existing conditions using HCM 2010 methodology via the Synchro LOS software as discussed in Chapter 1. Table 4 shows the results of the existing conditions LOS analysis. As shown in the table, all of the study area intersections are currently operating at LOS A under existing conditions, during both peak hours.

Table 4 Existing Weekday Peak Hour Intersection LOS

No.	Intersection	LOS Method	Critical Movement	AM Peak		PM Peak	
				Delay[1]	*LOS*[2]	*Delay*[1]	*LOS*[2]
1	Lone Butte Road/SR-58	HCM	NBL	9.5	A	0.0[3]	A
2	SR-14/Purdy Avenue	HCM	WBL	14.2	B	14.0	B
3	SR-14 southbound ramps/ Backus Road	HCM	SBL	9.0	A	9.0	A
4	SR-14 northbound ramps/Backus Road	HCM	NBL	9.0	A	9.2	A
5	Sierra Highway/Backus Road	HCM	EBL	8.5	A	8.5	A
6	Sierra Highway/Sopp Road	HCM	WBL	9.1	A	9.4	A

HCM = Highway Capacity Manual
1 Delay in seconds per vehicle
2 Level of Service (LOS)
3 There were zero vehicles on the northbound approach during the PM peak hour, therefore zero delay was reported

2.4.2 Existing Roadway Segment Conditions

A roadway segment LOS analysis was prepared for the existing conditions using the roadway segment LOS methodologies as discussed in Chapter 1. Table 5 shows the results of the existing conditions LOS analysis for the study roadway segments. As shown in the table, all of the study area roadway segments are currently operating at LOS A/B or better under existing conditions.

Table 5 Existing Daily Roadway Segment Level of Service

Roadway Segment	Configuration	LOS "D" ADT	Existing ADT[1]	Existing LOS[2]
Lone Butte Road				
-south of SR-58	2 Lane Undivided	14,300	62	A/B
-north of Trotter Avenue	2 Lane Undivided	14,300	765	A/B
United Street				
-Purdy Avenue and Reed Avenue	2 Lane Undivided	14,300	458	A/B
Sierra Highway				
-Silver Queen Road and Trotter Avenue	2 Lane Undivided	14,300	489	A/B
Holt Street				
-Purdy Avenue and Silver Queen Road	2 Lane Undivided	14,300	21	A/B
Purdy Avenue				
-east of SR 14	2 Lane Undivided	14,300	465	A/B
Oak Creek Road				
-near Westwind and Windhub Substations	2 Lane Undivided	14,300	1,530	A/B
SR-14				
-north of SR-58	4 Lane Divided	51,000	16,900	A/B
-between SR-58 and Silver Queen Road	4 Lane Divided	51,000	15,700	A/B
-between Silver Queen Road and Backus Road	4 Lane Divided	51,000	15,900	A/B

Source: Dudek, ADT counts collected in 2017 and 2018.
Note: LOS based is on FDOT 2012 Generalized Average Annual Daily Volumes for Rural Undeveloped Areas or Cities - Table 3 (Rural Undeveloped Areas)
1 ADT – Average Daily Traffic
2 LOS – Level of Service

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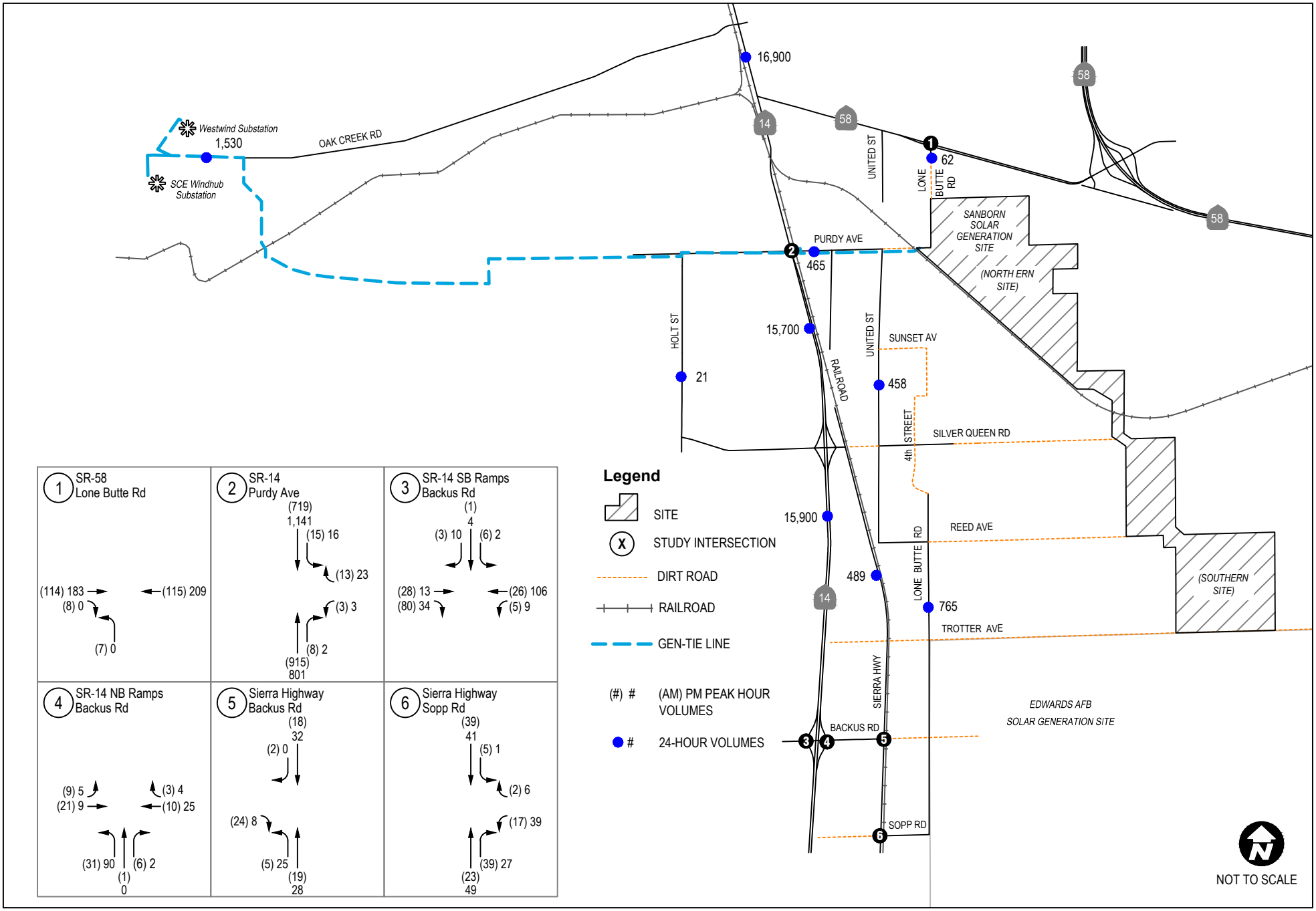

FIGURE 3

Existing Traffic Volumes

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3 Trip Generation

This section documents the trip generation, distribution and assignment of construction-related traffic associated with the proposed project.

3.1 Trip Generation

Trip generation estimates for the construction phase of the project were calculated based on the worst case/maximum traffic during construction of the solar generation sites and gen-tie line. Construction traffic includes the number of workers, and the amount of delivery and on-site truck traffic that would be generated to and from the site during the AM and PM peak hours. The construction activities will occur during the daylight hours for approximately 11 hours over the weekdays, Monday through Friday.

As discussed previously, construction of the northern and southern solar sites would require a maximum of 475 workers, 117 off-site delivery trucks (trucks delivering materials from off-site locations), and 40 on-site trucks (trucks delivering workers and/or materials between the work areas). Additionally, construction of the gen-tie would require approximately 60 workers, 3 off-site delivery trucks, and 10 on-site trucks. Due to the remote location of the site, the proposed project will encourage workers to carpool to the site. Therefore, a carpool factor of 1.25 (i.e., 1.25 persons per vehicle) has been applied to the number of workers for the solar generation site and the gen-tie line. On-site and delivery truck traffic to and from the site would be evenly distributed over the 10 hour workday, for a conservative analysis.

The calculation of project trip generation estimates are shown in Tables 6 and 7. Passenger car equivalent (PCE) factors were used to account for the project's truck traffic and provide a more realistic measurement in terms of the impact of project-related truck traffic.

Table 6 Project Trip Generation for Solar Generation Sites

Vehicle Type	Daily Quantity	Daily Trips	AM Peak Hour			PM Peak Hour		
			In	*Out*	*Total*	*In*	*Out*	*Total*
Trip Generation								
Workers[1]	475 workers	760	380	0	380	0	380	380
Delivery Trucks	117 Trucks	234	12	12	24	12	12	24
On-site Trucks	40 Trucks	80	4	4	8	4	4	8
	Total	1,074	396	16	412	16	396	412
Trip Generation w/PCE								
Workers (1.0 PCE)[2]	475 workers	760	380	0	380	0	380	380
Delivery Trucks (3.0 PCE)[3]	117Trucks	702	36	36	72	36	36	72
On-site Trucks (3.0 PCE)[4]	40 Trucks	240	12	12	24	12	12	24

Table 6 Project Trip Generation for Solar Generation Sites

Vehicle Type	Daily Quantity	Daily Trips	AM Peak Hour			PM Peak Hour		
			In	*Out*	*Total*	*In*	*Out*	*Total*
Workers and Delivery Trucks (w/PCE)		1,462	416	36	452	36	416	452
On-site Trucks (w/PCE)		240	12	12	24	12	12	24
	Total (w/PCE)	1,702	428	48	476	48	428	476

PCE – Passenger Car Equivalent
Note:
1 Car pool factor of 1.25 was utilized to estimate number of worker passenger cars that would be generated.
2 PCE factor of 1 was utilized for worker passenger cars
3 PCE factor of 3 was utilized for delivery trucks
4 PCE factor of 3 was utilized for on-site trucks

Table 7 Project Trip Generation for Gen-Tie

Vehicle Type	Daily Quantity	Daily Trips	AM Peak Hour			PM Peak Hour		
			In	*Out*	*Total*	*In*	*Out*	*Total*
Trip Generation								
Workers[1]	60 workers	96	48	0	48	0	48	48
Delivery Trucks	3 Trucks	6	1	1	2	1	1	2
On-site Trucks	10 Trucks	20	1	1	2	1	1	2
	Total	122	50	2	52	2	50	52
Trip Generation w/PCE								
Workers (1.0 PCE)[2]	60 workers	96	48	0	48	0	48	48
Delivery Trucks (3.0 PCE)[3]	3 Trucks	18	3	3	6	3	3	6
On-site Trucks (3.0 PCE)[4]	10 Trucks	60	3	3	6	3	3	6
Workers and Delivery Trucks (w/PCE)		114	51	3	54	3	51	54
On-site Trucks (w/PCE)		60	3	3	6	3	3	6
	Total (w/PCE)	174	54	6	60	6	54	60

PCE – Passenger Car Equivalent
Note:
1 Car pool factor of 1.25 was utilized to estimate number of worker passenger cars that would be generated.
2 PCE factor of 1 was utilized for worker passenger cars
3 PCE factor of 3 was utilized for delivery trucks
4 PCE factor of 3 was utilized for on-site trucks

As shown in Table 6, the solar generation sites would generate 1,074 daily trips, 412 AM peak hour trips (396 inbound and 16 outbound), and 412 PM peak hour trips (16 inbound and 396 outbound). With the application of PCE factors to truck trips, the proposed project would generate 1,702 PCE daily trips, and 476 PCE trips during the AM peak hour (428 inbound and 48 outbound) and 476 PCE trips during the PM peak hour (48 inbound and 476 outbound).

As shown in Table 7, the gen-tie would generate 122 daily trips, 52 AM peak hour trips (50 inbound and 2 outbound), and 52 PM peak hour trips (2 inbound and 50 outbound). With the application of PCE factors to truck trips, the proposed project would generate 174 PCE daily trips, and 60 PCE trips during the AM peak hour (54 inbound and 6 outbound) and 60 PCE trips during the PM peak hour (6 inbound and 54 outbound).

3.2 Trip Distribution and Assignment

Project trips were distributed to the study area intersections and roadway segments using the regional location of the project, logical commute routes for workers, and available truck routes for project-related trucks.

A majority of construction-related project traffic for the proposed solar generation sites will access the study area via SR-58, at its existing intersection with Lone Butte Road for the northern solar site; and, SR-14, at its existing intersection with Backus Road and existing railroad crossing on Sopp Road at the Sierra Highway/Sopp Road intersection for the southern solar site. For construction of gen-tie routes east and west of SR-14, most of the traffic will access the work site via SR-14 at its intersection with Purdy Avenue. The project traffic utilizing SR-14 and SR-58 will consist of all of the material and equipment delivery trucks, and construction workers accessing the site.

Approximately 5% of the traffic would access the project site from the north (from the Ridgecrest and Victor Valley areas), and approximately 85% of the traffic would access the project from the south (Lancaster and Palmdale area). Approximately 10% if the traffic would access the project site from the east (Barstow area). Project trips were assigned to the study area intersections by applying the project trip generation estimates to the trip distribution percentages at each study area intersection and roadway segments. The project trip distribution for workers, off-site delivery trucks, and on-site trucks is shown in Figure 4 for the solar generation sites and Figure 5 for the gen-tie line.

The resulting project trip assignment is shown in Figure 6 for total project traffic.

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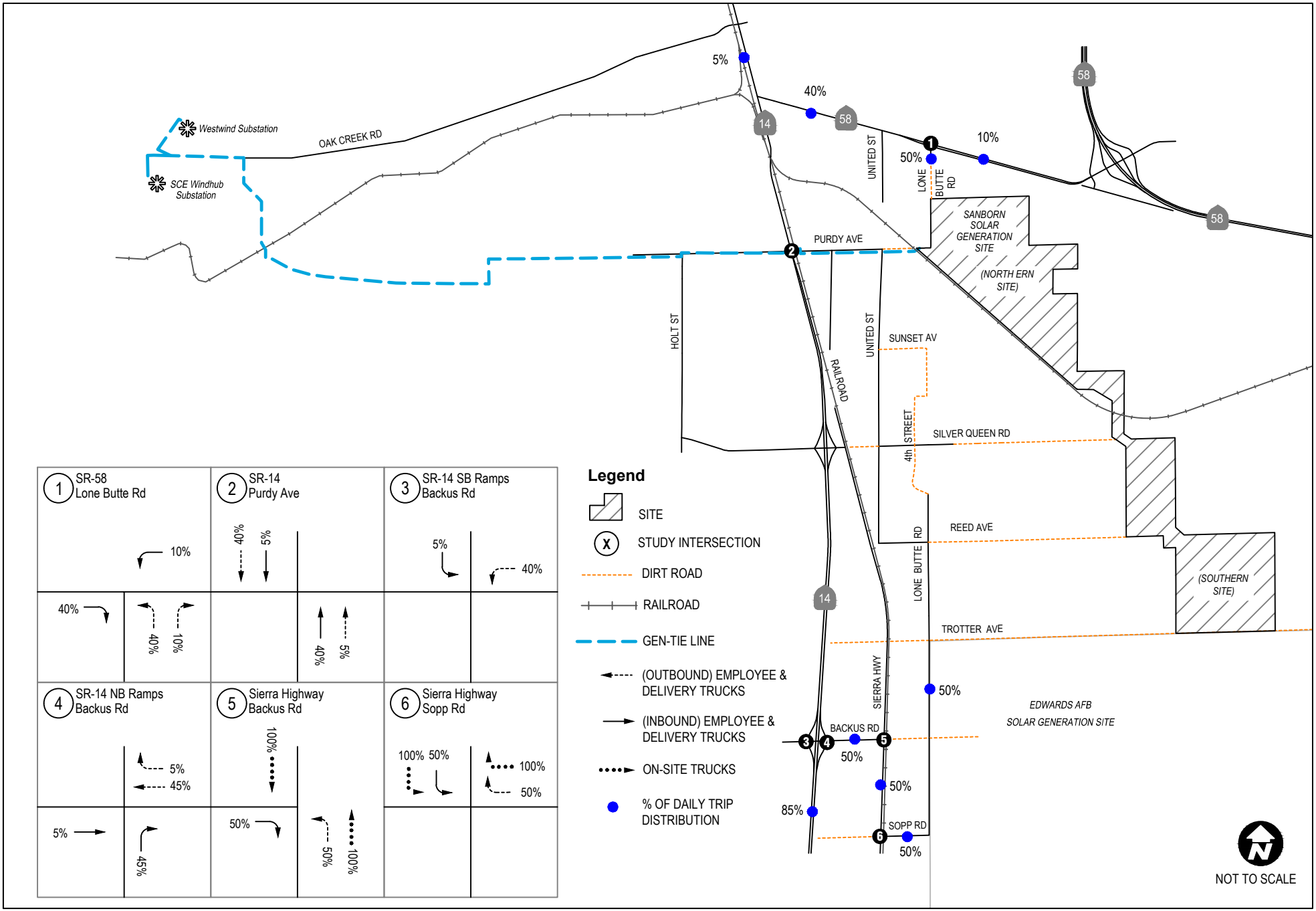

FIGURE 4

Project Trip Distribution - Solar Generation Sites

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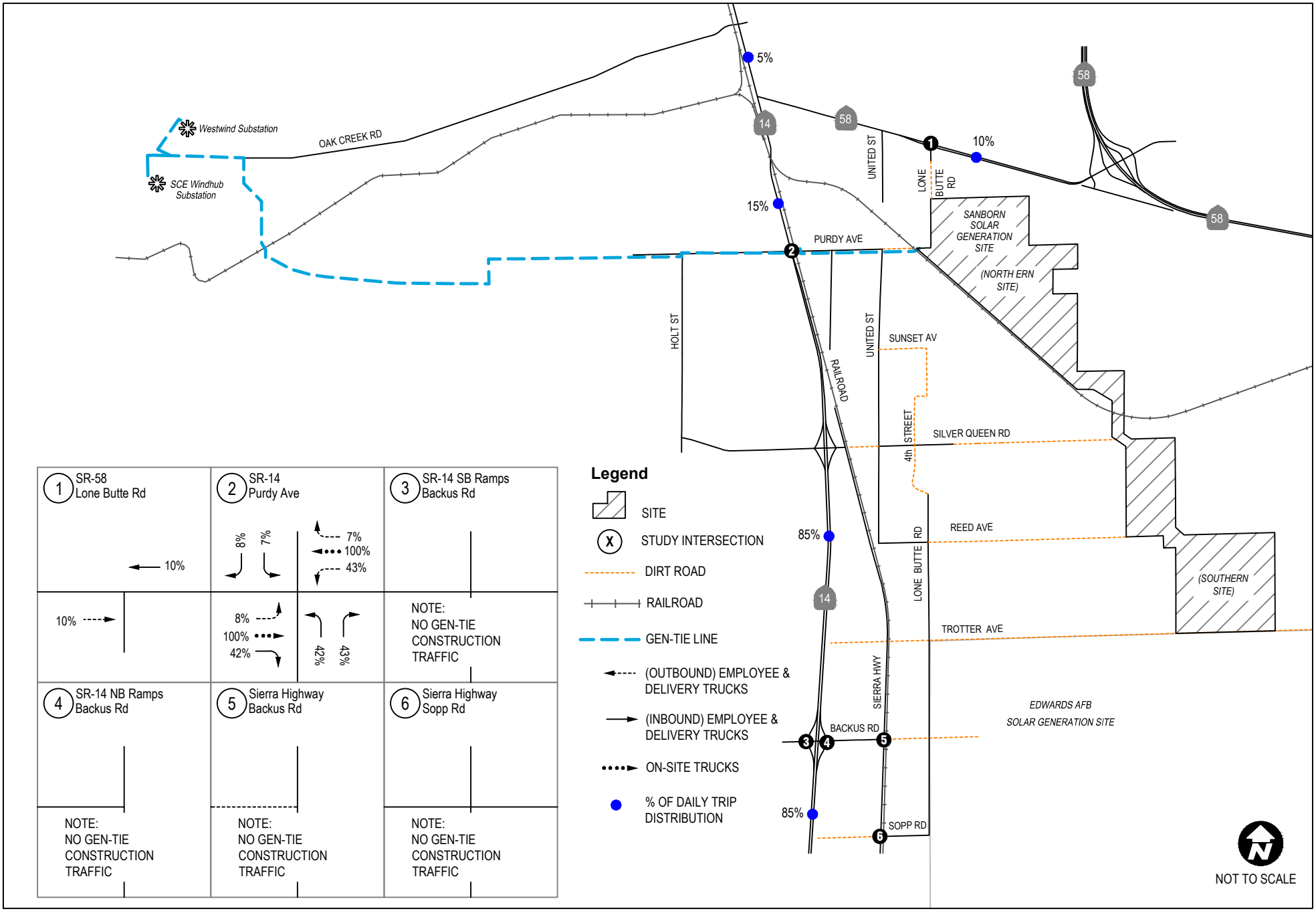

FIGURE 5

Project Trip Distribution - Gen-Tie Line

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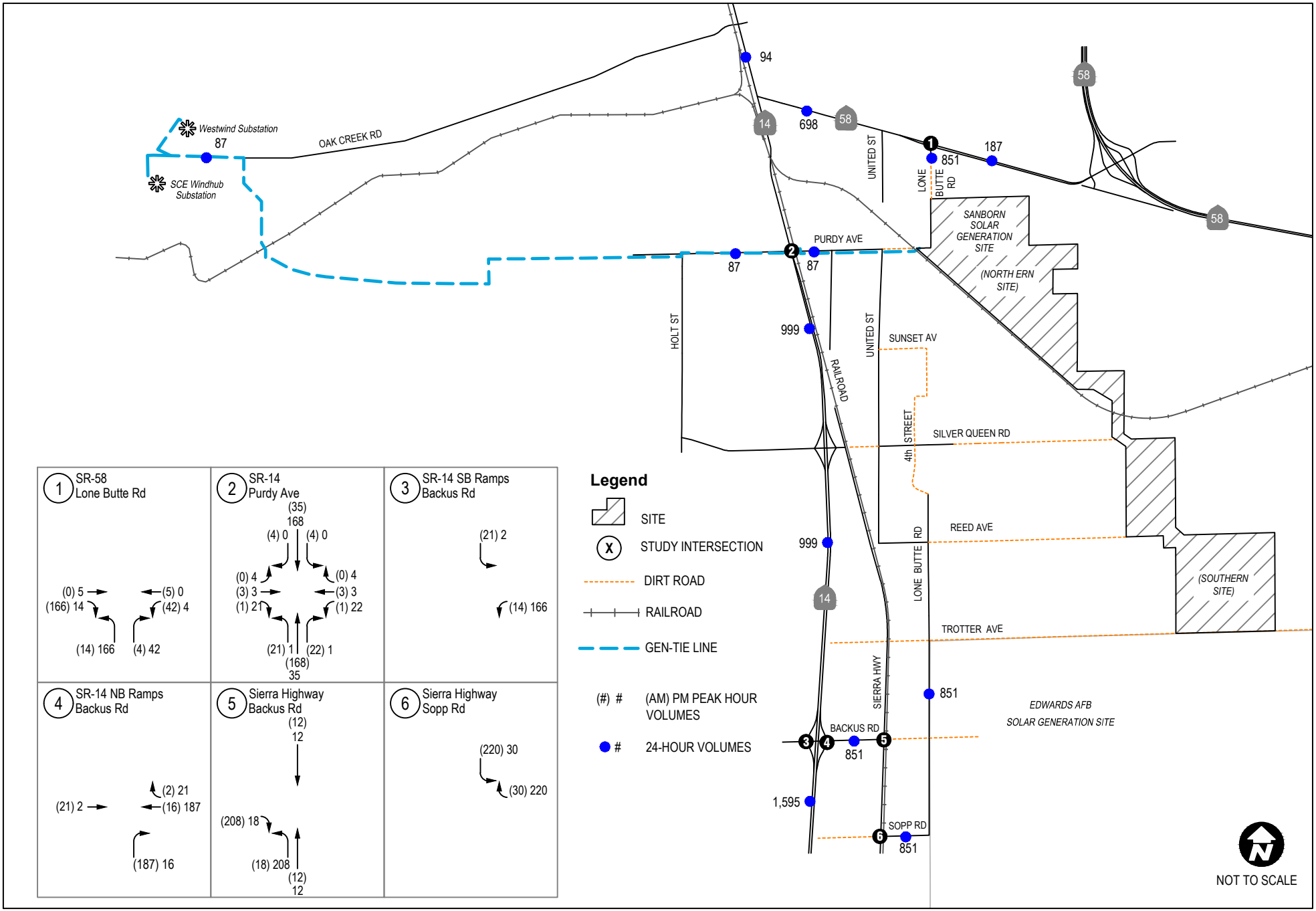

FIGURE 6

Total Project Trip Assignment - Solar Generation Site and Gen-Tie Line

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4 Existing plus Project Conditions

This section documents impacts on study area intersections and roadway segments related to construction-related project traffic under Existing plus Project (construction phase) conditions.

4.1 Traffic Volumes

Existing traffic volumes were collected in November 2017 and April 2018 and are shown in Figure 3. As shown under the existing conditions analysis, the traffic volumes in the study area are relatively low, and as such, no new growth is anticipated in the near term. Therefore, project impacts were calculated for the Existing plus Project (construction phase) options.

4.1.1 Existing plus Project

The project trip assignments (in PCE) shown in Figure 6 (for solar generation sites and gen-tie) for construction-related project traffic (workers, off-site delivery trucks, and on-site trucks), were added to the existing traffic volumes shown in Figure 3 to derive the Existing plus Project traffic volumes. Figure 7 illustrates the Existing plus Project traffic volumes that were used to evaluate Existing plus Project traffic conditions.

4.2 Intersection Operations

An intersection operations analysis was conducted for the study area to evaluate the Existing plus Project weekday AM and PM peak hour conditions. Intersection operations were calculated using the LOS methodology described in Chapter 1. The following presents the results of the project analysis.

4.2.1 Existing plus Project

Table 8 shows the results of the Existing plus Project LOS analysis and provides a comparison to the existing (without project) conditions for the weekday peak hours using HCM methodology for unsignalized intersections and Caltrans intersections. Detailed LOS worksheets are included in Appendix B. Based on the appropriate significance criteria, all study area intersections are forecast to continue to operate at LOS D or better with the addition of the construction-related project traffic from both the solar generation sites and the gen-tie.

It is anticipated that construction activities for the gen-tie across SR-14 at Purdy Avenue would have a relatively short duration. Construction-related activities across SR-14, and any other State highway facilities, will be required to follow the Caltrans Encroachment Permit process. As shown in Table 8, the SR-14/Purdy Avenue intersection operates at LOS D or better under Existing plus Project conditions.

The existing at-grade intersection of SR-14/Purdy Road has clear lines of sight in all directions; relatively long left-turn/deceleration lanes in both directions on SR-14 (620 feet in the northbound direction, and 560 feet in the southbound direction); and, wide shoulders on SR-14 in both directions (15–20 feet wide shoulders, with 10 feet of paved width and 5-10 feet of soft shoulder). In addition, since the traffic volumes in the study area are low, construction-related traffic would not have an adverse impact on the operations and LOS at the SR-14/Purdy Avenue intersection.

4.3 Roadway Segment Analysis/Operations

An average daily traffic (ADT) roadway segment LOS analysis was conducted for the study area to evaluate the Existing plus Project for 24-hour roadway capacity conditions. The study area roadway segments were analyzed using the FDOT methodology described in Chapter 1. The following presents the results of the project analysis.

4.3.1 Existing plus Project

Table 9 shows the results of the Existing plus Project LOS analysis and provides a comparison to the existing (without project) conditions for average daily traffic volumes. Based on the appropriate significance criteria, all roadway segments are forecast to continue to operate at LOS A/B (combined LOS in FDOT methodology) or better with the addition of the construction-related project traffic.

Table 8 Existing plus Project Peak Hour Intersection Level of Service

No.	Intersection	LOS Method	Critical Movement	Existing				Existing plus Project				Significant Impact?	
				AM Peak		*PM Peak*		*AM Peak*		*PM Peak*			
				Delay[1]	*LOS*[2]	*Delay*[1]	*LOS*[2]	*Delay*[1]	*LOS*[2]	*Delay*[1]	*LOS*[2]	*AM*	*PM*
1	Lone Butte Road/SR-58	HCM	NBL	9.5	A	0.0[3]	A	9.9	A	12.4	B	No	No
2	SR-14 /Purdy Avenue	HCM	WBL[4] /EBL[5]	14.2[4]	B	14.0[4]	B	24.9[5]	C	32.7[5]	D	No	No
3	SR-14 Southbound Ramps/ Backus Road	HCM	SBL	9.0	A	9.0	A	9.5	A	10.2	B	No	No
4	SR-14 Northbound Ramps/Backus Road	HCM	NBL	9.0	A	9.2	A	10.3	B	10.8	B	No	No
5	Sierra Highway/Backus Road	HCM	EBL	8.5	A	8.5	A	9.8	A	8.6	A	No	No
6	Sierra Highway/Sopp Road	HCM	WBL	9.1	A	9.4	A	11.3	B	10.9	B	No	No

HCM = Highway Capacity Manual
1 Delay in seconds per vehicle
2 Level of Service (LOS)
3 There were zero vehicles on the northbound approach during the PM peak hour, therefore zero delay was reported
4 Westbound left (WBL) is the critical movement
5 Eastbound left (EBL) is the critical movement

Table 9 Existing plus Project Roadway Segment Level of Service

Roadway Segment	Configuration	LOS "D" ADT	Existing ADT[1]	Existing LOS[2]	Project Traffic	Existing plus Project ADT[1]	Existing plus Project LOS[2]
Lone Butte Road							
-south of SR-58	2 Lane Undivided	14,300	62	A/B	851	913	A/B
-north of Trotter Avenue	2 Lane Undivided	14,300	765	A/B	851	1,616	A/B
United Street							
-Purdy Avenue and Reed Avenue	2 Lane Undivided	14,300	458	A/B	0	458	A/B
Sierra Highway							
-Silver Queen Road and Trotter Avenue	2 Lane Undivided	14,300	489	A/B	0	489	A/B
Holt Street							
-Purdy Avenue and Silver Queen Road	2 Lane Undivided	14,300	21	A/B	0	21	A/B
Purdy Avenue							
-east of SR 14	2 Lane Undivided	14,300	465	A/B	87	552	A/B
Oak Creek Road							
-near Westwind and Windhub Substations	2 Lane Undivided	14,300	1,530	A/B	87	1,617	A/B
SR-14							
- north of SR-58	4 Lane Divided	51,000	16,900	A/B	94	16,994	A/B
- between SR-58 and Silver Queen Road	4 Lane Divided	51,000	15,700	A/B	999	16,699	A/B
- south of Silver Queen Road	4 Lane Divided	51,000	15,900	A/B	1,595	17,495	A/B

Source: Dudek 2018
Note: LOS based is on FDOT 2012 Generalized Average Annual Daily Volumes for Rural Undeveloped Areas and Cities - Table 3
1 ADT – Average Daily Traffic
2 LOS – Level of Service

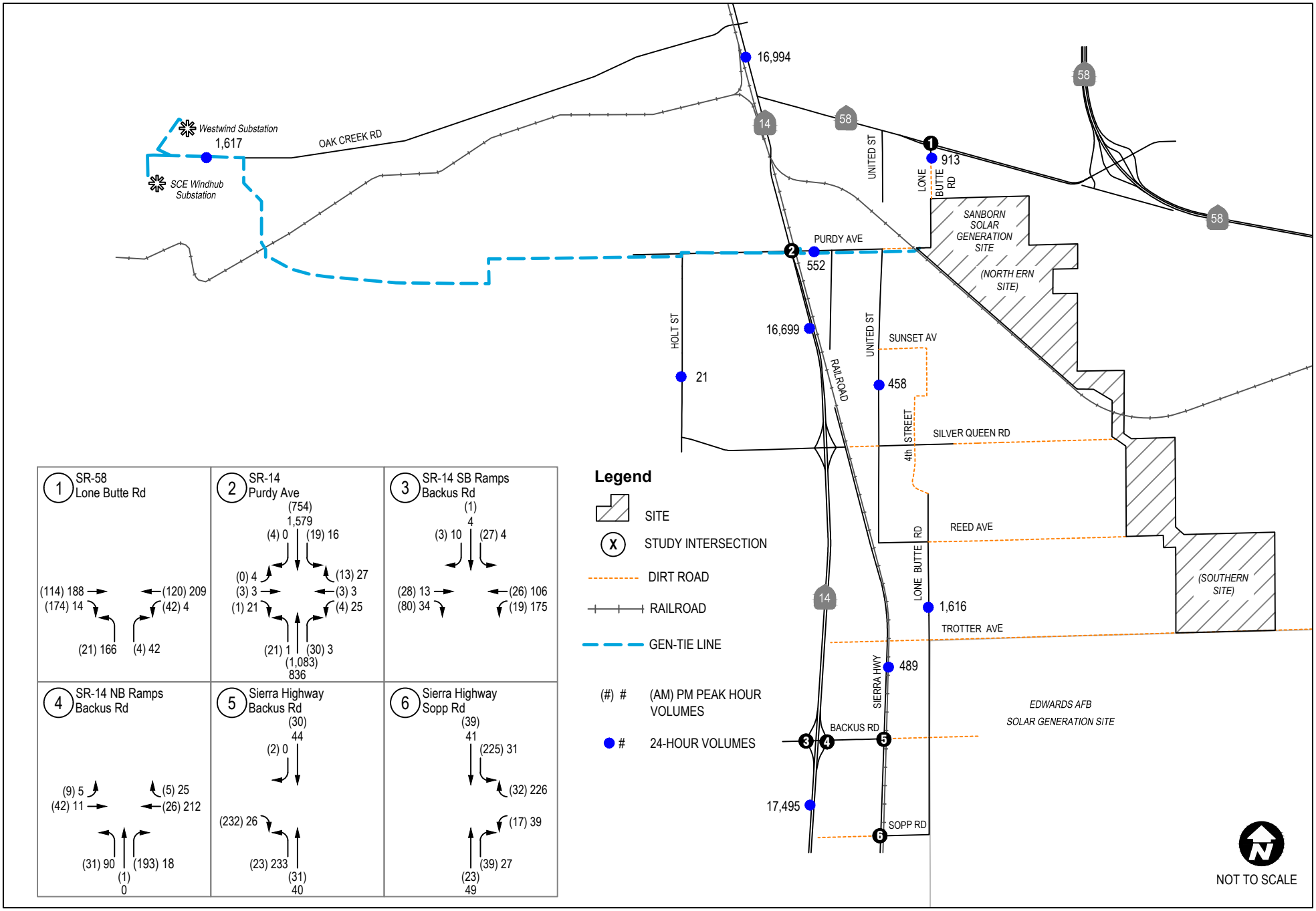

FIGURE 7

Existing Plus Project Traffic Volumes

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5 Cumulative Conditions

This section presents the results of a cumulative condition analysis that was conducted for a short-term, two-year horizon period where the proposed project is still under construction. The cumulative conditions (representative of the year 2020) are based on the application of an annual growth rate, plus the addition of traffic from approved and pending projects in the study area, to the existing 2018 traffic volumes.

5.1 Cumulative Projects

A list of cumulative projects within a 1-mile and 6-mile radius of the project site was provided by Kern County. Details of the cumulative projects is provided in Appendix C. The cumulative projects are projects that are proposed and in the review process, but not yet fully approved; or, projects that have been approved, but not fully constructed or occupied. Based on review of the project characteristics, status, and locations of cumulative projects, three projects were identified that would likely add traffic to the study area roadway segments and intersections. Figure 8 shows the locations of these projects. Traffic generated by projects outside the 1-mile radius (6-mile or greater radius) of the project site were included in an ambient growth rate calculated from historical Caltrans average daily traffic volumes along SR-14.

5.1.1 Cumulative Projects Trip Generation, Distribution and Assignment

Table 10 provides a trip generation estimate of the cumulative projects.

Table 10 Cumulative Projects Trip Generation Summary

No.	Land Use/ Description	Daily Trips	AM Peak Hour			PM Peak Hour		
			In	*Out*	*Total*	*In*	*Out*	*Total*
1	Mojave Mobile Home[1]	6	0	1	1	1	0	1
2	Service Rock Products Concrete Batch Plan[2]	240	8	8	16	8	8	16
3	Edwards Air Force Base – Gen-Tie Line Construction[3]	476	76	18	94	18	76	94
	Total Trip Generation	**722**	**84**	**27**	**111**	**27**	**84**	**111**

Notes:

1 Trip generation estimated using the Mobile Home Park (ITE 240) trip rate from the Institute of Transportation Engineers (ITE), Trip Generation, 10th Edition, 2017.

2 Trip generation estimated from Kjelstrom & Associates - Service Rock Products Mitigated Negative Declaration (MND), 2006. Two concrete batching plants (ready mixed and asphaltic) employ up to 20 drivers, with truck traffic averaging approximately 40 round-trips per day during a 16-hour work schedule (two shifts from 3am - 7pm). Trips are reported in passenger car equivalents (PCE).

3 Trip generation from the Edwards Air Force Base (AFB) Solar Enhanced Use Lease (EUL) Traffic Impact Analysis (TIA), 2018. Trips are reported in PCE.

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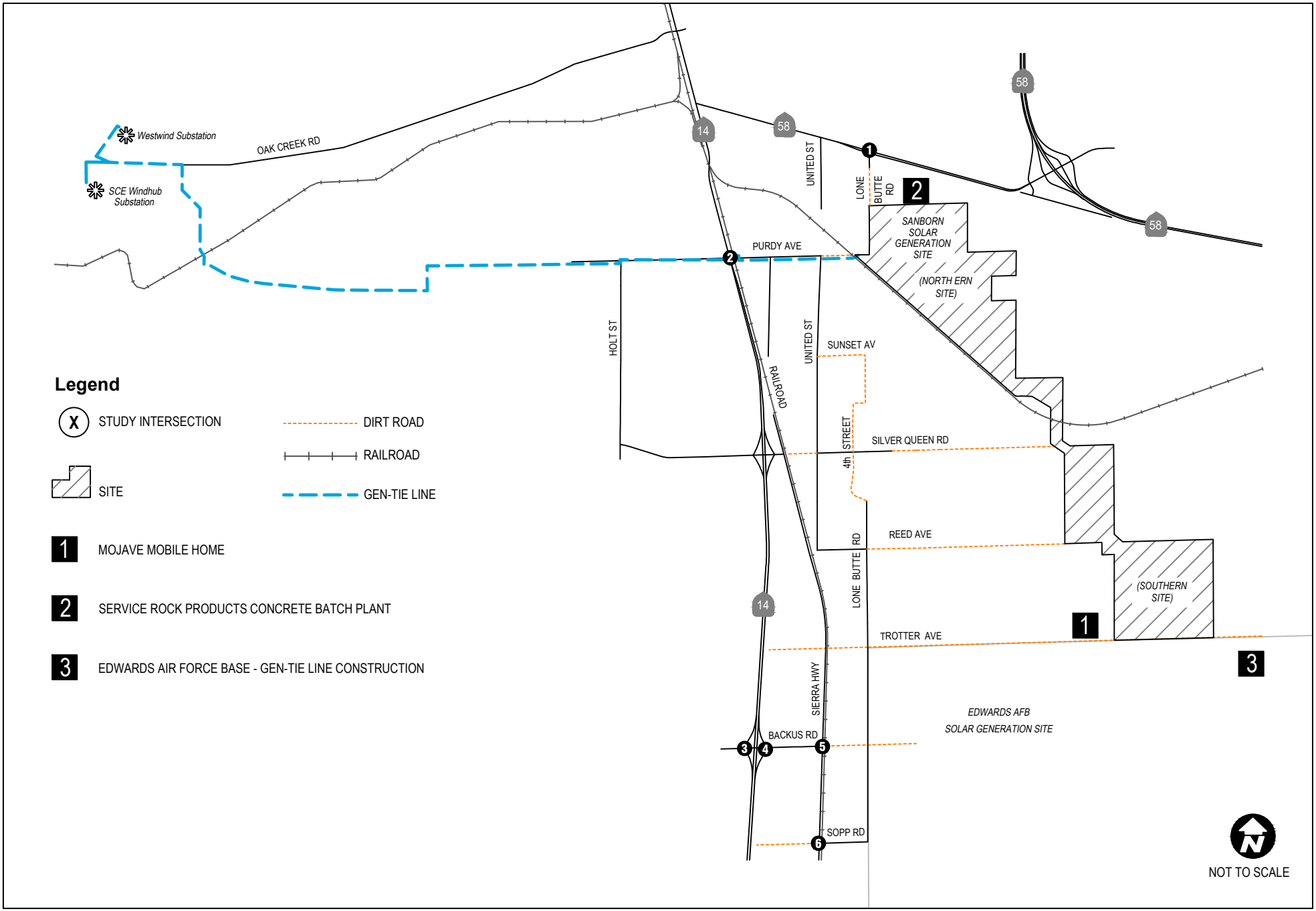

FIGURE 8

Cumulative Project Locations

Traffic Impact Analysis Sanborn Solar Project

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Trip distribution and assignment assumptions for the cumulative projects were prepared assuming logical travel corridors in the study area. The trips generated by the cumulative projects were distributed through the study area network, primarily along SR-14, Purdy Avenue, Backus Road, and Sierra Highway, and then added to the cumulative traffic volumes.

5.2 Cumulative Traffic Volumes

Cumulative traffic volumes were estimated by applying an annual ambient growth rate and adding traffic from cumulative projects to the existing traffic volumes. Recent ADT volumes reported by Caltrans along SR-14 indicate that traffic within the region has increased by an average of approximately 5 percent per year between 2013 and 2017. Therefore, an annual growth rate of 5 percent for a period of two years was applied to the existing 2018 traffic volumes, plus daily and peak hour traffic from cumulative projects were added to the existing 2018 traffic volumes. Figure 9 illustrates the cumulative traffic volumes for the daily and peak hour conditions.

5.3 Cumulative Traffic Conditions

Figure 9 shows the Cumulative Year 2020 traffic volumes that were used to evaluate Cumulative Year 2020 traffic conditions. The following documents study area intersection and roadway segment operations during the year 2020.

5.3.1 Cumulative Intersection Conditions

An intersection operations analysis was conducted for the study area to evaluate cumulative weekday AM and PM peak hour conditions. Intersection operations were calculated using the LOS methodology described in Chapter 1. Table 11 presents the results of the analysis. LOS worksheets are provided in Appendix B. As shown in the table, all of the study area intersections are forecast to operate at LOS C or better under cumulative conditions, during both peak hours.

Table 11 Cumulative Weekday Peak Hour Intersection LOS

No.	Intersection	LOS Method	Critical Movement	AM Peak		PM Peak	
				Delay[1]	*LOS*[2]	*Delay*[1]	*LOS*[2]
1	Lone Butte Road/SR-58	HCM	NBL	9.6	A	0.0[3]	A
2	SR-14/Purdy Avenue	HCM	WBL[4] /EBL[5]	15.1[4]	C	15.0[4]	C
3	SR-14 southbound ramps/ Backus Road	HCM	SBL	9.4	A	9.4	A
4	SR-14 northbound ramps/Backus Road	HCM	NBL	9.3	A	9.8	A
5	Sierra Highway/Backus Road	HCM	EBL	8.9	A	8.6	A
6	Sierra Highway/Sopp Road	HCM	WBL	9.8	A	9.9	A

HCM = Highway Capacity Manual
1 Delay in seconds per vehicle
2 Level of Service (LOS)
3 There were zero vehicles on the northbound approach during the PM peak hour, therefore zero delay was reported
4 Westbound left (WBL) is the critical movement
5 Eastbound left (EBL) is the critical movement

5.3.2 Cumulative Roadway Segment Conditions

An average daily traffic (ADT) roadway segment LOS analysis was conducted for the study area to evaluate the cumulative conditions. The study area roadway segments were analyzed using the methodology described in Chapter 1. Table 12 presents the results of the analysis with cumulative traffic volumes and ambient growth added to existing conditions. As shown in the table, all of the study area roadway segments are currently operating at LOS A/B (combined LOS in FDOT methodology) or better under cumulative conditions.

Table 12 Cumulative Roadway Segment Level of Service

Roadway Segment	Configuration	LOS "D" ADT	Cumulative ADT[1]	Cumulative LOS[2]
Lone Butte Road				
-south of SR-58	2 Lane Undivided	14,300	68	A/B
-north of Trotter Avenue	2 Lane Undivided	14,300	1,318	A/B
United Street				
-Purdy Avenue and Reed Avenue	2 Lane Undivided	14,300	980	A/B
Sierra Highway				
-Silver Queen Road and Trotter Avenue	2 Lane Undivided	14,300	1,014	A/B
Holt Street				
-Purdy Avenue and Silver Queen Road	2 Lane Undivided	14,300	499	A/B
Purdy Avenue				
-east of SR 14	2 Lane Undivided	14,300	988	A/B
Oak Creek Road				
-near Westwind and Windhub Substations	2 Lane Undivided	14,300	2,159	A/B
SR-14				
- north of SR-58	4 Lane Divided	51,000	18,697	A/B
- between SR-58 and Silver Queen Road	4 Lane Divided	51,000	17,585	A/B
- south of Silver Queen Road	4 Lane Divided	51,000	17,553	A/B

Source: Dudek 2018
Note: LOS based is on FDOT 2012 Generalized Average Annual Daily Volumes for Rural Undeveloped Areas and Cities - Table 3
1 ADT – Average Daily Traffic
2 LOS – Level of Service

6 Cumulative Plus Project Conditions

This section documents impacts on study area intersections and roadway segments related to construction-related project traffic under Cumulative plus Project (construction phase) conditions.

6.1 Traffic Volumes

As discussed in Chapter 5, cumulative volumes were calculated by analyzing the trip generation of future development projects within a 1-mile radius of the proposed project, and adding an annual 5 percent per year growth rate to existing traffic volumes. The project trip assignments (in PCE) shown in Figure 6 (for solar generation sites and gen-tie) for construction-related project traffic (workers, off-site delivery trucks, and on-site trucks), were added to the cumulative traffic volumes shown in Figure 9 to derive the Cumulative plus Project traffic volumes. Figure 10 illustrates the Cumulative plus Project traffic volumes that were used to evaluate Cumulative plus Project traffic conditions.

6.2 Cumulative Plus Project Traffic Conditions

6.1.1 Cumulative Plus Project Intersection Conditions

Table 13 shows the results of the Cumulative plus Project LOS analysis and provides a comparison to the cumulative (without project) conditions for the weekday peak hours using HCM methodology for unsignalized intersections and Caltrans intersections. Detailed LOS worksheets are included in Appendix B. Based on the appropriate significance criteria, all study area intersections are forecast to continue to operate at LOS D or better with the addition of the construction-related project traffic from the solar generation sites with the exception of the SR-14/Purdy Avenue intersection, which is forecast to operate at LOS E in the PM peak hour with the addition of project traffic related to construction of the gen-tie facilities.

It is anticipated that construction activities for the gen-tie across SR-14 at Purdy Avenue would have a relatively short duration. Construction-related activities across SR-14, and any other State highway facilities, will be required to follow the Caltrans Encroachment Permit process. As described in Chapter 4.2.1, the existing at-grade intersection of SR-14/Purdy Road has clear lines of sight in all directions; relatively long left-turn/deceleration lanes in both directions on SR-14, and wide shoulders on SR-14 in both directions. However, although traffic volumes in the study area are low, construction-related traffic from the gen-tie facilities would have an adverse impact on the operations and LOS at the SR-14/Purdy Avenue intersection due to left-turn movements from Purdy Avenue onto SR-14 during the PM peak hour. Mitigation to address this impact is provided by in Section 7 below.

6.2.2 Cumulative Year plus Project Roadway Segment Conditions

Table 14 shows the results of the Cumulative plus Project LOS analysis and provides a comparison to the cumulative (without project) conditions for average daily traffic volumes. Based on the appropriate significance criteria, all roadway segments are forecast to continue to operate at LOS A/B (combined LOS in FDOT methodology) or better with the addition of the construction-related project traffic.

Table 13 Cumulative Conditions plus Project Peak Hour Intersection Level of Service

No.	Intersection	LOS Method	Critical Movement	Cumulative Conditions				Cumulative Conditions plus Project				Significant Impact?	
				AM Peak		*PM Peak*		*AM Peak*		*PM Peak*			
				Delay[1]	*LOS*[2]	*Delay*[1]	*LOS*[2]	*Delay*[1]	*LOS*[2]	*Delay*[1]	*LOS*[2]	*AM*	*PM*
1	Lone Butte Road/SR-58	HCM	NBL	9.6	A	0.0[3]	A	10	B	12.7	B	No	No
2	SR-14 /Purdy Avenue	HCM	WBL[4] /EBL[5]	15.1[4]	C	15.0[4]	C	28.1[5]	D	**40.2[5]**	**E**	No	**Yes**
3	SR-14 Southbound Ramps/ Backus Road	HCM	SBL	9.4	A	9.4	A	9.9	A	11.4	B	No	No
4	SR-14 Northbound Ramps/Backus Road	HCM	NBL	9.3	A	9.8	A	11.2	B	11.5	B	No	No
5	Sierra Highway/Backus Road	HCM	EBL	8.9	A	8.6	A	10.5	B	8.7	A	No	No
6	Sierra Highway/Sopp Road	HCM	WBL	9.8	A	9.9	A	12.4	B	12.3	B	No	No

HCM = Highway Capacity Manual
1 Delay in seconds per vehicle
2 Level of Service (LOS)
3 There were zero vehicles on the northbound approach during the PM peak hour, therefore zero delay was reported
4 Westbound left (WBL) is the critical movement
5 Eastbound left (EBL) is the critical movement

Table 14 Cumulative plus Project Roadway Segment Level of Service

Roadway Segment	Configuration	LOS "D" ADT	Cumulative ADT1	Cumulative LOS2	Project Traffic	Cumulative plus Project ADT1	Cumulative plus Project LOS2
Lone Butte Road							
-south of SR-58	2 Lane Undivided	14,300	68	A/B	851	919	A/B
-north of Trotter Avenue	2 Lane Undivided	14,300	1,318	A/B	851	2,169	A/B
United Street							
-Purdy Avenue and Reed Avenue	2 Lane Undivided	14,300	980	A/B	0	980	A/B
Sierra Highway							
-Silver Queen Road and Trotter Avenue	2 Lane Undivided	14,300	1,014	A/B	0	1,014	A/B
Holt Street							
-Purdy Avenue and Silver Queen Road	2 Lane Undivided	14,300	499	A/B	0	499	A/B
Purdy Avenue							
-east of SR 14	2 Lane Undivided	14,300	988	A/B	87	1,075	A/B
Oak Creek Road							
-near Westwind and Windhub Substations	2 Lane Undivided	14,300	2,159	A/B	87	2,246	A/B
SR-14							
- north of SR-58	4 Lane Divided	51,000	18,697	A/B	94	18,971	A/B
- between SR-58 and Silver Queen Road	4 Lane Divided	51,000	17,585	A/B	999	18,584	A/B
- south of Silver Queen Road	4 Lane Divided	51,000	17,553	A/B	1,595	19,148	A/B

Source: Dudek 2018
Note: LOS based is on FDOT 2012 Generalized Average Annual Daily Volumes for Rural Undeveloped Areas and Cities - Table 3
1 ADT – Average Daily Traffic
2 LOS – Level of Service

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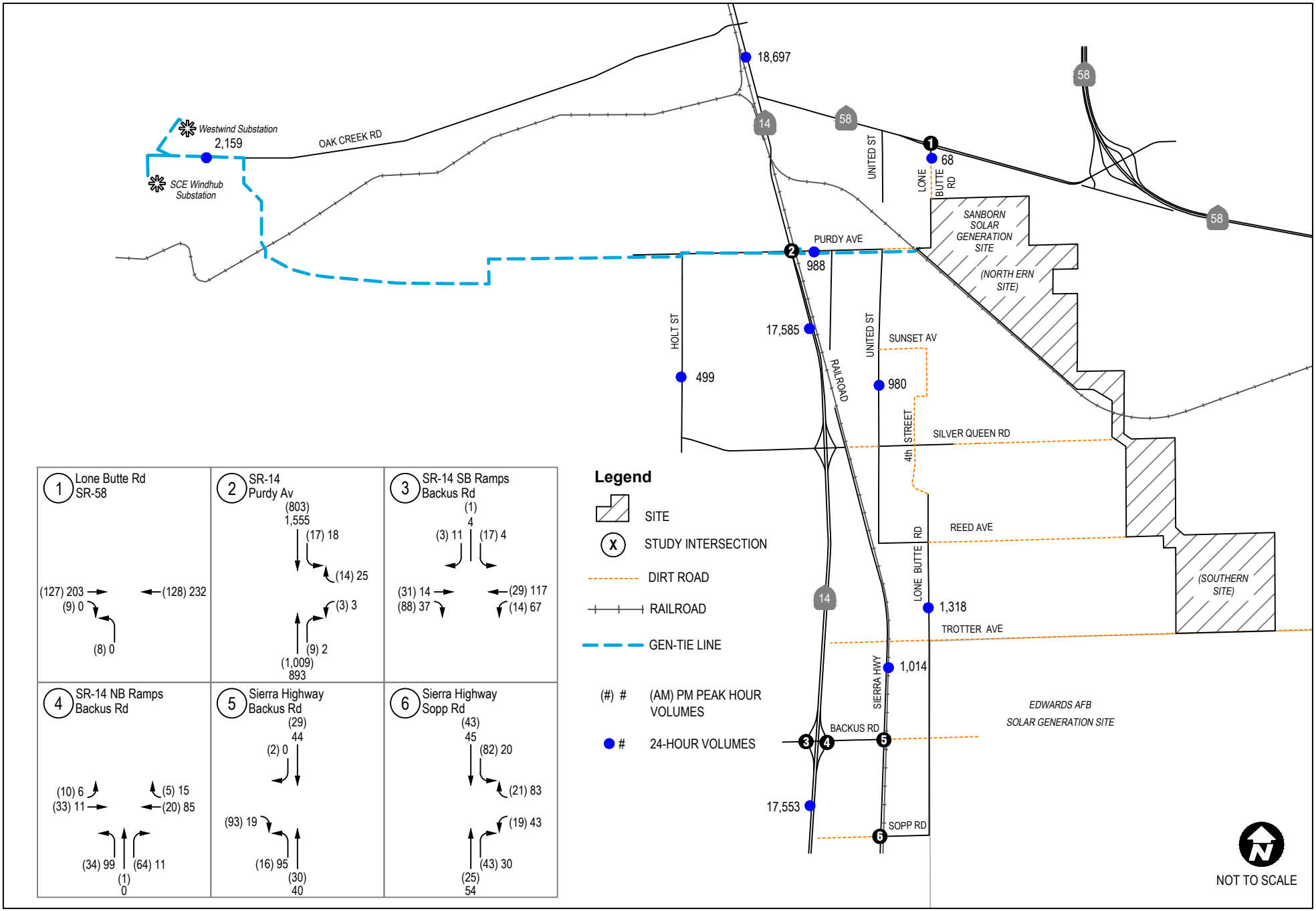

FIGURE 9

Cumulative Conditions Traffic Volumes

Traffic Impact Analysis Sanborn Solar Project

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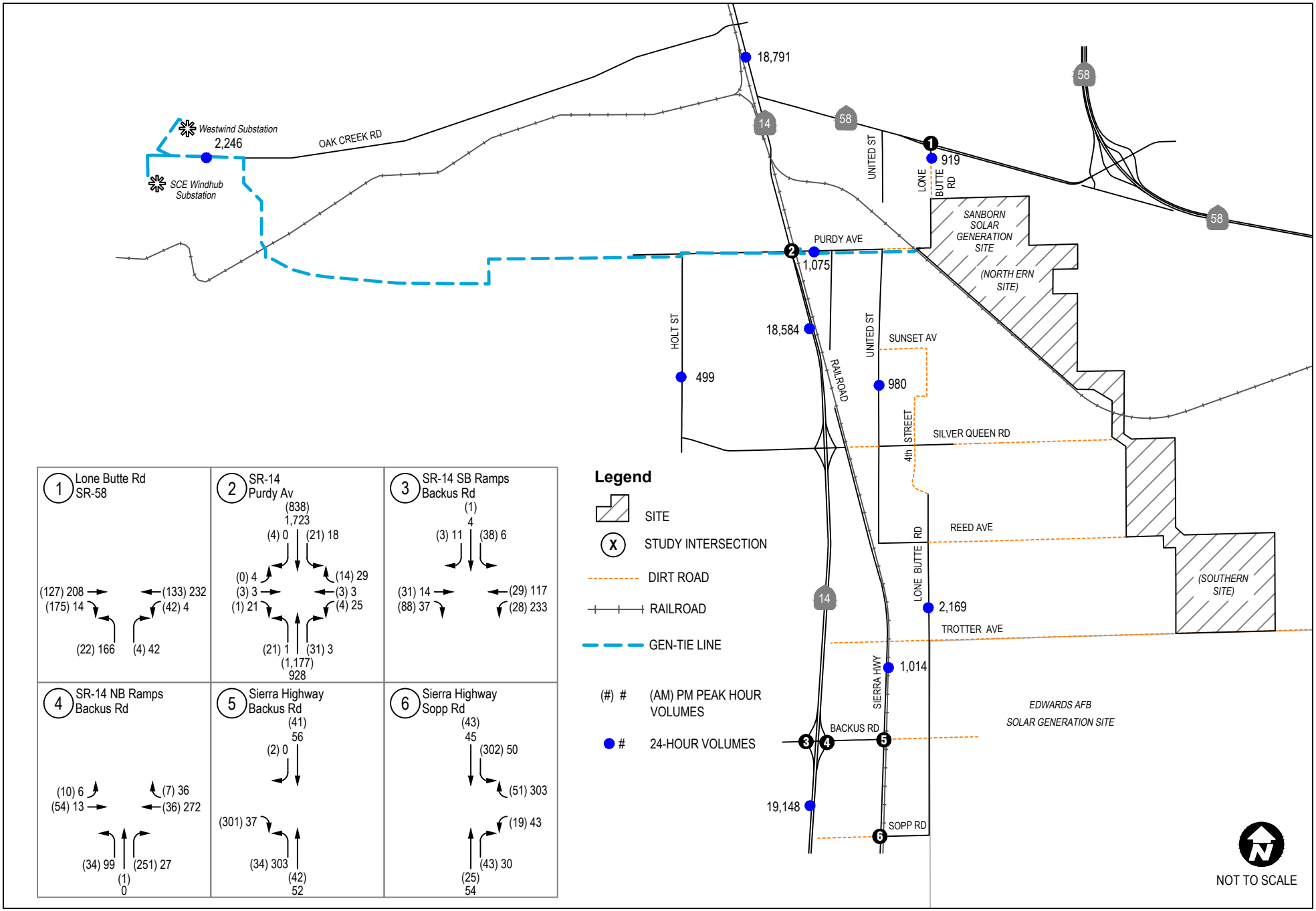

FIGURE 10

Cumulative Conditions plus Project Traffic Volumes

Traffic Impact Analysis Sanborn Solar Project

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7 Mitigation Measures

As shown in the TIA, all the study area intersections and roadway segments are operating at acceptable levels of service under existing conditions. The level of service analysis provided above demonstrates that with the maximum level of construction-related traffic added to the study area, the projected LOS for the study area intersections and roadway segments would not be significantly impacted by the proposed project as analyzed under existing conditions.

According to the Kern County and Caltrans significance criteria, the construction-related traffic from the proposed project would not create significant traffic impacts to all other study area intersections and roadway segments under the Existing plus Project conditions, as they are all forecast to continue to operate at LOS D or better with the addition of project-related construction traffic. However, when analyzed under Cumulative plus Project conditions, the SR-14/Purdy Avenue intersection is projected to operate at LOS E during the PM peak hour as a result of gen-tie construction traffic turning left onto SR-14 from Purdy Avenue. To improve the level of service at this intersection as a result of project traffic added to Cumulative Year (2020) conditions, the following mitigation shall be implemented:

MM TRAF-1: **SR-14/Purdy Avenue (#2):** Prior to receiving construction permits from the County, the project shall implement a Construction Traffic Management Plan that would restrict PM peak hour traffic associated with the construction of gen-tie facilities, only (September 2020 to December 2020), from making a left turn from Purdy Avenue onto SR-14. This traffic shall be re-distributed onto adjacent roadways so that some traffic would use higher capacity facilities to complete the left turn movements across SR-14, as follows:

- All eastbound left turning project traffic related to the gen-tie component (4 vehicles) shall utilize Silver Queen Road or Oak Creek Road to access SR-14 during the PM peak hour.
- At least 5 west-bound left vehicles (of the total 25 vehicles) would be required to utilize the Backus Road interchange to access SR-14 during the PM peak hour.

Table 15 indicates the level of service under Cumulative plus Project conditions with application of MM TRAF-1 above.

Table 15 Cumulative Year plus Project Peak Hour Intersection Level of Service with Mitigation

No.	Intersection	LOS Method	Critical Movement	Cumulative plus Project			
				AM Peak		*PM Peak*	
				Delay[1]	*LOS*[2]	*Delay*[1]	*LOS*[2]
2	SR-14 /Purdy Avenue	HCM	WBL[4] /EBL[5]	28.1[5]	D	33.3[4]	D

HCM = Highway Capacity Manual
1 Delay in seconds per vehicle
2 Level of Service (LOS)
3 There were zero vehicles on the northbound approach during the PM peak hour, therefore zero delay was reported
4 Westbound left (WBL) is the critical movement
5 Eastbound left (EBL) is the critical movement

Additionally, the construction of the project would result in a temporary impact on the existing transportation system in the study area. This would primarily be due to the need for potential lane closures along roadway segments and at intersections. Per the applicant, road closures are anticipated to be minimal, and would be localized. Roads would stay open and a safety crew member would stop or direct traffic at specific locations where construction is ongoing. Therefore, such general mitigation measures would be undertaken to reduce these temporary impacts resulting from the construction-related traffic and lane closures. These general mitigation measures would be identified in a Construction Traffic Management Plan.

The Construction Traffic Management Plan would include but not necessarily be limited to the following:

- Temporary traffic control devices in accordance with Caltrans' California Manual on Uniform Traffic Control Device (CAMUTCD), and notification to the Kern County Public Works Department to identify locations/sections along gen-tie line where construction is ongoing. This may include slow-moving-vehicle warning signs, signage to warn of merging trucks, barriers for separating construction and non-construction traffic, use of traffic control flagmen, and any additional measures required for the sole convenience of safely passing non-construction traffic through and around construction areas. Some parts of the gen-tie alignment will occur adjacent to existing roadways where extra precautions will be necessary to provide for the safe passage of non-construction traffic.
- Scheduling of heavy truck traffic, hauling materials and equipment to the site, during non-peak periods to the maximum extent possible. Scheduling of worker shift changes so as not to coincide with existing background traffic peak periods if feasible.
- Establish procedures for coordinating with local emergency response agencies to ensure dissemination of information regarding emergency response vehicle routes affected by construction activities.
- Encourage carpooling among workers to reduce worker commute trips entering and exiting the study area.

8 Findings and Recommendations

Based on the results of the traffic analysis in this TIA, the following summarizes the traffic impacts of the proposed project for the Sanborn Solar. General findings include:

- The northern and southern solar sites would generate 1,074 daily trips, 412 AM peak hour trips (396 inbound and 16 outbound), and 412 PM peak hour trips (16 inbound and 396 outbound). With the application of PCE factors to truck trips, the proposed project would generate 1,702 PCE daily trips, and 476 PCE trips during the AM peak hour (428 inbound and 48 outbound) and 476 PCE trips during the PM peak hour (48 inbound and 476 outbound).
- The gen-tie would generate 122 daily trips, 52 AM peak hour trips (50 inbound and 2 outbound), and 52 PM peak hour trips (2 inbound and 50 outbound). With the application of PCE factors to truck trips, the proposed project would generate 174 PCE daily trips, and 60 PCE trips during the AM peak hour (54 inbound and 6 outbound) and 60 PCE trips during the PM peak hour (6 inbound and 54 outbound).
- All of the study area intersections and roadway segments currently operate at LOS B (intersections) or better or at LOS A/B (roadway segments) under existing (year 2018) conditions during both the peak hour and daily traffic conditions.
- All the study area intersections and roadway segments are forecast to operate at LOS D or better (intersections) and LOS A/B (roadway segments) during both the peak hours and daily traffic conditions under Existing plus Project condition.
- All of the study area intersections and roadway segments currently operate at LOS C (intersections) or better or at LOS A/B (roadway segments) under Cumulative (year 2020) conditions during both the peak hour and daily traffic conditions.
- All of the study area intersections and roadway segments are forecast to operate at LOS D (intersections) or better or at LOS A/B (roadway segments) under Cumulative plus Project conditions during both the peak hour and daily traffic conditions, with the exception of the SR-14/Purdy Avenue intersection, which is expected to operate at LOS E during the PM peak hour. As detailed by the mitigation measure in Section 7 above, PM peak hour traffic related to construction of gen-tie facilities making a left turn from Purdy Avenue onto SR-14 shall be re-distributed onto adjacent roadways so that some project traffic would use higher capacity facilities to complete the left turn movements across SR-14, improving the level of service to LOS D (see Table 15).
- Construction-related activities across SR-14, and any other State highway facilities (SR-58), will be conducted consistent with the Caltrans Encroachment Permit process.
- Project impacts would be further minimized based on the application of a Construction Traffic Management Plan which would reduce temporary impacts resulting from the construction-related traffic and lane closures associated with the gen-tie line installation.

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APPENDIX A

Traffic Counts

National Data & Surveying Services Intersection Turning Movement Count

Location: Lone Butte Rd & SR 58
City: Mojave
Control: 1-Way Stop (NB)

Project ID: 18-02055-003
Date: 4/19/2018

Total

NS/EW Streets:	Lone Butte Rd				Lone Butte Rd				SR 58				SR 58				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	22	0	0	0	18	0	0	40
7:15 AM	1	0	0	0	0	0	0	0	0	12	0	0	0	14	0	0	27
7:30 AM	0	0	0	0	0	0	0	0	0	26	1	0	0	17	0	0	44
7:45 AM	1	0	0	0	0	0	0	0	0	25	2	0	0	17	0	0	45
8:00 AM	1	0	0	0	0	0	0	0	0	21	1	0	0	26	0	0	49
8:15 AM	1	0	0	0	0	0	0	0	0	18	0	0	0	24	0	0	43
8:30 AM	0	0	0	0	0	0	0	0	0	17	0	0	0	22	0	0	39
8:45 AM	0	0	0	0	0	0	0	0	0	19	0	0	0	18	0	0	37
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	0	0	0	0	0	0	0	0	160	4	0	0	156	0	0	324
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%					0.00%	97.56%	2.44%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	3	0	0	0	0	0	0	0	0	90	4	0	0	84	0	0	181
PEAK HR FACTOR :	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.865	0.500	0.000	0.000	0.808	0.000	0.000	0.923
	0.750								0.870				0.808				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	37	0	0	0	33	0	0	70
4:15 PM	0	0	0	0	0	0	0	0	0	29	0	0	0	44	0	0	73
4:30 PM	0	0	0	0	0	0	0	0	0	39	0	0	0	32	0	0	71
4:45 PM	0	0	0	0	0	0	0	0	0	35	0	0	0	50	0	0	85
5:00 PM	0	0	0	0	0	0	0	0	0	39	0	0	0	32	0	0	71
5:15 PM	0	0	0	0	0	0	0	0	0	25	0	0	0	27	0	0	52
5:30 PM	0	0	0	0	0	0	0	0	0	19	0	0	0	24	0	0	43
5:45 PM	0	0	0	0	0	0	0	0	0	32	0	0	0	21	0	0	53
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	255	0	0	0	263	0	0	518
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	142	0	0	0	158	0	0	300
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.910	0.000	0.000	0.000	0.790	0.000	0.000	0.882
									0.910				0.790				

National Data & Surveying Services Intersection Turning Movement Count

Location: Lone Butte Rd & SR 58
City: Mojave
Control: 1-Way Stop (NB)

Project ID: 18-02055-003
Date: 4/19/2018

PV

NS/EW Streets:	Lone Butte Rd				Lone Butte Rd				SR 58				SR 58				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	18	0	0	0	15	0	0	33
7:15 AM	0	0	0	0	0	0	0	0	0	7	0	0	0	12	0	0	19
7:30 AM	0	0	0	0	0	0	0	0	0	22	1	0	0	13	0	0	36
7:45 AM	1	0	0	0	0	0	0	0	0	22	1	0	0	15	0	0	39
8:00 AM	0	0	0	0	0	0	0	0	0	19	0	0	0	20	0	0	39
8:15 AM	0	0	0	0	0	0	0	0	0	14	0	0	0	19	0	0	33
8:30 AM	0	0	0	0	0	0	0	0	0	15	0	0	0	17	0	0	32
8:45 AM	0	0	0	0	0	0	0	0	0	14	0	0	0	14	0	0	28
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	0	0	0	0	0	0	0	131	2	0	0	125	0	0	259
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%					0.00%	98.50%	1.50%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	1	0	0	0	0	0	0	0	0	77	2	0	0	67	0	0	147
PEAK HR FACTOR :	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.875	0.500	0.000	0.000	0.838	0.000	0.000	0.942
	0.250								0.859				0.838				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	30	0	0	0	23	0	0	53
4:15 PM	0	0	0	0	0	0	0	0	0	20	0	0	0	38	0	0	58
4:30 PM	0	0	0	0	0	0	0	0	0	34	0	0	0	25	0	0	59
4:45 PM	0	0	0	0	0	0	0	0	0	31	0	0	0	41	0	0	72
5:00 PM	0	0	0	0	0	0	0	0	0	35	0	0	0	27	0	0	62
5:15 PM	0	0	0	0	0	0	0	0	0	19	0	0	0	20	0	0	39
5:30 PM	0	0	0	0	0	0	0	0	0	16	0	0	0	18	0	0	34
5:45 PM	0	0	0	0	0	0	0	0	0	24	0	0	0	18	0	0	42
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	209	0	0	0	210	0	0	419
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	120	0	0	0	131	0	0	251
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.857	0.000	0.000	0.000	0.799	0.000	0.000	0.872
									0.857				0.799				

National Data & Surveying Services Intersection Turning Movement Count

Location: Lone Butte Rd & SR 58
City: Mojave
Control: 1-Way Stop (NB)

Project ID: 18-02055-003
Date: 4/19/2018

MT

NS/EW Streets:	Lone Butte Rd				Lone Butte Rd				SR 58				SR 58				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	3	0	0	0	7	0	0	10
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	**07:30 AM - 08:30 AM**																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	5
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.375	0.000	0.000	0.625
										0.500				0.375			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3
4:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	4	0	0	0	5	0	0	9
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	**04:15 PM - 05:15 PM**																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	0	6
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.000	0.750	0.000	0.000	0.500
										0.375				0.750			

National Data & Surveying Services Intersection Turning Movement Count

Location: Lone Butte Rd & SR 58
City: Mojave
Control: 1-Way Stop (NB)

Project ID: 18-02055-003
Date: 4/19/2018

LT

NS/EW Streets:	Lone Butte Rd				Lone Butte Rd				SR 58				SR 58				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	4	0	0	0	2	0	0	6
7:15 AM	1	0	0	0	0	0	0	0	0	4	0	0	0	2	0	0	7
7:30 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0	0	7
7:45 AM	0	0	0	0	0	0	0	0	0	3	1	0	0	2	0	0	6
8:00 AM	1	0	0	0	0	0	0	0	0	2	1	0	0	4	0	0	8
8:15 AM	1	0	0	0	0	0	0	0	0	3	0	0	0	4	0	0	8
8:30 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	5
8:45 AM	0	0	0	0	0	0	0	0	0	5	0	0	0	3	0	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	0	0	0	0	0	0	0	0	26	2	0	0	24	0	0	55
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%					0.00%	92.86%	7.14%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	**07:30 AM - 08:30 AM**																TOTAL
PEAK HR VOL :	2	0	0	0	0	0	0	0	0	11	2	0	0	14	0	0	29
PEAK HR FACTOR :	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.917	0.500	0.000	0.000	0.875	0.000	0.000	0.906
	0.500								0.813				0.875				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	7	0	0	0	9	0	0	16
4:15 PM	0	0	0	0	0	0	0	0	0	7	0	0	0	5	0	0	12
4:30 PM	0	0	0	0	0	0	0	0	0	4	0	0	0	7	0	0	11
4:45 PM	0	0	0	0	0	0	0	0	0	4	0	0	0	8	0	0	12
5:00 PM	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	0	8
5:15 PM	0	0	0	0	0	0	0	0	0	6	0	0	0	6	0	0	12
5:30 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	6	0	0	9
5:45 PM	0	0	0	0	0	0	0	0	0	7	0	0	0	3	0	0	10
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	42	0	0	0	48	0	0	90
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	**04:15 PM - 05:15 PM**																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	19	0	0	0	24	0	0	43
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.679	0.000	0.000	0.000	0.750	0.000	0.000	0.896
									0.679				0.750				

Prepared by National Data & Surveying Services

Lone Butte Rd & SR 58

Peak Hour Turning Movement Count

ID: 18-02055-003
City: Mojave

Day: Thursday
Date: 04/19/2018

	PEAK HOURS	COUNT PERIODS
AM	07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:15 PM - 05:15 PM	04:00 PM - 06:00 PM

CONTROL: 1-Way Stop (NB)

	AM	NOON	PM
TEV	181	0	300
PHF	0.92		0.88

Lone Butte Rd — SOUTHBOUND

	Right	Thru	Left	U-Turn	Departing
AM	0	0	0	0	0
NOON	0	0	0	0	0
PM	0	0	0	0	0
Lanes	0	1	0	0	

SR 58 — WESTBOUND

	PM	NOON	AM	Lanes
Right	0	0	0	0
Thru	158	0	84	2
Left	0	0	0	1
U-Turn	0	0	0	0
Departing	142	0	90	

SR 58 — EASTBOUND

	AM	NOON	PM	Lanes
Departing	87	0	158	
U-Turn	0	0	0	0
Left	0	0	0	1
Thru	90	0	142	2
Right	4	0	0	1

Lone Butte Rd — NORTHBOUND

	Departing	U-Turn	Left	Thru	Right
Lanes		0	0	1	0
PM	0	0	0	0	0
NOON	0	0	0	0	0
AM	4	0	3	0	0

PV (AM)

Approach	Left	Thru	Right
Southbound	0	0	0
Eastbound	0	77	2
Westbound	0	67	0
Northbound	1	0	0

MT (AM)

Approach	Left	Thru	Right
Southbound	0	0	0
Eastbound	0	2	0
Westbound	0	3	0
Northbound	0	0	0

PV (NOON)

Approach	Left	Thru	Right
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

MT (NOON)

Approach	Left	Thru	Right
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

PV (PM)

Approach	Left	Thru	Right
Southbound	0	0	0
Eastbound	0	120	0
Westbound	0	131	0
Northbound	0	0	0

MT (PM)

Approach	Left	Thru	Right
Southbound	0	0	0
Eastbound	0	3	0
Westbound	0	3	0
Northbound	0	0	0

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North leg	0	0	0
South leg	0	0	0
East leg	0	0	0
West leg	0	0	0
NW diagonal	0	0	0
NE diagonal	0	0	0
SW diagonal	0	0	0
SE diagonal	0	0	0

National Data & Surveying Services

Intersection Turning Movement Count

Location: SR 14 & Purdy Ave
City: Mojave
Control: 2-Way Stop (EB/WB)

Project ID: 18-02055-001
Date: 4/19/2018

Total

NS/EW Streets:	SR 14				SR 14				Purdy Ave				Purdy Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	219	1	0	5	127	0	0	0	0	0	0	1	0	2	0	355
7:15 AM	0	167	1	0	1	154	0	0	0	0	0	0	0	0	4	0	327
7:30 AM	0	219	2	0	3	142	0	0	0	0	0	0	0	0	3	0	369
7:45 AM	0	195	4	0	4	149	0	0	0	0	0	0	0	0	2	0	354
8:00 AM	0	151	1	0	6	139	0	0	0	0	0	0	1	0	3	0	301
8:15 AM	0	135	0	0	4	159	0	0	0	0	0	0	2	0	2	0	302
8:30 AM	0	147	2	0	3	155	0	1	0	0	0	0	1	0	4	0	313
8:45 AM	0	130	4	0	4	146	0	0	0	0	0	0	0	0	3	0	287
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1363	15	0	30	1171	0	1	0	0	0	0	5	0	23	0	2608
APPROACH %'s :	0.00%	98.91%	1.09%	0.00%	2.50%	97.42%	0.00%	0.08%					17.86%	0.00%	82.14%	0.00%	
PEAK HR :	**07:00 AM - 08:00 AM**																TOTAL
PEAK HR VOL :	0	800	8	0	13	572	0	0	0	0	0	0	1	0	11	0	1405
PEAK HR FACTOR :	0.000	0.913	0.500	0.000	0.650	0.929	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.688	0.000	0.952
	0.914				0.944								0.750				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	191	0	1	1	238	0	0	0	0	0	0	2	0	3	0	436
4:15 PM	0	189	0	0	3	263	0	0	0	0	0	0	1	0	1	0	457
4:30 PM	0	172	0	0	2	368	0	0	0	0	0	0	2	0	11	0	555
4:45 PM	0	168	1	0	3	335	0	0	0	0	0	0	0	0	8	0	515
5:00 PM	0	177	1	0	5	274	0	0	0	0	0	0	0	0	1	0	458
5:15 PM	0	179	0	0	1	238	0	0	0	0	0	0	0	0	5	0	423
5:30 PM	0	184	0	0	2	201	0	0	0	0	0	0	1	0	4	0	392
5:45 PM	0	165	0	0	1	194	0	0	0	0	0	0	1	0	2	0	363
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1425	2	1	18	2111	0	0	0	0	0	0	7	0	35	0	3599
APPROACH %'s :	0.00%	99.79%	0.14%	0.07%	0.85%	99.15%	0.00%	0.00%					16.67%	0.00%	83.33%	0.00%	
PEAK HR :	**04:15 PM - 05:15 PM**																TOTAL
PEAK HR VOL :	0	706	2	0	13	1240	0	0	0	0	0	0	3	0	21	0	1985
PEAK HR FACTOR :	0.000	0.934	0.500	0.000	0.650	0.842	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.477	0.000	0.894
	0.937				0.847								0.462				

National Data & Surveying Services

Intersection Turning Movement Count

Location: SR 14 & Purdy Ave
City: Mojave
Control: 2-Way Stop (EB/WB)

Project ID: 18-02055-001
Date: 4/19/2018

PV

NS/EW Streets:	SR 14				SR 14				Purdy Ave				Purdy Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	204	1	0	5	115	0	0	0	0	0	0	0	0	2	0	327
7:15 AM	0	151	1	0	1	134	0	0	0	0	0	0	0	0	3	0	290
7:30 AM	0	199	2	0	2	123	0	0	0	0	0	0	0	0	3	0	329
7:45 AM	0	178	4	0	4	123	0	0	0	0	0	0	0	0	2	0	311
8:00 AM	0	128	1	0	6	122	0	0	0	0	0	0	0	0	2	0	259
8:15 AM	0	110	0	0	2	132	0	0	0	0	0	0	1	0	2	0	247
8:30 AM	0	129	1	0	2	135	0	1	0	0	0	0	0	0	4	0	272
8:45 AM	0	115	3	0	3	119	0	0	0	0	0	0	0	0	3	0	243
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1214	13	0	25	1003	0	1	0	0	0	0	1	0	21	0	2278
APPROACH %'s :	0.00%	98.94%	1.06%	0.00%	2.43%	97.47%	0.00%	0.10%					4.55%	0.00%	95.45%	0.00%	
PEAK HR :	**07:00 AM - 08:00 AM**																TOTAL
PEAK HR VOL :	0	732	8	0	12	495	0	0	0	0	0	0	0	0	10	0	1257
PEAK HR FACTOR :	0.000	0.897	0.500	0.000	0.600	0.924	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.833	0.000	0.955
	0.902				0.939								0.833				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	167	0	1	0	218	0	0	0	0	0	0	2	0	1	0	389
4:15 PM	0	179	0	0	3	236	0	0	0	0	0	0	1	0	1	0	420
4:30 PM	0	160	0	0	2	350	0	0	0	0	0	0	2	0	11	0	525
4:45 PM	0	155	1	0	2	313	0	0	0	0	0	0	0	0	7	0	478
5:00 PM	0	159	1	0	4	248	0	0	0	0	0	0	0	0	1	0	413
5:15 PM	0	166	0	0	0	219	0	0	0	0	0	0	0	0	5	0	390
5:30 PM	0	174	0	0	2	183	0	0	0	0	0	0	1	0	3	0	363
5:45 PM	0	156	0	0	1	167	0	0	0	0	0	0	1	0	2	0	327
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1316	2	1	14	1934	0	0	0	0	0	0	7	0	31	0	3305
APPROACH %'s :	0.00%	99.77%	0.15%	0.08%	0.72%	99.28%	0.00%	0.00%					18.42%	0.00%	81.58%	0.00%	
PEAK HR :	**04:15 PM - 05:15 PM**																TOTAL
PEAK HR VOL :	0	653	2	0	11	1147	0	0	0	0	0	0	3	0	20	0	1836
PEAK HR FACTOR :	0.00	0.912	0.500	0.000	0.688	0.819	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.455	0.000	0.874
	0.915				0.822								0.442				

National Data & Surveying Services

Intersection Turning Movement Count

Location: SR 14 & Purdy Ave
City: Mojave
Control: 2-Way Stop (EB/WB)

Project ID: 18-02055-001
Date: 4/19/2018

MT

AM

NS/EW Streets:	SR 14				SR 14				Purdy Ave				Purdy Ave				
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	7
7:15 AM	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
7:30 AM	0	7	0	0	0	3	0	0	0	0	0	0	0	0	0	0	10
7:45 AM	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4
8:00 AM	0	5	0	0	0	3	0	0	0	0	0	0	0	0	1	0	9
8:15 AM	0	7	0	0	1	3	0	0	0	0	0	0	0	0	0	0	11
8:30 AM	0	4	0	0	1	3	0	0	0	0	0	0	0	0	0	0	8
8:45 AM	0	2	0	0	1	7	0	0	0	0	0	0	0	0	0	0	10
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	39	0	0	3	23	0	0	0	0	0	0	0	0	1	0	66
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	11.54%	88.46%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%	
PEAK HR :	**07:00 AM - 08:00 AM**																TOTAL
PEAK HR VOL :	0	21	0	0	0	7	0	0	0	0	0	0	0	0	0	0	28
PEAK HR FACTOR :	0.000	0.750	0.000	0.000	0.000	0.583	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.700
	0.750				0.583												

PM

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	4	0	0	0	8	0	0	0	0	0	0	0	0	1	0	13
4:15 PM	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5
4:30 PM	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5
4:45 PM	0	4	0	0	1	3	0	0	0	0	0	0	0	0	0	0	8
5:00 PM	0	3	0	0	0	6	0	0	0	0	0	0	0	0	0	0	9
5:15 PM	0	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0	4
5:30 PM	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	4
5:45 PM	0	3	0	0	0	4	0	0	0	0	0	0	0	0	0	0	7
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	21	0	0	2	31	0	0	0	0	0	0	0	0	1	0	55
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	6.06%	93.94%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%	
PEAK HR :	**04:15 PM - 05:15 PM**																TOTAL
PEAK HR VOL :	0	11	0	0	1	15	0	0	0	0	0	0	0	0	0	0	27
PEAK HR FACTOR :	0.00	0.688	0.000	0.000	0.250	0.625	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.750
		0.688				0.667											

National Data & Surveying Services

Intersection Turning Movement Count

Location: SR 14 & Purdy Ave
City: Mojave
Control: 2-Way Stop (EB/WB)

Project ID: 18-02055-001
Date: 4/19/2018

HT

AM

NS/EW Streets:	SR 14				SR 14				Purdy Ave				Purdy Ave				
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	10	0	0	0	10	0	0	0	0	0	0	1	0	0	0	21
7:15 AM	0	9	0	0	0	20	0	0	0	0	0	0	0	0	1	0	30
7:30 AM	0	13	0	0	1	16	0	0	0	0	0	0	0	0	0	0	30
7:45 AM	0	15	0	0	0	24	0	0	0	0	0	0	0	0	0	0	39
8:00 AM	0	18	0	0	0	14	0	0	0	0	0	0	1	0	0	0	33
8:15 AM	0	18	0	0	1	24	0	0	0	0	0	0	1	0	0	0	44
8:30 AM	0	14	1	0	0	17	0	0	0	0	0	0	1	0	0	0	33
8:45 AM	0	13	1	0	0	20	0	0	0	0	0	0	0	0	0	0	34
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	110	2	0	2	145	0	0	0	0	0	0	4	0	1	0	264
APPROACH %'s :	0.00%	98.21%	1.79%	0.00%	1.36%	98.64%	0.00%	0.00%					80.00%	0.00%	20.00%	0.00%	
PEAK HR :	**07:00 AM - 08:00 AM**																TOTAL
PEAK HR VOL :	0	47	0	0	1	70	0	0	0	0	0	0	1	0	1	0	120
PEAK HR FACTOR :	0.000	0.783	0.000	0.000	0.250	0.729	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.769
	0.783				0.740								0.500				

PM

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	20	0	0	1	12	0	0	0	0	0	0	0	0	1	0	34
4:15 PM	0	8	0	0	0	24	0	0	0	0	0	0	0	0	0	0	32
4:30 PM	0	10	0	0	0	15	0	0	0	0	0	0	0	0	0	0	25
4:45 PM	0	9	0	0	0	19	0	0	0	0	0	0	0	0	1	0	29
5:00 PM	0	15	0	0	1	20	0	0	0	0	0	0	0	0	0	0	36
5:15 PM	0	11	0	0	0	18	0	0	0	0	0	0	0	0	0	0	29
5:30 PM	0	9	0	0	0	15	0	0	0	0	0	0	0	0	1	0	25
5:45 PM	0	6	0	0	0	23	0	0	0	0	0	0	0	0	0	0	29
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	88	0	0	2	146	0	0	0	0	0	0	0	0	3	0	239
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	1.35%	98.65%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%	
PEAK HR :	**04:15 PM - 05:15 PM**																TOTAL
PEAK HR VOL :	0	42	0	0	1	78	0	0	0	0	0	0	0	0	1	0	122
PEAK HR FACTOR :	0.00	0.700	0.000	0.000	0.250	0.813	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.847
	0.700				0.823								0.250				

Prepared by National Data & Surveying Services

SR 14 & Purdy Ave

Peak Hour Turning Movement Count

ID: 18-02055-001
City: Mojave

Day: Thursday
Date: 04/19/2018

PEAK HOURS	COUNT PERIODS
07:00 AM - 08:00 AM	07:00 AM - 09:00 AM
NONE	NONE
04:15 PM - 05:15 PM	04:00 PM - 06:00 PM

SR 14 — SOUTHBOUND

AM	0	572	13	0	811	AM
NOON	0	0	0	0	0	NOON
PM	0	1240	13	0	727	PM

Purdy Ave — EASTBOUND

AM	NOON	PM	
0	0	0	
0	0	0	0
0	0	0	0
0	0	0	1
0	0	0	0
AM	NOON	PM	

Purdy Ave — WESTBOUND

PM	NOON	AM	
21	0	11	0
0	0	0	1
3	0	1	0
0	0	0	0
15	0	21	
PM	NOON	AM	

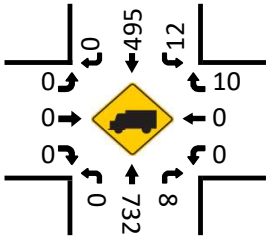
SR 14 — NORTHBOUND

PM	1243	0	0	706	2	PM
NOON	0	0	0	0	0	NOON
AM	573	0	0	800	8	AM

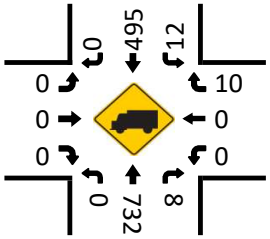
0	2	1	0
0	1	2	0

CONTROL			
2-Way Stop (EB/WB)			
TEV	1405	0	1985
	AM	NOON	PM
PHF	0.95		0.89

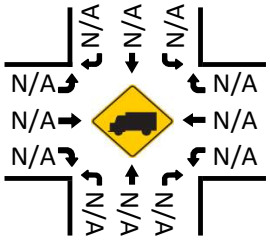
PV (AM)



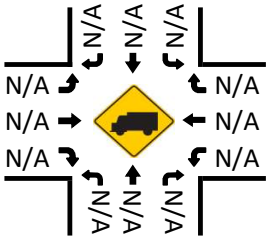
PV (AM)



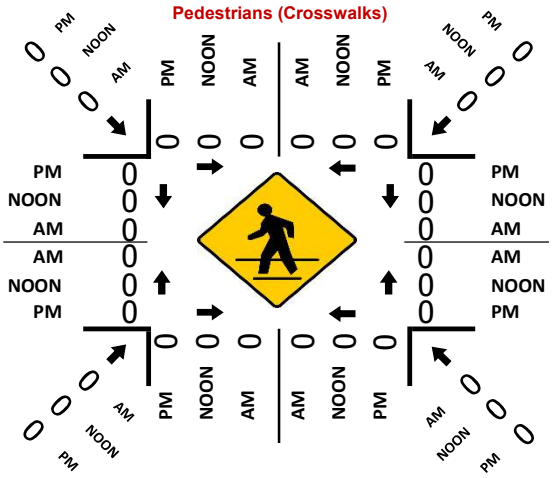
PV (NOON)



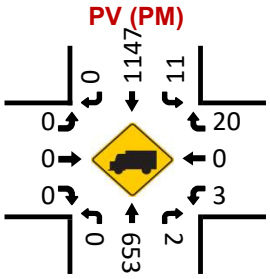
PV (NOON)



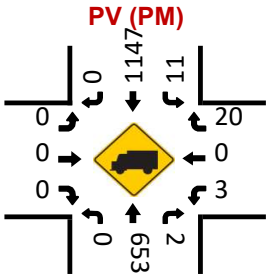
Pedestrians (Crosswalks)



PV (PM)



PV (PM)



SR 14

PM	1243	0	0	706	2	PM
NOON	0	0	0	0	0	NOON
AM	573	0	0	800	8	AM

NORTHBOUND

National Data & Surveying Services Intersection Turning Movement Count

Location: SR 14 SB Ramps & Backus Rd
City: Mojave
Control: 1-Way Stop(SB)

Project ID: 17-08110-006
Date: 11/14/2017

Total

NS/EW Streets:	SR 14 SB Ramps				SR 14 SB Ramps				Backus Rd				Backus Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	1	0	0	8	25	0	2	6	0	0	42
7:15 AM	0	0	0	0	3	1	0	0	0	9	23	0	2	7	0	0	45
7:30 AM	0	0	0	0	3	0	0	0	0	3	17	0	0	6	0	0	29
7:45 AM	0	0	0	0	0	0	2	0	0	7	14	0	1	5	0	0	29
8:00 AM	0	0	0	0	0	1	0	0	0	3	15	0	4	11	0	0	34
8:15 AM	0	0	0	0	0	1	2	0	0	1	14	0	0	8	0	0	26
8:30 AM	0	0	0	0	1	0	0	0	0	2	13	0	0	8	0	0	24
8:45 AM	0	0	0	0	0	0	1	0	0	5	9	0	1	10	0	0	26
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	7	3	6	0	0	38	130	0	10	61	0	0	255
APPROACH %'s :					43.75%	18.75%	37.50%	0.00%	0.00%	22.62%	77.38%	0.00%	14.08%	85.92%	0.00%	0.00%	
PEAK HR :	**07:00 AM - 08:00 AM**																TOTAL
PEAK HR VOL :	0	0	0	0	6	1	3	0	0	27	79	0	5	24	0	0	145
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.500	0.250	0.375	0.000	0.000	0.750	0.790	0.000	0.625	0.857	0.000	0.000	0.806
					0.625				0.803				0.806				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	1	3	4	0	0	1	5	0	1	19	0	0	34
4:15 PM	0	0	0	0	1	1	2	0	0	3	7	0	3	27	0	0	44
4:30 PM	0	0	0	0	0	0	5	0	0	4	6	0	4	28	0	0	47
4:45 PM	0	0	0	0	0	1	1	0	0	4	9	0	2	23	0	0	40
5:00 PM	0	0	0	0	1	1	2	0	0	2	12	0	0	27	0	0	45
5:15 PM	0	0	0	0	2	0	3	0	0	2	10	0	1	17	0	0	35
5:30 PM	0	0	0	0	0	1	1	0	0	3	10	0	0	15	0	0	30
5:45 PM	0	0	0	0	1	0	5	0	0	2	6	0	1	13	0	0	28
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	6	7	23	0	0	21	65	0	12	169	0	0	303
APPROACH %'s :					16.67%	19.44%	63.89%	0.00%	0.00%	24.42%	75.58%	0.00%	6.63%	93.37%	0.00%	0.00%	
PEAK HR :	**04:15 PM - 05:15 PM**																TOTAL
PEAK HR VOL :	0	0	0	0	2	3	10	0	0	13	34	0	9	105	0	0	176
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.500	0.750	0.500	0.000	0.000	0.813	0.708	0.000	0.563	0.938	0.000	0.000	0.936
					0.750				0.839				0.891				

National Data & Surveying Services Intersection Turning Movement Count

Location: SR 14 SB Ramps & Backus Rd
City: Mojave
Control: 1-Way Stop(SB)

Project ID: 17-08110-006
Date: 11/14/2017

PV

NS/EW Streets:	SR 14 SB Ramps				SR 14 SB Ramps				Backus Rd				Backus Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	1	0	0	8	24	0	2	6	0	0	41
7:15 AM	0	0	0	0	3	1	0	0	0	9	23	0	2	6	0	0	44
7:30 AM	0	0	0	0	3	0	0	0	0	3	17	0	0	6	0	0	29
7:45 AM	0	0	0	0	0	0	2	0	0	6	14	0	1	5	0	0	28
8:00 AM	0	0	0	0	0	1	0	0	0	3	15	0	4	9	0	0	32
8:15 AM	0	0	0	0	0	0	1	0	0	1	14	0	0	8	0	0	24
8:30 AM	0	0	0	0	0	0	0	0	0	1	11	0	0	6	0	0	18
8:45 AM	0	0	0	0	0	0	1	0	0	5	9	0	1	8	0	0	24
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	6	2	5	0	0	36	127	0	10	54	0	0	240
APPROACH %'s :					46.15%	15.38%	38.46%	0.00%	0.00%	22.09%	77.91%	0.00%	15.63%	84.38%	0.00%	0.00%	
PEAK HR :	**07:00 AM - 08:00 AM**																TOTAL
PEAK HR VOL :	0	0	0	0	6	1	3	0	0	26	78	0	5	23	0	0	142
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.500	0.250	0.375	0.000	0.000	0.722	0.813	0.000	0.625	0.958	0.000	0.000	0.807
					0.625				0.813				0.875				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	1	3	2	0	0	1	5	0	1	19	0	0	32
4:15 PM	0	0	0	0	1	1	2	0	0	3	7	0	3	27	0	0	44
4:30 PM	0	0	0	0	0	0	5	0	0	4	6	0	4	28	0	0	47
4:45 PM	0	0	0	0	0	0	1	0	0	4	9	0	2	23	0	0	39
5:00 PM	0	0	0	0	1	1	2	0	0	2	12	0	0	26	0	0	44
5:15 PM	0	0	0	0	2	0	3	0	0	2	9	0	1	17	0	0	34
5:30 PM	0	0	0	0	0	1	0	0	0	3	10	0	0	15	0	0	29
5:45 PM	0	0	0	0	1	0	5	0	0	2	6	0	1	13	0	0	28
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	6	6	20	0	0	21	64	0	12	168	0	0	297
APPROACH %'s :					18.75%	18.75%	62.50%	0.00%	0.00%	24.71%	75.29%	0.00%	6.67%	93.33%	0.00%	0.00%	
PEAK HR :	**04:15 PM - 05:15 PM**																TOTAL
PEAK HR VOL :	0	0	0	0	2	2	10	0	0	13	34	0	9	104	0	0	174
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.500	0.500	0.500	0.000	0.000	0.813	0.708	0.000	0.563	0.929	0.000	0.000	0.926
					0.700				0.839				0.883				

National Data & Surveying Services Intersection Turning Movement Count

Location: SR 14 SB Ramps & Backus Rd
City: Mojave
Control: 1-Way Stop(SB)

Project ID: 17-08110-006
Date: 11/14/2017

MT

NS/EW Streets:	SR 14 SB Ramps				SR 14 SB Ramps				Backus Rd				Backus Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	1	1	0	0	3	0	0	5
APPROACH %'s :									0.00%	50.00%	50.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.500
									0.500								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	1	1	0	0	0	1	0	0	1	0	0	4
APPROACH %'s :					0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	2
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.500
						0.250								0.250			

National Data & Surveying Services Intersection Turning Movement Count

Location: SR 14 SB Ramps & Backus Rd
City: Mojave
Control: 1-Way Stop(SB)

Project ID: 17-08110-006
Date: 11/14/2017

HT

AM

NS/EW Streets:	SR 14 SB Ramps				SR 14 SB Ramps				Backus Rd				Backus Rd				
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:15 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	1	0	0	0	0	1	2	0	0	2	0	0	6
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	1	1	1	0	0	1	2	0	0	4	0	0	10
APPROACH %'s :					33.33%	33.33%	33.33%	0.00%	0.00%	33.33%	66.67%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250
														0.250			

PM

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
APPROACH %'s :					0.00%	0.00%	100.00%	0.00%									
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

Prepared by National Data & Surveying Services

SR 14 SB Ramps & Backus Rd

Peak Hour Turning Movement Count

ID: 17-08110-006
City: Mojave

Day: Tuesday
Date: 11/14/2017

	PEAK HOURS	COUNT PERIODS
AM	07:00 AM - 08:00 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:15 PM - 05:15 PM	04:00 PM - 06:00 PM

SR 14 SB Ramps — SOUTHBOUND

	Right	Through	Left	U-Turn	Departing
AM	3	1	6	0	0
NOON	0	0	0	0	0
PM	10	3	2	0	0
Red	0	1	0	0	

Backus Rd — EASTBOUND

	AM	NOON	PM	Red
Departing	27	0	115	
U-Turn	0	0	0	0
Left	0	0	0	0
Through	27	0	13	1
Right	79	0	34	0

Backus Rd — WESTBOUND

	Red	PM	NOON	AM
Left	0	0	0	0
Through	1	105	0	24
Right	0	9	0	5
U-Turn	0	0	0	0
Departing		15	0	33

SR 14 SB Ramps — NORTHBOUND

	Departing	U-Turn	Left	Through	Right
Red		0	0	0	0
PM	46	0	0	0	0
NOON	0	0	0	0	0
AM	85	0	0	0	0

CONTROL

1-Way Stop(SB)

	AM	NOON	PM
TEV	145	0	176
PHF	0.81		0.94

PV (AM)

SB: 3 (right), 1 (through), 6 (left); EB: 0 (left), 26 (through), 78 (right); WB: 0 (U), 23 (through), 5 (right); NB: 0, 0, 0

PV (NOON)

All movements: N/A

PV (PM)

SB: 10 (right), 2 (through), 2 (left); EB: 0 (left), 13 (through), 34 (right); WB: 0 (U), 104 (through), 9 (right); NB: 0, 0, 0

HT (AM)

SB: 0, 0, 0; EB: 0, 0, 0; WB: 0, 1, 0; NB: 0, 0, 0

HT (NOON)

All movements: N/A

HT (PM)

SB: 0, 0, 0; EB: 0, 0, 0; WB: 0, 0, 0; NB: 0, 0, 0

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North	0	0	0
South	0	0	0
East	0	0	0
West	0	0	0
NW diagonal	0	0	0
NE diagonal	0	0	0
SW diagonal	0	0	0
SE diagonal	0	0	0

National Data & Surveying Services Intersection Turning Movement Count

Location: SR 14 NB Ramps & Backus Rd
City: Mojave
Control: 1-Way Stop(NB)

Project ID: 17-08110-007
Date: 11/14/2017

Total

NS/EW Streets:	SR 14 NB Ramps				SR 14 NB Ramps				Backus Rd				Backus Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	6	0	0	0	0	0	0	0	4	3	0	0	0	2	0	0	15
7:15 AM	7	0	2	0	0	0	0	0	4	9	0	0	0	2	1	0	25
7:30 AM	6	0	3	0	0	0	0	0	0	5	0	0	0	0	1	0	15
7:45 AM	4	0	0	0	0	0	0	0	4	4	0	0	0	2	0	0	14
8:00 AM	9	1	1	0	0	0	0	0	1	2	0	0	0	6	1	0	21
8:15 AM	5	0	0	0	0	0	0	0	1	0	0	0	0	3	2	0	11
8:30 AM	6	0	2	0	0	0	0	0	2	1	0	0	0	1	1	0	13
8:45 AM	8	0	1	0	0	0	0	0	2	2	0	0	0	3	2	0	18
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	51	1	9	0	0	0	0	0	18	26	0	0	0	19	8	0	132
APPROACH %'s :	83.61%	1.64%	14.75%	0.00%					40.91%	59.09%	0.00%	0.00%	0.00%	70.37%	29.63%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	26	1	6	0	0	0	0	0	9	20	0	0	0	10	3	0	75
PEAK HR FACTOR :	0.722	0.250	0.500	0.000	0.000	0.000	0.000	0.000	0.563	0.556	0.000	0.000	0.000	0.417	0.750	0.000	0.750
	0.750								0.558				0.464				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	15	0	1	0	0	0	0	0	0	2	0	0	0	5	0	0	23
4:15 PM	22	0	2	0	0	0	0	0	1	3	0	0	0	7	0	0	35
4:30 PM	24	0	0	0	0	0	0	0	0	3	0	0	0	9	2	0	38
4:45 PM	20	0	0	0	0	0	0	0	3	1	0	0	0	5	1	0	30
5:00 PM	23	0	0	0	0	0	0	0	1	2	0	0	0	4	1	0	31
5:15 PM	16	0	1	0	0	0	0	0	0	4	0	0	0	2	2	0	25
5:30 PM	13	0	2	0	0	0	0	0	0	3	0	0	0	2	1	0	21
5:45 PM	10	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	16
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	143	0	6	0	0	0	0	0	5	20	0	0	0	38	7	0	219
APPROACH %'s :	95.97%	0.00%	4.03%	0.00%					20.00%	80.00%	0.00%	0.00%	0.00%	84.44%	15.56%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	89	0	2	0	0	0	0	0	5	9	0	0	0	25	4	0	134
PEAK HR FACTOR :	0.927	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.417	0.750	0.000	0.000	0.000	0.694	0.500	0.000	0.882
	0.948								0.875				0.659				

National Data & Surveying Services Intersection Turning Movement Count

Location: SR 14 NB Ramps & Backus Rd
City: Mojave
Control: 1-Way Stop(NB)

Project ID: 17-08110-007
Date: 11/14/2017

PV

NS/EW Streets:	SR 14 NB Ramps				SR 14 NB Ramps				Backus Rd				Backus Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	6	0	0	0	0	0	0	0	4	3	0	0	0	2	0	0	15
7:15 AM	6	0	2	0	0	0	0	0	4	9	0	0	0	2	1	0	24
7:30 AM	6	0	3	0	0	0	0	0	0	5	0	0	0	0	1	0	15
7:45 AM	4	0	0	0	0	0	0	0	4	3	0	0	0	2	0	0	13
8:00 AM	7	1	1	0	0	0	0	0	1	2	0	0	0	6	1	0	19
8:15 AM	5	0	0	0	0	0	0	0	1	0	0	0	0	3	1	0	10
8:30 AM	4	0	2	0	0	0	0	0	1	0	0	0	0	1	1	0	9
8:45 AM	7	0	1	0	0	0	0	0	2	2	0	0	0	2	2	0	16
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	45	1	9	0	0	0	0	0	17	24	0	0	0	18	7	0	121
APPROACH %'s :	81.82%	1.82%	16.36%	0.00%					41.46%	58.54%	0.00%	0.00%	0.00%	72.00%	28.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	23	1	6	0	0	0	0	0	9	19	0	0	0	10	3	0	71
PEAK HR FACTOR :	0.821	0.250	0.500	0.000	0.000	0.000	0.000	0.000	0.563	0.528	0.000	0.000	0.000	0.417	0.750	0.000	0.740
	0.833								0.538				0.464				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	15	0	1	0	0	0	0	0	0	2	0	0	0	5	0	0	23
4:15 PM	22	0	2	0	0	0	0	0	1	3	0	0	0	7	0	0	35
4:30 PM	24	0	0	0	0	0	0	0	0	3	0	0	0	9	2	0	38
4:45 PM	20	0	0	0	0	0	0	0	3	1	0	0	0	5	1	0	30
5:00 PM	22	0	0	0	0	0	0	0	1	2	0	0	0	4	1	0	30
5:15 PM	16	0	1	0	0	0	0	0	0	4	0	0	0	2	2	0	25
5:30 PM	13	0	2	0	0	0	0	0	0	3	0	0	0	2	1	0	21
5:45 PM	10	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	16
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	142	0	6	0	0	0	0	0	5	20	0	0	0	38	7	0	218
APPROACH %'s :	95.95%	0.00%	4.05%	0.00%					20.00%	80.00%	0.00%	0.00%	0.00%	84.44%	15.56%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	88	0	2	0	0	0	0	0	5	9	0	0	0	25	4	0	133
PEAK HR FACTOR :	0.92	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.417	0.750	0.000	0.000	0.000	0.694	0.500	0.000	0.875
	0.938								0.875				0.659				

National Data & Surveying Services Intersection Turning Movement Count

Location: SR 14 NB Ramps & Backus Rd
City: Mojave
Control: 1-Way Stop(NB)

Project ID: 17-08110-007
Date: 11/14/2017

MT

NS/EW Streets:	SR 14 NB Ramps				SR 14 NB Ramps				Backus Rd				Backus Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:00 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	5
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%					0.00%	100.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	
PEAK HR :	**07:15 AM - 08:15 AM**																TOTAL
PEAK HR VOL :	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
PEAK HR FACTOR :	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.500
	0.250								0.250								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%													
PEAK HR :	**04:15 PM - 05:15 PM**																TOTAL
PEAK HR VOL :	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
	0.250																

National Data & Surveying Services Intersection Turning Movement Count

Location: SR 14 NB Ramps & Backus Rd
City: Mojave
Control: 1-Way Stop(NB)

Project ID: 17-08110-007
Date: 11/14/2017

HT

NS/EW Streets:	SR 14 NB Ramps				SR 14 NB Ramps				Backus Rd				Backus Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	2	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	4
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	6
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%					50.00%	50.00%	0.00%	0.00%					
PEAK HR :	**07:15 AM - 08:15 AM**																TOTAL
PEAK HR VOL :	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
PEAK HR FACTOR :	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500
	0.500																

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	**04:15 PM - 05:15 PM**																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

Prepared by National Data & Surveying Services

SR 14 NB Ramps & Backus Rd

Peak Hour Turning Movement Count

ID: 17-08110-007
City: Mojave

Day: Tuesday
Date: 11/14/2017

	PEAK HOURS	COUNT PERIODS
AM	07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:15 PM - 05:15 PM	04:00 PM - 06:00 PM

SR 14 NB Ramps – SOUTHBOUND

AM	0	0	0	0	13
NOON	0	0	0	0	0
PM	0	0	0	0	9
	0	0	0	0	

Backus Rd – EASTBOUND

	AM	NOON	PM	
	36	0	114	
	0	0	0	0
	9	0	5	0
	20	0	9	1
	0	0	0	0

Backus Rd – WESTBOUND

	PM	NOON	AM
0	4	0	3
1	25	0	10
0	0	0	0
0	0	0	0
	11	0	26

CONTROL

1-Way Stop(NB)

	AM	NOON	PM
TEV	75	0	134
PHF	0.75		0.88

SR 14 NB Ramps – NORTHBOUND

		0	0	1	0
PM	0	0	89	0	2
NOON	0	0	0	0	0
AM	0	0	26	1	6

PV (AM)

Approach	Movements
SB	0, 0, 0
EB	9, 19, 0
WB	3, 10, 0
NB	23, 1, 6

HT (AM)

Approach	Movements
SB	0, 0, 0
EB	0, 0, 0
WB	0, 0, 0
NB	2, 0, 0

PV (NOON)

Approach	Movements
SB	N/A, N/A, N/A
EB	N/A, N/A, N/A
WB	N/A, N/A, N/A
NB	N/A, N/A, N/A

HT (NOON)

Approach	Movements
SB	N/A, N/A, N/A
EB	N/A, N/A, N/A
WB	N/A, N/A, N/A
NB	N/A, N/A, N/A

PV (PM)

Approach	Movements
SB	0, 0, 0
EB	5, 9, 0
WB	4, 25, 0
NB	88, 0, 2

HT (PM)

Approach	Movements
SB	0, 0, 0
EB	0, 0, 0
WB	0, 0, 0
NB	0, 0, 0

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North	0, 0	0, 0	0, 0
South	0, 0	0, 0	0, 0
East	0, 0	0, 0	0, 0
West	0, 0	0, 0	0, 0
NW corner	0	0	0
NE corner	0	0	0
SW corner	0	0	0
SE corner	0	0	0

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Hwy & Backus Rd
City: Mojave
Control: 1-Way Stop(EB)

Project ID: 17-08110-008
Date: 11/14/2017

Total

NS/EW Streets:	Sierra Hwy				Sierra Hwy				Backus Rd				Backus Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	2	0	0	0	2	0	0	0	0	4	0	0	0	0	0	10
7:15 AM	2	6	0	0	0	3	0	0	0	0	8	0	0	0	0	0	19
7:30 AM	0	4	0	0	0	7	1	0	0	0	7	0	0	0	0	0	19
7:45 AM	0	2	0	0	0	4	0	0	0	0	4	0	0	0	0	0	10
8:00 AM	3	5	0	0	0	4	0	0	0	0	4	0	0	0	0	0	16
8:15 AM	5	3	0	0	0	4	0	0	0	0	0	0	0	0	0	0	12
8:30 AM	1	5	0	0	0	7	0	0	0	0	3	0	0	0	0	0	16
8:45 AM	1	5	0	0	0	5	0	0	1	0	0	0	0	0	0	0	12
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	14	32	0	0	0	36	1	0	1	0	30	0	0	0	0	0	114
APPROACH %'s :	30.43%	69.57%	0.00%	0.00%	0.00%	97.30%	2.70%	0.00%	3.23%	0.00%	96.77%	0.00%					
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	5	17	0	0	0	18	1	0	0	0	23	0	0	0	0	0	64
PEAK HR FACTOR :	0.417	0.708	0.000	0.000	0.000	0.643	0.250	0.000	0.000	0.000	0.719	0.000	0.000	0.000	0.000	0.000	0.842
	0.688				0.594				0.719								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	4	7	0	0	0	2	0	0	0	0	3	0	0	0	0	0	16
4:15 PM	8	7	0	0	0	4	0	0	0	0	4	0	0	0	0	0	23
4:30 PM	7	10	0	0	0	8	0	0	0	0	1	0	0	0	0	0	26
4:45 PM	5	4	0	0	0	13	0	0	0	0	1	0	0	0	0	0	23
5:00 PM	5	7	0	0	0	7	0	0	0	0	2	0	0	0	0	0	21
5:15 PM	2	7	0	0	0	5	1	0	0	0	3	0	0	0	0	0	18
5:30 PM	5	5	0	0	0	4	0	0	0	0	4	0	0	0	0	0	18
5:45 PM	1	1	0	0	0	7	0	0	0	0	3	0	0	0	0	0	12
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	37	48	0	0	0	50	1	0	0	0	21	0	0	0	0	0	157
APPROACH %'s :	43.53%	56.47%	0.00%	0.00%	0.00%	98.04%	1.96%	0.00%	0.00%	0.00%	100.00%	0.00%					
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	25	28	0	0	0	32	0	0	0	0	8	0	0	0	0	0	93
PEAK HR FACTOR :	0.781	0.700	0.000	0.000	0.000	0.615	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.894
	0.779				0.615				0.500								

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Hwy & Backus Rd
City: Mojave
Control: 1-Way Stop(EB)

Project ID: 17-08110-008
Date: 11/14/2017

PV

NS/EW Streets:	Sierra Hwy				Sierra Hwy				Backus Rd				Backus Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	2	0	0	0	2	0	0	0	0	4	0	0	0	0	0	10
7:15 AM	2	5	0	0	0	3	0	0	0	0	8	0	0	0	0	0	18
7:30 AM	0	3	0	0	0	7	0	0	0	0	7	0	0	0	0	0	17
7:45 AM	0	2	0	0	0	4	0	0	0	0	3	0	0	0	0	0	9
8:00 AM	3	5	0	0	0	4	0	0	0	0	4	0	0	0	0	0	16
8:15 AM	5	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	11
8:30 AM	1	4	0	0	0	6	0	0	0	0	2	0	0	0	0	0	13
8:45 AM	0	4	0	0	0	5	0	0	1	0	0	0	0	0	0	0	10
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	13	28	0	0	0	34	0	0	1	0	28	0	0	0	0	0	104
APPROACH %'s :	31.71%	68.29%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	3.45%	0.00%	96.55%	0.00%					
PEAK HR :	**07:15 AM - 08:15 AM**																TOTAL
PEAK HR VOL :	5	15	0	0	0	18	0	0	0	0	22	0	0	0	0	0	60
PEAK HR FACTOR :	0.417	0.750	0.000	0.000	0.000	0.643	0.000	0.000	0.000	0.000	0.688	0.000	0.000	0.000	0.000	0.000	0.833
	0.625				0.643				0.688								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	4	6	0	0	0	2	0	0	0	0	3	0	0	0	0	0	15
4:15 PM	8	7	0	0	0	4	0	0	0	0	4	0	0	0	0	0	23
4:30 PM	7	10	0	0	0	8	0	0	0	0	1	0	0	0	0	0	26
4:45 PM	5	4	0	0	0	13	0	0	0	0	1	0	0	0	0	0	23
5:00 PM	5	7	0	0	0	7	0	0	0	0	2	0	0	0	0	0	21
5:15 PM	2	7	0	0	0	4	1	0	0	0	3	0	0	0	0	0	17
5:30 PM	5	5	0	0	0	4	0	0	0	0	4	0	0	0	0	0	18
5:45 PM	1	1	0	0	0	5	0	0	0	0	3	0	0	0	0	0	10
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	37	47	0	0	0	47	1	0	0	0	21	0	0	0	0	0	153
APPROACH %'s :	44.05%	55.95%	0.00%	0.00%	0.00%	97.92%	2.08%	0.00%	0.00%	0.00%	100.00%	0.00%					
PEAK HR :	**04:15 PM - 05:15 PM**																TOTAL
PEAK HR VOL :	25	28	0	0	0	32	0	0	0	0	8	0	0	0	0	0	93
PEAK HR FACTOR :	0.78	0.700	0.000	0.000	0.000	0.615	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.894
	0.779				0.615				0.500								

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Hwy & Backus Rd
City: Mojave
Control: 1-Way Stop(EB)

Project ID: 17-08110-008
Date: 11/14/2017

MT

NS/EW Streets:	Sierra Hwy				Sierra Hwy				Backus Rd				Backus Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	3	0	0	0	2	1	0	0	0	1	0	0	0	0	0	8
APPROACH %'s :	25.00%	75.00%	0.00%	0.00%	0.00%	66.67%	33.33%	0.00%	0.00%	0.00%	100.00%	0.00%					
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	2	0	0	0	0	1	0	0	0	1	0	0	0	0	0	4
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.500
	0.500				0.250				0.250								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
APPROACH %'s :					0.00%	100.00%	0.00%	0.00%									
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Hwy & Backus Rd
City: Mojave
Control: 1-Way Stop(EB)

Project ID: 17-08110-008
Date: 11/14/2017

HT

NS/EW Streets:	Sierra Hwy				Sierra Hwy				Backus Rd				Backus Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%					
PEAK HR :	**07:15 AM - 08:15 AM**																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%									
PEAK HR :	**04:15 PM - 05:15 PM**																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

Prepared by National Data & Surveying Services

Sierra Hwy & Backus Rd

Peak Hour Turning Movement Count

ID: 17-08110-008
City: Mojave

Day: Tuesday
Date: 11/14/2017

	PEAK HOURS	COUNT PERIODS
AM	07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:15 PM - 05:15 PM	04:00 PM - 06:00 PM

Sierra Hwy – SOUTHBOUND

	Right	Through	Left	U-Turn	Departing
AM	1	18	0	0	17
NOON	0	0	0	0	0
PM	0	32	0	0	28
(red)	0	1	0	0	

Backus Rd – EASTBOUND

	AM	NOON	PM	(red)
Departing	6	0	25	
U-Turn	0	0	0	0
Left	0	0	0	0
Through	0	0	0	1
Right	23	0	8	0

Backus Rd – WESTBOUND

	(red)	PM	NOON	AM
Right	0	0	0	0
Through	0	0	0	0
Left	0	0	0	0
U-Turn	0	0	0	0
Departing		0	0	0

Sierra Hwy – NORTHBOUND

	Departing	U-Turn	Left	Through	Right
(red)		0	0	1	0
PM	40	0	25	28	0
NOON	0	0	0	0	0
AM	41	0	5	17	0

CONTROL

1-Way Stop(EB)

	AM	NOON	PM
TEV	64	0	93
PHF	0.84		0.89

PV (AM)

Approach	Left	Through	Right
Southbound	0	18	0
Eastbound	0	0	22
Westbound	0	0	0
Northbound	5	15	0

PV (NOON)

Approach	Left	Through	Right
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

PV (PM)

Approach	Left	Through	Right
Southbound	0	32	0
Eastbound	0	0	8
Westbound	0	0	0
Northbound	25	28	0

HT (AM)

Approach	Left	Through	Right
Southbound	0	0	0
Eastbound	0	0	0
Westbound	0	0	0
Northbound	0	0	0

HT (NOON)

Approach	Left	Through	Right
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

HT (PM)

Approach	Left	Through	Right
Southbound	0	0	0
Eastbound	0	0	0
Westbound	0	0	0
Northbound	0	0	0

Pedestrians (Crosswalks)

Crosswalk / Corner	AM	NOON	PM
North crosswalk (eastward)	0	0	0
North crosswalk (westward)	0	0	0
West crosswalk (southward)	0	0	0
West crosswalk (northward)	0	0	0
East crosswalk (southward)	0	0	0
East crosswalk (northward)	0	0	0
South crosswalk (eastward)	0	0	0
South crosswalk (westward)	0	0	0
NW diagonal	0	0	0
NE diagonal	0	0	0
SW diagonal	0	0	0
SE diagonal	0	0	0

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Hwy & Sopp Rd
City: Mojave
Control: 1-Way Stop(WB)

Project ID: 17-08110-009
Date: 11/14/2017

Total

NS/EW Streets:	Sierra Hwy				Sierra Hwy				Sopp Rd				Sopp Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	3	6	0	0	4	0	0	0	0	0	0	7	0	0	0	20
7:15 AM	0	8	10	0	1	12	0	0	0	0	0	0	5	0	0	0	36
7:30 AM	0	4	10	0	1	14	0	0	0	0	0	0	3	0	0	0	32
7:45 AM	0	3	13	0	1	7	0	0	0	0	0	0	4	0	0	0	28
8:00 AM	0	6	6	0	1	6	0	0	0	0	0	0	5	0	2	0	26
8:15 AM	0	6	5	0	0	5	0	0	0	0	0	0	3	0	3	0	22
8:30 AM	0	6	7	0	1	8	0	0	0	0	0	0	2	0	0	0	24
8:45 AM	0	6	1	0	0	5	0	0	0	0	0	0	2	0	0	0	14
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	42	58	0	5	61	0	0	0	0	0	0	31	0	5	0	202
APPROACH %'s :	0.00%	42.00%	58.00%	0.00%	7.58%	92.42%	0.00%	0.00%					86.11%	0.00%	13.89%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	21	39	0	4	39	0	0	0	0	0	0	17	0	2	0	122
PEAK HR FACTOR :	0.000	0.656	0.750	0.000	1.000	0.696	0.000	0.000	0.000	0.000	0.000	0.000	0.850	0.000	0.250	0.000	0.847
	0.833				0.717								0.679				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	10	7	0	0	3	0	0	0	0	0	0	7	0	1	0	28
4:15 PM	0	14	4	0	0	7	0	0	0	0	0	0	5	0	3	0	33
4:30 PM	0	14	6	0	0	11	0	0	0	0	0	0	17	0	3	0	51
4:45 PM	0	9	9	0	0	13	0	0	0	0	0	0	8	0	0	0	39
5:00 PM	0	12	7	0	1	10	0	0	0	0	0	0	6	0	0	0	36
5:15 PM	0	8	5	0	1	4	0	0	0	0	0	0	5	0	0	0	23
5:30 PM	0	10	5	0	1	8	0	0	0	0	0	0	5	0	0	0	29
5:45 PM	0	5	7	0	0	10	0	0	0	0	0	0	8	0	0	0	30
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	82	50	0	3	66	0	0	0	0	0	0	61	0	7	0	269
APPROACH %'s :	0.00%	62.12%	37.88%	0.00%	4.35%	95.65%	0.00%	0.00%					89.71%	0.00%	10.29%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	49	26	0	1	41	0	0	0	0	0	0	36	0	6	0	159
PEAK HR FACTOR :	0.000	0.875	0.722	0.000	0.250	0.788	0.000	0.000	0.000	0.000	0.000	0.000	0.529	0.000	0.500	0.000	0.779
	0.938				0.808								0.525				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Hwy & Sopp Rd
City: Mojave
Control: 1-Way Stop(WB)

Project ID: 17-08110-009
Date: 11/14/2017

PV

NS/EW Streets:	Sierra Hwy				Sierra Hwy				Sopp Rd				Sopp Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	3	5	0	0	4	0	0	0	0	0	0	7	0	0	0	19
7:15 AM	0	7	10	0	1	12	0	0	0	0	0	0	5	0	0	0	35
7:30 AM	0	3	10	0	1	14	0	0	0	0	0	0	3	0	0	0	31
7:45 AM	0	3	13	0	0	7	0	0	0	0	0	0	4	0	0	0	27
8:00 AM	0	6	6	0	1	6	0	0	0	0	0	0	5	0	2	0	26
8:15 AM	0	6	5	0	0	4	0	0	0	0	0	0	3	0	3	0	21
8:30 AM	0	5	7	0	1	6	0	0	0	0	0	0	2	0	0	0	21
8:45 AM	0	4	1	0	0	5	0	0	0	0	0	0	2	0	0	0	12
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	37	57	0	4	58	0	0	0	0	0	0	31	0	5	0	192
APPROACH %'s :	0.00%	39.36%	60.64%	0.00%	6.45%	93.55%	0.00%	0.00%					86.11%	0.00%	13.89%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	19	39	0	3	39	0	0	0	0	0	0	17	0	2	0	119
PEAK HR FACTOR :	0.000	0.679	0.750	0.000	0.750	0.696	0.000	0.000	0.000	0.000	0.000	0.000	0.850	0.000	0.250	0.000	0.850
	0.853				0.700								0.679				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	9	7	0	0	3	0	0	0	0	0	0	7	0	1	0	27
4:15 PM	0	14	4	0	0	7	0	0	0	0	0	0	5	0	3	0	33
4:30 PM	0	14	5	0	0	11	0	0	0	0	0	0	16	0	3	0	49
4:45 PM	0	9	9	0	0	13	0	0	0	0	0	0	7	0	0	0	38
5:00 PM	0	12	7	0	1	10	0	0	0	0	0	0	6	0	0	0	36
5:15 PM	0	8	5	0	1	3	0	0	0	0	0	0	5	0	0	0	22
5:30 PM	0	10	5	0	1	8	0	0	0	0	0	0	5	0	0	0	29
5:45 PM	0	5	7	0	0	8	0	0	0	0	0	0	8	0	0	0	28
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	81	49	0	3	63	0	0	0	0	0	0	59	0	7	0	262
APPROACH %'s :	0.00%	62.31%	37.69%	0.00%	4.55%	95.45%	0.00%	0.00%					89.39%	0.00%	10.61%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	49	25	0	1	41	0	0	0	0	0	0	34	0	6	0	156
PEAK HR FACTOR :	0.00	0.875	0.694	0.000	0.250	0.788	0.000	0.000	0.000	0.000	0.000	0.000	0.531	0.000	0.500	0.000	0.796
	0.974				0.808								0.526				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Hwy & Sopp Rd
City: Mojave
Control: 1-Way Stop(WB)

Project ID: 17-08110-009
Date: 11/14/2017

MT

NS/EW Streets:	Sierra Hwy				Sierra Hwy				Sopp Rd				Sopp Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	4	1	0	1	2	0	0	0	0	0	0	0	0	0	0	8
APPROACH %'s :	0.00%	80.00%	20.00%	0.00%	33.33%	66.67%	0.00%	0.00%									
PEAK HR :	**07:15 AM - 08:15 AM**																TOTAL
PEAK HR VOL :	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.750
	0.500				0.250												

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%									100.00%	0.00%	0.00%	0.00%	
PEAK HR :	**04:15 PM - 05:15 PM**																TOTAL
PEAK HR VOL :	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2
PEAK HR FACTOR :	0.00	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.500
	0.250												0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Sierra Hwy & Sopp Rd
City: Mojave
Control: 1-Way Stop(WB)

Project ID: 17-08110-009
Date: 11/14/2017

HT

NS/EW Streets:	Sierra Hwy				Sierra Hwy				Sopp Rd				Sopp Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%									
PEAK HR :	**07:15 AM - 08:15 AM**																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	3	0	0	0	0	0	0	1	0	0	0	5
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%					100.00%	0.00%	0.00%	0.00%	
PEAK HR :	**04:15 PM - 05:15 PM**																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250
														0.250			

Prepared by National Data & Surveying Services

Sierra Hwy & Sopp Rd

Peak Hour Turning Movement Count

ID: 17-08110-009
City: Mojave

Day: Tuesday
Date: 11/14/2017

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
04:15 PM - 05:15 PM	04:00 PM - 06:00 PM

SOUTHBOUND (Sierra Hwy)

AM	0	39	4	0	23	AM
NOON	0	0	0	0	0	NOON
PM	0	41	1	0	55	PM
	0	1	0	0		

EASTBOUND (Sopp Rd)

AM	NOON	PM	
0	0	0	
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
AM	NOON	PM	

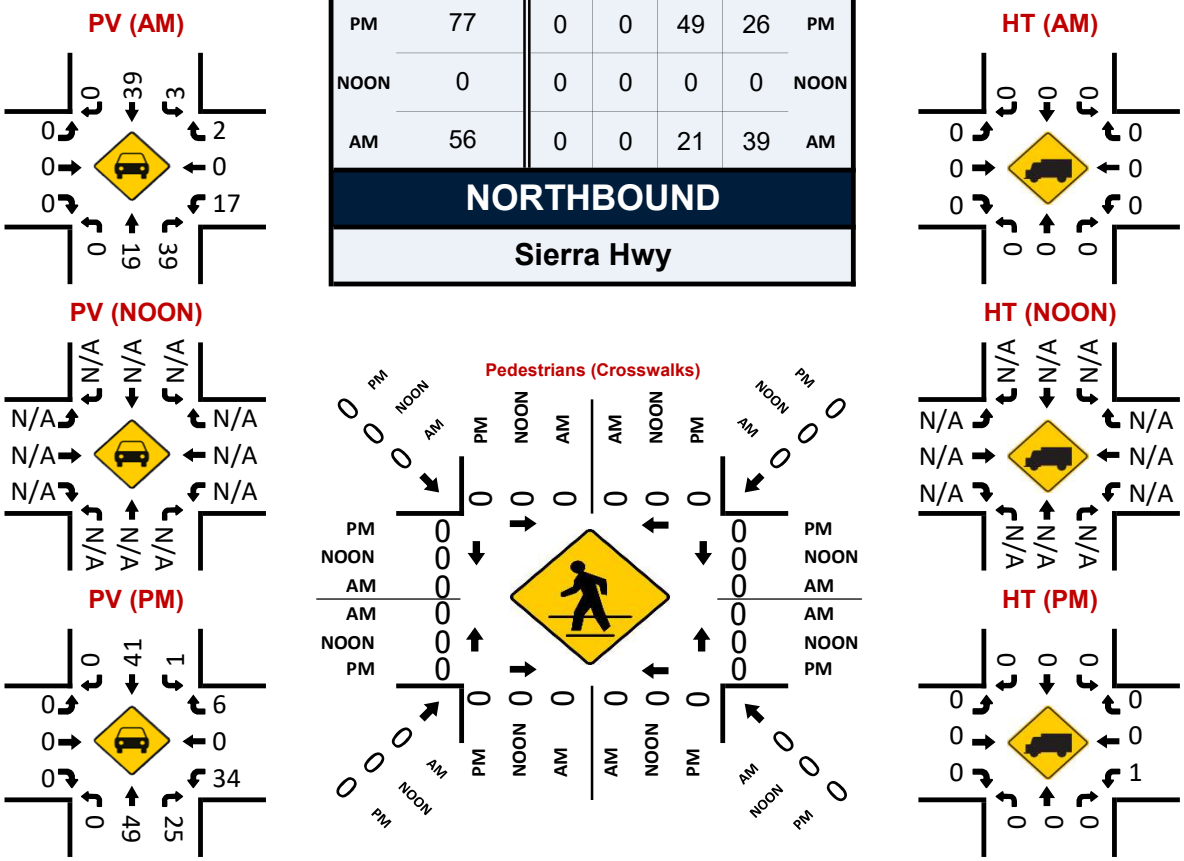
WESTBOUND (Sopp Rd)

	PM	NOON	AM
0	6	0	2
1	0	0	0
0	36	0	17
0	0	0	0
	27	0	43
	PM	NOON	AM

NORTHBOUND (Sierra Hwy)

PM	77	0	0	49	26	PM
NOON	0	0	0	0	0	NOON
AM	56	0	0	21	39	AM
		0	0	1	0	

CONTROL			
1-Way Stop(WB)			
TEV	122	0	159
	AM	NOON	PM
PHF	0.85		0.78



Existing AM (PCE)															
			Movement												PHF
Int. ID	N/S Street Name	E/W Street Name	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	PHF
1	Lone Butte Rd	SR-58													
		PV	1	0	0	0	0	0	0	77	2	0	67	0	0.942
		MT	0	0	0	0	0	0	0	2	0	0	3	0	0.625
		HT	2	0	0	0	0	0	0	11	2	0	14	0	0.906
		Total	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**114**	**8**	**0**	**115**	**0**	
2	SR-14	Purdy Ave.													
		PV	0	732	8	12	495	0	0	0	0	0	0	10	0.955
		MT	0	21	0	0	7	0	0	0	0	0	0	0	0.700
		HT	0	47	0	1	70	0	0	0	0	1	0	1	0.769
		Total	**0**	**915**	**8**	**15**	**719**	**0**	**0**	**0**	**0**	**3**	**0**	**13**	
3	SR-14 SB Ramps	Backus Rd													
		PV	0	0	0	6	1	3	0	26	78	5	23	0	0.807
		MT	0	0	0	0	0	0	0	1	1	0	0	0	0.500
		HT	0	0	0	0	0	0	0	0	0	0	1	0	0.250
		Total	**0**	**0**	**0**	**6**	**1**	**3**	**0**	**28**	**80**	**5**	**26**	**0**	
4	SR-14 NB Ramps	Backus Rd													
		PV	23	1	6	0	0	0	9	19	0	0	10	3	0.740
		MT	1	0	0	0	0	0	0	1	0	0	0	0	0.500
		HT	2	0	0	0	0	0	0	0	0	0	0	0	0.500
		Total	**31**	**1**	**6**	**0**	**0**	**0**	**9**	**21**	**0**	**0**	**10**	**3**	
5	Sierra Highway	Backus Rd													
		PV	5	15	0	0	18	0	0	0	22	0	0	0	0.833
		MT	0	2	0	0	0	1	0	0	1	0	0	0	0.500
		HT	0	0	0	0	0	0	0	0	0	0	0	0	0.000
		Total	**5**	**19**	**0**	**0**	**18**	**2**	**0**	**0**	**24**	**0**	**0**	**0**	
6	Sierra Highway	Sopp Rd													
		PV	0	19	39	3	39	0	0	0	0	17	0	2	0.850
		MT	0	2	0	1	0	0	0	0	0	0	0	0	0.750
		HT	0	0	0	0	0	0	0	0	0	0	0	0	0.000
		Total	**0**	**23**	**39**	**5**	**39**	**0**	**0**	**0**	**0**	**17**	**0**	**2**	

Existing PM (PCE)															
			Movement												PHF
Int. ID	N/S Street Name	E/W Street Name	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	PHF
1	Lone Butte Rd	SR-58													
		PV	0	0	0	0	0	0	0	120	0	0	131	0	0.872
		MT	0	0	0	0	0	0	0	3	0	0	3	0	0.500
		HT	0	0	0	0	0	0	0	19	0	0	24	0	0.896
		Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**183**	**0**	**0**	**209**	**0**	
2	SR-14	Purdy Ave.													
		PV	0	653	2	11	1147	0	0	0	0	3	0	20	0.874
		MT	0	11	0	1	15	0	0	0	0	0	0	0	0.750
		HT	0	42	0	1	78	0	0	0	0	0	0	1	0.847
		Total	**0**	**801**	**2**	**16**	**1411**	**0**	**0**	**0**	**0**	**3**	**0**	**23**	
3	SR-14 SB Ramps	Backus Rd													
		PV	0	0	0	2	2	10	0	13	34	9	104	0	0.926
		MT	0	0	0	0	1	0	0	0	0	0	1	0	0.500
		HT	0	0	0	0	0	0	0	0	0	0	0	0	0.000
		Total	**0**	**0**	**0**	**2**	**4**	**10**	**0**	**13**	**34**	**9**	**106**	**0**	
4	SR-14 NB Ramps	Backus Rd													
		PV	88	0	2	0	0	0	5	9	0	0	25	4	0.875
		MT	1	0	0	0	0	0	0	0	0	0	0	0	0.250
		HT	0	0	0	0	0	0	0	0	0	0	0	0	0.000
		Total	**90**	**0**	**2**	**0**	**0**	**0**	**5**	**9**	**0**	**0**	**25**	**4**	
5	Sierra Highway	Backus Rd													
		PV	25	28	0	0	32	0	0	0	8	0	0	0	0.894
		MT	0	0	0	0	0	0	0	0	0	0	0	0	0.000
		HT	0	0	0	0	0	0	0	0	0	0	0	0	0.000
		Total	**25**	**28**	**0**	**0**	**32**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	
6	Sierra Highway	Sopp Rd													
		PV	0	49	25	1	41	0	0	0	0	34	0	6	0.796
		MT	0	0	1	0	0	0	0	0	0	1	0	0	0.500
		HT	0	0	0	0	0	0	0	0	0	1	0	0	0.250
		Total	**0**	**49**	**27**	**1**	**41**	**0**	**0**	**0**	**0**	**39**	**0**	**6**	

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

Lone Butte Rd Bet. SR 58 & Purdy Ave

Day: Thursday
Date: 4/19/2018

City: Mojave
Project #: CA18_2056_002

DAILY TOTALS	NB	SB	EB	WB	Total
	32	30	0	0	62

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	0		0		0	0			12:00	1		1		0	0	2	
00:15	0		0		0	0			12:15	0		2		0	0	2	
00:30	0		0		0	0			12:30	1		0		0	0	1	
00:45	0		0		0	0			12:45	0	2	1	4	0	0	1	6
01:00	0		0		0	0			13:00	2		1		0	0	3	
01:15	0		0		0	0			13:15	0		0		0	0		
01:30	0		0		0	0			13:30	2		2		0	0	4	
01:45	0		0		0	0			13:45	0	4	0	3	0	0		7
02:00	0		0		0	0			14:00	1		0		0	0	1	
02:15	0		0		0	0			14:15	0		0		0	0		
02:30	0		0		0	0			14:30	1		0		0	0	1	
02:45	0		0		0	0			14:45	0	2	1	1	0	0	1	3
03:00	0		0		0	0			15:00	1		0		0	0	1	
03:15	0		0		0	0			15:15	0		1		0	0	1	
03:30	0		0		0	0			15:30	2		1		0	0	3	
03:45	0		0		0	0			15:45	0	3	0	2	0	0		5
04:00	0		0		0	0			16:00	0		0		0	0		
04:15	0		0		0	0			16:15	0		0		0	0		
04:30	0		0		0	0			16:30	0		0		0	0		
04:45	0		0		0	0			16:45	0		0		0	0		
05:00	1		0		0	0	1		17:00	0		0		0	0		
05:15	0		0		0	0			17:15	0		0		0	0		
05:30	0		0		0	0			17:30	0		0		0	0		
05:45	0	1	1	1	0	0	1	2	17:45	0		0		0	0		
06:00	2		2		0	0	4		18:00	0		0		0	0		
06:15	1		0		0	0	1		18:15	0		0		0	0		
06:30	0		1		0	0	1		18:30	0		0		0	0		
06:45	1	4	0	3	0	0	1	7	18:45	0		0		0	0		
07:00	0		0		0	0			19:00	0		0		0	0		
07:15	1		2		0	0	3		19:15	0		0		0	0		
07:30	0		0		0	0			19:30	0		0		0	0		
07:45	1	2	2	4	0	0	3	6	19:45	0		0		0	0		
08:00	1		1		0	0	2		20:00	0		0		0	0		
08:15	1		0		0	0	1		20:15	0		0		0	0		
08:30	0		0		0	0			20:30	0		0		0	0		
08:45	0	2	0	1	0	0		3	20:45	0		0		0	0		
09:00	2		1		0	0	3		21:00	0		0		0	0		
09:15	0		1		0	0	1		21:15	0		0		0	0		
09:30	1		0		0	0	1		21:30	0		0		0	0		
09:45	0	3	0	2	0	0		5	21:45	0		0		0	0		
10:00	1		1		0	0	2		22:00	0		0		0	0		
10:15	0		1		0	0	1		22:15	0		0		0	0		
10:30	1		1		0	0	2		22:30	0		0		0	0		
10:45	0	2	0	3	0	0		5	22:45	0		0		0	0		
11:00	2		1		0	0	3		23:00	0		0		0	0		
11:15	1		3		0	0	4		23:15	0		0		0	0		
11:30	2		1		0	0	3		23:30	0		0		0	0		
11:45	2	7	1	6	0	0	3	13	23:45	0		0		0	0		
TOTALS		21		20				**41**	**TOTALS**		11		10				**21**
SPLIT %		51.2%		48.8%				**66.1%**	**SPLIT %**		52.4%		47.6%				**33.9%**

DAILY TOTALS	NB	SB	EB	WB	Total
	32	30	0	0	62

AM Peak Hour	11:00	11:00			**11:00**	**PM Peak Hour**	12:45	12:00			**12:45**
AM Pk Volume	7	6			**13**	**PM Pk Volume**	4	4			**8**
Pk Hr Factor	0.875	0.500			**0.813**	**Pk Hr Factor**	0.500	0.500			**0.500**
7 - 9 Volume	4	5	0	0	**9**	**4 - 6 Volume**	0	0	0	0	0
7 - 9 Peak Hour	07:15	07:15			**07:15**	**4 - 6 Peak Hour**					
7 - 9 Pk Volume	3	5	0	0	**8**	**4 - 6 Pk Volume**	0	0	0	0	0
Pk Hr Factor	0.750	0.625	0.000	0.000	**0.667**	**Pk Hr Factor**	0.000	0.000	0.000	0.000	0.000

Prepared by NDS/ATD

VOLUME

Lone Butte Rd N/O Trotter Ave

Day: Thursday
Date: 11/16/2017

City: Mojave
Project #: CA17_8111_001

DAILY TOTALS	NB	SB	EB	WB	Total
	358	407	0	0	765

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	0		0						0		12:00	6		1						7	
00:15	0		0						0		12:15	3		4						7	
00:30	0		0						0		12:30	10		2						12	
00:45	0		0						0		12:45	9	28	4	11					13	39
01:00	0		0						0		13:00	2		6						8	
01:15	1		0						1		13:15	1		2						3	
01:30	0		0						0		13:30	1		21						22	
01:45	0	1	0						0	1	13:45	4	8	10	39					14	47
02:00	0		0						0		14:00	5		7						12	
02:15	1		0						1		14:15	3		9						12	
02:30	0		0						0		14:30	2		8						10	
02:45	0	1	0						0	1	14:45	4	14	8	32					12	46
03:00	0		1						1		15:00	8		10						18	
03:15	1		0						1		15:15	5		9						14	
03:30	0		0						0		15:30	5		25						30	
03:45	4	5	1	2					5	7	15:45	5	23	13	57					18	80
04:00	4		2						6		16:00	4		9						13	
04:15	6		4						10		16:15	2		9						11	
04:30	8		2						10		16:30	3		24						27	
04:45	22	40	1	9					23	49	16:45	5	14	12	54					17	68
05:00	3		3						6		17:00	2		8						10	
05:15	8		2						10		17:15	5		3						8	
05:30	14		16						30		17:30	5		3						8	
05:45	11	36	4	25					15	61	17:45	5	17	4	18					9	35
06:00	2		2						4		18:00	2		3						5	
06:15	2		2						4		18:15	1		3						4	
06:30	13		6						19		18:30	3		9						12	
06:45	16	33	3	13					19	46	18:45	3	9	6	21					9	30
07:00	7		7						14		19:00	4		2						6	
07:15	5		2						7		19:15	2		1						3	
07:30	4		3						7		19:30	4		1						5	
07:45	14	30	2	14					16	44	19:45	5	15	2	6					7	21
08:00	9		1						10		20:00	5		1						6	
08:15	4		4						8		20:15	4		1						5	
08:30	3		3						6		20:30	8		2						10	
08:45	2	18	2	10					4	28	20:45	2	19	2	6					4	25
09:00	1		2						3		21:00	0		1						1	
09:15	3		4						7		21:15	2		2						4	
09:30	1		5						6		21:30	1		21						22	
09:45	6	11	4	15					10	26	21:45	4	7	0	24					4	31
10:00	5		8						13		22:00	3		2						5	
10:15	3		3						6		22:15	1		2						3	
10:30	1		6						7		22:30	0		0						0	
10:45	2	11	4	21					6	32	22:45	1	5	1	5					2	10
11:00	1		8						9		23:00	1		2						3	
11:15	2		4						6		23:15	1		0						1	
11:30	4		5						9		23:30	0		2						2	
11:45	4	11	3	20					7	31	23:45	0	2	1	5					1	7
TOTALS		197		129						**326**	**TOTALS**		161		278						**439**
SPLIT %		60.4%		39.6%						**42.6%**	**SPLIT %**		36.7%		63.3%						**57.4%**

DAILY TOTALS	NB	SB	EB	WB	Total
	358	407	0	0	765

AM Peak Hour	04:45	05:00			**04:45**	**PM Peak Hour**	12:00	15:00			**15:00**
AM Pk Volume	47	25			**69**	**PM Pk Volume**	28	57			**80**
Pk Hr Factor	0.534	0.391			**0.575**	**Pk Hr Factor**	0.700	0.570			**0.667**
7 - 9 Volume	48	24	0	0	**72**	**4 - 6 Volume**	31	72	0	0	**103**
7 - 9 Peak Hour	07:15	07:00			**07:00**	**4 - 6 Peak Hour**	16:45	16:00			**16:00**
7 - 9 Pk Volume	32	14	0	0	**44**	**4 - 6 Pk Volume**	17	54	0	0	**68**
Pk Hr Factor	0.571	0.500	0.000	0.000	**0.688**	**Pk Hr Factor**	0.850	0.563	0.000	0.000	**0.630**

Prepared by NDS/ATD

VOLUME

United St Bet. Purdy Ave & Reed Ave

Day: Thursday
Date: 11/16/2017

City: Mojave
Project #: CA17_8111_003

DAILY TOTALS	NB	SB	EB	WB	Total
	225	233	0	0	458

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	0		0						0		12:00	3		5						8	
00:15	0		0						0		12:15	5		6						11	
00:30	0		0						0		12:30	3		6						9	
00:45	0		0						0		12:45	4	15	2	19					6	34
01:00	0		0						0		13:00	4		2						6	
01:15	0		1						1		13:15	1		1						2	
01:30	0		0						0		13:30	7		4						11	
01:45	0		0	1					0	1	13:45	1	13	3	10					4	23
02:00	0		0						0		14:00	3		3						6	
02:15	1		0						1		14:15	2		2						4	
02:30	1		0						1		14:30	4		1						5	
02:45	0	2	0						0	2	14:45	2	11	6	12					8	23
03:00	0		1						1		15:00	10		4						14	
03:15	0		0						0		15:15	5		4						9	
03:30	0		0						0		15:30	21		4						25	
03:45	1	1	0	1					1	2	15:45	8	44	2	14					10	58
04:00	0		1						1		16:00	4		1						5	
04:15	0		2						2		16:15	3		4						7	
04:30	0		1						1		16:30	10		4						14	
04:45	2	2	2	6					4	8	16:45	5	22	4	13					9	35
05:00	2		4						6		17:00	2		3						5	
05:15	0		0						0		17:15	3		1						4	
05:30	2		6						8		17:30	1		5						6	
05:45	2	6	8	18					10	24	17:45	4	10	5	14					9	24
06:00	1		4						5		18:00	0		2						2	
06:15	2		3						5		18:15	3		2						5	
06:30	0		4						4		18:30	1		0						1	
06:45	4	7	8	19					12	26	18:45	0	4	0	4					0	8
07:00	5		9						14		19:00	0		2						2	
07:15	3		2						5		19:15	1		1						2	
07:30	2		4						6		19:30	0		0						0	
07:45	0	10	3	18					3	28	19:45	1	2	0	3					1	5
08:00	4		5						9		20:00	0		2						2	
08:15	1		1						2		20:15	1		1						2	
08:30	4		4						8		20:30	1		0						1	
08:45	2	11	3	13					5	24	20:45	1	3	2	5					3	8
09:00	3		8						11		21:00	0		0						0	
09:15	1		6						7		21:15	0		1						1	
09:30	5		6						11		21:30	2		0						2	
09:45	3	12	6	26					9	38	21:45	1	3	0	1					1	4
10:00	2		4						6		22:00	0		0						0	
10:15	4		5						9		22:15	0		2						2	
10:30	7		5						12		22:30	0		0						0	
10:45	6	19	6	20					12	39	22:45	1	1	2	4					3	5
11:00	4		3						7		23:00	1		0						1	
11:15	5		4						9		23:15	0		0						0	
11:30	11		3						14		23:30	0		0						0	
11:45	6	26	2	12					8	38	23:45	0	1	0						0	1
TOTALS		96		134						**230**	**TOTALS**		129		99						**228**
SPLIT %		41.7%		58.3%						**50.2%**	**SPLIT %**		56.6%		43.4%						**49.8%**

DAILY TOTALS	NB	SB	EB	WB	Total
	225	233	0	0	458

AM Peak Hour	10:45	09:00			**10:45**	**PM Peak Hour**	15:00	12:00			**15:00**
AM Pk Volume	26	26			**42**	**PM Pk Volume**	44	19			**58**
Pk Hr Factor	0.591	0.813			**0.750**	**Pk Hr Factor**	0.524	0.792			**0.580**
7 - 9 Volume	21	31	0	0	**52**	**4 - 6 Volume**	32	27	0	0	**59**
7 - 9 Peak Hour	08:00	07:00			**07:00**	**4 - 6 Peak Hour**	16:00	16:15			**16:00**
7 - 9 Pk Volume	11	18	0	0	**28**	**4 - 6 Pk Volume**	22	15	0	0	**35**
Pk Hr Factor	0.688	0.500	0.000	0.000	**0.500**	**Pk Hr Factor**	0.550	0.938	0.000	0.000	**0.625**

Prepared by NDS/ATD

VOLUME

Sierra Hwy Bet. Silver Queen Rd & Trotter Ave

Day: Thursday
Date: 11/16/2017

City: Mojave
Project #: CA17_8111_002

DAILY TOTALS	NB	SB	EB	WB	Total
	281	208	0	0	489

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	0		0						0		12:00	4		4						8	
00:15	0		0						0		12:15	2		4						6	
00:30	0		0						0		12:30	4		3						7	
00:45	0		0						0		12:45	5	15	5	16					10	31
01:00	0		0						0		13:00	5		4						9	
01:15	2		1						3		13:15	5		4						9	
01:30	0		0						0		13:30	12		5						17	
01:45	0	2	0	1					0	3	13:45	6	28	4	17					10	45
02:00	1		0						1		14:00	6		5						11	
02:15	0		0						0		14:15	3		2						5	
02:30	0		0						0		14:30	5		3						8	
02:45	0	1	0						0	1	14:45	6	20	2	12					8	32
03:00	0		0						0		15:00	4		2						6	
03:15	1		1						2		15:15	4		6						10	
03:30	0		0						0		15:30	10		6						16	
03:45	2	3	1	2					3	5	15:45	4	22	9	23					13	45
04:00	1		0						1		16:00	5		5						10	
04:15	1		0						1		16:15	8		4						12	
04:30	2		0						2		16:30	8		10						18	
04:45	0	4	0						0	4	16:45	8	29	8	27					16	56
05:00	0		0						0		17:00	9		6						15	
05:15	7		0						7		17:15	5		3						8	
05:30	0		0						0		17:30	4		2						6	
05:45	5	12	1	1					6	13	17:45	4	22	3	14					7	36
06:00	0		1						1		18:00	7		3						10	
06:15	3		1						4		18:15	3		2						5	
06:30	6		2						8		18:30	5		4						9	
06:45	6	15	2	6					8	21	18:45	5	20	2	11					7	31
07:00	3		2						5		19:00	2		2						4	
07:15	3		3						6		19:15	2		2						4	
07:30	3		7						10		19:30	1		2						3	
07:45	4	13	9	21					13	34	19:45	1	6	0	6					1	12
08:00	2		2						4		20:00	2		0						2	
08:15	5		3						8		20:15	0		2						2	
08:30	1		4						5		20:30	3		2						5	
08:45	2	10	4	13					6	23	20:45	2	7	2	6					4	13
09:00	4		4						8		21:00	4		1						5	
09:15	4		2						6		21:15	0		0						0	
09:30	2		1						3		21:30	4		0						4	
09:45	3	13	2	9					5	22	21:45	1	9	0	1					1	10
10:00	1		2						3		22:00	0		1						1	
10:15	4		3						7		22:15	1		0						1	
10:30	2		2						4		22:30	1		0						1	
10:45	3	10	4	11					7	21	22:45	0	2	1	2					1	4
11:00	3		3						6		23:00	0		0						0	
11:15	10		3						13		23:15	0		0						0	
11:30	2		1						3		23:30	0		0						0	
11:45	2	17	1	8					3	25	23:45	1	1	1	1					2	2
TOTALS		100		72						**172**	**TOTALS**		181		136						**317**
SPLIT %		58.1%		41.9%						**35.2%**	**SPLIT %**		57.1%		42.9%						**64.8%**

DAILY TOTALS	NB	SB	EB	WB	Total
	281	208	0	0	489

AM Peak Hour	06:15	07:00			**07:30**	**PM Peak Hour**	16:15	15:45			**16:15**
AM Pk Volume	18	21			**35**	**PM Pk Volume**	33	28			**61**
Pk Hr Factor	0.750	0.583			**0.673**	**Pk Hr Factor**	0.917	0.700			**0.847**
7 - 9 Volume	23	34	0	0	**57**	**4 - 6 Volume**	51	41	0	0	**92**
7 - 9 Peak Hour	07:30	07:00			**07:30**	**4 - 6 Peak Hour**	16:15	16:15			**16:15**
7 - 9 Pk Volume	14	21	0	0	**35**	**4 - 6 Pk Volume**	33	28	0	0	**61**
Pk Hr Factor	0.700	0.583	0.000	0.000	**0.673**	**Pk Hr Factor**	0.917	0.700	0.000	0.000	**0.847**

Prepared by NDS/ATD

VOLUME

Holt St Bet. Purdy Ave & Silver Queen Rd

Day: Thursday
Date: 11/16/2017

City: Mojave
Project #: CA17_8111_004

DAILY TOTALS	NB	SB	EB	WB	Total
	10	11	0	0	21

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	0		0						0		12:00	0		0						0	
00:15	0		0						0		12:15	0		0						0	
00:30	0		0						0		12:30	0		0						0	
00:45	0		0						0		12:45	0		0						0	
01:00	0		0						0		13:00	0		1						1	
01:15	0		0						0		13:15	0		1						1	
01:30	0		0						0		13:30	0		0						0	
01:45	0		0						0		13:45	0		0		2				0	2
02:00	0		0						0		14:00	0		0						0	
02:15	0		0						0		14:15	0		0						0	
02:30	0		0						0		14:30	1		0						1	
02:45	0		0						0		14:45	0	1	1		1				1	2
03:00	0		0						0		15:00	0		0						0	
03:15	0		0						0		15:15	1		2						3	
03:30	0		0						0		15:30	0		1						1	
03:45	0		0						0		15:45	1	2	0		3				1	5
04:00	0		0						0		16:00	0		0						0	
04:15	0		0						0		16:15	2		0						2	
04:30	0		0						0		16:30	0		0						0	
04:45	0		0						0		16:45	0	2	0						0	2
05:00	0		0						0		17:00	1		0						1	
05:15	0		0						0		17:15	0		0						0	
05:30	0		0						0		17:30	0		0						0	
05:45	0		0						0		17:45	0	1	0						0	1
06:00	0		0						0		18:00	0		0						0	
06:15	0		1						1		18:15	0		0						0	
06:30	0		0						0		18:30	0		0						0	
06:45	0		0		1				0	1	18:45	1	1	0						1	1
07:00	0		0						0		19:00	0		0						0	
07:15	0		0						0		19:15	0		0						0	
07:30	0		0						0		19:30	0		0						0	
07:45	0		0						0		19:45	0		0						0	
08:00	0		0						0		20:00	0		1						1	
08:15	0		0						0		20:15	0		0						0	
08:30	0		0						0		20:30	0		0						0	
08:45	0		0						0		20:45	1	1	0		1				1	2
09:00	0		1						1		21:00	0		0						0	
09:15	0		1						1		21:15	0		0						0	
09:30	0		1						1		21:30	0		0						0	
09:45	0		0		3				0	3	21:45	0		0						0	
10:00	0		0						0		22:00	0		0						0	
10:15	0		0						0		22:15	0		0						0	
10:30	0		0						0		22:30	0		0						0	
10:45	0		0						0		22:45	0		0						0	
11:00	0		0						0		23:00	0		0						0	
11:15	0		0						0		23:15	0		0						0	
11:30	2		0						2		23:30	0		0						0	
11:45	0	2	0						0	2	23:45	0		0						0	
TOTALS		2		4						6	TOTALS		8		7						15
SPLIT %		33.3%		66.7%						28.6%	SPLIT %		53.3%		46.7%						71.4%

DAILY TOTALS	NB	SB	EB	WB	Total
	10	11	0	0	21

AM Peak Hour	10:45	08:45			08:45	PM Peak Hour	15:30	14:45			14:30
AM Pk Volume	2	3			3	PM Pk Volume	3	4			5
Pk Hr Factor	0.250	0.750			0.750	Pk Hr Factor	0.375	0.500			0.417
7 - 9 Volume	0	0	0	0	0	4 - 6 Volume	3	0	0	0	3
7 - 9 Peak Hour						4 - 6 Peak Hour	16:15				16:15
7 - 9 Pk Volume	0	0	0	0	0	4 - 6 Pk Volume	3	0	0	0	3
Pk Hr Factor	0.000	0.000	0.000	0.000	0.000	Pk Hr Factor	0.375	0.000	0.000	0.000	0.375

Prepared by NDS/ATD

VOLUME

Purdy Ave E/O SR 14

Day: Thursday
Date: 11/16/2017

City: Mojave
Project #: CA17_8111_005

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	239	226	465

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			0		0		0		12:00			6		3		9	
00:15			0		0		0		12:15			5		4		9	
00:30			0		0		0		12:30			6		4		10	
00:45			0		0		0		12:45			4	21	7	18	11	39
01:00			0		0		0		13:00			1		4		5	
01:15			1		0		1		13:15			2		1		3	
01:30			0		0		0		13:30			4		6		10	
01:45			0	1	0		0	1	13:45			3	10	2	13	5	23
02:00			0		0		0		14:00			2		3		5	
02:15			0		1		1		14:15			2		2		4	
02:30			0		1		1		14:30			2		4		6	
02:45			0		0	2	0	2	14:45			7	13	2	11	9	24
03:00			1		0		1		15:00			3		9		12	
03:15			0		0		0		15:15			5		1		6	
03:30			0		0		0		15:30			3		20		23	
03:45			0	1	1	1	1	2	15:45			1	12	9	39	10	51
04:00			2		0		2		16:00			1		4		5	
04:15			1		0		1		16:15			5		4		9	
04:30			1		0		1		16:30			4		9		13	
04:45			2	6	2	2	4	8	16:45			6	16	6	23	12	39
05:00			4		2		6		17:00			2		5		7	
05:15			1		0		1		17:15			1		4		5	
05:30			7		2		9		17:30			5		1		6	
05:45			7	19	2	6	9	25	17:45			4	12	4	14	8	26
06:00			3		1		4		18:00			2		1		3	
06:15			3		2		5		18:15			2		2		4	
06:30			4		0		4		18:30			0		2		2	
06:45			8	18	4	7	12	25	18:45			0	4	0	5	0	9
07:00			9		4		13		19:00			2		0		2	
07:15			3		3		6		19:15			1		1		2	
07:30			3		2		5		19:30			0		0		0	
07:45			5	20	1	10	6	30	19:45			0	3	1	2	1	5
08:00			3		4		7		20:00			2		0		2	
08:15			1		1		2		20:15			1		0		1	
08:30			5		3		8		20:30			1		2		3	
08:45			5	14	3	11	8	25	20:45			1	5	1	3	2	8
09:00			8		2		10		21:00			0		0		0	
09:15			4		2		6		21:15			1		0		1	
09:30			7		4		11		21:30			0		2		2	
09:45			5	24	2	10	7	34	21:45			0	1	1	3	1	4
10:00			4		3		7		22:00			0		0		0	
10:15			6		4		10		22:15			2		0		2	
10:30			4		6		10		22:30			0		0		0	
10:45			9	23	6	19	15	42	22:45			2	4	1	1	3	5
11:00			2		2		4		23:00			0		1		1	
11:15			4		7		11		23:15			0		0		0	
11:30			3		7		10		23:30			0		0		0	
11:45			3	12	9	25	12	37	23:45			0		0	1	0	1
TOTALS				138		93		231	TOTALS				101		133		234
SPLIT %				59.7%		40.3%		49.7%	SPLIT %				43.2%		56.8%		50.3%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	239	226	465

AM Peak Hour			06:15	11:15	10:00	PM Peak Hour			12:00	15:00	15:00
AM Pk Volume			24	26	42	PM Pk Volume			21	39	51
Pk Hr Factor			0.667	0.722	0.700	Pk Hr Factor			0.875	0.488	0.554
7 - 9 Volume	0	0	34	21	55	4 - 6 Volume	0	0	28	37	65
7 - 9 Peak Hour			07:00	08:00	07:00	4 - 6 Peak Hour			16:15	16:15	16:15
7 - 9 Pk Volume	0	0	20	11	30	4 - 6 Pk Volume	0	0	17	24	41
Pk Hr Factor	0.000	0.000	0.556	0.688	0.577	Pk Hr Factor	0.000	0.000	0.708	0.667	0.788

Prepared by NDS/ATD

VOLUME

Oak Creek Rd & Westwind & Windhub Substations

Day: Thursday
Date: 11/16/2017

City: Mojave
Project #: CA17_8111_006

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	713	817	1,530

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			4		0		4		12:00			13		10		23	
00:15			0		0		0		12:15			11		12		23	
00:30			0		0		0		12:30			11		14		25	
00:45			2	6	0		2	6	12:45			7	42	13	49	20	91
01:00			0		3		3		13:00			8		16		24	
01:15			0		0		0		13:15			7		11		18	
01:30			0		0		0		13:30			6		11		17	
01:45			0		3	6	3	6	13:45			6	27	13	51	19	78
02:00			3		4		7		14:00			14		10		24	
02:15			4		8		12		14:15			12		12		24	
02:30			8		7		15		14:30			13		25		38	
02:45			6	21	4	23	10	44	14:45			10	49	11	58	21	107
03:00			6		2		8		15:00			7		20		27	
03:15			3		9		12		15:15			12		13		25	
03:30			6		9		15		15:30			11		20		31	
03:45			5	20	2	22	7	42	15:45			7	37	20	73	27	110
04:00			4		6		10		16:00			10		20		30	
04:15			4		5		9		16:15			13		21		34	
04:30			7		2		9		16:30			8		21		29	
04:45			13	28	2	15	15	43	16:45			5	36	24	86	29	122
05:00			3		3		6		17:00			7		23		30	
05:15			3		15		18		17:15			2		19		21	
05:30			19		19		38		17:30			13		11		24	
05:45			30	55	16	53	46	108	17:45			9	31	8	61	17	92
06:00			12		9		21		18:00			8		2		10	
06:15			18		6		24		18:15			2		7		9	
06:30			28		7		35		18:30			2		6		8	
06:45			33	91	11	33	44	124	18:45			1	13	4	19	5	32
07:00			19		18		37		19:00			6		4		10	
07:15			12		10		22		19:15			1		5		6	
07:30			15		11		26		19:30			0		4		4	
07:45			6	52	11	50	17	102	19:45			1	8	3	16	4	24
08:00			11		16		27		20:00			4		4		8	
08:15			14		10		24		20:15			1		4		5	
08:30			7		9		16		20:30			0		5		5	
08:45			17	49	6	41	23	90	20:45			5	10	3	16	8	26
09:00			11		13		24		21:00			2		1		3	
09:15			11		4		15		21:15			4		1		5	
09:30			7		18		25		21:30			1		4		5	
09:45			11	40	7	42	18	82	21:45			1	8	5	11	6	19
10:00			11		9		20		22:00			2		0		2	
10:15			12		10		22		22:15			4		0		4	
10:30			7		15		22		22:30			6		4		10	
10:45			10	40	10	44	20	84	22:45			3	15	0	4	3	19
11:00			7		9		16		23:00			2		5		7	
11:15			10		8		18		23:15			0		1		1	
11:30			4		10		14		23:30			0		5		5	
11:45			8	29	3	30	11	59	23:45			4	6	3	14	7	20
TOTALS				431		359		790	TOTALS				282		458		740
SPLIT %				54.6%		45.4%		51.6%	SPLIT %				38.1%		61.9%		48.4%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	713	817	1,530

AM Peak Hour			06:15	05:15	06:15	PM Peak Hour			14:00	16:15	15:30
AM Pk Volume			98	59	140	PM Pk Volume			49	89	122
Pk Hr Factor			0.742	0.776	0.795	Pk Hr Factor			0.875	0.927	0.897
7 - 9 Volume	0	0	101	91	192	4 - 6 Volume	0	0	67	147	214
7 - 9 Peak Hour			07:00	07:00	07:00	4 - 6 Peak Hour			16:00	16:15	16:00
7 - 9 Pk Volume	0	0	52	50	102	4 - 6 Pk Volume	0	0	36	89	122
Pk Hr Factor	0.000	0.000	0.684	0.694	0.689	Pk Hr Factor	0.000	0.000	0.692	0.927	0.897

Dist	Route	County	Postmile	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
07	014	LA	39.854	AGUA DULCE CANYON ROAD	7800	110000	105000	7600	108000	103000
07	014	LA	43.288	ESCONDIDO CANYON ROAD	7600	108000	103000	7600	108000	102000
07	014	LA	46.759	WARD ROAD	7600	108000	102000	7700	109000	104000
07	014	LA R	48.607	CROWN VALLEY ROAD	7700	109000	104000	7700	110000	104000
07	014	LA R	50.746	SANTIAGO ROAD	7700	110000	104000	7800	111000	105000
07	014	LA R	52.172	SOLEDAD CANYON RD/SIERRA HIGHWAY	7800	111000	105000	8000	112000	105000
07	014	LA R	54.543	ANGELES FOREST HIGHWAY	8000	112000	105000	6000	85000	80000
07	014	LA R	58.172	PALMDALE, AVENUE S	6000	85000	80000	6900	85000	84000
07	014	LA R	59.803	PALMDALE, SOUTH JCT. RTE. 138	6900	85000	84000	7400	90000	89000
07	014	LA R	61.766	PALMDALE, 10TH STREET WEST	7400	90000	89000	7500	91000	89000
07	014	LA R	63.671	PALMDALE, AVENUE N	7500	91000	89000	8100	96000	94000
07	014	LA R	64.678	LANCASTER, COLUMBIA WAY/AVENUE M	8100	96000	94000	7900	93000	91000
07	014	LA R	65.683	LANCASTER, AVENUE L	7900	93000	91000	6700	78000	76000
07	014	LA R	66.73	LANCASTER, AVENUE K	6700	78000	76000	5500	63000	62000
07	014	LA R	67.39	LANCASTER, AVENUE J-8/20TH STREET WEST	5500	63000	62000	4000	46000	45000
07	014	LA R	67.957	LANCASTER, AVENUE J	4000	46000	45000	4600	52000	51000
07	014	LA R	68.965	LANCASTER, AVENUE I	4600	52000	51000	3950	44500	43500
07	014	LA R	69.991	LANCASTER, AVENUE H	3950	44500	43500	3600	43000	42000
07	014	LA R	70.992	AVENUE G	3600	43000	42000	3600	42500	41500
07	014	LA R	71.995	AVENUE F	3600	42500	41500	3500	41500	40000
07	014	LA R	74.003	NORTH JCT. RTE. 138	3500	41500	40000	3300	38500	37500
07	014	LA R	77.008	AVENUE A, LOS ANGELES/KERN COUNTY LINE	3300	38500	37500			
09	014	KER R	0	AVENUE A, LOS ANGELES/KERN COUNTY LINE				3250	35500	33500
09	014	KER R	3.018	ROSAMOND BOULEVARD	2850	31000	29500	1700	16900	15900
09	014	KER R	12.147	SILVER QUEEN ROAD	1700	16900	15900	1700	16900	15900
09	014	KER	16.07	JCT. RTE. 58	1600	16800	15700	1750	17200	16900
09	014	KER	16.08	BREAK IN ROUTE						
09	014	KER	19.239	MOJAVE, NORTH JCT RTE 58	1700	17100	15900	850	10900	9600
09	014	KER	21.29	RANDSBURG CUT-OFF RD,CA CITY/BAKERSFIELD RD	850	10800	9600	910	6900	5900
09	014	KER	35.56	RANDSBURG ROAD	910	6800	5900	730	5500	4500
09	014	KER	57.767	FREEMAN JCT. JCT. RTE. 178 WEST	790	6100	5100	930	6500	5600
09	014	KER	60.571	HOMESTEAD SOUTH JUNCTION, JCT. RTE. 178 EAST	790	5900	5050	600	3700	2750
09	014	KER	64.559	HOMESTEAD NORTH JCT. RTE. 395	700	4550	3600			
11	015 S	SD	11.89	BEGIN ROUTE 15S HOV LANES ONLY ROUTE				2500	21800	19900
11	015 S	SD	15	CARROLL CANYON ROAD	2500	21800	19900	5600	46500	44000
11	015 S	SD	20.577	CARMEL MOUNTAIN ROAD	4600	41000	37500	4900	43000	39000
11	015 S	SD	23.688	RANCHO BERNARDO ROAD	4900	43000	39000	4700	40000	35500

APPENDIX B

LOS Worksheets

- Existing Conditions

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	114	8	0	115	0	7	0	0	0	0	0
Future Vol, veh/h	0	114	8	0	115	0	7	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	125	230	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	121	9	0	122	0	7	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	122	0	0	130	0	0	182	243	61	183	252	61
Stage 1	-	-	-	-	-	-	121	121	-	122	122	-
Stage 2	-	-	-	-	-	-	61	122	-	61	130	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1463	-	-	1453	-	-	763	658	991	761	650	991
Stage 1	-	-	-	-	-	-	870	795	-	869	794	-
Stage 2	-	-	-	-	-	-	943	794	-	943	788	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1463	-	-	1453	-	-	763	658	991	761	650	991
Mov Cap-2 Maneuver	-	-	-	-	-	-	807	711	-	806	706	-
Stage 1	-	-	-	-	-	-	870	795	-	869	794	-
Stage 2	-	-	-	-	-	-	943	794	-	943	788	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	9.5	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	807	1463	-	-	1453	-	-	-
HCM Lane V/C Ratio	0.009	-	-	-	-	-	-	-
HCM Control Delay (s)	9.5	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	183	0	0	209	0	0	0	0	0	0	0
Future Vol, veh/h	0	183	0	0	209	0	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	125	230	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	210	0	0	240	0	0	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	240	0	0	210	0	0	330	450	105	345	450	120
Stage 1	-	-	-	-	-	-	210	210	-	240	240	-
Stage 2	-	-	-	-	-	-	120	240	-	105	210	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1324	-	-	1358	-	-	599	503	929	585	503	909
Stage 1	-	-	-	-	-	-	773	727	-	742	706	-
Stage 2	-	-	-	-	-	-	872	706	-	889	727	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1324	-	-	1358	-	-	599	503	929	585	503	909
Mov Cap-2 Maneuver	-	-	-	-	-	-	701	612	-	682	612	-
Stage 1	-	-	-	-	-	-	773	727	-	742	706	-
Stage 2	-	-	-	-	-	-	872	706	-	889	727	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	0	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1324	-	-	1358	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	3	0	13	0	915	8	15	719	0
Future Vol, veh/h	0	0	0	3	0	13	0	915	8	15	719	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	600	-	-	545	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	3	0	14	0	963	8	16	757	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1271	1760	379	1378	1756	486	757	0	0	971	0	0
Stage 1	789	789	-	967	967	-	-	-	-	-	-	-
Stage 2	482	971	-	411	789	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	125	84	619	104	84	527	850	-	-	706	-	-
Stage 1	350	400	-	273	331	-	-	-	-	-	-	-
Stage 2	534	329	-	589	400	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	120	82	619	102	82	527	850	-	-	706	-	-
Mov Cap-2 Maneuver	241	196	-	208	201	-	-	-	-	-	-	-
Stage 1	350	391	-	273	331	-	-	-	-	-	-	-
Stage 2	520	329	-	576	391	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	14.2	0	0.2
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	850	-	-	-	409	706	-	-
HCM Lane V/C Ratio	-	-	-	-	0.041	0.022	-	-
HCM Control Delay (s)	0	-	-	0	14.2	10.2	-	-
HCM Lane LOS	A	-	-	A	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	3	0	23	0	801	2	16	1411	0
Future Vol, veh/h	0	0	0	3	0	23	0	801	2	16	1411	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	600	-	-	545	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	3	0	26	0	921	2	18	1622	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2119	2581	811	1769	2580	462	1622	0	0	923	0	0
Stage 1	1658	1658	-	922	922	-	-	-	-	-	-	-
Stage 2	461	923	-	847	1658	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	29	25	322	53	25	547	397	-	-	736	-	-
Stage 1	102	153	-	291	347	-	-	-	-	-	-	-
Stage 2	550	347	-	323	153	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	27	24	322	52	24	547	397	-	-	736	-	-
Mov Cap-2 Maneuver	84	103	-	162	104	-	-	-	-	-	-	-
Stage 1	102	149	-	291	347	-	-	-	-	-	-	-
Stage 2	523	347	-	315	149	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	14	0	0.1
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	397	-	-	-	429	736	-	-
HCM Lane V/C Ratio	-	-	-	-	0.07	0.025	-	-
HCM Control Delay (s)	0	-	-	0	14	10	-	-
HCM Lane LOS	A	-	-	A	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	28	80	5	26	0	0	0	0	6	1	3
Future Vol, veh/h	0	28	80	5	26	0	0	0	0	6	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	35	99	6	32	0	0	0	0	7	1	4

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	134	0	0	129	178	32
Stage 1	-	-	-	-	-	-	44	44	-
Stage 2	-	-	-	-	-	-	85	134	-
Critical Hdwy	-	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1451	-	0	865	716	1042
Stage 1	0	-	-	-	-	0	978	858	-
Stage 2	0	-	-	-	-	0	938	785	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	1451	-	-	862	0	1042
Mov Cap-2 Maneuver	-	-	-	-	-	-	862	0	-
Stage 1	-	-	-	-	-	-	974	0	-
Stage 2	-	-	-	-	-	-	938	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	1.2	9
HCM LOS			A

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	1451	-	915
HCM Lane V/C Ratio	-	-	0.004	-	0.013
HCM Control Delay (s)	-	-	7.5	0	9
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	13	34	9	106	0	0	0	0	2	4	10
Future Vol, veh/h	0	13	34	9	106	0	0	0	0	2	4	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	14	37	10	114	0	0	0	0	2	4	11

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	114	0	0	51	0	0	167	185	114
Stage 1	-	-	-	-	-	-	134	134	-
Stage 2	-	-	-	-	-	-	33	51	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1475	-	-	1555	-	0	823	709	939
Stage 1	-	-	-	-	-	0	892	785	-
Stage 2	-	-	-	-	-	0	989	852	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	1475	-	-	1555	-	-	817	0	939
Mov Cap-2 Maneuver	-	-	-	-	-	-	817	0	-
Stage 1	-	-	-	-	-	-	886	0	-
Stage 2	-	-	-	-	-	-	989	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0.6	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	1475	-	-	1555	-	916
HCM Lane V/C Ratio	-	-	-	0.006	-	0.019
HCM Control Delay (s)	0	-	-	7.3	0	9
HCM Lane LOS	A	-	-	A	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-	0.1

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	21	0	0	10	3	31	1	6	0	0	0
Future Vol, veh/h	9	21	0	0	10	3	31	1	6	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	28	0	0	14	4	42	1	8	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	18	0	-	-	-	0	68	70	28
Stage 1	-	-	-	-	-	-	52	52	-
Stage 2	-	-	-	-	-	-	16	18	-
Critical Hdwy	4.12	-	-	-	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1599	-	0	0	-	-	937	821	1047
Stage 1	-	-	0	0	-	-	970	852	-
Stage 2	-	-	0	0	-	-	1007	880	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1599	-	-	-	-	-	930	0	1047
Mov Cap-2 Maneuver	-	-	-	-	-	-	930	0	-
Stage 1	-	-	-	-	-	-	962	0	-
Stage 2	-	-	-	-	-	-	1007	0	-

Approach	EB	WB	NB
HCM Control Delay, s	2.2	0	9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	947	1599	-	-	-
HCM Lane V/C Ratio	0.054	0.008	-	-	-
HCM Control Delay (s)	9	7.3	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.2	0	-	-	-

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	9	0	0	25	4	90	0	2	0	0	0
Future Vol, veh/h	5	9	0	0	25	4	90	0	2	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	10	0	0	28	5	102	0	2	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	33	0	-	-	-	0	53	55	10
Stage 1	-	-	-	-	-	-	22	22	-
Stage 2	-	-	-	-	-	-	31	33	-
Critical Hdwy	4.12	-	-	-	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1579	-	0	0	-	-	955	836	1071
Stage 1	-	-	0	0	-	-	1001	877	-
Stage 2	-	-	0	0	-	-	992	868	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1579	-	-	-	-	-	951	0	1071
Mov Cap-2 Maneuver	-	-	-	-	-	-	951	0	-
Stage 1	-	-	-	-	-	-	997	0	-
Stage 2	-	-	-	-	-	-	992	0	-

Approach	EB	WB	NB
HCM Control Delay, s	2.6	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	953	1579	-	-	-
HCM Lane V/C Ratio	0.11	0.004	-	-	-
HCM Control Delay (s)	9.2	7.3	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.4	0	-	-	-

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	24	5	19	18	2
Future Vol, veh/h	0	24	5	19	18	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	29	6	23	22	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	58	23	24	0	-	0
Stage 1	23	-	-	-	-	-
Stage 2	35	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	949	1054	1591	-	-	-
Stage 1	1000	-	-	-	-	-
Stage 2	987	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	945	1054	1591	-	-	-
Mov Cap-2 Maneuver	945	-	-	-	-	-
Stage 1	996	-	-	-	-	-
Stage 2	987	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	1.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1591	-	1054	-	-
HCM Lane V/C Ratio	0.004	-	0.027	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	8	25	28	32	0
Future Vol, veh/h	0	8	25	28	32	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	9	28	31	36	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	123	36	36	0	-	0
Stage 1	36	-	-	-	-	-
Stage 2	87	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	872	1037	1575	-	-	-
Stage 1	986	-	-	-	-	-
Stage 2	936	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	856	1037	1575	-	-	-
Mov Cap-2 Maneuver	856	-	-	-	-	-
Stage 1	968	-	-	-	-	-
Stage 2	936	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	3.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1575	-	1037	-	-
HCM Lane V/C Ratio	0.018	-	0.009	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	2	23	39	5	39
Future Vol, veh/h	17	2	23	39	5	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	2	27	46	6	46

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	108	50	0	0	73	0
Stage 1	50	-	-	-	-	-
Stage 2	58	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	889	1018	-	-	1527	-
Stage 1	972	-	-	-	-	-
Stage 2	965	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	885	1018	-	-	1527	-
Mov Cap-2 Maneuver	885	-	-	-	-	-
Stage 1	968	-	-	-	-	-
Stage 2	965	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	0.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	897	1527	-
HCM Lane V/C Ratio	-	-	0.025	0.004	-
HCM Control Delay (s)	-	-	9.1	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	39	6	49	27	1	41
Future Vol, veh/h	39	6	49	27	1	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	49	8	61	34	1	51

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	131	78	0	0	95	0
Stage 1	78	-	-	-	-	-
Stage 2	53	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	863	983	-	-	1499	-
Stage 1	945	-	-	-	-	-
Stage 2	970	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	862	983	-	-	1499	-
Mov Cap-2 Maneuver	862	-	-	-	-	-
Stage 1	944	-	-	-	-	-
Stage 2	970	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	0.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	876	1499	-
HCM Lane V/C Ratio	-	-	0.064	0.001	-
HCM Control Delay (s)	-	-	9.4	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

- Existing plus Project Conditions

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	114	174	42	120	0	21	0	4	0	0	0
Future Vol, veh/h	0	114	174	42	120	0	21	0	4	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	125	230	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	121	185	45	128	0	22	0	4	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	128	0	0	306	0	0	275	339	61	279	524	64
Stage 1	-	-	-	-	-	-	121	121	-	218	218	-
Stage 2	-	-	-	-	-	-	154	218	-	61	306	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1456	-	-	1252	-	-	656	581	991	651	457	987
Stage 1	-	-	-	-	-	-	870	795	-	764	721	-
Stage 2	-	-	-	-	-	-	833	721	-	943	660	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1456	-	-	1252	-	-	638	560	991	630	441	987
Mov Cap-2 Maneuver	-	-	-	-	-	-	726	637	-	707	548	-
Stage 1	-	-	-	-	-	-	870	795	-	764	695	-
Stage 2	-	-	-	-	-	-	803	695	-	939	660	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	2.1	9.9	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	758	1456	-	-	1252	-	-	-
HCM Lane V/C Ratio	0.035	-	-	-	0.036	-	-	-
HCM Control Delay (s)	9.9	0	-	-	8	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	-

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	188	14	4	209	0	166	0	42	0	0	0
Future Vol, veh/h	0	188	14	4	209	0	166	0	42	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	125	230	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	216	16	5	240	0	191	0	48	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	240	0	0	232	0	0	346	466	108	358	482	120
Stage 1	-	-	-	-	-	-	216	216	-	250	250	-
Stage 2	-	-	-	-	-	-	130	250	-	108	232	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1324	-	-	1333	-	-	584	493	925	573	482	909
Stage 1	-	-	-	-	-	-	766	723	-	732	699	-
Stage 2	-	-	-	-	-	-	860	699	-	886	711	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1324	-	-	1333	-	-	582	491	925	541	480	909
Mov Cap-2 Maneuver	-	-	-	-	-	-	690	604	-	658	595	-
Stage 1	-	-	-	-	-	-	766	723	-	732	696	-
Stage 2	-	-	-	-	-	-	857	696	-	840	711	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	12.4	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	727	1324	-	-	1333	-	-	-
HCM Lane V/C Ratio	0.329	-	-	-	0.003	-	-	-
HCM Control Delay (s)	12.4	0	-	-	7.7	-	-	0
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	1.4	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	3	1	4	3	13	21	1083	30	19	754	4
Future Vol, veh/h	0	3	1	4	3	13	21	1083	30	19	754	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	600	-	-	545	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	3	1	4	3	14	22	1140	32	20	794	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1452	2052	399	1639	2038	586	798	0	0	1172	0	0
Stage 1	836	836	-	1200	1200	-	-	-	-	-	-	-
Stage 2	616	1216	-	439	838	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	92	55	601	66	56	454	820	-	-	592	-	-
Stage 1	328	381	-	196	256	-	-	-	-	-	-	-
Stage 2	445	252	-	567	380	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	84	52	601	62	53	454	820	-	-	592	-	-
Mov Cap-2 Maneuver	199	150	-	149	155	-	-	-	-	-	-	-
Stage 1	319	368	-	191	249	-	-	-	-	-	-	-
Stage 2	415	245	-	542	367	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	24.9	19.6	0.2	0.3
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	820	-	-	185	267	592	-	-
HCM Lane V/C Ratio	0.027	-	-	0.023	0.079	0.034	-	-
HCM Control Delay (s)	9.5	-	-	24.9	19.6	11.3	-	-
HCM Lane LOS	A	-	-	C	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.3	0.1	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	3	21	25	3	27	1	836	3	16	1579	0
Future Vol, veh/h	4	3	21	25	3	27	1	836	3	16	1579	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	600	-	-	545	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	3	24	29	3	31	1	961	3	18	1815	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2335	2817	908	1910	2816	482	1815	0	0	964	0	0
Stage 1	1851	1851	-	965	965	-	-	-	-	-	-	-
Stage 2	484	966	-	945	1851	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	20	18	278	41	18	530	334	-	-	710	-	-
Stage 1	77	123	-	274	331	-	-	-	-	-	-	-
Stage 2	533	331	-	282	123	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	18	17	278	36	17	530	334	-	-	710	-	-
Mov Cap-2 Maneuver	64	85	-	134	86	-	-	-	-	-	-	-
Stage 1	77	120	-	273	330	-	-	-	-	-	-	-
Stage 2	495	330	-	244	120	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	32.7	30.7	0	0.1
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	334	-	-	162	202	710	-	-
HCM Lane V/C Ratio	0.003	-	-	0.199	0.313	0.026	-	-
HCM Control Delay (s)	15.8	-	-	32.7	30.7	10.2	-	-
HCM Lane LOS	C	-	-	D	D	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.7	1.3	0.1	-	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	28	80	19	26	0	0	0	0	27	1	3
Future Vol, veh/h	0	28	80	19	26	0	0	0	0	27	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	35	99	23	32	0	0	0	0	33	1	4

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	134	0	0	163	212	32
Stage 1	-	-	-	-	-	-	78	78	-
Stage 2	-	-	-	-	-	-	85	134	-
Critical Hdwy	-	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1451	-	0	828	685	1042
Stage 1	0	-	-	-	-	0	945	830	-
Stage 2	0	-	-	-	-	0	938	785	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	1451	-	-	815	0	1042
Mov Cap-2 Maneuver	-	-	-	-	-	-	815	0	-
Stage 1	-	-	-	-	-	-	930	0	-
Stage 2	-	-	-	-	-	-	938	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	3.2	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	1451	-	833
HCM Lane V/C Ratio	-	-	0.016	-	0.046
HCM Control Delay (s)	-	-	7.5	0	9.5
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0.1

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	13	34	175	106	0	0	0	0	4	4	10
Future Vol, veh/h	0	13	34	175	106	0	0	0	0	4	4	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	14	37	188	114	0	0	0	0	4	4	11

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	51	0	0	523	541	114
Stage 1	-	-	-	-	-	-	490	490	-
Stage 2	-	-	-	-	-	-	33	51	-
Critical Hdwy	-	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1555	-	0	514	448	939
Stage 1	0	-	-	-	-	0	616	549	-
Stage 2	0	-	-	-	-	0	989	852	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	1555	-	-	448	0	939
Mov Cap-2 Maneuver	-	-	-	-	-	-	448	0	-
Stage 1	-	-	-	-	-	-	537	0	-
Stage 2	-	-	-	-	-	-	989	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	4.8	10.2
HCM LOS			B

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	1555	-	715
HCM Lane V/C Ratio	-	-	0.121	-	0.027
HCM Control Delay (s)	-	-	7.6	0	10.2
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0.4	-	0.1

Intersection	
Int Delay, s/veh	7.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	42	0	0	26	5	31	1	193	0	0	0
Future Vol, veh/h	9	42	0	0	26	5	31	1	193	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	57	0	0	35	7	42	1	261	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	42	0	-	-	-	0	120	123	57
Stage 1	-	-	-	-	-	-	81	81	-
Stage 2	-	-	-	-	-	-	39	42	-
Critical Hdwy	4.12	-	-	-	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1567	-	0	0	-	-	876	767	1009
Stage 1	-	-	0	0	-	-	942	828	-
Stage 2	-	-	0	0	-	-	983	860	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1567	-	-	-	-	-	869	0	1009
Mov Cap-2 Maneuver	-	-	-	-	-	-	869	0	-
Stage 1	-	-	-	-	-	-	934	0	-
Stage 2	-	-	-	-	-	-	983	0	-

Approach	EB	WB	NB
HCM Control Delay, s	1.3	0	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	987	1567	-	-	-
HCM Lane V/C Ratio	0.308	0.008	-	-	-
HCM Control Delay (s)	10.3	7.3	0	-	-
HCM Lane LOS	B	A	A	-	-
HCM 95th %tile Q(veh)	1.3	0	-	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	11	0	0	212	25	90	0	18	0	0	0
Future Vol, veh/h	5	11	0	0	212	25	90	0	18	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	13	0	0	241	28	102	0	20	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	269	0	-	-	-	0	280	294	13
Stage 1	-	-	-	-	-	-	25	25	-
Stage 2	-	-	-	-	-	-	255	269	-
Critical Hdwy	4.12	-	-	-	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1295	-	0	0	-	-	710	617	1067
Stage 1	-	-	0	0	-	-	998	874	-
Stage 2	-	-	0	0	-	-	788	687	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1295	-	-	-	-	-	706	0	1067
Mov Cap-2 Maneuver	-	-	-	-	-	-	706	0	-
Stage 1	-	-	-	-	-	-	993	0	-
Stage 2	-	-	-	-	-	-	788	0	-

Approach	EB	WB	NB
HCM Control Delay, s	2.4	0	10.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	748	1295	-	-	-
HCM Lane V/C Ratio	0.164	0.004	-	-	-
HCM Control Delay (s)	10.8	7.8	0	-	-
HCM Lane LOS	B	A	A	-	-
HCM 95th %tile Q(veh)	0.6	0	-	-	-

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	232	23	31	30	2
Future Vol, veh/h	0	232	23	31	30	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	280	28	37	36	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	130	37	38	0	-	0
Stage 1	37	-	-	-	-	-
Stage 2	93	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	864	1035	1572	-	-	-
Stage 1	985	-	-	-	-	-
Stage 2	931	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	848	1035	1572	-	-	-
Mov Cap-2 Maneuver	848	-	-	-	-	-
Stage 1	967	-	-	-	-	-
Stage 2	931	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	3.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1572	-	1035	-	-
HCM Lane V/C Ratio	0.018	-	0.27	-	-
HCM Control Delay (s)	7.3	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	1.1	-	-

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	26	233	40	44	0
Future Vol, veh/h	0	26	233	40	44	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	29	262	45	49	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	618	49	49	0	-	0
Stage 1	49	-	-	-	-	-
Stage 2	569	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	453	1020	1558	-	-	-
Stage 1	973	-	-	-	-	-
Stage 2	566	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	375	1020	1558	-	-	-
Mov Cap-2 Maneuver	375	-	-	-	-	-
Stage 1	806	-	-	-	-	-
Stage 2	566	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	6.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1558	-	1020	-	-
HCM Lane V/C Ratio	0.168	-	0.029	-	-
HCM Control Delay (s)	7.8	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.6	-	0.1	-	-

Intersection	
Int Delay, s/veh	6.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	32	23	39	225	39
Future Vol, veh/h	17	32	23	39	225	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	38	27	46	265	46

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	626	50	0	0	73	0
Stage 1	50	-	-	-	-	-
Stage 2	576	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	448	1018	-	-	1527	-
Stage 1	972	-	-	-	-	-
Stage 2	562	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	368	1018	-	-	1527	-
Mov Cap-2 Maneuver	368	-	-	-	-	-
Stage 1	799	-	-	-	-	-
Stage 2	562	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.3	0	6.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	631	1527	-
HCM Lane V/C Ratio	-	-	0.091	0.173	-
HCM Control Delay (s)	-	-	11.3	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.6	-

Intersection	
Int Delay, s/veh	7.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	39	226	49	27	31	41
Future Vol, veh/h	39	226	49	27	31	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	49	283	61	34	39	51

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	207	78	0	0	95	0
Stage 1	78	-	-	-	-	-
Stage 2	129	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	781	983	-	-	1499	-
Stage 1	945	-	-	-	-	-
Stage 2	897	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	760	983	-	-	1499	-
Mov Cap-2 Maneuver	760	-	-	-	-	-
Stage 1	919	-	-	-	-	-
Stage 2	897	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.9	0	3.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	942	1499	-
HCM Lane V/C Ratio	-	-	0.352	0.026	-
HCM Control Delay (s)	-	-	10.9	7.5	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.6	0.1	-

- Cumulative Conditions

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	127	9	0	128	0	8	0	0	0	0	0
Future Vol, veh/h	0	127	9	0	128	0	8	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	125	230	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	135	10	0	136	0	9	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	136	0	0	145	0	0	203	271	68	204	281	68
Stage 1	-	-	-	-	-	-	135	135	-	136	136	-
Stage 2	-	-	-	-	-	-	68	136	-	68	145	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1446	-	-	1435	-	-	737	634	981	736	626	981
Stage 1	-	-	-	-	-	-	854	784	-	853	783	-
Stage 2	-	-	-	-	-	-	934	783	-	934	776	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1446	-	-	1435	-	-	737	634	981	736	626	981
Mov Cap-2 Maneuver	-	-	-	-	-	-	790	696	-	790	691	-
Stage 1	-	-	-	-	-	-	854	784	-	853	783	-
Stage 2	-	-	-	-	-	-	934	783	-	934	776	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	9.6	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	790	1446	-	-	1435	-	-	-
HCM Lane V/C Ratio	0.011	-	-	-	-	-	-	-
HCM Control Delay (s)	9.6	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	203	0	0	232	0	0	0	0	0	0	0
Future Vol, veh/h	0	203	0	0	232	0	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	125	230	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	233	0	0	267	0	0	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	267	0	0	233	0	0	367	500	117	384	500	134
Stage 1	-	-	-	-	-	-	233	233	-	267	267	-
Stage 2	-	-	-	-	-	-	134	267	-	117	233	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1294	-	-	1332	-	-	564	471	913	549	471	890
Stage 1	-	-	-	-	-	-	749	711	-	715	687	-
Stage 2	-	-	-	-	-	-	855	687	-	875	711	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1294	-	-	1332	-	-	564	471	913	549	471	890
Mov Cap-2 Maneuver	-	-	-	-	-	-	676	591	-	655	591	-
Stage 1	-	-	-	-	-	-	749	711	-	715	687	-
Stage 2	-	-	-	-	-	-	855	687	-	875	711	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	0	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1294	-	-	1332	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	3	0	14	0	1009	9	17	803	0
Future Vol, veh/h	0	0	0	3	0	14	0	1009	9	17	803	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	600	-	-	545	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	3	0	15	0	1062	9	18	845	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1412	1952	423	1526	1948	536	845	0	0	1071	0	0
Stage 1	881	881	-	1067	1067	-	-	-	-	-	-	-
Stage 2	531	1071	-	459	881	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	98	63	579	81	64	489	787	-	-	647	-	-
Stage 1	308	363	-	237	297	-	-	-	-	-	-	-
Stage 2	500	295	-	551	363	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	93	61	579	79	62	489	787	-	-	647	-	-
Mov Cap-2 Maneuver	210	169	-	179	175	-	-	-	-	-	-	-
Stage 1	308	353	-	237	297	-	-	-	-	-	-	-
Stage 2	485	295	-	536	353	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	15.1	0	0.2
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	787	-	-	-	375	647	-	-
HCM Lane V/C Ratio	-	-	-	-	0.048	0.028	-	-
HCM Control Delay (s)	0	-	-	0	15.1	10.7	-	-
HCM Lane LOS	A	-	-	A	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	3	0	25	0	893	2	18	1555	0
Future Vol, veh/h	0	0	0	3	0	25	0	893	2	18	1555	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	600	-	-	545	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	3	0	29	0	1026	2	21	1787	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2342	2857	894	1963	2856	514	1787	0	0	1028	0	0
Stage 1	1829	1829	-	1027	1027	-	-	-	-	-	-	-
Stage 2	513	1028	-	936	1829	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	19	17	284	38	17	505	343	-	-	671	-	-
Stage 1	79	126	-	251	310	-	-	-	-	-	-	-
Stage 2	512	310	-	285	126	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	17	16	284	37	16	505	343	-	-	671	-	-
Mov Cap-2 Maneuver	65	84	-	137	86	-	-	-	-	-	-	-
Stage 1	79	122	-	251	310	-	-	-	-	-	-	-
Stage 2	483	310	-	276	122	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	15	0	0.1
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	343	-	-	-	392	671	-	-
HCM Lane V/C Ratio	-	-	-	-	0.082	0.031	-	-
HCM Control Delay (s)	0	-	-	0	15	10.5	-	-
HCM Lane LOS	A	-	-	A	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.3	0.1	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	31	88	14	29	0	0	0	0	17	1	3
Future Vol, veh/h	0	31	88	14	29	0	0	0	0	17	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	38	109	17	36	0	0	0	0	21	1	4

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	147	0	0	163	217	36
Stage 1	-	-	-	-	-	-	70	70	-
Stage 2	-	-	-	-	-	-	93	147	-
Critical Hdwy	-	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1435	-	0	828	681	1037
Stage 1	0	-	-	-	-	0	953	837	-
Stage 2	0	-	-	-	-	0	931	775	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	1435	-	-	818	0	1037
Mov Cap-2 Maneuver	-	-	-	-	-	-	818	0	-
Stage 1	-	-	-	-	-	-	942	0	-
Stage 2	-	-	-	-	-	-	931	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	2.5	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	1435	-	845
HCM Lane V/C Ratio	-	-	0.012	-	0.031
HCM Control Delay (s)	-	-	7.5	0	9.4
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0.1

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	14	37	67	117	0	0	0	0	4	4	11
Future Vol, veh/h	0	14	37	67	117	0	0	0	0	4	4	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	15	40	72	126	0	0	0	0	4	4	12

Major/Minor	Major1			Major2				Minor2		
Conflicting Flow All	126	0	0	55	0	0		305	325	126
Stage 1	-	-	-	-	-	-		270	270	-
Stage 2	-	-	-	-	-	-		35	55	-
Critical Hdwy	4.12	-	-	4.12	-	-		6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-		5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-		5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-		3.518	4.018	3.318
Pot Cap-1 Maneuver	1460	-	-	1550	-	0		687	593	924
Stage 1	-	-	-	-	-	0		775	686	-
Stage 2	-	-	-	-	-	0		987	849	-
Platoon blocked, %		-	-		-					
Mov Cap-1 Maneuver	1460	-	-	1550	-	-		653	0	924
Mov Cap-2 Maneuver	-	-	-	-	-	-		653	0	-
Stage 1	-	-	-	-	-	-		736	0	-
Stage 2	-	-	-	-	-	-		987	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	2.7	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	1460	-	-	1550	-	832
HCM Lane V/C Ratio	-	-	-	0.046	-	0.025
HCM Control Delay (s)	0	-	-	7.4	0	9.4
HCM Lane LOS	A	-	-	A	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0.1

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	33	0	0	20	5	34	1	64	0	0	0
Future Vol, veh/h	10	33	0	0	20	5	34	1	64	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	45	0	0	27	7	46	1	86	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	34	0	-	-	-	0	104	107	45
Stage 1	-	-	-	-	-	-	73	73	-
Stage 2	-	-	-	-	-	-	31	34	-
Critical Hdwy	4.12	-	-	-	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1578	-	0	0	-	-	894	783	1025
Stage 1	-	-	0	0	-	-	950	834	-
Stage 2	-	-	0	0	-	-	992	867	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1578	-	-	-	-	-	886	0	1025
Mov Cap-2 Maneuver	-	-	-	-	-	-	886	0	-
Stage 1	-	-	-	-	-	-	941	0	-
Stage 2	-	-	-	-	-	-	992	0	-

Approach	EB	WB	NB
HCM Control Delay, s	1.7	0	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	972	1578	-	-	-
HCM Lane V/C Ratio	0.138	0.009	-	-	-
HCM Control Delay (s)	9.3	7.3	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.5	0	-	-	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	11	0	0	85	15	99	0	11	0	0	0
Future Vol, veh/h	6	11	0	0	85	15	99	0	11	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	13	0	0	97	17	113	0	13	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	114	0	-	-	-	0	133	141	13
Stage 1	-	-	-	-	-	-	27	27	-
Stage 2	-	-	-	-	-	-	106	114	-
Critical Hdwy	4.12	-	-	-	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1475	-	0	0	-	-	861	750	1067
Stage 1	-	-	0	0	-	-	996	873	-
Stage 2	-	-	0	0	-	-	918	801	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1475	-	-	-	-	-	857	0	1067
Mov Cap-2 Maneuver	-	-	-	-	-	-	857	0	-
Stage 1	-	-	-	-	-	-	991	0	-
Stage 2	-	-	-	-	-	-	918	0	-

Approach	EB	WB	NB
HCM Control Delay, s	2.6	0	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	874	1475	-	-	-
HCM Lane V/C Ratio	0.143	0.005	-	-	-
HCM Control Delay (s)	9.8	7.5	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.5	0	-	-	-

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	93	16	30	29	2
Future Vol, veh/h	0	93	16	30	29	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	112	19	36	35	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	110	36	37	0	-	0
Stage 1	36	-	-	-	-	-
Stage 2	74	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	887	1037	1574	-	-	-
Stage 1	986	-	-	-	-	-
Stage 2	949	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	876	1037	1574	-	-	-
Mov Cap-2 Maneuver	876	-	-	-	-	-
Stage 1	974	-	-	-	-	-
Stage 2	949	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	2.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1574	-	1037	-	-
HCM Lane V/C Ratio	0.012	-	0.108	-	-
HCM Control Delay (s)	7.3	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	19	95	40	44	0
Future Vol, veh/h	0	19	95	40	44	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	21	107	45	49	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	308	49	49	0	-	0
Stage 1	49	-	-	-	-	-
Stage 2	259	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	684	1020	1558	-	-	-
Stage 1	973	-	-	-	-	-
Stage 2	784	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	636	1020	1558	-	-	-
Mov Cap-2 Maneuver	636	-	-	-	-	-
Stage 1	905	-	-	-	-	-
Stage 2	784	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	5.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1558	-	1020	-	-
HCM Lane V/C Ratio	0.069	-	0.021	-	-
HCM Control Delay (s)	7.5	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.1	-	-

Intersection	
Int Delay, s/veh	4.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	21	25	43	82	43
Future Vol, veh/h	19	21	25	43	82	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	25	29	51	96	51

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	298	55	0	0	80	0
Stage 1	55	-	-	-	-	-
Stage 2	243	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	693	1012	-	-	1518	-
Stage 1	968	-	-	-	-	-
Stage 2	797	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	648	1012	-	-	1518	-
Mov Cap-2 Maneuver	648	-	-	-	-	-
Stage 1	905	-	-	-	-	-
Stage 2	797	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	4.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	799	1518	-
HCM Lane V/C Ratio	-	-	0.059	0.064	-
HCM Control Delay (s)	-	-	9.8	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.2	-

Intersection	
Int Delay, s/veh	5.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	43	83	54	30	20	45
Future Vol, veh/h	43	83	54	30	20	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	54	104	68	38	25	56

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	193	87	0	0	106	0
Stage 1	87	-	-	-	-	-
Stage 2	106	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	796	971	-	-	1485	-
Stage 1	936	-	-	-	-	-
Stage 2	918	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	782	971	-	-	1485	-
Mov Cap-2 Maneuver	782	-	-	-	-	-
Stage 1	920	-	-	-	-	-
Stage 2	918	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	2.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	897	1485	-
HCM Lane V/C Ratio	-	-	0.176	0.017	-
HCM Control Delay (s)	-	-	9.9	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.6	0.1	-

- Cumulative plus Project Conditions

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	127	175	42	133	0	22	0	4	0	0	0
Future Vol, veh/h	0	127	175	42	133	0	22	0	4	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	125	230	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	135	186	45	141	0	23	0	4	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	141	0	0	321	0	0	296	366	68	299	552	71
Stage 1	-	-	-	-	-	-	135	135	-	231	231	-
Stage 2	-	-	-	-	-	-	161	231	-	68	321	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1440	-	-	1236	-	-	634	561	981	631	440	977
Stage 1	-	-	-	-	-	-	854	784	-	751	712	-
Stage 2	-	-	-	-	-	-	825	712	-	934	650	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1440	-	-	1236	-	-	616	541	981	611	424	977
Mov Cap-2 Maneuver	-	-	-	-	-	-	713	626	-	693	536	-
Stage 1	-	-	-	-	-	-	854	784	-	751	686	-
Stage 2	-	-	-	-	-	-	795	686	-	930	650	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.9	10	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	744	1440	-	-	1236	-	-	-
HCM Lane V/C Ratio	0.037	-	-	-	0.036	-	-	-
HCM Control Delay (s)	10	0	-	-	8	-	-	0
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	-

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	208	14	4	232	0	166	0	42	0	0	0
Future Vol, veh/h	0	208	14	4	232	0	166	0	42	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	125	230	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	239	16	5	267	0	191	0	48	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	267	0	0	255	0	0	383	516	120	397	532	134
Stage 1	-	-	-	-	-	-	239	239	-	277	277	-
Stage 2	-	-	-	-	-	-	144	277	-	120	255	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1294	-	-	1307	-	-	550	461	909	537	452	890
Stage 1	-	-	-	-	-	-	743	706	-	706	680	-
Stage 2	-	-	-	-	-	-	844	680	-	872	695	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1294	-	-	1307	-	-	548	459	909	507	450	890
Mov Cap-2 Maneuver	-	-	-	-	-	-	666	582	-	633	575	-
Stage 1	-	-	-	-	-	-	743	706	-	706	677	-
Stage 2	-	-	-	-	-	-	841	677	-	826	695	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	12.7	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	704	1294	-	-	1307	-	-	-
HCM Lane V/C Ratio	0.34	-	-	-	0.004	-	-	-
HCM Control Delay (s)	12.7	0	-	-	7.8	-	-	0
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	1.5	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	3	1	4	3	14	21	1177	31	21	838	4
Future Vol, veh/h	0	3	1	4	3	14	21	1177	31	21	838	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	600	-	-	545	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	3	1	4	3	15	22	1239	33	22	882	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1593	2244	443	1787	2230	636	886	0	0	1272	0	0
Stage 1	928	928	-	1300	1300	-	-	-	-	-	-	-
Stage 2	665	1316	-	487	930	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	72	41	562	51	42	421	760	-	-	542	-	-
Stage 1	288	345	-	170	230	-	-	-	-	-	-	-
Stage 2	416	226	-	531	344	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	65	38	562	47	39	421	760	-	-	542	-	-
Mov Cap-2 Maneuver	173	129	-	128	135	-	-	-	-	-	-	-
Stage 1	280	331	-	165	223	-	-	-	-	-	-	-
Stage 2	384	219	-	504	330	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	28.1	21.4	0.2	0.3
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	760	-	-	160	242	542	-	-
HCM Lane V/C Ratio	0.029	-	-	0.026	0.091	0.041	-	-
HCM Control Delay (s)	9.9	-	-	28.1	21.4	11.9	-	-
HCM Lane LOS	A	-	-	D	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.3	0.1	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	3	21	25	3	29	1	928	3	18	1723	0
Future Vol, veh/h	4	3	21	25	3	29	1	928	3	18	1723	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	600	-	-	545	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	3	24	29	3	33	1	1067	3	21	1980	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2559	3094	990	2105	3093	535	1980	0	0	1070	0	0
Stage 1	2022	2022	-	1071	1071	-	-	-	-	-	-	-
Stage 2	537	1072	-	1034	2022	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	13	12	245	29	12	490	288	-	-	647	-	-
Stage 1	60	101	-	236	295	-	-	-	-	-	-	-
Stage 2	496	295	-	248	101	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	11	12	245	~ 24	12	490	288	-	-	647	-	-
Mov Cap-2 Maneuver	50	70	-	112	71	-	-	-	-	-	-	-
Stage 1	60	98	-	235	294	-	-	-	-	-	-	-
Stage 2	455	294	-	209	98	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	40.2	37.1	0	0.1
HCM LOS	E	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	288	-	-	134	176	647	-	-
HCM Lane V/C Ratio	0.004	-	-	0.24	0.372	0.032	-	-
HCM Control Delay (s)	17.6	-	-	40.2	37.1	10.7	-	-
HCM Lane LOS	C	-	-	E	E	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.9	1.6	0.1	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	31	88	28	29	0	0	0	0	38	1	3
Future Vol, veh/h	0	31	88	28	29	0	0	0	0	38	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	38	109	35	36	0	0	0	0	47	1	4

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	147	0	0	199	253	36
Stage 1	-	-	-	-	-	-	106	106	-
Stage 2	-	-	-	-	-	-	93	147	-
Critical Hdwy	-	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1435	-	0	790	650	1037
Stage 1	0	-	-	-	-	0	918	807	-
Stage 2	0	-	-	-	-	0	931	775	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	1435	-	-	770	0	1037
Mov Cap-2 Maneuver	-	-	-	-	-	-	770	0	-
Stage 1	-	-	-	-	-	-	895	0	-
Stage 2	-	-	-	-	-	-	931	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	3.7	9.9
HCM LOS			A

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	1435	-	785
HCM Lane V/C Ratio	-	-	0.024	-	0.066
HCM Control Delay (s)	-	-	7.6	0	9.9
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	-	0.2

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	14	37	233	117	0	0	0	0	6	4	11
Future Vol, veh/h	0	14	37	233	117	0	0	0	0	6	4	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	15	40	251	126	0	0	0	0	6	4	12

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	126	0	0	55	0	0	663	683	126
Stage 1	-	-	-	-	-	-	628	628	-
Stage 2	-	-	-	-	-	-	35	55	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1460	-	-	1550	-	0	426	372	924
Stage 1	-	-	-	-	-	0	532	476	-
Stage 2	-	-	-	-	-	0	987	849	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	1460	-	-	1550	-	-	352	0	924
Mov Cap-2 Maneuver	-	-	-	-	-	-	352	0	-
Stage 1	-	-	-	-	-	-	439	0	-
Stage 2	-	-	-	-	-	-	987	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	5.2	11.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	1460	-	-	1550	-	587
HCM Lane V/C Ratio	-	-	-	0.162	-	0.038
HCM Control Delay (s)	0	-	-	7.8	0	11.4
HCM Lane LOS	A	-	-	A	A	B
HCM 95th %tile Q(veh)	0	-	-	0.6	-	0.1

Intersection	
Int Delay, s/veh	8.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	54	0	0	36	7	34	1	251	0	0	0
Future Vol, veh/h	10	54	0	0	36	7	34	1	251	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	73	0	0	49	9	46	1	339	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	58	0	-	-	-	0	155	159	73
Stage 1	-	-	-	-	-	-	101	101	-
Stage 2	-	-	-	-	-	-	54	58	-
Critical Hdwy	4.12	-	-	-	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1546	-	0	0	-	-	836	733	989
Stage 1	-	-	0	0	-	-	923	811	-
Stage 2	-	-	0	0	-	-	969	847	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1546	-	-	-	-	-	828	0	989
Mov Cap-2 Maneuver	-	-	-	-	-	-	828	0	-
Stage 1	-	-	-	-	-	-	915	0	-
Stage 2	-	-	-	-	-	-	969	0	-

Approach	EB	WB	NB
HCM Control Delay, s	1.1	0	11.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	967	1546	-	-	-
HCM Lane V/C Ratio	0.4	0.009	-	-	-
HCM Control Delay (s)	11.2	7.3	0	-	-
HCM Lane LOS	B	A	A	-	-
HCM 95th %tile Q(veh)	1.9	0	-	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	13	0	0	272	36	99	0	27	0	0	0
Future Vol, veh/h	6	13	0	0	272	36	99	0	27	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	15	0	0	309	41	113	0	31	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	350	0	-	-	-	0	359	379	15
Stage 1	-	-	-	-	-	-	29	29	-
Stage 2	-	-	-	-	-	-	330	350	-
Critical Hdwy	4.12	-	-	-	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1209	-	0	0	-	-	640	553	1065
Stage 1	-	-	0	0	-	-	994	871	-
Stage 2	-	-	0	0	-	-	728	633	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1209	-	-	-	-	-	636	0	1065
Mov Cap-2 Maneuver	-	-	-	-	-	-	636	0	-
Stage 1	-	-	-	-	-	-	988	0	-
Stage 2	-	-	-	-	-	-	728	0	-

Approach	EB	WB	NB
HCM Control Delay, s	2.5	0	11.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	696	1209	-	-	-
HCM Lane V/C Ratio	0.206	0.006	-	-	-
HCM Control Delay (s)	11.5	8	0	-	-
HCM Lane LOS	B	A	A	-	-
HCM 95th %tile Q(veh)	0.8	0	-	-	-

Intersection	
Int Delay, s/veh	8.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	301	34	42	41	2
Future Vol, veh/h	0	301	34	42	41	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	363	41	51	49	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	183	50	51	0	-	0
Stage 1	50	-	-	-	-	-
Stage 2	133	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	806	1018	1555	-	-	-
Stage 1	972	-	-	-	-	-
Stage 2	893	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	784	1018	1555	-	-	-
Mov Cap-2 Maneuver	784	-	-	-	-	-
Stage 1	946	-	-	-	-	-
Stage 2	893	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	3.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1555	-	1018	-	-
HCM Lane V/C Ratio	0.026	-	0.356	-	-
HCM Control Delay (s)	7.4	0	10.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	1.6	-	-

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	37	303	52	56	0
Future Vol, veh/h	0	37	303	52	56	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	42	340	58	63	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	801	63	63	0	-	0
Stage 1	63	-	-	-	-	-
Stage 2	738	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	354	1002	1540	-	-	-
Stage 1	960	-	-	-	-	-
Stage 2	473	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	273	1002	1540	-	-	-
Mov Cap-2 Maneuver	273	-	-	-	-	-
Stage 1	741	-	-	-	-	-
Stage 2	473	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	6.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1540	-	1002	-	-
HCM Lane V/C Ratio	0.221	-	0.041	-	-
HCM Control Delay (s)	8	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.8	-	0.1	-	-

Intersection	
Int Delay, s/veh	6.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	51	25	43	302	43
Future Vol, veh/h	19	51	25	43	302	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	60	29	51	355	51

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	816	55	0	0	80	0
Stage 1	55	-	-	-	-	-
Stage 2	761	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	347	1012	-	-	1518	-
Stage 1	968	-	-	-	-	-
Stage 2	461	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	263	1012	-	-	1518	-
Mov Cap-2 Maneuver	263	-	-	-	-	-
Stage 1	735	-	-	-	-	-
Stage 2	461	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.4	0	7.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	571	1518	-
HCM Lane V/C Ratio	-	-	0.144	0.234	-
HCM Control Delay (s)	-	-	12.4	8.1	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.9	-

Intersection	
Int Delay, s/veh	8.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	43	303	54	30	50	45
Future Vol, veh/h	43	303	54	30	50	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	54	379	68	38	63	56

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	269	87	0	0	106	0
Stage 1	87	-	-	-	-	-
Stage 2	182	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	720	971	-	-	1485	-
Stage 1	936	-	-	-	-	-
Stage 2	849	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	688	971	-	-	1485	-
Mov Cap-2 Maneuver	688	-	-	-	-	-
Stage 1	895	-	-	-	-	-
Stage 2	849	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.3	0	4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	924	1485	-
HCM Lane V/C Ratio	-	-	0.468	0.042	-
HCM Control Delay (s)	-	-	12.3	7.5	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	2.5	0.1	-

- Cumulative plus Project Conditions – Mitigated

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	3	21	20	3	29	1	928	3	18	1723	0
Future Vol, veh/h	0	3	21	20	3	29	1	928	3	18	1723	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	600	-	-	545	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	3	24	23	3	33	1	1067	3	21	1980	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2559	3094	990	2105	3093	535	1980	0	0	1070	0	0
Stage 1	2022	2022	-	1071	1071	-	-	-	-	-	-	-
Stage 2	537	1072	-	1034	2022	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	13	12	245	29	12	490	288	-	-	647	-	-
Stage 1	60	101	-	236	295	-	-	-	-	-	-	-
Stage 2	496	295	-	248	101	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	11	12	245	24	12	490	288	-	-	647	-	-
Mov Cap-2 Maneuver	50	70	-	112	71	-	-	-	-	-	-	-
Stage 1	60	98	-	235	294	-	-	-	-	-	-	-
Stage 2	455	294	-	209	98	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	27.6	33.3	0	0.1
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	288	-	-	187	186	647	-	-
HCM Lane V/C Ratio	0.004	-	-	0.148	0.321	0.032	-	-
HCM Control Delay (s)	17.6	-	-	27.6	33.3	10.7	-	-
HCM Lane LOS	C	-	-	D	D	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5	1.3	0.1	-	-

APPENDIX C

Cumulative Project Data

Sanborn Solar Project 1 Mile Cumulative Projects List

#	Case ID	Name	Project Location	Request	Case Type	NUMBER	MAP	SECTION	Notes	TownshipRangeSection	APN	Acreage
1	11590	PALMER, PATRICK & JACKQUELINE	10237 MARY ST., MOJAVE	SECONDARY RES. UNIT (MOBILEHOME)	CUP	61	213		$ RECEIVED 9/26	10/12-12	429-160-06	, 2.50
2	14358	Joan Jackson	10623 Silver Street, Mojave	CUP to allow 3+ cargo containers	CUP		213		Reassigned to Patty 3/27/2014 Followup letter 5/1/2014 Two cargo containers are permitted, but 3 or more require CUP. Can't adverstise the request as 3+, so need to determine specific number of cargo containers being requested. Additionally, it appears from the photos there may be as many as 5 cargo containers currently on site. This would require a violation hearing unless they have previous approval and they want to add more, in which case it could be a modfication of a CUP. Check with Cassandra on what she identified during her preliminary review. . .this may require a site inspection. Also consider requesting a revised site plan that complies with the initial preliminary review letter (i.e. property boundary, drawn to scale, etc) and call out existing and proposed cargo containers.	10/12-11	429-134-20	, 2.47
3	13539	JONATHAN BENDER	1300 BLK OF HWY 58 (SOUTH SIDE)	MOJAVE SOLAR PARK BY CAL WEST ENGERGY	CUP		196	16	ALSO INCLUDES 236-360-64	11/12-16	236-360-12	, 29.00
4	12581	ESTEP, FAUNA	1634 HWY 58, MOJAVE	TO C-2 PD	ZCC	18	196	16	STAFF ADDED H COMBINING DISTRICT	11/12-16	236-360-12	, 6.49
10	13147	COLUMBIA LLC BY RECURRENT ENERGY	S/E PURDY AVE & GOLDTOWN ST.	CUP FOR SOLAR GENERATION	CUP		196		SEE CASE ID 13146 FOR TEHACHAPI CUP & 13148 FOR ROSAMOND CUP (ALL LOCATIONS PROCESSED IN ONE EIR)		427-030-03	, 0.00
11	11875	KJELSTROM & ASSOC \ SERVICE ROCK PRODUCTS	S/S HWY 58, 1/4 M E/O JANATA ST	ZC FROM A H TO M-2 PD	ZCC	42	196	23	PARC ON 08-22-06; PARC FOLLOW UP LETTER OUT 08-30-06; REASSIGNED ON 11-22-06 TO SCOTT; REASSIGNED ON 02-13-07 TO MICHAEL; APPLICATION DEEMED COMPLETE AND FEES ACCEPTED IN ERROR IN 03/2007. MND CIRCULATING 4/17/09 THRU 5/17/09	11/12-23	428-152-03	, 24.52
12	15238	801 Balboa LLC	Ss Hwy 202 aprx 700 ft w of Banduci	ZCC from E (5) to A to facilitate operation of a small, organic farm for temp sale of produce	CUP	71	196	27			377-020-09	, 0.00
13		Edwards AFB Solar Project by Edwards AFB, LLC	Edwards AFB	600 MW of electricity on 3,500 acres of land	Franchise Agreement		212 & 213			10/11-	244-250-02; Multiple	3,500

Note: 1-mile cumulative projects list provided by Kern County; highlighted cells indicate projects included in the cumulative analysis based on review of project characteristics, status, and location.

Table 1
Cumulative Projects (1-mile radius) Trip Generation Summary

Land Use/Vehicle Type	Size/Units/Daily Quantity	Daily Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Mojave Mobile Home								
Trip Rate[1]								
Mobile Home Park (ITE 240)	Per occupied DU	6.49	0.08	0.33	0.41	0.37	0.22	0.59
Trip Generation								
10237 Mary Street, Mojave – Mobile Home	1.00 occupied DU	6	0	1	1	1	0	1
Service Rock Products Concrete Batch Plant								
Trip Generation w/PCE[2]								
Ready-Mixed Trucks (3.0 PCE)[3]	20 Trucks	120	4	4	8	4	4	8
Asphaltic Trucks (3.0 PCE)[3]	20 Trucks	120	4	4	8	4	4	8
	Subtotal (w/PCE)	*240*	*8*	*8*	*16*	*8*	*8*	*16*
Edwards Air Force Base – Gen-Tie Line Construction								
Trip Generation w/PCE								
Workers (1.0 PCE)[4]	72 workers	116	58	0	58	0	58	58
Delivery Trucks (3.0 PCE)[3]	30 Trucks	180	9	9	18	9	9	18
On-site Trucks (3.0 PCE)[3]	30 Trucks	180	9	9	18	9	9	18
	Workers & Delivery Trucks (w/PCE)	*296*	*67*	*9*	*76*	*9*	*67*	*76*
	On-site Trucks (w/PCE)	*180*	*9*	*9*	*18*	*9*	*9*	*18*
	Subtotal (w/PCE)	*476*	*76*	*18*	*94*	*18*	*76*	*94*
	Total Trip Generation	**722**	**83**	**27**	**110**	**27**	**83**	**109**

PCE – Passenger Car Equivalent

Notes:

1 Trip rate from the Institute of Transportation Engineers (ITE), Trip Generation, 10th Edition, 2017.

2 Trip generation from Kjelstrom & Associates - Service Rock Products Mitigated Negative Declaration (MND), 2006. Two concrete batching plants (ready mixed and asphaltic) employ up to 20 drivers, with truck traffic averaging approximately 40 round-trips per day during a 16-hour work schedule (two shifts from 3am - 7pm).

3 PCE factor of 3.0 was utilized for all trucks

4 Car pool factor of 1.25 was utilized to estimate number of employee passenger cars that would be generated.

Sanborn Solar Project 6 Mile Cumulative Projects List

#	Case ID	Name	Project Location	Request	Case Type	NUMBER	MAP	SECTION	Notes	TownshipRangeSection	APN	Acreage
1	10955	FIRETHORN & AVENUE SOUTH, LLC/AEI-CASC ENG'G	N/2 & N/2 SE/4 SEC 29	ZC TO R-1	ZCC		196			11/12-29	427-030-03	,400.00
2	11007	OAK VALLEY INC BY DELMARTER AND DEIFEL	W/ OF KOCH & N/ OF OAK CREEK RD	ZCC TO E (2 1/2) RS FPS	ZCC		196	7	TR 6640	11/12-7	427-062-20	, 10.00
3	11121	WANG, KAREN/ PETER WANG	E/S HWY. 14 @FRONTAGE RD.	ZC TO C-2 PD	ZCC		213		COMP. 2-14. WILL NEED GPA GPA APPLIED FOR ON 3-7-06	10/12-16	430-051-14	, 0.96
4	11172	WANG, KAREN/ PETER WANG	E/S HWY 14 @ FRONTAGE RD	GPA TO 6.2	GPA		213			10/12-16	430-051-14	, 0.96
5	11216	KING, KARL/ RICHARD BEIGLE	NWC & NEC SOPP RD & HWY 14	GPA TO 5.5	GPA		213		TR 6466	10/12-21	430-022-05	,135.00
6	11217	KING, KARL/ RICHARD BEIGLE	NWC & NEC SOPP RD & HWY 14+B8:D8	ZC TO E-1	ZCC		213			10/12-21	430-022-05	,135.00
7	11465	COMPTON, CHRISTOPHER	LONE BUTTE RD.	VEHICLE WRECKING YARD	CUP	60	213		$ RECEIVED 8/4	10/12-22	430-260-41	, 2.50
8	11469	KJELSTROM & ASSOC \ SERVICE ROCK PRODUCTS CO.	S/S HWY 58, 1/4 M E/O JANATA ST	GPA FROM 8.5 TO 7.2	GPA	21	196	23	PARC ON 08-22-06; PARC FOLLOW UP LETTER OUT 08-30-06; REASSIGNED ON 11-22-06 TO SCOTT; REASSIGNED ON 02-13-07 TO MICHAEL; APPLICATION DEEMED COMPLETE AND FEES ACCEPTED IN ERROR IN 03/2007; MND CIRCULATING 4/17/09 THRU 5/17/09	11/12-23	428-152-03	, 24.52
11	11612	WANG, KAREN BY PETER WANG	NWC STATE RT 14 & DAWN RD	GPA FROM 8.5 TO 6.1, 6.2 OR 6.3	GPA		213	33	APPLICANT NEEDS TO SELECT COMERCIAL MAP CODE DESIGNATION; COMPLIANCE LETTER MAILED 02-07-07	10/12-33	431-121-16	, 2.51
12	11680	GREG LANSING / OLIVER CAGLE	N/S OF Y OF HWY 14 AND 58, MOJAVE	8.5, 8.5-2.5 and 5.4-2.5 to 5.3 465 s/f lots (Mojave Spec Plan)	SPA	22	196	5	Includes ZC 427-010-10 SEE CASE ID 12278 FOR ZCC APPLICATION SUBMITTAL REQUIREMENTS TURNED INTO STAFF ON 10/16/07 PROJECT REASSIGNED TO SARA ON 10/16/07; ORIGINALLY CALLED NICKIE LEE SILK BY WRA ENGINEERING	11/12-05	427-010-03	,510.00
13	11707	NORTH STAR PROPERTIES/ MARK JUDSON	W/SIDE KOCH AT DOUGLAS AVE, MOJAVE	ZC TO R-1 FPS CL & E(20) fps CL	ZCC	13	196	7	see Case ID 11488 (CL Plan) TR 6041 - Revised	11/12-7	427-061-04	, 37.70
14	11875	KJELSTROM & ASSOC \ SERVICE ROCK PRODUCTS	S/S HWY 58, 1/4 M E/O JANATA ST	ZC FROM A H TO M-2 PD	ZCC	42	196	23	PARC ON 08-22-06; PARC FOLLOW UP LETTER OUT 08-30-06; REASSIGNED ON 11-22-06 TO SCOTT; REASSIGNED ON 02-13-07 TO MICHAEL; APPLICATION DEEMED COMPLETE AND FEES ACCEPTED IN ERROR IN 03/2007. MND CIRCULATING 4/17/09 THRU 5/17/09	11/12-23	428-152-03	, 24.52
15	11893	KILBY, DOLORES/ANDERSON	2100 MONO ST., MOJAVE	ZC TO C-1 PD	ZCC	22	196	8	$ RECEIVED 2/12 SENDING TO 3/6/07 PARC	11/12-8	236-140-02	, 0.00
16	12162	PKB CONSULTING	W/S HOLT ST, 1/4 MI N/O ARROYO AVE	5.4 TO 5.3	GPA		196		REF ZC DB#12163; PARC HELD ON 8/21/07	11/12-06	427-052-03	, 40.00
17	12163	PKB CONSULTING	W/S HOLT ST, 1/4 MI N/O ARROYO AVE	A-1FPS TO R-1	ZCC		196		REF GPA DB#12162; PARC HELD ON 8/21/07	11/12-06	427-052-03	, 40.00
18	12205	GOLDEN QUEEN MINING CO., INC	SOLEDAD MOUTAIN	MODIFICATION OF SURFACE MINING & RECLAMATION PLAN; AND APPEAL 3, MAP 196	CUP	41	213		REF DB#12206; 13286	10/12-06	429-190-03	, 0.00
19	12206	GOLDEN QUEEN MINING CO., INC.	SOLEDAD MOUNTAIN	MODIFICATION OF SURFACE MINING & RECLAMATION PLAN; APPEAL 3, MAP 196	CUP	22	214		REF DB#12205; #13286	10/13-01	342-052-25	, 0.00
20	12250	CHRISTMAN, KATHERINE DAVIS BY CORNERSTONE ENG.	SWC BACKUS & 25TH ST. WEST	8.5 TO 5.6 & 5.7	GPA	22	213		SUBMITTED 09/19/2007; POSSIBLE VIOLATION(S0 IDENTIFIED; PARC HELD 12/18/2007	10/12-20	430-100-53	, 20.16
21	12278	GREG LANSING / OLIVER CAGLE	N/S OF Y OF HWY 14 AND 58, MOJAVE	8.5, 8.5-2.5 AND 5.4-2.5 TO 5.3 465 S/F LOTS (MOJAVE SPECIFIC PLAN)	ZCC	43	196	5	ADDATIONAL APN 427-010-10 SEE CASE ID 11680 FOR GPA APPLICATION SUBMITTAL REQUIREMENTS TURNED INTO STAFF ON 10/16/07 REASSIGNED TO SARA ON 10/16/07; ORIGINALLY CALLED NICKIE LEE SILK BY WRA ENGINEERING	11/12-05	427-010-03	,510.00
22	12320	ALTA WINDPOWER DEVELOPMENT, LLC	OAK CREEK RD & CAMERON RD	ZC TO A & INCORPORATE WE COMBINING DISTRICT	ZCC	40	197		REF DB#S 12321 & 12322	11/13-00	237-043-02	5,214.00
23	12322	ALTA WINDPOWER DEVELOPMENT, LLC	OAK CREEK RD & CAMERON RD	ZC TO A WE	ZCC	24	214		REF DB#S 12320 & 12321	10/13-02	345-061-03	,311.76
24	12459	UNITED ENGINEERING GROUP	E/S SIERRA HWY, 1 MI N. ROSAMOND	GPA FROM 5.6 & 5.6/2.4 TO 5.3 & 5.3/2.4	GPA	66	230		ADDITIONAL APN 471-022-19 SEE CASE ID 12864 FOR ZCC.	09/12-09	471-022-14	,536.00
25	12581	ESTEP, FAUNA	1634 HWY 58, MOJAVE	TO C-2 PD	ZCC	18	196	16	STAFF ADDED H COMBINING DISTRICT	11/12-16	236-360-12	, 6.49
26	12864	UNITED ENGINEERING GROUP	E/S SIERRA HWY, 1 MI N. ROSAMOND	ZCC FRO A-1 TO R-1 CL	ZCC	116	230		ADDITIONAL APN 471-022-19. SEE CASE ID 12459 FOR GPA	09/12-09	471-022-14	,536.00
27	13013	KERN COUNTY WASTE MANAGEMENT	MOJAVE LANDFILL	EXPANSION TO REGIONAL LANDFILL	ZCC	55	213		REVIEWING THE NOP 5/09		428-030-33	, 0.00
28	13052	FRESH WINDS INTERNATIONAL LTD BY WRA ENGINEERING	NEC Rutan & Purdy; Mojave	zone change to R-1	ZCC	1	196	19	x-ref TR 7204; Applicant address: PO Box 1057, Mojave, CA 93501 (661) 824-9312; case pulled prior to setting hearing; Unauthorized Sig on check for ZC. See file for letter from accounting;	11/12-19	427-120-07	, 40.00
30	13147	COLUMBIA LLC BY RECURRENT ENERGY	S/E PURDY AVE & GOLDTOWN ST.	CUP FOR SOLAR GENERATION	CUP		196		SEE CASE ID 13146 FOR TEHACHAPI CUP & 13148 FOR ROSAMOND CUP (ALL LOCATIONS PROCESSED IN ONE EIR)		427-030-03	, 0.00

31	13175	ALTA WINDPOWER DEVELOPMENT, LLC		TEMPORARY CONCRETE BATCH PLANT	CUP	6	197		REF ZC DB#12320, 12321, & 12322	11/13-00	237-043-02	, 0.00
32	13286	GOLDEN QUEEN MINING CO., INC.	SOLEDAD MOUNTAIN	SURFACE MINING & RECLAMATION PLAN; APPEAL 3, MAP 196	CUP	27	196		REF DB# 12205 & 12206	11/12-32	427-130-11	, 0.00
33	13377	RIO GRANDE SOLAR BY RECURRENT ENERGY	E/S HWY 14 & SIERRA HWY	CUP TO ALLOW CONSTRUCTION OF A 5 MW PV SOLAR FACILITY	CUP	30	196			11/12-33	427-400-00	, 46.00
34	13379	RE ROSAMOND TWO, LLC BY RECURRENT ENERGY	FAVARITO AVE. & 65TH STREET WEST	ZCC TO A	ZCC	146	230	03	SEE CASE ID 13378 FOR CUP	09/13-03	252-013-01	,160.00
35	13539	JONATHAN BENDER	1300 BLK OF HWY 58 (SOUTH SIDE)	MOJAVE SOLAR PARK BY CAL WEST ENGERGY	CUP		196	16	ALSO INCLUDES 236-360-64	11/12-16	236-360-12	, 29.00
36	13636	THE AEROMEN LLC	2 MILES WEST OF MOJAVE ON OAK CREEK	SOLAR: FOUR PV SOLAR PROJECTS ON 237 ACRES (THREE 5MW AND ONE 10MW)	CUP		197	13	237-562-12 -35 -37 -40 -41 -42	11/13-13	237-562-12	,237.00
37	13813	LANDTEC DEVELOPMENT/CORNERSTONE	INTSEC/30TH ST W & BACKUS RD	FROM 8.5 TO 6.2	GPA		213			10/12-20	430-100-01	, 9.66
38	13814	UNITED ENGINEERING GROUP	E/S SIERRA HWY, 1 MI N. ROSAMOND	GPA FROM 5.6 & 5.6/2.4 TO 5.3 & 5.3/2.4	GPA	67	230			09/12-09	471-022-14	,536.00
39	13815	ARFAN, MOHAMMAD/MONTESIANS, ESMERARDO	15190 SIERRA HWY.	RECYCLABLE COLLECTION & STORAGE	CUP		196	17	ADDITIONAL APN: 236-420-03	11/12-17	236-420-02	, 0.00
42	14264	Ron Leonard/Environmental Recycling Services	Boneyard Rd	Aircraft wrecking facility/yard for the purpose of scrap metal recycling	CUP	37	196		Assigned to Mike 10/4/2013 EOT request received Oct 2014, and again on Mar 2015 Assigned to Kristin 3/11/2015 EOT request received 2/9/2016, assigned to Paul S.	11/12-10	428-010-05	,496.50
43	14411	Grigor Termendjian	14675 Holt Street, Mojave	LNG Plant	CUP		196		Per Craig, Exempt from CEQA (15183), reassign to Scott Denney. Re-assigned to Scott Denney 12/2/2015 Now that the site has changed locations, do we have the consent of the property owner to process this? Re-assigned to Paul 5/17/2016	11/12-19	427-112-11	, 9.76
44	14512	Gettysburg Solar LLC	SW corner of Rosamond & 70th St. W	20 MW Solar Facility	SPA		213	21		09/13-21	374-011-06	,159.00
45	14513	Gettysburg Solar LLC	SW corner of Rosamond & 70th St. W	20 MW Solar Facility	ZCC		213	21		09/13-21	374-011-06	,159.00
46	14515	Gettysburg Solar LLC	SW corner of Rosamond & 70th St. W	20 MW Solar Facility	CUP		213	21		09/13-21	374-011-06	,159.00
47	14608	Mojave Chamber of Commerce	15811 K Street in Mojave	Allow the placement of a Commercial coach (caboose) and office	CUP	13	196	17	Assigned to John 12/19/2014 Re-assigned to Danielle 12/30/2015 236-221-11, 12	11/26-17	236-221-13	, 0.35
48	14626	T-Mobile West LLC Adrian Panaud	8747 25th street west, mojave	CUP for cell tower	CUP	63	213		Also see Case ID 14594 and 14626 In response to Roque's letter for cell tower CUP Assigned to Roque 1/22/2015 Reassinged to Randall 02/02/2015 Reassigned to Levi 02/25/2015	10/12-20	430-100-52	, 0.00
49	14678	Richard G Kosnik, POE Associates	Bishop Drive, Mojave	Zone Change to match zoning to 6.3 and 7.2 GPA	ZCC	19	169		Assigned to Kristin 4/4/2015	32/36-32	225-351-46	, 0.00
50	14837	Dona Recchia	Northerly of St Rt 58 Bypass	8.5/2.5, 8.3, & 4.1 to 6.3	GPA		168	26	224-610-05, 06, & 20. Also in Section 30 of next township to the east (Zone Map 169?). ZC application needed but not filed. Transferred to Adv. Planning 11/13/2015	32/35-26	224-610-04	,223.06
51	14874	Water Resorts Inc by Nelms Surveying	N/s Hwy 58 appr 900 ft E of Airport	Zone change to M-1	ZCC		196	16	X-ref PM 12192	11/12-16	236-360-69	, 20.04
52	15141	AT&T by Vance Pomeroy	1863 Highway 58, Mojave	To allow an 80 foot tall ball field light standard for wireless communication facility	CUP	7	196	16	See ID 15142 for Zone Variance		236-090-02	, 0.00
53	15178	Mojave Chamber of Commerce by Douglas Clipperton	15811 K Street, Mojave	EOT one year CUP allowed railroad caboose used as an office/info center.	CUP	13	196	17	Add'l APNs: 236-221-12 and 11. Request fees. Review to determine if the project descripiton has changed. Refer to CUPS TRK Case No. 14608.		236-221-13	, 0.35

Note: 6-mile cumulative projects list provided by Kern County; based on discussion with the County, an ambient growth rate was used to analyze projects included in this list.

Appendix L
Utilities and Service Systems

ESA

Appendix L1

Water Supply Assessment

ESA

WATER SUPPLY ASSESSMENT
for the
Sanborn Solar Project
Kern County, California

Lead Agency:

Kern County
Planning and Natural Resources Department
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Prepared For:

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NOVEMBER 2018

Printed on 30% post-consumer recycled material.

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ACRONYMS AND ABBREVIATIONS

AF	acre-feet
AFY	acre-feet per year
AVEK	Antelope Valley-East Kern Water Agency
bgs	below ground surface
btoc	below top of casing
CEQA	California Environmental Quality Act
County	Kern County
CWC	California Water Code
DWR	Department of Water Resources
FVGB	Fremont Valley Groundwater Basin
gpm	gallons per minute
IRWMP	Integrated Regional Water Management Plan
MPUD	Mojave Public Utilities District
O&M	operation and maintenance
proposed project	proposed Sanborn Solar Project
SB	Senate Bill
SWP	State Water Project
USGS	U.S. Geological Survey
UWMP	Urban Water Management Plan
WSA	Water Supply Assessment

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EXECUTIVE SUMMARY

This Water Supply Assessment (WSA) has been prepared to assist Kern County (County) in satisfying the requirements of Senate Bill (SB) 610 for the proposed Sanborn Solar Project (proposed project). The proposed project would require 200 acre-feet (AF) of water to support construction. Thereafter, the project would require up to 30 AF per year (AFY) to support operation and maintenance (O&M) activities. Several sources of water supply have been identified, which individually or in combination, would be available and sufficient to fully supply the proposed project's construction and/or O&M water demands. These include:

- **On-site Groundwater**: An evaluation of groundwater resources underlying the project site indicates that development of one or more on-site groundwater wells (either through rehabilitation of existing on-site wells or construction of a new well) is a feasible method of supplying the proposed project's water demands, so long as such wells are located and developed prudently, and a sufficient distance away from existing wells to avoid pumping interferences.
- **The Mojave Public Utilities District (MPUD)**: MPUD may provide water for the proposed project through one of several sources consisting of a) purchase of treated surface water and/or banked groundwater from the Antelope Valley–East Kern Water Agency (AVEK), or b) groundwater pumped from wells located within its service area, namely MPUD's Well 30, which is non-potable, unconnected to its drinking water system, and suitable for construction and O&M purposes.
- **California City:** California City has indicated a willingness to provide for the construction demands of the project, if requested. Based on review of its Urban Water Management Plan (UWMP), California City has voluminous surplus groundwater resources to supply the proposed project's construction demands, but is not available as a source of water for the proposed project's O&M demand.

In addition to identifying sufficient sources of available water for the proposed project, this WSA has evaluated the existing and planned future uses of the identified water supply sources and determined that they can accommodate the expected water demands in the cumulative context without unduly affecting the underlying groundwater basin. Regardless of the water supply source ultimately used, the impact on groundwater resources would be minimal, and would not appreciably contribute to aquifer depletion or adjacent well interference.

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1 INTRODUCTION

1.1 Purpose of Document

Senate Bill (SB) 610 was passed on January 1, 2002, amending California Water Code (CWC) to require detailed analysis of water supply availability for certain types of development projects (CWC Section 10912). The primary purpose of SB 610 is to improve the linkage between water and land use planning by ensuring greater communication between water providers and local planning agencies, and ensuring that land use decisions for certain large development projects are fully informed as to whether sufficient water supplies are available to meet project demands. SB 610 requires the preparation of a Water Supply Assessment (WSA) for a project that is subject to California Environmental Quality Act (CEQA) and meets certain requirements. When a WSA is required per CWC, it must examine the availability of an identified water supply under normal-year, single-dry-year, and multiple-dry-year conditions over a 20-year projection, accounting for the projected water demand of the project in addition to other existing and planned future uses of the identified water supply.

Kern County (County), acting as lead agency, has determined that the proposed project is subject to CEQA. Following this determination, a public water supplier is required to prove adequate water supply for the new project. The proposed project is not located within the service area of a public water system; however, it is located within the service area of a local water wholesaler, Antelope Valley-East Kern Water Agency (AVEK), who Mojave Public Utilities District (MPUD) can rely upon as a source of supplementary water in addition to that it produces from groundwater wells within its service area. Therefore, this WSA will be included in the CEQA documentation and will be reviewed by the lead agency, who will make an independent determination as to whether there is adequate water supply for the proposed project. This report provides information on the proposed project's potential water supplies and provides data to support the sufficiency of supply.

1.2 Project Location and Description

The project site is in the southern portion of County, in Central California, as shown on Figure 1, Project Vicinity. The project site is located at the western edge of the Antelope Valley, directly south of the community of Mojave. The solar generation sites and 1.3 miles of the generator tie line are east of State Route 14 (Antelope Valley Freeway), and the remainder of the generator tie line is west of State Route 14. The northern section is less than 1 mile southwest of State Route 58 (West Avenue D) and south of the Mojave Air and Space Port. The BNSF Railway forms the western edge of the northern section. The southern section is directly north of Edwards Air Force Base. The northern section lies in the Sanborn and Mojave U.S. Geological Survey (USGS) 7.5-minute quadrangles, Sections 22, 23, 26, 27, 34, and 35, Township 11 North, Range 12 West, San Bernardino Base and Meridian. The southern

section lies in the Bissell USGS 7.5-minute quadrangle, Sections 1, 6, 7, and 12, Township 10 North, Ranges 12 West and 11 West, San Bernardino Base and Meridian.

The proposed project will develop a photovoltaic facility with a capacity of up to 300 megawatts of renewable electrical energy consisting of photovoltaic modules (solar panels) on a fixed-mount array or a single-axis tracker system, mounted on pile-driven steel support posts. The project site is on approximately 2,102 acres of private agricultural lands in southeastern Kern County. The project will consist of two operating facilities, the northern section with approximately 1,118 acres and the southern section with approximately 983 acres (Figure 2). The project is located on generally undeveloped land that has been historically used for grazing operations and, before that, alfalfa cultivation. The site consists of 15 privately owned parcels. Figure 2, Project Site, depicts the project boundaries.

1.3 Water Supply Assessment Applicability

A project that is subject to CEQA requires preparation of a WSA if it is a proposed industrial facility occupying more than 40 acres of land (CWC Section 10912(a)). The proposed project area encompasses approximately 2,102 acres. SB 610 amended Water Code Sections 10910 and 10912 to create a direct relationship between water supply and land use. Based on this amendment to the CWC, the proposed project is subject to SB 610 and therefore requires the preparation of a WSA.

The CWC, as amended by SB 610, requires that a WSA address the following questions:

- Is there a public water system that will service the project?
- Is there a current UWMP [urban water management plan] that accounts for the project demand?
- Is groundwater a component of the supplies for the project?
- Are there sufficient supplies to serve the project over the next 20 years?

The primary question to be answered in a WSA is:

> Will the total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection meet the projected water demand of the proposed project, in addition to existing and planned future uses of the identified water supplies, including agricultural and manufacturing uses?

Sections 1.3.1 through 1.3.4 address the SB 610 WSA questions as they relate to the proposed project.

1.3.1 Public Water Systems and/or Local Water Agencies and Service Areas

This WSA analyzes a number of water sources that are available to meet the project's anticipated water demand, which is expected to consist of on-site groundwater, either wholly or in part. To maximize the flexibility and reliability of water sources available for the project, this WSA also identifies a number of local water agencies that have indicated their willingness to supply the project with water for its construction and/or operational needs, consisting of MPUD and California City. The project may indirectly use water provided by AVEK, because AVEK has indicated to MPUD that it can provide MPUD with enough water to serve construction water demands (AVEK 2018).

CWC Section 10912 defines a "public water system" as a system that has 3,000 or more service connections and provides piped water to the public for human consumption. Under this definition, and based on the number of service connections, MPUD is not a public water system, whereas California City is a public water system. AVEK is a water wholesaler that delivers water to local water agencies, but does not operate a municipal water distribution system or serve individual water customers for human consumption. Should the applicant choose to develop on-site groundwater by installing or redeveloping on-site groundwater wells, the facilities would be private and would not consist of a public water system.

The project site has no connection to a public water system and is not within the service area of a retail water supplier. Water resources in the vicinity of the proposed project consist of local groundwater supplies, which since 1962, have been supplemented by State Water Project surface water imports delivered to the area via the East Branch of the California Aqueduct. The proposed project boundary is adjacent to MPUD's service area. The Rosamond Community Services District is located southwest of the project site, but it is not considered as a potential water source in this WSA. The location of water agencies relative to the project site is shown in Figure 3.

1.3.2 Urban Water Management Plan Coverage

The project area is located within AVEK's service area, which is a wholesale water supplier to utilities and local government agencies, including MPUD. Therefore, the project area is addressed in the UWMP of the wholesaler. Accordingly, to the extent that AVEK's UWMP includes MPUD as a wholesale water customer, AVEK's UWMP provides information relevant to water supply for the project.

The project could also receive construction water from California City, which has an adopted 2015 UWMP. California City's service area does not encompass the project site, however, its UWMP contains information regarding water recharge and sustainable yield relevant to the local groundwater basin as a whole, and thus is used as an important source of information regarding

the existing and projected future demands on the basin, whose boundaries extend outside California City's service area and encompass the project site.

1.3.3 Groundwater as a Component of Project Water Supplies

The water demands will be met by developing on-site groundwater (either through redeveloping existing wells, or drilling a new well), which would draw from the Fremont Valley Groundwater Basin (FVGB), or by importing water from MPUD or California City, each of whom derives all or most of its supply from the FVGB. If the project is supplied by MPUD, the water delivered may be sourced from treated surface water and/or banked groundwater purchased from AVEK (up to 200 AF during construction); treated groundwater from within MPUD's service area; and/or untreated groundwater from MPUD's Well 30, prior to its anticipated conversion to a potable supply well by 2020. Construction water could also be supplied to the proposed project by California City. In all of these cases, groundwater will be wholly or partially used to supply the project's demands. Sufficiency of groundwater resources is addressed in Section 3.3.

1.3.4 Sufficiency of Supplies over the Next 20 Years

As described in Sections 2.1, Construction Water Demand; Section 2.2, Operational Water Demand; and Section 3.3, Water Supply Availability, there is adequate water available to supply the proposed project through construction and operation and maintenance (O&M).

2 PROJECT WATER DEMAND

The proposed project would require 200 AF of water to support construction over an 18-month period, equivalent to 133 AFY (Blattner, pers. comm. 2018). Thereafter, the project would require 30 AFY to support operation and maintenance activities. The water demands for each phase of the proposed project is described in detail in Sections 2.1 and 2.2.

2.1 Construction Water Demand

During construction of the proposed project, water would be required for common construction-related purposes, including but not limited to grading and soil compaction, dust suppression, truck wheel washing, and other miscellaneous purposes. A sanitary water supply would not be required during construction, as restroom facilities would be provided by portable units to be serviced by licensed providers, and potable water would be provided to workers through purchases of bottled water.

The project's construction-related water demand ultimately depends on local climate, the length and timing of the construction schedule, the types and number of equipment mobilized, the extent and intensity of site-preparation activities and associated dust control, requirements for proper hydration and compaction of structure foundations, and whether concrete will be mixed on site. Construction water demands typically show an early ramp-up as access roads, drainage infrastructure (if any), construction staging areas, and other site preparation activities are completed. Following an initial peak, construction-related water use ramps down and shows a long tail as solar trackers are progressively installed across the project site. The applicant plans to implement "mow and roll" technique of site preparation, which allows for a significant reduction in the extent of rough grading and related dust control needs. In addition to maintaining natural vegetation where possible, the Applicant also would employ dust suppressants (e.g., soil tackifiers rather than water spraying) where needed within inactive areas of the construction site. Therefore, water would not be used in a wasteful manner, and limited only to suppressing dust along active access routes, staging areas, and active construction work areas, as necessary to meet the Air Pollution Control District rules for dust control.

Construction water demands have been estimated by the Engineering, Procurement and Construction Contractor for the project using a water use factor that is based on the known water demand of other solar projects that have been completed in the area using similar construction techniques.

2.2 Operational Water Demand

During operation and maintenance of the project, it is anticipated that water would be required for panel washing, equipment washing, non-sanitary uses, and other miscellaneous water uses, such as landscaping. Potable water supplies for maintenance workers on site would be provided by a commercial vendor or through on-site pumped ground water.

During solar and energy storage project operations, solar panel washing is expected to occur one to four times per year, and general labor (up to 10 individuals) may assist in the panel cleaning. Panel washing of this size would require 45 days to complete per wash cycle. Water consumption is expected to be around 0.28 gallons per square yard of panel, based on other similar operations. Given a 300-megawatt alternating current plant, with four cycles per year, the annual water usage is expected to be up to approximately 30 AF of water. Although the applicant only expects to wash the photovoltaic panels once per year, the panels may need to be washed more frequently (up to four times per year) based on site conditions. Conditions that may necessitate increased wash requirements include unusual weather occurrences, forest fires, local air pollutants, and other similar conditions. Therefore, the proposed project is requesting the use of up to 30 AFY for operations and site maintenance.

3 WATER SUPPLY ASSESSMENT

A WSA is required to identify and describe the water supply sources of the public water supplier that will serve the proposed project. CWC Section 10910(d) requires a WSA to include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water supplier.

3.1 Water Resources

3.1.1 Surface Water

The Antelope-Fremont Valleys Watershed is a large, closed basin in the western Mojave Desert, with no outlet to the ocean. This watershed straddles the Los Angeles–Kern County line and drains a total of 3,387 square miles. Approximately 80% of the watershed is characterized by a low to moderate slope (0%–7%). The remaining 20% consists of foothills and rugged mountains, some of which reach up to 3,600 feet in elevation. The floor of the Antelope-Fremont Valleys Watershed generally lacks defined natural channels outside of the foothills and consequently is subject to unpredictable sheet flow patterns (RWMG 2013).

All water that enters the Antelope-Fremont Valleys Watershed either infiltrates into the underlying groundwater basin or flows toward three playa lakes located near the center of the watershed—Rogers, Rosamond, and Buckhorn Dry Lakes. All three playa lakes (also known as “dry lakes”) are located within Edwards Air Force Base. A playa lake is formed when rain fills a playa, or small, round depression in the surface of the ground. Playa lakes are usually endorheic, which means they have no outflow of water. These playa lakes are usually dry, and they only receive water following intense and/or prolonged rainfall. Surface runoff that collects in the dry lakes quickly evaporates from the surface, and only a small quantity of water infiltrates to the groundwater due to the nearly impermeable nature of the playa soils (RWMG 2013).

Natural surface water features in the project area are ephemeral, meaning that they only convey flows in direct response to precipitation events. Man-made surface water features in the area are limited to the California Aqueduct, located about 5 miles northwest of the project site, and several water storage ponds located immediately northwest of the project site. The California Aqueduct is part of the State Water Project (SWP), which is the nation’s largest state-built water and power development and conveyance system that includes pumping and power plants, reservoirs, lakes, storage tanks, canals, tunnels and pipelines that capture, store, and convey water to 29 contract water agencies.

The project site does not currently receive surface water deliveries from a local water agency.

3.1.2 Groundwater

Basin Boundaries and Characteristics

This project is located in eastern Kern County at the southern end of the FVGB (Figure 3). As defined by DWR (Basin No. 6–46), the FVGB covers an estimated 336,700 acres (526 square miles) and is bounded to the south and southeast by the Antelope Valley Groundwater Basin; to the east by crystalline rocks of Red Mountain, the Rand Mountains, Castle Butte, the Bissell Hills, and the Rosamond Hills; and to the west and north by the Sierra Nevada Mountains, the Tehachapi Mountains, and the El Paso Mountains (DWR 2004). The boundary between the FVGB and the Antelope Valley Groundwater Basin occurs along a groundwater divide approximated by a line connecting the mouth of Oak Creek through Middle Butte to the exposed basement rock near Gem Hill and to the southeast of California City (DWR 2004).

The USGS has divided the FVGB into six subunits that are generally defined by groundwater flow patterns, recharge characteristics, geographic location, and controlling geologic structures such as faults or intruding bedrock features (USGS 1967). Various strands of the Garlock Fault Zone (which includes the El Paso Fault) and the Muroc Fault both represent partial barriers to groundwater flow and generally define the boundaries between the Chaffee, California City, Oak Creek and Koehn Subunits.[1] The boundary between the Chaffee and Gloster Subunits is defined by consolidated rock of the northern part of the Bissell Hills and the general east–west line of scattered hills trending through Elephant Butte westward to the Garlock Fault Zone (USGS 1967). Basin-wide, alluvial deposits are thought to be in excess of 1,000 feet thick, thinning toward the bed of Koehn Lake, where alluvium is interbedded with lacustrine deposits that result in locally confined conditions. Average well yield (for municipal and agricultural wells) reported by DWR within the FVGB is approximately 530 gallons per minute (gpm), with a maximum yield of 2,580 gpm (DWR 2004). The project area crosses the boundary between the Chaffee and Gloster Subunits (Figure 3).

Natural recharge of the basin includes percolation of ephemeral streams that flow in from the Sierra Nevada. The general groundwater flow direction is toward Koehn Lake at the center of the valley, with no appreciable quantity of groundwater flowing out of the basin (DWR 2004). Within the project area, the general pattern of groundwater flow is in a northerly to northeasterly direction (USGS 1967). DWR notes historical groundwater level declines in some parts of the basin and stabilization of groundwater

[1] Various descriptions and depictions of the local groundwater basin area, specifically within the Antelope Valley Integrated Regional Water Management Plan, indicate that the Chaffee and Gloster Subunits are part of the Antelope Valley Groundwater Basin. Further research, however, shows that the project site is not located within the specific jurisdictional boundary that has been legally established for the Antelope Valley Groundwater Basin adjudication and that the site is located in the FVGB according to DWR Bulletin 118, the best available and authoritative source of basin boundaries in California.

levels in others. The total storage capacity of the basin is calculated to be 4,800,000 AF, although the current amount of groundwater in storage is unknown (DWR 2004).

Basin Adjudication and Prioritization

The FVGB is not subject to a court adjudication, although the Antelope Valley Groundwater Basin, whose boundary is located west, south and east of the project site, is subject to a stipulated judgment approved in December 2015, i.e., the Antelope Valley Groundwater Adjudication (AVEK 2016) (Figure 3). Water supplies in the Antelope Valley Groundwater Basin have been stressed by agricultural practices and population growth combined with limited sources of surface water. Due to existing overdraft conditions, groundwater rights within the Antelope Valley Groundwater Basin have been restricted, and will continue to be incrementally curtailed pursuant to the recent water basin adjudication judgment. The FVGB is not within the boundaries of the adjudication; however, one method MPUD may use to provide the project proponent with water is by purchasing it from AVEK. Although most of AVEK's supply is from surface water delivered by the California Aqueduct, it does operate groundwater wells, and it is possible that some water may come from AVEK's banked groundwater supplies within the Antelope Valley Groundwater Basin.

In contrast to the Antelope Valley Groundwater Basin, the FVGB is not in or projected to be in a state of overdraft (DWR 2017). Based on low population density, negative growth projections, low numbers of private and public supply wells, and the lack of irrigated agriculture within the FVGB, it is designated as a low-priority basin by DWR (DWR 2014). As a low-priority basin, the FVGB is not required to develop a groundwater sustainability plan in accordance with the Sustainable Groundwater Management Act (SGMA), and there is currently no existing groundwater management plan (e.g., SB 1938 or AB 359) applicable to the basin. Groundwater pumping within the FVGB peaked in the 1950s with the cultivation of agricultural crops such as alfalfa, pasture, and field crops, then declined as greater pumping lifts and increasing energy costs made the use of groundwater in the area less economical for agricultural uses (USGS 2003). The delivery of SWP water to the region starting in 1972 also decreased farmers' reliance on groundwater for irrigation (USGS 2003). Agriculture within the FVGB largely ceased by the late 1970's (USGS 2003). Groundwater within the FVGB is currently extracted to support domestic, industrial, renewable energy, and limited municipal demands.

Groundwater Quality

Groundwater in parts of the basin has high concentrations of fluoride and sodium. Groundwater near Koehn Lake has sodium and chloride concentrations of 10,000 and 14,000 mg/L respectively (DWR 1964). TDS content ranges from 400 to 700 mg/L in the southeastern part of the basin, 800

to 1,000 mg/L in the southwest part of the basin, and 350 to 1,100 mg/L in the northern part of the basin (DWR 1964).

On-Site Groundwater Resources

The project site has overlying water rights that were affirmed in a stipulated judgment rendered on April 28, 1972, in the case of Monolith Portland Cement Company v. Mojave Public Utility District (Kern County Superior Court Case No. 104912). In 2012, a legal review was conducted to evaluate water rights on the property, which indicated that the overlying groundwater rights are intact for the project's parcels. However, at that time, an updated analysis of the amount, condition, sufficiency, or reliability of groundwater supplies that might be available had not yet been determined. To evaluate the condition of the underlying aquifer, this section summarizes a search of well completion reports on the project site and surrounding properties, and review of publicly available information regarding groundwater quality and groundwater levels.

The project overlies Quaternary alluvium, which is the most important water-bearing material in the basin (DWR 2004). Site-specific information on the thickness of alluvium underlying the project area is not known with confidence and varies geographically, likely thinning toward the south. Anecdotal information indicates that one of the on-site wells may be up to 700 feet deep, and a hydrogeologic cross section of the Chaffee Subunit indicates the depth of alluvium to vary between 300 feet (at its western margin) to 800 feet near its crossing with the Muroc Fault (Ishibashi 1990; USGS 1967). Basin-wide, alluvial deposits are thought to be locally in excess of 1,000 feet thick, thinning toward the bed of Koehn Lake, where alluvium is interbedded with lacustrine deposits that result in locally confined conditions.

Locally, the northern section of the site and surrounding area was under active alfalfa production until the 1970s, after which it supported a cattle operation (Ishibashi 1990). The groundwater report prepared for parcel owners in 1990 estimated that 1,600 acres of alfalfa were cultivated in the northern part of the proposed project site, which the report estimated would have required at least 16,000 AFY of pumpage from area wells (Ishibashi 1990). This is a liberal estimate, but illustrates that historical agricultural demands of the local area were orders of magnitude above the demands of renewable energy facilities. It was reported that this level of pumping occurred over a 10-year period without causing groundwater availability issues (Ishibashi 1990). Under current conditions, there are no agricultural water demands within the FVGB; water demands in the basin are limited to domestic and municipal uses, and renewable energy projects.

There are six groundwater wells known to exist on the project site, all of which are currently inactive, abandoned, and/or in various states of disrepair. Table 1 lists the groundwater wells, their characteristics if known, and a summary of their current condition. The information in Table 1 is

based on a report prepared in 1990 for the owner at the time and a down-hole video survey of four wells completed by Wellenco (2014). Anecdotal information provided in the 1990 report indicates the on-site wells were dug between 1949 and 1960 to support agricultural uses on the site until 1970, when agricultural use of the site ceased (Ishibashi 1990). At that time, appurtenant facilities (i.e., pumps and distribution pipes) were removed and sold at auction, leaving only the on-site wells in place (Ishibashi 1990). Figure 4 shows the location of each on-site well, along with off-site wells relevant to this discussion.

Table 1
List of On-Site Wells

Well ID	Casing Diameter (inch)	Depth (feet)	Depth to Water (feet btoc)	Measurement Date	Historical Yield (gpm)	Condition Summary and Notes
4	14 (0.25 inches thick)	NR	Dry (75 feet)	02/22/1990	U	Stovepipe well. 4 by 5 foot pad
5	14 (0.25 inches thick)	>142[a]	191[b] (no SWL 3/22/2014)	N/A	U	Metal and concrete debris obstruction at 143 feet btoc. Casing appears to be slightly crushed.
6	14 (0.25 inches thick)	>230[a] / 359.6	173 168.5	02/22/1990 03/22/2014	1,800[c]	Sideview – Casing / No visible perforations Downview – Fill / No visible perforations @ 231 feet with 129 feet of fill in the well. Anecdotal report of 87 feet of drawdown at 1,800 gpm[c]
7	14 (0.25 inches thick)	>415[a]	188[b] (no SWL 3/22/2014)	02/22/1990 03/22/2014	U	Obstruction at 146 feet btoc. Produces sand.
8	14 (0.25 inches thick)	>404[a] / 700[c]	172[b] 167.5	02/22/1990 03/22/2014	900[c]	202 feet Sideview – Top of visible (Barely) perforations (Vert. slots) Sideview – Top of 2nd cable debris @ 375.5 Perforations (Not visible) hit fill @ 405 feet 295 feet of fill. Pumped at 900 gpm with drawdown of 82 feet in 1990.
USGS	U	NR[d]	Dry (75 feet)	N/A	U	Observation well. Located 50 feet southwest of Well 7.

Notes: btoc = below top of casing; gpm = gallons per minute; NR = not reported; U = unknown; SWL = Static Water Level; N/A: not applicable; USGS = U.S. Geological Survey.

[a] Source information for these items is from Wellenco 2014.
[b] Estimated in 1990 report based on unknown data.
[c] Interview with Mr. Baker as reported in Ishibashi 1990.
[d] USGS well is reported to be tens of feet deep and is likely dry.

Wells 5, 6, 7, and 8 were reported as salvageable in 1990. (Wells 1, 2, and 3 are located southwest of the railroad line and are not part of the proposed project site.) Well 4 was reported as dry in 1990. However, based on down-well video surveys performed in 2014 on Wells 5, 6, 7, and 8, Wells 5 and 7 likely need to be destroyed as per state and county requirements. Well 6 has 129 feet of fill, and Well 8 has 295 feet of fill based on the video surveys and reported original depth of the wells (Ishibashi 1990). Wells 6 and 8 may be salvageable after well redevelopment, which would consist of airlifting the accumulated fill and brushing and bailing the perforated sections of casing. However, given the age of the wells, there is a good chance that they are beyond their remaining useful life, and the process of rehabilitation may reveal additional problems. Because of this, if on-site groundwater is used as a source of supply, a new well would likely need to be drilled and all old wells properly abandoned per state and county requirements.

A request for well logs from DWR in June 2016 for the township and range sections in and around the project site yielded no records for the wells identified on site and limited records for the surrounding area (DWR 2016). Figure 4 shows the township and range sections for which DWR well completion records exist. The majority of records reviewed were for domestic wells drilled starting in 1980. Two wells were classified as irrigation/municipal wells. Well depths for the domestic wells range from 200 to 400 feet below ground surface (bgs), casing diameters range from 6 inches to 12 inches, and perforated intervals generally start around 100 feet bgs down to the completed depth of the well. The domestic well yields average 30 gpm, with a range of between 10 and 150 gpm (DWR 2016). The well completion report for MPUD Well 30 was also reviewed, which shows it was drilled in 1968, is 381 feet deep, 12 inches in diameter, and encountered water at 223 feet bgs. The bottom depth of the well is reported to have encountered decomposed rock. Based on well completion reports available for review, the depth to bedrock in the area is between 300 and 400 feet bgs.

In addition to the DWR well completion report request, data available from the DWR Water Data Library and the USGS National Water Information System were reviewed. Three wells were found to have a fairly good record of groundwater levels and are shown in Figure 4. The groundwater level record that captures the most recent period is from USGS Well No. 350212118083701, which is located 2,000 feet northeast of the project site (DWR Well No. 011NOI2W22F002S). The depth to water in this well has recovered from a low of 260 feet bgs in the mid-1970s to less than 240 feet bgs in 2012 (USGS 2017). This groundwater level record is shown in Exhibit 1. USGS Well No. 350206118065801, located to the northwest of the project site, captures a good groundwater level record for the period between 1952 and 1988. As shown in Exhibit 2, the groundwater level measured in 1952 was approximately 154 feet bgs, began a steep decline in the late 1950s to a low of about 212 feet bgs in 1970, and recovered to 171 feet bgs by 1988. USGS Well No. 345940118070701, located east of the southern portion of the site, has a limited groundwater level record between 1967

and 1976. As shown in Exhibit 3, the groundwater level measured in 1967 was about 147 bgs, declining to 152 bgs in 1967 (USGS 2017).

The available groundwater level record indicates that groundwater levels have been recovering since the mid- to late-1970s, likely as a result of the cessation of water-intensive agriculture in the area. Ishibashi (1990) estimated that support for alfalfa cultivated in the 1960s/1970s would have required about 16,000 AFY on the project site. Ishibashi (1990) also reported (based on interview with Mr. Baker who recalled the history of the area) that lack of water was not a major issue during the period of intensive cultivation and indicated that groundwater levels had not declined on the site since 1964. Ishibashi (1990) reported that the storage coefficient of the aquifer beneath the project site is between 5% and 10%, with an estimated 80,000 AF of water beneath the property, assuming 50 feet of pumpable water. This is conservative because the thickness of saturated sediments on site may exceed 200 feet, based on groundwater levels measured in 2014. Groundwater levels measured in Wells 6 and 8 during the video survey by Wellenco (2014) are higher by 4.5 feet when compared with 1990 groundwater levels, indicating recovery due to recharge and limited pumping in the area over the last 25 years or more. This is consistent with the trends observed in off-site wells.

Based on the historical record of groundwater levels in the area, the investigation of on-site water resources in 1990, and the groundwater levels measures in 2014 as part of the on-site video survey of Wells 4, 5, 6, and 7, groundwater movement on site is estimated to be towards the north or northwest, and long-term groundwater levels appear to be rising. Therefore, there does not appear to be any major limitations to developing on-site groundwater resources for construction and operational demands of the project.

Average well yield (for municipal and agricultural wells) reported by DWR within the FVGB is approximately 530 gpm with a maximum yield of 2,580 gpm (DWR 2004). Based on the historical yield on the on-site wells (900–1,800 gpm, Table 2), the reported yields of surrounding wells (e.g., MPUD Well 30), and the aquifer properties previously described, it is estimated that a new on-site well could produce up to 500 gpm. However, because the actual yield has not been verified, it is conservatively assumed for the purpose of this WSA that on-site groundwater could produce no more than 250 gpm, which would translate to 403 AFY if the well were pumped continuously. When compared to the estimated historical demand of 16,000 AFY and the conservatively estimated amount of groundwater in storage beneath the propose project site of 80,000 AF, the use up 200 AF for construction and 30 AFY for operation is expected to result in minimal effect on the underlying aquifer.

Exhibit 1. Water Level Record for U.S. Geological Survey Well 350212118083701

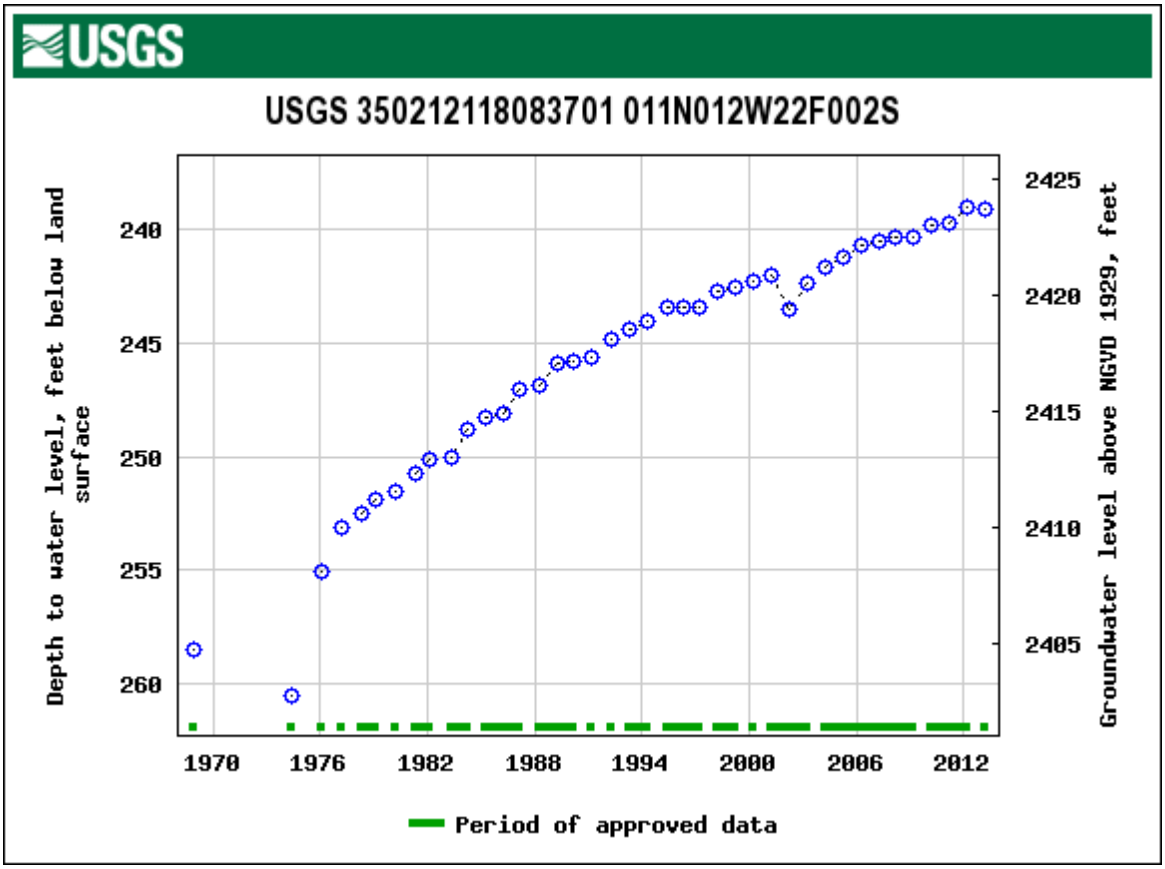


Exhibit 2. Water Level Record for U.S. Geological Survey Well 350206118065801

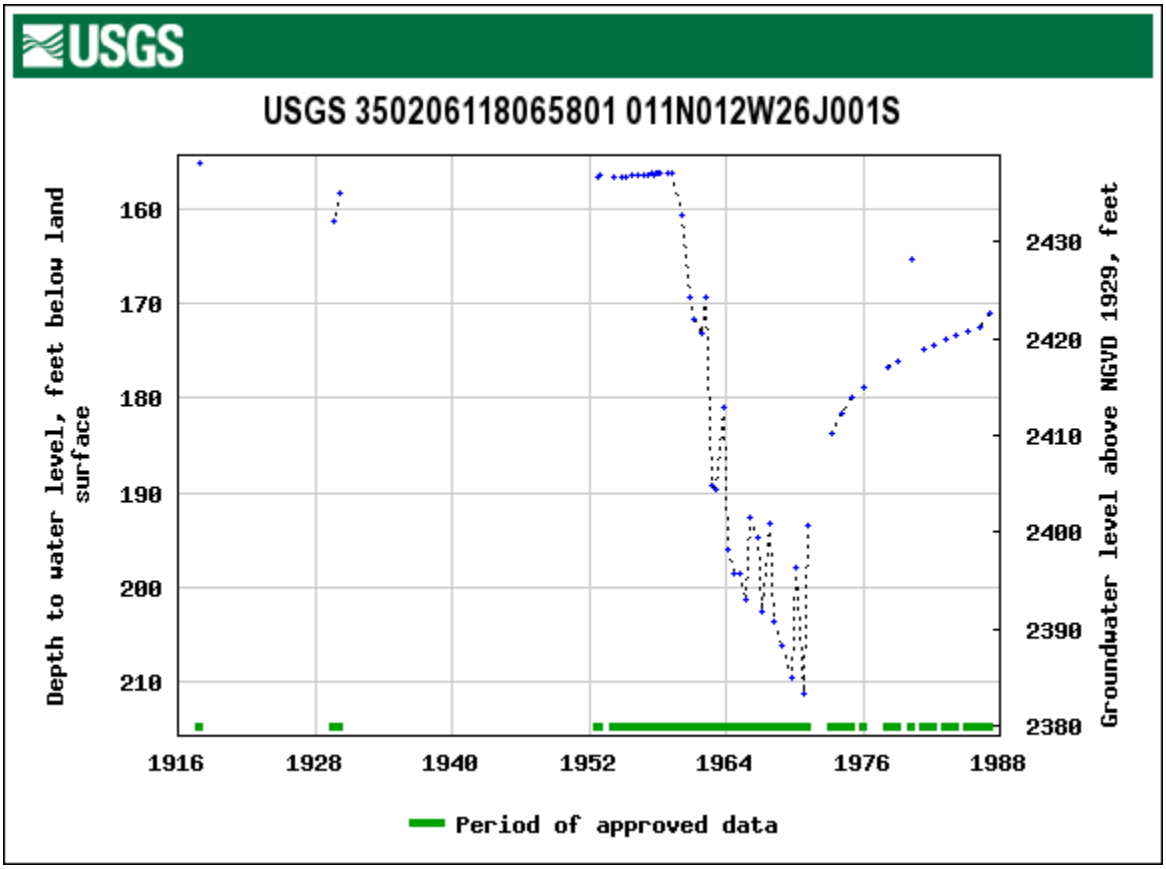
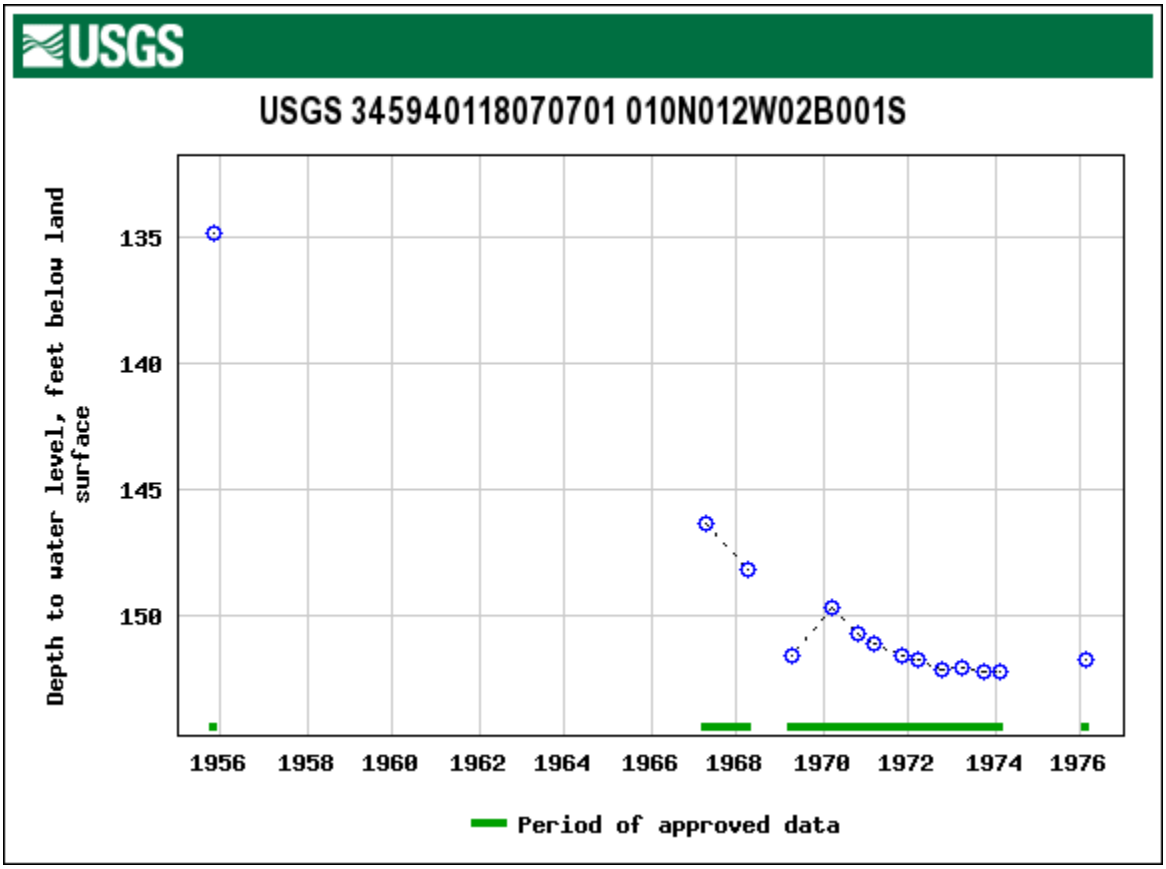


Exhibit 3. Water Level Record for U.S. Geological Survey Well 345940118070701



3.1.3 Imported Water

Regionally imported water comes from the SWP, which derives its water from reservoirs in Northern California and the Sacramento–San Joaquin River Delta. The project site has no direct connection to imported water. MPUD has a connection to AVEK, which delivers SWP water to local retail agencies, though MPUD is able to serve its customers solely from the FVBG, as indicated in Section 3.3.2.

3.1.4 Recycled Water

Recycled water is not currently a viable source of supply for the proposed project. Recycled water and stormwater are secondary sources of water supply, and this is only applicable to areas well south of the proposed project, near Lancaster and Palmdale (RWMG 2013). A portion of the recycled water from the Antelope Valley Region's two large water reclamation plants, consisting of Los Angeles County Sanitation Districts' plants in Palmdale and Lancaster, are used for

maintenance of Piute Ponds wetlands, agricultural irrigation, landscape irrigation, and a recreational lake at Apollo Park. The expansion of recycled water use continues in the region but is concentrated in the southern portion of the Antelope Valley (RWMG 2013).

3.2 Water Resources Plans and Programs

3.2.1 Integrated Regional Water Management Planning

Integrated regional water management (IRWM) planning is a collaborative effort to manage all aspects of water resources in a region defined by either natural or artificial boundaries. The IRWM process—per the Integrated Regional Water Management Planning Act (SB 1672)—involves identifying and implementing water management solutions on a regional scale to increase regional self-reliance, reduce conflict, and manage water in a way that concurrently achieves social, environmental, and economic objectives. The Fremont Basin IRWM Region (Region) was approved by the DWR in September 2011 through the IRWM Region Acceptance Process (RAP). The Region boundaries were later updated in 2018 to incorporate the entirety of the underlying FVGB. The California Department of Water Resources (DWR) is the State agency that manages the IRWM Program through grant programs and technical and facilitation services. Since the creation of the IRWM Planning Act in 2002, California voters have passed various bond acts that have provided over $1.5 billion in State funding to support and advance integrated, multi-benefit and regional projects. MPUD recently joined the Fremont Valley Integrated Regional Water Management Group, which consists of the City of California City, the Mojave Public Utilities District (MPUD), and the Antelope Valley-East Kern Water Agency (AVEK). The Fremont Valley Integrated Regional Water Management Group released a Draft IRWM Plan in October 2018, which will be finalized once public comments and California DWR comments are addressed. The formal adoption of the IRWMP is expected to post-date the publication of this WSA.

The Antelope Valley IRWMP is a joint water planning effort aimed at ensuring water supply reliability for the Antelope Valley Region, undertaken by agencies that joined to form a Regional Water Management Group, including the following: AVEK, Antelope Valley State Water Contractors Association, City of Lancaster, City of Palmdale, Littlerock Creek Irrigation District, Los Angeles County Sanitation District Nos. 14 and 20, Los Angeles County Waterworks District No. 40, Palmdale Water District, Quartz Hill Water District, and Rosamond Community Services District. These agencies have collectively defined a water resource management plan in the Antelope Valley IRWMP, which describes a course of action to meet the expected demands for water within the entire Antelope Valley Region through 2035 (RWMP 2013).

The primary goals of the Antelope Valley IRWMP are to address the following:

- How municipal and industrial purveyors can reliably provide the quantity and quality of water that will be demanded by a growing population
- Options to satisfy agricultural user demand for reliable supplies of reasonable cost irrigation water
- Opportunities to protect and enhance the current water resources (including groundwater) and the environmental resources within the Antelope Valley Region (RWMG 2013)

The proposed project site is technically located within the planning area for the Antelope Valley IRWMP. However, the focus of the plan is on the Antelope Valley rather than the Fremont Valley, because the Antelope Valley Groundwater Basin is subject to the court adjudication for groundwater rights, is under greater development pressure, and is expected to face greater challenges with respect to water supply than the northern portion of the IRWMP area within the Fremont Valley.

3.2.2 Antelope Valley-East Kern Water Agency Urban Water Management Plan

AVEK prepared an updated UWMP in June 2016 (AVEK 2016). AVEK delivers California SWP water used by customers in lieu of or in addition to local groundwater resources. AVEK also has the capability to pump from several of its groundwater wells if needed. Delivery of SWP can be unreliable and is dependent upon multiple factors such as climatic variations and other users of SWP water; therefore, to ensure water supply reliability, AVEK has established use of supply enhancement programs such as groundwater banking in the Antelope Valley Groundwater Basin and conjunctive water use.

The project area is located within AVEK's service area, which is a wholesale water supplier to utilities and local government agencies, including MPUD and California City. Therefore, the project area is addressed in the UWMP of the wholesaler. MPUD is included in the 2015 AVEK UWMP, and was given an expected future allocation from AVEK of 90 AFY through 2035 (AVEK 2016). Because MPUD receives up to 90 AFY from AVEK, this WSA notes that this 90 AFY may be subject to reduction due to SWP curtailments during dry and multiple dry year scenarios.

AVEK's water supply portfolio and water supply reliability is further discussed in Section 3.3.1.

3.3 Water Supply Availability

Water demands throughout the Antelope Valley and Fremont Valley Regions are supplied by a variety of water purveyors, including large wholesale agencies, irrigation districts, special districts

providing water primarily for municipal and industrial uses, investor-owned water companies, mutual water companies, and private groundwater well owners. Water supply for the Fremont Valley Region is obtained from two main sources: groundwater pumped from the FVGB (DWR Basin No 6–46) and deliveries of SWP water through the East Branch of the California Aqueduct. Figure 3 shows the water agencies within the project vicinity, the boundaries of the groundwater basins as designated by DWR, the FVGB subunits as defined by the USGS (1967), and the location of the California Aqueduct.

3.3.1 Wholesale Water

AVEK is the primary water wholesaler in the region, serving an area of nearly 2,400 square miles in northern Los Angeles and eastern Kern Counties as well as a small portion of Ventura County. The project is located in the northern portion of AVEK's service area within the FVGB. This area is not subject to the stipulated judgment approved in December 2015 for the Antelope Valley Groundwater Adjudication (AVEK 2016). The area under adjudication is roughly equivalent to the boundary of the Antelope Valley Groundwater Basin (DWR Basin No. 6–44), located south of the project site, as shown in Figure 3. AVEK is a wholesale water sales agency and is not able to provide water for the project, because AVEK is not authorized to sell water to individual customers (AVEK, pers. comm. 2017). However, AVEK is described in this WSA, because it sells water to local retail water agencies.

AVEK makes water deliveries of treated water to retail water suppliers and raw water for agricultural irrigation. AVEK has the third largest allotment of the 29 SWP contractors, following Metropolitan Water District and the Kern County Water Agency (AVEK 2016). Each year DWR calculates the total amount of water available for delivery in the system, accounting for the hydrologic cycle, regulatory restrictions on Bay-Delta exports, and in-stream environmental water needs, and apportions the remaining available water proportionally to each of the SWP contractors according to their maximum allotment, also referred to as "Table A" water. AVEK's maximum allotment is 144,844 AF, although SWP contractors on average, over all water year types, receive about 62% of their Table A water (DWR 2017). The long-term average Table A allocation for AVEK specifically is 59%, or 85,460 AFY (AVEK 2016). SWP contractors, including AVEK, use other types of SWP water such as Article 21 water, turnback pool water, and carry-over water to increase or decrease the amount of water available under SWP Table A (DWR 2017). AVEK uses groundwater banking programs to store excess water available from the SWP during wet periods and recovers it for delivery to customers when AVEK's SWP allotment is curtailed by droughts or disruptions (AVEK 2016). AVEK's current estimated groundwater banking recovery capacity is 36,000 AFY (AVEK 2016). The combination of AVEK's large SWP water allotment, its use of groundwater banking programs, and the use of inter-agency exchange agreements provides AVEK with a high degree of flexibility in meeting the region's water demands across all water-year types.

In its 2015 UWMP, AVEK used the assumption of 5% SWP Table A water allotment for the characterization of a single dry year as the worst case scenario and a three-year dry period SWP allocations of 12%, 14% and 24% in its assessment of water supply reliability. The historic dry year of 2014 was used as the basis of the single dry year. In addition to SWP deliveries, AVEK's groundwater supplies are governed by the groundwater adjudication for the Antelope Valley Basin and by the amount of groundwater stored in its groundwater bank accounts. AVEK's overlying groundwater production right from the Antelope Valley Groundwater Basin will be 3,550 AFY, and it has the ability to recover up to an estimated 36,000 AFY from banked groundwater. AVEK produced 17,066 AF of groundwater in 2015, but this number will be substantially decreased over the next 7 years to 3,550 AFY, in accordance with the terms of the groundwater adjudication for the Antelope Valley Groundwater Basin (AVEK 2016).

In its analysis of water demand and availability, AVEK determined that sufficient supplies would be available to meet demands through 2035 under normal water year conditions (AVEK 2016). For the average year condition, AVEK is projected to have a surplus of between 2,750 and 5,330 AFY (AVEK 2016). For the single dry year scenario, AVEK's UWMP indicates a water deficit of between 36,930 AF and 39,510 AF, depending on the year (calculated in 5-year increments) (AVEK 2016). For the multiple dry year scenario, AVEK's UWMP indicates a water deficit of between 9,330 AF and 29,310, depending on the year (calculated for three consecutive years in 5-year increments) (AVEK 2016). The water supply scenarios are based on current usage patterns by the retail water purveyors and agricultural users only. They do not take in to account other potential water sources available to the purveyors (such as groundwater pumping, recovery from groundwater banking programs, or the use of recycled water) or reductions in demand due to water conservation efforts. It also does not include the effects of planned future water projects, which for the region, include a number of new and expanded water banks, groundwater recharge and recovery facilities, and interties to increase regional water system flexibility (e.g., Westside Water Bank Expansion, Enterprise Bank, Southern Antelope Valley Intertie, and North Feeder Pump Station) (AVEK 2016; RWMG 2013). Collectively, these facilities are expected to add up to 123,300 AF of available dry-year groundwater recovery available to AVEK, based on an assumption that one-third banking capacity would be available (AVEK 2016). It is expected that the retail water agencies that AVEK serves will address this shortage through increases in groundwater pumping (recovery of banked supplies or return flows) and/or reductions in demand.

3.3.2 Retail Water Supply and Demand Projections

There are a number of retail water agencies in proximity to the proposed project, including the MPUD, the California City Community Service District, and the Rosamond Community Services District. As shown in Figure 3, MPUD is adjacent to the northern section of the proposed project, while the service areas for California City Community Service District and the Rosamond

Community Services District are more than 6–8 miles away from the project site, respectively. Given its proximity to the project site, and its available water resources, MPUD is the preferred option as a source of off-site water for construction and operation of the project. However, California City has also indicated its willingness to supply construction water to for the proposed project.

3.3.2.1 MPUD

MPUD has an approximately 20-square-mile service area covering the town of Mojave and surrounding areas (Figure 3). Its service area consists of approximately 1,320 connections to primarily residential customers (MPUD, pers. comm. 2018). MPUD's potable water system consists of seven active supply wells, treatment systems to address pathogens and bacteria (chlorination) and arsenic (through blending), and a distribution network to reach customers (SWRCB 2018). MPUD also has a connection to AVEK through a turnout located at the intersection of Highway 14 and Camelot Boulevard (Figure 4). MPUD's connection to AVEK is not always required to service MPUD's customers, but is available as an additional source of backup or emergency supply. The *County of Kern 2015-2023 Housing Element Update* indicates that in combination, local groundwater wells and contract supply through AVEK provide up to 1,600 AF of water available to MPUD (Kern County 2016, pg. 7-24). In addition, it reports that the 10-year growth rate for all unincorporated areas of the County is 15.5%, or a 0.015% annual growth rate.

MPUD has means of providing renewable energy projects with groundwater for construction purposes. MPUD's Well 30 is currently capable of providing up to 350 gpm of non-potable water and is the closest source of non-potable public groundwater to the proposed project site (MPUD, pers. comm. 2017). It is located immediately north of the site's northern border along Lone Butte Road. Due to high nitrate levels, Well 30 is not suitable for potable use and is available for non-potable purposes only (MPUD, pers. comm. 2017). Well 30 was drilled in 1968, is 381 feet deep, and was pump tested at 500 gpm with a 15-foot drawdown response (corresponding to a transmissivity of 67,000) (Ishibashi 1990). Based on communication with MPUD on June 4, 2018, a $200,000 grant has been obtained to convert Well 30 into a potable well by 2020 (MPUD, pers. comm. 2018). Well 30 is expected to become a part of MPUD's potable water supply system at that time. In addition, MPUD has a hydrant located along United Street at the southern end of its service area, adjacent to PPG Industries, which it has made available for water truck filling (Figure 4). The water from this hydrant includes treated groundwater from within MPUD's service area, supplemented by treated water purchased from AVEK.

Table 2 shows past and projected water supply and demand for MPUD's service area through 2040. Based on communication with MPUD, overall demand has not been established in any

official plan for wells within their system over the next 20 years. However, MPUD as well as the California Statewide Groundwater Elevation Monitoring basin prioritization conducted by DWR for the FVGB both indicate that the growth rate for MPUD's service area is expected to be 0% or less (MPUD, pers. comm. 2018; DWR 2014). For the purpose of projecting future water demand, however, the County's unincorporated annual growth rate of 0.155% was applied to the average water demand for the past 5 years to project future water demands. This is a conservative approach because MPUD's service area is not expected to experience growth, and because water demands are not expected to increase linearly with population. In fact, the water demand reduction of 25% that was mandated by the Governor's Executive Order are expected to be permanent, and the general trend of rising water rates in the State, particularly for small rural water districts, has also resulted in curtailment of customers' average water use. Therefore, its capacity of 508 AFY (based on the current verified sustainable pumping rate of 350 GPM, minus and assumed down time of 10% for periodic maintenance) was added to the existing potable water capacity of 1,600 AFY starting in 2020.

Table 2
Mojave Public Utilities District Past and Projected Water Supply and Demand for Service Area (Acre-Feet)

Sources	2012	2013	2014	2015	2016	2017	2018	2020	2025	2030	2035	2040[a]
Service Area Water Supply												
Treated/Potable Groundwater Capacity[b]	1,510	1,510	1,510	1,510	1,510	1,510	1,510	2,018[c]	2,018[c]	2,018[c]	2,018[c]	2,018[c]
AVEK Import[b]	90	90	90	90	90	90	90	90	90	90	90	90
Total Supply[b]	**1,600**	**1,600**	**1,600**	**1,600**	**1,600**	**1,600**	**1,600**	**2,108**	**2,108**	**2,108**	**2,108**	**2,108**
Service Area Water Demand												
Treated/Potable Groundwater Produced	1,253	1,336	1,307	983	976	1,054	*Future demand for treated/potable water is reported as a total only. All or a majority of service area demands will come from MPUD's groundwater wells, though MPUD has the option to utilize AVEK imports as needed for operational flexibility (e.g., well maintenance/downtime, peak summer demands, etc.).*					
AVEK Imports	0	0	0	63	50	2						
Total Demand[e]	**1,253**	**1,336**	**1,307**	**1,046**	**1,026**	**1,055**	**1,172[d]**	**1,208[d]**	**1,305[d]**	**1,409[d]**	**1,522[d]**	**1,644[d]**
Surplus	**347**	**264**	**293**	**554**	**574**	**545**	**428**	**900**	**803**	**699**	**586**	**464**

Source: MPUD, pers. comm. 2018; AVEK, pers. comm. 2018; AVEK 2016; Kern County 2016.

Notes:

a The current Urban Water Management Plan for AVEK (AVEK 2016) projects water supply and demand through 2035. It is reasonable to assume that AVEK can and will continue to provide 90 AFY to MPUD through 2040.

b The Kern County Housing Element Update (Kern County 2016, pg. 7-24) indicates that in combination, local groundwater wells and contract supply through AVEK provide up to 1,600 acre-feet of water available to MPUD. Available supply from AVEK is assumed to be 90 AFY AFY based on AVEK's 2015 Urban Water Management Plan (AVEK 2016). However, MPUD has the option to utilize AVEK imports on an as needed basis (i.e., not limited to 90 AFY) for operational flexibility (e.g., well maintenance/downtime, peak summer demands, etc.). Also note that groundwater is only produced in the amount necessary to serve demand.

c Based on communication with MPUD (2018), a $200,000 grant has been obtained to convert non-potable Well 30 into a potable well by 2020. Therefore, its capacity (508 AFY) is added to existing capacity. The capacity is based on the current verified sustainable pumping rate of 350 GPM, minus and assumed down time of 10% for periodic maintenance.

d Future service area demand is based on applying a 1.55% annual growth rate for unincorporated areas of the County, as reported the Kern County Housing Element Update (Kern County 2016, pg. 2–3).

Based on the comparison of available supplies and demand, MPUD is expected to have an available potable water surplus of between 428 and 900 AFY between now and 2040. Table 2 provides an accounting of water demand and supply for permanent connections within MPUD's service area, and for treated potable water only. MPUD also has the ability to provide non-potable water from Well 30 until it is converted to a potable water well, and to request additional water imports (beyond those listed in Table 2) from AVEK, as available. MPUD has used a hydrant located along United Street at the southern end of its service area, as well as a non-potable supply well (Well 30), to provide for the construction-related demands of renewable energy projects in the region. MPUD is currently supplying up to approximately 200,000 gallons per day of water for construction of wind energy projects in the area.

If the Applicant requests water from MPUD, it is anticipated that most of the water will be AVEK water, which will be "wheeled" through MPUD's system to serve the construction demands of the Project. AVEK's 2015 UWMP has planned for the supply of up to 90 AFY to MPUD through 2035 (AVEK 2016), and it is reasonable to assume that the same 90 AFY provided each year can and will continue to be provided through 2040. AVEK's projections for MPUD's future water purchases are based on a 25% reduction in the projected demands[2] for 2015 from the AVEK's 2010 UWMP and projected growth rates from the IRWMP. This amount (90 AFY) is an estimate for the purpose of AVEK's 2015 UWMP; it represents neither a minimum commitment nor a maximum ceiling on the amount of water that MPUD can obtain from AVEK. AVEK has specifically committed to providing up to 200 AFY for the next 2 years to MPUD to support construction for renewable energy construction, stating that it has sufficient water supplies available and/or banked to meet the construction demand (AVEK, pers. comm. 2018).

It is anticipated that on-site groundwater will be developed to serve both the construction and O&M demands of the proposed project. However, if MPUD is used as an additional source of water supply, in the event of a dry or multiple dry year during construction, the proposed project may instead obtain water from MPUD Well 30 (until converted to potable supply well in 2020), or California City. MPUD uses treated groundwater from wells to supply its service area, with the option to supplement its supplies with purchase of water from AVEK, which provides a combination of treated surface water from the California Aqueduct and groundwater from sources such as AVEK's Westside Water Bank (AVEK 2016).

AVEK treats the imported water from the State Water Project with chemical addition at the Rosamond Treatment Plant for the area around Rosamond, including MPUD.

[2] The reduction in projected demands for 2015 is due to the Governor's Executive Order mandating a 25% reduction in potable water demands from 2013 demands. It is anticipated that many of the water conservation measures enacted within the service area will result in permanent reductions in demand for potable water within AVEK's service area.

3.3.2.2 California City

The project could also receive construction water, if needed, from California City. California City has historically used mostly groundwater to meet its water demands. Groundwater supplies are not immediately impacted by droughts, and, as a result, there is no history of any water supply deficiencies for the water system. Even during the 1976-1977 droughts, records indicate a sufficient supply of water (California City UWMP, 2017). California City currently utilizes 6 groundwater wells located within the California City subunit of the FVGB, as well as surface water purchased from AVEK, for its water supply. Groundwater currently makes up approximately 75% of California City's water supply. Based on the 2015 UWMP, system groundwater wells have the capability to produce 5,100 gpm and a total of 8,228 AF (2,680.56 million gallons) on an annual basis. By 2020, the total amount of groundwater will be increased to 5,950 gpm giving an annual maximum well production capacity of 9,598 AFY. In addition, California City has an annual water right of 32,000 AF (California City 2017).

The source of AVEK water is the State Water Project with the water delivered through the California Aqueduct. The AVEK water is thus subject to variability in supply and in reliability. The supply variability for surface water is a function of hydrologic conditions in northern California. The reliability is a function of environmental conditions in the Sacramento-San Joaquin River Delta. The Delta is extremely vulnerable to earthquakes, rising sea levels and droughts. If there is a water shortage, all AVEK customers will receive a smaller allocation of water. California City currently utilizes less than a 10th of its existing water right 32,000 AFY (California City 2017). At the current maximum pumping capacity of 2680.56 MG, they could only utilize 25.7% of the owned water right. When this occurs, California City will utilize more groundwater.

Based on the water demand projections, in 2040 the total demand for California City is projected to be 6,755 AF and the City will have 59.2% excess pumping capacity (California City 2017). Based on this data, the city has surplus groundwater pumping capacity and water rights through 2040. The 2015 UWMP concludes that the City has surplus water available to it through 2040 in normal year, single dry year, and multiple dry year scenarios. While the UWMP does not include demand from the proposed project, the City has available sufficient surplus water supply. Normal year, single dry water year, and multi-dry year supply is shown in Table 3. The supply total (8,750 AF) is based on 80% (7,679 AF) of California City's maximum well production capacity (9,597 AF) plus the AVEK supply (1,071 AF).

Table 3
Water Budget Comparison for a Normal Water Year, Single Dry Water Year, and Multi-Dry Water Year – California City

Groundwater Storage	2020	2025	2030	2035	2040
	Acre-Feet				
Recharge + Return Flows	7,679	7,679	7,679	7,679	7,679
Subsurface Flow Loss	0	0	0	0	0
Recycle/Reuse(1)	**0**	**0**	**0**	**0**	**0**
Surface Storage Deliveries(2)	**1,071**	**1,071**	**1,071**	**1,071**	**1,071**
Total Supply	**8,750**	**8,750**	**8,750**	**8,750**	**8,750**
Demands(3)					
Urban Demand	3,661	3,815	3,975	4,134	4,628
Losses	1,682	1,756	1,826	1,900	2,127
Total Demand	**5,343**	**5,571**	**5,801**	**6,034**	**6,755**
Surplus	**3,407**	**3,719**	**2,949**	**2,716**	**1,995**

Source: CCWD 2017.
Notes:
1 Recycled water demands for 2010–2040 reflect existing 2013 municipal and industrial demands.
2 Surface water supplied from AVEK
3 Demand includes groundwater extractions.

For the single dry year and multi-dry year water budget projections, only surface water supplies would be immediately affected by drought conditions. Because the volume of supply is based on 80 percent of the maximum pumping capacity and on surface water deliveries by AVEK (1,071 AF per year), any shortfall would be made up by the remaining 20 percent of pumping capacity. Therefore, water volume available for California City would not change.

3.3.3 Groundwater Resource Availability

Based on low population density, negative growth projections, low numbers of private and public supply wells, and the lack of irrigated agriculture within the FVGB, it is designated as a low-priority basin by DWR (DWR 2014). DWR has not identified the FVGB as being in, or projected to be in, an overdraft condition, nor is it subject to a court adjudication (DWR 2017). In general, groundwater resources available to overlying pumpers is limited only by the production capacity of their wells and by the amount needed to support beneficial uses. Pursuant to California Water Code section 10910, subdivision (f), this subsection evaluates the potential sources of groundwater identified, including on-site groundwater.

The following is California City's basin-wide analysis of overall groundwater resource availability, indicating the FVGB's ability to support current and future cumulative demands (California City 2017):

> "Currently California City, Mojave, and Cantil are the only major entities drawing significant quantities of water from the basin and California City is by far the largest. In 2016 California City pumped 1,179.89 MG (3620 acre-feet), Mojave pumped 152.20 MG (467 acre-feet), and Cantil pumped 2.43 MG (7.46 acre-feet). Basin Total 1,334.5 MG (4095 acre-feet) being extracted from the basin annually. The basin (Number 6-64) is approximately 523 square miles (334,720 acres) per the DWR Bulletin 118. Based on basin area (4,095 acre-feet/334,720 acres) X (12in/1ft) = 0.1468 inches (2.5%) of the 5.93 inches of the average rain fall each year would need to make it into the basin aquifer to maintain recharge. The Western Regional Climate Center; Mojave, CA Station 045756 indicates an annual total average rainfall of 5.93 inches. This along with the fact that the basin sustained 32,000 acre-feet, over 5 times more extraction, for 10 to 15 years during the 1960s early 1970s when the area was predominantly agricultural substantiate the fact that the current rate of extraction definitely does not exceed the rate of recharge."

Estimates of recharge to the California City subunit of the FVGB have historically ranged greatly, with the most recent estimate by Stetson Engineering of 13,100 AFY (California City 2017). Given this is only one of the FVGB's five subunits, the FVGB as a whole would not have a problem supplying the area's current and future demands. Given the project site is located within the Chaffee and Gloster subunits, which is are similar though somewhat smaller in size as the California City subunit, the project's water demand of 200 AF for construction and 30 AFY thereafter for O&M would be well within the amount expected to be recharged on an annual basis over the long term.

3.4 Water Supply and Demand Comparison

On-site groundwater resources are expected to be developed to supply the construction and operational demands of the project. As described in Section 3.1.2, on-site groundwater resources could provide up to 403 AFY per well. As discussed in Section 3.1.2, the provision of 30 AFY would have a minimal impact on the volume of groundwater in storage. Given groundwater level trends are reflective of cumulative pumping conditions in the local area, the project's contribution to pumping influence would be minimal. However, given there are several municipal and domestic wells beyond the northern and western border of the project site, it is recommended that if the project proponent opts to develop on-site groundwater, that it locate the well(s) at least 0.5 miles from the boundary of MPUD's service area to avoid any potential for well interference.

MPUD has two options to supply the proposed project with water for both its construction demand (200 AF) and operational demand (30 AFY). It can either purchase water, as available, from AVEK and sell it to the project proponent through a hydrant, or make non-potable MPUD Well 30 available for use during the construction phase. MPUD has indicated it is willing and able to sell water to the proposed project from MPUD Well 30 during construction (MPUD 2017). Based on personal communication with MPUD, Well 30 is expected to be converted to a potable supply well in 2020 and become part of MPUD's treated water supply at that time.

California City, as discussed in Section 3.3.2.2, has a large surplus of available groundwater, and could make that water available for project construction, if needed.

Table 4 compares the available supply for construction and operation for average, single-dry and multiple-dry water years to the project demand. The only climate-related constraint is for purchases of water from AVEK. Even if on-site groundwater is not developed (either through redeveloping existing wells, or drilling a new well), MPUD would have sufficient water supplies to support the proposed project on its own, without use of the AVEK connection because the FVGB is not currently in overdraft and recharge estimates of 2.5% of average rainfall into the upper aquifer are sufficient to meet groundwater demand. Extraction of groundwater from the FVGB is currently 4,095 AFY, with MPUD extracting 467 AFY. Current and projected extraction is well below the high pumping volume of 32,000 AFY in the 1960s and 1970s, which was sustainable and occurred for 10 to 15 years when the area was predominantly agriculture (California City 2017). In addition, MPUD Well 30 can provide a sustainable yield of non-potable groundwater resources until 2020. Well 30 is currently inactive; however, MPUD plans to convert Well 30 to a potable well in 2020 and it will be incorporated into MPUD's treated supply system at that time.

Because the Edwards Air Force Base Solar Project may potentially rely on the same water sources, it has been listed as an additional source of water demand in Table 4.

Table 4
Water Supply and Demand Comparison for Present through 2040

Available Sources	Construction (2019–2020)			Operation and Maintenance (2020–2040)		
	Average Water Year	*Single Dry Year*	*3rd Year of Drought*	*Average Water Year*	*Single Dry Year*	*3rd Year of Drought*
Projected Available Supply (acre-feet)						
MPUD Surplus Treated Water Supply (from Table 2)	410 [a]	410 [a]	410 [a]	690 [b]	690 [b]	690 [b]
MPUD Well 30 [c]	254	254	254	0	0	0

Table 4
Water Supply and Demand Comparison for Present through 2040

Available Sources	Construction (2019–2020)			Operation and Maintenance (2020–2040)		
	Average Water Year	*Single Dry Year*	*3rd Year of Drought*	*Average Water Year*	*Single Dry Year*	*3rd Year of Drought*
California City Surplus Groundwater (from Table 3)	3,407 [d]	3,407 [d]	3,407[d]	0	0	0
On-Site Groundwater	403	403	403	403	403	403
Total	**4,474**	**4,474**	**4,474**	**1,093**	**1,093**	**1,093**
Projected Demand (acre-feet)						
Edwards AFB Solar Project	200	200	200	30	30	30
Proposed Project [e]	133	133	133	30	30	30
Total	**333**	**333**	**333**	**60**	**60**	**60**
Surplus/Deficit	**+4,141**	**+4,141**	**+4,141**	**+1,033**	**+1,033**	**+1,033**

Notes:

[a] Based on average surplus from Table 2 for 2018 and 2020. The production rate of groundwater wells is not climate-dependent.

[b] Based on average surplus from Table 2 for 2020 through 2040.

[c] Since MPUD Well 30 is anticipated to be converted into a potable supply well in 2020, which has been accounted for in Table 2, it is assumed that half of its capacity will be available to the project as a source of non-potable supply for construction.

[d] Based on surplus from Table 3. California City has indicated its willingness to supply construction water demands for the project, but will not supply operational demands.

[e] The proposed project would demand 200 AF over an 18 month period. Therefore, the yearly demand is assumed to be 133 AFY ([200 AF / 18 Months] * 12).

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4 CONCLUSION

Based on estimated project water demands, the commitment from MPUD to supply the project with water from Well 30, and data supporting the ability of the underlying aquifer to support development of an on-site groundwater well without adverse effects, there is sufficient water available for the proposed project through 2040, including single-dry and multiple-dry water years.

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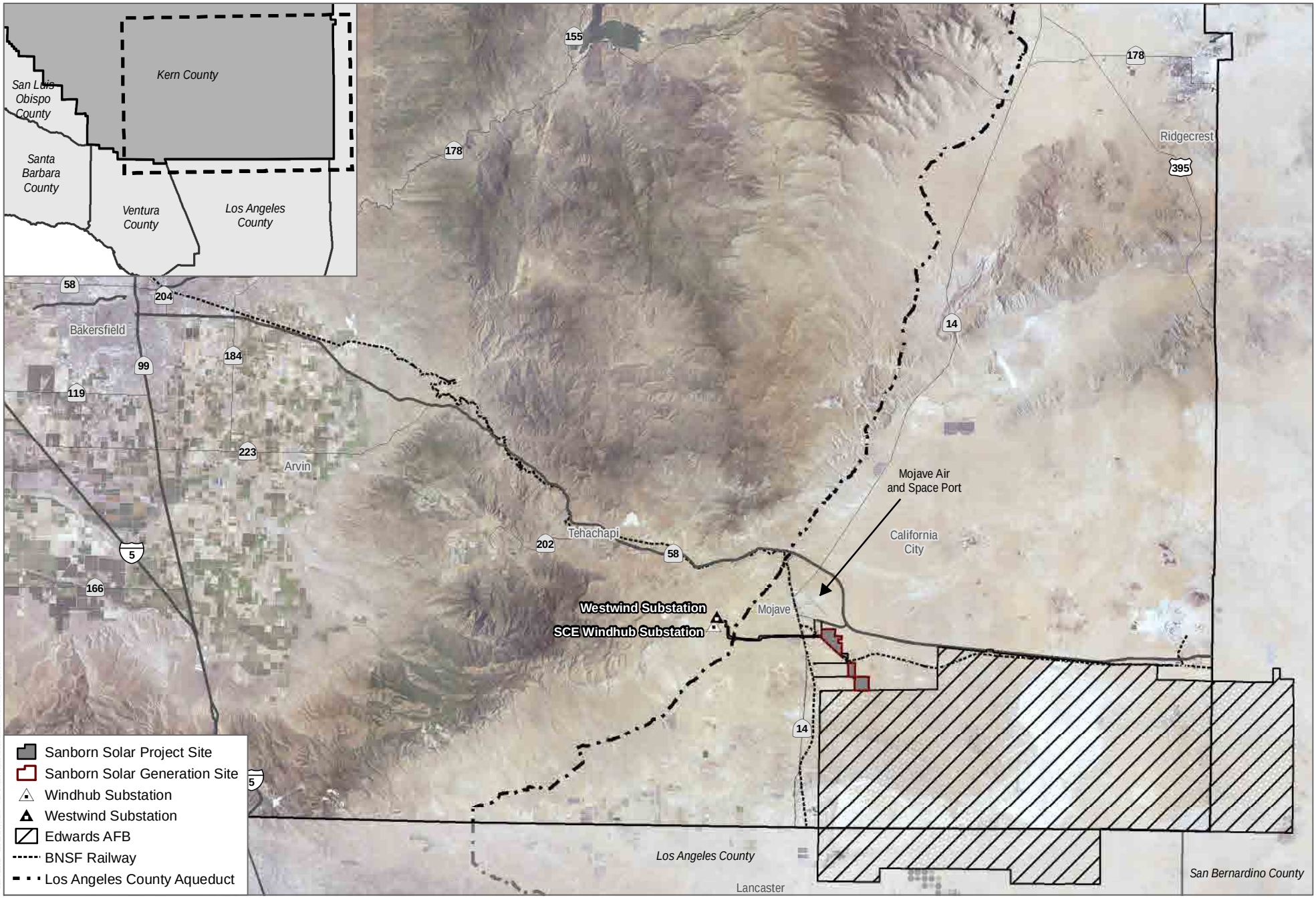

SOURCE: TerraGen 2017, 2018; County of Kern 2018; BLM 2018; ESRI 2018; NAIP 2016

DUDEK

0 5 10 Miles

FIGURE 1

Project Vicinity

Sanborn Solar Project Water Supply Asxsesment

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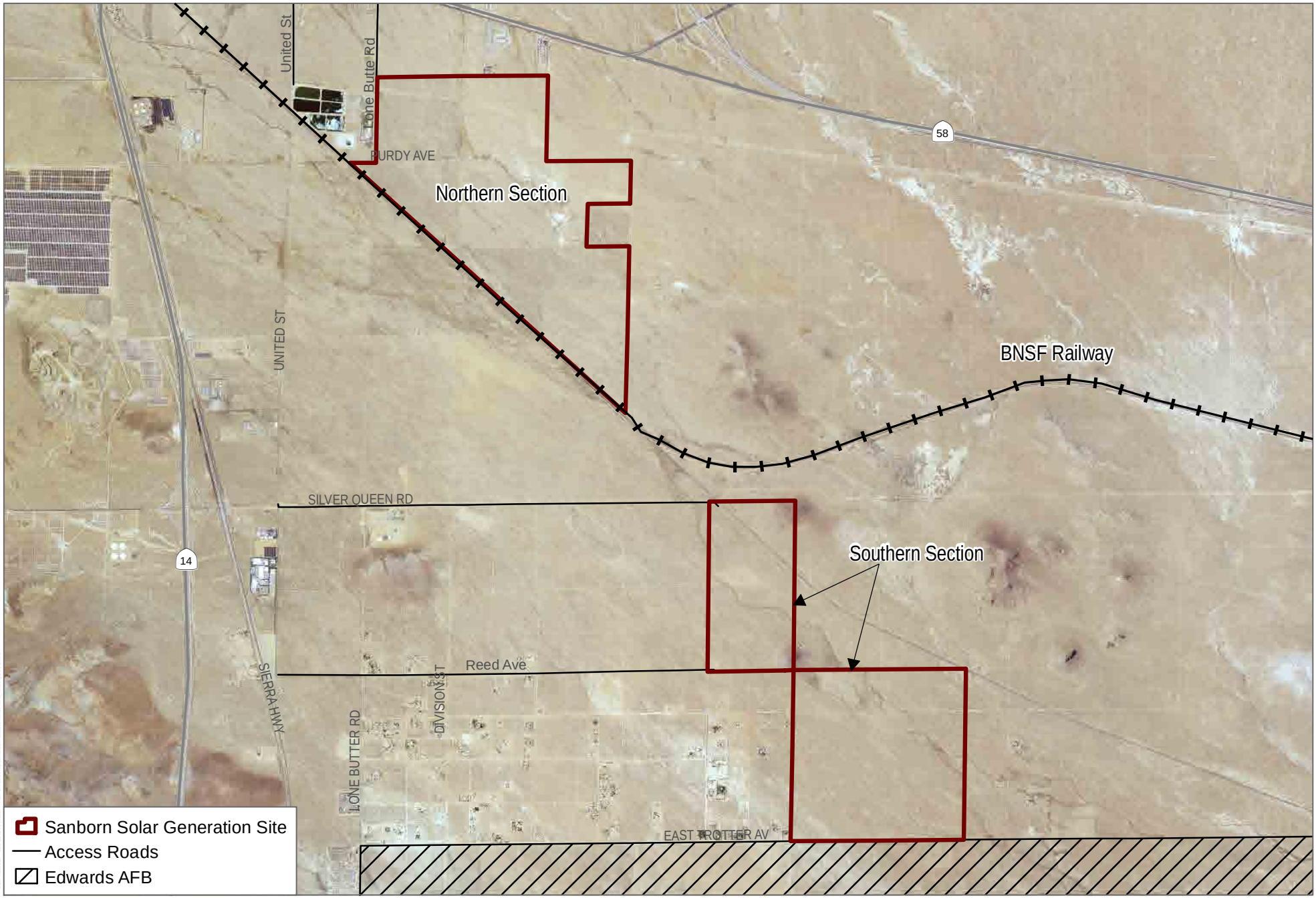

SOURCE: TerraGen 2017, 2018; County of Kern 2018; BLM 2018; ESRI 2018; NAIP 2016

DUDEK

0 0.5 1 Miles

FIGURE 2

Project Site

Sanborn Solar Project Water Supply Assessment

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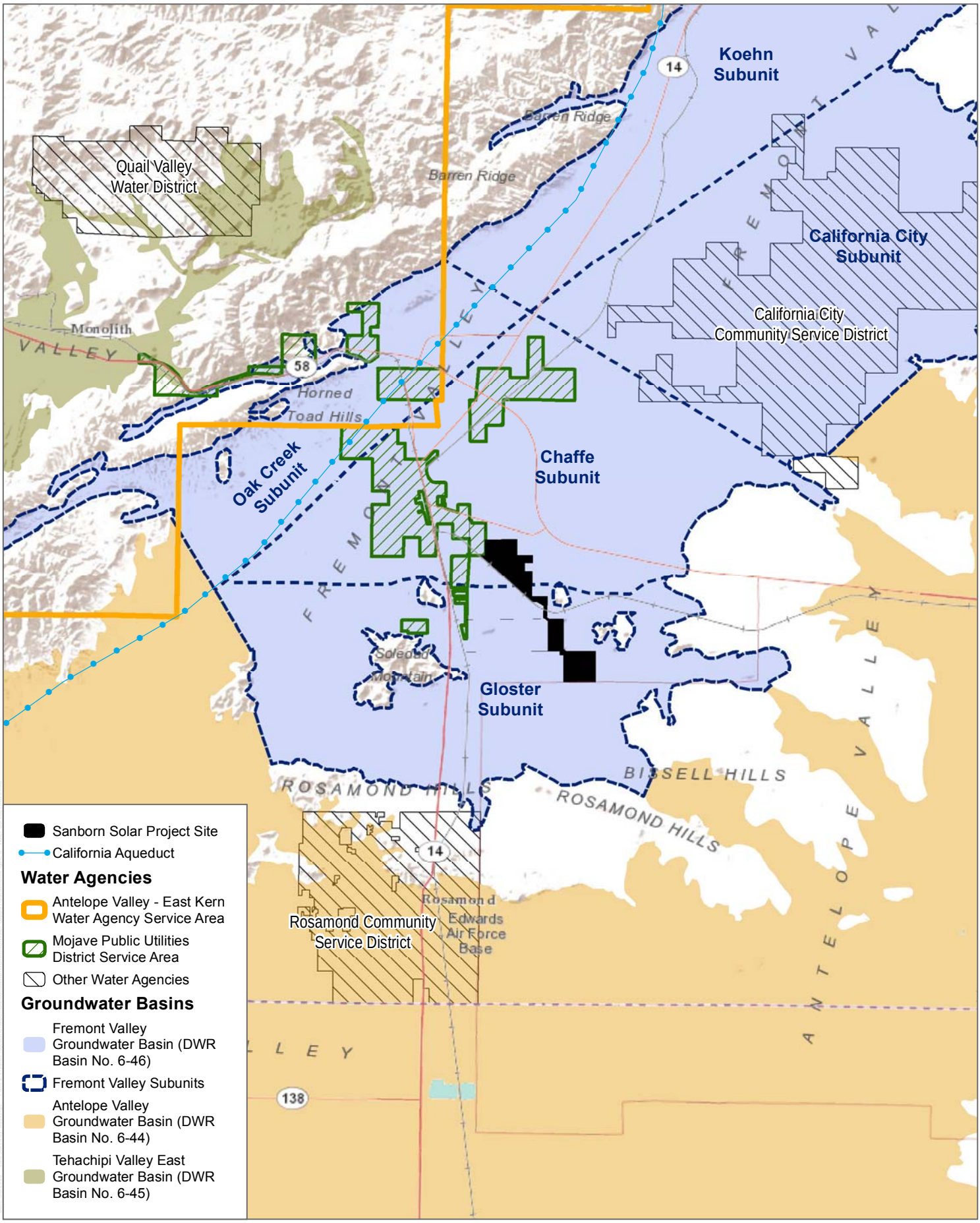

SOURCE: DWR 2018, Dudek 2018

DUDEK

0 5 10 Miles

FIGURE 3

Water Agencies and Groundwater Basins

Sanborn Solar Project Water Supply Assessment

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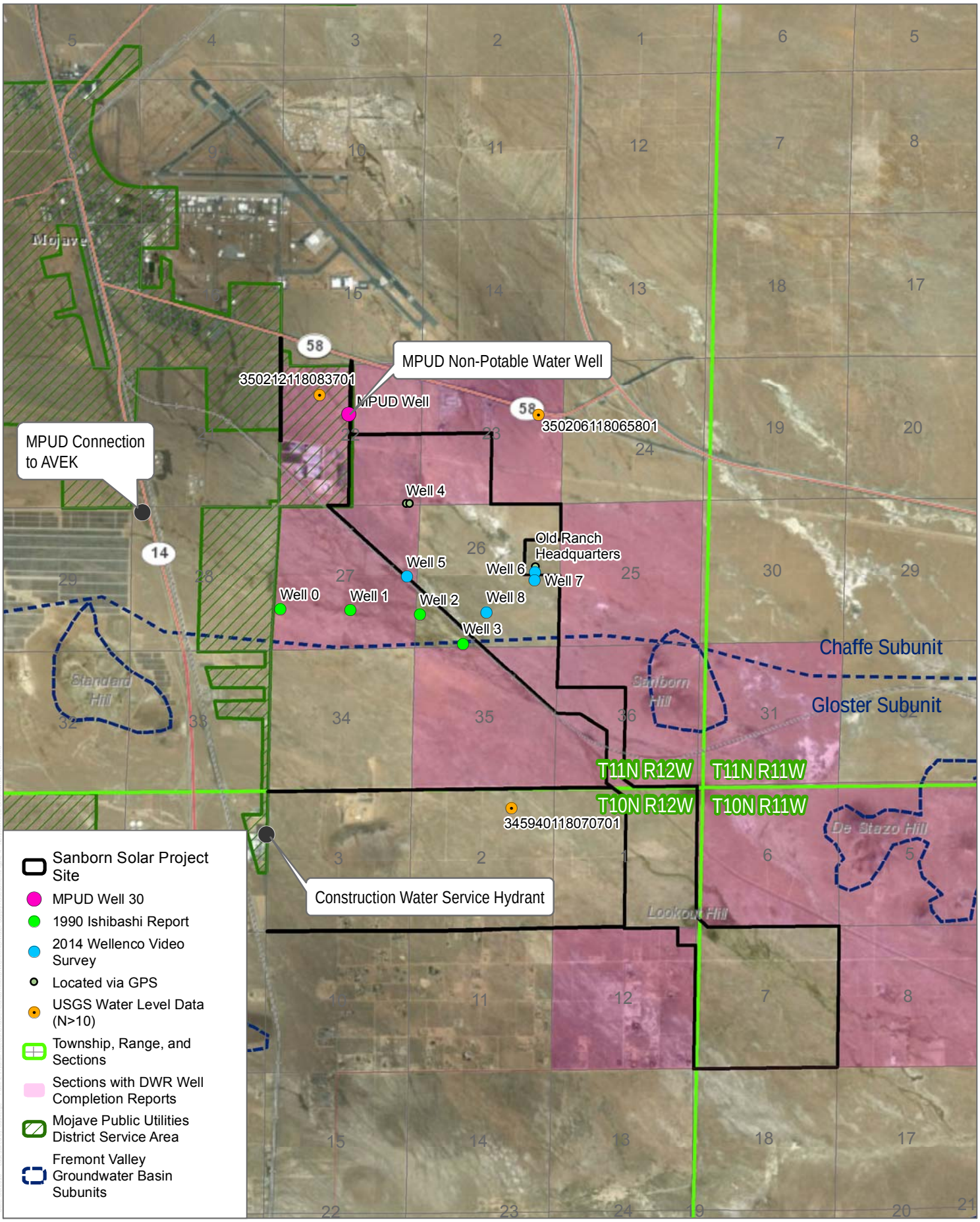

SOURCE: Ishibashi 1990, Wellenco 2014, USGS 2017, MPUD 2018

DUDEK

0 0.5 1 Miles

FIGURE 4

Mojave Public Utilities District Water Sources and Local Groundwater Wells

Sanborn Solar Project Water Supply Assessment

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Appendix L2

Mojave Public Utility District Will -Serve Letter

ESA

Mojave Public Utility District

* * *

Phone (661) 824-4161 **15844 K Street**

Mojave, CA 93501

September 5, 2019

TERRA-GEN
Simon Day
11512 El Camino Real, Suite 370
San Diego, CA 92130

Dear Mr. Day:

RE: Will serve letter for Construction water

Mojave Public Utility District will provide construction water for Sanborn Solar, LLC Solar project. A total of 200 acre feet for construction will be provided, per year for two years and up to 30 acre feet of water a year for ongoing operations.

Kern County has requested that Mojave Public Utility District provide this will serve letter.

A. An approved Back Flow Preventer needs to be installed at your connection to our system.

B. Any and all off-site facilities required by the project will be furnished at no cost to the District. The facilities required may include, but not limited to: Storage reservoirs, booster pump stations, pressure reducing stations, turnouts, or pipelines.

C. The conditions of this letter are in effect for one year from the date indicated on this letter, after which the letter becomes void. The letter holder may renew prior to the expiration date. No notice will be sent to alert the letter holder that an expiration date is approached. If a letter is allowed to expire, the applicant may re-apply pursuant to District rules and regulations. However, a renewed will serve letter may have conditions that differ from the original letter.

*****THIS WILL SERVE LETTER IS SUBJECT TO TERMINATION AT ANYTIME*****

Please contact me with any questions regarding this letter at 661-824-4161.

Bee Coy Jr.

General Manger