

APPENDIX E
Phase I ESA/Dredging Soils Report



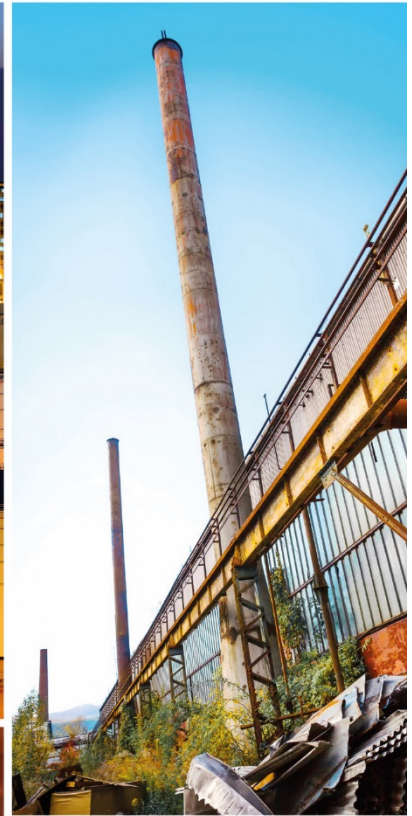
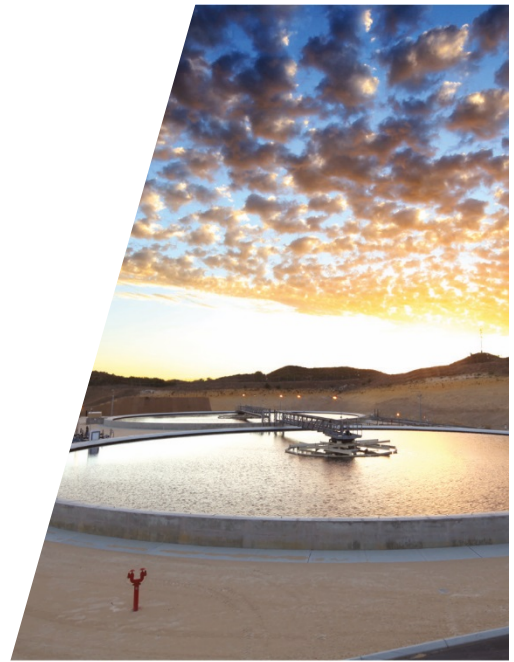
Phase I Environmental Site Assessment

Carnival Cruise Terminal
Proposed Improvement Areas
331 Windsor Way
Long Beach, California

Prepared for:
Atkins

Draft for Review

This document is in draft form. A final version of this document may differ from this draft. As such, the contents of this draft document shall not be relied upon. GHD disclaims any responsibility or liability arising from decisions made based on this draft document.





Executive Summary

GHD was retained by Atkins (Atkins) to complete a Phase I Environmental Site Assessment (Phase I ESA) of the Carnival Cruise Terminal Proposed Improvement Areas (Carnival) property and structures located at 331 Windsor Way in Long Beach, California (Site). The purpose of the Phase I ESA is to identify recognized environmental conditions (RECs), as defined in ASTM International (ASTM) Standard E1527-13 (the Standard), at the Site. In addition to identifying RECs at the Site, this Phase I ESA included an evaluation of specific non-scope considerations as defined in the Standard. This Phase I ESA was conducted to assist Atkins in conducting all appropriate inquiries into previous ownership and use of the Site and to evaluate business environmental risk (BER), as defined in the Standard, for the Site. The Phase I ESA Site reconnaissance was conducted by GHD on December 12, 2018 and January 23, 2019.

The Site consists of a five-level parking garage with an approximate total 535,000 square feet of parking space, an adjacent underground tunnel, the passenger loading dock area, and the proposed dredge area adjoining to the passenger loading dock. The Site includes approximately 3.4 acres of land near the parking garage, and approximately 18 acres within San Pedro Bay, in Long Beach, California. A portion of the bay area is proposed to be a water lease and is proposed to be dredged. Additional improvements to the Site include concrete walkways, a covered parking area, an unused tunnel beneath Windsor Way, landscaped green areas, three elevators in the parking garage, and a passenger bridge from the terminal building to the ship loading area. According to Site personnel, the Site was developed for its present purpose in 2003. Prior to current Site development, the Site was within the Pacific Ocean until the area was filled in to create the port area and was initially developed as a surface parking lot in the early 1960's. Business operations currently conducted at the Site by Carnival include passenger luggage drop-off and temporary storage, parking for cruise line passengers, passenger and goods loading, and cruise ship docking.

Findings and Opinion

Based on the Phase I ESA, the following findings were identified with the Site:

- i) **Historical Fill:** Based upon review of historical documents, the Site was originally within the Pacific Ocean and is built upon fill material placed at the Site in the early 1960's. No information was available for GHD review to determine the nature of the fill materials. No information was found to suggest that hazardous substances or petroleum products were present in the fill material. Based on the above, this issue is not considered to be a REC. However, potential historical filling activities should be considered when evaluating business environmental risk and future land use of the Site.
- ii) **Historical On-Site Structures:** Based on a review of historical documents, several small structures were historically present on the northern portion of the Site. No information was available regarding demolition of the structures, potential USTs, potential ASTs, water supply, chemical use/storage, solid waste generation, or potential hazardous waste generation. While no evidence was found to suggest a release of hazardous substances or petroleum products associated with activities conducted at the former structure has occurred, insufficient information was found to evaluate potential adverse impact to soil and groundwater at the Site. Therefore, the existence of the historical building and associated



appurtenances should be considered when evaluating business environmental risk and future land use at the Site.

- iii) **Adjoining Bulk Petroleum Facility:** The adjoining property to the southwest of the Site is operated as a bulk petroleum storage facility and is located topographically upgradient from the Site. Based on the Site elevation and the presence of the Pacific Ocean, groundwater in proximity of the Site is anticipated to be present at a depth of less than 15 feet below ground surface. No information was found to suggest that operations on the adjoining property may have adversely impacted the Site; therefore, this issue is not considered to be a REC. However, based on the proximity to the Site, being topographically upgradient, anticipated depth to groundwater in the vicinity of the Site, and considering the typical operations of facilities of this type, potential impact to the Site from the adjoining bulk petroleum storage facility should be considered when evaluating business environmental risk and future land use for the Site.
- iv) **Potentially Impacted Bay Sediment:** The area east of the ship dock is planned to be dredged as part of the proposed improvements. Due to the historical industrial development in the Long Beach area, particularly in the Port area, there is a potential for the bay sediment to be impacted by hazardous substances or petroleum products. No information was found to suggest that the sediment is impacted; therefore, this issue is not considered to be a REC. However, based on the industrial history of the area, the potential for encountering contaminated sediment during the proposed dredging activities is possible and should be considered when evaluating business environmental risk and future use of this area of the Site.

Conclusions

GHD has performed a Phase I ESA in conformance with the scope and limitations of the Standard of the Carnival Cruise Terminal Proposed Improvement Areas (Carnival) property and structures located at 331 Windsor Way in Long Beach, California. Any limiting conditions to, or deletions from this practice are described in Section 1 of this report.

Recognized Environmental Conditions

This assessment has revealed no evidence of RECs (including Controlled Recognized Environmental Conditions [CRECs]) to exist in connection with this Site.

Business Environmental Risk

The following BERs, as described above, have been identified to exist in connection with this Site:

- Historical Fill
- Historical On-Site Structures
- Adjoining Bulk Petroleum Facility
- Potentially Impacted Bay Sediment

Non-Scope Considerations

No potential issues were identified regarding the non-scope considerations evaluated.



This summary does not contain all of the information that is found in the full report. The report should be read in its entirety to obtain a more complete understanding of the information provided, and to aid in any decisions made, or actions taken, based on this information.



Table of Contents

1.	Introduction.....	1
1.1	Site Personnel.....	2
1.2	Limiting Conditions.....	3
1.3	Significance and Use	3
2.	Site Description and Location	3
2.1	Site Description.....	3
2.2	Environmental Setting.....	4
3.	Environmental Databases Search and Document Review	4
3.1	Environmental Databases Search	4
3.1.1	Database Listing for the Site	6
3.1.2	Database Listings for Adjoining Properties	6
3.1.3	Additional Area Properties.....	6
3.1.4	Unmapped Properties.....	7
3.2	Historical Records Review	7
3.2.1	Sanborn Fire Insurance Maps	7
3.2.2	Property Title Search.....	7
3.2.3	Historical Aerial Photographs	8
3.2.4	City Directories	8
3.2.5	Historical Topographic Maps	10
3.3	Government Records Review.....	10
3.4	Recorded Environmental Clean-up Liens	11
3.5	User Information	11
3.6	Adjoining Properties.....	11
3.7	Previous Site Investigations/ESAs.....	13
4.	Site Reconnaissance.....	13
4.1	Utility Services	13
4.2	Underground Storage Tanks (USTs).....	13
4.3	Aboveground Storage Tanks (ASTs).....	14
4.4	Raw Material and Chemical Use and Storage.....	14
4.5	Non-Hazardous Waste.....	14
4.6	Hazardous Waste	14
4.7	Wastewater/Sewers	14
4.8	Stormwater.....	14
4.9	Air Emissions	15
4.10	Polychlorinated Biphenyls (PCBs)	15



Table of Contents

4.11	Spills/Releases	15
4.12	CERCLA Liability Potential	15
5.	Non-Scope Considerations	15
5.1	Asbestos-Containing Materials (ACM).....	15
5.2	Lead-Based Paint (LBP)	15
6.	Summary of Identified Environmental Issues.....	16
6.1	Findings and Opinion	16
6.2	Conclusions	17
6.2.1	Recognized Environmental Conditions	17
6.2.2	Business Environmental Risk	17
6.3	Non-Scope Considerations	17
6.4	Data Gaps/Data Failure	17
7.	Environmental Professional Statement	18
8.	References	18

Figure Index

Figure 1	Site Location
Figure 2	Site Plan

Appendix Index

Appendix A	Site Photographs
Appendix B	Assessor Qualifications
Appendix C	Environmental Database Search Results
Appendix D	Certified Sanborn Map Report
Appendix E	Historical Aerial Photographs
Appendix F	City Directory Search Results
Appendix G	Historical Topographic Maps
Appendix H	Environmental Lien
Appendix I	User Questionnaire



1. Introduction

GHD was retained by Atkins (Atkins) to complete a Phase I Environmental Site Assessment (Phase I ESA) of the Carnival Cruise Terminal Proposed Improvement Areas (Carnival) property and structure located at 331 Windsor Way in Long Beach, California (Site). The purpose of the Phase I ESA is to identify recognized environmental conditions (RECs), as defined in ASTM International (ASTM) Standard E1527-13 (the Standard), at the Site. In addition to identifying RECs at the Site, this Phase I ESA included an evaluation of specific non-scope considerations as defined in the Standard. This Phase I ESA was conducted to assist Atkins in conducting all appropriate inquiries into previous ownership and use of the Site and to evaluate business environmental risk (BER), as defined in the Standard, for the Site. The Phase I ESA Site reconnaissance was conducted by GHD on December 12, 2018 and January 23, 2019. A Site location map is provided on Figure 1. A Site plan is provided on Figure 2. Photographs taken during the Site reconnaissance are presented in Appendix A.

The Phase I ESA was conducted in general accordance with the Standard for conducting environmental assessments. The assessment included an environmental database search, historical records review, a Site reconnaissance of accessible areas, a review of relevant Site records made available to GHD, and interviews with individuals associated with the Site. This Phase I ESA was prepared by Steven Voss, Nicholas Alvaro, and Charles D. Kizina of GHD, all of whom are environmental professionals, as defined in the Standard. Copies of curricula vitae outlining their qualifications are contained in Appendix B.

The following terms used in this report are defined in the Standard as follows:

- REC means the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment (*de minimis* conditions are not RECs).
- Controlled REC (CREC) is 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 (e.g., property use restrictions, activity and use limitations, institutional controls, or engineering controls).
- Historical REC (HREC) is 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 (i.e., property use restrictions, activity and use limitations, institutional controls or engineering controls). HRECs are not RECs.



The following tasks were conducted during the assessment:

- Interviews with personnel associated with the Site
- Review of Federal and State environmental databases and historical records (e.g., fire insurance maps, city directory, etc.)
- Review of historical aerial photographs of the Site
- Review of past and current property use and adjoining property occupancy
- Reconnaissance of the facilities, equipment, utility services, operations, and associated Site records
- Observations of conditions that represent releases or threatened (i.e., likely) releases of hazardous substances or petroleum products to the ground, surface waters or groundwater of the Site
- Review of chemical use and storage and spill/release incidents
- Review of the results of any prior reconnaissance conducted at the Site
- Review of waste handling, accumulation, storage, and disposal practices
- Review of air emissions and wastewater discharges
- Review of equipment that potentially contains polychlorinated biphenyls (PCBs)
- Review of aboveground and underground storage tank records
- Review of previous environmental reports prepared for the Site

GHD relied on information received from third parties and during the Phase I ESA interviews to the extent that the information was reasonably ascertainable, and also assumed the information received to be accurate unless contradicted by written documentation or field observations.

The following report summarizes the information gathered by GHD during the Phase I ESA and identifies RECs, HRECs, and CRECs, as defined in the Standard at the Site.

1.1 Site Personnel

GHD was accompanied during the Site reconnaissance by:

Site Personnel	Position	Years Familiar with the Site
Mr. Max Peters	Terminal Manager – Carnival Cruise Line	4
Mr. Wilkin Mes	Director – Cruise Terminal & Commercial Development Carnival Cruise Line	15
Mr. Mark Stroik	Project Manager – Atkins	3

Mr. Peters, as the terminal manager, was identified as the Key Site Manager to be interviewed. Mr. Storik was present for the December 12, 2018 Site reconnaissance. Mr. Peters, Mr. Wilkin, and Mr. Stroik provided information regarding Site operations and historical Site use.



1.2 Limiting Conditions

The following limiting conditions were experienced in completion of this Phase I ESA:

- Mr. Peters was identified as the Key Site Manager. GHD interviewed Mr. Peters who advised that he has been associated with the Site for approximately 4 years. Given the history of the Site dating back to the 1960's, Mr. Peters had no knowledge regarding the history of former operations/uses conducted at the Site prior to his tenure.
- The underwater portions of the Proposed Water Lease Area of the Site could not be observed or otherwise inspected during the Site reconnaissance.
- Not all of the requested Freedom of Information Act (FOIA) requests have not been received as of the date of the report.

1.3 Significance and Use

This Phase I ESA was conducted in a manner consistent with that level of care and skill exercised by members of the environmental engineering and science profession currently practicing under similar conditions, and was based upon the information made available to GHD representatives at the time of this assessment. It remains important to recognize that no Phase I ESA can wholly eliminate uncertainty regarding the potential for RECs in connection with the Site. The performance of the assessment is intended to reduce, but not eliminate, uncertainty regarding the potential for RECs in connection with a Site. The User, as defined in the Standard, must recognize reasonable limits of time and cost. For the purpose of this Phase I ESA, the User has been identified as Atkins.

The Phase I ESA has been prepared for the use of Atkins and may not be relied upon by any other party without GHD's written consent. In accordance with Section 4.6 of the Standard, this Phase I ESA is viable until June 11, 2019, which is 180 days from the oldest primary component of the Phase I ESA.

2. Site Description and Location

2.1 Site Description

The Site consists of a five-level parking garage with an approximate total 535,000 square feet of parking space, an adjacent underground tunnel, the passenger loading dock area, and the proposed dredge area adjoining to the passenger loading dock. The Site includes approximately 3.4 acres of land near the parking garage, and approximately 18 acres within San Pedro Bay, in Long Beach, California. A portion of the bay area is proposed to be a water lease and is proposed to be dredged. Additional improvements to the Site include concrete walkways, a covered parking area, an unused tunnel beneath Windsor Way, landscaped green areas, three elevators in the parking garage, and a passenger bridge from the terminal building to the ship loading area. Based on a review of historical documents, the Site was developed for its present purpose in 2003. Prior to current Site development, the Site was within the Pacific Ocean until the area was filled in to create the port area and was initially developed as a surface parking lot in the early 1960's. Business operations currently conducted at the Site by Carnival include passenger luggage drop-off and temporary storage, parking for cruise line passengers, passenger and goods loading, and cruise ship docking.



The parking garage structure is constructed of reinforced concrete with an at-grade parking level, and four above-grade parking levels. The structure is served by three, electrically-operated elevators located at the southwestern corner of the parking structure. Additional improvements to the Site include concrete walkways, a covered parking area, and landscaped green areas. A storage area is located in the central portion of the structure on the ground level. A diesel-powered emergency electrical generator is located in a room on the northeastern corner of the ground level of the structure.

The ship dock is constructed of reinforced concrete decking supported by concrete and steel pilings. A maintenance bridge crosses from the north area of the adjoining passenger terminal building to the ship dock. An elevated steel passenger bridge crosses from the adjoining passenger terminal building to the ship. The elevation of the passenger bridge at the ship is adjusted by electric motors. Electrical connection cables are present on the northern portion of the Ship Dock for power supply to docked cruise ships.

No pits, ponds, lagoons, or areas of stressed vegetation were observed on Site during the Site reconnaissance.

2.2 Environmental Setting

The Site is located in a predominantly commercial and industrial area in the southwestern portion of Long Beach, Los Angeles County, California. General topographic gradient at the Site and surrounding area is to the northeast, based on the United States Geological Survey (USGS) topographic map and information provided in the GeoCheck section of the Environmental Data Resources (EDR) Radius Map report.

A portion of the Site is within San Pedro Bay of the Pacific Ocean. The upland portion of the Site is not listed as being in the 100-year or 500-year flood zone.

According to information provided in the GeoCheck section of the EDR Radius Map report, soils underlying the Site consist of the Urban Land with no specific information regarding soil texture or drainage characteristics. Based on the presence of the Pacific Ocean approximately 200 feet to the southwest of the parking garage portion of the Site, it is estimated that shallow groundwater beneath this portion of the Site would flow to the southwest, although significant tidal influence would be expected considering the proximity to the Pacific Ocean. No Site-specific information was available regarding Site soils, depth to groundwater, or groundwater flow direction.

Based on the USGS 7.5-Minute Long Beach, California Topographic Map, the upland portion of the Site is located at approximately 15 feet above mean sea level.

3. Environmental Databases Search and Document Review

3.1 Environmental Databases Search

GHD contracted EDR to conduct a search of federal and state environmental databases. Based on the address of the Site and the Site boundaries, the database searches were completed to assist in



the identification of RECs in connection with the Site and to assess the likelihood of an impact to the Site from migrating hazardous substances or petroleum products. The following Standard Environmental Records were searched within the approximate minimum search distance (AMSD) specified in the Standard and Additional Environmental Records were searched as listed below:

Database	Search Radius
Standard Environmental Records	
National Priority List (NPL)	1.0 mile
Proposed NPL	1.0 mile
Federal Superfund Liens (NPL Liens)	Site only
National Priority List Deletions (Delisted NPL)	1.0 mile
Federal Facility Site Information Listing (FEDERAL FACILITY)	0.5 mile
Superfund Enterprise Management System (SEMS)	0.5 mile
Superfund Enterprise Management System Archive (SEMS-ARCHIVE)	0.5 mile
Corrective Action Report (CORRACTS)	1.0 mile
Resource Conservation and Recovery Act Information (RCRA) Treatment, Storage or Disposal Facility (RCRA-TSDF)	0.5 mile
RCRA Large Quantity Generator (RCRA-LQG)	Site/Adjoining Property
RCRA Small Quantity Generator (RCRA-SQG)	Site/Adjoining Property
RCRA - Conditionally Exempt Small Quantity Generators (RCRA-CESQG)	Site/Adjoining Property
Land Use Control Information System (LUCIS)	0.5 mile
Engineering Controls Sites List (US ENG CONTROLS)	0.5 mile
Institutional Controls (US INST CONTROLS)	0.5 mile
Emergency Response Notification System (ERNS)	Site only
State Response Sites (RESPONSE)	1.0 mile
EnviroStor Database (EnviroStor)	1.0 mile
Solid Waste Information System (referred to as SWF/LF)	0.5 mile
Leaking Underground Storage Tank (LUST)	0.5 mile
Leaking USTs on Indian Land (Indian LUST)	0.5 mile
Cleanup Program Sites (CPS)-Spills, Leaks, Investigations, and Cleanups (SLIC)	0.5 mile
Military UST Sites	Site/Adjoining Property
Proposed Closure of USTs (UST Closure)	Site/Adjoining Property
Federal Emergency Management Agency (FEMA UST)	Site/Adjoining Property
Active Underground Storage Tank (UST)	Site/Adjoining Property
Aboveground Storage Tank (AST)	Site/Adjoining Property
USTs on Indian Land (Indian UST)	Site/Adjoining Property
Voluntary Cleanup Priority Listing (Indian VCP)	0.5 mile
Voluntary Cleanup Program Properties (VCP)	0.5 mile
Brownfields Sites Listing (Brownfields)	0.5 mile
Additional Environmental Records	
SPILLS	Site only
Statewide Environmental Evaluation and Planning System (SWEEPS UST)	Site/Adjoining Property
Hazardous Substance Storage Container Database (HIST UST)	Site/Adjoining Property
Facility Inventory Database (FID UST)	Site/Adjoining Property
California Environmental Reporting System (CERS) Tanks	Site/Adjoining Property
Cleaner Facilities (Drycleaners)	0.25 mile



Database	Search Radius
State Coalition for Remediation of Drycleaners Listing (SCRD Drycleaners)	0.25 mile
EDR Exclusive Historical Dry Cleaners (EDR Hist Cleaner)	Site/Adjoining Property
EDR Exclusive Historical Gas Stations (EDR Hist Auto)	Site/Adjoining Property
Recovered Government Archive LUST (RGA LUST)	0.5 mile

A copy of the database search, which includes definitions for the above-referenced databases, is included as Appendix C. It should be recognized that the availability, accuracy and completeness of the record information may vary among information sources, including governmental sources. GHD reviewed information for properties identified within the referenced AMSD. GHD considers a variety of factors in determining which off-Site properties, if any, have the potential to impact the Site. These factors include, but are not limited to, the following:

- Type of database on which a property was identified
- Information presented in the EDR Radius Map report and reasonably ascertainable government databases
- Direction and distance of the property from the Site
- Suspected or known groundwater flow direction at or near the Site
- Likelihood that released contaminants, if any, could migrate to the Site
- Surface and subsurface features (e.g., soil types, utility corridors, etc.)

The following is a summary of the databases searched with the findings as listed.

3.1.1 Database Listing for the Site

The Site address was not listed in any of the aforementioned databases searched.

3.1.2 Database Listings for Adjoining Properties

The following adjoining properties were listed in the aforementioned databases searched with the status as listed:

Property Address	Listed Entity	Listing/Status
231 Windsor Way	Carnival Ecstasy IMO #8701344	RCRA-LQG
	Carnival Elation IMO #9118721	RCRA-LQG
1175 Queens Highway	Island Express Helicopters Inc.	AST

Refer to Section 3.6 for further details.

3.1.3 Additional Area Properties

The following additional properties within the effective AMSD of the Site were listed in the aforementioned databases searched with the status as listed:

Property Address	Listed Entity	Listing/Status
965 Harbor Scenic Drive (1/8 – 1/4 mile WNW)	Agrex, Inc.	LUST (Closed)



Property Address	Listed Entity	Listing/Status
669 Harbor Plaza (1/4 – 1/2 mile WNW)	Harbor Plaza Facility	LUST (Closed)
1281 Pier J Avenue B (1/4 – 1/2 mile S)	Golden West Refinery	LUST (Closed)
1521 Harbor Scenic Drive (1/4 – 1/2 mile SSE)	Maersk Line Agency	LUST (Closed)
1521 Harbor Scenic Drive (1/4 – 1/2 mile WNW)	Pier 4	LUST (Closed)
1365 Pier J Avenue (1/2 – 1 mile S)	Contanda Terminals	EnviroStor (Active)
925 Harbor Plaza (1/2 – 1 mile WNW)	Port of Long Beach	EnviroStor (Active)

Based on the factors listed in Section 3.1, no evidence of the likelihood for a hazardous substance or petroleum product release impacting the Site through migration from the above-mentioned properties was identified based on information provided in the EDR Radius Map report.

3.1.4 Unmapped Properties

No unmapped properties were listed in the EDR Radius Map report.

3.2 Historical Records Review

GHD reviewed the following information, where reasonably ascertainable, to identify the historical usage of the Site and adjoining properties:

- Sanborn Fire Insurance Maps
- Property Title Search
- Historical Aerial Photographs
- City Directories
- Historical Topographic Maps

3.2.1 Sanborn Fire Insurance Maps

Sanborn Fire Insurance maps assist in the identification of historical land use and commonly illustrate the existence and location of ASTs, USTs, structures, improvements, and Site operations.

No Sanborn maps were reported to be available for the Site in the EDR Sanborn Library, LLC collection.

A copy of the Certified Sanborn Map report is presented in Appendix D.

3.2.2 Property Title Search

Property title information for the Site was not available from Atkins.



3.2.3 Historical Aerial Photographs

Aerial photographs assist in the identification of Site features and outdoor activities of potential environmental concern. Aerial photographs of the Site for the years 1928, 1947, 1953, 1963, 1977, 1979, 1983, 1989, 1994, 2002, 2005, 2009, 2012, and 2016 were available from EDR and were reviewed by GHD. The specific details observed at the Site and adjoining properties are dependent on the scale and quality of the aerial photographs reviewed. The aerial photographs were reviewed at a scale of one inch equals approximately 500 feet. The following is a summary of observations based on a review of the aerial photographs:

- 1928-1963: The 1928, 1947, 1953, and 1963 aerial photographs depict the Site and adjoining properties as within the Pacific Ocean with no above water land mass or structures. Some form of pipeline or structure emanates from the land approximately 1,000 feet northwest of the Site, and crosses the Site.
- 1977, 1979 The 1977 and 1979 aerial photographs depict the Site and adjoining properties as having been filled and developed. The majority of the Site and the adjoining properties to the east and west, are developed as surface parking lots. The ship dock area of the Site is not developed and is open water. A plaza and several small structures are present on the northeastern portion of the Site and on the adjoining property to the north of the Site. A bulk petroleum facility is present on the adjoining property to the southwest of the Site. The Pacific Ocean is located approximately 200 feet southeast of the Site.
- 1983 - 1994: The 1983, 1989, and 1994 aerial photographs depict the Site and adjoining properties in a similar configuration as the 1979 aerial photograph, except that a large dome structure related to the cruise ship terminal is now present on the adjoining property between the parking garage and the ship dock areas of the Site.
- 2002: The 2002 aerial photograph depicts the parking garage area of the Site and the adjoining properties to the east, north, and west of the parking garage area as graded for development. The previously observed structures on the northern portion of the Site are no longer present. The adjoining property to the southwest of the Site appears in a similar configuration as observed on the 1994 aerial photograph.
- 2005 - 2016: The 2005, 2009, 2012, and 2016 aerial photographs depict the Site as being developed with the current parking garage structure and the ship dock with the maintenance and passenger bridges. Two commercial buildings are present on the adjoining property to the southwest of the Site. A commercial building adjoins the southwestern portion of the parking garage structure. A parking lot is present to the west of the Site and a plaza is present to the north of the Site.

Copies of reviewed aerial photographs of the Site are presented in Appendix E.

3.2.4 City Directories

A city directory search was conducted by EDR from the first available directory to the present. Directories were available and were reviewed by EDR at approximately 5-year intervals beginning in 1920 and ending in 2014.



3.2.5 Historical Topographic Maps

Historical topographic maps were reviewed to assist in the identification of historical land use, to document the general development of the Site and properties in the vicinity of the Site, and to identify potential on-Site fill activities. Historical topographic maps of the Site and surrounding areas for the years 1896, 1899, 1902, 1925, 1934, 1941/1942, 1943, 1947, 1949, 1964, 1972, 1981, and 2012 were available from EDR and were reviewed by GHD. The 1896, 1899, 1902, 1934, 1941/1942, and 1943 topographic maps were reviewed at a scale of 1:62500, the 1947 topographic maps were reviewed at a scale of 1:50000, and the remaining topographic maps were reviewed at a scale of 1:24000. The following is a summary of observations based on a review of the historical topographic maps:

- 1896 - 1949: The Site and adjoining properties are depicted as within the Pacific Ocean, approximately one mile south of the shoreline.
- 1964: The western portion of the Site and the adjoining properties to the west are depicted as undeveloped land. The eastern portion of the Site and the remaining adjoining properties are depicted as within the Pacific Ocean.
- 1972, 1981: The 1972 and 1981 topographic maps depict the Site and adjoining properties as developed land. No structures are depicted on the Site. The dock structure is not depicted in the water area. A small building is depicted on the adjoining property to the east of the Site. A roadway loops around the Site through the adjoining properties. Bulk storage tanks are depicted on the adjoining property to the west of the Site.
- 2012: Due to the level of detail provided in the 2012 topographic map, no features are depicted on the Site or on the adjoining properties other than roadways. A fire station is depicted on the adjoining property to the east of the Site.

It should be noted that topographic maps do not always accurately depict structures and development as of the date of the map.

Copies of reviewed historical topographic maps of the Site are presented in Appendix G.

3.3 Government Records Review

GHD submitted FOIA requests for the Site address to:

- California Environmental Protection Agency (EPA)
 - Office of the Secretary of Environmental Protection (OOS)
 - Air Resources Board (ARB)
 - Department of Toxic Substances Control (DTSC)
 - Office of Environmental Health and Hazard Assessment (OEHHA)
 - California State Water Resources Control Board (SWRCB)
- California Office of the State Fire Marshal
- County of Los Angeles Public Health Department
- City of Long Beach Public Records Office



- City of Long Beach Fire Department
- Port of Long Beach

Environmental records associated with utilities (i.e., septic systems, wells, etc.), hazardous and solid waste, water, air, remediation, emergency responses, spills/releases, USTs, and ASTs were requested. It should be noted that summarized information received from the agencies is not intended to be all inclusive of the complete files obtained from the agencies; but only to briefly summarize significant findings.

The City of Long Beach, Los Angeles County Public Works Department, Los Angeles County Community Development Division, the California ARB, and the California DTSC responded stating that they did not have any records for the Site. No other agency responses have been received as of the date of this Phase I ESA. The documentation will be reviewed once received. Once reviewed, if it is determined that the documentation affects or attributes to RECs identified in this Phase I ESA, the documentation will be summarized and provided in a separate letter and provided to Atkins. It should be noted that if the FOIA documentation is not received within 20 days of the date of this Phase I ESA, the requested information is considered not reasonably ascertainable.

3.4 Recorded Environmental Clean-up Liens

GHD contracted EDR to conduct a search of environmental liens and activity and use limitations (AULs) associated with the ownership or occupation of the Site (Parcel Identification Number: 7436-021-907).

Based on documentation provided by EDR, land title is vested in the Long Beach City since prior to 1980.

The environmental lien and AUL search conducted by EDR indicated that no environmental liens or AULs were recorded for the Site (as of December 18, 2018).

The Site address was not listed in the EDR Radius Map report as having any environmental liens or AULs. Site personnel were unaware of any environmental liens or AULs associated with the Site address.

A copy of the EDR Environmental Lien and AUL Search Report is provided in Appendix H.

3.5 User Information

A User Questionnaire was submitted to Atkins for completion to address certain User responsibilities in accordance with the Standard. Mr. Wilkin Mes of Carnival Cruise Line completed the User Questionnaire, a copy of which is provided in Appendix I. The answers to the User Questionnaire were considered when determining the findings of this report.

3.6 Adjoining Properties

The parking garage portion of the Site is bordered by the following properties:

Northwest: By a parking lot for the nearby Queen Mary exhibition



- Northeast:** By a plaza for the nearby Queen Mary exhibition and a passenger terminal for the nearby Carnival Cruise slip and beyond by the ship dock portion of the Site
- Southeast:** By Windsor Way and beyond by a parking lot, fire station, and helicopter pad operated by Island Express Helicopters
- Southwest:** By Windsor Way and South Harbor Scenic Drive and beyond by a bulk petroleum storage facility

No activities were observed on the adjoining properties during the Site reconnaissance, as viewed from the Site and publicly accessible areas that appeared to pose a risk of migration of hazardous substances or petroleum products to the Site. No evidence of gas or oil wells, water supply wells, or bulk chemical/petroleum storage was observed on properties adjoining the Site.

Based on available information, the following adjoining properties were listed in the EDR Radius Map report regarding the use or storage of hazardous substances or petroleum products:

- **231 Windsor Way (Carnival Ecstasy/Carnival Elation):** The property located at 231 Windsor Way is currently the Carnival Cruise Lines passenger Terminal and was listed in the RCRA-LQG database as managing several hazardous wastes, including the following waste codes: D001 (ignitable), D002 (pH), D005 (barium), D009 (mercury), D011 (silver), D035 (methyl ethyl ketone), F003/F005 (spent non-halogenated solvents) No violations were reported in the database listing. This property is located northeast of the Site and is considered downgradient of the Site in relationship to the anticipated groundwater flow. Based on available information, adverse impact to the Site from this adjoining property is not expected.
- **1175 Queens Highway (Island Express Helicopters Inc.):** The property located at 1175 Queens Highway is listed in the AST database with no specific information regarding ASTs on the property. This property is located northeast of the Site and is considered downgradient of the Site in relationship to the anticipated groundwater flow. Based on available information, adverse impact to the Site from this adjoining property is not expected.
- **Bulk Petroleum Storage Facility:** Based upon observations made by GHD during the Site reconnaissance, the adjoining property to the southwest of the Site appears to be a bulk petroleum storage facility with several ASTs present on this property. There were no listings for this property in the databases reviewed. This property is located southwest of the Site and is considered upgradient of the Site in relationship to the anticipated groundwater flow. Based on available information, adverse impact to the Site from this adjoining property is possible.

Based on the review of available historical aerial photographs, city directories, and historical topographic maps, no operations or conditions that would typically result in a release of hazardous substances or petroleum products were identified relative to the Site other than the bulk petroleum storage facility.

Individuals associated with the Site were unaware of the release or likely release of hazardous substances or petroleum products that would potentially migrate to the Site from the adjoining properties.



Based on the observations described above, FOIA requests were submitted to local and state regulatory agencies for the adjoining bulk petroleum storage facility property. No FOIA responses have been received to date.

3.7 Previous Site Investigations/ESAs

Based on communication with the User, no previous ESAs or environmental investigation reports are known to have been prepared for the Site.

4. Site Reconnaissance

On December 12, 2018, Steven Voss of GHD completed a reconnaissance of the parking garage structure and related property that comprise the parking garage portion of the Site. On January 23, 2019, Nicholas Alvaro of GHD completed a reconnaissance of the ship dock portion of the Site. The visit included a reconnaissance of the Site and Site structures, review of relevant Site records available to GHD, visual observations of adjoining properties as viewed from the Site and surrounding roadways, and interviews with individuals associated with the Site. Interviews were conducted using a prepared questionnaire covering environmental and other Site-related topics. GHD employs a systematic approach to the Site reconnaissance process that seeks to obtain information indicating the likelihood of identifying RECs in connection with the Site, including both exterior observations and those associated with the interior of structures, as applicable on the Site. Any significant obstructions encountered during the Site reconnaissance were previously identified in Section 1.

4.1 Utility Services

According to Site personnel, potable water is currently supplied to the Site by the City of Long Beach. No water supply, oil/gas, irrigation, monitoring, or dry wells are currently or were historically present on the Site, according to Site personnel. No evidence of any water supply, oil/gas, irrigation, monitoring, or dry wells was observed by GHD during the Site reconnaissance.

The Site is currently connected to the City of Long Beach municipal sanitary sewer system for the discharge of domestic wastewater. According to Site personnel, no septic systems are currently or were historically present on the Site. No evidence of any septic systems was observed by GHD during the Site reconnaissance.

Electricity for the Site are supplied via underground connections by Southern California Edison (SoCalEd). The Site is not served by natural gas. A diesel-powered emergency electrical generator is located within the parking structure.

4.2 Underground Storage Tanks (USTs)

According to Site personnel, no USTs are currently located at the Site or are known to have previously been located at the Site. No evidence of USTs (e.g., vent pipes, fill ports, etc.) was observed by GHD during the Site reconnaissance. The Site was not listed in the databases reviewed as having any USTs or releases therefrom.



4.3 Aboveground Storage Tanks (ASTs)

A 50-gallon diesel AST is associated with the diesel-powered emergency electrical generator located at the Site. No staining or signs of a spillage was observed near the AST. The Site address was not listed in the AST database reviewed. The Site utilizes two diesel-fueled fork trucks on the ship dock. The fork trucks are fueled from an AST located on the adjoining passenger terminal maintenance area.

4.4 Raw Material and Chemical Use and Storage

No raw materials or chemicals were observed at the Site by GHD during the Site reconnaissance, other than the diesel AST associated with the emergency generator.

4.5 Non-Hazardous Waste

The Site generates the following types of non-hazardous wastes as listed below:

Waste Stream	On-Site Management	Off-Site Management
General refuse	Dumpster	Waste Management, Inc.

According to Site personnel, no non-hazardous wastes have been disposed on Site. No evidence of the on-Site disposal of non-hazardous waste was observed by GHD during the Site reconnaissance or in the aerial photographs reviewed.

Based upon review of historical documents, the Site was originally within the Pacific Ocean and is built upon fill material placed at the Site in the early 1960's. No information was reasonably ascertainable regarding the source and nature of the fill material used at the Site.

According to Site personnel, no non-hazardous wastes have been disposed on Site. No other evidence of the on-Site disposal of non-hazardous waste was observed by GHD during the Site reconnaissance or in the aerial photographs reviewed.

4.6 Hazardous Waste

According to Site personnel, the Site does not generate any hazardous wastes. No evidence of the on-Site generation or management of hazardous waste was observed by GHD during the Site reconnaissance. The Site is not listed in the databases reviewed as a hazardous waste generator or management facility.

4.7 Wastewater/Sewers

According to Site personnel, no process or sanitary wastewater is generated or discharged on Site.

4.8 Stormwater

Stormwater generated at the Site consists of precipitation runoff from the Site structure and related impervious surfaces such as the paved parking areas and flows to the surrounding streets and municipal stormwater conveyance system.



No evidence of outdoor storage of materials or industrial activity with the potential to impact stormwater runoff quality was observed by GHD during the Site reconnaissance.

4.9 Air Emissions

According to Site personnel and based on GHD's observations, the only air emissions from the Site are associated with vehicle exhaust and occasional running of the emergency electrical generator.

4.10 Polychlorinated Biphenyls (PCBs)

Electricity is provided to the Site by SoCalEd via underground connections. There are no transformers located on the Site.

Based on the date of the Site structure construction in 2003, light ballasts would not be expected to contain PCB capacitors. Site personnel were not aware of any PCB-containing equipment located at the Site.

4.11 Spills/Releases

According to Site personnel, no spills or releases of hazardous substances or petroleum products have occurred at the Site. The Site was not listed in the ERNS or SPILLS databases.

No obvious evidence of any significant spills or releases of hazardous substances or petroleum products was observed by GHD during the Site reconnaissance. No evidence of any exterior staining or distressed vegetation was observed during the Site reconnaissance.

4.12 CERCLA Liability Potential

The Site is not listed on the NPL or in the SHWS database. The Site has never defended any environmental-related claims or litigation asserted by any governmental agency or third party, and no potential claims or litigation presently exist to the best knowledge of Mr. Peters. According to Mr. Peters, the Site has never received notification from any government agency or third party of liability as a potential responsible party for any hazardous waste treatment, storage, or disposal site.

5. Non-Scope Considerations

5.1 Asbestos-Containing Materials (ACM)

According to Site personnel, no asbestos surveys have been conducted at the Site. An asbestos survey was not conducted as part of this Phase I ESA. There were no building materials that would be considered as potential ACM observed by GHD during the Site reconnaissance.

5.2 Lead-Based Paint (LBP)

A LBP survey was not conducted as part of the Phase I ESA. Exterior building materials consist primarily of concrete. Most interior surfaces are unpainted concrete. No chipped or flaking paint was observed during the Site reconnaissance. Additional painted surfaces may be present in areas not accessible during the Site reconnaissance. The Site building would not be expected to contain LBP



based on construction occurring after 1978. However, lead content of paint cannot be verified without laboratory analysis.

6. Summary of Identified Environmental Issues

6.1 Findings and Opinion

Based on the Phase I ESA, the following findings were identified with the Site:

- i) **Historical Fill:** Based upon review of historical documents, the Site was originally within the Pacific Ocean and is built upon fill material placed at the Site in the early 1960's. No information was available for GHD review to determine the nature of the fill materials, if any. No information was found to suggest that hazardous substances or petroleum products were present in the fill material. Based on the above, this issue is not considered to be a REC. However, potential historical filling activities should be considered when evaluating business environmental risk and future land use of the Site.
- ii) **Historical On-Site Structures:** Based on a review of historical documents, several small structures were historically present on the northern portion of the Site. No information was available regarding demolition of the structure, potential USTs, potential ASTs, water supply, chemical use/storage, solid waste generation, or potential hazardous waste generation. While no evidence was found to suggest a release of hazardous substances or petroleum products associated with activities conducted at the former structure has occurred, insufficient information was found to evaluate potential adverse impact to soil and groundwater at the Site. Therefore, the existence of the historical building and associated appurtenances should be considered when evaluating business environmental risk and future land use at the Site.
- iii) **Adjoining Bulk Petroleum Facility:** The adjoining property to the southwest of the Site is operated as a bulk petroleum storage facility and is located topographically upgradient from the Site. Based on the Site elevation and the presence of the Pacific Ocean, groundwater in proximity of the Site is anticipated to be present at a depth of less than 15 feet below ground surface. No information was found to evaluate the extent to which historical operations on the adjoining property have adversely impacted the Site; therefore, this issue is not considered to be a REC. However, based on the proximity to the Site, being topographically upgradient, anticipated depth to groundwater in the vicinity of the Site, and considering the typical operations of facilities of this type, potential impact to the Site from the adjoining bulk petroleum storage facility should be considered when evaluating business environmental risk and future land use for the Site.
- iv) **Potentially Impacted Bay Sediment:** The area east of the ship dock is planned to be dredged as part of the proposed improvements. Due to the historical industrial development in the Long Beach area, particularly in the Port area, there is a potential for the bay sediment to be impacted by hazardous substances or petroleum products. No information was found to suggest that the sediment is impacted; therefore, this issue is not considered to be a REC. However, based on the industrial history of the area, the potential for encountering contaminated sediment during the proposed dredging activities is possible and



should be considered when evaluating business environmental risk and future use of this area of the Site.

6.2 Conclusions

GHD has performed a Phase I ESA in conformance with the scope and limitations of the Standard of the Carnival Cruise Terminal Proposed Improvement Areas (Carnival) property and structures located at 331 Windsor Way in Long Beach, California. Any limiting conditions to, or deletions from this practice are described in Section 1 of this report.

6.2.1 Recognized Environmental Conditions

This assessment has revealed no evidence of RECs (including CRECs) to exist in connection with this Site.

6.2.2 Business Environmental Risk

The following BERs, as described above, were identified to exist in connection with this Site:

- Historical Fill
- Historical On-Site Structures
- Adjoining Bulk Petroleum Facility
- Potentially Impacted Bay Sediment

6.3 Non-Scope Considerations

No potential issues were identified regarding the non-scope considerations evaluated.

6.4 Data Gaps/Data Failure

A data gap, as defined in the Standard, is an absence of information that affects the ability of the environmental professional to identify RECs. Data failure occurs when all of the standard historical sources that are reasonably ascertainable and likely to be useful have been reviewed and yet the objectives have not been met. Data failure is not uncommon in trying to identify the use of the Site at 5 year intervals back to first use or 1940 (whichever is earlier). The following data gaps/data failures were identified in this Phase I ESA:

- **Historical Source Interval:** Standard historical sources reviewed for this Phase I ESA were not available at the 5-year intervals described in Section 8.3.2.1 of the Standard. Additional information sources were not considered reasonably ascertainable. Based on the history of the Site being within the Pacific Ocean prior to development by filling with undocumented materials, it is possible that additional information concerning prior uses of the Site will impact the conclusions of this report.



7. Environmental Professional Statement

This Phase I ESA was completed by or under the direct supervision of an Environmental Professional (EP), who to the best of our professional knowledge and belief, meets the definition of Environmental Professional as defined in §312.10 of 40 CFR 312. The EP has the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Site. We have developed and performed all appropriate inquiries (AAI) in conformance with the standards and practices set forth in 40 CFR Part 312. Under the final AAI Standard, certain aspects of the Phase I ESA (interviews, on-site visual reconnaissance, the historical records review, and the search for environmental liens) may require an update if the timeframe between their completion and acquisition of the Site exceeds 180 days.

8. References

- ASTM Standard E1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.
- The EDR Radius Map™ Report with GeoCheck®, 331 Windsor Way, Long Beach, California, dated December 13, 2018
- Certified Sanborn® Map Report, 331 Windsor Way, Long Beach, California, dated December 13, 2018
- The EDR Aerial Photo Decade Package, 331 Windsor Way, Long Beach, California, dated December 13, 2018
- The EDR-City Directory Abstract, 331 Windsor Way, Long Beach, California, dated December 13, 2018
- EDR Historical Topographic Map Report, 331 Windsor Way, Long Beach, California, dated December 13, 2018
- The EDR Environmental Lien Search, Parcel Number: 7436-021-907, Long Beach, California, dated December 18, 2018
- Personal interviews with Mr. Max Peters, Mr. Wilkin Mes, and Mr. Mark Stroik at the Site on December 12, 2018, and with Mr. Max Peters and Mr. Wilkin Mes at the Site on January 23, 2019

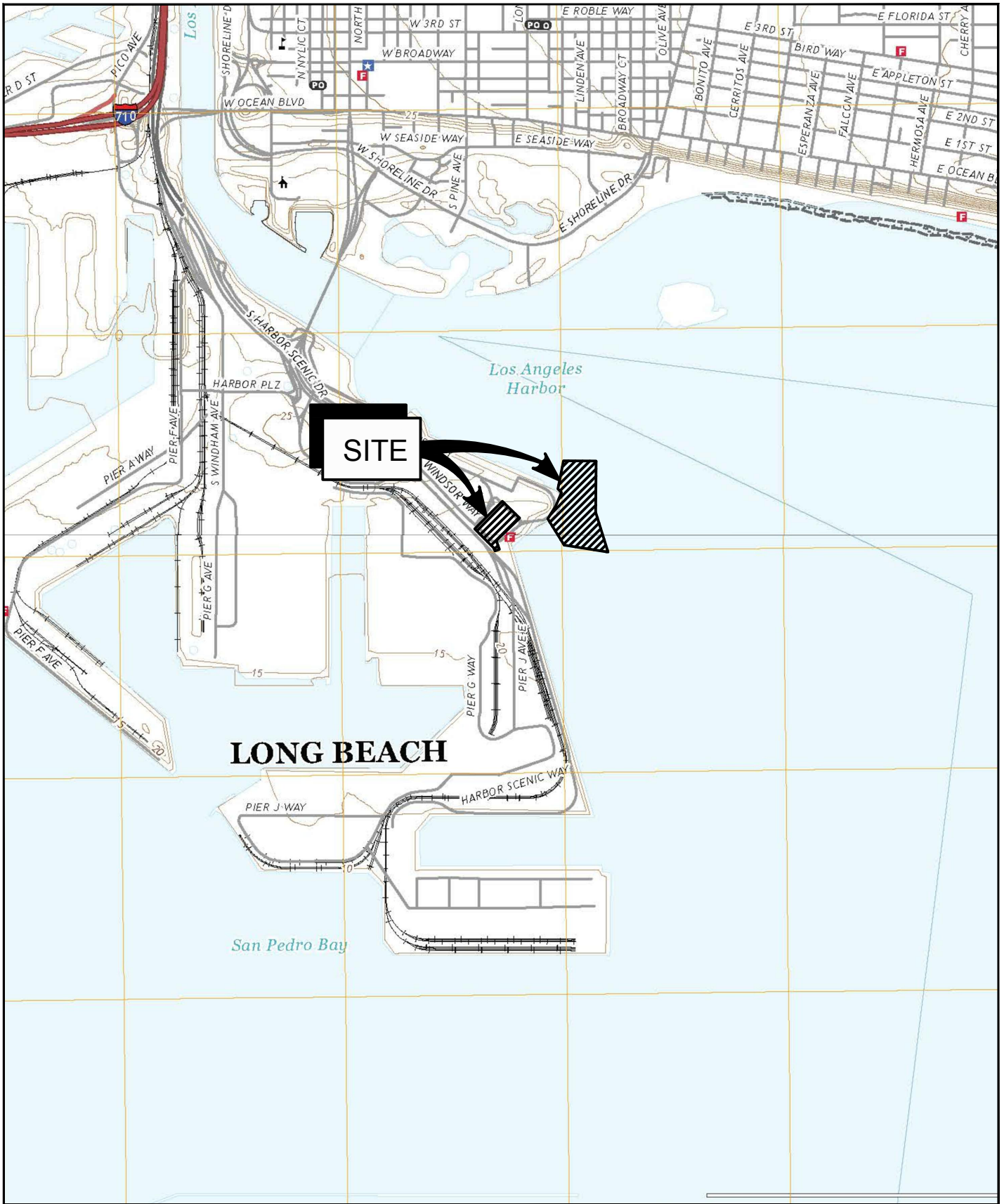


All of Which is Respectfully Submitted,
GHD

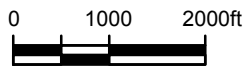
Steven R. Voss

Nicholas Alvaro

Charles D. Kizina



SOURCE: USGS QUADRANGLE MAP; LONG BEACH, CALIFORNIA, 2018; LONG BEACH OE S, CALIFORNIA, 2018

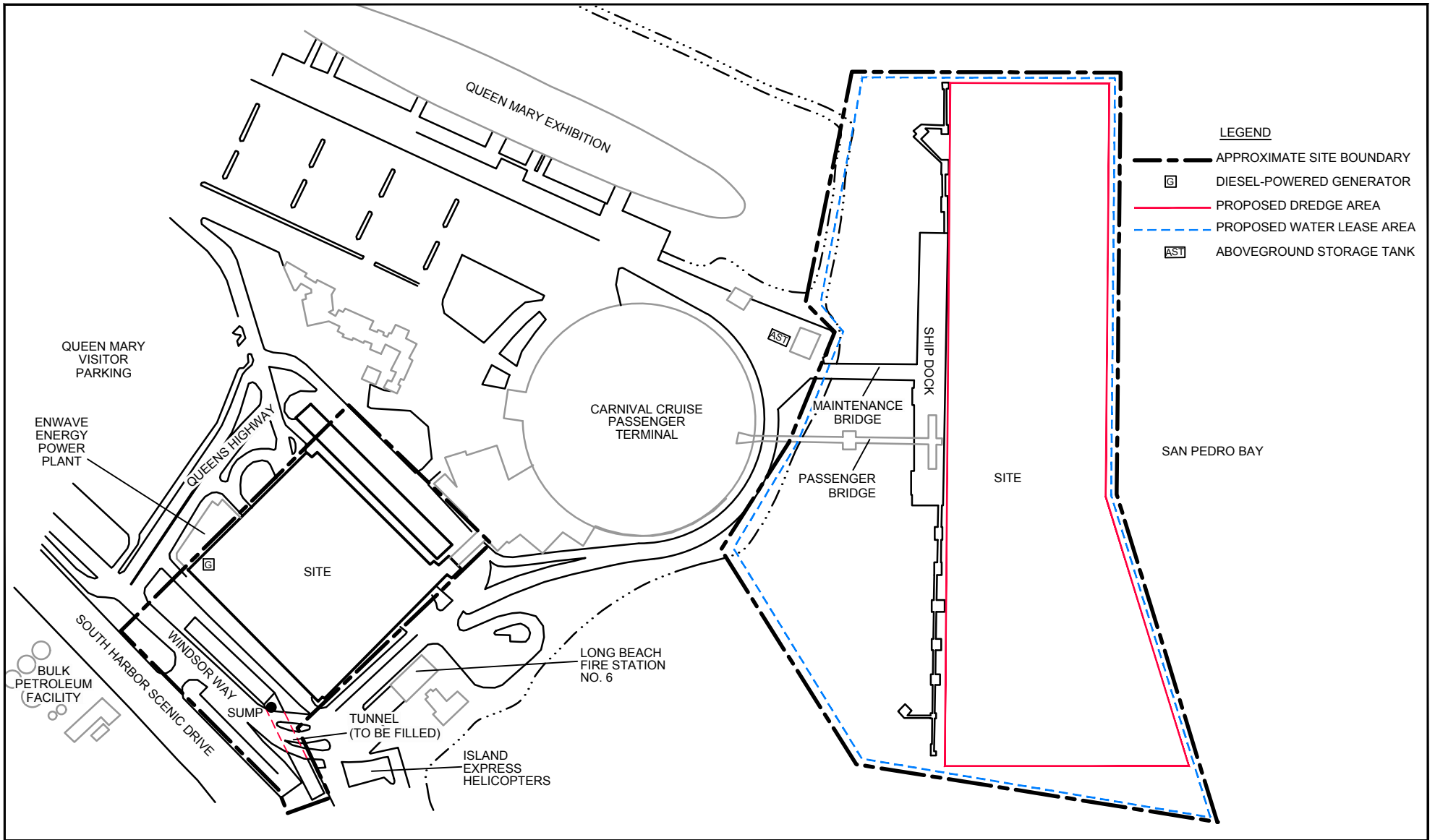


CARNIVAL CRUISE TERMINAL
 PROPOSED IMPROVEMENT AREAS
 331 WINDSOR WAY
 LONG BEACH, CALIFORNIA

SITE LOCATION

11183495-00
 Jan 30, 2019

FIGURE 1



Source: Microsoft Product Screen Shot(s) Reprinted with permission from Microsoft Corporation, Acquisition Date [unknown], Accessed: 2018

0 125 250ft



Coordinate System:
STATE PLANE
CA-NAD83



CARNIVAL CRUISE TERMINAL
PROPOSED IMPROVEMENT AREAS
331 WINDSOR WAY
LONG BEACH, CALIFORNIA

SITE PLAN

11183495-00

Jan 30, 2019

FIGURE 2

Appendix A

Site Photographs



Photo 1 - View of Site parking garage - southeast side, facing west



Photo 2 - View of Site parking garage - southwest side, facing northwest



Site Photographs



Photo 3 - View of Site parking garage - northwest side, facing south



Photo 4 - View of Site parking garage - northeast side, facing west



Site Photographs



Photo 5 - North tunnel entrance



Photo 6 - Tunnel



Site Photographs



Photo 7 - South tunnel entrance



Photo 8 - Ship dock



Site Photographs



Photo 9 - Maintenance bridge to dock



Photo 10 - Passenger bridge to dock



Site Photographs



Photo 11 - Passenger bridge lift system



Photo 12 - Minor staining beneath passenger bridge lift system



Site Photographs



Photo 13 - Adjoining property to southeast of parking garage (fire department)



Photo 14 - Adjoining property to southeast of parking garage (Island Express Helicopters)



Site Photographs



Photo 15 - Adjoining property to southwest of parking garage (bulk oil facility)



Photo 16 - Adjoining property to northwest of parking garage (parking lot with construction equipment)



Site Photographs



Photo 17 - Adjoining property to north (Queen Mary exhibition)



Photo 18 - Adjoining property to northeast (cruise line passenger terminal)



Site Photographs



Photo 19 - Parking garage area



Photo 20 - Passenger luggage storage area in parking garage



Site Photographs



Photo 21 - EnWave Energy Power Plant adjoining northeastern side of parking garage



Photo 22 - Diesel-powered emergency generator



Site Photographs

Appendix B

Assessor Qualifications



Charles D. (Chuck) Kizina

Associate/Environmental Due Diligence Team Lead



Qualified: Bachelor of Science/Geology (BSc), University of Pittsburgh

Professional Summary: Chuck is based in GHD's Atlanta office and has more than 28 years of professional experience specializing in the field of Environment, Health and Safety (EH&S) within the United States, Canada, United Kingdom, Puerto Rico, Mexico, South America and the Caribbean. His expertise is based on a diversity of EH&S related projects as well as through senior level corporate compliance management responsibilities. Chuck is responsible for of GHD's phase I environmental site assessment program and senior peer review group. In addition to managing a wide variety of environmental projects, he has participated on PRP committees and developed industry specific policies and procedures for compliance management and auditing programs.

Environmental Due Diligence

Project Manager/Assessor

Phase I ESAs | Various Clients | United States, Canada, South America, Caribbean, United Kingdom and Mexico

Chuck has managed or conducted over 4,000 Phase I and similar ESAs for a variety of clients and served as a senior executive responsible for compliance, environment, health and safety for a multi-national consolidator and operator. His projects have provided environmental, compliance and safety auditing and managing support for a variety of clients with a focus on acquisitions and mergers. Experience includes Phase I and Phase II environmental assessments, compliance evaluations and remedial cost estimation, desktop evaluations, document reviews, access and purchase agreement support.

Assessments included a variety of facilities such as:

- Gas & oil production support facilities - various States
- Peanut Processing Facilities - Georgia
- Poultry Processing Facilities - Georgia and Alabama
- Food Manufacturing Facilities - various States
- Timberlands – North and South America
- Lead-Acid Battery Repair Facilities - various States
- Tissue Harvesting Facilities - various States
- Metal Fabricating Facilities - various States
- Transformer repair facilities - British Columbia, Texas and Ohio
- Plastic product manufacturing facilities - various States
- Foundries - Alabama and Georgia
- Various undeveloped properties - various States
- Assisted Living Facilities - various States
- Medical Office Buildings - various States
- Laminated hose manufacturing facilities - various States

- Funeral Homes and Cemeteries - various States, United Kingdom, Mexico and Puerto Rico
- Food Processing Facilities - various States
- Transportation related facilities - various States
- Automobile service and sales dealerships - various States
- Feed mill and kiln dust disposal sites - various States
- Movie Theaters - various States
- Landfilled areas - various States
- Oil & Gas facilities – various States
- Medical device manufacturers – various States
- Bulb Manufacturing Facilities

Compliance

Project Manager/Assessor

Compliance Evaluations | Various Clients | United States, and Canada

Chuck has conducted compliance evaluations and serves as an assessor. His responsibilities included developing and maintaining auditing systems for the Alderwoods Group/Loewen Group and various clients to evaluate compliance with appropriate laws, regulations, and rules as well as with facility specific policies and procedures. Chuck was responsible for the development of industry specific corporate code of conduct and business ethics programs including key policies and operational procedure manuals including distribution and training. His work also included providing compliance related technical assistance on a variety of projects:

- Internal and External Auditing, financial and compliance
- OSHA technical support – various States
- EPCRA 311/312 and 313 auditing and compliance support – various States
- SWPPP/SPCC compliance evaluations – various States



Project Manager/Assessor
Compliance Evaluations | Various Clients |
United States, and Canada

- ISRA evaluations and filing support - various States
- CAA compliance evaluations - various States
- Asbestos management plans - various States
- Property Condition Assessments - various States
- Compliance audits – various Commercial and Industrial Clients - various States
- Underground Injection Control permits and evaluations - various States
- Developed and implemented comprehensive compliance programs for large and medium-sized operators of funeral homes and cemeteries - various States
- Endangered species assessment - California
- Air emissions permitting compliance evaluations and reporting support - various States
- Developed and implemented cremator training and certification program - various States
- Artificial reef construction, permitting and regulatory support - various States/Counties
- Hazardous waste manifesting - various States
- Developed and managed whistleblower hotline program - various States

Remediation/Decommissioning

Chuck has more than 25 years of experience on projects related to soil/sediment remediation including facility demolitions, soils treatment, groundwater remediation, and technical support. Chuck also provided field technical support, coordination and management of many site investigations and long term remediation projects specializing in lead and cadmium, using field portable XRF technology as well as contaminated materials solidification/mineralization remediation solutions. Projects include:

Project Manager
Facility Decommissioning | NutraSweet |
Augusta, GA

Chuck and his team assisted NutraSweet with the closure of NutraSweet's facility including RCRA Part B permit closure and assisting with solid waste, hazardous waste, wastewater, stormwater and air emissions compliance related reporting obligations. Work includes the closure of waste heat recovery units that were partially fueled by hazardous waste, the closure of 23 SWMUs, waste heat recovery units, Title V air emissions reporting and permit closure, hazardous waste storage area closure and providing advice and documentation of the decommissioning process.

Project Manager
Foundry Demolition | OSP, LLC |
Statesboro, GA

Chuck and his team are assisted OSP with the decommissioning and demolition of a former cast-iron foundry facility which includes a 400,000 square-foot foundry building, a water tower and ancillary structures. The project included hazardous materials investigations, asbestos investigations, materials inventories, sampling of materials for disposal, development of bid specifications, contractor evaluations and recommendations. The demolition portion of the project includes activities related to PCB contaminated media, asbestos containing materials, hazardous materials and recycling of selected building materials.

Project Manager
Former Manufacturing Site| Multisorb, Inc. |
Mobile, AL

Chuck and his team are assisted Multisorb with the decommissioning silica gel. The project included hazardous materials investigations, asbestos investigations, materials inventories, sampling of materials for disposal, development of bid specifications, contractor evaluations and recommendations. The demolition portion of the project included interior cleaning and recycling of selected building materials.

Project Manager
Former Manufacturing Site| Confidential Client
| Atlanta, GA

Chuck's team is assisting a confidential client with a legacy manufacturing site that consists of a combination of saleable property and landfilled areas. The project includes assisting the client with groundwater, soil and landfill delineation resulting in development and execution of an overall strategy to manage the site. A majority of the Site was sold to an industrial customer for development as a bulk fuel terminal.

Project Manager
Manufacturing Site | Confidential Client |
Langley, BC

Chuck's team assisted a confidential client with facility investigations and cost estimates related to the purchase of an industrial facility undergoing decommissioning. The project included a PCB sampling program to delineate and address possible impacts to the site and manufacturing equipment being shipped to other operating locations.

Project Manager
Manufacturing Site | Confidential Client |
Wilson, NC

Chuck's team assisted a confidential client with Phase II investigations and cost estimates related to the purchase of an industrial facility with groundwater impacted by chlorinated solvents. The project includes post acquisition work in accordance with a State-approved remediation program to delineate and address impacts to the site.



Project Manager
Marathon Battery | Gould, Inc. |
Foundry Cove, NY

Chuck served as the PRP's project manager on this former battery plant and NPL site on the Hudson River. The project involved the construction of a treatment plant, a railroad spur, a temporary dam and restoration of wetlands in cooperation with the local Audubon Society. Impacted soils were removed and treated from residential areas, the former battery plant and from wetlands areas. The project involved interacting with concerned citizens and coordinating with regulatory authorities.

Project Manager
Burgess Battery | Gould, Inc. | Freeport, IL

Chuck served as the PRP's project manager on this former battery plant decommissioning and demolition. The project involved the construction of a treatment plant, a railroad spur, a temporary dam and restoration of wetlands in cooperation with the local Audubon Society. Impacted soils were removed and treated from residential areas, the former battery plant and from wetlands areas.

Project Geologist
GNB Battery Site | Gould, Inc. | Thompson, IL

Chuck served as the owner's on-site representative on this former battery plant near the Mississippi River. The project involved the construction of the solidification and treatment and solidification of lead contaminated soils and the removal of contaminated battery chips. The project involved interacting with concerned citizens and coordinating with regulatory authorities.

Other related projects include:

- Buried solid waste and hazardous waste removals - various States, South America, Canada and Puerto Rico
- Underground storage tank investigations, removals - various States and Canada
- Industrial facility decommissioning/demolitions - various States
- Aboveground storage tank evaluations and installations - various States and Canada
- Holding tank installations - various States and Canada
- Mold Abatements - various States and Canada
- Chlorinated solvent release investigations and DNAPL recovery systems - various States
- Asbestos abatements - various State and Canada
- Funeral home and cemetery design and construction technical support - various States and Canada
- Dredging of marina basin - Lake Lanier, Georgia
- Underwater storm debris recovery - Lake Allatoona, Georgia
- Artificial reef placements - New Jersey, Florida, Texas, Maryland, North Carolina and Alabama

- Geotechnical investigations as field support - various States
- PRP committees - Various projects
- XRF Field laboratory management and sampling initiatives - various States
- Concrete, soil density, asphalt masonry, and steel inspection - Washington DC, Virginia and Maryland
- Developed and managed whistleblower hotline program - various States
- Managed human resources at program level during Chapter 11 and CCAA restructuring - various States

Other related areas of interest

Recognized (Certifications/Trainings)

- HAZWOPER, RCRA Hazardous Waste Management, FEMA ICS 100, FEMA IS 700, FEMA ICS 210, USCGAUX Instructor, USCGAUX Vessel Safety Inspector, PADI Master Scuba Diver Trainer, DAN Instructor, EFR Instructor, USCG Licensed Captain, Certified Crematory Operator, NFPA certified Fire fighter, First Aid and CPR instructor
- Former Communications Officer, Vice Commander and Flotilla Commander, US Coast Guard Auxiliary
- USCG Licensed Captain, Master 50GT, OUPV Great Lakes & Offshore

Work History

2011 - present	GHD (formerly Conestoga-Rovers & Associates), Atlanta, GA
	Named Associate, 2015
2005 - 2011	President, Eternal Reefs, Inc., Atlanta, GA
1994 - 2005	Alderwoods Group/Loewen Group, United States and Canada
	Named Vice President, Compliance, 2000
	Named Vice President, Personnel Administration, Environment, Health & Safety, 1999
	Named Director of Environmental Affairs, 1996
1991 - 1994	Gould Electronics, Inc., Eastlake, OH
1989 - 1991	NTH Consultants, Exton, Pennsylvania & Farmington Hills, MI
1988	STS Consultants, Falls Church, VA



Steven R. Voss

Senior Project Manager



Qualified: M.S. - Civil and Environmental Engineering (Clarkson University, 1993), B.S. - Biology (University of Minnesota, 1988), MOTT Foundation Research Fellow (1989)

Professional Summary: Steve has over 25 years of professional consulting experience with a diversified portfolio of projects over his career, including Phase I/II ESAs, environmental site investigations and remediations, brownfields redevelopment, remediation system operation and maintenance, and manufacturing facility decommissioning.

Steve's professional practice includes special emphasis on due diligence in property transactions, brownfields remediation, and hazardous waste site investigation and compliance. Steve's experience and familiarity with a broad range of industrial and commercial facilities geographically across the country provides invaluable expertise to our clients.

Steve has also been involved with local government for over 20 years, first serving as chair of the East Bethel Planning & Zoning Commission for 11 years, two terms on the East Bethel City Council, and is currently the Mayor of East Bethel. This municipal government experience brings

a unique perspective to many projects and provides years of negotiating and collaborative experiences working with all levels of government and with various regulatory agencies.

Brownfields

Project Manager

Steve has managed numerous brownfield and greenfield projects, assisting clients in redeveloping their blighted properties into productive, useable land. Examples of specific Brownfields project experience and outcomes are described below:

- Decommissioning, remedial design, and management of the former Superior Plating Superfund Site, a former 100,000 square-foot plating facility in downtown Minneapolis, Minnesota. Provided assistance with successfully obtaining \$1,900,000 in environmental grant funding. Property is planned for a \$120 million residential and retail development.
- Assisted StorageMart in the design and construction oversight of the redevelopment of an 8-acre former landfill into a self-storage facility in Hopkins, Minnesota.
- Assisted the City of Brooklyn Park in successfully obtaining funding for the Brooklyn Park Dump Superfund site through the Hennepin County Environmental Response Fund (ERF) to complete a remedial investigation and a Response Action Plan (RAP), and additional funding through the Federal Stimulus Funding program to fund the remediation. Also assisted in the design and construction of year-round hockey rinks over the former dump
- Assisted the City of Saint Paul in support of legislation that led to a \$2,000,000 grant to the city to fund the remedial design and implementation of the Phase I Response Action Plan for the Pigs Eye Dump Superfund Site in St. Paul, Minnesota.

- Assisted the City of Saint Paul in support of additional legislation to fund the remaining \$5,100,000 cost of remediating the Pigs Eye Dump Superfund Site in St. Paul, Minnesota. Provided testimony before the Minnesota Senate and House Environment and Natural Resources Committees.

Environmental Site Assessments

Project Manager/Assessor

Steve has conducted over 200 Phase I Environmental Site Assessments of industrial, commercial, residential, and vacant properties in 28 states and 2 provinces. Properties assessed include aerospace contractors, high tech industries, heavy and light industrial facilities, oilfield contractors, refineries, port and trucking terminals, automotive and heavy equipment dealership and service facilities, agricultural processing and supply facilities, food processing facilities, commercial office space, senior housing, and medical office facilities.

Facility Decommissioning

Project Manager

Steve has provided clients with the technical and regulatory guidance for closure and decommissioning of former manufacturing facilities, including:

- Decommissioning of a former WM Lamtracker fluorescent lamp recycling facility in Roseville, Minnesota.
- Decommissioning of a former WM Lamtracker RCRA-permitted fluorescent lamp recycling facility in Kaiser, Missouri.
- Facility decommissioning of a former SPX 300,000 square foot manufacturing plant in Owatonna, Minnesota, including tank closures and remediation of a former electroplating line.



Soil and Groundwater Remediation

Project Manager/Engineer

Steve has provided engineering support and project management for many large and small remediation projects. Examples of specific projects and locations include:

- Design and remedial implementation of a groundwater collection/treatment and soil vapor extraction system at an active metal foundry site in Skokie, Illinois.
- Design and remedial implementation of a soil vapor extraction system at a light industrial park in Hopkins, Minnesota with soils contaminated with VOCs.
- Design and remedial implementation at an operating metal salvaging facility in Elgin, Illinois with soil contaminated with PCBs, lead, and dioxins.
- Investigation and remediation of a 20-acre Superfund dump in Brooklyn Park, Minnesota.
- Design and construction of a groundwater pump and treatment system and a soil vapor extraction system at a former manufacturing facility in Denville, New Jersey.
- Implementation of a soil removal and capping of a former oil distribution facility in Duluth, Minnesota with contaminated soil and groundwater.
- Feasibility Study for remediation of an operating metal salvaging facility in Peoria, Illinois with soil contaminated with PCBs, lead, and dioxins.

Remedial Investigations/Feasibility Studies

Project Manager/Engineer

Steve has provided engineering support and project management for many remedial investigations. Examples of specific projects and locations include:

- Remedial investigation of a former railroad maintenance yard in St. Paul, Minnesota.
- Soil and groundwater investigation of a manufacturing facility contaminated with heavy metals and BTEX in Salem, South Dakota.
- Investigation of a former SafetyKleen solvent recovery facility in Schaumburg, Illinois with soil and groundwater contaminated with VOCs.
- Investigation of a former oil distribution facility in Duluth, Minnesota with soil and groundwater contaminated with fuel oil.
- Investigation of a former electronics manufacturing facility in Elk Grove, Illinois with soil and groundwater contaminated with VOCs.

- Investigation of an operating gray iron foundry in Skokie, Illinois with soil and groundwater contaminated with VOCs and PCBs.
- Remedial Investigation of an active fire training center in Syracuse, New York with soil contaminated with PCBs, PAHs, lead, and mercury.

Landfills

Project Manager/Engineer

Steve has provided engineering support and project management for many landfill closures. Examples of specific projects and locations include:

- Project Engineer/Manager of an operation and maintenance program for a 63-acre Superfund landfill in Wauconda, Illinois, including groundwater monitoring, leachate collection system monitoring and sampling, and landfill cap maintenance.
- Project Engineer/Manager of the design and construction of a landfill cap of a 43-acre Superfund landfill in Woodstock, Illinois.
- Project Engineer/Manager for the design and construction of a landfill cap over a 25-acre RCRA/Superfund industrial landfill in Joliet, Illinois.
- Design and construction oversight of a landfill cap regrading project of a 17-acre landfill in Ottawa, Illinois.
- Project Manager for the construction of a landfill cap, landfill gas extraction system, and soil vapor extraction system of a 7-acre landfill in New Richmond, Wisconsin.
- Project Manager for the construction of a permeable cap for the 230-acre Pigs Eye Dump in St. Paul, Minnesota.

Work history

1992 – present	GHD (formerly Conestoga-Rovers & Associates), St. Paul, MN
1990 – 1992	C&S Engineers, Inc., Syracuse, NY

Appendix C

Environmental Database Search Results

11183495 - Long Beach, CA

331 Windsor Way

Long Beach, CA 90802

Inquiry Number: 5511181.2s

December 13, 2018

The EDR Radius Map™ Report with GeoCheck®



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
Executive Summary	ES1
Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	9
Orphan Summary	66
Government Records Searched/Data Currency Tracking	GR-1
 <u>GEOCHECK ADDENDUM</u>	
Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting Source Map	A-25
Physical Setting Source Map Findings	A-26
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), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

331 WINDSOR WAY
LONG BEACH, CA 90802

COORDINATES

Latitude (North): 33.7503740 - 33° 45' 1.34"
Longitude (West): 118.1907340 - 118° 11' 26.64"
Universal Transverse Mercator: Zone 11
UTM X (Meters): 389712.2
UTM Y (Meters): 3734921.5
Elevation: 15 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map: 5652670 LONG BEACH, CA
Version Date: 2012

South Map: 5633769 LONG BEACH OE S, CA
Version Date: 2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from: 20140513
Source: USDA

MAPPED SITES SUMMARY

Target Property Address:
 331 WINDSOR WAY
 LONG BEACH, CA 90802

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	CARNIVAL ECSTASY IMO	231 WINDSOR WAY	RCRA-LQG	Higher	33, 0.006, ESE
A2	CARNIVAL ELATION IMO	231 WINDSOR WAY	RCRA-LQG	Higher	33, 0.006, ESE
B3	ISLAND EXPRESS HELIC	1175 QUEENS HWY	AST	Higher	105, 0.020, South
B4	THUMS LONG BEACH CO	1105 HARBOR SCENIC D	RCRA-SQG, HAZNET	Higher	257, 0.049, South
5	WCO PORT PROPERTIES	1126 QUEENS WAY	RCRA-SQG, FINDS, ECHO	Lower	613, 0.116, NNE
6	TTX COMPANY - POLB	1521 PIER J AVENUE -	AST	Higher	648, 0.123, SW
7	AGREX, INC	965 HARBOR SCENIC DR	LUST, HIST CORTESE	Lower	714, 0.135, WNW
8	CATALINA EXPRESS POR	1046 QUEENS HWY	AST	Higher	875, 0.166, NW
9	HARBOR PLAZA FACILIT	669 HARBOR PLAZA	LUST, CHMIRS, HIST CORTESE, NPDES, CIWQS	Higher	1770, 0.335, WNW
C10	SOUTHLAND SITE #1425	1281 PIER J B211A	HIST CORTESE	Higher	1877, 0.355, South
C11	GOLDEN WEST REFINERY	1281 PIER J B211A	HIST CORTESE	Higher	1877, 0.355, South
C12	GOLDEN WEST REFINERY	1281 PIER J AVENUE B	LUST	Higher	1877, 0.355, South
D13	PIER 4	1521 HARBOR SCENIC D	LUST, SWEEPS UST	Higher	2435, 0.461, SSE
D14	MAERSK LINE AGENCY	1521 HARBOR SCENIC	LUST, HIST CORTESE	Higher	2435, 0.461, SSE
15	CONTANDA TERMINALS L	1395 PIER J AVENUE	ENVIROSTOR, VCP, EMI	Higher	3428, 0.649, South
16	PORT OF LONG BEACH	925 HARBOR PLAZA	ENVIROSTOR, VCP, HIST UST, FTTS, HIST FTTS, US...	Higher	3729, 0.706, WNW
17	LONG BEACH NAVAL SHI		CA BOND EXP. PLAN	Lower	5269, 0.998, NNW

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-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

EXECUTIVE SUMMARY

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

State and tribal leaking storage tank lists

INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

CPS-SLIC..... Statewide SLIC Cases

State and tribal registered storage tank lists

FEMA UST..... Underground Storage Tank Listing

UST..... Active UST Facilities

INDIAN UST..... Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

VCP..... Voluntary Cleanup Program Properties

INDIAN VCP..... Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS..... Considered Brownfields 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

ODI..... Open Dump Inventory

DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations

IHS OPEN DUMPS..... Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL..... Delisted National Clandestine Laboratory Register

AOCONCERN..... San Gabriel Valley Areas of Concern

HIST Cal-Sites..... Historical Calsites Database

SCH..... School Property Evaluation Program

CDL..... Clandestine Drug Labs

Toxic Pits..... Toxic Pits Cleanup Act Sites

CERS HAZ WASTE..... CERS HAZ WASTE

EXECUTIVE SUMMARY

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
CERS TANKS..... California Environmental Reporting System (CERS) Tanks

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

EXECUTIVE SUMMARY

US AIRS.....	Aerometric Information Retrieval System Facility Subsystem
US MINES.....	Mines Master Index File
ABANDONED MINES.....	Abandoned Mines
FINDS.....	Facility Index System/Facility Registry System
UXO.....	Unexploded Ordnance Sites
DOCKET HWC.....	Hazardous Waste Compliance Docket Listing
ECHO.....	Enforcement & Compliance History Information
FUELS PROGRAM.....	EPA Fuels Program Registered Listing
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
LOS ANGELES CO. HMS.....	HMS: Street Number 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
LA Co. Site Mitigation.....	Site Mitigation List
UIC.....	UIC Listing
WASTEWATER PITS.....	Oil Wastewater Pits Listing
WDS.....	Waste Discharge System
CERS.....	CERS
WIP.....	Well Investigation Program Case List
PROJECT.....	PROJECT (GEOTRACKER)
CIWQS.....	California Integrated Water Quality System
SAMPLING POINT.....	SAMPLING POINT (GEOTRACKER)
OTHER OIL GAS.....	OTHER OIL & GAS (GEOTRACKER)
WELL STIM PROJ.....	Well Stimulation Project (GEOTRACKER)
UIC GEO.....	UIC GEO (GEOTRACKER)
PROD WATER PONDS.....	PROD WATER PONDS (GEOTRACKER)
NON-CASE INFO.....	NON-CASE INFO (GEOTRACKER)
WDR.....	Waste Discharge Requirements Listing
MILITARY PRIV SITES.....	MILITARY PRIV SITES (GEOTRACKER)

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP.....	EDR Proprietary Manufactured Gas Plants
EDR Hist Auto.....	EDR Exclusive Historical Auto Stations
EDR Hist Cleaner.....	EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF.....	Recovered Government Archive Solid Waste Facilities List
-------------	--

EXECUTIVE SUMMARY

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 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 03/01/2018 has revealed that there are 2 RCRA-LQG sites within approximately 0.25 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
CARNIVAL ECSTASY IMO EPA ID:: CAL000269150	231 WINDSOR WAY	ESE 0 - 1/8 (0.006 mi.)	A1	9
CARNIVAL ELATION IMO EPA ID:: CAL000269148	231 WINDSOR WAY	ESE 0 - 1/8 (0.006 mi.)	A2	12

RCRA-SQG: 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.

A review of the RCRA-SQG list, as provided by EDR, and dated 03/01/2018 has revealed that there are 2 RCRA-SQG sites within approximately 0.25 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<i>THUMS LONG BEACH CO</i> EPA ID:: CAR000012542	<i>1105 HARBOR SCENIC D</i>	<i>S 0 - 1/8 (0.049 mi.)</i>	<i>B4</i>	<i>17</i>

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<i>WCO PORT PROPERTIES</i>	<i>1126 QUEENS WAY</i>	<i>NNE 0 - 1/8 (0.116 mi.)</i>	<i>5</i>	<i>20</i>

EXECUTIVE SUMMARY

EPA ID:: CAD982436594

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 identifies 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 07/30/2018 has revealed that there are 2 ENVIROSTOR sites within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
CONTANDA TERMINALS L Facility Id: 19510064 Status: Active	1395 PIER J AVENUE	S 1/2 - 1 (0.649 mi.)	15	42
PORT OF LONG BEACH Facility Id: 60001625 Status: Active	925 HARBOR PLAZA	WNW 1/2 - 1 (0.706 mi.)	16	50

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 are 5 LUST sites within approximately 0.5 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
HARBOR PLAZA FACILIT Database: LUST, Date of Government Version: 09/10/2018 Database: LUST REG 4, Date of Government Version: 09/07/2004 Status: Completed - Case Closed Facility Id: 908020198 Status: Case Closed Global Id: T0603701703 Global ID: T0603701703	669 HARBOR PLAZA	WNW 1/4 - 1/2 (0.335 mi.)	9	25
GOLDEN WEST REFINERY Database: LUST, Date of Government Version: 09/10/2018 Database: LUST REG 4, Date of Government Version: 09/07/2004 Status: Completed - Case Closed	1281 PIER J AVENUE B	S 1/4 - 1/2 (0.355 mi.)	C12	37

EXECUTIVE SUMMARY

Facility Id: 908020298
 Status: Leak being confirmed
 Global Id: T0603701712
 Global ID: T0603701712

PIER 4 **1521 HARBOR SCENIC D** **SSE 1/4 - 1/2 (0.461 mi.)** **D13** **39**
 Database: LUST REG 4, Date of Government Version: 09/07/2004
 Facility Id: 908020152
 Status: Case Closed
 Global ID: T0603701699

MAERSK LINE AGENCY **1521 HARBOR SCENIC** **SSE 1/4 - 1/2 (0.461 mi.)** **D14** **41**
 Database: LUST, Date of Government Version: 09/10/2018
 Status: Completed - Case Closed
 Global Id: T0603701699

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
AGREX, INC	965 HARBOR SCENIC DR	WNW 1/8 - 1/4 (0.135 mi.)	7	22
Database: LUST, Date of Government Version: 09/10/2018 Database: LUST REG 4, Date of Government Version: 09/07/2004 Status: Completed - Case Closed Facility Id: 908020034 Status: Case Closed Global Id: T0603701689 Global ID: T0603701689				

State and tribal registered storage tank lists

AST: A listing of aboveground storage tank petroleum storage tank locations.

A review of the AST list, as provided by EDR, has revealed that there are 3 AST sites within approximately 0.25 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
ISLAND EXPRESS HELIC	1175 QUEENS HWY	S 0 - 1/8 (0.020 mi.)	B3	16
Database: AST, Date of Government Version: 07/06/2016				
TTX COMPANY - POLB	1521 PIER J AVENUE -	SW 0 - 1/8 (0.123 mi.)	6	21
Database: AST, Date of Government Version: 07/06/2016				
CATALINA EXPRESS POR	1046 QUEENS HWY	NW 1/8 - 1/4 (0.166 mi.)	8	24
Database: AST, Date of Government Version: 07/06/2016				

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

CA BOND EXP. 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.

A review of the CA BOND EXP. PLAN list, as provided by EDR, and dated 01/01/1989 has revealed that

EXECUTIVE SUMMARY

there is 1 CA BOND EXP. PLAN site within approximately 1 mile of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
LONG BEACH NAVAL SHI		NNW 1/2 - 1 (0.998 mi.)	17	64

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 [CALSTATES]. 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 are 5 HIST CORTESE sites within approximately 0.5 miles of the target property.

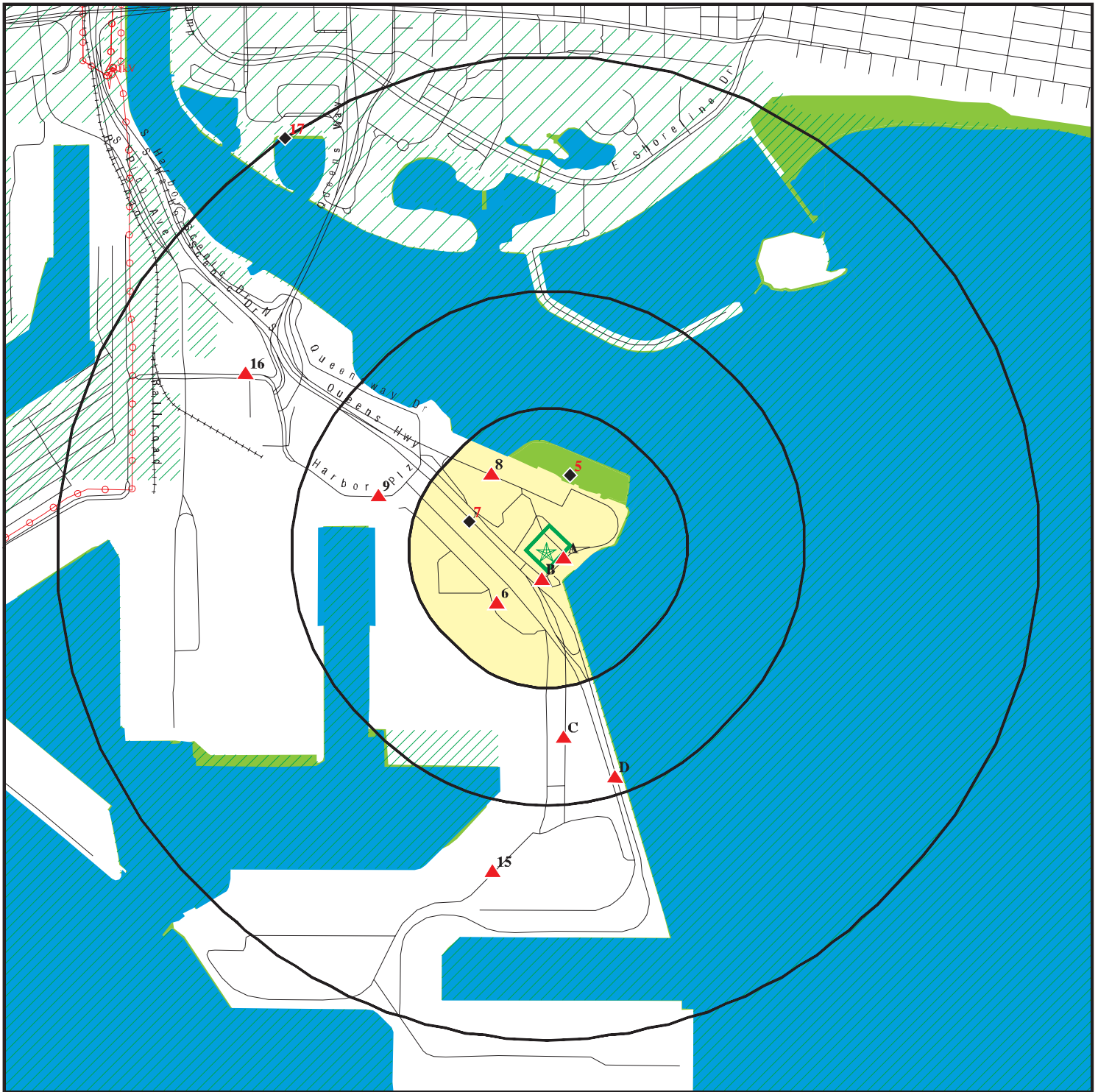
<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
HARBOR PLAZA FACILIT Reg Id: 908020198	669 HARBOR PLAZA	WNW 1/4 - 1/2 (0.335 mi.)	9	25
SOUTHLAND SITE #1425 Reg Id: 2379	1281 PIER J B211A	S 1/4 - 1/2 (0.355 mi.)	C10	36
GOLDEN WEST REFINERY Reg Id: 908020298	1281 PIER J B211A	S 1/4 - 1/2 (0.355 mi.)	C11	37
MAERSK LINE AGENCY Reg Id: 908020152	1521 HARBOR SCENIC	SSE 1/4 - 1/2 (0.461 mi.)	D14	41

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
AGREX, INC Reg Id: 908020034	965 HARBOR SCENIC DR	WNW 1/8 - 1/4 (0.135 mi.)	7	22

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 5511181.2S



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

Indian Reservations BIA

Power transmission lines

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: 11183495 - Long Beach, CA
 ADDRESS: 331 Windsor Way
 Long Beach CA 90802
 LAT/LONG: 33.750374 / 118.190734

CLIENT: GHD
 CONTACT: Laura Grana
 INQUIRY #: 5511181.2s
 DATE: December 13, 2018 10:08 am

DETAIL MAP - 5511181.2S



-  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

-  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: 11183495 - Long Beach, CA ADDRESS: 331 Windsor Way Long Beach CA 90802 LAT/LONG: 33.750374 / 118.190734	CLIENT: GHD CONTACT: Laura Grana INQUIRY #: 5511181.2s DATE: December 13, 2018 10:09 am
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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								
<i>Federal NPL site list</i>								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
<i>Federal Delisted NPL site list</i>								
Delisted NPL	1.000		0	0	0	0	NR	0
<i>Federal CERCLIS list</i>								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
<i>Federal CERCLIS NFRAP site list</i>								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
<i>Federal RCRA CORRACTS facilities list</i>								
CORRACTS	1.000		0	0	0	0	NR	0
<i>Federal RCRA non-CORRACTS TSD facilities list</i>								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
<i>Federal RCRA generators list</i>								
RCRA-LQG	0.250		2	0	NR	NR	NR	2
RCRA-SQG	0.250		2	0	NR	NR	NR	2
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
<i>Federal institutional controls / engineering controls registries</i>								
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
<i>Federal ERNS list</i>								
ERNS	TP		NR	NR	NR	NR	NR	0
<i>State- and tribal - equivalent NPL RESPONSE</i>								
RESPONSE	1.000		0	0	0	0	NR	0
<i>State- and tribal - equivalent CERCLIS ENVIROSTOR</i>								
ENVIROSTOR	1.000		0	0	0	2	NR	2
<i>State and tribal landfill and/or solid waste disposal site lists</i>								
SWF/LF	0.500		0	0	0	NR	NR	0
<i>State and tribal leaking storage tank lists</i>								
LUST	0.500		0	1	4	NR	NR	5

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
CPS-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		2	1	NR	NR	NR	3
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN 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
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	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
AOCONCERN	1.000		0	0	0	0	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
CERS HAZ WASTE	0.250		0	0	NR	NR	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
CERS TANKS	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	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
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
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
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
ECHO	TP		NR	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	1	NR	1
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

<u>Database</u>	<u>Search Distance (Miles)</u>	<u>Target Property</u>	<u>< 1/8</u>	<u>1/8 - 1/4</u>	<u>1/4 - 1/2</u>	<u>1/2 - 1</u>	<u>> 1</u>	<u>Total Plotted</u>
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NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

A1
ESE
< 1/8
0.006 mi.
33 ft.

CARNIVAL ECSTASY IMO#8701344
231 WINDSOR WAY
LONG BEACH, CA 90802

RCRA-LQG 1010313257
CAL000269150

Site 1 of 2 in cluster A

Relative:
Higher

RCRA-LQG:

Actual:
16 ft.

Date form received by agency: 06/17/2010
Facility name: CARNIVAL ECSTASY IMO#8701344
Facility address: 231 WINDSOR WAY
LONG BEACH, CA 90802
EPA ID: CAL000269150
Mailing address: NW 87TH AVE
MIAMI, CA 33178
Contact: MICHELLE MATEJKA
Contact address: NW 87TH AVE
MIAMI, FL 33178
Contact country: US
Contact telephone: 305-406-5806
Contact email: MMATEJKA@CARNIVAL.COM
EPA Region: 09
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: CARNIVAL CORPORATION
Owner/operator address: NW 87TH AVE
MIAMI, FL 33178
Owner/operator country: Not reported
Owner/operator telephone: 305-406-5806
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 04/01/1991
Owner/Op end date: Not reported

Owner/operator name: CARNIVAL CRUISE LINES
Owner/operator address: NW 87TH AVE
MIAMI, FL 33178
Owner/operator country: Not reported
Owner/operator telephone: 305-406-5806
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

CARNIVAL ECSTASY IMO#8701344 (Continued)

1010313257

Owner/Op start date: 04/01/1991
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: No
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

- . 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.

- . 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.

- . Waste code: D005
- . Waste name: BARIUM

- . Waste code: D009
- . Waste name: MERCURY

- . Waste code: D011
- . Waste name: SILVER

- . 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

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

CARNIVAL ECSTASY IMO#8701344 (Continued)

1010313257

MIXTURES.

Historical Generators:

Date form received by agency: 02/13/2008

Site name: THE ECSTASY IMO#8711344

Classification: Large Quantity Generator

. 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 PENSKEY-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.

. 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.

. Waste code: D011

. Waste name: SILVER

. 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.

. Waste code: U160

. Waste name: 2-BUTANONE, PEROXIDE (R,T)

Date form received by agency: 08/01/2006

Site name: M/S ECSTASY

Classification: Small Quantity Generator

Date form received by agency: 08/01/2006

Site name: M/S ECSTASY

Classification: Large Quantity Generator

. 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 PENSKEY-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

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

CARNIVAL ECSTASY IMO#8701344 (Continued)

1010313257

MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

- . 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.

- . Waste code: D005
- . Waste name: BARIUM

- . Waste code: D008
- . Waste name: LEAD

- . Waste code: D011
- . Waste name: SILVER

- . Waste code: D035
- . Waste name: METHYL ETHYL KETONE

- . 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.

- . 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 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.

Violation Status: No violations found

A2
ESE
< 1/8
0.006 mi.
33 ft.

CARNIVAL ELATION IMO#9118721
231 WINDSOR WAY
LONG BEACH, CA 90802
Site 2 of 2 in cluster A

RCRA-LQG 1010313255
CAL000269148

Relative:
Higher

RCRA-LQG:
Date form received by agency: 06/17/2010
Facility name: CARNIVAL ELATION IMO#9118721
Facility address: 231 WINDSOR WAY
LONG BEACH, CA 90802
EPA ID: CAL000269148

Actual:
16 ft.

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

CARNIVAL ELATION IMO#9118721 (Continued)

1010313255

Mailing address: NW 87TH AVE
MIAMI, CA 33178
Contact: MICHELLE MATEJKA
Contact address: NW 87TH AVE
MIAMI, FL 33178
Contact country: US
Contact telephone: 305-406-5806
Contact email: MMATEJKA@CARNIVAL.COM
EPA Region: 09
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: CARNIVAL CORPORATION
Owner/operator address: NW 87TH AVE
MIAMI, FL 33178
Owner/operator country: Not reported
Owner/operator telephone: 305-406-5806
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 02/28/1998
Owner/Op end date: Not reported

Owner/operator name: CARNIVAL CRUISE LINES
Owner/operator address: NW 87TH AVE
MIAMI, FL 33178
Owner/operator country: Not reported
Owner/operator telephone: 305-406-5806
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 02/28/1998
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: No

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

CARNIVAL ELATION IMO#9118721 (Continued)

1010313255

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

. Waste code: 134
. Waste name: Aqueous solution with <10% total organic residues

. Waste code: 214
. Waste name: Unspecified solvent mixture

. Waste code: 331
. Waste name: Off-specification, aged, or surplus organics

. Waste code: 352
. Waste name: Other organic solids

. Waste code: 541
. Waste name: Photochemicals / photo processing waste

. Waste code: 551
. Waste name: Laboratory waste chemicals

. 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 PENSKEY-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.

. Waste code: D011
. Waste name: SILVER

. 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.

Historical Generators:

Date form received by agency: 02/13/2008
Site name: CARNIVAL CRUISE LINES - ELATION
Classification: Large Quantity Generator

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

CARNIVAL ELATION IMO#9118721 (Continued)

1010313255

. 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 PENSKEY-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.

. 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.

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D009
. Waste name: MERCURY

. Waste code: D011
. Waste name: SILVER

. 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.

Date form received by agency: 08/01/2006
Site name: M/S ELATION
Classification: Small Quantity Generator

Date form received by agency: 08/01/2006
Site name: M/S ELATION
Classification: Large Quantity Generator

. 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 PENSKEY-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.

. Waste code: D002

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

CARNIVAL ELATION IMO#9118721 (Continued)

1010313255

- . 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.

- . Waste code: D011
- . Waste name: SILVER

- . 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.

- . Waste code: U248
- . Waste name: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYL-BUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS OF 0.3% OR LESS

- Violation Status: No violations found

B3
South
< 1/8
0.020 mi.
105 ft.

ISLAND EXPRESS HELICOPTERS INC (LONG BEACH,CA)
1175 QUEENS HWY
LONG BEACH, CA 90802
Site 1 of 2 in cluster B

AST A100421032
N/A

Relative:
Higher

Actual:
16 ft.

AST:
Certified Unified Program Agencies: Not reported
Owner: Island Express Holding Corp.
Total Gallons: Not reported
CERSID: 10649377
Facility ID: LACoFA0031421
Business Name: ISLAND EXPRESS HELICOPTERS INC
Phone: 310-510-2525
Fax: 310-510-9671
Mailing Address: 1175 Queens Highway
Mailing Address City: Long Beach
Mailing Address State: CA
Mailing Address Zip Code: 90802
Operator Name: Island Express Helicopters
Operator Phone: 800-228-2566
Owner Phone: 310-510-2525
Owner Mail Address: 1175 Queens Highway.
Owner State: CA
Owner Zip Code: 90802
Owner Country: United States
Property Owner Name: Not reported
Property Owner Phone: Not reported
Property Owner Mailing Address: Not reported
Property Owner City: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

ISLAND EXPRESS HELICOPTERS INC (LONG BEACH,CA) (Continued)

A100421032

Property Owner Stat : Not reported
Property Owner Zip Code: Not reported
Property Owner Country: Not reported
EPAID: CAL000139676

B4
South
< 1/8
0.049 mi.
257 ft.

THUMS LONG BEACH CO
1105 HARBOR SCENIC DR PIER J
LONG BEACH, CA 90802

RCRA-SQG 100111716
HAZNET CAR000012542

Site 2 of 2 in cluster B

Relative:
Higher

RCRA-SQG:

Actual:
16 ft.

Date form received by agency: 09/01/1996
Facility name: THUMS LONG BEACH CO
Facility address: 1105 HARBOR SCENIC DR PIER J
LONG BEACH, CA 90802
EPA ID: CAR000012542
Mailing address: W OCEAN BLVD STE 800
LONG BEACH, CA 90802
Contact: Not reported
Contact address: Not reported
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name: LONG BEACH CITY OF AS UNIT
Owner/operator address: 211 E OCEAN STE 500
LONG BEACH, CA 90802
Owner/operator country: Not reported
Owner/operator telephone: 310-570-3900
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Municipal
Owner/Operator Type: Owner
Owner/Op start date: Not reported
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: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

THUMS LONG BEACH CO (Continued)

100111716

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

Violation Status: No violations found

HAZNET:

envid: 100111716
Year: 2015
GEPaid: CAR000012542
Contact: NAUMAN CHARANIA
Telephone: 5626243208
Mailing Name: Not reported
Mailing Address: 111 W OCEAN BLVD STE 800
Mailing City,St,Zip: LONG BEACH, CA 908020000
Gen County: Los Angeles
TSD EPA ID: CAD028409019
TSD County: Los Angeles
Waste Category: Other organic solids
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 1
Cat Decode: Not reported
Method Decode: Not reported
Facility County: Los Angeles

envid: 100111716
Year: 2014
GEPaid: CAR000012542
Contact: NAUMAN CHARANIA
Telephone: 5626243208
Mailing Name: Not reported
Mailing Address: 111 W OCEAN BLVD STE 800
Mailing City,St,Zip: LONG BEACH, CA 908020000
Gen County: Los Angeles
TSD EPA ID: CAD028409019
TSD County: Los Angeles
Waste Category: Other organic solids
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.23
Cat Decode: Not reported
Method Decode: Not reported
Facility County: Los Angeles

envid: 100111716
Year: 2014
GEPaid: CAR000012542
Contact: NAUMAN CHARANIA
Telephone: 5626243208
Mailing Name: Not reported
Mailing Address: 111 W OCEAN BLVD STE 800
Mailing City,St,Zip: LONG BEACH, CA 908020000
Gen County: Los Angeles
TSD EPA ID: CAD028409019

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

THUMS LONG BEACH CO (Continued)

100111716

TSD County: Los Angeles
Waste Category: Other inorganic solid waste
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.16
Cat Decode: Not reported
Method Decode: Not reported
Facility County: Los Angeles

envid: 100111716
Year: 2014
GEPaid: CAR000012542
Contact: NAUMAN CHARANIA
Telephone: 5626243208
Mailing Name: Not reported
Mailing Address: 111 W OCEAN BLVD STE 800
Mailing City,St,Zip: LONG BEACH, CA 908020000
Gen County: Los Angeles
TSD EPA ID: CAD028409019
TSD County: Los Angeles
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: 0.29
Cat Decode: Not reported
Method Decode: Not reported
Facility County: Los Angeles

envid: 100111716
Year: 2014
GEPaid: CAR000012542
Contact: NAUMAN CHARANIA
Telephone: 5626243208
Mailing Name: Not reported
Mailing Address: 111 W OCEAN BLVD STE 800
Mailing City,St,Zip: LONG BEACH, CA 908020000
Gen County: Los Angeles
TSD EPA ID: CAT080013352
TSD County: Los Angeles
Waste Category: Waste oil and mixed oil
Disposal Method: Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Tons: 0.494
Cat Decode: Not reported
Method Decode: Not reported
Facility County: Los Angeles

[Click this hyperlink](#) while viewing on your computer to access 56 additional CA_HAZNET: record(s) in the EDR Site Report.

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

5
NNE
< 1/8
0.116 mi.
613 ft.

WCO PORT PROPERTIES LTD
1126 QUEENS WAY
LONG BEACH, CA 90801

RCRA-SQG 1000472965
FINDS CAD982436594
ECHO

Relative:
Lower
Actual:
0 ft.

RCRA-SQG:
Date form received by agency: 11/14/1990
Facility name: WCO PORT PROPERTIES LTD
Facility address: 1126 QUEENS WAY
LONG BEACH, CA 90801
EPA ID: CAD982436594
Mailing address: P O BOX 8
LONG BEACH, CA 90801
Contact: ENVIRONMENTAL MANAGER
Contact address: 1126 QUEENS WAY
LONG BEACH, CA 90801
Contact country: US
Contact telephone: 213-435-3511
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: NOT REQUIRED
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: 415-555-1212
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Municipal
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: LONG BEACH PORT OF
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: 415-555-1212
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Municipal
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

WCO PORT PROPERTIES LTD (Continued)

1000472965

Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
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

Violation Status: No violations found

FINDS:

Registry ID: 110002811823

Environmental Interest/Information System

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

[Click this hyperlink](#) while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid: 1000472965
Registry ID: 110002811823
DFR URL: <http://echo.epa.gov/detailed-facility-report?fid=110002811823>

6
SW
< 1/8
0.123 mi.
648 ft.

TTX COMPANY - POLB
1521 PIER J AVENUE - PACIFIC CONTAINER TERMINAL
LONG BEACH, CA 90802

AST A100425466
N/A

Relative:
Higher
Actual:
17 ft.

AST:

Certified Unified Program Agencies: Not reported
Owner: Tim Guy
Total Gallons: Not reported
CERSID: 10686049
Facility ID: Not reported
Business Name: TTX COMPANY
Phone: (312) 606-3634
Fax: (312) 456-6377
Mailing Address: 1521 Pier J Avenue - Pacific Container Terminal
Mailing Address City: Long Beach
Mailing Address State: CA
Mailing Address Zip Code: 90802
Operator Name: TTX Company
Operator Phone: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

TTX COMPANY - POLB (Continued)

A100425466

Owner Phone: (312) 606-3634
Owner Mail Address: 101 N. Wacker Drive
Owner State: IL
Owner Zip Code: 60606
Owner Country: United States
Property Owner Name: Not reported
Property Owner Phone: Not reported
Property Owner Mailing Address: Not reported
Property Owner City: Not reported
Property Owner Stat : Not reported
Property Owner Zip Code: Not reported
Property Owner Country: Not reported
EPAID: Not reported

7
WNW
1/8-1/4
0.135 mi.
714 ft.

AGREX, INC
965 HARBOR SCENIC DR
LONG BEACH, CA 90802

LUST S102423747
HIST CORTESE N/A

Relative:
Lower
Actual:
14 ft.

LUST:
Lead Agency: LOS ANGELES RWQCB (REGION 4)
Case Type: LUST Cleanup Site
Geo Track: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0603701689
Global Id: T0603701689
Latitude: 33.7529392
Longitude: -118.1953895
Status: Completed - Case Closed
Status Date: 01/13/1989
Case Worker: YR
RB Case Number: 908020034
Local Agency: LONG BEACH, CITY OF
File Location: Not reported
Local Case Number: Not reported
Potential Media Affect: Soil
Potential Contaminants of Concern: Aviation
Site History: Not reported

LUST:
Global Id: T0603701689
Contact Type: Local Agency Caseworker
Contact Name: CARMEN PIRO
Organization Name: LONG BEACH, CITY OF
Address: 2525 GRAND AVE.
City: LONG BEACH
Email: carmen.piro@longbeach.gov
Phone Number: 5625704137

Global Id: T0603701689
Contact Type: Regional Board Caseworker
Contact Name: YUE RONG
Organization Name: LOS ANGELES RWQCB (REGION 4)
Address: 320 W. 4TH ST., SUITE 200
City: Los Angeles
Email: yrong@waterboards.ca.gov
Phone Number: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

AGREX, INC (Continued)

S102423747

LUST:

Global Id: T0603701689
Action Type: Other
Date: 01/01/1988
Action: Leak Reported

LUST:

Global Id: T0603701689
Status: Completed - Case Closed
Status Date: 01/13/1989

Global Id: T0603701689
Status: Open - Case Begin Date
Status Date: 01/01/1988

Global Id: T0603701689
Status: Open - Site Assessment
Status Date: 04/22/1988

LUST REG 4:

Region: 4
Regional Board: 04
County: Los Angeles
Facility Id: 908020034
Status: Case Closed
Substance: 1
Substance Quantity: Not reported
Local Case No: Not reported
Case Type: Soil
Abatement Method Used at the Site: Not reported
Global ID: T0603701689
W Global ID: Not reported
Staff: UNK
Local Agency: 19060
Cross Street: Not reported
Enforcement Type: Not reported
Date Leak Discovered: Not reported
Date Leak First Reported: 1/1/1988
Date Leak Record Entered: 12/31/1986
Date Confirmation Began: Not reported
Date Leak Stopped: Not reported
Date Case Last Changed on Database: 1/13/1989
Date the Case was Closed: 1/13/1989
How Leak Discovered: Not reported
How Leak Stopped: Not reported
Cause of Leak: UNK
Leak Source: UNK
Operator: Not reported
Water System: Not reported
Well Name: Not reported
Approx. Dist To Production Well (ft): 21983.970506957393139395768065
Source of Cleanup Funding: UNK
Preliminary Site Assessment Workplan Submitted: Not reported
Preliminary Site Assessment Began: Not reported
Pollution Characterization Began: 4/22/1988

Map ID
 Direction
 Distance
 Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
 EPA ID Number

AGREX, INC (Continued)

S102423747

Remediation Plan Submitted:	Not reported
Remedial Action Underway:	Not reported
Post Remedial Action Monitoring Began:	Not reported
Enforcement Action Date:	Not reported
Historical Max MTBE Date:	Not reported
Hist Max MTBE Conc in Groundwater:	Not reported
Hist Max MTBE Conc in Soil:	Not reported
Significant Interim Remedial Action Taken:	Not reported
GW Qualifier:	Not reported
Soil Qualifier:	Not reported
Organization:	Not reported
Owner Contact:	Not reported
Responsible Party:	BLANK RP
RP Address:	Not reported
Program:	LUST
Lat/Long:	33.7529392 / -1
Local Agency Staff:	Not reported
Beneficial Use:	Not reported
Priority:	Not reported
Cleanup Fund Id:	Not reported
Suspended:	Not reported
Assigned Name:	Not reported
Summary:	RWQCB RECEIVED A COPY OF LEAK DETECTION PLAN FOR REVIEW AND COMMENT.

HIST CORTESE:

Region:	CORTESE
Facility County Code:	19
Reg By:	LTNKA
Reg Id:	908020034

8
NW
1/8-1/4
0.166 mi.
875 ft.

CATALINA EXPRESS PORT
1046 QUEENS HWY
LONG BEACH, CA

AST A100323374
N/A

Relative:
Higher
Actual:
16 ft.

AST:

Certified Unified Program Agencies:	Long Beach
Owner:	CATALINA CHANNEL EXPRESS
Total Gallons:	8,890
CERSID:	Not reported
Facility ID:	Not reported
Business Name:	Not reported
Phone:	Not reported
Fax:	Not reported
Mailing Address:	Not reported
Mailing Address City:	Not reported
Mailing Address State:	Not reported
Mailing Address Zip Code:	Not reported
Operator Name:	Not reported
Operator Phone:	Not reported
Owner Phone:	Not reported
Owner Mail Address:	Not reported
Owner State:	Not reported
Owner Zip Code:	Not reported
Owner Country:	Not reported
Property Owner Name:	Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

CATALINA EXPRESS PORT (Continued)

A100323374

Property Owner Phone: Not reported
Property Owner Mailing Address: Not reported
Property Owner City: Not reported
Property Owner Stat : Not reported
Property Owner Zip Code: Not reported
Property Owner Country: Not reported
EPAID: Not reported

9
WNW
1/4-1/2
0.335 mi.
1770 ft.

HARBOR PLAZA FACILITIES SITRE IMPROVEMENTS
669 HARBOR PLAZA
LONG BEACH, CA 90802

LUST **S100944596**
CHMIRS **N/A**
HIST CORTESE
NPDES
CIWQS

Relative:
Higher
Actual:
15 ft.

LUST:
Lead Agency: LOS ANGELES RWQCB (REGION 4)
Case Type: LUST Cleanup Site
Geo Track: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0603701703
Global Id: T0603701703
Latitude: 33.7558987
Longitude: -118.204906
Status: Completed - Case Closed
Status Date: 07/19/1996
Case Worker: YR
RB Case Number: 908020198
Local Agency: LONG BEACH, CITY OF
File Location: Not reported
Local Case Number: Not reported
Potential Media Affect: Aquifer used for drinking water supply
Potential Contaminants of Concern: Aviation
Site History: Not reported

LUST:
Global Id: T0603701703
Contact Type: Local Agency Caseworker
Contact Name: CARMEN PIRO
Organization Name: LONG BEACH, CITY OF
Address: 2525 GRAND AVE.
City: LONG BEACH
Email: carmen.piro@longbeach.gov
Phone Number: 5625704137

Global Id: T0603701703
Contact Type: Regional Board Caseworker
Contact Name: YUE RONG
Organization Name: LOS ANGELES RWQCB (REGION 4)
Address: 320 W. 4TH ST., SUITE 200
City: Los Angeles
Email: yrong@waterboards.ca.gov
Phone Number: Not reported

LUST:
Global Id: T0603701703
Action Type: Other
Date: 09/08/1987
Action: Leak Reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

HARBOR PLAZA FACILITIES SITRE IMPROVEMENTS (Continued)

S100944596

LUST:

Global Id: T0603701703
Status: Completed - Case Closed
Status Date: 07/19/1996

Global Id: T0603701703
Status: Open - Case Begin Date
Status Date: 02/02/1987

Global Id: T0603701703
Status: Open - Site Assessment
Status Date: 02/02/1987

LUST REG 4:

Region: 4
Regional Board: 04
County: Los Angeles
Facility Id: 908020198
Status: Case Closed
Substance: 1
Substance Quantity: Not reported
Local Case No: Not reported
Case Type: Groundwater
Abatement Method Used at the Site: Not reported
Global ID: T0603701703
W Global ID: Not reported
Staff: UNK
Local Agency: 19060
Cross Street: PICO AVE
Enforcement Type: Not reported
Date Leak Discovered: Not reported
Date Leak First Reported: 9/8/1987
Date Leak Record Entered: 4/4/1988
Date Confirmation Began: 2/2/1987
Date Leak Stopped: Not reported
Date Case Last Changed on Database: 9/8/1987
Date the Case was Closed: 7/19/1996
How Leak Discovered: Not reported
How Leak Stopped: Not reported
Cause of Leak: Not reported
Leak Source: Not reported
Operator: Not reported
Water System: Not reported
Well Name: Not reported
Approx. Dist To Production Well (ft): 22387.441528591801031931423366
Source of Cleanup Funding: Not reported
Preliminary Site Assessment Workplan Submitted: Not reported
Preliminary Site Assessment Began: Not reported
Pollution Characterization Began: Not reported
Remediation Plan Submitted: Not reported
Remedial Action Underway: Not reported
Post Remedial Action Monitoring Began: Not reported
Enforcement Action Date: Not reported
Historical Max MTBE Date: Not reported
Hist Max MTBE Conc in Groundwater: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

HARBOR PLAZA FACILITIES SITRE IMPROVEMENTS (Continued)

S100944596

Hist Max MTBE Conc in Soil: Not reported
Significant Interim Remedial Action Taken: Not reported
GW Qualifier: Not reported
Soil Qualifier: Not reported
Organization: Not reported
Owner Contact: Not reported
Responsible Party: SEA-LAND SERVICES INC.
RP Address: 669 HARBOR PLAZA, LONG BEACH, CA 90802
Program: LUST
Lat/Long: 33.7524152 / -1
Local Agency Staff: Not reported
Beneficial Use: Not reported
Priority: Not reported
Cleanup Fund Id: Not reported
Suspended: Not reported
Assigned Name: Not reported
Summary: Not reported

CHMIRS:

OES Incident Number: 9-3891
OES notification: 09/15/1999
OES Date: Not reported
OES Time: Not reported
Date Completed: Not reported
Property Use: Not reported
Agency Id Number: Not reported
Agency Incident Number: Not reported
Time Notified: Not reported
Time Completed: Not reported
Surrounding Area: Not reported
Estimated Temperature: Not reported
Property Management: Not reported
More Than Two Substances Involved?: Not reported
Resp Agncy Personel # Of Decontaminated: Not reported
Responding Agency Personel # Of Injuries: Not reported
Responding Agency Personel # Of Fatalities: Not reported
Others Number Of Decontaminated: Not reported
Others Number Of Injuries: Not reported
Others Number Of Fatalities: Not reported
Vehicle Make/year: Not reported
Vehicle License Number: Not reported
Vehicle State: Not reported
Vehicle Id Number: Not reported
CA DOT PUC/ICC Number: Not reported
Company Name: Not reported
Reporting Officer Name/ID: Not reported
Report Date: Not reported
Facility Telephone: Not reported
Waterway Involved: No
Waterway: Not reported
Spill Site: Not reported
Cleanup By: Contractor
Containment: Not reported
What Happened: Not reported
Type: Not reported
Measure: Not reported
Other: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

HARBOR PLAZA FACILITIES SITRE IMPROVEMENTS (Continued)

S100944596

Date/Time:	Not reported
Year:	1999
Agency:	Sea Land Service
Incident Date:	9/15/199912:00:00 AM
Admin Agency:	Long Beach Fire Department
Amount:	Not reported
Contained:	Yes
Site Type:	Service Station
E Date:	Not reported
Substance:	diesel fuel
Gallons:	40
Unknown:	0
Substance #2:	Not reported
Substance #3:	Not reported
Evacuations:	0
Number of Injuries:	0
Number of Fatalities:	0
#1 Pipeline:	Not reported
#2 Pipeline:	Not reported
#3 Pipeline:	Not reported
#1 Vessel >= 300 Tons:	Not reported
#2 Vessel >= 300 Tons:	Not reported
#3 Vessel >= 300 Tons:	Not reported
Evacs:	Not reported
Injuries:	Not reported
Fatals:	Not reported
Comments:	Not reported
Description:	A nozzle fell out of the truck they were fueling. The fuel went onto the ground, he doesn't believe any fuel made it to the water. FOSS Enviromental is on scene doing a site accessment right now.
OES Incident Number:	8-2441
OES notification:	05/26/1998
OES Date:	Not reported
OES Time:	Not reported
Date Completed:	Not reported
Property Use:	Not reported
Agency Id Number:	Not reported
Agency Incident Number:	Not reported
Time Notified:	Not reported
Time Completed:	Not reported
Surrounding Area:	Not reported
Estimated Temperature:	Not reported
Property Management:	Not reported
More Than Two Substances Involved?:	Not reported
Resp Agency Personel # Of Decontaminated:	Not reported
Responding Agency Personel # Of Injuries:	Not reported
Responding Agency Personel # Of Fatalities:	Not reported
Others Number Of Decontaminated:	Not reported
Others Number Of Injuries:	Not reported
Others Number Of Fatalities:	Not reported
Vehicle Make/year:	Not reported
Vehicle License Number:	Not reported
Vehicle State:	Not reported
Vehicle Id Number:	Not reported
CA DOT PUC/ICC Number:	Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

HARBOR PLAZA FACILITIES SITRE IMPROVEMENTS (Continued)

S100944596

Company Name: Not reported
Reporting Officer Name/ID: Not reported
Report Date: Not reported
Facility Telephone: Not reported
Waterway Involved: No
Waterway: Not reported
Spill Site: Not reported
Cleanup By: Contractor
Containment: Not reported
What Happened: Not reported
Type: Not reported
Measure: Not reported
Other: Not reported
Date/Time: Not reported
Year: 1998
Agency: LONG BEACH FD
Incident Date: 5/26/199812:00:00 AM
Admin Agency: Long Beach Fire Department
Amount: Not reported
Contained: Yes
Site Type: Merchant/Business
E Date: Not reported
Substance: UNKNOWN
Gallons: 15-20
Unknown: 0
Substance #2: Not reported
Substance #3: Not reported
Evacuations: 0
Number of Injuries: 0
Number of Fatalities: 0
#1 Pipeline: Not reported
#2 Pipeline: Not reported
#3 Pipeline: Not reported
#1 Vessel >= 300 Tons: Not reported
#2 Vessel >= 300 Tons: Not reported
#3 Vessel >= 300 Tons: Not reported
Evacs: Not reported
Injuries: Not reported
Fataals: Not reported
Comments: Not reported
Description: SHIPPING CONTAINER LEAKING UNKNOWN SUBSTANCE.

HIST CORTESE:

Region: CORTESE
Facility County Code: 19
Reg By: LTNKA
Reg Id: 908020198

NPDES:

Facility Status: Active
NPDES Number: CAS000002
Region: 4
Agency Number: 0
Regulatory Measure ID: 361502
Place ID: Not reported
Order Number: 2009-0009-DWQ

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

HARBOR PLAZA FACILITIES SITRE IMPROVEMENTS (Continued)

S100944596

WDID: 4 19C354666
Regulatory Measure Type: Enrollee
Program Type: Construction
Adoption Date Of Regulatory Measure: Not reported
Effective Date Of Regulatory Measure: 02/26/2009
Termination Date Of Regulatory Measure: Not reported
Expiration Date Of Regulatory Measure: Not reported
Discharge Address: 4801 Airport Plaza Drive
Discharge Name: Port of Long Beach
Discharge City: Long Beach
Discharge State: California
Discharge Zip: 90815
Status: Not reported
Status Date: Not reported
Operator Name: Not reported
Operator Address: Not reported
Operator City: Not reported
Operator State: Not reported
Operator Zip: Not reported

NPDES as of 03/2018:

NPDES Number: Not reported
Status: Not reported
Agency Number: Not reported
Region: 4
Regulatory Measure ID: 361502
Order Number: Not reported
Regulatory Measure Type: Construction
Place ID: Not reported
WDID: 4 19C354666
Program Type: Not reported
Adoption Date Of Regulatory Measure: Not reported
Effective Date Of Regulatory Measure: Not reported
Expiration Date Of Regulatory Measure: Not reported
Termination Date Of Regulatory Measure: Not reported
Discharge Name: Not reported
Discharge Address: Not reported
Discharge City: Not reported
Discharge State: Not reported
Discharge Zip: Not reported
Received Date: 02/23/2009
Processed Date: 02/26/2009
Status: Active
Status Date: 02/26/2009
Place Size: 17
Place Size Unit: Acres
Contact: Doug Sereno
Contact Title: Not reported
Contact Phone: 562-283-7350
Contact Phone Ext: Not reported
Contact Email: Not reported
Operator Name: Port of Long Beach
Operator Address: 4801 Airport Plaza Drive
Operator City: Long Beach
Operator State: California
Operator Zip: 90815
Operator Contact: Suzanne Plezia
Operator Contact Title: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

HARBOR PLAZA FACILITIES SITRE IMPROVEMENTS (Continued)

S100944596

Operator Contact Phone: 562-283-7200
Operator Contact Phone Ext: Not reported
Operator Contact Email: suzanne.plezia@polb.com
Operator Type: City/Town Agency
Developer: Port of Long Beach
Developer Address: 4801 Airport Plaza Drive
Developer City: Long Beach
Developer State: California
Developer Zip: 90815
Developer Contact: Doug Sereno
Developer Contact Title: Not reported
Constype Linear Utility Ind: N
Emergency Phone: Not reported
Emergency Phone Ext: Not reported
Constype Above Ground Ind: N
Constype Below Ground Ind: N
Constype Cable Line Ind: N
Constype Comm Line Ind: N
Constype Commercial Ind: N
Constype Electrical Line Ind: N
Constype Gas Line Ind: N
Constype Industrial Ind: N
Constype Other Description: Not reported
Constype Other Ind: N
Constype Recons Ind: N
Constype Residential Ind: N
Constype Transport Ind: N
Constype Utility Description: Not reported
Constype Utility Ind: N
Constype Water Sewer Ind: N
Dir Discharge Uswater Ind: N
Receiving Water Name: Not reported
Certifier: Suzanne Plezia
Certifier Title: Not reported
Certification Date: 10-DEC-15
Primary Sic: Not reported
Secondary Sic: Not reported
Tertiary Sic: Not reported

NPDES Number: CAS000002
Status: Active
Agency Number: 0
Region: 4
Regulatory Measure ID: 361502
Order Number: 2009-0009-DWQ
Regulatory Measure Type: Enrollee
Place ID: Not reported
WDID: 4 19C354666
Program Type: Construction
Adoption Date Of Regulatory Measure: Not reported
Effective Date Of Regulatory Measure: 02/26/2009
Expiration Date Of Regulatory Measure: Not reported
Termination Date Of Regulatory Measure: Not reported
Discharge Name: Port of Long Beach
Discharge Address: 4801 Airport Plaza Drive
Discharge City: Long Beach
Discharge State: California

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

HARBOR PLAZA FACILITIES SITRE IMPROVEMENTS (Continued)

S100944596

Discharge Zip:	90815
Received Date:	Not reported
Processed Date:	Not reported
Status:	Not reported
Status Date:	Not reported
Place Size:	Not reported
Place Size Unit:	Not reported
Contact:	Not reported
Contact Title:	Not reported
Contact Phone:	Not reported
Contact Phone Ext:	Not reported
Contact Email:	Not reported
Operator Name:	Not reported
Operator Address:	Not reported
Operator City:	Not reported
Operator State:	Not reported
Operator Zip:	Not reported
Operator Contact:	Not reported
Operator Contact Title:	Not reported
Operator Contact Phone:	Not reported
Operator Contact Phone Ext:	Not reported
Operator Contact Email:	Not reported
Operator Type:	Not reported
Developer:	Not reported
Developer Address:	Not reported
Developer City:	Not reported
Developer State:	Not reported
Developer Zip:	Not reported
Developer Contact:	Not reported
Developer Contact Title:	Not reported
Constype Linear Utility Ind:	Not reported
Emergency Phone:	Not reported
Emergency Phone Ext:	Not reported
Constype Above Ground Ind:	Not reported
Constype Below Ground Ind:	Not reported
Constype Cable Line Ind:	Not reported
Constype Comm Line Ind:	Not reported
Constype Commercial Ind:	Not reported
Constype Electrical Line Ind:	Not reported
Constype Gas Line Ind:	Not reported
Constype Industrial Ind:	Not reported
Constype Other Description:	Not reported
Constype Other Ind:	Not reported
Constype Recons Ind:	Not reported
Constype Residential Ind:	Not reported
Constype Transport Ind:	Not reported
Constype Utility Description:	Not reported
Constype Utility Ind:	Not reported
Constype Water Sewer Ind:	Not reported
Dir Discharge Uswater Ind:	Not reported
Receiving Water Name:	Not reported
Certifier:	Not reported
Certifier Title:	Not reported
Certification Date:	Not reported
Primary Sic:	Not reported
Secondary Sic:	Not reported
Tertiary Sic:	Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

HARBOR PLAZA FACILITIES SITRE IMPROVEMENTS (Continued)

S100944596

Facility Status:	Not reported
NPDES Number:	Not reported
Region:	Not reported
Agency Number:	Not reported
Regulatory Measure ID:	Not reported
Place ID:	Not reported
Order Number:	Not reported
WDID:	4 19C354666
Regulatory Measure Type:	Construction
Program Type:	Not reported
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Discharge Address:	Not reported
Discharge Name:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported
Status:	Active
Status Date:	02/26/2009
Operator Name:	Port of Long Beach
Operator Address:	4801 Airport Plaza Drive
Operator City:	Long Beach
Operator State:	California
Operator Zip:	90815
NPDES as of 03/2018:	
NPDES Number:	Not reported
Status:	Not reported
Agency Number:	Not reported
Region:	4
Regulatory Measure ID:	361502
Order Number:	Not reported
Regulatory Measure Type:	Construction
Place ID:	Not reported
WDID:	4 19C354666
Program Type:	Not reported
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	Not reported
Discharge Address:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported
Received Date:	02/23/2009
Processed Date:	02/26/2009
Status:	Active
Status Date:	02/26/2009
Place Size:	17
Place Size Unit:	Acres
Contact:	Doug Sereno
Contact Title:	Not reported
Contact Phone:	562-283-7350
Contact Phone Ext:	Not reported
Contact Email:	Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

HARBOR PLAZA FACILITIES SITRE IMPROVEMENTS (Continued)

S100944596

Operator Name: Port of Long Beach
Operator Address: 4801 Airport Plaza Drive
Operator City: Long Beach
Operator State: California
Operator Zip: 90815
Operator Contact: Suzanne Plezia
Operator Contact Title: Not reported
Operator Contact Phone: 562-283-7200
Operator Contact Phone Ext: Not reported
Operator Contact Email: suzanne.plezia@polb.com
Operator Type: City/Town Agency
Developer: Port of Long Beach
Developer Address: 4801 Airport Plaza Drive
Developer City: Long Beach
Developer State: California
Developer Zip: 90815
Developer Contact: Doug Sereno
Developer Contact Title: Not reported
Constype Linear Utility Ind: N
Emergency Phone: Not reported
Emergency Phone Ext: Not reported
Constype Above Ground Ind: N
Constype Below Ground Ind: N
Constype Cable Line Ind: N
Constype Comm Line Ind: N
Constype Commercial Ind: N
Constype Electrical Line Ind: N
Constype Gas Line Ind: N
Constype Industrial Ind: N
Constype Other Description: Not reported
Constype Other Ind: N
Constype Recons Ind: N
Constype Residential Ind: N
Constype Transport Ind: N
Constype Utility Description: Not reported
Constype Utility Ind: N
Constype Water Sewer Ind: N
Dir Discharge Uswater Ind: N
Receiving Water Name: Not reported
Certifier: Suzanne Plezia
Certifier Title: Not reported
Certification Date: 10-DEC-15
Primary Sic: Not reported
Secondary Sic: Not reported
Tertiary Sic: Not reported

NPDES Number: CAS000002
Status: Active
Agency Number: 0
Region: 4
Regulatory Measure ID: 361502
Order Number: 2009-0009-DWQ
Regulatory Measure Type: Enrollee
Place ID: Not reported
WDID: 4 19C354666
Program Type: Construction
Adoption Date Of Regulatory Measure: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

HARBOR PLAZA FACILITIES SITRE IMPROVEMENTS (Continued)

S100944596

Effective Date Of Regulatory Measure: 02/26/2009
Expiration Date Of Regulatory Measure: Not reported
Termination Date Of Regulatory Measure: Not reported
Discharge Name: Port of Long Beach
Discharge Address: 4801 Airport Plaza Drive
Discharge City: Long Beach
Discharge State: California
Discharge Zip: 90815
Received Date: Not reported
Processed Date: Not reported
Status: Not reported
Status Date: Not reported
Place Size: Not reported
Place Size Unit: Not reported
Contact: Not reported
Contact Title: Not reported
Contact Phone: Not reported
Contact Phone Ext: Not reported
Contact Email: Not reported
Operator Name: Not reported
Operator Address: Not reported
Operator City: Not reported
Operator State: Not reported
Operator Zip: Not reported
Operator Contact: Not reported
Operator Contact Title: Not reported
Operator Contact Phone: Not reported
Operator Contact Phone Ext: Not reported
Operator Contact Email: Not reported
Operator Type: Not reported
Developer: Not reported
Developer Address: Not reported
Developer City: Not reported
Developer State: Not reported
Developer Zip: Not reported
Developer Contact: Not reported
Developer Contact Title: Not reported
Constype Linear Utility Ind: Not reported
Emergency Phone: Not reported
Emergency Phone Ext: Not reported
Constype Above Ground Ind: Not reported
Constype Below Ground Ind: Not reported
Constype Cable Line Ind: Not reported
Constype Comm Line Ind: Not reported
Constype Commercial Ind: Not reported
Constype Electrical Line Ind: Not reported
Constype Gas Line Ind: Not reported
Constype Industrial Ind: Not reported
Constype Other Description: Not reported
Constype Other Ind: Not reported
Constype Recons Ind: Not reported
Constype Residential Ind: Not reported
Constype Transport Ind: Not reported
Constype Utility Description: Not reported
Constype Utility Ind: Not reported
Constype Water Sewer Ind: Not reported
Dir Discharge Uswater Ind: Not reported

Map ID
 Direction
 Distance
 Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
 EPA ID Number

HARBOR PLAZA FACILITIES SITRE IMPROVEMENTS (Continued)

S100944596

Receiving Water Name: Not reported
 Certifier: Not reported
 Certifier Title: Not reported
 Certification Date: Not reported
 Primary Sic: Not reported
 Secondary Sic: Not reported
 Tertiary Sic: Not reported

CIWQS:

Agency: Port of Long Beach
 Agency Address: 4801 Airport Plaza Drive, Long Beach, CA 90815
 Place/Project Type: Construction
 SIC/NAICS: Not reported
 Region: 4
 Program: CONSTW
 Regulatory Measure Status: Active
 Regulatory Measure Type: Storm water construction
 Order Number: 2009-0009-DWQ
 WDID: 4 19C354666
 NPDES Number: CAS000002
 Adoption Date: Not reported
 Effective Date: 02/26/2009
 Termination Date: Not reported
 Expiration/Review Date: Not reported
 Design Flow: Not reported
 Major/Minor: Not reported
 Complexity: Not reported
 TTWQ: Not reported
 Enforcement Actions within 5 years: 0
 Violations within 5 years: 0
 Latitude: 33.75351
 Longitude: -118.19811

C10
South
1/4-1/2
0.355 mi.
1877 ft.

SOUTHLAND SITE #14258
1281 PIER J B211A
LONG BEACH, CA 90802
Site 1 of 3 in cluster C

HIST CORTESE **S105024541**
N/A

Relative:
Higher
Actual:
20 ft.

HIST CORTESE:
 Region: CORTESE
 Facility County Code: 19
 Reg By: LTNKA
 Reg Id: 2379

MAP FINDINGS

Map ID
 Direction
 Distance
 Elevation

Site

Database(s)

EDR ID Number
 EPA ID Number

C11
South
1/4-1/2
0.355 mi.
1877 ft.

GOLDEN WEST REFINERY
1281 PIER J B211A
LONG BEACH, CA 90802
Site 2 of 3 in cluster C

HIST CORTESE **S105024540**
N/A

Relative: HIST CORTESE:
Higher Region: CORTESE
Actual: Facility County Code: 19
20 ft. Reg By: LTNKA
 Reg Id: 908020298

C12
South
1/4-1/2
0.355 mi.
1877 ft.

GOLDEN WEST REFINERY
1281 PIER J AVENUE B211A
LONG BEACH, CA 90802
Site 3 of 3 in cluster C

LUST **S102430841**
N/A

Relative: LUST:
Higher Lead Agency: LONG BEACH, CITY OF
Actual: Case Type: LUST Cleanup Site
20 ft. Geo Track: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0603701712
 Global Id: T0603701712
 Latitude: 33.7481142
 Longitude: -118.1908963
 Status: Completed - Case Closed
 Status Date: 12/19/2007
 Case Worker: CP
 RB Case Number: 908020298
 Local Agency: LONG BEACH, CITY OF
 File Location: Not reported
 Local Case Number: Not reported
 Potential Media Affect: Soil
 Potential Contaminants of Concern: Heating Oil / Fuel Oil
 Site History: Not reported

LUST:
 Global Id: T0603701712
 Contact Type: Local Agency Caseworker
 Contact Name: CARMEN PIRO
 Organization Name: LONG BEACH, CITY OF
 Address: 2525 GRAND AVE.
 City: LONG BEACH
 Email: carmen.piro@longbeach.gov
 Phone Number: 5625704137

Global Id: T0603701712
 Contact Type: Regional Board Caseworker
 Contact Name: YUE RONG
 Organization Name: LOS ANGELES RWQCB (REGION 4)
 Address: 320 W. 4TH ST., SUITE 200
 City: Los Angeles
 Email: yrong@waterboards.ca.gov
 Phone Number: Not reported

LUST:
 Global Id: T0603701712
 Action Type: Other
 Date: 01/27/1988
 Action: Leak Discovery

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

GOLDEN WEST REFINERY (Continued)

S102430841

Global Id: T0603701712
Action Type: Other
Date: 02/18/1988
Action: Leak Reported

LUST:

Global Id: T0603701712
Status: Completed - Case Closed
Status Date: 12/19/2007

Global Id: T0603701712
Status: Open - Case Begin Date
Status Date: 01/27/1988

Global Id: T0603701712
Status: Open - Site Assessment
Status Date: 02/18/1988

LUST REG 4:

Region: 4
Regional Board: 04
County: Los Angeles
Facility Id: 908020298
Status: Leak being confirmed
Substance: Boiler Fuel
Substance Quantity: Not reported
Local Case No: Not reported
Case Type: Soil
Abatement Method Used at the Site: Not reported
Global ID: T0603701712
W Global ID: Not reported
Staff: UNK
Local Agency: 19060
Cross Street: HARBOR SCENIC WAY
Enforcement Type: Not reported
Date Leak Discovered: 1/27/1988
Date Leak First Reported: 2/18/1988
Date Leak Record Entered: 2/26/1988
Date Confirmation Began: 2/18/1988
Date Leak Stopped: Not reported
Date Case Last Changed on Database: 7/14/1988
Date the Case was Closed: Not reported
How Leak Discovered: Not reported
How Leak Stopped: Not reported
Cause of Leak: Not reported
Leak Source: Not reported
Operator: Not reported
Water System: Not reported
Well Name: Not reported
Approx. Dist To Production Well (ft): 22608.415636030924850605837198
Source of Cleanup Funding: Not reported
Preliminary Site Assessment Workplan Submitted: Not reported
Preliminary Site Assessment Began: Not reported
Pollution Characterization Began: Not reported
Remediation Plan Submitted: Not reported

Map ID
 Direction
 Distance
 Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
 EPA ID Number

GOLDEN WEST REFINERY (Continued)

S102430841

Remedial Action Underway:	Not reported
Post Remedial Action Monitoring Began:	Not reported
Enforcement Action Date:	Not reported
Historical Max MTBE Date:	Not reported
Hist Max MTBE Conc in Groundwater:	Not reported
Hist Max MTBE Conc in Soil:	Not reported
Significant Interim Remedial Action Taken:	Not reported
GW Qualifier:	Not reported
Soil Qualifier:	Not reported
Organization:	Not reported
Owner Contact:	Not reported
Responsible Party:	GOLDEN WEST REFINERY
RP Address:	13539 E. FOSTER ROAD, SANTA FE SPRINGS, CA 90670
Program:	LUST
Lat/Long:	33.7481142 / -1
Local Agency Staff:	Not reported
Beneficial Use:	Not reported
Priority:	Not reported
Cleanup Fund Id:	Not reported
Suspended:	Not reported
Assigned Name:	Not reported
Summary:	PIPELINE LEAK

D13
SSE
1/4-1/2
0.461 mi.
2435 ft.

PIER 4
1521 HARBOR SCENIC DR
LONG BEACH, CA 90802

LUST **S104406335**
SWEEPS UST **N/A**

Site 1 of 2 in cluster D

Relative:
Higher
Actual:
20 ft.

Relative:	LUST REG 4:	
Higher	Region:	4
Actual:	Regional Board:	04
20 ft.	County:	Los Angeles
	Facility Id:	908020152
	Status:	Case Closed
	Substance:	Gasoline
	Substance Quantity:	Not reported
	Local Case No:	Not reported
	Case Type:	Groundwater
	Abatement Method Used at the Site:	Excavate and Dispose
	Global ID:	T0603701699
	W Global ID:	Not reported
	Staff:	UNK
	Local Agency:	19060
	Cross Street:	Not reported
	Enforcement Type:	Not reported
	Date Leak Discovered:	Not reported
	Date Leak First Reported:	10/16/1989
	Date Leak Record Entered:	10/25/1989
	Date Confirmation Began:	10/16/1989
	Date Leak Stopped:	Not reported
	Date Case Last Changed on Database:	10/25/1989
	Date the Case was Closed:	6/29/1994
	How Leak Discovered:	Not reported
	How Leak Stopped:	Not reported
	Cause of Leak:	Not reported
	Leak Source:	Not reported
	Operator:	Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

PIER 4 (Continued)

S104406335

Water System: Not reported
Well Name: Not reported
Approx. Dist To Production Well (ft): 24172.657520660365176141484631
Source of Cleanup Funding: Not reported
Preliminary Site Assessment Workplan Submitted: Not reported
Preliminary Site Assessment Began: Not reported
Pollution Characterization Began: Not reported
Remediation Plan Submitted: Not reported
Remedial Action Underway: Not reported
Post Remedial Action Monitoring Began: Not reported
Enforcement Action Date: Not reported
Historical Max MTBE Date: Not reported
Hist Max MTBE Conc in Groundwater: Not reported
Hist Max MTBE Conc in Soil: Not reported
Significant Interim Remedial Action Taken: Yes
GW Qualifier: Not reported
Soil Qualifier: Not reported
Organization: Not reported
Owner Contact: Not reported
Responsible Party: BLANK RP
RP Address: Not reported
Program: LUST
Lat/Long: 33.7414874 / -1
Local Agency Staff: Not reported
Beneficial Use: Not reported
Priority: Not reported
Cleanup Fund Id: Not reported
Suspended: Not reported
Assigned Name: Not reported
Summary: Not reported

SWEEPS UST:

Status: Not reported
Comp Number: 599
Number: Not reported
Board Of Equalization: 44-013607
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Owner Tank Id: Not reported
SWRCB Tank Id: 19-060-000599-000001
Tank Status: Not reported
Capacity: 5000
Active Date: Not reported
Tank Use: M.V. FUEL
STG: PRODUCT
Content: REG UNLEADED
Number Of Tanks: 2

Status: Not reported
Comp Number: 599
Number: Not reported
Board Of Equalization: 44-013607
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Owner Tank Id: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

PIER 4 (Continued)

S104406335

SWRCB Tank Id: 19-060-000599-000002
Tank Status: Not reported
Capacity: 10000
Active Date: Not reported
Tank Use: M.V. FUEL
STG: PRODUCT
Content: DIESEL
Number Of Tanks: Not reported

**D14
SSE
1/4-1/2
0.461 mi.
2435 ft.**

**MAERSK LINE AGENCY
1521 HARBOR SCENIC
LONG BEACH, CA 90802
Site 2 of 2 in cluster D**

**LUST S103632376
HIST CORTESE N/A**

**Relative:
Higher
Actual:
20 ft.**

LUST:
Lead Agency: LOS ANGELES RWQCB (REGION 4)
Case Type: LUST Cleanup Site
Geo Track: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0603701699
Global Id: T0603701699
Latitude: 33.7500708
Longitude: -118.1919833
Status: Completed - Case Closed
Status Date: 06/29/1994
Case Worker: YR
RB Case Number: 908020152
Local Agency: LONG BEACH, CITY OF
File Location: Not reported
Local Case Number: Not reported
Potential Media Affect: Aquifer used for drinking water supply
Potential Contaminants of Concern: Gasoline
Site History: Not reported

LUST:
Global Id: T0603701699
Contact Type: Local Agency Caseworker
Contact Name: CARMEN PIRO
Organization Name: LONG BEACH, CITY OF
Address: 2525 GRAND AVE.
City: LONG BEACH
Email: carmen.piro@longbeach.gov
Phone Number: 5625704137

Global Id: T0603701699
Contact Type: Regional Board Caseworker
Contact Name: YUE RONG
Organization Name: LOS ANGELES RWQCB (REGION 4)
Address: 320 W. 4TH ST., SUITE 200
City: Los Angeles
Email: yrong@waterboards.ca.gov
Phone Number: Not reported

LUST:
Global Id: T0603701699
Action Type: Other
Date: 10/16/1989
Action: Leak Reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

MAERSK LINE AGENCY (Continued)

S103632376

LUST:

Global Id: T0603701699
Status: Completed - Case Closed
Status Date: 06/29/1994

Global Id: T0603701699
Status: Open - Case Begin Date
Status Date: 10/16/1989

Global Id: T0603701699
Status: Open - Site Assessment
Status Date: 10/16/1989

HIST CORTESE:

Region: CORTESE
Facility County Code: 19
Reg By: LTNKA
Reg Id: 908020152

15
South
1/2-1
0.649 mi.
3428 ft.

**CONTANDA TERMINALS LLC (FORMER WESTWAY TERMINAL CO
1395 PIER J AVENUE
LONG BEACH, CA 90802**

**ENVIROSTOR
VCP
EMI**

**S103995745
N/A**

Relative:
Higher
Actual:
15 ft.

ENVIROSTOR:

Facility ID: 19510064
Status: Active
Status Date: 06/30/2014
Site Code: 400697
Site Type: Voluntary Cleanup
Site Type Detailed: Voluntary Cleanup
Acres: 4.8
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Safouh Sayed
Supervisor: Robert Senga
Division Branch: Cleanup Cypress
Assembly: 70
Senate: 33
Special Program: Voluntary Cleanup Program
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: Responsible Party
Latitude: 33.74055
Longitude: -118.1927
APN: NONE SPECIFIED
Past Use: PORT
Potential COC: * OXYGENATED SOLVENTS * TANK BOTTOM WASTES * UNSPECIFIED ACID SOLUTION * UNSPECIFIED ALKALINE SOLUTIONS * UNSPECIFIED SOLVENT MIXTURES
Confirmed COC: NONE SPECIFIED
Potential Description: AQUIC
Alias Name: PIER J,BERTH 242
Alias Type: Alternate Name

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

CONTANDA TERMINALS LLC (FORMER WESTWAY TERMINAL COMPANY INC. (Continued)

S103995745

Alias Name: PORT OF LONG BEACH, PIER J
Alias Type: Alternate Name
Alias Name: WESTWAY/PIER J
Alias Type: Alternate Name
Alias Name: Westway Terminal Company Inc./Pier J
Alias Type: Alternate Name
Alias Name: 110033620080
Alias Type: EPA (FRS #)
Alias Name: 400683
Alias Type: Project Code (Site Code)
Alias Name: 400697
Alias Type: Project Code (Site Code)
Alias Name: 19510064
Alias Type: Envirostor ID Number

Completed Info:

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/18/2009
Comments: Complete

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/22/2013
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 12/04/2015
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/01/2011
Comments: Complete

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/17/2016
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 02/02/2013
Comments: Complete

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 11/30/2007
Comments: The Annual Cost Estimate letter was sent on November 8, 2007

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

CONTANDA TERMINALS LLC (FORMER WESTWAY TERMINAL COMPANY INC. (Continued))

S103995745

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/04/2014
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Voluntary Cleanup Agreement
Completed Date: 04/21/1998
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 12/18/2017
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Amendment - Order/Agreement
Completed Date: 10/21/2002
Comments: Amendment to Scope of Work for Voluntary Cleanup Agreement HSA 97/98-050 has been completed. The amended order will include an operation and maintenance section.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 10/14/2010
Comments: Complete

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 08/21/1998
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Completion Report
Completed Date: 05/03/2001
Comments: The site was remediated. The removal action included excavation and treatment of soil by onsite thermal desorption.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Workplan
Completed Date: 06/30/2000
Comments: The objective of this project is to remediate the site by treatment of contaminated soils. The chemicals of concern are phthalate (BEHP) and tetrachoroethene (PCE)

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation / Feasibility Study
Completed Date: 04/06/2000

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

CONTANDA TERMINALS LLC (FORMER WESTWAY TERMINAL COMPANY INC. (Continued))

S103995745

Comments: The RI revealed the presence of phthalate (BEHP) and tetrachloroethene (PCE) in soil. The project involves remediation of contaminated soils in the chemical facility and in the caustic solvent storage area. The results of the feasibility study analysis showed that the preferred remedial alternative is excavation and onsite thermal desorption of the impacted materials.

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
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

VCP:

Facility ID: 19510064
Site Type: Voluntary Cleanup
Site Type Detail: Voluntary Cleanup
Site Mgmt. Req.: NONE SPECIFIED
Acres: 4.8
National Priorities List: NO
Cleanup Oversight Agencies: SMBRP
Lead Agency: SMBRP
Lead Agency Description: DTSC - Site Cleanup Program
Project Manager: Safouh Sayed
Supervisor: Robert Senga
Division Branch: Cleanup Cypress
Site Code: 400697
Assembly: 70
Senate: 33
Special Programs Code: Voluntary Cleanup Program
Status: Active
Status Date: 06/30/2014
Restricted Use: NO
Funding: Responsible Party
Lat/Long: 33.74055 / -118.1927
APN: NONE SPECIFIED
Past Use: PORT
Potential COC: 10067, 10185, 10193, 10194, 10198
Confirmed COC: NONE SPECIFIED
Potential Description: AQUIC
Alias Name: PIER J,BERTH 242
Alias Type: Alternate Name
Alias Name: PORT OF LONG BEACH, PIER J
Alias Type: Alternate Name
Alias Name: WESTWAY/PIER J
Alias Type: Alternate Name
Alias Name: Westway Terminal Company Inc./Pier J
Alias Type: Alternate Name
Alias Name: 110033620080
Alias Type: EPA (FRS #)
Alias Name: 400683
Alias Type: Project Code (Site Code)
Alias Name: 400697

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

CONTANDA TERMINALS LLC (FORMER WESTWAY TERMINAL COMPANY INC. (Continued))

S103995745

Alias Type: Project Code (Site Code)
Alias Name: 19510064
Alias Type: Envirostor ID Number

Completed Info:

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/18/2009
Comments: Complete

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/22/2013
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 12/04/2015
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/01/2011
Comments: Complete

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/17/2016
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 02/02/2013
Comments: Complete

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 11/30/2007
Comments: The Annual Cost Estimate letter was sent on November 8, 2007

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/04/2014
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Voluntary Cleanup Agreement
Completed Date: 04/21/1998
Comments: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

CONTANDA TERMINALS LLC (FORMER WESTWAY TERMINAL COMPANY INC. (Continued))

S103995745

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 12/18/2017
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Amendment - Order/Agreement
Completed Date: 10/21/2002
Comments: Amendment to Scope of Work for Voluntary Cleanup Agreement HSA 97/98-050 has been completed. The amended order will include an operation and maintenance section.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 10/14/2010
Comments: Complete

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 08/21/1998
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Completion Report
Completed Date: 05/03/2001
Comments: The site was remediated. The removal action included excavation and treatment of soil by onsite thermal desorption.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Workplan
Completed Date: 06/30/2000
Comments: The objective of this project is to remediate the site by treatment of contaminated soils. The chemicals of concern are phthalate (BEHP) and tetrachloroethene (PCE)

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation / Feasibility Study
Completed Date: 04/06/2000
Comments: The RI revealed the presence of phthalate (BEHP) and tetrachloroethene (PCE) in soil. The project involves remediation of contaminated soils in the chemical facility and in the caustic solvent storage area. The results of the feasibility study analysis showed that the preferred remedial alternative is excavation and onsite thermal desorption of the impacted materials.

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

CONTANDA TERMINALS LLC (FORMER WESTWAY TERMINAL COMPANY INC. (Continued))

S103995745

Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

EMI:

Year: 1987
County Code: 19
Air Basin: SC
Facility ID: 23397
Air District Name: SC
SIC Code: 4491
Air District Name: SOUTH COAST AQMD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 11
Reactive Organic Gases Tons/Yr: 11
Carbon Monoxide Emissions Tons/Yr: 0
NOX - Oxides of Nitrogen Tons/Yr: 1
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers and Smlr Tons/Yr:0

Year: 1990
County Code: 19
Air Basin: SC
Facility ID: 23397
Air District Name: SC
SIC Code: 4491
Air District Name: SOUTH COAST AQMD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 14
Reactive Organic Gases Tons/Yr: 13
Carbon Monoxide Emissions Tons/Yr: 0
NOX - Oxides of Nitrogen Tons/Yr: 0
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers and Smlr Tons/Yr:0

Year: 1995
County Code: 19
Air Basin: SC
Facility ID: 87638
Air District Name: SC
SIC Code: 4226
Air District Name: SOUTH COAST AQMD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 12
Reactive Organic Gases Tons/Yr: 7
Carbon Monoxide Emissions Tons/Yr: 0
NOX - Oxides of Nitrogen Tons/Yr: 0
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers and Smlr Tons/Yr:0

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

CONTANDA TERMINALS LLC (FORMER WESTWAY TERMINAL COMPANY INC. (Continued))

S103995745

Year: 1996
County Code: 19
Air Basin: SC
Facility ID: 87638
Air District Name: SC
SIC Code: 4226
Air District Name: SOUTH COAST AQMD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 12
Reactive Organic Gases Tons/Yr: 7
Carbon Monoxide Emissions Tons/Yr: 0
NOX - Oxides of Nitrogen Tons/Yr: 0
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers and Smlr Tons/Yr:0

Year: 1997
County Code: 19
Air Basin: SC
Facility ID: 87638
Air District Name: SC
SIC Code: 4226
Air District Name: SOUTH COAST AQMD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 12
Reactive Organic Gases Tons/Yr: 7
Carbon Monoxide Emissions Tons/Yr: 0
NOX - Oxides of Nitrogen Tons/Yr: 0
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers and Smlr Tons/Yr:0

Year: 1998
County Code: 19
Air Basin: SC
Facility ID: 87638
Air District Name: SC
SIC Code: 4226
Air District Name: SOUTH COAST AQMD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 12
Reactive Organic Gases Tons/Yr: 7
Carbon Monoxide Emissions Tons/Yr: 0
NOX - Oxides of Nitrogen Tons/Yr: 0
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers and Smlr Tons/Yr:0

Year: 1999
County Code: 19
Air Basin: SC
Facility ID: 87638
Air District Name: SC
SIC Code: 4226

Map ID
 Direction
 Distance
 Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
 EPA ID Number

CONTANDA TERMINALS LLC (FORMER WESTWAY TERMINAL COMPANY INC. (Continued))

S103995745

Air District Name: SOUTH COAST AQMD
 Community Health Air Pollution Info System: Not reported
 Consolidated Emission Reporting Rule: Not reported
 Total Organic Hydrocarbon Gases Tons/Yr: 12
 Reactive Organic Gases Tons/Yr: 7
 Carbon Monoxide Emissions Tons/Yr: 0
 NOX - Oxides of Nitrogen Tons/Yr: 0
 SOX - Oxides of Sulphur Tons/Yr: 0
 Particulate Matter Tons/Yr: 0
 Part. Matter 10 Micrometers and Smlr Tons/Yr:0

Year: 2000
 County Code: 19
 Air Basin: SC
 Facility ID: 87638
 Air District Name: SC
 SIC Code: 4226
 Air District Name: SOUTH COAST AQMD
 Community Health Air Pollution Info System: Not reported
 Consolidated Emission Reporting Rule: Not reported
 Total Organic Hydrocarbon Gases Tons/Yr: 12
 Reactive Organic Gases Tons/Yr: 7
 Carbon Monoxide Emissions Tons/Yr: 0
 NOX - Oxides of Nitrogen Tons/Yr: 0
 SOX - Oxides of Sulphur Tons/Yr: 0
 Particulate Matter Tons/Yr: 0
 Part. Matter 10 Micrometers and Smlr Tons/Yr:0

Year: 2001
 County Code: 19
 Air Basin: SC
 Facility ID: 87638
 Air District Name: SC
 SIC Code: 4226
 Air District Name: SOUTH COAST AQMD
 Community Health Air Pollution Info System: Not reported
 Consolidated Emission Reporting Rule: Not reported
 Total Organic Hydrocarbon Gases Tons/Yr: 12
 Reactive Organic Gases Tons/Yr: 7
 Carbon Monoxide Emissions Tons/Yr: 0
 NOX - Oxides of Nitrogen Tons/Yr: 0
 SOX - Oxides of Sulphur Tons/Yr: 0
 Particulate Matter Tons/Yr: 0
 Part. Matter 10 Micrometers and Smlr Tons/Yr:0

16
 WNW
 1/2-1
 0.706 mi.
 3729 ft.
 Relative:
 Higher
 Actual:
 20 ft.

**PORT OF LONG BEACH
 925 HARBOR PLAZA
 LONG BEACH, CA 90802**

ENVIROSTOR 1004442742
 VCP N/A
 HIST UST
 FTTS
 HIST FTTS
 US AIRS
 EMI
 HAZNET
 NPDES
 CIWQS

ENVIROSTOR:
 Facility ID: 60001625

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

PORT OF LONG BEACH (Continued)

1004442742

Status: Active
Status Date: 04/26/2018
Site Code: 401256
Site Type: Voluntary Cleanup
Site Type Detailed: Voluntary Cleanup
Acres: 45
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: H. Alan Hsu
Supervisor: Eileen Mananian
Division Branch: Cleanup Cypress
Assembly: 54, 70
Senate: 33
Special Program: Voluntary Cleanup Program
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: Responsible Party
Latitude: 33.75581
Longitude: -118.2025
APN: NONE SPECIFIED
Past Use: FUEL TERMINALS, HAZARDOUS WASTE STORAGE - TANKS/CONTAINERS, OFFICE BUILDING, PAINT/DEPAINT FACILITY, PESTICIDE/INSECTIDE/RODENTICIDE STORAGE, PORT, SHIPYARD - TERMINAL
Potential COC: DDT Lead Mercury (elemental Polychlorinated biphenyls (PCBs Polynuclear aromatic hydrocarbons (PAHs Silver Copper and compounds Zinc
Confirmed COC: DDT Lead Mercury (elemental Polynuclear aromatic hydrocarbons (PAHs Copper and compounds Zinc Polychlorinated biphenyls (PCBs Silver
Potential Description: SOIL
Alias Name: 401256
Alias Type: Project Code (Site Code)
Alias Name: 60001625
Alias Type: Envirostor ID Number
Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Completion Report
Completed Date: 06/26/2013
Comments: The remediation is complete.
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Plan Amendment
Completed Date: 11/01/2012
Comments: Not reported
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 01/11/2017
Comments: A revised version has been done requested by the Port of Long Beach.
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Certification
Completed Date: 06/26/2013

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

PORT OF LONG BEACH (Continued)

1004442742

Comments: Final site certification.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/12/2014
Comments: FY 14/15 Annual Oversight Cost Estimate Letter sent to RP.

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
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

VCP:

Facility ID: 60001625
Site Type: Voluntary Cleanup
Site Type Detail: Voluntary Cleanup
Site Mgmt. Req.: NONE SPECIFIED
Acres: 45
National Priorities List: NO
Cleanup Oversight Agencies: SMBRP
Lead Agency: SMBRP
Lead Agency Description: DTSC - Site Cleanup Program
Project Manager: H. Alan Hsu
Supervisor: Eileen Mananian
Division Branch: Cleanup Cypress
Site Code: 401256
Assembly: 54, 70
Senate: 33
Special Programs Code: Voluntary Cleanup Program
Status: Active
Status Date: 04/26/2018
Restricted Use: NO
Funding: Responsible Party
Lat/Long: 33.75581 / -118.2025
APN: NONE SPECIFIED
Past Use: FUEL TERMINALS, HAZARDOUS WASTE STORAGE - TANKS/CONTAINERS, OFFICE BUILDING, PAINT/DEPAINT FACILITY, PESTICIDE/INSECTIDE/RODENTICIDE STORAGE, PORT, SHIPYARD - TERMINAL

Potential COC: 30008, 30013, 30014, 30018, 30019, 30021, 30156, 30594
Confirmed COC: 30008,30013,30014,30019,30156,30594,30018,30021
Potential Description: SOIL
Alias Name: 401256
Alias Type: Project Code (Site Code)
Alias Name: 60001625
Alias Type: Envirostor ID Number

Completed Info:

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Completion Report
Completed Date: 06/26/2013

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

PORT OF LONG BEACH (Continued)

1004442742

Comments: The remediation is complete.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Plan Amendment
Completed Date: 11/01/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 01/11/2017
Comments: A revised version has been done requested by the Port of Long Beach.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Certification
Completed Date: 06/26/2013
Comments: Final site certification.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/12/2014
Comments: FY 14/15 Annual Oversight Cost Estimate Letter sent to RP.

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
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

HIST UST:

File Number: 00027D9B
URL: <http://geotracker.waterboards.ca.gov/ustpdfs/pdf/00027D9B.pdf>
Region: Not reported
Facility ID: Not reported
Facility Type: Not reported
Other Type: Not reported
Contact Name: Not reported
Telephone: Not reported
Owner Name: Not reported
Owner Address: Not reported
Owner City,St,Zip: Not reported
Total Tanks: Not reported

Tank Num: Not reported
Container Num: Not reported
Year Installed: Not reported
Tank Capacity: Not reported
Tank Used for: Not reported
Type of Fuel: Not reported
Container Construction Thickness: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

PORT OF LONG BEACH (Continued)

1004442742

Leak Detection: Not reported

[Click here for Geo Tracker PDF:](#)

FTTS:

Case Number: Not reported
Docket Number: 09-90-0081
Complaint Issue Date: 09/24/90
Abatement Amount: 0.0000
Proposed Penalty: 74000.0000
Final Assessment: 18200.0000
Final Order Date: 07/25/96
Close Date: / /
Violations(s): PCB, Use
PCB, Label or Marking
PCB, Dispose

HIST FTTS:

Case Number: Not reported
Docket Number: 09-90-0081
Complaint Issue Date: 09/24/1990
Abatement Amount: 0.0000
Proposed Penalty: 74000.0000
Final Assessment: 18200.0000
Final Order Date: 07/25/1996
Close Date: / /
Violations(s): PCB, Use
PCB, Label or Marking
PCB, Dispose

US AIRS MINOR:

Envid: 1004442742
Region Code: 09
Programmatic ID: AIR CA00000006037MAC51
Facility Registry ID: 110056135597
D and B Number: Not reported
Primary SIC Code: 3732
NAICS Code: 325510
Default Air Classification Code: MIN
Facility Type of Ownership Code: POF
Air CMS Category Code: Not reported
HPV Status: Not reported

US AIRS MINOR:

Envid: 1004442742
Region Code: 09
Programmatic ID: AIR CA00000006037MAC51
Facility Registry ID: 110056135597
D and B Number: Not reported
Primary SIC Code: 3732
NAICS Code: 325510
Default Air Classification Code: MIN
Facility Type of Ownership Code: POF

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

PORT OF LONG BEACH (Continued)

1004442742

Air CMS Category Code: Not reported
HPV Status: Not reported

EMI:

Year: 1990
County Code: 19
Air Basin: SC
Facility ID: 15482
Air District Name: SC
SIC Code: 4493
Air District Name: SOUTH COAST AQMD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 0
Reactive Organic Gases Tons/Yr: 0
Carbon Monoxide Emissions Tons/Yr: 2
NOX - Oxides of Nitrogen Tons/Yr: 0
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers and Smllr Tons/Yr:0

HAZNET:

envid: 1004442742
Year: 2015
GEPaid: CAC002840039
Contact: TOM CROUTHERS
Telephone: 5626243531
Mailing Name: Not reported
Mailing Address: 111 W OCEAN BLVD STE 800
Mailing City,St,Zip: LONG BEACH, CA 908027930
Gen County: Los Angeles
TSD EPA ID: CAD028409019
TSD County: Los Angeles
Waste Category: Laboratory waste chemicals
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery
(H010-H129) Or (H131-H135)
Tons: 0.075
Cat Decode: Not reported
Method Decode: Not reported
Facility County: Los Angeles

envid: 1004442742
Year: 2015
GEPaid: CAC002840039
Contact: TOM CROUTHERS
Telephone: 5626243531
Mailing Name: Not reported
Mailing Address: 111 W OCEAN BLVD STE 800
Mailing City,St,Zip: LONG BEACH, CA 908027930
Gen County: Los Angeles
TSD EPA ID: CAD028409019
TSD County: Los Angeles
Waste Category: Laboratory waste chemicals
Disposal Method: Fuel Blending Prior To Energy Recovery At Another Site
Tons: 0.125
Cat Decode: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

PORT OF LONG BEACH (Continued)

1004442742

Method Decode: Not reported
Facility County: Los Angeles

NPDES:

Facility Status: Not reported
NPDES Number: Not reported
Region: Not reported
Agency Number: Not reported
Regulatory Measure ID: Not reported
Place ID: Not reported
Order Number: Not reported
WDID: 4 19C361963
Regulatory Measure Type: Construction
Program Type: Not reported
Adoption Date Of Regulatory Measure: Not reported
Effective Date Of Regulatory Measure: Not reported
Termination Date Of Regulatory Measure: Not reported
Expiration Date Of Regulatory Measure: Not reported
Discharge Address: Not reported
Discharge Name: Not reported
Discharge City: Not reported
Discharge State: Not reported
Discharge Zip: Not reported
Status: Terminated
Status Date: 09/12/2013
Operator Name: Southern California Edison
Operator Address: 2244 Walnut Grove Ave GO 1 Quad 2C
Operator City: Rosemead
Operator State: California
Operator Zip: 91770

NPDES as of 03/2018:

NPDES Number: Not reported
Status: Not reported
Agency Number: Not reported
Region: 4
Regulatory Measure ID: 419115
Order Number: Not reported
Regulatory Measure Type: Construction
Place ID: Not reported
WDID: 4 19C361963
Program Type: Not reported
Adoption Date Of Regulatory Measure: Not reported
Effective Date Of Regulatory Measure: Not reported
Expiration Date Of Regulatory Measure: Not reported
Termination Date Of Regulatory Measure: 09/04/2013
Discharge Name: Not reported
Discharge Address: Not reported
Discharge City: Not reported
Discharge State: Not reported
Discharge Zip: Not reported
Received Date: 09/14/2011
Processed Date: 09/15/2011
Status: Terminated
Status Date: 09/12/2013
Place Size: 5
Place Size Unit: Acres

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

PORT OF LONG BEACH (Continued)

1004442742

Contact:	John Slayton
Contact Title:	SCE TDBU SWPPP Coordinator
Contact Phone:	310-990-1745
Contact Phone Ext:	Not reported
Contact Email:	john.slayton@sce.com
Operator Name:	Southern California Edison
Operator Address:	2244 Walnut Grove Ave GO-1 Quad 2C
Operator City:	Rosemead
Operator State:	California
Operator Zip:	91770
Operator Contact:	John Slayton
Operator Contact Title:	SCE TDBU SWPPP Coordinator
Operator Contact Phone:	310-990-1745
Operator Contact Phone Ext:	Not reported
Operator Contact Email:	john.slayton@sce.com
Operator Type:	Special District
Developer:	Southern California Edison
Developer Address:	8631 Rush Street
Developer City:	Rosemead
Developer State:	California
Developer Zip:	91770
Developer Contact:	John Slayton
Developer Contact Title:	SCE TDBU SWPPP Coordinator
Constype Linear Utility Ind:	Y
Emergency Phone:	Not reported
Emergency Phone Ext:	Not reported
Constype Above Ground Ind:	Y
Constype Below Ground Ind:	Y
Constype Cable Line Ind:	Not reported
Constype Comm Line Ind:	Not reported
Constype Commercial Ind:	Not reported
Constype Electrical Line Ind:	Y
Constype Gas Line Ind:	Not reported
Constype Industrial Ind:	Not reported
Constype Other Description:	Not reported
Constype Other Ind:	Not reported
Constype Recons Ind:	Not reported
Constype Residential Ind:	Not reported
Constype Transport Ind:	Not reported
Constype Utility Description:	Not reported
Constype Utility Ind:	Not reported
Constype Water Sewer Ind:	Not reported
Dir Discharge Uswater Ind:	N
Receiving Water Name:	San Pedro Bay
Certifier:	Donald Johnson
Certifier Title:	Not reported
Certification Date:	14-SEP-11
Primary Sic:	Not reported
Secondary Sic:	Not reported
Tertiary Sic:	Not reported
Facility Status:	Not reported
NPDES Number:	Not reported
Region:	Not reported
Agency Number:	Not reported
Regulatory Measure ID:	Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

PORT OF LONG BEACH (Continued)

1004442742

Place ID:	Not reported
Order Number:	Not reported
WDID:	4 19C361962
Regulatory Measure Type:	Construction
Program Type:	Not reported
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Discharge Address:	Not reported
Discharge Name:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported
Status:	Terminated
Status Date:	09/12/2013
Operator Name:	Southern California Edison
Operator Address:	2244 Walnut Grove Ave GO 1 Quad 2C
Operator City:	Rosemead
Operator State:	California
Operator Zip:	91770
NPDES as of 03/2018:	
NPDES Number:	Not reported
Status:	Not reported
Agency Number:	Not reported
Region:	4
Regulatory Measure ID:	419022
Order Number:	Not reported
Regulatory Measure Type:	Construction
Place ID:	Not reported
WDID:	4 19C361962
Program Type:	Not reported
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	09/04/2013
Discharge Name:	Not reported
Discharge Address:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported
Received Date:	09/14/2011
Processed Date:	09/15/2011
Status:	Terminated
Status Date:	09/12/2013
Place Size:	3
Place Size Unit:	Acres
Contact:	John Slayton
Contact Title:	SCE TDBU SWPPP Coordinator
Contact Phone:	310-990-1745
Contact Phone Ext:	Not reported
Contact Email:	john.slayton@sce.com
Operator Name:	Southern California Edison
Operator Address:	2244 Walnut Grove Ave GO-1 Quad 2C
Operator City:	Rosemead
Operator State:	California
Operator Zip:	91770

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

PORT OF LONG BEACH (Continued)

1004442742

Operator Contact:	John Slayton
Operator Contact Title:	SCE TDBU SWPPP Coordinator
Operator Contact Phone:	310-990-1745
Operator Contact Phone Ext:	Not reported
Operator Contact Email:	john.slayton@sce.com
Operator Type:	Special District
Developer:	Southern California Edison
Developer Address:	8631 Rush Street
Developer City:	Rosemead
Developer State:	California
Developer Zip:	91770
Developer Contact:	John Slayton
Developer Contact Title:	SCE TDBU SWPPP Coordinator
Constype Linear Utility Ind:	N
Emergency Phone:	Not reported
Emergency Phone Ext:	Not reported
Constype Above Ground Ind:	Not reported
Constype Below Ground Ind:	Not reported
Constype Cable Line Ind:	Not reported
Constype Comm Line Ind:	Not reported
Constype Commercial Ind:	Not reported
Constype Electrical Line Ind:	Not reported
Constype Gas Line Ind:	Not reported
Constype Industrial Ind:	Not reported
Constype Other Description:	Not reported
Constype Other Ind:	Not reported
Constype Recons Ind:	Not reported
Constype Residential Ind:	Not reported
Constype Transport Ind:	Not reported
Constype Utility Description:	Electrical Substations
Constype Utility Ind:	Y
Constype Water Sewer Ind:	Not reported
Dir Discharge Uswater Ind:	N
Receiving Water Name:	San Pedro Bay
Certifier:	Donald Johnson
Certifier Title:	Not reported
Certification Date:	14-SEP-11
Primary Sic:	Not reported
Secondary Sic:	Not reported
Tertiary Sic:	Not reported
Facility Status:	Not reported
NPDES Number:	Not reported
Region:	Not reported
Agency Number:	Not reported
Regulatory Measure ID:	Not reported
Place ID:	Not reported
Order Number:	Not reported
WDID:	4 19I003628
Regulatory Measure Type:	Industrial
Program Type:	Not reported
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Discharge Address:	Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

PORT OF LONG BEACH (Continued)

1004442742

Discharge Name: Not reported
Discharge City: Not reported
Discharge State: Not reported
Discharge Zip: Not reported
Status: Terminated
Status Date: 08/20/2015
Operator Name: Port of Long Beach
Operator Address: 925 Harbor Plaza
Operator City: Long Beach
Operator State: California
Operator Zip: 90802

NPDES as of 03/2018:

NPDES Number: CAS000001
Status: Terminated
Agency Number: 0
Region: 4
Regulatory Measure ID: 189203
Order Number: 97-03-DWQ
Regulatory Measure Type: Enrollee
Place ID: Not reported
WDID: 4 19I003628
Program Type: Industrial
Adoption Date Of Regulatory Measure: Not reported
Effective Date Of Regulatory Measure: 04/06/1992
Expiration Date Of Regulatory Measure: Not reported
Termination Date Of Regulatory Measure: 07/08/2015
Discharge Name: Port of Long Beach
Discharge Address: 925 Harbor Plaza
Discharge City: Long Beach
Discharge State: California
Discharge Zip: 90802
Received Date: Not reported
Processed Date: Not reported
Status: Not reported
Status Date: Not reported
Place Size: Not reported
Place Size Unit: Not reported
Contact: Not reported
Contact Title: Not reported
Contact Phone: Not reported
Contact Phone Ext: Not reported
Contact Email: Not reported
Operator Name: Not reported
Operator Address: Not reported
Operator City: Not reported
Operator State: Not reported
Operator Zip: Not reported
Operator Contact: Not reported
Operator Contact Title: Not reported
Operator Contact Phone: Not reported
Operator Contact Phone Ext: Not reported
Operator Contact Email: Not reported
Operator Type: Not reported
Developer: Not reported
Developer Address: Not reported
Developer City: Not reported
Developer State: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

PORT OF LONG BEACH (Continued)

1004442742

Developer Zip:	Not reported
Developer Contact:	Not reported
Developer Contact Title:	Not reported
Constype Linear Utility Ind:	Not reported
Emergency Phone:	Not reported
Emergency Phone Ext:	Not reported
Constype Above Ground Ind:	Not reported
Constype Below Ground Ind:	Not reported
Constype Cable Line Ind:	Not reported
Constype Comm Line Ind:	Not reported
Constype Commercial Ind:	Not reported
Constype Electrical Line Ind:	Not reported
Constype Gas Line Ind:	Not reported
Constype Industrial Ind:	Not reported
Constype Other Description:	Not reported
Constype Other Ind:	Not reported
Constype Recons Ind:	Not reported
Constype Residential Ind:	Not reported
Constype Transport Ind:	Not reported
Constype Utility Description:	Not reported
Constype Utility Ind:	Not reported
Constype Water Sewer Ind:	Not reported
Dir Discharge Uswater Ind:	Not reported
Receiving Water Name:	Not reported
Certifier:	Not reported
Certifier Title:	Not reported
Certification Date:	Not reported
Primary Sic:	Not reported
Secondary Sic:	Not reported
Tertiary Sic:	Not reported
NPDES Number:	Not reported
Status:	Not reported
Agency Number:	Not reported
Region:	4
Regulatory Measure ID:	189203
Order Number:	Not reported
Regulatory Measure Type:	Industrial
Place ID:	Not reported
WDID:	4 19I003628
Program Type:	Not reported
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	07/08/2015
Discharge Name:	Not reported
Discharge Address:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported
Received Date:	05/09/2008
Processed Date:	04/06/1992
Status:	Terminated
Status Date:	08/20/2015
Place Size:	3000
Place Size Unit:	Acres
Contact:	Rick Cameron

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

PORT OF LONG BEACH (Continued)

1004442742

Contact Title: Not reported
Contact Phone: 562-590-4160
Contact Phone Ext: Not reported
Contact Email: Not reported
Operator Name: Port of Long Beach
Operator Address: 925 Harbor Plaza
Operator City: Long Beach
Operator State: California
Operator Zip: 90802
Operator Contact: Richard D Cameron
Operator Contact Title: Not reported
Operator Contact Phone: 562-283-7100
Operator Contact Phone Ext: Not reported
Operator Contact Email: cameron@polb.com
Operator Type: City/Town Agency
Developer: Not reported
Developer Address: Not reported
Developer City: Not reported
Developer State: California
Developer Zip: Not reported
Developer Contact: Not reported
Developer Contact Title: Not reported
Constype Linear Utility Ind: Not reported
Emergency Phone: 562-590-4160
Emergency Phone Ext: Not reported
Constype Above Ground Ind: Not reported
Constype Below Ground Ind: Not reported
Constype Cable Line Ind: Not reported
Constype Comm Line Ind: Not reported
Constype Commercial Ind: Not reported
Constype Electrical Line Ind: Not reported
Constype Gas Line Ind: Not reported
Constype Industrial Ind: Not reported
Constype Other Description: Not reported
Constype Other Ind: Not reported
Constype Recons Ind: Not reported
Constype Residential Ind: Not reported
Constype Transport Ind: Not reported
Constype Utility Description: Not reported
Constype Utility Ind: Not reported
Constype Water Sewer Ind: Not reported
Dir Discharge Uswater Ind: Not reported
Receiving Water Name: Pacific Ocean
Certifier: Heather Tomley
Certifier Title: Not reported
Certification Date: 13-AUG-13
Primary Sic: 4491-Marine Cargo Handling
Secondary Sic: Not reported
Tertiary Sic: Not reported

CIWQS:

Agency: Southern California Edison
Agency Address: 2244 Walnut Grove Ave GO 1 Quad 2C, Rosemead, CA 91770
Place/Project Type: Construction - Above Ground, Electrical, Below Ground
SIC/NAICS: Not reported
Region: 4

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

PORT OF LONG BEACH (Continued)

1004442742

Program:	CONSTW
Regulatory Measure Status:	Terminated
Regulatory Measure Type:	Storm water construction
Order Number:	2009-0009-DWQ
WDID:	4 19C361963
NPDES Number:	CAS000002
Adoption Date:	Not reported
Effective Date:	09/15/2011
Termination Date:	09/04/2013
Expiration/Review Date:	Not reported
Design Flow:	Not reported
Major/Minor:	Not reported
Complexity:	Not reported
TTWQ:	Not reported
Enforcement Actions within 5 years:	0
Violations within 5 years:	0
Latitude:	33.754256
Longitude:	-118.201353
Agency:	Southern California Edison
Agency Address:	2244 Walnut Grove Ave GO 1 Quad 2C, Rosemead, CA 91770
Place/Project Type:	Construction - Utility: Electrical Substations
SIC/NAICS:	Not reported
Region:	4
Program:	CONSTW
Regulatory Measure Status:	Terminated
Regulatory Measure Type:	Storm water construction
Order Number:	2009-0009-DWQ
WDID:	4 19C361962
NPDES Number:	CAS000002
Adoption Date:	Not reported
Effective Date:	09/15/2011
Termination Date:	09/04/2013
Expiration/Review Date:	Not reported
Design Flow:	Not reported
Major/Minor:	Not reported
Complexity:	Not reported
TTWQ:	Not reported
Enforcement Actions within 5 years:	0
Violations within 5 years:	0
Latitude:	33.754256
Longitude:	-118.201353
Agency:	Port of Long Beach
Agency Address:	925 Harbor Plaza, Long Beach, CA 90802
Place/Project Type:	Industrial - Marine Cargo Handling
SIC/NAICS:	4491
Region:	4
Program:	INDSTW
Regulatory Measure Status:	Terminated
Regulatory Measure Type:	Storm water industrial
Order Number:	2014-0057-DWQ
WDID:	4 19I003628
NPDES Number:	CAS000001
Adoption Date:	Not reported
Effective Date:	04/06/1992
Termination Date:	07/08/2015

Map ID
 Direction
 Distance
 Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
 EPA ID Number

PORT OF LONG BEACH (Continued)

1004442742

Expiration/Review Date:	Not reported
Design Flow:	Not reported
Major/Minor:	Not reported
Complexity:	Not reported
TTWQ:	Not reported
Enforcement Actions within 5 years:	0
Violations within 5 years:	0
Latitude:	33.75322
Longitude:	-118.20002
Agency:	Port of Long Beach
Agency Address:	Po Box 570, Long Beach, CA 90801-0570
Place/Project Type:	Other
SIC/NAICS:	Multiple SIC
Region:	4
Program:	NPDNONMUNIPRCS
Regulatory Measure Status:	Historical
Regulatory Measure Type:	Enrollee
Order Number:	R4-2003-0111
WDID:	4B196000585
NPDES Number:	CAG994004
Adoption Date:	Not reported
Effective Date:	07/23/2001
Termination Date:	07/19/2008
Expiration/Review Date:	01/26/2004
Design Flow:	0.05
Major/Minor:	Minor
Complexity:	C
TTWQ:	3
Enforcement Actions within 5 years:	0
Violations within 5 years:	0
Latitude:	33.753168
Longitude:	-118.199937

17
 NNW
 1/2-1
 0.998 mi.
 5269 ft.

LONG BEACH NAVAL SHIPYARD
LONG BEACH, CA 90822

CA BOND EXP. PLAN S100833525
N/A

Relative:
Lower
Actual:
0 ft.

CA BOND EXP. PLAN:	
Responsible Party:	BACKLOG SITE CLEANUP PLANNING REPORT
Project Revenue Source Company:	Not reported
Project Revenue Source Addr:	Not reported
Project Revenue Source City,St,Zip:	Not reported
Project Revenue Source Desc:	This site is projected for cleanup funded by responsible parties with reimbursement to DHS for staff and related costs. However, if the responsible parties fail to provide funding for cleanup another source of funds will need to be established.
Site Description:	The Naval Complex, Long Beach, located at the Long Beach Naval Shipyard, was established in 1942. This site is built on a man-made island constructed of fill. A total of 12 potentially contaminated areas were identified at the Naval Complex which contain various industrial wastes.
Hazardous Waste Desc:	The history of waste disposal at the site indicates that contaminants consisted of waste oil, solvents, paint thinner and old batteries. Exact quantities are unknown.
Threat To Public Health & Env:	A study concluded that none of the 12 areas found at the Naval Complex, Long Beach, pose a sufficient threat to human health or to the environment to

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

LONG BEACH NAVAL SHIPYARD (Continued)

S100833525

warrant a confirmation study. Due to the physical location and features of the Naval Complex, the potential for offsite contaminant migration is low. However, precautionary measures (documentation and mitigation actions), are recommended to ensure proper safety measures are taken before any disturbance of these sites occurs.

Site Activity Status:

The installation restoration program (IRP) has been initiated at this base.

Count: 0 records.

ORPHAN SUMMARY

<u>City</u>	<u>EDR ID</u>	<u>Site Name</u>	<u>Site Address</u>	<u>Zip</u>	<u>Database(s)</u>
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: 11/14/2018	Source: EPA
Date Data Arrived at EDR: 11/27/2018	Telephone: N/A
Date Made Active in Reports: 12/07/2018	Last EDR Contact: 11/27/2018
Number of Days to Update: 10	Next Scheduled EDR Contact: 01/14/2019
	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: 11/14/2018	Source: EPA
Date Data Arrived at EDR: 11/27/2018	Telephone: N/A
Date Made Active in Reports: 12/07/2018	Last EDR Contact: 11/27/2018
Number of Days to Update: 10	Next Scheduled EDR Contact: 01/14/2019
	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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 11/14/2018
Date Data Arrived at EDR: 11/27/2018
Date Made Active in Reports: 12/07/2018
Number of Days to Update: 10

Source: EPA
Telephone: N/A
Last EDR Contact: 11/27/2018
Next Scheduled EDR Contact: 01/14/2019
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: 11/07/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 92

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 07/06/2018
Next Scheduled EDR Contact: 10/15/2018
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 known 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: 11/14/2018
Date Data Arrived at EDR: 11/27/2018
Date Made Active in Reports: 12/07/2018
Number of Days to Update: 10

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 11/27/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 11/14/2018	Source: EPA
Date Data Arrived at EDR: 11/28/2018	Telephone: 800-424-9346
Date Made Active in Reports: 12/07/2018	Last EDR Contact: 11/28/2018
Number of Days to Update: 9	Next Scheduled EDR Contact: 01/28/2019
	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: 03/01/2018	Source: EPA
Date Data Arrived at EDR: 03/28/2018	Telephone: 800-424-9346
Date Made Active in Reports: 06/22/2018	Last EDR Contact: 12/03/2018
Number of Days to Update: 86	Next Scheduled EDR Contact: 01/07/2019
	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: 03/01/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/28/2018	Telephone: (415) 495-8895
Date Made Active in Reports: 06/22/2018	Last EDR Contact: 12/03/2018
Number of Days to Update: 86	Next Scheduled EDR Contact: 01/07/2019
	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: 03/01/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/28/2018	Telephone: (415) 495-8895
Date Made Active in Reports: 06/22/2018	Last EDR Contact: 12/03/2018
Number of Days to Update: 86	Next Scheduled EDR Contact: 01/07/2019
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 03/01/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/28/2018	Telephone: (415) 495-8895
Date Made Active in Reports: 06/22/2018	Last EDR Contact: 12/03/2018
Number of Days to Update: 86	Next Scheduled EDR Contact: 01/07/2019
	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: 03/01/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/28/2018	Telephone: (415) 495-8895
Date Made Active in Reports: 06/22/2018	Last EDR Contact: 12/03/2018
Number of Days to Update: 86	Next Scheduled EDR Contact: 01/07/2019
	Data Release Frequency: Quarterly

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: 10/17/2018	Source: Department of the Navy
Date Data Arrived at EDR: 10/25/2018	Telephone: 843-820-7326
Date Made Active in Reports: 12/07/2018	Last EDR Contact: 10/15/2018
Number of Days to Update: 43	Next Scheduled EDR Contact: 02/25/2019
	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: 07/31/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 08/28/2018	Telephone: 703-603-0695
Date Made Active in Reports: 09/14/2018	Last EDR Contact: 11/28/2018
Number of Days to Update: 17	Next Scheduled EDR Contact: 03/11/2019
	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: 07/31/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 08/28/2018	Telephone: 703-603-0695
Date Made Active in Reports: 09/14/2018	Last EDR Contact: 11/28/2018
Number of Days to Update: 17	Next Scheduled EDR Contact: 03/11/2019
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 09/24/2018

Date Data Arrived at EDR: 09/25/2018

Date Made Active in Reports: 11/09/2018

Number of Days to Update: 45

Source: National Response Center, United States Coast Guard

Telephone: 202-267-2180

Last EDR Contact: 09/25/2018

Next Scheduled EDR Contact: 01/07/2019

Data Release Frequency: Quarterly

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: 07/30/2018

Date Data Arrived at EDR: 07/31/2018

Date Made Active in Reports: 09/07/2018

Number of Days to Update: 38

Source: Department of Toxic Substances Control

Telephone: 916-323-3400

Last EDR Contact: 10/30/2018

Next Scheduled EDR Contact: 02/11/2019

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 identifies 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: 07/30/2018

Date Data Arrived at EDR: 07/31/2018

Date Made Active in Reports: 09/07/2018

Number of Days to Update: 38

Source: Department of Toxic Substances Control

Telephone: 916-323-3400

Last EDR Contact: 10/30/2018

Next Scheduled EDR Contact: 02/11/2019

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 inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 08/08/2018

Date Data Arrived at EDR: 08/10/2018

Date Made Active in Reports: 08/24/2018

Number of Days to Update: 14

Source: Department of Resources Recycling and Recovery

Telephone: 916-341-6320

Last EDR Contact: 11/14/2018

Next Scheduled EDR Contact: 02/25/2019

Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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	Source: California Regional Water Quality Control Board North Coast (1)
Date Data Arrived at EDR: 02/28/2001	Telephone: 707-570-3769
Date Made Active in Reports: 03/29/2001	Last EDR Contact: 08/01/2011
Number of Days to Update: 29	Next Scheduled EDR Contact: 11/14/2011
	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	Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Date Data Arrived at EDR: 02/26/2004	Telephone: 760-776-8943
Date Made Active in Reports: 03/24/2004	Last EDR Contact: 08/01/2011
Number of Days to Update: 27	Next Scheduled EDR Contact: 11/14/2011
	Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)

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: 09/10/2018	Source: State Water Resources Control Board
Date Data Arrived at EDR: 09/12/2018	Telephone: see region list
Date Made Active in Reports: 10/08/2018	Last EDR Contact: 12/11/2018
Number of Days to Update: 26	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Quarterly

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	Source: California Regional Water Quality Control Board San Diego Region (9)
Date Data Arrived at EDR: 04/23/2001	Telephone: 858-637-5595
Date Made Active in Reports: 05/21/2001	Last EDR Contact: 09/26/2011
Number of Days to Update: 28	Next Scheduled EDR Contact: 01/09/2012
	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	Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Date Data Arrived at EDR: 06/07/2005	Telephone: 760-241-7365
Date Made Active in Reports: 06/29/2005	Last EDR Contact: 09/12/2011
Number of Days to Update: 22	Next Scheduled EDR Contact: 12/26/2011
	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	Source: California Regional Water Quality Control Board Lahontan Region (6)
Date Data Arrived at EDR: 09/10/2003	Telephone: 530-542-5572
Date Made Active in Reports: 10/07/2003	Last EDR Contact: 09/12/2011
Number of Days to Update: 27	Next Scheduled EDR Contact: 12/26/2011
	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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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 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 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 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 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: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 10/26/2018
Next Scheduled EDR Contact: 02/04/2019
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: 04/10/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 10/26/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 04/25/2018	Source: EPA Region 8
Date Data Arrived at EDR: 05/18/2018	Telephone: 303-312-6271
Date Made Active in Reports: 07/20/2018	Last EDR Contact: 10/26/2018
Number of Days to Update: 63	Next Scheduled EDR Contact: 02/04/2019
	Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/24/2018	Source: EPA Region 7
Date Data Arrived at EDR: 05/18/2018	Telephone: 913-551-7003
Date Made Active in Reports: 07/20/2018	Last EDR Contact: 10/26/2018
Number of Days to Update: 63	Next Scheduled EDR Contact: 02/04/2019
	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: 04/01/2018	Source: EPA Region 6
Date Data Arrived at EDR: 05/18/2018	Telephone: 214-665-6597
Date Made Active in Reports: 07/20/2018	Last EDR Contact: 10/26/2018
Number of Days to Update: 63	Next Scheduled EDR Contact: 02/04/2019
	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: 05/08/2018	Source: EPA Region 4
Date Data Arrived at EDR: 05/18/2018	Telephone: 404-562-8677
Date Made Active in Reports: 07/20/2018	Last EDR Contact: 10/26/2018
Number of Days to Update: 63	Next Scheduled EDR Contact: 02/04/2019
	Data Release Frequency: Varies

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: 04/13/2018	Source: EPA Region 1
Date Data Arrived at EDR: 05/18/2018	Telephone: 617-918-1313
Date Made Active in Reports: 07/20/2018	Last EDR Contact: 10/26/2018
Number of Days to Update: 63	Next Scheduled EDR Contact: 02/04/2019
	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: 04/12/2018	Source: EPA, Region 5
Date Data Arrived at EDR: 05/18/2018	Telephone: 312-886-7439
Date Made Active in Reports: 07/20/2018	Last EDR Contact: 10/26/2018
Number of Days to Update: 63	Next Scheduled EDR Contact: 02/04/2019
	Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)

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: 09/10/2018	Source: State Water Resources Control Board
Date Data Arrived at EDR: 09/12/2018	Telephone: 866-480-1028
Date Made Active in Reports: 10/09/2018	Last EDR Contact: 12/12/2018
Number of Days to Update: 27	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 05/15/2017
Date Data Arrived at EDR: 05/30/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 136

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 10/10/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: Varies

UST: Active UST Facilities

Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/03/2018
Number of Days to Update: 21

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 12/11/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases

UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 09/10/2018	Source: State Water Resources Control Board
Date Data Arrived at EDR: 09/12/2018	Telephone: 916-327-7844
Date Made Active in Reports: 10/03/2018	Last EDR Contact: 12/12/2018
Number of Days to Update: 21	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Varies

MILITARY UST SITES: Military UST Sites (GEOTRACKER)

Military ust sites

Date of Government Version: 09/10/2018	Source: State Water Resources Control Board
Date Data Arrived at EDR: 09/12/2018	Telephone: 866-480-1028
Date Made Active in Reports: 10/09/2018	Last EDR Contact: 12/12/2018
Number of Days to Update: 27	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities

A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 07/12/2016	Telephone: 916-327-5092
Date Made Active in Reports: 09/19/2016	Last EDR Contact: 12/12/2018
Number of Days to Update: 69	Next Scheduled EDR Contact: 04/01/2019
	Data Release Frequency: Quarterly

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: 05/08/2018	Source: EPA Region 4
Date Data Arrived at EDR: 05/18/2018	Telephone: 404-562-9424
Date Made Active in Reports: 07/20/2018	Last EDR Contact: 10/26/2018
Number of Days to Update: 63	Next Scheduled EDR Contact: 02/04/2019
	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: 04/12/2018	Source: EPA Region 10
Date Data Arrived at EDR: 05/18/2018	Telephone: 206-553-2857
Date Made Active in Reports: 07/20/2018	Last EDR Contact: 10/26/2018
Number of Days to Update: 63	Next Scheduled EDR Contact: 02/04/2019
	Data Release Frequency: Varies

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: 04/10/2018	Source: EPA Region 9
Date Data Arrived at EDR: 05/18/2018	Telephone: 415-972-3368
Date Made Active in Reports: 07/20/2018	Last EDR Contact: 10/26/2018
Number of Days to Update: 63	Next Scheduled EDR Contact: 02/04/2019
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 04/12/2018	Source: EPA Region 5
Date Data Arrived at EDR: 05/18/2018	Telephone: 312-886-6136
Date Made Active in Reports: 07/20/2018	Last EDR Contact: 10/26/2018
Number of Days to Update: 63	Next Scheduled EDR Contact: 02/04/2019
	Data Release Frequency: Varies

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: 04/13/2018	Source: EPA, Region 1
Date Data Arrived at EDR: 05/18/2018	Telephone: 617-918-1313
Date Made Active in Reports: 07/20/2018	Last EDR Contact: 10/26/2018
Number of Days to Update: 63	Next Scheduled EDR Contact: 02/04/2019
	Data Release Frequency: Varies

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: 04/24/2018	Source: EPA Region 7
Date Data Arrived at EDR: 05/18/2018	Telephone: 913-551-7003
Date Made Active in Reports: 07/20/2018	Last EDR Contact: 10/26/2018
Number of Days to Update: 63	Next Scheduled EDR Contact: 02/04/2019
	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: 04/01/2018	Source: EPA Region 6
Date Data Arrived at EDR: 05/18/2018	Telephone: 214-665-7591
Date Made Active in Reports: 07/20/2018	Last EDR Contact: 10/26/2018
Number of Days to Update: 63	Next Scheduled EDR Contact: 02/04/2019
	Data Release Frequency: Varies

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: 04/25/2018	Source: EPA Region 8
Date Data Arrived at EDR: 05/18/2018	Telephone: 303-312-6137
Date Made Active in Reports: 07/20/2018	Last EDR Contact: 10/26/2018
Number of Days to Update: 63	Next Scheduled EDR Contact: 02/04/2019
	Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008	Source: EPA, Region 7
Date Data Arrived at EDR: 04/22/2008	Telephone: 913-551-7365
Date Made Active in Reports: 05/19/2008	Last EDR Contact: 04/20/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/20/2009
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 07/30/2018
Date Data Arrived at EDR: 07/31/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 38

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 10/30/2018
Next Scheduled EDR Contact: 02/11/2019
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: 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: 09/24/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfields 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: 09/24/2018
Date Data Arrived at EDR: 09/25/2018
Date Made Active in Reports: 10/15/2018
Number of Days to Update: 20

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 09/25/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

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: 09/18/2018
Date Data Arrived at EDR: 09/18/2018
Date Made Active in Reports: 11/09/2018
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/18/2018
Next Scheduled EDR Contact: 12/31/2018
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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 10/25/2018
Next Scheduled EDR Contact: 02/11/2019
Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/15/2018
Number of Days to Update: 33

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 09/28/2018
Date Made Active in Reports: 11/01/2018
Number of Days to Update: 34

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 08/07/2018
Next Scheduled EDR Contact: 02/25/2019
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: 10/25/2018
Next Scheduled EDR Contact: 02/11/2019
Data Release Frequency: Varies

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: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: No Update Planned

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

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 Services, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 11/02/2018
Next Scheduled EDR Contact: 02/11/2019
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 09/21/2018	Source: Drug Enforcement Administration
Date Data Arrived at EDR: 09/21/2018	Telephone: 202-307-1000
Date Made Active in Reports: 11/09/2018	Last EDR Contact: 11/26/2018
Number of Days to Update: 49	Next Scheduled EDR Contact: 03/11/2019
	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	Source: Department of Toxic Substance Control
Date Data Arrived at EDR: 08/03/2006	Telephone: 916-323-3400
Date Made Active in Reports: 08/24/2006	Last EDR Contact: 02/23/2009
Number of Days to Update: 21	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: 07/30/2018	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 07/31/2018	Telephone: 916-323-3400
Date Made Active in Reports: 09/07/2018	Last EDR Contact: 10/30/2018
Number of Days to Update: 38	Next Scheduled EDR Contact: 02/11/2019
	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: 12/31/2017	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 06/12/2018	Telephone: 916-255-6504
Date Made Active in Reports: 08/06/2018	Last EDR Contact: 11/01/2018
Number of Days to Update: 55	Next Scheduled EDR Contact: 01/21/2019
	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	Source: State Water Resources Control Board
Date Data Arrived at EDR: 08/30/1995	Telephone: 916-227-4364
Date Made Active in Reports: 09/26/1995	Last EDR Contact: 01/26/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 04/27/2009
	Data Release Frequency: No Update Planned

CERS HAZ WASTE: CERS HAZ WASTE

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/22/2018
Date Data Arrived at EDR: 10/23/2018
Date Made Active in Reports: 11/30/2018
Number of Days to Update: 38

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 10/23/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Quarterly

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: 09/21/2018
Date Data Arrived at EDR: 09/21/2018
Date Made Active in Reports: 11/09/2018
Number of Days to Update: 49

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/26/2018
Next Scheduled EDR Contact: 03/11/2019
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: 03/28/2018
Date Data Arrived at EDR: 05/25/2018
Date Made Active in Reports: 07/10/2018
Number of Days to Update: 46

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 11/26/2018
Next Scheduled EDR Contact: 03/11/2019
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

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing

Aboveground storage tank sites

Date of Government Version: 09/11/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/11/2018
Number of Days to Update: 29

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 11/01/2018
Next Scheduled EDR Contact: 02/18/2019
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CERS TANKS: California Environmental Reporting System (CERS) Tanks

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 10/22/2018	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 10/23/2018	Telephone: 916-323-2514
Date Made Active in Reports: 11/30/2018	Last EDR Contact: 10/23/2018
Number of Days to Update: 38	Next Scheduled EDR Contact: 02/04/2019
	Data Release Frequency: Quarterly

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	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 09/05/1995	Telephone: 916-341-5851
Date Made Active in Reports: 09/29/1995	Last EDR Contact: 12/28/1998
Number of Days to Update: 24	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: 08/29/2018	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 08/30/2018	Telephone: 916-323-3400
Date Made Active in Reports: 10/01/2018	Last EDR Contact: 11/29/2018
Number of Days to Update: 32	Next Scheduled EDR Contact: 03/18/2019
	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: 08/13/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/04/2018	Telephone: 202-564-6023
Date Made Active in Reports: 11/16/2018	Last EDR Contact: 11/27/2018
Number of Days to Update: 43	Next Scheduled EDR Contact: 02/04/2019
	Data Release Frequency: Semi-Annually

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: 09/04/2018	Source: DTSC and SWRCB
Date Data Arrived at EDR: 09/05/2018	Telephone: 916-323-3400
Date Made Active in Reports: 10/02/2018	Last EDR Contact: 12/05/2018
Number of Days to Update: 27	Next Scheduled EDR Contact: 03/18/2019
	Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 03/26/2018	Source: U.S. Department of Transportation
Date Data Arrived at EDR: 03/27/2018	Telephone: 202-366-4555
Date Made Active in Reports: 06/08/2018	Last EDR Contact: 09/25/2018
Number of Days to Update: 73	Next Scheduled EDR Contact: 01/07/2019
	Data Release Frequency: Quarterly

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: 04/06/2018	Source: Office of Emergency Services
Date Data Arrived at EDR: 04/24/2018	Telephone: 916-845-8400
Date Made Active in Reports: 06/14/2018	Last EDR Contact: 07/27/2018
Number of Days to Update: 51	Next Scheduled EDR Contact: 11/05/2018
	Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)

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: 09/10/2018	Source: State Water Quality Control Board
Date Data Arrived at EDR: 09/12/2018	Telephone: 866-480-1028
Date Made Active in Reports: 10/08/2018	Last EDR Contact: 12/12/2018
Number of Days to Update: 26	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

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: 09/10/2018	Source: State Water Resources Control Board
Date Data Arrived at EDR: 09/12/2018	Telephone: 866-480-1028
Date Made Active in Reports: 10/09/2018	Last EDR Contact: 12/12/2018
Number of Days to Update: 27	Next Scheduled EDR Contact: 03/25/2019
	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	Source: FirstSearch
Date Data Arrived at EDR: 01/03/2013	Telephone: N/A
Date Made Active in Reports: 02/22/2013	Last EDR Contact: 01/03/2013
Number of Days to Update: 50	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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/03/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

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: 11/19/2018
Next Scheduled EDR Contact: 03/04/2019
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: 10/12/2018
Next Scheduled EDR Contact: 01/21/2019
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: 10/12/2018
Next Scheduled EDR Contact: 01/21/2019
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: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 11/16/2018
Next Scheduled EDR Contact: 02/25/2019
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: 08/31/2018
Date Data Arrived at EDR: 09/25/2018
Date Made Active in Reports: 11/09/2018
Number of Days to Update: 45

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 09/25/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/21/2014	Telephone: 617-520-3000
Date Made Active in Reports: 06/17/2014	Last EDR Contact: 11/05/2018
Number of Days to Update: 88	Next Scheduled EDR Contact: 02/18/2019
	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: 09/30/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 05/08/2018	Telephone: 703-308-4044
Date Made Active in Reports: 07/20/2018	Last EDR Contact: 11/09/2018
Number of Days to Update: 73	Next Scheduled EDR Contact: 02/18/2019
	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: 12/31/2016	Source: EPA
Date Data Arrived at EDR: 06/21/2017	Telephone: 202-260-5521
Date Made Active in Reports: 01/05/2018	Last EDR Contact: 09/21/2018
Number of Days to Update: 198	Next Scheduled EDR Contact: 12/31/2018
	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: 12/31/2016	Source: EPA
Date Data Arrived at EDR: 01/10/2018	Telephone: 202-566-0250
Date Made Active in Reports: 01/12/2018	Last EDR Contact: 11/16/2018
Number of Days to Update: 2	Next Scheduled EDR Contact: 03/04/2019
	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	Source: EPA
Date Data Arrived at EDR: 12/10/2010	Telephone: 202-564-4203
Date Made Active in Reports: 02/25/2011	Last EDR Contact: 10/24/2018
Number of Days to Update: 77	Next Scheduled EDR Contact: 02/04/2019
	Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 08/13/2018	Source: EPA
Date Data Arrived at EDR: 10/04/2018	Telephone: 703-416-0223
Date Made Active in Reports: 11/16/2018	Last EDR Contact: 11/27/2018
Number of Days to Update: 43	Next Scheduled EDR Contact: 03/18/2019
	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: 08/01/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 08/22/2018	Telephone: 202-564-8600
Date Made Active in Reports: 10/05/2018	Last EDR Contact: 10/23/2018
Number of Days to Update: 44	Next Scheduled EDR Contact: 02/04/2019
	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	Source: EPA
Date Data Arrived at EDR: 07/03/1995	Telephone: 202-564-4104
Date Made Active in Reports: 08/07/1995	Last EDR Contact: 06/02/2008
Number of Days to Update: 35	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: 08/13/2018	Source: EPA
Date Data Arrived at EDR: 10/04/2018	Telephone: 202-564-6023
Date Made Active in Reports: 11/09/2018	Last EDR Contact: 10/04/2018
Number of Days to Update: 36	Next Scheduled EDR Contact: 02/18/2019
	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: 09/14/2018	Source: EPA
Date Data Arrived at EDR: 10/11/2018	Telephone: 202-566-0500
Date Made Active in Reports: 12/07/2018	Last EDR Contact: 10/11/2018
Number of Days to Update: 57	Next Scheduled EDR Contact: 01/21/2019
	Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/23/2016	Telephone: 202-564-2501
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 10/09/2018
Number of Days to Update: 79	Next Scheduled EDR Contact: 01/21/2019
	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	Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 08/18/2017
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/04/2017
	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	Source: EPA
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 08/18/2017
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/04/2017
	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	Source: Nuclear Regulatory Commission
Date Data Arrived at EDR: 09/08/2016	Telephone: 301-415-7169
Date Made Active in Reports: 10/21/2016	Last EDR Contact: 10/11/2018
Number of Days to Update: 43	Next Scheduled EDR Contact: 02/04/2019
	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	Source: Department of Energy
Date Data Arrived at EDR: 08/07/2009	Telephone: 202-586-8719
Date Made Active in Reports: 10/22/2009	Last EDR Contact: 12/05/2018
Number of Days to Update: 76	Next Scheduled EDR Contact: 03/18/2019
	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	Source: Environmental Protection Agency
Date Data Arrived at EDR: 09/10/2014	Telephone: N/A
Date Made Active in Reports: 10/20/2014	Last EDR Contact: 12/03/2018
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/18/2019
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 05/24/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/30/2017	Telephone: 202-566-0517
Date Made Active in Reports: 12/15/2017	Last EDR Contact: 10/26/2018
Number of Days to Update: 15	Next Scheduled EDR Contact: 02/04/2019
	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: 10/02/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/03/2018	Telephone: 202-343-9775
Date Made Active in Reports: 11/09/2018	Last EDR Contact: 10/03/2018
Number of Days to Update: 37	Next Scheduled EDR Contact: 01/14/2019
	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	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2007
Number of Days to Update: 40	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	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2008
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/17/2008
	Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012	Source: Department of Transportation, Office of Pipeline Safety
Date Data Arrived at EDR: 08/07/2012	Telephone: 202-366-4595
Date Made Active in Reports: 09/18/2012	Last EDR Contact: 10/30/2018
Number of Days to Update: 42	Next Scheduled EDR Contact: 02/11/2019
	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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 09/30/2018
Date Data Arrived at EDR: 10/12/2018
Date Made Active in Reports: 12/07/2018
Number of Days to Update: 56

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 10/01/2018
Next Scheduled EDR Contact: 12/31/2018
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: 12/31/2015
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 11/21/2018
Next Scheduled EDR Contact: 03/04/2019
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: 10/09/2018
Next Scheduled EDR Contact: 01/21/2019
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: 08/08/2017
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 11/01/2018
Next Scheduled EDR Contact: 02/18/2019
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: 06/23/2017
Date Data Arrived at EDR: 10/11/2017
Date Made Active in Reports: 11/03/2017
Number of Days to Update: 23

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 11/16/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 08/13/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/16/2018
Number of Days to Update: 43

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 11/27/2018
Next Scheduled EDR Contact: 01/14/2019
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 1931 and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
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: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
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: 08/01/2018
Date Data Arrived at EDR: 08/29/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 37

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 11/30/2018
Next Scheduled EDR Contact: 03/11/2019
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: 11/30/2018
Next Scheduled EDR Contact: 03/11/2019
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: 11/30/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 09/10/2018	Source: Department of Interior
Date Data Arrived at EDR: 09/11/2018	Telephone: 202-208-2609
Date Made Active in Reports: 09/14/2018	Last EDR Contact: 12/06/2018
Number of Days to Update: 3	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Quarterly

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: 08/07/2018	Source: EPA
Date Data Arrived at EDR: 09/05/2018	Telephone: (415) 947-8000
Date Made Active in Reports: 10/05/2018	Last EDR Contact: 12/05/2018
Number of Days to Update: 30	Next Scheduled EDR Contact: 03/18/2019
	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: 05/31/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 07/26/2018	Telephone: 202-564-0527
Date Made Active in Reports: 10/05/2018	Last EDR Contact: 11/30/2018
Number of Days to Update: 71	Next Scheduled EDR Contact: 03/11/2019
	Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 09/30/2017	Source: Department of Defense
Date Data Arrived at EDR: 06/19/2018	Telephone: 703-704-1564
Date Made Active in Reports: 09/14/2018	Last EDR Contact: 10/15/2018
Number of Days to Update: 87	Next Scheduled EDR Contact: 01/28/2019
	Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 09/02/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 09/05/2018	Telephone: 202-564-2280
Date Made Active in Reports: 09/14/2018	Last EDR Contact: 12/31/2018
Number of Days to Update: 9	Next Scheduled EDR Contact: 03/18/2019
	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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 08/22/2018
Date Data Arrived at EDR: 08/22/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 44

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 11/19/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Quarterly

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: 09/24/2018
Date Data Arrived at EDR: 09/25/2018
Date Made Active in Reports: 10/16/2018
Number of Days to Update: 21

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 09/25/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

CUPA SAN FRANCISCO CO: CUPA Facility Listing

Cupa facilities

Date of Government Version: 09/11/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 09/19/2018
Number of Days to Update: 7

Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 11/01/2018
Next Scheduled EDR Contact: 02/18/2019
Data Release Frequency: Varies

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing

list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 08/28/2018
Date Data Arrived at EDR: 08/30/2018
Date Made Active in Reports: 11/01/2018
Number of Days to Update: 63

Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 12/06/2018
Next Scheduled EDR Contact: 02/25/2019
Data Release Frequency: Varies

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing

A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 10/15/2018
Date Data Arrived at EDR: 10/16/2018
Date Made Active in Reports: 11/16/2018
Number of Days to Update: 31

Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 11/29/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Varies

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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 08/30/2018
Date Data Arrived at EDR: 09/27/2018
Date Made Active in Reports: 11/01/2018
Number of Days to Update: 35

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 11/29/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Annually

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 10/04/2018
Date Data Arrived at EDR: 10/05/2018
Date Made Active in Reports: 11/01/2018
Number of Days to Update: 27

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 11/26/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: Varies

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 06/20/2018
Date Made Active in Reports: 08/06/2018
Number of Days to Update: 47

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 09/21/2018
Next Scheduled EDR Contact: 12/31/2018
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: 08/01/2018
Date Data Arrived at EDR: 08/02/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 36

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 11/01/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 10/19/2018
Date Data Arrived at EDR: 10/23/2018
Date Made Active in Reports: 11/30/2018
Number of Days to Update: 38

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
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: 08/14/2018
Date Data Arrived at EDR: 08/16/2018
Date Made Active in Reports: 09/10/2018
Number of Days to Update: 25

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 11/07/2018
Next Scheduled EDR Contact: 02/25/2019
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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 10/10/2018
Date Made Active in Reports: 11/16/2018
Number of Days to Update: 37

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 10/10/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 08/20/2018
Date Data Arrived at EDR: 08/21/2018
Date Made Active in Reports: 09/10/2018
Number of Days to Update: 20

Source: Department of Toxic Substances Control
Telephone: 877-786-9427
Last EDR Contact: 11/19/2018
Next Scheduled EDR Contact: 03/04/2019
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: 08/20/2018
Date Data Arrived at EDR: 08/21/2018
Date Made Active in Reports: 09/10/2018
Number of Days to Update: 20

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/19/2018
Next Scheduled EDR Contact: 03/04/2019
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: 10/09/2018
Date Data Arrived at EDR: 10/10/2018
Date Made Active in Reports: 11/16/2018
Number of Days to Update: 37

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 10/10/2018
Next Scheduled EDR Contact: 01/21/2019
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: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/09/2018
Number of Days to Update: 27

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Quarterly

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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 08/28/2018
Date Data Arrived at EDR: 09/05/2018
Date Made Active in Reports: 10/03/2018
Number of Days to Update: 28

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 12/05/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Varies

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 08/09/2018
Date Data Arrived at EDR: 08/10/2018
Date Made Active in Reports: 09/10/2018
Number of Days to Update: 31

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 11/14/2018
Next Scheduled EDR Contact: 02/25/2019
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: 09/04/2018
Date Data Arrived at EDR: 09/05/2018
Date Made Active in Reports: 10/03/2018
Number of Days to Update: 28

Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 12/05/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Quarterly

PROC: Certified Processors Database

A listing of certified processors.

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/15/2018
Number of Days to Update: 33

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
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: 09/19/2018
Date Data Arrived at EDR: 09/20/2018
Date Made Active in Reports: 10/19/2018
Number of Days to Update: 29

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 04/01/2019
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: 04/27/2018
Date Data Arrived at EDR: 06/13/2018
Date Made Active in Reports: 07/17/2018
Number of Days to Update: 34

Source: Department of Conservation
Telephone: 916-445-2408
Last EDR Contact: 09/13/2018
Next Scheduled EDR Contact: 12/24/2018
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 boards review found that more than one-third of the region's active disposal pits are operating without permission.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 05/08/2018
Date Data Arrived at EDR: 07/11/2018
Date Made Active in Reports: 09/13/2018
Number of Days to Update: 64

Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 10/12/2018
Next Scheduled EDR Contact: 01/21/2019
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: 11/14/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Quarterly

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 10/22/2018
Date Data Arrived at EDR: 10/23/2018
Date Made Active in Reports: 11/30/2018
Number of Days to Update: 38

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 10/23/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

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: 09/25/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/09/2018
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)

Underground control injection sites

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/09/2018
Number of Days to Update: 27

Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/09/2018
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CIWQS: California Integrated Water Quality System

The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 09/04/2018	Source: State Water Resources Control Board
Date Data Arrived at EDR: 09/05/2018	Telephone: 866-794-4977
Date Made Active in Reports: 10/02/2018	Last EDR Contact: 12/04/2018
Number of Days to Update: 27	Next Scheduled EDR Contact: 03/18/2019
	Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing

In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 09/10/2018	Source: State Water Resources Control Board
Date Data Arrived at EDR: 09/12/2018	Telephone: 916-341-5810
Date Made Active in Reports: 10/09/2018	Last EDR Contact: 12/12/2018
Number of Days to Update: 27	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Quarterly

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)

Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 09/10/2018	Source: State Water Resources Control Board
Date Data Arrived at EDR: 09/12/2018	Telephone: 866-480-1028
Date Made Active in Reports: 10/09/2018	Last EDR Contact: 12/12/2018
Number of Days to Update: 27	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)

Projects sites

Date of Government Version: 09/10/2018	Source: State Water Resources Control Board
Date Data Arrived at EDR: 09/12/2018	Telephone: 866-480-1028
Date Made Active in Reports: 10/09/2018	Last EDR Contact: 12/12/2018
Number of Days to Update: 27	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)

Sampling point - public sites

Date of Government Version: 09/10/2018	Source: State Water Resources Control Board
Date Data Arrived at EDR: 09/12/2018	Telephone: 866-480-1028
Date Made Active in Reports: 10/09/2018	Last EDR Contact: 12/12/2018
Number of Days to Update: 27	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)

Produced water ponds sites

Date of Government Version: 09/10/2018	Source: State Water Resources Control Board
Date Data Arrived at EDR: 09/12/2018	Telephone: 866-480-1028
Date Made Active in Reports: 10/09/2018	Last EDR Contact: 12/12/2018
Number of Days to Update: 27	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)

Military privatized sites

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/09/2018
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

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 Historical Auto 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 Historical 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

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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	Source: Department of Resources Recycling and Recovery
Date Data Arrived at EDR: 07/01/2013	Telephone: N/A
Date Made Active in Reports: 01/13/2014	Last EDR Contact: 06/01/2012
Number of Days to Update: 196	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	Source: State Water Resources Control Board
Date Data Arrived at EDR: 07/01/2013	Telephone: N/A
Date Made Active in Reports: 12/30/2013	Last EDR Contact: 06/01/2012
Number of Days to Update: 182	Next Scheduled EDR Contact: N/A
	Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: 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: 10/05/2018	Source: Alameda County Environmental Health Services
Date Data Arrived at EDR: 10/10/2018	Telephone: 510-567-6700
Date Made Active in Reports: 11/01/2018	Last EDR Contact: 10/05/2018
Number of Days to Update: 22	Next Scheduled EDR Contact: 01/21/2019
	Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 10/05/2018	Source: Alameda County Environmental Health Services
Date Data Arrived at EDR: 10/10/2018	Telephone: 510-567-6700
Date Made Active in Reports: 11/02/2018	Last EDR Contact: 10/05/2018
Number of Days to Update: 23	Next Scheduled EDR Contact: 04/24/2047
	Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List

Cupa Facility List

Date of Government Version: 07/01/2018	Source: Amador County Environmental Health
Date Data Arrived at EDR: 07/24/2018	Telephone: 209-223-6439
Date Made Active in Reports: 08/20/2018	Last EDR Contact: 11/29/2018
Number of Days to Update: 27	Next Scheduled EDR Contact: 03/18/2019
	Data Release Frequency: Varies

BUTTE COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA BUTTE: CUPA Facility Listing
Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 10/05/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 10/31/2018
Date Data Arrived at EDR: 12/04/2018
Date Made Active in Reports: 12/12/2018
Number of Days to Update: 8

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 09/24/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

Date of Government Version: 05/23/2018
Date Data Arrived at EDR: 05/24/2018
Date Made Active in Reports: 07/13/2018
Number of Days to Update: 50

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 11/14/2018
Next Scheduled EDR Contact: 02/18/2019
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 08/20/2018
Date Data Arrived at EDR: 08/21/2018
Date Made Active in Reports: 09/11/2018
Number of Days to Update: 21

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 10/29/2018
Next Scheduled EDR Contact: 02/11/2019
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List
Cupa Facility list

Date of Government Version: 08/16/2018
Date Data Arrived at EDR: 11/06/2018
Date Made Active in Reports: 11/14/2018
Number of Days to Update: 8

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 10/25/2018
Next Scheduled EDR Contact: 02/11/2019
Data Release Frequency: Varies

EL DORADO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA EL DORADO: CUPA Facility List CUPA facility list.

Date of Government Version: 09/04/2018
Date Data Arrived at EDR: 09/05/2018
Date Made Active in Reports: 09/18/2018
Number of Days to Update: 13

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 11/16/2018
Next Scheduled EDR Contact: 02/11/2019
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: 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: 10/16/2018
Date Data Arrived at EDR: 10/18/2018
Date Made Active in Reports: 11/14/2018
Number of Days to Update: 27

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 10/15/2018
Next Scheduled EDR Contact: 01/14/2019
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List CUPA facility list.

Date of Government Version: 07/11/2018
Date Data Arrived at EDR: 07/13/2018
Date Made Active in Reports: 08/22/2018
Number of Days to Update: 30

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 11/19/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List Cupa facility list.

Date of Government Version: 10/22/2018
Date Data Arrived at EDR: 10/25/2018
Date Made Active in Reports: 11/14/2018
Number of Days to Update: 20

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

INYO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA INYO: CUPA Facility List Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 11/14/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Varies

KERN COUNTY:

UST KERN: Underground Storage Tank Sites & Tank Listing Kern County Sites and Tanks Listing.

Date of Government Version: 07/20/2018
Date Data Arrived at EDR: 07/25/2018
Date Made Active in Reports: 09/12/2018
Number of Days to Update: 49

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 11/01/2018
Next Scheduled EDR Contact: 02/18/2019
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: 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: 11/21/2018
Date Data Arrived at EDR: 11/27/2018
Date Made Active in Reports: 12/12/2018
Number of Days to Update: 15

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 11/14/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List Cupa facility list

Date of Government Version: 11/07/2018
Date Data Arrived at EDR: 11/08/2018
Date Made Active in Reports: 11/14/2018
Number of Days to Update: 6

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 10/15/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List Cupa facility list

Date of Government Version: 10/15/2018
Date Data Arrived at EDR: 10/23/2018
Date Made Active in Reports: 11/14/2018
Number of Days to Update: 22

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

LOS ANGELES COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

AOCONCERN: 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: 12/12/2018
Next Scheduled EDR Contact: 04/01/2019
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 09/20/2018
Date Data Arrived at EDR: 10/12/2018
Date Made Active in Reports: 11/16/2018
Number of Days to Update: 35

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 10/05/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 10/15/2018
Date Data Arrived at EDR: 10/16/2018
Date Made Active in Reports: 11/16/2018
Number of Days to Update: 31

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 10/16/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2018
Date Data Arrived at EDR: 05/01/2018
Date Made Active in Reports: 05/14/2018
Number of Days to Update: 13

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 10/15/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 07/01/2018
Date Data Arrived at EDR: 10/16/2018
Date Made Active in Reports: 11/16/2018
Number of Days to Update: 31

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 10/16/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 10/15/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Semi-Annually

UST LONG BEACH: City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/09/2017
Date Data Arrived at EDR: 03/10/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 54

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 10/02/2018	Source: City of Torrance Fire Department
Date Data Arrived at EDR: 10/05/2018	Telephone: 310-618-2973
Date Made Active in Reports: 11/02/2018	Last EDR Contact: 10/05/2018
Number of Days to Update: 28	Next Scheduled EDR Contact: 01/21/2019
	Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: 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: 11/26/2018	Source: Madera County Environmental Health
Date Data Arrived at EDR: 11/27/2018	Telephone: 559-675-7823
Date Made Active in Reports: 12/12/2018	Last EDR Contact: 11/14/2018
Number of Days to Update: 15	Next Scheduled EDR Contact: 03/04/2019
	Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018	Source: Public Works Department Waste Management
Date Data Arrived at EDR: 10/04/2018	Telephone: 415-473-6647
Date Made Active in Reports: 11/02/2018	Last EDR Contact: 10/01/2018
Number of Days to Update: 29	Next Scheduled EDR Contact: 01/14/2019
	Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/29/2018	Source: Merced County Environmental Health
Date Data Arrived at EDR: 08/31/2018	Telephone: 209-381-1094
Date Made Active in Reports: 09/19/2018	Last EDR Contact: 11/14/2018
Number of Days to Update: 19	Next Scheduled EDR Contact: 03/04/2019
	Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 07/18/2018	Source: Mono County Health Department
Date Data Arrived at EDR: 09/04/2018	Telephone: 760-932-5580
Date Made Active in Reports: 09/19/2018	Last EDR Contact: 12/06/2018
Number of Days to Update: 15	Next Scheduled EDR Contact: 03/11/2019
	Data Release Frequency: Varies

MONTEREY COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA MONTEREY: CUPA Facility Listing

CUPA Program listing from the Environmental Health Division.

Date of Government Version: 10/29/2018
Date Data Arrived at EDR: 11/01/2018
Date Made Active in Reports: 11/16/2018
Number of Days to Update: 15

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 10/01/2018
Next Scheduled EDR Contact: 01/14/2019
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination

A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 11/21/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites

Underground storage tank sites located in Napa county.

Date of Government Version: 08/27/2018
Date Data Arrived at EDR: 08/28/2018
Date Made Active in Reports: 10/03/2018
Number of Days to Update: 36

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 11/26/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List

CUPA facility list.

Date of Government Version: 11/06/2018
Date Data Arrived at EDR: 11/08/2018
Date Made Active in Reports: 11/14/2018
Number of Days to Update: 6

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 10/25/2018
Next Scheduled EDR Contact: 02/11/2019
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups

Petroleum and non-petroleum spills.

Date of Government Version: 07/13/2018
Date Data Arrived at EDR: 08/08/2018
Date Made Active in Reports: 09/10/2018
Number of Days to Update: 33

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/05/2018
Next Scheduled EDR Contact: 02/18/2019
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups

Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 07/13/2018
Date Data Arrived at EDR: 08/08/2018
Date Made Active in Reports: 09/10/2018
Number of Days to Update: 33

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/05/2018
Next Scheduled EDR Contact: 02/18/2019
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST ORANGE: List of Underground Storage Tank Facilities

Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 07/13/2018
Date Data Arrived at EDR: 08/06/2018
Date Made Active in Reports: 09/12/2018
Number of Days to Update: 37

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/06/2018
Next Scheduled EDR Contact: 02/18/2019
Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities

List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 09/04/2018
Date Data Arrived at EDR: 09/06/2018
Date Made Active in Reports: 10/03/2018
Number of Days to Update: 27

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 11/29/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List

Plumas County CUPA Program facilities.

Date of Government Version: 07/19/2018
Date Data Arrived at EDR: 07/25/2018
Date Made Active in Reports: 09/05/2018
Number of Days to Update: 42

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites

Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 10/10/2018
Date Data Arrived at EDR: 10/12/2018
Date Made Active in Reports: 10/16/2018
Number of Days to Update: 4

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/17/2018
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List

Underground storage tank sites located in Riverside county.

Date of Government Version: 10/10/2018
Date Data Arrived at EDR: 10/12/2018
Date Made Active in Reports: 11/05/2018
Number of Days to Update: 24

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/17/2018
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List

List of sites where unauthorized releases of potentially hazardous materials have occurred.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 08/03/2018
Date Data Arrived at EDR: 10/02/2018
Date Made Active in Reports: 11/01/2018
Number of Days to Update: 30

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 10/02/2018
Next Scheduled EDR Contact: 01/14/2019
Data Release Frequency: Quarterly

ML SACRAMENTO: 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: 08/23/2018
Date Data Arrived at EDR: 10/02/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 31

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 10/02/2018
Next Scheduled EDR Contact: 01/14/2019
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List

Cupa facility list

Date of Government Version: 08/07/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 09/05/2018
Number of Days to Update: 27

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 11/14/2018
Next Scheduled EDR Contact: 02/18/2019
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: 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: 07/27/2018
Date Data Arrived at EDR: 07/31/2018
Date Made Active in Reports: 09/10/2018
Number of Days to Update: 41

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 11/05/2018
Next Scheduled EDR Contact: 02/18/2019
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

HMMD SAN DIEGO: 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: 06/04/2018
Date Data Arrived at EDR: 06/06/2018
Date Made Active in Reports: 07/17/2018
Number of Days to Update: 41

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 12/05/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LF SAN DIEGO: Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 04/18/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 56

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing

A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 10/22/2018
Date Data Arrived at EDR: 10/23/2018
Date Made Active in Reports: 11/30/2018
Number of Days to Update: 38

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

SAN DIEGO CO. SAM: 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: 11/29/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

LUST SAN FRANCISCO: Local Oversight 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: 11/01/2018
Next Scheduled EDR Contact: 02/18/2019
Data Release Frequency: Quarterly

UST SAN FRANCISCO: Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 09/17/2018
Date Data Arrived at EDR: 09/18/2018
Date Made Active in Reports: 10/03/2018
Number of Days to Update: 15

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 11/01/2018
Next Scheduled EDR Contact: 02/18/2019
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST

A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 04/01/2019
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA SAN LUIS OBISPO: CUPA Facility List Cupa Facility List.

Date of Government Version: 08/20/2018
Date Data Arrived at EDR: 08/21/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 17

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 11/14/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory

List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 09/18/2018
Date Data Arrived at EDR: 09/20/2018
Date Made Active in Reports: 11/01/2018
Number of Days to Update: 42

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 09/18/2018
Date Data Arrived at EDR: 09/20/2018
Date Made Active in Reports: 10/17/2018
Number of Days to Update: 27

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/10/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: 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: 11/14/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Varies

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List

Cupa facility list

Date of Government Version: 08/17/2018
Date Data Arrived at EDR: 08/22/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 16

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 11/14/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Varies

HIST LUST SANTA CLARA: 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

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST SANTA CLARA: 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: 11/21/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: Annually

SAN JOSE HAZMAT: Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 08/01/2018
Date Data Arrived at EDR: 08/06/2018
Date Made Active in Reports: 09/11/2018
Number of Days to Update: 36

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 11/01/2018
Next Scheduled EDR Contact: 02/18/2019
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List

CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 11/14/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List

Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 11/14/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks

A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 08/29/2018
Date Data Arrived at EDR: 09/04/2018
Date Made Active in Reports: 10/17/2018
Number of Days to Update: 43

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 11/29/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks

Underground storage tank sites located in Solano county.

Date of Government Version: 08/29/2018
Date Data Arrived at EDR: 09/04/2018
Date Made Active in Reports: 10/18/2018
Number of Days to Update: 44

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 11/29/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Quarterly

SONOMA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA SONOMA: Cupa Facility List Cupa Facility list

Date of Government Version: 09/24/2018
Date Data Arrived at EDR: 09/25/2018
Date Made Active in Reports: 10/16/2018
Number of Days to Update: 21

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 09/24/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites

A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 10/02/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 10/25/2018
Number of Days to Update: 21

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 09/24/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List Cupa facility list

Date of Government Version: 08/14/2018
Date Data Arrived at EDR: 08/16/2018
Date Made Active in Reports: 08/24/2018
Number of Days to Update: 8

Source: Stanislaus County Department of Environmental Protection
Telephone: 209-525-6751
Last EDR Contact: 10/15/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 09/18/2018
Date Data Arrived at EDR: 09/20/2018
Date Made Active in Reports: 10/25/2018
Number of Days to Update: 35

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 11/29/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List Cupa facilities

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 08/02/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 36

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 02/18/2019
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List Cupa facility list

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/22/2018
Date Data Arrived at EDR: 10/25/2018
Date Made Active in Reports: 11/14/2018
Number of Days to Update: 20

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List Cupa program facilities

Date of Government Version: 09/13/2018
Date Data Arrived at EDR: 09/14/2018
Date Made Active in Reports: 09/19/2018
Number of Days to Update: 5

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 11/29/2018
Next Scheduled EDR Contact: 02/18/2019
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: 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: 09/26/2018
Date Data Arrived at EDR: 10/25/2018
Date Made Active in Reports: 11/30/2018
Number of Days to Update: 36

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Quarterly

LF VENTURA: 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: 10/01/2018
Next Scheduled EDR Contact: 01/14/2019
Data Release Frequency: Annually

LUST VENTURA: 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: 11/07/2018
Next Scheduled EDR Contact: 02/25/2019
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

MED WASTE VENTURA: 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: 09/25/2018	Source: Ventura County Resource Management Agency
Date Data Arrived at EDR: 10/25/2018	Telephone: 805-654-2813
Date Made Active in Reports: 11/30/2018	Last EDR Contact: 10/22/2018
Number of Days to Update: 36	Next Scheduled EDR Contact: 02/04/2019
	Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 09/04/2018	Source: Environmental Health Division
Date Data Arrived at EDR: 09/12/2018	Telephone: 805-654-2813
Date Made Active in Reports: 10/04/2018	Last EDR Contact: 12/12/2018
Number of Days to Update: 22	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 10/15/2018	Source: Yolo County Department of Health
Date Data Arrived at EDR: 10/19/2018	Telephone: 530-666-8646
Date Made Active in Reports: 11/05/2018	Last EDR Contact: 10/15/2018
Number of Days to Update: 17	Next Scheduled EDR Contact: 01/14/2019
	Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List

CUPA facility listing for Yuba County.

Date of Government Version: 11/05/2018	Source: Yuba County Environmental Health Department
Date Data Arrived at EDR: 11/07/2018	Telephone: 530-749-7523
Date Made Active in Reports: 11/14/2018	Last EDR Contact: 10/25/2018
Number of Days to Update: 7	Next Scheduled EDR Contact: 02/11/2019
	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: 11/12/2018	Source: Department of Energy & Environmental Protection
Date Data Arrived at EDR: 11/14/2018	Telephone: 860-424-3375
Date Made Active in Reports: 12/04/2018	Last EDR Contact: 11/14/2018
Number of Days to Update: 20	Next Scheduled EDR Contact: 02/25/2019
	Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 07/13/2018
Date Made Active in Reports: 08/01/2018
Number of Days to Update: 19

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 10/09/2018
Next Scheduled EDR Contact: 01/21/2019
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: 07/01/2018
Date Data Arrived at EDR: 08/01/2018
Date Made Active in Reports: 08/31/2018
Number of Days to Update: 30

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 10/31/2018
Next Scheduled EDR Contact: 02/11/2019
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 10/23/2018
Date Made Active in Reports: 11/27/2018
Number of Days to Update: 35

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 10/15/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 02/23/2018
Date Made Active in Reports: 04/09/2018
Number of Days to Update: 45

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 11/16/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 06/15/2018
Date Made Active in Reports: 07/09/2018
Number of Days to Update: 24

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 12/07/2018
Next Scheduled EDR Contact: 03/25/2019
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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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 and Wildlife

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

11183495 - LONG BEACH, CA
331 WINDSOR WAY
LONG BEACH, CA 90802

TARGET PROPERTY COORDINATES

Latitude (North):	33.750374 - 33° 45' 1.35"
Longitude (West):	118.190734 - 118° 11' 26.64"
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	389712.2
UTM Y (Meters):	3734921.5
Elevation:	15 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5652670 LONG BEACH, CA
Version Date:	2012
South Map:	5633769 LONG BEACH OE S, 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 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).

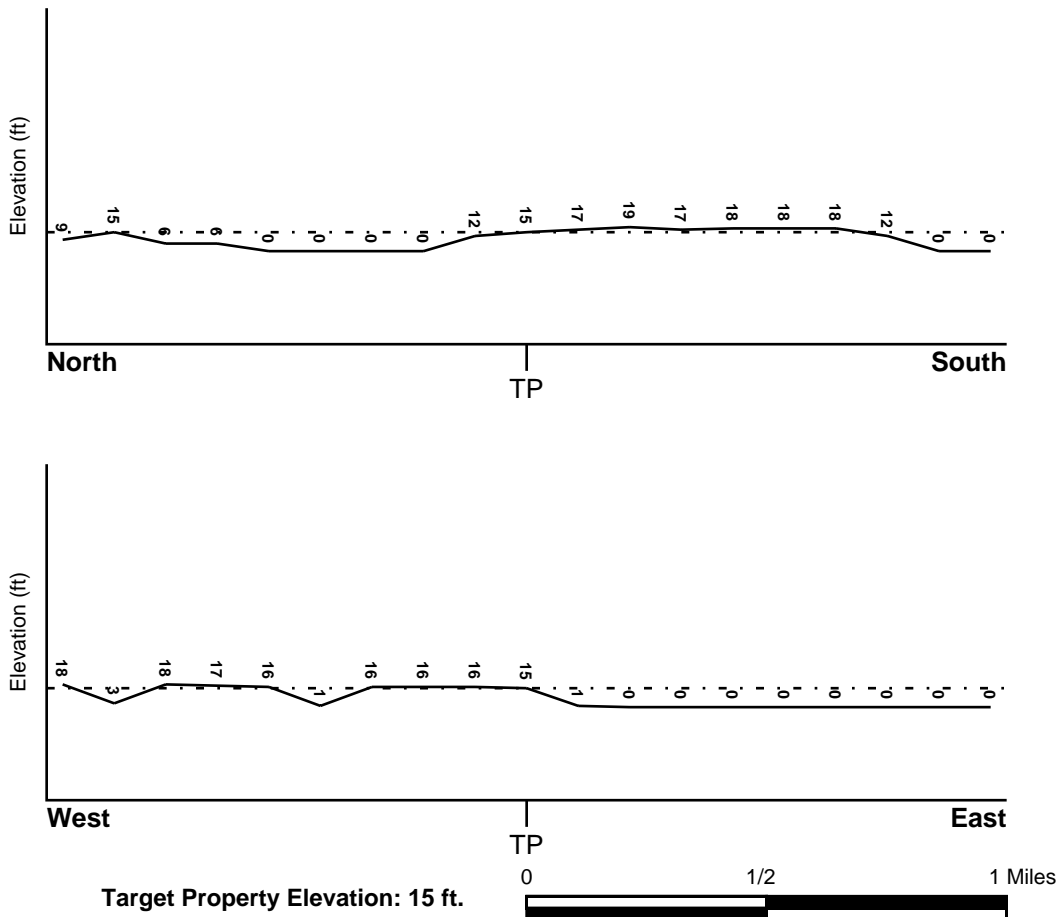
TOPOGRAPHIC INFORMATION

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 NE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



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

<u>Flood Plain Panel at Target Property</u>	<u>FEMA Source Type</u>
06037C1964F	FEMA FIRM Flood data
<u>Additional Panels in search area:</u>	<u>FEMA Source Type</u>
06037C1970F	FEMA FIRM Flood data
06037C2055F	FEMA FIRM Flood data
06037C2060F	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

<u>NWI Quad at Target Property</u>	<u>NWI Electronic</u>
NORTH LONG BEACH (OE)	<u>Data Coverage</u>
	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.

<u>MAP ID</u>	<u>LOCATION FROM TP</u>	<u>GENERAL DIRECTION GROUNDWATER FLOW</u>
1	1/2 - 1 Mile WNW	Varies
1G	1/2 - 1 Mile WNW	Varies

For additional site information, refer to Physical Setting Source Map Findings.

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: Stratified 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).

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. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name: URBAN LAND

Soil Surface Texture: variable

Hydrologic Group: Not reported

Soil Drainage Class: Not reported

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 10 inches

Depth to Bedrock Max: > 10 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Permeability Rate (in/hr)	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	6 inches	variable	Not reported	Not reported	Max: 0.00 Min: 0.00	Max: 0.00 Min: 0.00

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: loam
 clay
 silt loam
 loamy sand
 sandy loam
 fine sand
 clay loam
 gravelly - sandy loam
 coarse sand
 gravelly - sand
 sand

Surficial Soil Types: loam
 clay
 silt loam
 loamy sand
 sandy loam
 fine sand
 clay loam
 gravelly - sandy loam
 coarse sand
 gravelly - sand
 sand

Shallow Soil Types: fine sandy loam
 gravelly - loam
 sand
 silty clay

Deeper Soil Types: stratified
 clay loam
 silty clay loam
 gravelly - sandy loam
 coarse sand
 sand
 weathered bedrock
 very fine sandy loam

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

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

<u>DATABASE</u>	<u>SEARCH DISTANCE (miles)</u>
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No Wells Found		

OTHER STATE DATABASE INFORMATION

STATE OIL/GAS WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
A1	CAOG11000225757	0 - 1/8 Mile South
A2	CAOG11000297549	0 - 1/8 Mile SSW
B3	CAOG11000225712	0 - 1/8 Mile SW
B4	CAOG11000225713	0 - 1/8 Mile SW
B5	CAOG11000224321	0 - 1/8 Mile SW
B6	CAOG11000223216	0 - 1/8 Mile SW
B7	CAOG11000225516	0 - 1/8 Mile SW
B8	CAOG11000227229	0 - 1/8 Mile SW
B9	CAOG11000225737	0 - 1/8 Mile SW
B10	CAOG11000226312	0 - 1/8 Mile SW
B11	CAOG11000226313	0 - 1/8 Mile SW
B12	CAOG11000223276	0 - 1/8 Mile SW
B13	CAOG11000225689	0 - 1/8 Mile SW
B14	CAOG11000223213	0 - 1/8 Mile SW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
B15	CAOG11000223214	0 - 1/8 Mile SW
B16	CAOG11000223215	0 - 1/8 Mile SW
B17	CAOG11000223275	0 - 1/8 Mile SW
B18	CAOG11000227118	0 - 1/8 Mile SW
A19	CAOG11000303566	0 - 1/8 Mile South
A20	CAOG11000297566	0 - 1/8 Mile SSW
A21	CAOG11000199355	0 - 1/8 Mile SSW
B22	CAOG11000223264	0 - 1/8 Mile WSW
B23	CAOG11000223265	0 - 1/8 Mile WSW
B24	CAOG11000223269	0 - 1/8 Mile WSW
B25	CAOG11000223268	0 - 1/8 Mile WSW
A26	CAOG11000199751	0 - 1/8 Mile SSW
A27	CAOG11000199752	0 - 1/8 Mile SSW
A28	CAOG11000303567	0 - 1/8 Mile South
A29	CAOG11000298345	0 - 1/8 Mile South
B30	CAOG11000226228	0 - 1/8 Mile WSW
B31	CAOG11000223267	0 - 1/8 Mile WSW
A32	CAOG11000199753	0 - 1/8 Mile SSW
B33	CAOG11000223206	0 - 1/8 Mile WSW
B34	CAOG11000225527	0 - 1/8 Mile WSW
B35	CAOG11000225528	0 - 1/8 Mile WSW
A36	CAOG11000297749	0 - 1/8 Mile South
B37	CAOG11000223266	0 - 1/8 Mile WSW
B38	CAOG11000225786	0 - 1/8 Mile WSW
A39	CAOG11000199356	1/8 - 1/4 Mile South
B41	CAOG11000225686	1/8 - 1/4 Mile SW
B40	CAOG11000225685	1/8 - 1/4 Mile SW
B42	CAOG11000223278	1/8 - 1/4 Mile SW
B43	CAOG11000223279	1/8 - 1/4 Mile SW
B44	CAOG11000223280	1/8 - 1/4 Mile SW
B45	CAOG11000225699	1/8 - 1/4 Mile SW
B46	CAOG11000223308	1/8 - 1/4 Mile SW
B47	CAOG11000223217	1/8 - 1/4 Mile SW
B48	CAOG11000223218	1/8 - 1/4 Mile SW
B49	CAOG11000225785	1/8 - 1/4 Mile SW
B50	CAOG11000223115	1/8 - 1/4 Mile SW
B51	CAOG11000223277	1/8 - 1/4 Mile SW
B52	CAOG11000215140	1/8 - 1/4 Mile SW
B54	CAOG11000223219	1/8 - 1/4 Mile SW
B53	CAOG11000223220	1/8 - 1/4 Mile SW
B56	CAOG11000223221	1/8 - 1/4 Mile SW
B55	CAOG11000223222	1/8 - 1/4 Mile SW
B57	CAOG11000223207	1/8 - 1/4 Mile WSW
B58	CAOG11000223212	1/8 - 1/4 Mile WSW
B59	CAOG11000223274	1/8 - 1/4 Mile WSW
B60	CAOG11000223273	1/8 - 1/4 Mile WSW
B61	CAOG11000223272	1/8 - 1/4 Mile WSW
B62	CAOG11000223209	1/8 - 1/4 Mile WSW
B63	CAOG11000223210	1/8 - 1/4 Mile WSW
B64	CAOG11000223211	1/8 - 1/4 Mile WSW
B65	CAOG11000223271	1/8 - 1/4 Mile WSW
B66	CAOG11000224622	1/8 - 1/4 Mile WSW
B67	CAOG11000223270	1/8 - 1/4 Mile WSW
B68	CAOG11000223208	1/8 - 1/4 Mile WSW
B69	CAOG11000223624	1/8 - 1/4 Mile SW
B70	CAOG11000223625	1/8 - 1/4 Mile SSW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
B71	CAOG11000223626	1/8 - 1/4 Mile SSW
B72	CAOG11000223422	1/8 - 1/4 Mile SSW
B73	CAOG11000223159	1/8 - 1/4 Mile SSW
B74	CAOG11000223160	1/8 - 1/4 Mile SSW
B75	CAOG11000223423	1/8 - 1/4 Mile SSW
C76	CAOG11000228595	1/8 - 1/4 Mile WNW
C77	CAOG11000199756	1/8 - 1/4 Mile WNW
C80	CAOG11000229774	1/8 - 1/4 Mile WNW
C81	CAOG11000229773	1/8 - 1/4 Mile WNW
C78	CAOG11000229772	1/8 - 1/4 Mile WNW
C79	CAOG11000229771	1/8 - 1/4 Mile WNW
C82	CAOG11000199354	1/8 - 1/4 Mile WNW
C84	CAOG11000243008	1/8 - 1/4 Mile WNW
C83	CAOG11000243007	1/8 - 1/4 Mile WNW
C85	CAOG11000199770	1/8 - 1/4 Mile WNW
C86	CAOG11000230147	1/8 - 1/4 Mile NW
C87	CAOG11000243108	1/8 - 1/4 Mile WNW
C88	CAOG11000243109	1/8 - 1/4 Mile WNW
C90	CAOG11000242631	1/8 - 1/4 Mile WNW
C89	CAOG11000242630	1/8 - 1/4 Mile WNW
C91	CAOG11000230504	1/8 - 1/4 Mile WNW
C92	CAOG11000223251	1/8 - 1/4 Mile WNW
C93	CAOG11000223252	1/8 - 1/4 Mile WNW
C95	CAOG11000226797	1/4 - 1/2 Mile WNW
C94	CAOG11000226796	1/4 - 1/2 Mile WNW
C96	CAOG11000223156	1/4 - 1/2 Mile WNW
C97	CAOG11000223157	1/4 - 1/2 Mile WNW
C98	CAOG11000223158	1/4 - 1/2 Mile WNW
C99	CAOG11000228776	1/4 - 1/2 Mile WNW
C100	CAOG11000230619	1/4 - 1/2 Mile WNW
C101	CAOG11000299055	1/4 - 1/2 Mile WNW
D102	CAOG11000297142	1/4 - 1/2 Mile WNW
D103	CAOG11000297140	1/4 - 1/2 Mile WNW
D105	CAOG11000223257	1/4 - 1/2 Mile WNW
D104	CAOG11000223256	1/4 - 1/2 Mile WNW
D106	CAOG11000223205	1/4 - 1/2 Mile WNW
D107	CAOG11000225848	1/4 - 1/2 Mile WNW
D108	CAOG11000223203	1/4 - 1/2 Mile WNW
D109	CAOG11000223204	1/4 - 1/2 Mile WNW
D110	CAOG11000223260	1/4 - 1/2 Mile WNW
D111	CAOG11000223261	1/4 - 1/2 Mile WNW
D112	CAOG11000223258	1/4 - 1/2 Mile WNW
D113	CAOG11000223259	1/4 - 1/2 Mile WNW
D115	CAOG11000225665	1/4 - 1/2 Mile WNW
D114	CAOG11000225664	1/4 - 1/2 Mile WNW
D116	CAOG11000225666	1/4 - 1/2 Mile WNW
D118	CAOG11000226272	1/4 - 1/2 Mile WNW
D117	CAOG11000226271	1/4 - 1/2 Mile WNW
D119	CAOG11000225704	1/4 - 1/2 Mile WNW
D120	CAOG11000225702	1/4 - 1/2 Mile WNW
D121	CAOG11000225703	1/4 - 1/2 Mile WNW
D122	CAOG11000224319	1/4 - 1/2 Mile WNW
D123	CAOG11000224320	1/4 - 1/2 Mile WNW
D124	CAOG11000223262	1/4 - 1/2 Mile WNW
D125	CAOG11000223263	1/4 - 1/2 Mile WNW
D126	CAOG11000226823	1/4 - 1/2 Mile WNW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
D127	CAOG11000226044	1/4 - 1/2 Mile WNW
D128	CAOG11000297551	1/4 - 1/2 Mile WNW
D129	CAOG11000223202	1/4 - 1/2 Mile WNW
D131	CAOG11000225642	1/4 - 1/2 Mile WNW
D130	CAOG11000225641	1/4 - 1/2 Mile WNW
D132	CAOG11000225643	1/4 - 1/2 Mile WNW
D133	CAOG11000225668	1/4 - 1/2 Mile WNW
D135	CAOG11000224318	1/4 - 1/2 Mile WNW
D134	CAOG11000224317	1/4 - 1/2 Mile WNW
D137	CAOG11000223255	1/4 - 1/2 Mile WNW
D136	CAOG11000223254	1/4 - 1/2 Mile WNW
D138	CAOG11000225667	1/4 - 1/2 Mile WNW
D139	CAOG11000223253	1/4 - 1/2 Mile WNW
D140	CAOG11000225669	1/4 - 1/2 Mile WNW
D141	CAOG11000225808	1/4 - 1/2 Mile WNW
D142	CAOG11000225824	1/4 - 1/2 Mile WNW
D143	CAOG11000224620	1/4 - 1/2 Mile WNW
D144	CAOG11000224621	1/4 - 1/2 Mile WNW
D145	CAOG11000223244	1/4 - 1/2 Mile WNW
D146	CAOG11000223111	1/4 - 1/2 Mile WNW
D147	CAOG11000223112	1/4 - 1/2 Mile WNW
D150	CAOG11000223196	1/4 - 1/2 Mile WNW
D149	CAOG11000223195	1/4 - 1/2 Mile WNW
D148	CAOG11000223194	1/4 - 1/2 Mile WNW
D151	CAOG11000223245	1/4 - 1/2 Mile WNW
D152	CAOG11000223246	1/4 - 1/2 Mile WNW
D153	CAOG11000223247	1/4 - 1/2 Mile WNW
D154	CAOG11000224315	1/4 - 1/2 Mile WNW
D155	CAOG11000224316	1/4 - 1/2 Mile WNW
D156	CAOG11000223250	1/4 - 1/2 Mile WNW
D157	CAOG11000225736	1/4 - 1/2 Mile WNW
D158	CAOG11000223249	1/4 - 1/2 Mile WNW
D159	CAOG11000226321	1/4 - 1/2 Mile WNW
D160	CAOG11000224574	1/4 - 1/2 Mile WNW
D161	CAOG11000223248	1/4 - 1/2 Mile WNW
D162	CAOG11000223197	1/4 - 1/2 Mile WNW
D163	CAOG11000223198	1/4 - 1/2 Mile WNW
D166	CAOG11000225847	1/4 - 1/2 Mile WNW
D165	CAOG11000225846	1/4 - 1/2 Mile WNW
D164	CAOG11000225845	1/4 - 1/2 Mile WNW
D167	CAOG11000225807	1/4 - 1/2 Mile WNW
D168	CAOG11000223190	1/4 - 1/2 Mile WNW
E169	CAOG11000199330	1/4 - 1/2 Mile South
E170	CAOG11000199331	1/4 - 1/2 Mile South
E171	CAOG11000199760	1/4 - 1/2 Mile South
D173	CAOG11000223189	1/4 - 1/2 Mile WNW
D172	CAOG11000223188	1/4 - 1/2 Mile WNW
E174	CAOG11000199743	1/4 - 1/2 Mile South
E175	CAOG11000199744	1/4 - 1/2 Mile South
D176	CAOG11000225640	1/4 - 1/2 Mile WNW
D177	CAOG11000225639	1/4 - 1/2 Mile WNW
D178	CAOG11000223187	1/4 - 1/2 Mile WNW
E179	CAOG11000199332	1/4 - 1/2 Mile South
D180	CAOG11000223243	1/4 - 1/2 Mile WNW
E181	CAOG11000199333	1/4 - 1/2 Mile South
D183	CAOG11000225735	1/4 - 1/2 Mile WNW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
D182	CAOG11000225734	1/4 - 1/2 Mile WNW
D185	CAOG11000223114	1/4 - 1/2 Mile WNW
D184	CAOG11000223113	1/4 - 1/2 Mile WNW
E186	CAOG11000199334	1/4 - 1/2 Mile South
E187	CAOG11000199335	1/4 - 1/2 Mile South
D188	CAOG11000225843	1/4 - 1/2 Mile WNW
D189	CAOG11000225844	1/4 - 1/2 Mile WNW
E191	CAOG11000199337	1/4 - 1/2 Mile South
E190	CAOG11000199336	1/4 - 1/2 Mile South
F192	CAOG11000223192	1/4 - 1/2 Mile WNW
F193	CAOG11000223193	1/4 - 1/2 Mile WNW
E194	CAOG11000199338	1/4 - 1/2 Mile South
F195	CAOG11000225830	1/4 - 1/2 Mile WNW
F196	CAOG11000225831	1/4 - 1/2 Mile WNW
E197	CAOG11000199339	1/4 - 1/2 Mile South
F198	CAOG11000223191	1/4 - 1/2 Mile WNW
E199	CAOG11000199340	1/4 - 1/2 Mile South
F201	CAOG11000225806	1/4 - 1/2 Mile WNW
F200	CAOG11000225805	1/4 - 1/2 Mile WNW
E202	CAOG11000199341	1/4 - 1/2 Mile South
E204	CAOG11000199343	1/4 - 1/2 Mile South
E203	CAOG11000199342	1/4 - 1/2 Mile South
E205	CAOG11000199344	1/4 - 1/2 Mile South
E206	CAOG11000199345	1/4 - 1/2 Mile South
E207	CAOG11000199346	1/4 - 1/2 Mile South
E208	CAOG11000199138	1/4 - 1/2 Mile South
E210	CAOG11000225707	1/4 - 1/2 Mile South
E209	CAOG11000225706	1/4 - 1/2 Mile South
E211	CAOG11000225708	1/4 - 1/2 Mile South
E212	CAOG11000225799	1/4 - 1/2 Mile South
E213	CAOG11000223282	1/4 - 1/2 Mile South
E214	CAOG11000223283	1/4 - 1/2 Mile South
E215	CAOG11000225705	1/4 - 1/2 Mile South
E216	CAOG11000226150	1/4 - 1/2 Mile South
E217	CAOG11000226151	1/4 - 1/2 Mile South
E218	CAOG11000226152	1/4 - 1/2 Mile South
E219	CAOG11000226153	1/4 - 1/2 Mile South
E220	CAOG11000223284	1/4 - 1/2 Mile South
E222	CAOG11000225645	1/4 - 1/2 Mile South
E221	CAOG11000225644	1/4 - 1/2 Mile South
E223	CAOG11000225993	1/4 - 1/2 Mile South
E224	CAOG11000225994	1/4 - 1/2 Mile South
E225	CAOG11000223223	1/4 - 1/2 Mile South
E226	CAOG11000223285	1/4 - 1/2 Mile South
E227	CAOG11000226207	1/4 - 1/2 Mile South
E228	CAOG11000226208	1/4 - 1/2 Mile South
E229	CAOG11000223224	1/4 - 1/2 Mile South
E230	CAOG11000225637	1/4 - 1/2 Mile South
E231	CAOG11000223281	1/4 - 1/2 Mile South
E232	CAOG11000243573	1/4 - 1/2 Mile South
E233	CAOG11000243578	1/4 - 1/2 Mile South
E234	CAOG11000223287	1/4 - 1/2 Mile South
E235	CAOG11000225629	1/4 - 1/2 Mile South
E236	CAOG11000225652	1/4 - 1/2 Mile South
E237	CAOG11000225653	1/4 - 1/2 Mile South
E238	CAOG11000223288	1/4 - 1/2 Mile South

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
E239	CAOG11000226214	1/4 - 1/2 Mile South
E240	CAOG11000226215	1/4 - 1/2 Mile South
E241	CAOG11000226216	1/4 - 1/2 Mile South
E242	CAOG11000226745	1/4 - 1/2 Mile South
E243	CAOG11000225700	1/4 - 1/2 Mile South
E244	CAOG11000223227	1/4 - 1/2 Mile South
E246	CAOG11000223290	1/4 - 1/2 Mile South
E245	CAOG11000223289	1/4 - 1/2 Mile South
E247	CAOG11000242951	1/4 - 1/2 Mile South
E248	CAOG11000225781	1/4 - 1/2 Mile South
E250	CAOG11000223226	1/4 - 1/2 Mile South
E249	CAOG11000223225	1/4 - 1/2 Mile South
E251	CAOG11000223286	1/4 - 1/2 Mile South
E252	CAOG11000243258	1/4 - 1/2 Mile South
E254	CAOG11000225193	1/4 - 1/2 Mile South
E253	CAOG11000225192	1/4 - 1/2 Mile South
E255	CAOG11000226579	1/4 - 1/2 Mile South
E256	CAOG11000225709	1/4 - 1/2 Mile South
E258	CAOG11000225679	1/4 - 1/2 Mile South
E257	CAOG11000225678	1/4 - 1/2 Mile South
E260	CAOG11000223117	1/4 - 1/2 Mile South
E259	CAOG11000223116	1/4 - 1/2 Mile South
E261	CAOG11000224560	1/4 - 1/2 Mile South
E262	CAOG11000223228	1/4 - 1/2 Mile South
E263	CAOG11000223229	1/4 - 1/2 Mile South
E265	CAOG11000223293	1/4 - 1/2 Mile South
E264	CAOG11000223292	1/4 - 1/2 Mile South
G266	CAOG11000279952	1/4 - 1/2 Mile South
E267	CAOG11000223230	1/4 - 1/2 Mile South
E268	CAOG11000223231	1/4 - 1/2 Mile South
E269	CAOG11000223232	1/4 - 1/2 Mile South
E270	CAOG11000223233	1/4 - 1/2 Mile South
E271	CAOG11000225818	1/4 - 1/2 Mile South
E272	CAOG11000225819	1/4 - 1/2 Mile South
E273	CAOG11000223234	1/4 - 1/2 Mile South
G274	CAOG11000226577	1/4 - 1/2 Mile South
H275	CAOG11000199016	1/2 - 1 Mile NW
I276	CAOG11000223241	1/2 - 1 Mile South
H277	CAOG11000199014	1/2 - 1 Mile NW
H278	CAOG11000199015	1/2 - 1 Mile NW
H279	CAOG11000199013	1/2 - 1 Mile NW
I280	CAOG11000295496	1/2 - 1 Mile South
I281	CAOG11000225302	1/2 - 1 Mile South
I282	CAOG11000223235	1/2 - 1 Mile South
I283	CAOG11000223297	1/2 - 1 Mile South
I284	CAOG11000225820	1/2 - 1 Mile South
H285	CAOG11000198900	1/2 - 1 Mile NW
I286	CAOG11000225896	1/2 - 1 Mile South
I287	CAOG11000225560	1/2 - 1 Mile South
I288	CAOG11000226763	1/2 - 1 Mile South
I289	CAOG11000226764	1/2 - 1 Mile South
H290	CAOG11000198986	1/2 - 1 Mile NW
I291	CAOG11000223237	1/2 - 1 Mile South
I292	CAOG11000223238	1/2 - 1 Mile South
I293	CAOG11000223298	1/2 - 1 Mile South
I295	CAOG11000225688	1/2 - 1 Mile South

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
I294	CAOG11000225687	1/2 - 1 Mile South
I297	CAOG11000223296	1/2 - 1 Mile South
I296	CAOG11000223295	1/2 - 1 Mile South
H299	CAOG11000198904	1/2 - 1 Mile NW
H298	CAOG11000198903	1/2 - 1 Mile NW
I300	CAOG11000223118	1/2 - 1 Mile South
I301	CAOG11000242437	1/2 - 1 Mile South
I302	CAOG11000223239	1/2 - 1 Mile South
I303	CAOG11000223240	1/2 - 1 Mile South
I305	CAOG11000225542	1/2 - 1 Mile South
I304	CAOG11000225541	1/2 - 1 Mile South
H307	CAOG11000199113	1/2 - 1 Mile NW
H306	CAOG11000199112	1/2 - 1 Mile NW
I308	CAOG11000223294	1/2 - 1 Mile South
I309	CAOG11000223236	1/2 - 1 Mile South
I310	CAOG11000226774	1/2 - 1 Mile South
H311	CAOG11000199111	1/2 - 1 Mile NW
I312	CAOG11000226761	1/2 - 1 Mile South
H313	CAOG11000199110	1/2 - 1 Mile NW
H315	CAOG11000199109	1/2 - 1 Mile NW
H314	CAOG11000199108	1/2 - 1 Mile NW
H316	CAOG11000199107	1/2 - 1 Mile NW
H317	CAOG11000199120	1/2 - 1 Mile NW
H318	CAOG11000199106	1/2 - 1 Mile NW
I319	CAOG11000223299	1/2 - 1 Mile South
I320	CAOG11000223300	1/2 - 1 Mile South
I321	CAOG11000223301	1/2 - 1 Mile South
I322	CAOG11000223302	1/2 - 1 Mile South
H323	CAOG11000199105	1/2 - 1 Mile NW
I324	CAOG11000225680	1/2 - 1 Mile South
H325	CAOG11000199103	1/2 - 1 Mile NW
H326	CAOG11000199104	1/2 - 1 Mile NW
I328	CAOG11000223120	1/2 - 1 Mile South
I327	CAOG11000223119	1/2 - 1 Mile South
I329	CAOG11000294829	1/2 - 1 Mile South
I331	CAOG11000223304	1/2 - 1 Mile South
I330	CAOG11000223303	1/2 - 1 Mile South
H332	CAOG11000199102	1/2 - 1 Mile NW
I333	CAOG11000223242	1/2 - 1 Mile South
H335	CAOG11000223621	1/2 - 1 Mile WNW
H336	CAOG11000223622	1/2 - 1 Mile WNW
H334	CAOG11000223620	1/2 - 1 Mile WNW
H338	CAOG11000225756	1/2 - 1 Mile WNW
H337	CAOG11000225755	1/2 - 1 Mile WNW
H339	CAOG11000199101	1/2 - 1 Mile NW
H340	CAOG11000198923	1/2 - 1 Mile WNW
H341	CAOG11000198922	1/2 - 1 Mile WNW
H342	CAOG11000199327	1/2 - 1 Mile WNW
H343	CAOG11000199328	1/2 - 1 Mile WNW
H344	CAOG11000199329	1/2 - 1 Mile WNW
H346	CAOG11000199748	1/2 - 1 Mile WNW
H345	CAOG11000199747	1/2 - 1 Mile WNW
H348	CAOG11000199326	1/2 - 1 Mile WNW
H347	CAOG11000199325	1/2 - 1 Mile WNW
I349	CAOG11000223305	1/2 - 1 Mile South
H350	CAOG11000199100	1/2 - 1 Mile NW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
J353	CAOG11000199324	1/2 - 1 Mile WNW
J352	CAOG11000199323	1/2 - 1 Mile WNW
J351	CAOG11000199322	1/2 - 1 Mile WNW
J354	CAOG11000198921	1/2 - 1 Mile WNW
J356	CAOG11000199321	1/2 - 1 Mile WNW
J355	CAOG11000199320	1/2 - 1 Mile WNW
J357	CAOG11000199319	1/2 - 1 Mile WNW
H358	CAOG11000199099	1/2 - 1 Mile NW
J359	CAOG11000199318	1/2 - 1 Mile WNW
J360	CAOG11000199317	1/2 - 1 Mile WNW
I361	CAOG11000294817	1/2 - 1 Mile South
H362	CAOG11000199098	1/2 - 1 Mile NW
I363	CAOG11000226014	1/2 - 1 Mile South
I364	CAOG11000225681	1/2 - 1 Mile South
I365	CAOG11000223311	1/2 - 1 Mile South
H368	CAOG11000199316	1/2 - 1 Mile WNW
H366	CAOG11000199314	1/2 - 1 Mile WNW
H367	CAOG11000199315	1/2 - 1 Mile WNW
I369	CAOG11000294464	1/2 - 1 Mile South
J370	CAOG11000199017	1/2 - 1 Mile WNW
I371	CAOG11000223306	1/2 - 1 Mile South
I372	CAOG11000223307	1/2 - 1 Mile South
H373	CAOG11000199757	1/2 - 1 Mile WNW
I374	CAOG11000223312	1/2 - 1 Mile South
I375	CAOG11000223309	1/2 - 1 Mile South
I376	CAOG11000294470	1/2 - 1 Mile South
I377	CAOG11000294471	1/2 - 1 Mile South
I378	CAOG11000226173	1/2 - 1 Mile South
J379	CAOG11000199290	1/2 - 1 Mile WNW
I380	CAOG11000295495	1/2 - 1 Mile South
I381	CAOG11000223291	1/2 - 1 Mile South
I382	CAOG11000294469	1/2 - 1 Mile South
I384	CAOG11000225570	1/2 - 1 Mile South
I383	CAOG11000225569	1/2 - 1 Mile South
J385	CAOG11000199289	1/2 - 1 Mile WNW
I387	CAOG11000225572	1/2 - 1 Mile South
I386	CAOG11000225571	1/2 - 1 Mile South
H388	CAOG11000199096	1/2 - 1 Mile NW
I389	CAOG11000225219	1/2 - 1 Mile South
I390	CAOG11000225682	1/2 - 1 Mile South
I391	CAOG11000223310	1/2 - 1 Mile South
J392	CAOG11000199018	1/2 - 1 Mile WNW
J393	CAOG11000199019	1/2 - 1 Mile WNW
J394	CAOG11000199313	1/2 - 1 Mile WNW
I395	CAOG11000225997	1/2 - 1 Mile South
I396	CAOG11000225998	1/2 - 1 Mile South
H397	CAOG11000199095	1/2 - 1 Mile NW
I398	CAOG11000243275	1/2 - 1 Mile South
H399	CAOG11000199094	1/2 - 1 Mile NW
J400	CAOG11000199283	1/2 - 1 Mile WNW
J403	CAOG11000198920	1/2 - 1 Mile WNW
J402	CAOG11000198919	1/2 - 1 Mile WNW
J401	CAOG11000198918	1/2 - 1 Mile WNW
H404	CAOG11000199093	1/2 - 1 Mile NW
J406	CAOG11000199275	1/2 - 1 Mile WNW
J407	CAOG11000199276	1/2 - 1 Mile WNW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
J405	CAOG11000199274	1/2 - 1 Mile WNW
H408	CAOG11000198898	1/2 - 1 Mile NW
H409	CAOG11000198899	1/2 - 1 Mile NW
H410	CAOG11000199097	1/2 - 1 Mile NW
J411	CAOG11000198941	1/2 - 1 Mile WNW
J412	CAOG11000199273	1/2 - 1 Mile WNW
H413	CAOG11000199092	1/2 - 1 Mile NW
J419	CAOG11000199270	1/2 - 1 Mile WNW
J416	CAOG11000199267	1/2 - 1 Mile WNW
J417	CAOG11000199272	1/2 - 1 Mile WNW
J418	CAOG11000199271	1/2 - 1 Mile WNW
J414	CAOG11000199269	1/2 - 1 Mile WNW
J415	CAOG11000199268	1/2 - 1 Mile WNW
H420	CAOG11000199091	1/2 - 1 Mile NW
J421	CAOG11000199312	1/2 - 1 Mile WNW
J422	CAOG11000199264	1/2 - 1 Mile WNW
J424	CAOG11000199266	1/2 - 1 Mile WNW
J423	CAOG11000199265	1/2 - 1 Mile WNW
H425	CAOG11000199090	1/2 - 1 Mile NW
H426	CAOG11000199087	1/2 - 1 Mile NW
H427	CAOG11000199088	1/2 - 1 Mile NW
H428	CAOG11000199089	1/2 - 1 Mile NW
J429	CAOG11000199311	1/2 - 1 Mile WNW
H430	CAOG11000199050	1/2 - 1 Mile NW
H431	CAOG11000198897	1/2 - 1 Mile NW
J432	CAOG11000199257	1/2 - 1 Mile WNW
J433	CAOG11000199310	1/2 - 1 Mile WNW
H434	CAOG11000199084	1/2 - 1 Mile NW
H435	CAOG11000199085	1/2 - 1 Mile NW
H436	CAOG11000199086	1/2 - 1 Mile NW
J439	CAOG11000199235	1/2 - 1 Mile WNW
J437	CAOG11000199233	1/2 - 1 Mile WNW
J438	CAOG11000199234	1/2 - 1 Mile WNW
H440	CAOG11000198916	1/2 - 1 Mile NW
J442	CAOG11000199308	1/2 - 1 Mile WNW
J443	CAOG11000199309	1/2 - 1 Mile WNW
J441	CAOG11000199307	1/2 - 1 Mile WNW
H444	CAOG11000199083	1/2 - 1 Mile NW
J445	CAOG11000199230	1/2 - 1 Mile WNW
J447	CAOG11000199232	1/2 - 1 Mile WNW
J446	CAOG11000199231	1/2 - 1 Mile WNW
H449	CAOG11000198890	1/2 - 1 Mile NW
H448	CAOG11000198891	1/2 - 1 Mile NW
K450	CAOG11000199082	1/2 - 1 Mile NW
J451	CAOG11000199292	1/2 - 1 Mile WNW
K452	CAOG11000199081	1/2 - 1 Mile NW
J453	CAOG11000199256	1/2 - 1 Mile WNW
J454	CAOG11000199229	1/2 - 1 Mile WNW
K455	CAOG11000199080	1/2 - 1 Mile NW
K457	CAOG11000199078	1/2 - 1 Mile NW
K456	CAOG11000199077	1/2 - 1 Mile NW
K458	CAOG11000199079	1/2 - 1 Mile NW
J459	CAOG11000199228	1/2 - 1 Mile WNW
J466	CAOG11000199227	1/2 - 1 Mile WNW
J465	CAOG11000199226	1/2 - 1 Mile WNW
J468	CAOG11000199225	1/2 - 1 Mile WNW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
J467	CAOG11000199224	1/2 - 1 Mile WNW
J464	CAOG11000199223	1/2 - 1 Mile WNW
J461	CAOG11000199222	1/2 - 1 Mile WNW
J460	CAOG11000199221	1/2 - 1 Mile WNW
J463	CAOG11000199220	1/2 - 1 Mile WNW
J462	CAOG11000199219	1/2 - 1 Mile WNW
K469	CAOG11000198915	1/2 - 1 Mile NW
J470	CAOG11000199216	1/2 - 1 Mile WNW
J472	CAOG11000199218	1/2 - 1 Mile WNW
J471	CAOG11000199217	1/2 - 1 Mile WNW
K473	CAOG11000199074	1/2 - 1 Mile NW
K474	CAOG11000199075	1/2 - 1 Mile NW
K475	CAOG11000199076	1/2 - 1 Mile NW
J476	CAOG11000223431	1/2 - 1 Mile WNW
K477	CAOG11000199073	1/2 - 1 Mile NW
J479	CAOG11000199263	1/2 - 1 Mile WNW
J478	CAOG11000199262	1/2 - 1 Mile WNW
K480	CAOG11000199072	1/2 - 1 Mile NW
J481	CAOG11000199261	1/2 - 1 Mile WNW
J483	CAOG11000223594	1/2 - 1 Mile WNW
J482	CAOG11000223593	1/2 - 1 Mile WNW
J484	CAOG11000223595	1/2 - 1 Mile WNW
K487	CAOG11000199071	1/2 - 1 Mile NW
K486	CAOG11000199070	1/2 - 1 Mile NW
K485	CAOG11000199069	1/2 - 1 Mile NW
J489	CAOG11000198927	1/2 - 1 Mile WNW
J488	CAOG11000198926	1/2 - 1 Mile WNW
J490	CAOG11000198928	1/2 - 1 Mile WNW
K491	CAOG11000199068	1/2 - 1 Mile NW
J494	CAOG11000199260	1/2 - 1 Mile WNW
J493	CAOG11000199259	1/2 - 1 Mile WNW
J492	CAOG11000199258	1/2 - 1 Mile WNW
J495	CAOG11000223617	1/2 - 1 Mile WNW
J497	CAOG11000223619	1/2 - 1 Mile WNW
J496	CAOG11000223618	1/2 - 1 Mile WNW
K498	CAOG11000199067	1/2 - 1 Mile NW
K501	CAOG11000199066	1/2 - 1 Mile NW
K500	CAOG11000199065	1/2 - 1 Mile NW
K499	CAOG11000199064	1/2 - 1 Mile NW
K502	CAOG11000199063	1/2 - 1 Mile NW
K503	CAOG11000199062	1/2 - 1 Mile NW
K504	CAOG11000199059	1/2 - 1 Mile NW
K506	CAOG11000199061	1/2 - 1 Mile NW
K505	CAOG11000199060	1/2 - 1 Mile NW
L507	CAOG11000223421	1/2 - 1 Mile WNW
K508	CAOG11000199058	1/2 - 1 Mile NW
K510	CAOG11000199056	1/2 - 1 Mile NW
K509	CAOG11000199055	1/2 - 1 Mile NW
K511	CAOG11000199057	1/2 - 1 Mile NW
K512	CAOG11000199053	1/2 - 1 Mile NW
K513	CAOG11000199054	1/2 - 1 Mile NW
L514	CAOG11000223543	1/2 - 1 Mile WNW
K515	CAOG11000198896	1/2 - 1 Mile NW
M516	CAOG11000199347	1/2 - 1 Mile South
M517	CAOG11000199348	1/2 - 1 Mile South
L519	CAOG11000223582	1/2 - 1 Mile WNW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
L518	CAOG11000223581	1/2 - 1 Mile WNW
L520	CAOG11000223583	1/2 - 1 Mile WNW
K521	CAOG11000198895	1/2 - 1 Mile NW
M523	CAOG11000199350	1/2 - 1 Mile South
M522	CAOG11000199349	1/2 - 1 Mile South
M524	CAOG11000199761	1/2 - 1 Mile South
K525	CAOG11000199052	1/2 - 1 Mile NW
M526	CAOG11000199351	1/2 - 1 Mile South
M527	CAOG11000223623	1/2 - 1 Mile South
M528	CAOG11000199352	1/2 - 1 Mile South
K529	CAOG11000199051	1/2 - 1 Mile NW
M530	CAOG11000199746	1/2 - 1 Mile South
M531	CAOG11000199353	1/2 - 1 Mile South
K532	CAOG11000223363	1/2 - 1 Mile NW
M534	CAOG11000199755	1/2 - 1 Mile South
M533	CAOG11000199754	1/2 - 1 Mile South
M535	CAOG11000199749	1/2 - 1 Mile South
M536	CAOG11000199750	1/2 - 1 Mile South
K537	CAOG11000223362	1/2 - 1 Mile NW
M538	CAOG11000198908	1/2 - 1 Mile South
M539	CAOG11000198906	1/2 - 1 Mile South
M540	CAOG11000198907	1/2 - 1 Mile South
M541	CAOG11000199139	1/2 - 1 Mile South
M542	CAOG11000199140	1/2 - 1 Mile South
L543	CAOG11000223580	1/2 - 1 Mile WNW
L544	CAOG11000223598	1/2 - 1 Mile WNW
N545	CAOG11000213818	1/2 - 1 Mile NW
N546	CAOG11000199023	1/2 - 1 Mile NW
N547	CAOG11000199024	1/2 - 1 Mile NW
N548	CAOG11000199025	1/2 - 1 Mile NW
N549	CAOG11000199009	1/2 - 1 Mile NW
N550	CAOG11000199008	1/2 - 1 Mile NW
N551	CAOG11000199007	1/2 - 1 Mile NW
N552	CAOG11000199006	1/2 - 1 Mile NW
N553	CAOG11000199005	1/2 - 1 Mile NW
N554	CAOG11000199003	1/2 - 1 Mile NW
N555	CAOG11000198901	1/2 - 1 Mile NW
N556	CAOG11000199002	1/2 - 1 Mile NW
N557	CAOG11000199154	1/2 - 1 Mile NW
N558	CAOG11000199125	1/2 - 1 Mile NW
N559	CAOG11000199124	1/2 - 1 Mile NW
N560	CAOG11000199001	1/2 - 1 Mile NW
N561	CAOG11000199000	1/2 - 1 Mile NW
N562	CAOG11000199004	1/2 - 1 Mile NW
N565	CAOG11000199022	1/2 - 1 Mile NW
N563	CAOG11000199020	1/2 - 1 Mile NW
N564	CAOG11000199021	1/2 - 1 Mile NW
N566	CAOG11000198997	1/2 - 1 Mile NW
N567	CAOG11000198998	1/2 - 1 Mile NW
N568	CAOG11000198999	1/2 - 1 Mile NW
N570	CAOG11000198993	1/2 - 1 Mile NW
N569	CAOG11000198994	1/2 - 1 Mile NW
N572	CAOG11000198995	1/2 - 1 Mile NW
N571	CAOG11000198996	1/2 - 1 Mile NW
N573	CAOG11000198992	1/2 - 1 Mile NW
N574	CAOG11000198990	1/2 - 1 Mile NW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
N575	CAOG11000198991	1/2 - 1 Mile NW
N576	CAOG11000198987	1/2 - 1 Mile NW
N577	CAOG11000198988	1/2 - 1 Mile NW
N578	CAOG11000198989	1/2 - 1 Mile NW
N579	CAOG11000223341	1/2 - 1 Mile NW
N580	CAOG11000223340	1/2 - 1 Mile NW
N581	CAOG11000223339	1/2 - 1 Mile WNW
O582	CAOG11000215262	1/2 - 1 Mile WNW
P583	CAOG11000223375	1/2 - 1 Mile NW
P584	CAOG11000223376	1/2 - 1 Mile NW
585	CAOG11000215247	1/2 - 1 Mile West
P586	CAOG11000199114	1/2 - 1 Mile NW
P587	CAOG11000199049	1/2 - 1 Mile NW
P588	CAOG11000223358	1/2 - 1 Mile NW
P589	CAOG11000199768	1/2 - 1 Mile NW
P590	CAOG11000199769	1/2 - 1 Mile NW
P591	CAOG11000223140	1/2 - 1 Mile NW
P592	CAOG11000223357	1/2 - 1 Mile NW
P593	CAOG11000223356	1/2 - 1 Mile NW
Q594	CAOG11000215248	1/2 - 1 Mile WSW
O596	CAOG11000297751	1/2 - 1 Mile WNW
O595	CAOG11000297750	1/2 - 1 Mile WNW
O597	CAOG11000298342	1/2 - 1 Mile WNW
P598	CAOG11000223355	1/2 - 1 Mile NW
O599	CAOG11000298343	1/2 - 1 Mile WNW
O600	CAOG11000298344	1/2 - 1 Mile WNW
P602	CAOG11000199047	1/2 - 1 Mile NW
P601	CAOG11000199046	1/2 - 1 Mile NW
P603	CAOG11000199048	1/2 - 1 Mile NW
O604	CAOG11000297837	1/2 - 1 Mile WNW
O606	CAOG11000297839	1/2 - 1 Mile WNW
O605	CAOG11000297836	1/2 - 1 Mile WNW
O607	CAOG11000297838	1/2 - 1 Mile WNW
P608	CAOG11000223360	1/2 - 1 Mile NW
O609	CAOG11000300192	1/2 - 1 Mile WNW
O610	CAOG11000299560	1/2 - 1 Mile WNW
P611	CAOG11000223354	1/2 - 1 Mile NW
O612	CAOG11000300300	1/2 - 1 Mile WNW
O613	CAOG11000300301	1/2 - 1 Mile WNW
O614	CAOG11000299558	1/2 - 1 Mile WNW
O615	CAOG11000298173	1/2 - 1 Mile WNW
O617	CAOG11000298175	1/2 - 1 Mile WNW
O616	CAOG11000298174	1/2 - 1 Mile WNW
Q618	CAOG11000215198	1/2 - 1 Mile WSW
P620	CAOG11000199045	1/2 - 1 Mile NW
P619	CAOG11000199044	1/2 - 1 Mile NW
O621	CAOG11000302810	1/2 - 1 Mile NW
P622	CAOG11000223361	1/2 - 1 Mile NW
P623	CAOG11000223353	1/2 - 1 Mile NW
O624	CAOG11000199196	1/2 - 1 Mile WNW
O625	CAOG11000199197	1/2 - 1 Mile WNW
O626	CAOG11000199198	1/2 - 1 Mile WNW
O628	CAOG11000199214	1/2 - 1 Mile WNW
O629	CAOG11000199215	1/2 - 1 Mile WNW
O627	CAOG11000199213	1/2 - 1 Mile WNW
O630	CAOG11000223415	1/2 - 1 Mile WNW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
P631	CAOG11000223364	1/2 - 1 Mile NW
O632	CAOG11000199248	1/2 - 1 Mile WNW
O633	CAOG11000199249	1/2 - 1 Mile WNW
P635	CAOG11000199786	1/2 - 1 Mile NW
P634	CAOG11000199785	1/2 - 1 Mile NW
O636	CAOG11000223537	1/2 - 1 Mile WNW
P637	CAOG11000199042	1/2 - 1 Mile NW
P638	CAOG11000199043	1/2 - 1 Mile NW
O639	CAOG11000199277	1/2 - 1 Mile WNW
O640	CAOG11000199278	1/2 - 1 Mile WNW
O641	CAOG11000223528	1/2 - 1 Mile WNW
O642	CAOG11000300846	1/2 - 1 Mile WNW
P644	CAOG11000199783	1/2 - 1 Mile NW
P643	CAOG11000199782	1/2 - 1 Mile NW
P645	CAOG11000199784	1/2 - 1 Mile NW
O646	CAOG11000198917	1/2 - 1 Mile WNW
P647	CAOG11000223527	1/2 - 1 Mile WNW
P648	CAOG11000199041	1/2 - 1 Mile NW
O649	CAOG11000300847	1/2 - 1 Mile WNW
P652	CAOG11000199243	1/2 - 1 Mile WNW
P650	CAOG11000199241	1/2 - 1 Mile WNW
P651	CAOG11000199242	1/2 - 1 Mile WNW
O653	CAOG11000300911	1/2 - 1 Mile WNW
O654	CAOG11000300912	1/2 - 1 Mile WNW
P655	CAOG11000223416	1/2 - 1 Mile WNW
O656	CAOG11000300913	1/2 - 1 Mile WNW
P657	CAOG11000223573	1/2 - 1 Mile WNW
O658	CAOG11000223419	1/2 - 1 Mile WNW
O659	CAOG11000223150	1/2 - 1 Mile WNW
O660	CAOG11000223151	1/2 - 1 Mile WNW
O661	CAOG11000223152	1/2 - 1 Mile WNW
P662	CAOG11000223526	1/2 - 1 Mile NW
P665	CAOG11000223548	1/2 - 1 Mile NW
P663	CAOG11000223546	1/2 - 1 Mile NW
P664	CAOG11000223547	1/2 - 1 Mile NW
R666	CAOG11000300304	1/2 - 1 Mile WNW
R667	CAOG11000300305	1/2 - 1 Mile WNW
R668	CAOG11000300302	1/2 - 1 Mile WNW
R669	CAOG11000300303	1/2 - 1 Mile WNW
O670	CAOG11000198913	1/2 - 1 Mile WNW
P671	CAOG11000223534	1/2 - 1 Mile NW
R672	CAOG11000300840	1/2 - 1 Mile WNW
O674	CAOG11000199188	1/2 - 1 Mile WNW
O675	CAOG11000199191	1/2 - 1 Mile WNW
O676	CAOG11000199190	1/2 - 1 Mile WNW
O673	CAOG11000199189	1/2 - 1 Mile WNW
R677	CAOG11000300839	1/2 - 1 Mile WNW
R678	CAOG11000300895	1/2 - 1 Mile WNW
R679	CAOG11000300896	1/2 - 1 Mile WNW
O681	CAOG11000199195	1/2 - 1 Mile WNW
O680	CAOG11000199194	1/2 - 1 Mile WNW
R683	CAOG11000300842	1/2 - 1 Mile WNW
R684	CAOG11000300845	1/2 - 1 Mile WNW
R685	CAOG11000300844	1/2 - 1 Mile WNW
R682	CAOG11000300843	1/2 - 1 Mile WNW
R686	CAOG11000223535	1/2 - 1 Mile WNW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
P687	CAOG11000199010	1/2 - 1 Mile NW
R688	CAOG11000223600	1/2 - 1 Mile WNW
R689	CAOG11000199279	1/2 - 1 Mile WNW
P690	CAOG11000199040	1/2 - 1 Mile NW
R691	CAOG11000199207	1/2 - 1 Mile WNW
R692	CAOG11000199208	1/2 - 1 Mile WNW
R693	CAOG11000223417	1/2 - 1 Mile WNW
P694	CAOG11000199039	1/2 - 1 Mile NW
R695	CAOG11000223520	1/2 - 1 Mile WNW
P696	CAOG11000199038	1/2 - 1 Mile NW
R697	CAOG11000223521	1/2 - 1 Mile WNW
R699	CAOG11000199037	1/2 - 1 Mile NW
R698	CAOG11000199036	1/2 - 1 Mile NW
Q700	CAOG11000303216	1/2 - 1 Mile WSW
Q701	CAOG11000296605	1/2 - 1 Mile WSW
R702	CAOG11000199180	1/2 - 1 Mile WNW
R703	CAOG11000199181	1/2 - 1 Mile WNW
Q704	CAOG11000296609	1/2 - 1 Mile WSW
Q705	CAOG11000296610	1/2 - 1 Mile WSW
Q706	CAOG11000296608	1/2 - 1 Mile WSW
R707	CAOG11000199035	1/2 - 1 Mile NW
R708	CAOG11000223522	1/2 - 1 Mile WNW
R710	CAOG11000199193	1/2 - 1 Mile WNW
R709	CAOG11000199192	1/2 - 1 Mile WNW
Q711	CAOG11000299313	1/2 - 1 Mile WSW
R712	CAOG11000199237	1/2 - 1 Mile WNW
Q714	CAOG11000199301	1/2 - 1 Mile WSW
Q713	CAOG11000199300	1/2 - 1 Mile WSW
Q715	CAOG11000299312	1/2 - 1 Mile WSW
S716	CAOG11000199034	1/2 - 1 Mile NW
R717	CAOG11000223515	1/2 - 1 Mile WNW
R720	CAOG11000199212	1/2 - 1 Mile WNW
R718	CAOG11000199210	1/2 - 1 Mile WNW
R719	CAOG11000199211	1/2 - 1 Mile WNW
S721	CAOG11000199033	1/2 - 1 Mile NW
Q722	CAOG11000299380	1/2 - 1 Mile WSW
Q723	CAOG11000199302	1/2 - 1 Mile WSW
Q724	CAOG11000296613	1/2 - 1 Mile WSW
Q725	CAOG11000296292	1/2 - 1 Mile WSW
Q726	CAOG11000199303	1/2 - 1 Mile WSW
S727	CAOG11000223352	1/2 - 1 Mile NW
Q728	CAOG11000199297	1/2 - 1 Mile WSW
Q729	CAOG11000199298	1/2 - 1 Mile WSW
T730	CAOG11000199178	1/2 - 1 Mile WNW
T731	CAOG11000199179	1/2 - 1 Mile WNW
Q732	CAOG11000199304	1/2 - 1 Mile WSW
T733	CAOG11000224250	1/2 - 1 Mile WNW
Q734	CAOG11000199305	1/2 - 1 Mile WSW
Q735	CAOG11000199306	1/2 - 1 Mile WSW
R736	CAOG11000223512	1/2 - 1 Mile WNW
R738	CAOG11000223514	1/2 - 1 Mile WNW
R737	CAOG11000223513	1/2 - 1 Mile WNW
Q739	CAOG11000199745	1/2 - 1 Mile WSW
S740	CAOG11000199032	1/2 - 1 Mile NW
T741	CAOG11000223418	1/2 - 1 Mile WNW
R742	CAOG11000223517	1/2 - 1 Mile NW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
T743	CAOG11000223538	1/2 - 1 Mile WNW
U744	CAOG11000199299	1/2 - 1 Mile WSW
R745	CAOG11000223533	1/2 - 1 Mile NW
Q746	CAOG11000302890	1/2 - 1 Mile WSW
S747	CAOG11000199031	1/2 - 1 Mile NW
U749	CAOG11000199137	1/2 - 1 Mile WSW
U748	CAOG11000199136	1/2 - 1 Mile WSW
R750	CAOG11000199204	1/2 - 1 Mile NW
R751	CAOG11000199205	1/2 - 1 Mile NW
R752	CAOG11000199206	1/2 - 1 Mile NW
T756	CAOG11000224206	1/2 - 1 Mile WNW
T755	CAOG11000224205	1/2 - 1 Mile WNW
T754	CAOG11000224208	1/2 - 1 Mile WNW
T753	CAOG11000224207	1/2 - 1 Mile WNW
S757	CAOG11000199119	1/2 - 1 Mile NW
R758	CAOG11000199236	1/2 - 1 Mile NW
S759	CAOG11000223351	1/2 - 1 Mile NW
R760	CAOG11000199176	1/2 - 1 Mile WNW
R761	CAOG11000199177	1/2 - 1 Mile WNW
R762	CAOG11000199287	1/2 - 1 Mile NW
R763	CAOG11000199186	1/2 - 1 Mile NW
R764	CAOG11000199187	1/2 - 1 Mile NW
S766	CAOG11000199030	1/2 - 1 Mile NW
S765	CAOG11000199029	1/2 - 1 Mile NW
R767	CAOG11000198929	1/2 - 1 Mile NW
R768	CAOG11000198930	1/2 - 1 Mile NW
T769	CAOG11000230248	1/2 - 1 Mile WNW
T770	CAOG11000230249	1/2 - 1 Mile WNW
T773	CAOG11000224204	1/2 - 1 Mile WNW
T771	CAOG11000224202	1/2 - 1 Mile WNW
T772	CAOG11000224203	1/2 - 1 Mile WNW
R774	CAOG11000223525	1/2 - 1 Mile WNW
T779	CAOG11000280217	1/2 - 1 Mile WNW
T777	CAOG11000280216	1/2 - 1 Mile WNW
T778	CAOG11000280218	1/2 - 1 Mile WNW
T775	CAOG11000279877	1/2 - 1 Mile WNW
T776	CAOG11000279876	1/2 - 1 Mile WNW
S780	CAOG11000199028	1/2 - 1 Mile NW
R781	CAOG11000223414	1/2 - 1 Mile WNW
T782	CAOG11000294145	1/2 - 1 Mile WNW
S783	CAOG11000223359	1/2 - 1 Mile NW
R784	CAOG11000223524	1/2 - 1 Mile WNW
S786	CAOG11000223349	1/2 - 1 Mile NW
S785	CAOG11000223348	1/2 - 1 Mile NW
S787	CAOG11000223350	1/2 - 1 Mile NW
R788	CAOG11000199183	1/2 - 1 Mile WNW
R790	CAOG11000199185	1/2 - 1 Mile WNW
R789	CAOG11000199182	1/2 - 1 Mile WNW
R791	CAOG11000199184	1/2 - 1 Mile WNW
T792	CAOG11000224182	1/2 - 1 Mile WNW
T793	CAOG11000224183	1/2 - 1 Mile WNW
T794	CAOG11000224184	1/2 - 1 Mile WNW
T795	CAOG11000223476	1/2 - 1 Mile WNW
S796	CAOG11000199027	1/2 - 1 Mile NW
V797	CAOG11000199658	1/2 - 1 Mile West
V799	CAOG11000199660	1/2 - 1 Mile West

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
V798	CAOG11000199659	1/2 - 1 Mile West
T802	CAOG11000224223	1/2 - 1 Mile WNW
T801	CAOG11000224222	1/2 - 1 Mile WNW
T800	CAOG11000224221	1/2 - 1 Mile WNW
S803	CAOG11000223347	1/2 - 1 Mile NW
T805	CAOG11000224084	1/2 - 1 Mile WNW
T807	CAOG11000224086	1/2 - 1 Mile WNW
T806	CAOG11000224087	1/2 - 1 Mile WNW
T804	CAOG11000224085	1/2 - 1 Mile WNW
R808	CAOG11000223511	1/2 - 1 Mile WNW
S809	CAOG11000199780	1/2 - 1 Mile NW
S810	CAOG11000199781	1/2 - 1 Mile NW
T812	CAOG11000224218	1/2 - 1 Mile WNW
T811	CAOG11000224217	1/2 - 1 Mile WNW
U813	CAOG11000223613	1/2 - 1 Mile WSW
U814	CAOG11000223154	1/2 - 1 Mile WSW
S815	CAOG11000199777	1/2 - 1 Mile NW
S816	CAOG11000199776	1/2 - 1 Mile NW
S817	CAOG11000199779	1/2 - 1 Mile NW
S818	CAOG11000199778	1/2 - 1 Mile NW
U819	CAOG11000223155	1/2 - 1 Mile WSW
T820	CAOG11000223498	1/2 - 1 Mile WNW
S821	CAOG11000223129	1/2 - 1 Mile NW
V823	CAOG11000199281	1/2 - 1 Mile West
V822	CAOG11000199280	1/2 - 1 Mile West
V824	CAOG11000199282	1/2 - 1 Mile West
U825	CAOG11000223614	1/2 - 1 Mile WSW
S827	CAOG11000199775	1/2 - 1 Mile NW
S826	CAOG11000199774	1/2 - 1 Mile NW
U828	CAOG11000223615	1/2 - 1 Mile WSW
V829	CAOG11000199741	1/2 - 1 Mile West
U830	CAOG11000223616	1/2 - 1 Mile WSW
U831	CAOG11000226581	1/2 - 1 Mile WSW
U832	CAOG11000226591	1/2 - 1 Mile WSW
S833	CAOG11000223346	1/2 - 1 Mile NW
U834	CAOG11000223410	1/2 - 1 Mile WSW
U836	CAOG11000223409	1/2 - 1 Mile WSW
U835	CAOG11000223408	1/2 - 1 Mile WSW
U837	CAOG11000223406	1/2 - 1 Mile WSW
U838	CAOG11000223407	1/2 - 1 Mile WSW
T839	CAOG11000224209	1/2 - 1 Mile WNW
T840	CAOG11000223469	1/2 - 1 Mile WNW
U841	CAOG11000223404	1/2 - 1 Mile WSW
U842	CAOG11000223405	1/2 - 1 Mile WSW
V843	CAOG11000199133	1/2 - 1 Mile West
V844	CAOG11000199134	1/2 - 1 Mile West
V845	CAOG11000199135	1/2 - 1 Mile West
T846	CAOG11000199209	1/2 - 1 Mile WNW
U847	CAOG11000223611	1/2 - 1 Mile WSW
V848	CAOG11000199771	1/2 - 1 Mile West
S849	CAOG11000199026	1/2 - 1 Mile NW
U850	CAOG11000223612	1/2 - 1 Mile WSW
T851	CAOG11000199657	1/2 - 1 Mile WNW
S852	CAOG11000223337	1/2 - 1 Mile NW
V853	CAOG11000199255	1/2 - 1 Mile West
V854	CAOG11000198914	1/2 - 1 Mile West

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
V855	CAOG11000199740	1/2 - 1 Mile West
T858	CAOG11000224080	1/2 - 1 Mile WNW
T859	CAOG11000224081	1/2 - 1 Mile WNW
T857	CAOG11000224083	1/2 - 1 Mile WNW
T856	CAOG11000224082	1/2 - 1 Mile WNW
W860	CAOG11000224201	1/2 - 1 Mile WNW
T861	CAOG11000298211	1/2 - 1 Mile WNW
T862	CAOG11000230241	1/2 - 1 Mile WNW
T863	CAOG11000304305	1/2 - 1 Mile WNW
V865	CAOG11000199655	1/2 - 1 Mile West
V866	CAOG11000199656	1/2 - 1 Mile West
V864	CAOG11000199654	1/2 - 1 Mile West
V868	CAOG11000199652	1/2 - 1 Mile West
V867	CAOG11000199651	1/2 - 1 Mile West
V869	CAOG11000199653	1/2 - 1 Mile West
T870	CAOG11000280064	1/2 - 1 Mile WNW
V871	CAOG11000199175	1/2 - 1 Mile West
W872	CAOG11000199598	1/2 - 1 Mile WNW
X873	CAOG11000199174	1/2 - 1 Mile WNW
V874	CAOG11000199648	1/2 - 1 Mile West
V876	CAOG11000199650	1/2 - 1 Mile West
V875	CAOG11000199649	1/2 - 1 Mile West
X877	CAOG11000224136	1/2 - 1 Mile WNW
V880	CAOG11000199647	1/2 - 1 Mile West
V878	CAOG11000199645	1/2 - 1 Mile West
V879	CAOG11000199646	1/2 - 1 Mile West
W881	CAOG11000199630	1/2 - 1 Mile WNW
W882	CAOG11000199631	1/2 - 1 Mile WNW
V885	CAOG11000199664	1/2 - 1 Mile West
V884	CAOG11000199663	1/2 - 1 Mile West
V883	CAOG11000199662	1/2 - 1 Mile West
V887	CAOG11000223540	1/2 - 1 Mile West
V888	CAOG11000223539	1/2 - 1 Mile West
V886	CAOG11000223541	1/2 - 1 Mile West
W889	CAOG11000224241	1/2 - 1 Mile WNW
V890	CAOG11000224230	1/2 - 1 Mile West
W892	CAOG11000199716	1/2 - 1 Mile WNW
W891	CAOG11000199715	1/2 - 1 Mile WNW
W893	CAOG11000199717	1/2 - 1 Mile WNW
V894	CAOG11000199735	1/2 - 1 Mile West
V895	CAOG11000199736	1/2 - 1 Mile West
Y896	CAOG11000223510	1/2 - 1 Mile NW
V898	CAOG11000198889	1/2 - 1 Mile West
V897	CAOG11000198888	1/2 - 1 Mile West
W899	CAOG11000199708	1/2 - 1 Mile WNW
V902	CAOG11000224148	1/2 - 1 Mile West
V901	CAOG11000224146	1/2 - 1 Mile West
V900	CAOG11000224147	1/2 - 1 Mile West
X904	CAOG11000223493	1/2 - 1 Mile WNW
X903	CAOG11000223492	1/2 - 1 Mile WNW
W905	CAOG11000223490	1/2 - 1 Mile WNW
V908	CAOG11000199732	1/2 - 1 Mile West
V906	CAOG11000199731	1/2 - 1 Mile West
V907	CAOG11000199730	1/2 - 1 Mile West
V910	CAOG11000199733	1/2 - 1 Mile West
V909	CAOG11000199734	1/2 - 1 Mile West

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
V911	CAOG11000224232	1/2 - 1 Mile West
V912	CAOG11000199739	1/2 - 1 Mile West
V914	CAOG11000224159	1/2 - 1 Mile West
V915	CAOG11000224158	1/2 - 1 Mile West
V913	CAOG11000224160	1/2 - 1 Mile West
Y916	CAOG11000223605	1/2 - 1 Mile NW
Y917	CAOG11000199288	1/2 - 1 Mile NW
Y918	CAOG11000198983	1/2 - 1 Mile NW
Y921	CAOG11000198984	1/2 - 1 Mile NW
Y920	CAOG11000198985	1/2 - 1 Mile NW
Y919	CAOG11000198982	1/2 - 1 Mile NW
Y923	CAOG11000223602	1/2 - 1 Mile NW
Y922	CAOG11000223601	1/2 - 1 Mile NW
Y924	CAOG11000223603	1/2 - 1 Mile NW
V925	CAOG11000223592	1/2 - 1 Mile West
V926	CAOG11000223591	1/2 - 1 Mile West
V927	CAOG11000223590	1/2 - 1 Mile West
Y929	CAOG11000199202	1/2 - 1 Mile NW
Y928	CAOG11000199201	1/2 - 1 Mile NW
Y930	CAOG11000199203	1/2 - 1 Mile NW
Y931	CAOG11000223549	1/2 - 1 Mile NW
Y932	CAOG11000223336	1/2 - 1 Mile NW
V933	CAOG11000223141	1/2 - 1 Mile West
W934	CAOG11000224079	1/2 - 1 Mile WNW
Y936	CAOG11000199200	1/2 - 1 Mile NW
Y935	CAOG11000199199	1/2 - 1 Mile NW
Y937	CAOG11000223507	1/2 - 1 Mile NW
W938	CAOG11000224077	1/2 - 1 Mile WNW
V939	CAOG11000223130	1/2 - 1 Mile West
Y940	CAOG11000223606	1/2 - 1 Mile NW
Y941	CAOG11000223335	1/2 - 1 Mile NW
W943	CAOG11000230156	1/2 - 1 Mile WNW
W944	CAOG11000230157	1/2 - 1 Mile WNW
W942	CAOG11000230155	1/2 - 1 Mile WNW
Y945	CAOG11000223536	1/2 - 1 Mile NW
V948	CAOG11000223577	1/2 - 1 Mile West
V946	CAOG11000223579	1/2 - 1 Mile West
V947	CAOG11000223578	1/2 - 1 Mile West
W950	CAOG11000223572	1/2 - 1 Mile WNW
W949	CAOG11000223571	1/2 - 1 Mile WNW
W951	CAOG11000279878	1/2 - 1 Mile WNW
W952	CAOG11000224144	1/2 - 1 Mile WNW
Y953	CAOG11000224225	1/2 - 1 Mile NW
Y954	CAOG11000198981	1/2 - 1 Mile NW
W955	CAOG11000224226	1/2 - 1 Mile WNW
W956	CAOG11000199247	1/2 - 1 Mile WNW
W957	CAOG11000230288	1/2 - 1 Mile NW
Y961	CAOG11000199702	1/2 - 1 Mile NW
Y962	CAOG11000199701	1/2 - 1 Mile NW
Y960	CAOG11000199700	1/2 - 1 Mile NW
Y959	CAOG11000199698	1/2 - 1 Mile NW
Y958	CAOG11000199699	1/2 - 1 Mile NW
W965	CAOG11000199254	1/2 - 1 Mile WNW
W966	CAOG11000199253	1/2 - 1 Mile WNW
W963	CAOG11000199252	1/2 - 1 Mile WNW
W964	CAOG11000199251	1/2 - 1 Mile WNW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
W967	CAOG11000223962	1/2 - 1 Mile WNW
Y968	CAOG11000198980	1/2 - 1 Mile NW

PHYSICAL SETTING SOURCE MAP - 5511181.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Airports
- 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: 11183495 - Long Beach, CA
 ADDRESS: 331 Windsor Way
 Long Beach CA 90802
 LAT/LONG: 33.750374 / 118.190734

CLIENT: GHD
 CONTACT: Laura Grana
 INQUIRY #: 5511181.2s
 DATE: December 13, 2018 10:09 am

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
 Direction
 Distance
 Elevation

Database EDR ID Number

1 WNW 1/2 - 1 Mile Higher	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	908020098 Varies Not Reported Not Reported 19 11/17/1986	AQUIFLOW	70505
--	---	---	-----------------	--------------

1G WNW 1/2 - 1 Mile Lower	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	908020098 Varies Not Reported Not Reported 19 11/17/1986	AQUIFLOW	70505
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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

A1
South
0 - 1/8 Mile

OIL_GAS CAOG11000225757

Districtnu:	1	Apinumber:	23722520
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.4	Locationde:	18.5' KB
Gissourcec:	sum	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-318
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225757		

A2
SSW
0 - 1/8 Mile

OIL_GAS CAOG11000297549

Districtnu:	1	Apinumber:	23730089
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 27.3		
Locationde:	Well is 13045.5' south along section property line and 14319.3 east at right angles to said line from the 0,0 pt Anaheim/H. Ford.		
Gissourcec:	noi	Comments:	Not Reported
Leasename:	OSJ	Wellnumber:	001
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000297549		

B3
SW
0 - 1/8 Mile

OIL_GAS CAOG11000225712

Districtnu:	1	Apinumber:	23722420
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UT06, Y4+3 - A+77

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-330 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225712		

**B4
SW
0 - 1/8 Mile**

OIL_GAS CAOG11000225713

Districtnu:	1	Apinumber:	23722420
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UT06, Y4+3 - A+77
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-330 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225713		

**B5
SW
0 - 1/8 Mile**

OIL_GAS CAOG11000224321

Districtnu:	1	Apinumber:	23720010
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	T5, S+8 - T+90
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-339 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000224321		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

B6
SW
0 - 1/8 Mile

OIL_GAS CAOG11000223216

Districtnu:	1	Apinumber:	23700887
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-338
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223216		

B7
SW
0 - 1/8 Mile

OIL_GAS CAOG11000225516

Districtnu:	1	Apinumber:	23721798
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-337
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	5102	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225516		

B8
SW
0 - 1/8 Mile

OIL_GAS CAOG11000227229

Districtnu:	1	Apinumber:	25920053
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Oxy USA Inc.	Countyname:	Orange Offshore
Fieldname:	Huntington Beach	Areaname:	Offshore
Section:	8	Township:	06S
Range:	11W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	State Prc 425	Wellnumber:	J-337

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000227229		

**B9
SW
0 - 1/8 Mile**

OIL_GAS CAOG11000225737

Districtnu:	1	Apinumber:	23722489
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-336
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000225737		

**B10
SW
0 - 1/8 Mile**

OIL_GAS CAOG11000226312

Districtnu:	1	Apinumber:	23723495
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F+14 - G6+14
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-335 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000226312		

**B11
SW
0 - 1/8 Mile**

OIL_GAS CAOG11000226313

Districtnu:	1	Apinumber:	23723495
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F+14 - G6+14
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-335 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000226313		

**B12
SW
0 - 1/8 Mile**

OIL_GAS CAOG11000223276

Districtnu:	1	Apinumber:	23701026
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-334
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223276		

**B13
SW
0 - 1/8 Mile**

OIL_GAS CAOG11000225689

Districtnu:	1	Apinumber:	23722299
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-333
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000225689		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

B14
SW
0 - 1/8 Mile

OIL_GAS CAOG11000223213

Districtnu:	1	Apinumber:	23700886
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UT06, G6-1 - W+43
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-332 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223213		

B15
SW
0 - 1/8 Mile

OIL_GAS CAOG11000223214

Districtnu:	1	Apinumber:	23700886
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UT06, G6-1 - W+43
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-332 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223214		

B16
SW
0 - 1/8 Mile

OIL_GAS CAOG11000223215

Districtnu:	1	Apinumber:	23700886
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UT06, G6-1 - W+43
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-332 I

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223215		

**B17
SW
0 - 1/8 Mile**

OIL_GAS CAOG11000223275

Districtnu:	1	Apinumber:	23701025
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	VI Ranger
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-331
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223275		

**B18
SW
0 - 1/8 Mile**

OIL_GAS CAOG11000227118

Districtnu:	1	Apinumber:	25903164
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Oxy USA Inc.	Countyname:	Orange Offshore
Fieldname:	Huntington Beach	Areaname:	South Offshore
Section:	8	Township:	06S
Range:	11W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	State Prc 425	Wellnumber:	J-331
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000227118		

**A19
South
0 - 1/8 Mile**

OIL_GAS CAOG11000303566

Districtnu:	1	Apinumber:	23730307
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatona:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	39.1kb		
Locationde:	13069.27 ft South and 14335.01 ft East at right angles to said line from the 0,0 pt Anaheim/H. Ford		
Gissourcec:	noi	Comments:	Not Reported
Leasename:	OSJ	Wellnumber:	003
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	NOG
Site id:	CAOG11000303566		

**A20
SSW
0 - 1/8 Mile**

OIL_GAS CAOG11000297566

Districtnu:	1	Apinumber:	23730093
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatona:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	27.3' DF		
Locationde:	Well 13056.7' south along section line and 14326.9' east at right angles to said line from the 0,0pt Anaheim/H.Ford. DF = 12' GL		
Gissourcec:	sum	Comments:	Not Reported
Leasename:	OSJ	Wellnumber:	002
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	20-NOV-13
Welldeptha:	4947	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	30-NOV-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000297566		

**A21
SSW
0 - 1/8 Mile**

OIL_GAS CAOG11000199355

Districtnu:	1	Apinumber:	23702454
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatona:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.616	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 702
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199355		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

B22
WSW
0 - 1/8 Mile

OIL_GAS CAOG11000223264

Districtnu:	1	Apinumber:	23701015
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0+8 - G4+62
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-310 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223264		

B23
WSW
0 - 1/8 Mile

OIL_GAS CAOG11000223265

Districtnu:	1	Apinumber:	23701015
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0+8 - G4+62
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-310 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223265		

B24
WSW
0 - 1/8 Mile

OIL_GAS CAOG11000223269

Districtnu:	1	Apinumber:	23701019
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-319

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223269		

**B25
WSW
0 - 1/8 Mile**

OIL_GAS CAOG11000223268

Districtnu:	1	Apinumber:	23701018
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-317
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000223268		

**A26
SSW
0 - 1/8 Mile**

OIL_GAS CAOG11000199751

Districtnu:	1	Apinumber:	23723082
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.178	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FL-704
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000199751		

**A27
SSW
0 - 1/8 Mile**

OIL_GAS CAOG11000199752

Districtnu:	1	Apinumber:	23723082
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.178	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FL-704
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000199752		

A28
South
0 - 1/8 Mile

OIL_GAS CAOG11000303567

Districtnu:	1	Apinumber:	23730308
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	39.2kb		
Locationde:	13091.57 ft South and 14350.06 ft East at right angels to said line from the 0,0 pt Ananheim/H. Ford		
Gissourcec:	noi	Comments:	Not Reported
Leasename:	OSJ	Wellnumber:	005 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	NWF
Site id:	CAOG11000303567		

A29
South
0 - 1/8 Mile

OIL_GAS CAOG11000298345

Districtnu:	1	Apinumber:	23730135
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 27.1		
Locationde:	Well 13079.04' south along section line and 14342.0' east at right angles to said line from the 0,0 pt Anaheim/H. Ford.		
Gissourcec:	sum		
Comments:	directionally drill show proposed coordinates from surface location and true vertical dpeth at total depth: 2845.1' south and 849.9' east. Estimated true vertical depth 3327.1.		
Leasename:	OSJ	Wellnumber:	004
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	12-OCT-13
Welldeptha:	4882	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	23-OCT-13

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000298345		

B30
WSW
0 - 1/8 Mile

OIL_GAS CAOG11000226228

Districtnu:	1	Apinumber:	23723175
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-316
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000226228		

B31
WSW
0 - 1/8 Mile

OIL_GAS CAOG11000223267

Districtnu:	1	Apinumber:	23701017
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	VI Ranger
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-315
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	2948	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223267		

A32
SSW
0 - 1/8 Mile

OIL_GAS CAOG11000199753

Districtnu:	1	Apinumber:	23723090
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Elevation:	24.435	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 706
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199753		

B33
WSW
0 - 1/8 Mile

OIL_GAS CAOG11000223206

Districtnu:	1	Apinumber:	23700881
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-314
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223206		

B34
WSW
0 - 1/8 Mile

OIL_GAS CAOG11000225527

Districtnu:	1	Apinumber:	23721907
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-313
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225527		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

B35
WSW
0 - 1/8 Mile

OIL_GAS CAOG11000225528

Districtnu:	1	Apinumber:	23721907
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-313
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225528		

A36
South
0 - 1/8 Mile

OIL_GAS CAOG11000297749

Districtnu:	1	Apinumber:	23730103
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 27.1		
Locationde:	Well 1310.4' south along section line 14357.1' east at right angles to said line from the 0,0 pt Anaheim/H. Ford.		
Gissourcec:	noi		
Comments:	well is directionally drilled show proposed coordinates from surface location and true vertrical depth at total depth: 4376.7' south and 260.4' east. Estimated true vertical depth 5707.5'.		
Leasename:	OSJ	Wellnumber:	006 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000297749		

B37
WSW
0 - 1/8 Mile

OIL_GAS CAOG11000223266

Districtnu:	1	Apinumber:	23701016
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F-1 - HX1-26
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-312 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223266		

B38
WSW
0 - 1/8 Mile

OIL_GAS CAOG11000225786

Districtnu:	1	Apinumber:	23722551
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-311
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225786		

A39
South
1/8 - 1/4 Mile

OIL_GAS CAOG11000199356

Districtnu:	1	Apinumber:	23702456
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.456	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 709
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199356		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

B41
SW
1/8 - 1/4 Mile

OIL_GAS CAOG11000225686

Districtnu:	1	Apinumber:	23722294
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UT06, HXC+2 - A+57
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-348 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225686		

B40
SW
1/8 - 1/4 Mile

OIL_GAS CAOG11000225685

Districtnu:	1	Apinumber:	23722294
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UT06, HXC+2 - A+57
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-348 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225685		

B42
SW
1/8 - 1/4 Mile

OIL_GAS CAOG11000223278

Districtnu:	1	Apinumber:	23701028
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UT06, HX1+6 - Y-1
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-346 I

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223278		

B43

SW

1/8 - 1/4 Mile

OIL_GAS

CAOG11000223279

Districtnu:	1	Apinumber:	23701028
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UT06, HX1+6 - Y-1
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-346 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223279		

B44

SW

1/8 - 1/4 Mile

OIL_GAS

CAOG11000223280

Districtnu:	1	Apinumber:	23701028
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UT06, HX1+6 - Y-1
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-346 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223280		

B45

SW

1/8 - 1/4 Mile

OIL_GAS

CAOG11000225699

Districtnu:	1	Apinumber:	23722396
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-347
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225699		

**B46
SW
1/8 - 1/4 Mile**

OIL_GAS CAOG11000223308

Districtnu:	1	Apinumber:	23701049
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0-14 - G4+48
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-349 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223308		

**B47
SW
1/8 - 1/4 Mile**

OIL_GAS CAOG11000223217

Districtnu:	1	Apinumber:	23700888
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block VI Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F+40 - G6+47
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-340 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223217		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

B48

SW

1/8 - 1/4 Mile

OIL_GAS

CAOG11000223218

Districtnu:	1	Apinumber:	23700888
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block VI Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F+40 - G6+47
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-340 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223218		

B49

SW

1/8 - 1/4 Mile

OIL_GAS

CAOG11000225785

Districtnu:	1	Apinumber:	23722548
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	12W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-345
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000225785		

B50

SW

1/8 - 1/4 Mile

OIL_GAS

CAOG11000223115

Districtnu:	1	Apinumber:	23700118
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-344

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000223115		

B51

SW

1/8 - 1/4 Mile

OIL_GAS CAOG11000223277

Districtnu:	1	Apinumber:	23701027
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-343
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223277		

B52

SW

1/8 - 1/4 Mile

OIL_GAS CAOG11000215140

Districtnu:	1	Apinumber:	03723816
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-342
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000215140		

B54

SW

1/8 - 1/4 Mile

OIL_GAS CAOG11000223219

Districtnu:	1	Apinumber:	23700889
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-341
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223219		

B53

SW

1/8 - 1/4 Mile

OIL_GAS

CAOG11000223220

Districtnu:	1	Apinumber:	23700889
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-341
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223220		

B56

SW

1/8 - 1/4 Mile

OIL_GAS

CAOG11000223221

Districtnu:	1	Apinumber:	23700889
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-341
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223221		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

B55

SW

1/8 - 1/4 Mile

OIL_GAS

CAOG11000223222

Districtnu:	1	Apinumber:	23700889
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-341
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223222		

B57

WSW

1/8 - 1/4 Mile

OIL_GAS

CAOG11000223207

Districtnu:	1	Apinumber:	23700882
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-320
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223207		

B58

WSW

1/8 - 1/4 Mile

OIL_GAS

CAOG11000223212

Districtnu:	1	Apinumber:	23700885
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-329

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223212		

B59
WSW
1/8 - 1/4 Mile

OIL_GAS CAOG11000223274

Districtnu:	1	Apinumber:	23701024
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-328
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223274		

B60
WSW
1/8 - 1/4 Mile

OIL_GAS CAOG11000223273

Districtnu:	1	Apinumber:	23701023
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-327
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223273		

B61
WSW
1/8 - 1/4 Mile

OIL_GAS CAOG11000223272

Districtnu:	1	Apinumber:	23701022
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-326
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223272		

B62
WSW
1/8 - 1/4 Mile

OIL_GAS CAOG11000223209

Districtnu:	1	Apinumber:	23700884
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-325
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223209		

B63
WSW
1/8 - 1/4 Mile

OIL_GAS CAOG11000223210

Districtnu:	1	Apinumber:	23700884
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-325
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223210		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

B64
WSW
1/8 - 1/4 Mile

OIL_GAS CAOG11000223211

Districtnu:	1	Apinumber:	23700884
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-325
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223211		

B65
WSW
1/8 - 1/4 Mile

OIL_GAS CAOG11000223271

Districtnu:	1	Apinumber:	23701021
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-324
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000223271		

B66
WSW
1/8 - 1/4 Mile

OIL_GAS CAOG11000224622

Districtnu:	1	Apinumber:	23720267
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-323

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000224622		

B67
WSW
1/8 - 1/4 Mile

OIL_GAS CAOG11000223270

Districtnu:	1	Apinumber:	23701020
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-322
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223270		

B68
WSW
1/8 - 1/4 Mile

OIL_GAS CAOG11000223208

Districtnu:	1	Apinumber:	23700883
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-321
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	885	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223208		

B69
SW
1/8 - 1/4 Mile

OIL_GAS CAOG11000223624

Districtnu:	1	Apinumber:	23702453
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	L 701
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000223624		

**B70
SSW
1/8 - 1/4 Mile**

OIL_GAS CAOG11000223625

Districtnu:	1	Apinumber:	23702455
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FL-703
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223625		

**B71
SSW
1/8 - 1/4 Mile**

OIL_GAS CAOG11000223626

Districtnu:	1	Apinumber:	23702455
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FL-703
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223626		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

B72
SSW
1/8 - 1/4 Mile

OIL_GAS CAOG11000223422

Districtnu:	1	Apinumber:	23702147
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FL-705
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223422		

B73
SSW
1/8 - 1/4 Mile

OIL_GAS CAOG11000223159

Districtnu:	1	Apinumber:	23700558
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FL-708
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223159		

B74
SSW
1/8 - 1/4 Mile

OIL_GAS CAOG11000223160

Districtnu:	1	Apinumber:	23700558
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FL-708

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223160		

**B75
SSW
1/8 - 1/4 Mile**

OIL_GAS CAOG11000223423

Districtnu:	1	Apinumber:	23702148
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FL-710
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223423		

**C76
WNW
1/8 - 1/4 Mile**

OIL_GAS CAOG11000228595

Districtnu:	1	Apinumber:	23727290
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.73'	Locationde:	KB 18.50'
Gissourcec:	sum	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-180
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	11-JAN-12
Welldeptha:	5510	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	27-JAN-12
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000228595		

**C77
WNW
1/8 - 1/4 Mile**

OIL_GAS CAOG11000199756

Districtnu:	1	Apinumber:	23723177
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.58	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 610
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199756		

**C80
WNW
1/8 - 1/4 Mile**

OIL_GAS CAOG11000229774

Districtnu:	1	Apinumber:	23727317
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	33.11	Locationde:	18.61' ASL + 14.50 DF = 33.11
Gissourcec:	sum		
Comments:	BOTTOM HOLE LOCATION 742' S; 4713' E 5907' TMD; 2339' TVD		
Leasename:	Not Reported	Wellnumber:	J-185
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	14-OCT-13
Welldeptha:	0	Redrillfoo:	4722
Abandonedd:	Not Reported	Completion:	18-OCT-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000229774		

**C81
WNW
1/8 - 1/4 Mile**

OIL_GAS CAOG11000229773

Districtnu:	1	Apinumber:	23727317
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	33.11	Locationde:	18.61' ASL + 14.50 DF = 33.11
Gissourcec:	sum		
Comments:	BOTTOM HOLE LOCATION 742' S; 4713' E 5907' TMD; 2339' TVD		
Leasename:	Not Reported	Wellnumber:	J-185
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	14-OCT-13
Welldeptha:	0	Redrillfoo:	4722
Abandonedd:	Not Reported	Completion:	18-OCT-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000229773		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

C78
WNW
1/8 - 1/4 Mile

OIL_GAS CAOG11000229772

Districtnu:	1	Apinumber:	23727317
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	33.11	Locationde:	18.61' ASL + 14.50 DF = 33.11
Gissourcec:	sum		
Comments:	BOTTOM HOLE LOCATION 742' S; 4713' E 5907' TMD; 2339' TVD		
Leasename:	Not Reported	Wellnumber:	J-185
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	13-JAN-12
Welldeptha:	5907	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	13-FEB-12
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000229772		

C79
WNW
1/8 - 1/4 Mile

OIL_GAS CAOG11000229771

Districtnu:	1	Apinumber:	23727317
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	33.11	Locationde:	18.61' ASL + 14.50 DF = 33.11
Gissourcec:	sum		
Comments:	BOTTOM HOLE LOCATION 742' S; 4713' E 5907' TMD; 2339' TVD		
Leasename:	Not Reported	Wellnumber:	J-185
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	13-JAN-12
Welldeptha:	5907	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	13-FEB-12
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000229771		

C82
WNW
1/8 - 1/4 Mile

OIL_GAS CAOG11000199354

Districtnu:	1	Apinumber:	23702452
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.433	Locationde:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 608
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199354		

**C84
WNW
1/8 - 1/4 Mile**

OIL_GAS CAOG11000243008

Districtnu:	1	Apinumber:	23727361
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	37' KB		
Locationde:	Well is diectionally drilled, show proposed coordinates from sufave location and true vertical depth 27.4' North and 3906' East. Estimated true vertical depth 2955.1.		
Gissourcec:	sum	Comments:	KB 18.5'
Leasename:	Not Reported	Wellnumber:	J-184
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	5525	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000243008		

**C83
WNW
1/8 - 1/4 Mile**

OIL_GAS CAOG11000243007

Districtnu:	1	Apinumber:	23727361
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	37' KB		
Locationde:	Well is diectionally drilled, show proposed coordinates from sufave location and true vertical depth 27.4' North and 3906' East. Estimated true vertical depth 2955.1.		
Gissourcec:	sum	Comments:	KB 18.5'
Leasename:	Not Reported	Wellnumber:	J-184
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	02-APR-12
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000243007		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

C85
WNW
1/8 - 1/4 Mile

OIL_GAS CAOG11000199770

Districtnu:	1	Apinumber:	23723646
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.665	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	606
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199770		

C86
NW
1/8 - 1/4 Mile

OIL_GAS CAOG11000230147

Districtnu:	1	Apinumber:	23727322
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.60'	Locationde:	KB 18.50'
Gissourcec:	sum		
Comments:	BHL: lambert Coordinates Zone 7 4022771.08 E 4233805.83 (5930' TMD/2290' TVD)		
Leasename:	Not Reported	Wellnumber:	J-155
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	13-FEB-12
Welldeptha:	5930	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	03-MAR-12
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000230147		

C87
WNW
1/8 - 1/4 Mile

OIL_GAS CAOG11000243108

Districtnu:	1	Apinumber:	23727362
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	37'KB		
Locationde:	Well is directionally drilled, show proposed coordinates from surface location and true vertical depth 466.7' North and 3194.3' East. Estimated true vertical depth 2945.0.		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Gissourcec:	sum	Comments:	KB18.5'
Leasename:	Not Reported	Wellnumber:	J-166
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000243108		

C88
WNW
1/8 - 1/4 Mile

OIL_GAS CAOG11000243109

Districtnu:	1	Apinumber:	23727362
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	37'KB		
Locationde:	Well is directionally drilled, show proposed coordinates from surface location and true vertical depth 466.7' North and 3194.3' East. Estimated true vertical depth 2945.0.		
Gissourcec:	sum	Comments:	KB18.5'
Leasename:	Not Reported	Wellnumber:	J-166
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	04-JUN-12
Welldeptha:	4910	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000243109		

C90
WNW
1/8 - 1/4 Mile

OIL_GAS CAOG11000242631

Districtnu:	1	Apinumber:	23727357
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 37.10		
Locationde:	Lambert Coordinates zone7 N 022856 E 229967.99 (4049' TMD/3668' TVD)		
Gissourcec:	sum	Comments:	DF = 18.49'
Leasename:	Not Reported	Wellnumber:	J-164
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	4049	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	18-AUG-12
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000242631		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

C89
WNW
1/8 - 1/4 Mile

OIL_GAS CAOG11000242630

Districtnu:	1	Apinumber:	23727357
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 37.10		
Locationde:	Lambert Coordinates zone7 N 022856 E 229967.99 (4049' TMD/3668' TVD)		
Gissourcec:	sum	Comments:	DF = 18.49'
Leasename:	Not Reported	Wellnumber:	J-164
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	4049	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	18-AUG-12
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000242630		

C91
WNW
1/8 - 1/4 Mile

OIL_GAS CAOG11000230504

Districtnu:	1	Apinumber:	23727334
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	37' DF		
Locationde:	Lambert Coordinates Zone 7 N 023576.74 E 229961.38 (4791' TMD/4240' TVD)		
Gissourcec:	sum	Comments:	DF = 18.5'
Leasename:	Not Reported	Wellnumber:	J-149
Epawell:	N	Hydraulica:	Y
Confidenti:	N	Spuddate:	26-APR-12
Welldeptha:	4791	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	06-AUG-12
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000230504		

C92
WNW
1/8 - 1/4 Mile

OIL_GAS CAOG11000223251

Districtnu:	1	Apinumber:	23701008
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	38.45		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Locationde:	Lambert Coordinates Zone 7 N 23428.78 E 230800.96 (TMD 4390' / TVD 3567')	Comments:	Not Reported
Gissourcec:	opr	Wellnumber:	J-148
Leasename:	Not Reported	Hydraulica:	N
Epawell:	N	Spuddate:	Not Reported
Confidenti:	N	Redrillfoo:	0
Welldeptha:	0	Completion:	Not Reported
Abandonedd:	Not Reported	Gissymbol:	AOG
Directiona:	Directionally drilled		
Site id:	CAOG11000223251		

C93

WNW

1/8 - 1/4 Mile

OIL_GAS

CAOG11000223252

Districtnu:	1	Apinumber:	23701008
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorma:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	38.45		
Locationde:	Lambert Coordinates Zone 7 N 23428.78 E 230800.96 (TMD 4390' / TVD 3567')	Comments:	Not Reported
Gissourcec:	opr	Wellnumber:	J-148
Leasename:	Not Reported	Hydraulica:	N
Epawell:	N	Spuddate:	Not Reported
Confidenti:	N	Redrillfoo:	0
Welldeptha:	0	Completion:	Not Reported
Abandonedd:	Not Reported	Gissymbol:	AOG
Directiona:	Directionally drilled		
Site id:	CAOG11000223252		

C95

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000226797

Districtnu:	1	Apinumber:	23726776
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorma:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	32.90'	Locationde:	18.40' ASL + 14.50' DF = 32.90'
Gissourcec:	sum		
Comments:	bottom hole location: N 4 024 340 .74 E 4 230 530.41.		
Leasename:	Not Reported	Wellnumber:	J-176
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	20-OCT-13
Welldeptha:	0	Redrillfoo:	4120
Abandonedd:	Not Reported	Completion:	22-OCT-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000226797		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

C94
WNW
1/4 - 1/2 Mile

OIL_GAS CAOG11000226796

Districtnu:	1	Apinumber:	23726776
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	32.90'	Locationde:	18.40' ASL + 14.50' DF = 32.90'
Gissourcec:	sum		
Comments:	bottom hole location: N 4 024 340 .74 E 4 230 530.41.		
Leasename:	Not Reported	Wellnumber:	J-176
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	20-OCT-13
Welldeptha:	0	Redrillfoo:	4120
Abandonedd:	Not Reported	Completion:	22-OCT-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000226796		

C96
WNW
1/4 - 1/2 Mile

OIL_GAS CAOG11000223156

Districtnu:	1	Apinumber:	23700557
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block VI Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	L 609
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000223156		

C97
WNW
1/4 - 1/2 Mile

OIL_GAS CAOG11000223157

Districtnu:	1	Apinumber:	23700557
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block VI Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Leasename:	Not Reported	Wellnumber:	L 609
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000223157		

C98

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000223158

Districtnu:	1	Apinumber:	23700557
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block VI Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	L 609
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000223158		

C99

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000228776

Districtnu:	1	Apinumber:	23727293
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.73'	Locationde:	KB 18.50'
Gissourcec:	sum	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-125
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	12-MAR-12
Welldeptha:	4820	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	29-MAR-12
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000228776		

C100

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000230619

Districtnu:	1	Apinumber:	23727342
Blmwell:	N	Redrillcan:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Dryhole:	N	Wellstatus:	A
Operatona:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 37.10		
Locationde:	East directionally drilled and true vertical depth @ total depth 800.8' Norht & 1394.5' East		
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-153 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000230619		

**C101
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000299055

Districtnu:	1	Apinumber:	23730152
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatona:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 33.13	Locationde:	18.63' ASL + 14.50' DF = 33.13
Gissourcec:	noi		
Comments:	Well is directionally drill show proposed coordinates from surface location and true vertical depth at total depth: 1508.4' north and 2682.0' east. Estimated true vertical depth 3024.2		
Leasename:	Not Reported	Wellnumber:	J-152
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	04-OCT-13
Welldeptha:	4652	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	01-DEC-13
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000299055		

**D102
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000297142

Districtnu:	1	Apinumber:	23730072
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatona:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 33.13		
Locationde:	DF 14.5' BHL: Lamber Coordinats Zone 7 N 4024008.01 E 4229987.56 (4880 TMD / 4153' TVD)		
Gissourcec:	sum	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-162
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	10-SEP-13
Welldeptha:	4880	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	22-SEP-13

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Directiona: Directionally drilled Gissymbol: AOG
 Site id: CAOG11000297142

**D103
 WNW
 1/4 - 1/2 Mile**

OIL_GAS CAOG11000297140

Districtnu:	1	Apinumber:	23730071
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	37		
Locationde:	18.5' KB Lambert Coordinates zone 7 N 4023201.6 E 4231002.92 (4393'TMD/2324' TVD)		
Gissourcec:	noi	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-134
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	21-AUG-13
Welldeptha:	5750	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	16-APR-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000297140		

**D105
 WNW
 1/4 - 1/2 Mile**

OIL_GAS CAOG11000223257

Districtnu:	1	Apinumber:	23701011
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-170 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223257		

**D104
 WNW
 1/4 - 1/2 Mile**

OIL_GAS CAOG11000223256

Districtnu:	1	Apinumber:	23701011
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-170 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223256		

D106

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000223205

Districtnu:	1	Apinumber:	23700880
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	35'		
Locationde:	Lambert Coordinates Zone 7 (N 023096.04	E 232721.88) (5321' TMD/ 3466,TVD)	
Gissourcec:	opr	Comments:	KB = 16.75
Leasename:	Not Reported	Wellnumber:	J-179
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223205		

D107

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000225848

Districtnu:	1	Apinumber:	23722685
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-178
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225848		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

D108

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000223203

Districtnu:	1	Apinumber:	23700879
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0+3 - G6+43
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-177 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223203		

D109

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000223204

Districtnu:	1	Apinumber:	23700879
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0+3 - G6+43
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-177 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223204		

D110

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000223260

Districtnu:	1	Apinumber:	23701013
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	32.9	Locationde:	14.50 DF + 18.40 ASL = 32.90'
Gissourcec:	sum	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-175 I

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	24-OCT-13
Welldeptha:	0	Redrillfoo:	4927
Abandonedd:	Not Reported	Completion:	29-OCT-13
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223260		

**D111
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000223261

Districtnu:	1	Apinumber:	23701013
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	32.9	Locationde:	14.50 DF + 18.40 ASL = 32.90'
Gissourcec:	sum	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-175 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	24-OCT-13
Welldeptha:	0	Redrillfoo:	4927
Abandonedd:	Not Reported	Completion:	29-OCT-13
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223261		

**D112
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000223258

Districtnu:	1	Apinumber:	23701012
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-174
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000223258		

**D113
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000223259

Districtnu:	1	Apinumber:	23701012
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-174
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000223259		

**D115
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000225665

Districtnu:	1	Apinumber:	23722224
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-189
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225665		

**D114
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000225664

Districtnu:	1	Apinumber:	23722224
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-189
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225664		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

D116

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000225666

Districtnu:	1	Apinumber:	23722224
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-189
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225666		

D118

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000226272

Districtnu:	1	Apinumber:	23723214
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-173
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000226272		

D117

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000226271

Districtnu:	1	Apinumber:	23723214
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-173

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000226271		

D119

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000225704

Districtnu:	1	Apinumber:	23722409
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-188ST1
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000225704		

D120

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000225702

Districtnu:	1	Apinumber:	23722408
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-172
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000225702		

D121

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000225703

Districtnu:	1	Apinumber:	23722408
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-172
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000225703		

**D122
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000224319

Districtnu:	1	Apinumber:	23720009
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB = 30.		
Locationde:	Lambert Coordinates Zone 7 N 4 22891.08	E 4 230749.02 (TMD 3022/TVD2312')	
Gissourcec:	opr	Comments:	KB= 12.65'
Leasename:	Not Reported	Wellnumber:	J-171
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000224319		

**D123
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000224320

Districtnu:	1	Apinumber:	23720009
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB = 30.		
Locationde:	Lambert Coordinates Zone 7 N 4 22891.08	E 4 230749.02 (TMD 3022/TVD2312')	
Gissourcec:	opr	Comments:	KB= 12.65'
Leasename:	Not Reported	Wellnumber:	J-171
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000224320		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

D124

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000223262

Districtnu:	1	Apinumber:	23701014
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	33.07	Locationde:	18.57 ASL + 14.50 DF = 33.07
Gissourcec:	sum	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-183
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	29-OCT-13
Welldeptha:	0	Redrillfoo:	4270
Abandonedd:	Not Reported	Completion:	05-NOV-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223262		

D125

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000223263

Districtnu:	1	Apinumber:	23701014
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	33.07	Locationde:	18.57 ASL + 14.50 DF = 33.07
Gissourcec:	sum	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-183
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	29-OCT-13
Welldeptha:	0	Redrillfoo:	4270
Abandonedd:	Not Reported	Completion:	05-NOV-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223263		

D126

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000226823

Districtnu:	1	Apinumber:	23726819
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	37		
Locationde:	18.5' KB Lambert Coordinates Zone 7 N 4023201.6 E 4231002.92 (4393' TMD/2314'TVD)		
Gissourcec:	noi	Comments:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Leasename:	Not Reported	Wellnumber:	J-117
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	29-MAR-12
Welldeptha:	4393	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	16-APR-12
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000226823		

D127

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000226044

Districtnu:	1	Apinumber:	23723699
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-182
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000226044		

D128

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000297551

Districtnu:	1	Apinumber:	23730091
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	33.0		
Locationde:	14.5' DF Lambert Coordinates Zone 7 N 4023573.11 E 4231262.57 (5677' TMD/2914'TVD)		
Gissourcec:	noi	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-126
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	5677	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	23-AUG-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000297551		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

D129

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000223202

Districtnu:	1	Apinumber:	23700877
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0-10 - G6+62
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-150 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223202		

D131

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000225642

Districtnu:	1	Apinumber:	23722171
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	LT06, AB-31 - ADL-25
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-159 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225642		

D130

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000225641

Districtnu:	1	Apinumber:	23722171
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	LT06, AB-31 - ADL-25
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-159 I

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225641		

D132

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000225643

Districtnu:	1	Apinumber:	23722171
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	LT06, AB-31 - ADL-25
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-159 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225643		

D133

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000225668

Districtnu:	1	Apinumber:	23722245
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0 - HX1-46
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-158 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225668		

D135

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000224318

Districtnu:	1	Apinumber:	23720008
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-157
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000224318		

**D134
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000224317

Districtnu:	1	Apinumber:	23720008
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-157
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000224317		

**D137
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000223255

Districtnu:	1	Apinumber:	23701010
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0+5 - G6+23
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-156 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	1351	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223255		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

D136
WNW
1/4 - 1/2 Mile

OIL_GAS CAOG11000223254

Districtnu:	1	Apinumber:	23701010
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0+5 - G6+23
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-156 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	1351	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223254		

D138
WNW
1/4 - 1/2 Mile

OIL_GAS CAOG11000225667

Districtnu:	1	Apinumber:	23722244
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-160
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225667		

D139
WNW
1/4 - 1/2 Mile

OIL_GAS CAOG11000223253

Districtnu:	1	Apinumber:	23701009
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-154

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223253		

**D140
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000225669

Districtnu:	1	Apinumber:	23722246
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R06, X+2 - HX1-38
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-169 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000225669		

**D141
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000225808

Districtnu:	1	Apinumber:	23722602
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-168
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000225808		

**D142
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000225824

Districtnu:	1	Apinumber:	23722643
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UT6
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-167
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	1121	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225824		

**D143
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000224620

Districtnu:	1	Apinumber:	23720266
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-165
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000224620		

**D144
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000224621

Districtnu:	1	Apinumber:	23720266
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-165
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000224621		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

D145

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000223244

Districtnu:	1	Apinumber:	23701002
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-130
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223244		

D146

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000223111

Districtnu:	1	Apinumber:	23700008
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block VI Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R06, X+4 - G6+50
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-163
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223111		

D147

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000223112

Districtnu:	1	Apinumber:	23700008
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block VI Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R06, X+4 - G6+50
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-163

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223112		

**D150
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000223196

Districtnu:	1	Apinumber:	23700617
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UT06, HXC+13 - Y+16
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-137 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	2721	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223196		

**D149
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000223195

Districtnu:	1	Apinumber:	23700617
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UT06, HXC+13 - Y+16
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-137 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	2721	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223195		

**D148
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000223194

Districtnu:	1	Apinumber:	23700617
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UT06, HXC+13 - Y+16
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-137 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	2721	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223194		

**D151
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000223245

Districtnu:	1	Apinumber:	23701003
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0+4 - G5+111
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-136 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223245		

**D152
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000223246

Districtnu:	1	Apinumber:	23701004
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F+76 - G4+35
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-140 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223246		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

D153

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000223247

Districtnu:	1	Apinumber:	23701004
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F+76 - G4+35
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-140 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223247		

D154

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000224315

Districtnu:	1	Apinumber:	23720007
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-132
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000224315		

D155

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000224316

Districtnu:	1	Apinumber:	23720007
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-132

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000224316		

D156

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000223250

Districtnu:	1	Apinumber:	23701007
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	VI R
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-146
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223250		

D157

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000225736

Districtnu:	1	Apinumber:	23722488
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-131
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225736		

D158

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000223249

Districtnu:	1	Apinumber:	23701006
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-145
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223249		

**D159
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000226321

Districtnu:	1	Apinumber:	23723580
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-144
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000226321		

**D160
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000224574

Districtnu:	1	Apinumber:	23720222
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-143
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000224574		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

D161

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000223248

Districtnu:	1	Apinumber:	23701005
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-142
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223248		

D162

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000223197

Districtnu:	1	Apinumber:	23700618
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	33.15		
Locationde:	DF = 14.5' BHL: Lambert Coordinates Zone 7 N 4022536.94 E 4231824.08 (5192' TMD/2964' TVD)		
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-141
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	4492
Abandonedd:	Not Reported	Completion:	02-OCT-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223197		

D163

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000223198

Districtnu:	1	Apinumber:	23700618
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	33.15		
Locationde:	DF = 14.5' BHL: Lambert Coordinates Zone 7 N 4022536.94 E 4231824.08 (5192' TMD/2964' TVD)		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-141
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	4492
Abandonedd:	Not Reported	Completion:	02-OCT-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223198		

**D166
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000225847

Districtnu:	1	Apinumber:	23722684
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	37.52		
Locationde:	TVD: N 4 024 413.16, E 4 230 640.16, MD 5508'/TVD 4290'.		
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-119
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	02-FEB-12
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	25-JUL-12
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225847		

**D165
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000225846

Districtnu:	1	Apinumber:	23722684
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	37.52		
Locationde:	TVD: N 4 024 413.16, E 4 230 640.16, MD 5508'/TVD 4290'.		
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-119
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	02-FEB-12
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	25-JUL-12
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225846		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

D164

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000225845

Districtnu:	1	Apinumber:	23722684
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	37.52		
Locationde:	TVD: N 4 024 413.16, E 4 230 640.16, MD 5508'/TVD 4290'.		
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-119
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	02-FEB-12
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	25-JUL-12
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225845		

D167

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000225807

Districtnu:	1	Apinumber:	23722601
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-110
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225807		

D168

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000223190

Districtnu:	1	Apinumber:	23700614
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Leasename:	Not Reported	Wellnumber:	J-118
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223190		

E169
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000199330

Districtnu:	1	Apinumber:	23702432
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.032	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	L 401
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000199330		

E170
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000199331

Districtnu:	1	Apinumber:	23702433
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.405	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	L 402
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199331		

E171
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000199760

Districtnu:	1	Apinumber:	23723368
Blmwell:	N	Redrillcan:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.602	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	L 417
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199760		

**D173
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000223189

Districtnu:	1	Apinumber:	23700613
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UT06, HXO+5 - HXA+59
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-116 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223189		

**D172
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000223188

Districtnu:	1	Apinumber:	23700613
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UT06, HXO+5 - HXA+59
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-116 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223188		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

E174
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000199743

Districtnu:	1	Apinumber:	23720619
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.281	Locationde:	UT6
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-403
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199743		

E175
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000199744

Districtnu:	1	Apinumber:	23720619
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.281	Locationde:	UT6
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-403
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199744		

D176
WNW
1/4 - 1/2 Mile

OIL_GAS CAOG11000225640

Districtnu:	1	Apinumber:	23722105
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-120 I

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225640		

D177

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000225639

Districtnu:	1	Apinumber:	23722105
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-120 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225639		

D178

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000223187

Districtnu:	1	Apinumber:	23700612
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-115
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223187		

E179

South

1/4 - 1/2 Mile

OIL_GAS

CAOG11000199332

Districtnu:	1	Apinumber:	23702434
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.232	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	L 404
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000199332		

**D180
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000223243

Districtnu:	1	Apinumber:	23701001
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-129
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000223243		

**E181
South
1/4 - 1/2 Mile**

OIL_GAS CAOG11000199333

Districtnu:	1	Apinumber:	23702435
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.35	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	L 405
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199333		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

D183

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000225735

Districtnu:	1	Apinumber:	23722486
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0+50 - F+78
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-114 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225735		

D182

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000225734

Districtnu:	1	Apinumber:	23722486
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0+50 - F+78
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-114 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225734		

D185

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000223114

Districtnu:	1	Apinumber:	23700117
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	33		
Locationde:	Lambert Coordinates Zone 7 N 4025364.89 E 4231718.6 (5793' TMD/2447' TVD)		
Gissourcec:	opr	Comments:	DF = 14.4'

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Leasename:	Not Reported	Wellnumber:	J-127
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	5034
Abandonedd:	Not Reported	Completion:	07-AUG-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223114		

D184

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000223113

Districtnu:	1	Apinumber:	23700117
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	33		
Locationde:	Lambert Coordinates Zone 7 N 4025364.89 E 4231718.6 (5793' TMD/2447' TVD)		
Gissourcec:	opr	Comments:	DF = 14.4'
Leasename:	Not Reported	Wellnumber:	J-127
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	5034
Abandonedd:	Not Reported	Completion:	07-AUG-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223113		

E186

South

1/4 - 1/2 Mile

OIL_GAS

CAOG11000199334

Districtnu:	1	Apinumber:	23702436
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.568	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-406
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000199334		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

E187
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000199335

Districtnu:	1	Apinumber:	23702436
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.568	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-406
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000199335		

D188
WNW
1/4 - 1/2 Mile

OIL_GAS CAOG11000225843

Districtnu:	1	Apinumber:	23722681
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F34 - G4+50
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-111 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	1669	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225843		

D189
WNW
1/4 - 1/2 Mile

OIL_GAS CAOG11000225844

Districtnu:	1	Apinumber:	23722681
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F34 - G4+50
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-111 I

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	1669	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225844		

**E191
South
1/4 - 1/2 Mile**

OIL_GAS CAOG11000199337

Districtnu:	1	Apinumber:	23702437
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.968	Locationde:	R5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-407
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199337		

**E190
South
1/4 - 1/2 Mile**

OIL_GAS CAOG11000199336

Districtnu:	1	Apinumber:	23702437
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.968	Locationde:	R5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-407
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199336		

**F192
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000223192

Districtnu:	1	Apinumber:	23700616
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UR06, HX0+7 - Y+28
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-124 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223192		

**F193
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000223193

Districtnu:	1	Apinumber:	23700616
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UR06, HX0+7 - Y+28
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-124 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223193		

**E194
South
1/4 - 1/2 Mile**

OIL_GAS CAOG11000199338

Districtnu:	1	Apinumber:	23702438
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.64	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	L 408
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000199338		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

F195
WNW
1/4 - 1/2 Mile

OIL_GAS CAOG11000225830

Districtnu:	1	Apinumber:	23722655
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-123
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225830		

F196
WNW
1/4 - 1/2 Mile

OIL_GAS CAOG11000225831

Districtnu:	1	Apinumber:	23722655
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-123
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225831		

E197
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000199339

Districtnu:	1	Apinumber:	23702439
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.677	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	L 409

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000199339		

F198

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000223191

Districtnu:	1	Apinumber:	23700615
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0+5 - H+79
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-122 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223191		

E199

South

1/4 - 1/2 Mile

OIL_GAS

CAOG11000199340

Districtnu:	1	Apinumber:	23702440
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.28	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	L 410
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000199340		

F201

WNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000225806

Districtnu:	1	Apinumber:	23722596
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block VI Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, X+7 - G4+24
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-121 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000225806		

**F200
WNW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000225805

Districtnu:	1	Apinumber:	23722596
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block VI Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, X+7 - G4+24
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-121 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000225805		

**E202
South
1/4 - 1/2 Mile**

OIL_GAS CAOG11000199341

Districtnu:	1	Apinumber:	23702441
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.804	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	L 411
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000199341		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

E204
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000199343

Districtnu:	1	Apinumber:	23702442
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.067	Locationde:	R5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-412
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199343		

E203
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000199342

Districtnu:	1	Apinumber:	23702442
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.067	Locationde:	R5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-412
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199342		

E205
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000199344

Districtnu:	1	Apinumber:	23702443
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.139	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-413

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199344		

E206
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000199345

Districtnu:	1	Apinumber:	23702443
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.139	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-413
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199345		

E207
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000199346

Districtnu:	1	Apinumber:	23702444
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.279	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	L 414
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000199346		

E208
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000199138

Districtnu:	1	Apinumber:	23702145
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.922	Locationde:	Ranger VI, R6
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-415
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199138		

E210
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000225707

Districtnu:	1	Apinumber:	23722412
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-4211
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	2981	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225707		

E209
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000225706

Districtnu:	1	Apinumber:	23722412
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-4211
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	2981	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225706		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

E211
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000225708

Districtnu:	1	Apinumber:	23722413
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-422
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000225708		

E212
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000225799

Districtnu:	1	Apinumber:	23722575
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UT06, Y4+8 - A2+85
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-423 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000225799		

E213
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000223282

Districtnu:	1	Apinumber:	23701030
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0-2 - G5-26
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-411 I

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223282		

E214
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000223283

Districtnu:	1	Apinumber:	23701031
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-413
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223283		

E215
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000225705

Districtnu:	1	Apinumber:	23722411
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	VI-R
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-412
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	4032	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225705		

E216
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000226150

Districtnu:	1	Apinumber:	23723061
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	32.1		
Locationde:	DF 14.5' Lambert Coordinates Zone 7 N 4021995.2 E 4232142.71 (4557' TMD/2870' TVD)		
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-414
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	3819
Abandonedd:	Not Reported	Completion:	17-NOV-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000226150		

E217
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000226151

Districtnu:	1	Apinumber:	23723062
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UT06, HX0+8 - J+36
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-425 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000226151		

E218
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000226152

Districtnu:	1	Apinumber:	23723062
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UT06, HX0+8 - J+36
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-425 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000226152		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

E219
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000226153

Districtnu:	1	Apinumber:	23723062
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UT06, HX0+8 - J+36
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-425 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000226153		

E220
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000223284

Districtnu:	1	Apinumber:	23701032
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0+4 - G6+51
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-415 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223284		

E222
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000225645

Districtnu:	1	Apinumber:	23722174
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F - G6+37
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-416 I

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225645		

E221
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000225644

Districtnu:	1	Apinumber:	23722174
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F - G6+37
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-416 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225644		

E223
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000225993

Districtnu:	1	Apinumber:	23723024
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UT06, HX0-2 - J+44
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-427 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225993		

E224
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000225994

Districtnu:	1	Apinumber:	23723024
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UT06, HX0-2 - J+44
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-427 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225994		

E225
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000223223

Districtnu:	1	Apinumber:	23700890
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0-2 - G5+103
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-417 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223223		

E226
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000223285

Districtnu:	1	Apinumber:	23701033
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, X+43 - G6-34
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-428 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223285		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

E227
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000226207

Districtnu:	1	Apinumber:	23723136
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F+24 - HX1-24
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-418 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000226207		

E228
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000226208

Districtnu:	1	Apinumber:	23723136
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F+24 - HX1-24
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-418 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000226208		

E229
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000223224

Districtnu:	1	Apinumber:	23700891
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-429

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000223224		

E230
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000225637

Districtnu:	1	Apinumber:	23722098
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F+1 - HX1-25
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-419 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	2377	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225637		

E231
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000223281

Districtnu:	1	Apinumber:	23701029
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0+5 - G6+30
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-410 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223281		

E232
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000243573

Districtnu:	1	Apinumber:	23727373
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	32.16' D		
Locationde:	Lambert Coordinates Zone 7 N 019407.99	E 232064.13 (3635' TMD/3030' TVD)	
Gissourcec:	sum	Comments:	DF = 14.6'
Leasename:	Not Reported	Wellnumber:	J-426
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	23-SEP-12
Welldeptha:	3635	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	10-OCT-12
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000243573		

E233
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000243578

Districtnu:	1	Apinumber:	23727375
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	32.16'DF		
Locationde:	Lambert Coordinates Zone 7 BHL N 019051.63' E 234016.69' (5215'tmd/2998' TVD)		
Gissourcec:	sum	Comments:	DF = 14.6'
Leasename:	Not Reported	Wellnumber:	J-420
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	09-SEP-12
Welldeptha:	5215	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	29-SEP-12
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000243578		

E234
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000223287

Districtnu:	1	Apinumber:	23701035
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UT06, Y+19 - Y+34
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-441 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223287		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

E235
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000225629

Districtnu:	1	Apinumber:	23722079
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0+98 - X+73
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-431 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225629		

E236
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000225652

Districtnu:	1	Apinumber:	23722209
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0+17 - G5+48
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-432 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225652		

E237
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000225653

Districtnu:	1	Apinumber:	23722209
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0+17 - G5+48
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-432 I

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225653		

E238
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000223288

Districtnu:	1	Apinumber:	23701036
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UT06, HX0+1 - AA-14
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-443 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223288		

E239
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000226214

Districtnu:	1	Apinumber:	23723162
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	48.03'		
Locationde:	R06, Fo+2 - G5+50 KB 30.50' + 17.53' ASL = 48.03'		
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-442 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	1958	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000226214		

E240
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000226215

Districtnu:	1	Apinumber:	23723162
Blmwell:	N	Redrillcan:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Dryhole:	N	Wellstatus:	A
Operatorma:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	48.03'		
Locationde:	R06, Fo+2 - G5+50 KB 30.50' + 17.53' ASL = 48.03'		
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-442 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	1958	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000226215		

E241
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000226216

Districtnu:	1	Apinumber:	23723162
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorma:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	48.03'		
Locationde:	R06, Fo+2 - G5+50 KB 30.50' + 17.53' ASL = 48.03'		
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-442 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	1958	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000226216		

E242
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000226745

Districtnu:	1	Apinumber:	23726577
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorma:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	VI-R
Gissourcec:	gps	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-444 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	6476	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000226745		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

E243
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000225700

Districtnu:	1	Apinumber:	23722397
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-434
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225700		

E244
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000223227

Districtnu:	1	Apinumber:	23700893
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0+5 - G6+43
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-435 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223227		

E246
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000223290

Districtnu:	1	Apinumber:	23701037
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-445 I

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223290		

E245
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000223289

Districtnu:	1	Apinumber:	23701037
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-445 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223289		

E247
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000242951

Districtnu:	1	Apinumber:	23727360
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 36.20		
Locationde:	Directionally drilled, show proposed coordinates from surface location and true vertical depth at total depth 1297.0' North and 4399.7' East.		
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-446
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000242951		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

E248
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000225781

Districtnu:	1	Apinumber:	23722534
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeri:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-436
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000225781		

E250
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000223226

Districtnu:	1	Apinumber:	23700892
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeri:	SB
Elevation:	32.11'	Locationde:	17.61' ASL + 14.50' AG = 32.11' elev.
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-433
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	4480
Abandonedd:	Not Reported	Completion:	04-DEC-13
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223226		

E249
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000223225

Districtnu:	1	Apinumber:	23700892
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeri:	SB
Elevation:	32.11'	Locationde:	17.61' ASL + 14.50' AG = 32.11' elev.
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-433

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	4480
Abandonedd:	Not Reported	Completion:	04-DEC-13
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223225		

E251
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000223286

Districtnu:	1	Apinumber:	23701034
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-437
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000223286		

E252
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000243258

Districtnu:	1	Apinumber:	23727363
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 36.10		
Locationde:	Directionally drilled, show proposed coordinates from surface location and true vertical depth at total depth 115.4' South and 1288.5' East. Estimated true vertical depth 3346.0		
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-447 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000243258		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

E254
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000225193

Districtnu:	1	Apinumber:	23721647
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	32'		
Locationde:	14.5' DF Lambert Coordinates Zone 7 N 4 017694.34 E 4235263.35 (6895' TMD/2665' TVD)		
Gissourcec:	noi		
Comments:	Ranger Zone is not isolated inside (7") Casing.		
Leasename:	Not Reported	Wellnumber:	J-438 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	5936
Abandonedd:	Not Reported	Completion:	23-MAY-13
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225193		

E253
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000225192

Districtnu:	1	Apinumber:	23721647
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	32'		
Locationde:	14.5' DF Lambert Coordinates Zone 7 N 4 017694.34 E 4235263.35 (6895' TMD/2665' TVD)		
Gissourcec:	noi		
Comments:	Ranger Zone is not isolated inside (7") Casing.		
Leasename:	Not Reported	Wellnumber:	J-438 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	5936
Abandonedd:	Not Reported	Completion:	23-MAY-13
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225192		

E255
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000226579

Districtnu:	1	Apinumber:	23725250
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-448
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	6477	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000226579		

E256
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000225709

Districtnu:	1	Apinumber:	23722418
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-439
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225709		

E258
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000225679

Districtnu:	1	Apinumber:	23722277
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0 - H+123
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-430 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000225679		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

E257
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000225678

Districtnu:	1	Apinumber:	23722277
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0 - H+123
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-430 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000225678		

E260
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000223117

Districtnu:	1	Apinumber:	23700119
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-449
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOB
Site id:	CAOG11000223117		

E259
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000223116

Districtnu:	1	Apinumber:	23700119
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-449

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOB
Site id:	CAOG11000223116		

E261
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000224560

Districtnu:	1	Apinumber:	23720210
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	UT06, HX1+54 - HX+28
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-440 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000224560		

E262
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000223228

Districtnu:	1	Apinumber:	23700894
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-462
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000223228		

E263
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000223229

Districtnu:	1	Apinumber:	23700895
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-463
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223229		

E265
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000223293

Districtnu:	1	Apinumber:	23701039
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0+17 - H+53
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-464 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223293		

E264
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000223292

Districtnu:	1	Apinumber:	23701039
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0+17 - H+53
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-464 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223292		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

G266
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000279952

Districtnu:	1	Apinumber:	23727459
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	32.20 DF		
Locationde:	Lambert Coordinates Zone 7 N 017259.42 E 233632.99 (5605' TMD/3431'TVD)		
Gissourcec:	sum	Comments:	DF = 14.6'
Leasename:	Not Reported	Wellnumber:	J-461
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	16-OCT-12
Welldeptha:	5605	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	03-NOV-12
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000279952		

E267
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000223230

Districtnu:	1	Apinumber:	23700896
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0+3 - G4+52
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-465 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223230		

E268
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000223231

Districtnu:	1	Apinumber:	23700896
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0+3 - G4+52
Gissourcec:	opr	Comments:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Leasename:	Not Reported	Wellnumber:	J-465 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223231		

E269
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000223232

Districtnu:	1	Apinumber:	23700897
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	32'		
Locationde:	14.5'DF Lambert Coordinates Zone 7 N 4017023.65 E 4232157.12 (5641' TMD / 4160' TVD)		
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-466
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	5329
Abandonedd:	Not Reported	Completion:	05-MAY-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223232		

E270
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000223233

Districtnu:	1	Apinumber:	23700898
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-467
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	4243	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223233		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

E271
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000225818

Districtnu:	1	Apinumber:	23722618
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	32.05	Locationde:	17.55 ASL + 14.50 DF = 32.05
Gissourcec:	sum	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-468
Epawell:	N	Hydraulica:	Y
Confidenti:	N	Spuddate:	20-NOV-13
Welldeptha:	0	Redrillfoo:	7560
Abandonedd:	Not Reported	Completion:	28-NOV-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225818		

E272
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000225819

Districtnu:	1	Apinumber:	23722618
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	32.05	Locationde:	17.55 ASL + 14.50 DF = 32.05
Gissourcec:	sum	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-468
Epawell:	N	Hydraulica:	Y
Confidenti:	N	Spuddate:	20-NOV-13
Welldeptha:	0	Redrillfoo:	7560
Abandonedd:	Not Reported	Completion:	28-NOV-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225819		

E273
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000223234

Districtnu:	1	Apinumber:	23700899
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	32		
Locationde:	14.5' DF Lambert Coordinates Zone 7 N4016890.91 E 4233731.54 (6257' TMD/2992' TVD)		
Gissourcec:	opr	Comments:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Leasename:	Not Reported	Wellnumber:	J-469
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	5329
Abandonedd:	Not Reported	Completion:	05-MAY-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223234		

G274
South
1/4 - 1/2 Mile

OIL_GAS CAOG11000226577

Districtnu:	1	Apinumber:	23725248
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-460
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	4900	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000226577		

H275
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199016

Districtnu:	1	Apinumber:	23701289
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	27.193	Locationde:	UT6
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FR-106
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000199016		

I276
South
1/2 - 1 Mile

OIL_GAS CAOG11000223241

Districtnu:	1	Apinumber:	23700929
Blmwell:	N	Redrillcan:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-521
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223241		

H277
NW
1/2 - 1 Mile

OIL_GAS **CAOG11000199014**

Districtnu:	1	Apinumber:	23701288
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	25.282	Locationde:	R6
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FR-105
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000199014		

H278
NW
1/2 - 1 Mile

OIL_GAS **CAOG11000199015**

Districtnu:	1	Apinumber:	23701288
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	25.282	Locationde:	R6
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FR-105
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000199015		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

H279
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199013

Districtnu:	1	Apinumber:	23701287
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	26.212	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FR-104
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000199013		

I280
South
1/2 - 1 Mile

OIL_GAS CAOG11000295496

Districtnu:	1	Apinumber:	23730010
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 30.30	Locationde:	Not Reported
Gissourcec:	noi	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 568
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	25-MAY-13
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000295496		

I281
South
1/2 - 1 Mile

OIL_GAS CAOG11000225302

Districtnu:	1	Apinumber:	23721577
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-522

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000225302		

I282
South
1/2 - 1 Mile

OIL_GAS CAOG11000223235

Districtnu:	1	Apinumber:	23700900
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorma:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R-VI
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-511
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223235		

I283
South
1/2 - 1 Mile

OIL_GAS CAOG11000223297

Districtnu:	1	Apinumber:	23701042
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0+12 - G4+18
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-523 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223297		

I284
South
1/2 - 1 Mile

OIL_GAS CAOG11000225820

Districtnu:	1	Apinumber:	23722619
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-512
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225820		

**H285
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000198900

Districtnu:	1	Apinumber:	23700433
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.658	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	217
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000198900		

**I286
South
1/2 - 1 Mile**

OIL_GAS CAOG11000225896

Districtnu:	1	Apinumber:	23722907
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-514
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225896		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

I287
South
1/2 - 1 Mile

OIL_GAS CAOG11000225560

Districtnu:	1	Apinumber:	23722876
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeri:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-524
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225560		

I288
South
1/2 - 1 Mile

OIL_GAS CAOG11000226763

Districtnu:	1	Apinumber:	23726651
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeri:	SB
Elevation:	32.2	Locationde:	17.70' ASL + 14.50' KB = 32.2'
Gissourcec:	gps	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-525
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	18-JUL-13
Welldeptha:	0	Redrillfoo:	6450
Abandonedd:	Not Reported	Completion:	24-JUL-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000226763		

I289
South
1/2 - 1 Mile

OIL_GAS CAOG11000226764

Districtnu:	1	Apinumber:	23726651
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeri:	SB
Elevation:	32.2	Locationde:	17.70' ASL + 14.50' KB = 32.2'
Gissourcec:	gps	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-525

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	18-JUL-13
Welldeptha:	0	Redrillfoo:	6450
Abandonedd:	Not Reported	Completion:	24-JUL-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000226764		

H290

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000198986

Districtnu:	1	Apinumber:	23701257
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.986	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	216
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000198986		

I291

South

1/2 - 1 Mile

OIL_GAS

CAOG11000223237

Districtnu:	1	Apinumber:	23700927
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorma:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-515 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	3740	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223237		

I292

South

1/2 - 1 Mile

OIL_GAS

CAOG11000223238

Districtnu:	1	Apinumber:	23700927
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-515 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	3740	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223238		

I293
South
1/2 - 1 Mile

OIL_GAS CAOG11000223298

Districtnu:	1	Apinumber:	23701043
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB = 32.		
Locationde:	Lambert Coordinates Zone 7 N 4 019964.85	E 4 232360.09 (4012' TMD/ 3094' TVD)	
Gissourcec:	opr	Comments:	KB = 14.63'
Leasename:	Not Reported	Wellnumber:	J-526
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223298		

I295
South
1/2 - 1 Mile

OIL_GAS CAOG11000225688

Districtnu:	1	Apinumber:	23722297
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, X+6 - G4+48
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-516 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225688		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

I294
South
1/2 - 1 Mile

OIL_GAS CAOG11000225687

Districtnu:	1	Apinumber:	23722297
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, X+6 - G4+48
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-516 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225687		

I297
South
1/2 - 1 Mile

OIL_GAS CAOG11000223296

Districtnu:	1	Apinumber:	23701041
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	7R
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-517
Epawell:	N	Hydraulica:	Y
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	7136	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223296		

I296
South
1/2 - 1 Mile

OIL_GAS CAOG11000223295

Districtnu:	1	Apinumber:	23701041
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	7R
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-517

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	Y
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	7136	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223295		

H299

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000198904

Districtnu:	1	Apinumber:	23700440
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.217	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	215
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000198904		

H298

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000198903

Districtnu:	1	Apinumber:	23700440
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.217	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	215
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000198903		

I300

South

1/2 - 1 Mile

OIL_GAS

CAOG11000223118

Districtnu:	1	Apinumber:	23700120
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-518
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223118		

I301
South
1/2 - 1 Mile

OIL_GAS CAOG11000242437

Districtnu:	1	Apinumber:	23727347
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	32.3'		
Locationde:	Lamert Coordinates Zone 7 N 019520.24	E 233666.59 (4875' TMD / 2960' TVD)	
Gissourcec:	noi	Comments:	DF = 14.61
Leasename:	Not Reported	Wellnumber:	J-528
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	18-JUN-12
Welldeptha:	4875	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	10-JUL-12
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000242437		

I302
South
1/2 - 1 Mile

OIL_GAS CAOG11000223239

Districtnu:	1	Apinumber:	23700928
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0-38 - X-59
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-519 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223239		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

I303
South
1/2 - 1 Mile

OIL_GAS CAOG11000223240

Districtnu:	1	Apinumber:	23700928
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0-38 - X-59
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-519 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223240		

I305
South
1/2 - 1 Mile

OIL_GAS CAOG11000225542

Districtnu:	1	Apinumber:	23722778
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, X - G5+67
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-529
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000225542		

I304
South
1/2 - 1 Mile

OIL_GAS CAOG11000225541

Districtnu:	1	Apinumber:	23722778
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, X - G5+67
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-529

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000225541		

H307

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199113

Districtnu:	1	Apinumber:	23701375
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.444	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FRA-214
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199113		

H306

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199112

Districtnu:	1	Apinumber:	23701375
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.444	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FRA-214
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199112		

I308

South

1/2 - 1 Mile

OIL_GAS

CAOG11000223294

Districtnu:	1	Apinumber:	23701040
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0+3 - X-15
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-510 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	1981	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223294		

I309
South
1/2 - 1 Mile

OIL_GAS CAOG11000223236

Districtnu:	1	Apinumber:	23700926
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	32.3'		
Locationde:	Lambert Coordinates Zone 7 N 016784.65 E 233415.85 (5910' TMD/3145' TVD)		
Gissourcec:	sum	Comments:	KB = 14.59'
Leasename:	Not Reported	Wellnumber:	J-513
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	4948	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	15-DEC-12
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223236		

I310
South
1/2 - 1 Mile

OIL_GAS CAOG11000226774

Districtnu:	1	Apinumber:	23726714
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6
Gissourcec:	unk	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-520
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	5200	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000226774		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

H311
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199111

Districtnu:	1	Apinumber:	23701374
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.915	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	213
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199111		

I312
South
1/2 - 1 Mile

OIL_GAS CAOG11000226761

Districtnu:	1	Apinumber:	23726649
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	32.3		
Locationde:	14.6' KB Lambert Coordinates Zone 7 (N 017022.6 E 234112.42) (7247' TMD/ 2910' TVD)		
Gissourcec:	sum	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-527
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	6356
Abandonedd:	Not Reported	Completion:	27-FEB-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000226761		

H313
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199110

Districtnu:	1	Apinumber:	23701373
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	26.644	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Leasename:	A	Wellnumber:	212
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199110		

**H315
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199109

Districtnu:	1	Apinumber:	23701372
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.642	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	211
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199109		

**H314
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199108

Districtnu:	1	Apinumber:	23701372
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.642	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	211
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199108		

**H316
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199107

Districtnu:	1	Apinumber:	23701371
Blmwell:	N	Redrillcan:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.453	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	210
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199107		

H317
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199120

Districtnu:	1	Apinumber:	23701439
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	26.6	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FRA-209
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000199120		

H318
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199106

Districtnu:	1	Apinumber:	23701370
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	25.712	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	208
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199106		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

I319
South
1/2 - 1 Mile

OIL_GAS CAOG11000223299

Districtnu:	1	Apinumber:	23701044
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0-27 - G4+40
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-541 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223299		

I320
South
1/2 - 1 Mile

OIL_GAS CAOG11000223300

Districtnu:	1	Apinumber:	23701044
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0-27 - G4+40
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-541 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223300		

I321
South
1/2 - 1 Mile

OIL_GAS CAOG11000223301

Districtnu:	1	Apinumber:	23701044
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0-27 - G4+40
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-541 I

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223301		

**I322
South
1/2 - 1 Mile**

OIL_GAS CAOG11000223302

Districtnu:	1	Apinumber:	23701045
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0+3 - G6+50
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-542 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223302		

**H323
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199105

Districtnu:	1	Apinumber:	23701369
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.47	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	207
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199105		

**I324
South
1/2 - 1 Mile**

OIL_GAS CAOG11000225680

Districtnu:	1	Apinumber:	23722278
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F+23 - H+23
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-543 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000225680		

**H325
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199103

Districtnu:	1	Apinumber:	23701368
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	24.344	Locationde:	UT-VI
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	206
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199103		

**H326
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199104

Districtnu:	1	Apinumber:	23701368
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	24.344	Locationde:	UT-VI
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	206
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199104		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

I328
South
1/2 - 1 Mile

OIL_GAS CAOG11000223120

Districtnu:	1	Apinumber:	23700143
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F+10 - G5+20
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-544
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	3654	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223120		

I327
South
1/2 - 1 Mile

OIL_GAS CAOG11000223119

Districtnu:	1	Apinumber:	23700143
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F+10 - G5+20
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-544
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	3654	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223119		

I329
South
1/2 - 1 Mile

OIL_GAS CAOG11000294829

Districtnu:	1	Apinumber:	23729985
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	DF 32.2		
Locationde:	14.49° DF Lambert Coordinates zONE 7 N 4017936.85 e 4232740.95 (5110°TMD/2770°TVD).		
Gissourcec:	sum	Comments:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Leasename:	Not Reported	Wellnumber:	J-545
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	02-JUN-13
Welldeptha:	5110	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	16-JUN-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000294829		

I331
South
1/2 - 1 Mile

OIL_GAS CAOG11000223304

Districtnu:	1	Apinumber:	23701046
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0+6 - F0+81
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-546 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223304		

I330
South
1/2 - 1 Mile

OIL_GAS CAOG11000223303

Districtnu:	1	Apinumber:	23701046
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0+6 - F0+81
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-546 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223303		

H332
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199102

Districtnu:	1	Apinumber:	23701367
Blmwell:	N	Redrillcan:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.759	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	205
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199102		

I333
South
1/2 - 1 Mile

OIL_GAS CAOG11000223242

Districtnu:	1	Apinumber:	23700930
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-547
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	5806	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223242		

H335
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223621

Districtnu:	1	Apinumber:	23702431
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	L 342
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223621		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

H336
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223622

Districtnu:	1	Apinumber:	23702431
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	L 342
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223622		

H334
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223620

Districtnu:	1	Apinumber:	23702431
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	L 342
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223620		

H338
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000225756

Districtnu:	1	Apinumber:	23722513
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FL-338

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000225756		

**H337
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000225755

Districtnu:	1	Apinumber:	23722513
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FL-338
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000225755		

**H339
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199101

Districtnu:	1	Apinumber:	23701366
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.905	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	204
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199101		

**H340
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000198923

Districtnu:	1	Apinumber:	23700537
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	24.041	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 343
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198923		

**H341
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000198922

Districtnu:	1	Apinumber:	23700536
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.713	Locationde:	UT-VI
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 339
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198922		

**H342
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199327

Districtnu:	1	Apinumber:	23702430
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.883	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 341
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199327		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

H343
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199328

Districtnu:	1	Apinumber:	23702430
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.883	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 341
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199328		

H344
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199329

Districtnu:	1	Apinumber:	23702430
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.883	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 341
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199329		

H346
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199748

Districtnu:	1	Apinumber:	23722515
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.52	Locationde:	T5
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FL-340

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000199748		

H345

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000199747

Districtnu:	1	Apinumber:	23722515
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.52	Locationde:	T5
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FL-340
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000199747		

H348

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000199326

Districtnu:	1	Apinumber:	23702429
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.48	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FL-337
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199326		

H347

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000199325

Districtnu:	1	Apinumber:	23702429
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.48	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FL-337
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199325		

I349
South
1/2 - 1 Mile

OIL_GAS CAOG11000223305

Districtnu:	1	Apinumber:	23701047
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-548
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223305		

H350
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199100

Districtnu:	1	Apinumber:	23701365
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	26.314	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	203
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199100		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

J353
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199324

Districtnu:	1	Apinumber:	23702428
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.387	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 332
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199324		

J352
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199323

Districtnu:	1	Apinumber:	23702428
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.387	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 332
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199323		

J351
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199322

Districtnu:	1	Apinumber:	23702428
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.387	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 332

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199322		

**J354
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000198921

Districtnu:	1	Apinumber:	23700535
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.975	Locationde:	Ranger V, R5
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FL-330
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000198921		

**J356
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199321

Districtnu:	1	Apinumber:	23702427
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.117	Locationde:	R5
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FL-329
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199321		

**J355
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199320

Districtnu:	1	Apinumber:	23702427
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.117	Locationde:	R5
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FL-329
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199320		

**J357
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199319

Districtnu:	1	Apinumber:	23702426
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.269	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 328
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199319		

**H358
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199099

Districtnu:	1	Apinumber:	23701364
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.461	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	202
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199099		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

J359
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199318

Districtnu:	1	Apinumber:	23702425
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.332	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 327
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199318		

J360
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199317

Districtnu:	1	Apinumber:	23702424
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	24.539	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 326
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199317		

I361
South
1/2 - 1 Mile

OIL_GAS CAOG11000294817

Districtnu:	1	Apinumber:	23729984
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	32.4		
Locationde:	14.65' KB Lambert Coordinares Zone N 016678.64 E 235130.79 (7216' TMD/2993' TVD)		
Gissourcec:	noi	Comments:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Leasename:	Not Reported	Wellnumber:	J-540
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	31-JAN-13
Welldeptha:	7216	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	14-FEB-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000294817		

**H362
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199098

Districtnu:	1	Apinumber:	23701363
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.545	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	201
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199098		

**I363
South
1/2 - 1 Mile**

OIL_GAS CAOG11000226014

Districtnu:	1	Apinumber:	23723035
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-561
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000226014		

**I364
South
1/2 - 1 Mile**

OIL_GAS CAOG11000225681

Districtnu:	1	Apinumber:	23722279
Blmwell:	N	Redrillcan:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Dryhole:	N	Wellstatus:	A
Operatorma:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	36.06'		
Locationde:	R6, X+1 - G5-2 15.76 ASL + 20.30' KB = 36.06'		
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-551 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	2225	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225681		

I365
South
1/2 - 1 Mile

OIL_GAS CAOG11000223311

Districtnu:	1	Apinumber:	23701077
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorma:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	30.24		
Locationde:	14.5' DF Lambert Coordinates Zone 7 N4017071.42 E 4233947.96 (5640' TMD/3336' TVD)		
Gissourcec:	opr	Comments:	
Leasename:	Not Reported	Wellnumber:	J-562
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	5178
Abandonedd:	Not Reported	Completion:	15-JUL-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223311		

H368
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199316

Districtnu:	1	Apinumber:	23702423
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.274	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 325
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199316		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

H366
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199314

Districtnu:	1	Apinumber:	23702423
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.274	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 325
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199314		

H367
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199315

Districtnu:	1	Apinumber:	23702423
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.274	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 325
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199315		

I369
South
1/2 - 1 Mile

OIL_GAS CAOG11000294464

Districtnu:	1	Apinumber:	23726947
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 32.30		
Locationde:	14.56' KB Lambert Coordinates Zone N 4016831.16 E 4234760.02 (6910'TMD/2948'TVD)		
Gissourcec:	noi	Comments:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Leasename:	Not Reported	Wellnumber:	J-549
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	27-DEC-12
Welldeptha:	6910	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	15-JAN-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000294464		

**J370
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199017

Districtnu:	1	Apinumber:	23701290
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.279	Locationde:	UT6
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FR-107
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000199017		

**I371
South
1/2 - 1 Mile**

OIL_GAS CAOG11000223306

Districtnu:	1	Apinumber:	23701048
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	30.35		
Locationde:	ELE is on top of Kelly Bushing which is 14.0' above ground level. Ground level is ELE 15.75'.		
Gissourcec:	opr		
Comments:	Bottom hole coordinates: N 4 018 230.53 x E 4 233 650.31 (4950' MTD, 3418' TVD)		
Leasename:	Not Reported	Wellnumber:	J-552
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	29-AUG-12
Welldeptha:	4950	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	18-MAR-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223306		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

I372
South
1/2 - 1 Mile

OIL_GAS CAOG11000223307

Districtnu:	1	Apinumber:	23701048
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	30.35		
Locationde:	ELE is on top of Kelly Bushing which is 14.0' above ground level. Ground level is ELE 15.75'.		
Gissourcec:	opr		
Comments:	Bottom hole coordinates: N 4 018 230.53 x E 4 233 650.31 (4950' MTD, 3418' TVD)		
Leasename:	Not Reported	Wellnumber:	J-552
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	29-AUG-12
Welldeptha:	4950	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	18-MAR-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223307		

H373
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199757

Districtnu:	1	Apinumber:	23723218
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.698	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 128
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199757		

I374
South
1/2 - 1 Mile

OIL_GAS CAOG11000223312

Districtnu:	1	Apinumber:	23701078
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-564
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223312		

I375
South
1/2 - 1 Mile

OIL_GAS CAOG11000223309

Districtnu:	1	Apinumber:	23701050
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-553
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223309		

I376
South
1/2 - 1 Mile

OIL_GAS CAOG11000294470

Districtnu:	1	Apinumber:	23729976
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 30.3		
Locationde:	14.6' KB Lambert Coordinates Zone 7 N 017587.72 E 234267.83		
Gissourcec:	noi	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-565
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	14-JAN-13
Welldeptha:	5700	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	31-JAN-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000294470		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

I377
South
1/2 - 1 Mile

OIL_GAS CAOG11000294471

Districtnu:	1	Apinumber:	23729976
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 30.3		
Locationde:	14.6' KB Lambert Coordinates Zone 7 N 017587.72 E 234267.83		
Gissourcec:	noi	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-565
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	14-JAN-13
Welldeptha:	5700	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	31-JAN-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000294471		

I378
South
1/2 - 1 Mile

OIL_GAS CAOG11000226173

Districtnu:	1	Apinumber:	23723104
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	30.24		
Locationde:	14.5' DF Lambert Coordinates Zone 7 N 4017817.74 E 4234022.19 (5102' TMD/2702' TVD)		
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-554
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	3341
Abandonedd:	Not Reported	Completion:	27-JUN-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000226173		

J379
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199290

Districtnu:	1	Apinumber:	23702391
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.35	Locationde:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 125
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199290		

I380
South
1/2 - 1 Mile

OIL_GAS CAOG11000295495

Districtnu:	1	Apinumber:	23730009
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 30.30	Locationde:	Not Reported
Gissourcec:	noi	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 566
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	NOG
Site id:	CAOG11000295495		

I381
South
1/2 - 1 Mile

OIL_GAS CAOG11000223291

Districtnu:	1	Apinumber:	23701038
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-555
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000223291		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

I382
South
1/2 - 1 Mile

OIL_GAS CAOG11000294469

Districtnu:	1	Apinumber:	23729975
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 32.30		
Locationde:	Well is directionally drilled show proposed coordinates from surface location and true vertical depth at total depth 1804.2' South and 3001.6' East. Estimated true vertical depth 3049.3		
Gissourcec:	sum	Comments:	KB = 14.57'
Leasename:	Not Reported	Wellnumber:	J-563
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	03-DEC-12
Welldeptha:	6159	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	27-DEC-12
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000294469		

I384
South
1/2 - 1 Mile

OIL_GAS CAOG11000225570

Districtnu:	1	Apinumber:	23722882
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F+29 - H+78
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-567 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225570		

I383
South
1/2 - 1 Mile

OIL_GAS CAOG11000225569

Districtnu:	1	Apinumber:	23722882
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F+29 - H+78

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-567 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225569		

J385
WNW
1/2 - 1 Mile

OIL_GAS **CAOG11000199289**

Districtnu:	1	Apinumber:	23702390
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.783	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 124
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199289		

I387
South
1/2 - 1 Mile

OIL_GAS **CAOG11000225572**

Districtnu:	1	Apinumber:	23722883
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block VI Offshore
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F+45 - H+175
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-569 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000225572		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

I386
South
1/2 - 1 Mile

OIL_GAS CAOG11000225571

Districtnu:	1	Apinumber:	23722883
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block VI Offshore
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F+45 - H+175
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-569 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000225571		

H388
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199096

Districtnu:	1	Apinumber:	23701361
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	16.231	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	198
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199096		

I389
South
1/2 - 1 Mile

OIL_GAS CAOG11000225219

Districtnu:	1	Apinumber:	23721332
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Rngr6
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-558

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000225219		

I390
South
1/2 - 1 Mile

OIL_GAS CAOG11000225682

Districtnu:	1	Apinumber:	23722280
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F+16 - G4+50
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-560 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000225682		

I391
South
1/2 - 1 Mile

OIL_GAS CAOG11000223310

Districtnu:	1	Apinumber:	23701076
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F0+9 - F-47
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-559 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000223310		

J392
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199018

Districtnu:	1	Apinumber:	23701291
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.783	Locationde:	LT6
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FR-108
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199018		

**J393
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199019

Districtnu:	1	Apinumber:	23701291
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.783	Locationde:	LT6
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FR-108
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199019		

**J394
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199313

Districtnu:	1	Apinumber:	23702422
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	17.133	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 320
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199313		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

I395
South
1/2 - 1 Mile

OIL_GAS CAOG11000225997

Districtnu:	1	Apinumber:	23723027
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block VI Offshore
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F+75 - H+394
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-550 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000225997		

I396
South
1/2 - 1 Mile

OIL_GAS CAOG11000225998

Districtnu:	1	Apinumber:	23723027
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block VI Offshore
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R6, F+75 - H+394
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-550 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000225998		

H397
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199095

Districtnu:	1	Apinumber:	23701360
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	16.261	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	197

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199095		

I398
South
1/2 - 1 Mile

OIL_GAS CAOG11000243275

Districtnu:	1	Apinumber:	23727364
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorma:	THUMS Long Beach Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 30.3		
Locationde:	KB ELE is 14.58' above the Derrick Floor which is 15.72' above ground surface.		
Gissourcec:	opr	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J-556 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000243275		

H399
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199094

Districtnu:	1	Apinumber:	23701359
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block II Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.987	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FRA-196
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000199094		

J400
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199283

Districtnu:	1	Apinumber:	23702378
Blmwell:	N	Redrillcan:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.61	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 109
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199283		

**J403
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000198920

Districtnu:	1	Apinumber:	23700534
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	17.706	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 318
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198920		

**J402
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000198919

Districtnu:	1	Apinumber:	23700534
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	17.706	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 318
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198919		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

**J401
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000198918

Districtnu:	1	Apinumber:	23700534
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	17.706	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 318
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198918		

**H404
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199093

Districtnu:	1	Apinumber:	23701358
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	16.534	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	195
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199093		

**J406
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199275

Districtnu:	1	Apinumber:	23702374
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.994	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 105

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199275		

**J407
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199276

Districtnu:	1	Apinumber:	23702374
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.994	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 105
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199276		

**J405
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199274

Districtnu:	1	Apinumber:	23702374
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.994	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 105
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199274		

**H408
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000198898

Districtnu:	1	Apinumber:	23700432
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	13.094	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	194
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198898		

**H409
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000198899

Districtnu:	1	Apinumber:	23700432
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	13.094	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	194
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198899		

**H410
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199097

Districtnu:	1	Apinumber:	23701362
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.901	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	199
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199097		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

J411
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000198941

Districtnu:	1	Apinumber:	23700875
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.552	Locationde:	Ranger V, R5
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FJ-104
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000198941		

J412
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199273

Districtnu:	1	Apinumber:	23702373
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.426	Locationde:	R5
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 103
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199273		

H413
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199092

Districtnu:	1	Apinumber:	23701357
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.836	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	193

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199092		

**J419
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199270

Districtnu:	1	Apinumber:	23702372
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	GL @ 24.	Locationde:	T5 DF 34.63'
Gissourcec:	sum	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FJ-102
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	28-NOV-13
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199270		

**J416
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199267

Districtnu:	1	Apinumber:	23702372
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	GL @ 24.	Locationde:	T5 DF 34.63'
Gissourcec:	sum	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FJ-102
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	28-NOV-13
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199267		

**J417
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199272

Districtnu:	1	Apinumber:	23702372
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	GL @ 24.	Locationde:	T5 DF 34.63'
Gissourcec:	sum	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FJ-102
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	28-NOV-13
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199272		

**J418
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199271

Districtnu:	1	Apinumber:	23702372
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	GL @ 24.	Locationde:	T5 DF 34.63'
Gissourcec:	sum	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FJ-102
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	28-NOV-13
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199271		

**J414
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199269

Districtnu:	1	Apinumber:	23702372
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	GL @ 24.	Locationde:	T5 DF 34.63'
Gissourcec:	sum	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FJ-102
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	28-NOV-13
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199269		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

**J415
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199268

Districtnu:	1	Apinumber:	23702372
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	GL @ 24.	Locationde:	T5 DF 34.63'
Gissourcec:	sum	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FJ-102
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	28-NOV-13
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199268		

**H420
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199091

Districtnu:	1	Apinumber:	23701356
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	17.953	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	192
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199091		

**J421
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199312

Districtnu:	1	Apinumber:	23702420
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.906	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 314

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199312		

**J422
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199264

Districtnu:	1	Apinumber:	23702371
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.815	Locationde:	T5
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FJ-101
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199264		

**J424
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199266

Districtnu:	1	Apinumber:	23702371
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.815	Locationde:	T5
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FJ-101
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199266		

**J423
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199265

Districtnu:	1	Apinumber:	23702371
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.815	Locationde:	T5
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FJ-101
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199265		

**H425
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199090

Districtnu:	1	Apinumber:	23701355
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	13.815	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	191
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199090		

**H426
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199087

Districtnu:	1	Apinumber:	23701354
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	12.836	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	190
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199087		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

H427
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199088

Districtnu:	1	Apinumber:	23701354
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	12.836	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	190
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199088		

H428
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199089

Districtnu:	1	Apinumber:	23701354
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	12.836	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	190
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199089		

J429
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199311

Districtnu:	1	Apinumber:	23702419
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.08	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 312

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199311		

H430

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199050

Districtnu:	1	Apinumber:	23701330
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.467	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	161
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199050		

H431

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000198897

Districtnu:	1	Apinumber:	23700431
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	12.259	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	189
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198897		

J432

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000199257

Districtnu:	1	Apinumber:	23702365
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.594	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 90
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199257		

**J433
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199310

Districtnu:	1	Apinumber:	23702418
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.929	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 310
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199310		

**H434
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199084

Districtnu:	1	Apinumber:	23701353
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	13.699	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	188
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199084		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

H435
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199085

Districtnu:	1	Apinumber:	23701353
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	13.699	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	188
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199085		

H436
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199086

Districtnu:	1	Apinumber:	23701353
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	13.699	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	188
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199086		

J439
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199235

Districtnu:	1	Apinumber:	23702319
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.295	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 65

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199235		

**J437
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199233

Districtnu:	1	Apinumber:	23702319
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.295	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 65
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199233		

**J438
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199234

Districtnu:	1	Apinumber:	23702319
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.295	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 65
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199234		

**H440
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000198916

Districtnu:	1	Apinumber:	23700531
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.791	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	187
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000198916		

**J442
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199308

Districtnu:	1	Apinumber:	23702417
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.29	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 308
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199308		

**J443
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199309

Districtnu:	1	Apinumber:	23702417
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.29	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 308
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199309		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

**J441
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199307

Districtnu:	1	Apinumber:	23702417
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.29	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	L 308
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199307		

**H444
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199083

Districtnu:	1	Apinumber:	23701352
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.222	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	186
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199083		

**J445
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199230

Districtnu:	1	Apinumber:	23702317
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.325	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 63

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199230		

**J447
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199232

Districtnu:	1	Apinumber:	23702317
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.325	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 63
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199232		

**J446
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199231

Districtnu:	1	Apinumber:	23702317
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.325	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 63
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199231		

**H449
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000198890

Districtnu:	1	Apinumber:	23700115
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.346	Locationde:	VI UT
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	160
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198890		

**H448
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000198891

Districtnu:	1	Apinumber:	23700115
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.346	Locationde:	VI UT
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	160
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198891		

**K450
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199082

Districtnu:	1	Apinumber:	23701351
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.265	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	185
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199082		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

**J451
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199292

Districtnu:	1	Apinumber:	23702393
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.521	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 127
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199292		

**K452
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199081

Districtnu:	1	Apinumber:	23701350
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.106	Locationde:	R5
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FRA-184
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199081		

**J453
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199256

Districtnu:	1	Apinumber:	23702363
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.142	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 88

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199256		

**J454
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199229

Districtnu:	1	Apinumber:	23702316
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.572	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 62
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199229		

**K455
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199080

Districtnu:	1	Apinumber:	23701349
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.353	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	183
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199080		

**K457
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199078

Districtnu:	1	Apinumber:	23701348
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	17.428	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	182
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199078		

**K456
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199077

Districtnu:	1	Apinumber:	23701348
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	17.428	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	182
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199077		

**K458
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199079

Districtnu:	1	Apinumber:	23701348
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	17.428	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	182
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199079		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

J459
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199228

Districtnu:	1	Apinumber:	23702315
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.745	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 61
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199228		

J466
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199227

Districtnu:	1	Apinumber:	23702314
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.187	Locationde:	L Term V-B, LT5
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FJ-60
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199227		

J465
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199226

Districtnu:	1	Apinumber:	23702314
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.187	Locationde:	L Term V-B, LT5
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FJ-60

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199226		

**J468
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199225

Districtnu:	1	Apinumber:	23702314
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.187	Locationde:	L Term V-B, LT5
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FJ-60
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199225		

**J467
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199224

Districtnu:	1	Apinumber:	23702314
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.187	Locationde:	L Term V-B, LT5
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FJ-60
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199224		

**J464
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199223

Districtnu:	1	Apinumber:	23702314
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.187	Locationde:	L Term V-B, LT5
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FJ-60
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199223		

**J461
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199222

Districtnu:	1	Apinumber:	23702314
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.187	Locationde:	L Term V-B, LT5
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FJ-60
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199222		

**J460
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199221

Districtnu:	1	Apinumber:	23702314
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.187	Locationde:	L Term V-B, LT5
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FJ-60
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199221		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

J463
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199220

Districtnu:	1	Apinumber:	23702314
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.187	Locationde:	L Term V-B, LT5
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FJ-60
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199220		

J462
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199219

Districtnu:	1	Apinumber:	23702314
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.187	Locationde:	L Term V-B, LT5
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FJ-60
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199219		

K469
NW
1/2 - 1 Mile

OIL_GAS CAOG11000198915

Districtnu:	1	Apinumber:	23700530
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.216	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	181

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198915		

**J470
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199216

Districtnu:	1	Apinumber:	23702313
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.587	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 59
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199216		

**J472
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199218

Districtnu:	1	Apinumber:	23702313
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.587	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 59
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199218		

**J471
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199217

Districtnu:	1	Apinumber:	23702313
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.587	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 59
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199217		

**K473
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199074

Districtnu:	1	Apinumber:	23701347
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block VI Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	14.635	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	180
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199074		

**K474
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199075

Districtnu:	1	Apinumber:	23701347
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block VI Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	14.635	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	180
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199075		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

K475
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199076

Districtnu:	1	Apinumber:	23701347
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block VI Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	14.635	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	180
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199076		

J476
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223431

Districtnu:	1	Apinumber:	23702158
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FA-402
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223431		

K477
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199073

Districtnu:	1	Apinumber:	23701346
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.037	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	179

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199073		

**J479
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199263

Districtnu:	1	Apinumber:	23702370
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.897	Locationde:	R5
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FJ-100
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199263		

**J478
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199262

Districtnu:	1	Apinumber:	23702370
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.897	Locationde:	R5
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	FJ-100
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199262		

**K480
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199072

Districtnu:	1	Apinumber:	23701345
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.925	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	178
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199072		

**J481
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199261

Districtnu:	1	Apinumber:	23702369
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.487	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 99
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199261		

**J483
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000223594

Districtnu:	1	Apinumber:	23702379
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FJ-110
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223594		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

J482
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223593

Districtnu:	1	Apinumber:	23702379
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FJ-110
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223593		

J484
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223595

Districtnu:	1	Apinumber:	23702379
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FJ-110
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223595		

K487
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199071

Districtnu:	1	Apinumber:	23701344
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	16.755	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	177

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199071		

K486

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199070

Districtnu:	1	Apinumber:	23701344
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	16.755	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	177
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199070		

K485

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199069

Districtnu:	1	Apinumber:	23701344
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	16.755	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	177
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199069		

J489

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000198927

Districtnu:	1	Apinumber:	23700551
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.697	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 98
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198927		

**J488
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000198926

Districtnu:	1	Apinumber:	23700551
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.697	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 98
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198926		

**J490
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000198928

Districtnu:	1	Apinumber:	23700551
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.697	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 98
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198928		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

K491
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199068

Districtnu:	1	Apinumber:	23701343
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	24.402	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	176
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199068		

J494
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199260

Districtnu:	1	Apinumber:	23702368
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.08	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 97
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199260		

J493
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199259

Districtnu:	1	Apinumber:	23702368
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.08	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 97

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199259		

**J492
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199258

Districtnu:	1	Apinumber:	23702368
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.08	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	Not Reported	Wellnumber:	J 97
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199258		

**J495
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000223617

Districtnu:	1	Apinumber:	23702421
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	L 316
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223617		

**J497
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000223619

Districtnu:	1	Apinumber:	23702421
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	L 316
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223619		

**J496
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000223618

Districtnu:	1	Apinumber:	23702421
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	L 316
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223618		

**K498
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199067

Districtnu:	1	Apinumber:	23701342
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.219	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	175
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199067		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

K501
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199066

Districtnu:	1	Apinumber:	23701341
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	26.692	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	174
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199066		

K500
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199065

Districtnu:	1	Apinumber:	23701341
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	26.692	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	174
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199065		

K499
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199064

Districtnu:	1	Apinumber:	23701341
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	26.692	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	174

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199064		

K502

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199063

Districtnu:	1	Apinumber:	23701340
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.264	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	173
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199063		

K503

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199062

Districtnu:	1	Apinumber:	23701339
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.62	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	172
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199062		

K504

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199059

Districtnu:	1	Apinumber:	23701338
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block VI Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.014	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	171
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199059		

**K506
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199061

Districtnu:	1	Apinumber:	23701338
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block VI Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.014	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	171
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199061		

**K505
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199060

Districtnu:	1	Apinumber:	23701338
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block VI Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.014	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	171
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199060		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

L507
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223421

Districtnu:	1	Apinumber:	23702142
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FJ-91
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223421		

K508
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199058

Districtnu:	1	Apinumber:	23701337
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	17.731	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	170
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199058		

K510
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199056

Districtnu:	1	Apinumber:	23701336
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block VI Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	24.987	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	169

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199056		

K509

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199055

Districtnu:	1	Apinumber:	23701336
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block VI Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	24.987	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	169
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199055		

K511

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199057

Districtnu:	1	Apinumber:	23701336
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block VI Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	24.987	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	169
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199057		

K512

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199053

Districtnu:	1	Apinumber:	23701335
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.109	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	168
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOB
Site id:	CAOG11000199053		

**K513
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199054

Districtnu:	1	Apinumber:	23701335
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.109	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	168
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOB
Site id:	CAOG11000199054		

**L514
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000223543

Districtnu:	1	Apinumber:	23702318
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 64
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223543		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

K515
NW
1/2 - 1 Mile

OIL_GAS CAOG11000198896

Districtnu:	1	Apinumber:	23700430
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block IV
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.662	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	167
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000198896		

M516
South
1/2 - 1 Mile

OIL_GAS CAOG11000199347

Districtnu:	1	Apinumber:	23702446
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.402	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	L 502
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199347		

M517
South
1/2 - 1 Mile

OIL_GAS CAOG11000199348

Districtnu:	1	Apinumber:	23702447
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.796	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	L 503

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000199348		

**L519
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000223582

Districtnu:	1	Apinumber:	23702364
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 89
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223582		

**L518
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000223581

Districtnu:	1	Apinumber:	23702364
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 89
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223581		

**L520
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000223583

Districtnu:	1	Apinumber:	23702364
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 89
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223583		

**K521
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000198895

Districtnu:	1	Apinumber:	23700429
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	16.665	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	166
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198895		

**M523
South
1/2 - 1 Mile**

OIL_GAS CAOG11000199350

Districtnu:	1	Apinumber:	23702448
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.246	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	L 504
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199350		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

M522
South
1/2 - 1 Mile

OIL_GAS CAOG11000199349

Districtnu:	1	Apinumber:	23702448
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.246	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	L 504
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199349		

M524
South
1/2 - 1 Mile

OIL_GAS CAOG11000199761

Districtnu:	1	Apinumber:	23723369
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.707	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	L 505
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199761		

K525
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199052

Districtnu:	1	Apinumber:	23701334
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.133	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	165

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199052		

M526
South
1/2 - 1 Mile

OIL_GAS CAOG11000199351

Districtnu:	1	Apinumber:	23702449
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.61	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	L 506
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199351		

M527
South
1/2 - 1 Mile

OIL_GAS CAOG11000223623

Districtnu:	1	Apinumber:	23702445
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	L 501
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000223623		

M528
South
1/2 - 1 Mile

OIL_GAS CAOG11000199352

Districtnu:	1	Apinumber:	23702450
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.069	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	L 507
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199352		

**K529
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199051

Districtnu:	1	Apinumber:	23701333
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	17.353	Locationde:	V R
Gissourcec:	gps	Comments:	84902268.ssf
Leasename:	A	Wellnumber:	164
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199051		

**M530
South
1/2 - 1 Mile**

OIL_GAS CAOG11000199746

Districtnu:	1	Apinumber:	23721949
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.12	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	L 508
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199746		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

M531
South
1/2 - 1 Mile

OIL_GAS CAOG11000199353

Districtnu:	1	Apinumber:	23702451
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	17.037	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	L 510
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199353		

K532
NW
1/2 - 1 Mile

OIL_GAS CAOG11000223363

Districtnu:	1	Apinumber:	23701332
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	163
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223363		

M534
South
1/2 - 1 Mile

OIL_GAS CAOG11000199755

Districtnu:	1	Apinumber:	23723131
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	16.451	Locationde:	R5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-511

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199755		

M533
South
1/2 - 1 Mile

OIL_GAS CAOG11000199754

Districtnu:	1	Apinumber:	23723131
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	16.451	Locationde:	R5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-511
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199754		

M535
South
1/2 - 1 Mile

OIL_GAS CAOG11000199749

Districtnu:	1	Apinumber:	23722761
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	16.656	Locationde:	R5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-512
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199749		

M536
South
1/2 - 1 Mile

OIL_GAS CAOG11000199750

Districtnu:	1	Apinumber:	23722761
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	16.656	Locationde:	R5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-512
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199750		

**K537
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000223362

Districtnu:	1	Apinumber:	23701331
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	162
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223362		

**M538
South
1/2 - 1 Mile**

OIL_GAS CAOG11000198908

Districtnu:	1	Apinumber:	23700446
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.205	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-514
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000198908		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

M539
South
1/2 - 1 Mile

OIL_GAS CAOG11000198906

Districtnu:	1	Apinumber:	23700445
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.6'	Locationde:	35.6' KB
Gissourcec:	sum	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-513
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000198906		

M540
South
1/2 - 1 Mile

OIL_GAS CAOG11000198907

Districtnu:	1	Apinumber:	23700445
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.6'	Locationde:	35.6' KB
Gissourcec:	sum	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-513
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000198907		

M541
South
1/2 - 1 Mile

OIL_GAS CAOG11000199139

Districtnu:	1	Apinumber:	23702146
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.007	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-515

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000199139		

M542
South
1/2 - 1 Mile

OIL_GAS CAOG11000199140

Districtnu:	1	Apinumber:	23702146
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	13	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.007	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-515
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000199140		

L543
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223580

Districtnu:	1	Apinumber:	23702362
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 87
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223580		

L544
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223598

Districtnu:	1	Apinumber:	23702382
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FJ-114
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223598		

**N545
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000213818

Districtnu:	1	Apinumber:	03719062
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles
Fieldname:	Old Wilmington (ABD)	Areaname:	Any Block
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Water Source	Wellnumber:	3
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000213818		

**N546
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199023

Districtnu:	1	Apinumber:	23701294
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.223	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	Not Reported	Wellnumber:	FR-324
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000199023		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

N547
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199024

Districtnu:	1	Apinumber:	23701294
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.223	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	Not Reported	Wellnumber:	FR-324
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000199024		

N548
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199025

Districtnu:	1	Apinumber:	23701294
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.223	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	Not Reported	Wellnumber:	FR-324
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000199025		

N549
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199009

Districtnu:	1	Apinumber:	23701277
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.836	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	A	Wellnumber:	323

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199009		

N550

NW

1/2 - 1 Mile

OIL_GAS CAOG11000199008

Districtnu:	1	Apinumber:	23701276
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.183	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	A	Wellnumber:	322
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199008		

N551

NW

1/2 - 1 Mile

OIL_GAS CAOG11000199007

Districtnu:	1	Apinumber:	23701274
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.955	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	A	Wellnumber:	321
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199007		

N552

NW

1/2 - 1 Mile

OIL_GAS CAOG11000199006

Districtnu:	1	Apinumber:	23701273
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.126	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	A	Wellnumber:	320
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199006		

**N553
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199005

Districtnu:	1	Apinumber:	23701272
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.433	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	A	Wellnumber:	319
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199005		

**N554
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199003

Districtnu:	1	Apinumber:	23701270
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	24.701	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	A	Wellnumber:	318
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199003		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

N555

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000198901

Districtnu:	1	Apinumber:	23700434
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	25.722	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	A	Wellnumber:	317
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000198901		

N556

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199002

Districtnu:	1	Apinumber:	23701269
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.369	Locationde:	UT6
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	Not Reported	Wellnumber:	FRA-316
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199002		

N557

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199154

Districtnu:	1	Apinumber:	23702176
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.069	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	A	Wellnumber:	315

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199154		

N558

NW

1/2 - 1 Mile

OIL_GAS CAOG11000199125

Districtnu:	1	Apinumber:	23702100
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	24.343	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	A	Wellnumber:	314
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199125		

N559

NW

1/2 - 1 Mile

OIL_GAS CAOG11000199124

Districtnu:	1	Apinumber:	23702099
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.215	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	A	Wellnumber:	313
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199124		

N560

NW

1/2 - 1 Mile

OIL_GAS CAOG11000199001

Districtnu:	1	Apinumber:	23701268
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.835	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	A	Wellnumber:	312
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199001		

**N561
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199000

Districtnu:	1	Apinumber:	23701267
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.721	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	Not Reported	Wellnumber:	FRA-311
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000199000		

**N562
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199004

Districtnu:	1	Apinumber:	23701271
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	25.813	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	A	Wellnumber:	310
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199004		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

N565

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199022

Districtnu:	1	Apinumber:	23701292
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.092	Locationde:	UT6
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	Not Reported	Wellnumber:	FR-309
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199022		

N563

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199020

Districtnu:	1	Apinumber:	23701292
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.092	Locationde:	UT6
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	Not Reported	Wellnumber:	FR-309
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199020		

N564

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199021

Districtnu:	1	Apinumber:	23701292
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	23.092	Locationde:	UT6
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	Not Reported	Wellnumber:	FR-309

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199021		

N566

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000198997

Districtnu:	1	Apinumber:	23701266
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.625	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	A	Wellnumber:	308
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198997		

N567

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000198998

Districtnu:	1	Apinumber:	23701266
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.625	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	A	Wellnumber:	308
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198998		

N568

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000198999

Districtnu:	1	Apinumber:	23701266
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.625	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	A	Wellnumber:	308
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198999		

**N570
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000198993

Districtnu:	1	Apinumber:	23701265
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	24.595	Locationde:	V-R
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	Not Reported	Wellnumber:	FRA-307
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198993		

**N569
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000198994

Districtnu:	1	Apinumber:	23701265
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	24.595	Locationde:	V-R
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	Not Reported	Wellnumber:	FRA-307
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198994		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

N572
NW
1/2 - 1 Mile

OIL_GAS CAOG11000198995

Districtnu:	1	Apinumber:	23701265
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	24.595	Locationde:	V-R
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	Not Reported	Wellnumber:	FRA-307
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198995		

N571
NW
1/2 - 1 Mile

OIL_GAS CAOG11000198996

Districtnu:	1	Apinumber:	23701265
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	24.595	Locationde:	V-R
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	Not Reported	Wellnumber:	FRA-307
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198996		

N573
NW
1/2 - 1 Mile

OIL_GAS CAOG11000198992

Districtnu:	1	Apinumber:	23701264
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.965	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	A	Wellnumber:	306

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000198992		

N574

NW

1/2 - 1 Mile

OIL_GAS CAOG11000198990

Districtnu:	1	Apinumber:	23701263
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	25.241	Locationde:	V Ranger
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	Not Reported	Wellnumber:	FRA-305
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198990		

N575

NW

1/2 - 1 Mile

OIL_GAS CAOG11000198991

Districtnu:	1	Apinumber:	23701263
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	25.241	Locationde:	V Ranger
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	Not Reported	Wellnumber:	FRA-305
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198991		

N576

NW

1/2 - 1 Mile

OIL_GAS CAOG11000198987

Districtnu:	1	Apinumber:	23701262
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	25.847	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	A	Wellnumber:	304
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198987		

**N577
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000198988

Districtnu:	1	Apinumber:	23701262
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	25.847	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	A	Wellnumber:	304
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198988		

**N578
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000198989

Districtnu:	1	Apinumber:	23701262
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	25.847	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	A	Wellnumber:	304
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198989		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

N579
NW
1/2 - 1 Mile

OIL_GAS CAOG11000223341

Districtnu:	1	Apinumber:	23701261
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	303
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223341		

N580
NW
1/2 - 1 Mile

OIL_GAS CAOG11000223340

Districtnu:	1	Apinumber:	23701260
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	302
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223340		

N581
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223339

Districtnu:	1	Apinumber:	23701259
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	301

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223339		

O582

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000215262

Districtnu:	1	Apinumber:	03723975
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles
Fieldname:	Old Wilmington (ABD)	Areaname:	Any Block
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Water Source	Wellnumber:	2
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000215262		

P583

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000223375

Districtnu:	1	Apinumber:	23701438
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FRA-96
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223375		

P584

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000223376

Districtnu:	1	Apinumber:	23701438
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FRA-96
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223376		

**585
West
1/2 - 1 Mile**

OIL_GAS CAOG11000215247

Districtnu:	1	Apinumber:	03723959
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles
Fieldname:	Old Wilmington (ABD)	Areaname:	Any Block
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	SG-5
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWS
Site id:	CAOG11000215247		

**P586
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199114

Districtnu:	1	Apinumber:	23701401
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.913	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	A	Wellnumber:	95
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199114		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

P587
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199049

Districtnu:	1	Apinumber:	23701329
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	16.816	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	A	Wellnumber:	111
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199049		

P588
NW
1/2 - 1 Mile

OIL_GAS CAOG11000223358

Districtnu:	1	Apinumber:	23701325
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	94
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223358		

P589
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199768

Districtnu:	1	Apinumber:	23723586
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.208	Locationde:	T5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FR-111

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199768		

P590

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199769

Districtnu:	1	Apinumber:	23723586
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.208	Locationde:	T5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FR-111
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199769		

P591

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000223140

Districtnu:	1	Apinumber:	23700529
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	110
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223140		

P592

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000223357

Districtnu:	1	Apinumber:	23701324
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	93
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223357		

**P593
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000223356

Districtnu:	1	Apinumber:	23701323
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	92
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223356		

**Q594
WSW
1/2 - 1 Mile**

OIL_GAS CAOG11000215248

Districtnu:	1	Apinumber:	03723960
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles
Fieldname:	Old Wilmington (ABD)	Areaname:	Any Block
Section:	12	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	SG-8
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000215248		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

O596
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000297751

Districtnu:	1	Apinumber:	23730104
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 32.0		
Locationde:	Well 9869.8' south along section line and 11060.5' east at right angles from said line from the 0,0 pt Anaheim/H. Ford.		
Gissourcec:	noi		
Comments:	well is directionally drilled show proposed coordinates from surface location and true vertical depth at total depth: 854.0' north and 2947.2' west. Estimated true vertical depth 4253.5'.		
Leasename:	OSA	Wellnumber:	001
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	08-DEC-13
Welldeptha:	6566	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	09-FEB-14
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000297751		

O595
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000297750

Districtnu:	1	Apinumber:	23730104
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 32.0		
Locationde:	Well 9869.8' south along section line and 11060.5' east at right angles from said line from the 0,0 pt Anaheim/H. Ford.		
Gissourcec:	noi		
Comments:	well is directionally drilled show proposed coordinates from surface location and true vertical depth at total depth: 854.0' north and 2947.2' west. Estimated true vertical depth 4253.5'.		
Leasename:	OSA	Wellnumber:	001
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	08-DEC-13
Welldeptha:	6566	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	09-FEB-14
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000297750		

O597
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000298342

Districtnu:	1	Apinumber:	23730132
Blmwell:	N	Redrillcan:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Dryhole:	N	Wellstatus:	N
Operatona:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	31.9' DF		
Locationde:	well 9856.3' south along property line and 11061.6' east at right angles to said line from the 0,0pt Anaheim/H.Ford. DF = 21'		
Gissourcec:	sum		
Comments:	directionally drilled show proposed coordinates from surface location and true vertical depth at toal depth: 2237.2' north and 3054.1' east. Estimated true vertical depth 2259.9'.		
Leasename:	OSA	Wellnumber:	002
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	01-NOV-13
Welldeptha:	5976	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	14-NOV-13
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000298342		

**P598
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000223355

Districtnu:	1	Apinumber:	23701322
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatona:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	91
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223355		

**O599
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000298343

Districtnu:	1	Apinumber:	23730133
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatona:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	32.2' DF	Locationde:	DF=21.00'
Gissourcec:	sum	Comments:	Not Reported
Leasename:	OSA	Wellnumber:	003
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	22-SEP-13
Welldeptha:	5035	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	05-OCT-13

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Directiona: Directionally drilled Gissymbol: AOG
 Site id: CAOG11000298343

**O600
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000298344

Districtnu:	1	Apinumber:	23730134
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	32.3' DF	Locationde:	DF = 21'
Gissourcec:	sum	Comments:	Not Reported
Leasename:	OSA	Wellnumber:	004
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	06-OCT-13
Welldeptha:	5638	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	21-OCT-13
Directiona:	Horizontally drilled	Gissymbol:	AOG
Site id:	CAOG11000298344		

**P602
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199047

Districtnu:	1	Apinumber:	23701321
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	17.17	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FRA-90
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199047		

**P601
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199046

Districtnu:	1	Apinumber:	23701321
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Elevation:	17.17	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FRA-90
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199046		

P603

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199048

Districtnu:	1	Apinumber:	23701321
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	17.17	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FRA-90
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199048		

O604

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000297837

Districtnu:	1	Apinumber:	23730119
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	32.3' DF		
Locationde:	Well is 9815.9' south along section line and 11060.0' east at right angles to said line from the 0,0 pt Anaheim/H. Ford. DF=32.3'		
Gissourcec:	sum		
Comments:	Well is directionally drilled show proposed coordinates from surface location and true vertical depth a total depth: 843.3' north and 1862.9' west. Estimated true verticl depth 3615.6'.		
Leasename:	OSA	Wellnumber:	005
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	16-NOV-13
Welldeptha:	4348	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	25-NOV-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000297837		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

O606
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000297839

Districtnu:	1	Apinumber:	23730119
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	32.3' DF		
Locationde:	Well is 9815.9' south along section line and 11060.0' east at right angles to said line from the 0,0 pt Anaheim/H. Ford. DF=32.3'		
Gissourcec:	sum		
Comments:	Well is directionally drilled show proposed coordinates from surface location and true vertical depth a total depth: 843.3' north and 1862.9' west. Estimated true verticl depth 3615.6'.		
Leasename:	OSA	Wellnumber:	005
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	16-NOV-13
Welldeptha:	4348	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	25-NOV-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000297839		

O605
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000297836

Districtnu:	1	Apinumber:	23730119
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	32.3' DF		
Locationde:	Well is 9815.9' south along section line and 11060.0' east at right angles to said line from the 0,0 pt Anaheim/H. Ford. DF=32.3'		
Gissourcec:	sum		
Comments:	Well is directionally drilled show proposed coordinates from surface location and true vertical depth a total depth: 843.3' north and 1862.9' west. Estimated true verticl depth 3615.6'.		
Leasename:	OSA	Wellnumber:	005
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	16-NOV-13
Welldeptha:	4348	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	25-NOV-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000297836		

O607
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000297838

Districtnu:	1	Apinumber:	23730119
Blmwell:	N	Redrillcan:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Dryhole:	N	Wellstatus:	A
Operatona:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	32.3' DF		
Locationde:	Well is 9815.9' south along section line and 11060.0' east at right angles to said line from the 0,0 pt Anaheim/H. Ford. DF=32.3'		
Gissourcec:	sum		
Comments:	Well is directionally drilled show proposed coordinates from surface location and true vertical depth a total depth: 843.3' north and 1862.9' west. Estimated true verticl depth 3615.6'.		
Leasename:	OSA	Wellnumber:	005
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	16-NOV-13
Welldeptha:	4348	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	25-NOV-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000297838		

P608

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000223360

Districtnu:	1	Apinumber:	23701327
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatona:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	99
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223360		

O609

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000300192

Districtnu:	1	Apinumber:	23730180
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatona:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 25.6		
Locationde:	Location of well 9796.43' south and 11069.73' east at right angles to said line from the 0,0 pt Anaheim/H. Ford.		
Gissourcec:	sum		
Comments:	Well is directionally drilled show proposed coordinates from surface location and true vertical depth at total depth: 231.6' north snf 2946.3' east. Estimated true vertical depth 2905.6'.		
Leasename:	OSA	Wellnumber:	006

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	18-DEC-13
Welldeptha:	4442	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	30-DEC-13
Directiona:	Horizontally drilled	Gissymbol:	AOG
Site id:	CAOG11000300192		

**O610
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000299560

Districtnu:	1	Apinumber:	23730177
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 25.5		
Locationde:	Well is 9783' south and 11070.83' east at right angles to said line from the 0,0 pt Anaheim/H. Ford.		
Gissourcec:	noi		
Comments:	Well is directionally drilled show proposed coordinates from surface location and true vertical depth at total depth: 1578.2' north and 2324.3 east. Estimated true vertical depth 2939.5'		
Leasename:	OSA	Wellnumber:	007
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	31-DEC-13
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000299560		

**P611
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000223354

Districtnu:	1	Apinumber:	23701320
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	89
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223354		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

O612
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000300300

Districtnu:	1	Apinumber:	23730183
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	DF 24.9		
Locationde:	Well 9769.58' south and 11071.96' east at right angles to said line from the 0,0 pt Anaheim/ H. Ford.		
Gissourcec:	sum		
Comments:	Well is to be directionally drilled, show proposed coordinates from surface location and true vertical depth at total depth: 1342.6' north and 2409.5' east. Estimated true vertical depth 4308'.		
Leasename:	OSA	Wellnumber:	008 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	11-JAN-14
Welldeptha:	5766	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	03-MAR-14
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000300300		

O613
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000300301

Districtnu:	1	Apinumber:	23730183
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	DF 24.9		
Locationde:	Well 9769.58' south and 11071.96' east at right angles to said line from the 0,0 pt Anaheim/ H. Ford.		
Gissourcec:	sum		
Comments:	Well is to be directionally drilled, show proposed coordinates from surface location and true vertical depth at total depth: 1342.6' north and 2409.5' east. Estimated true vertical depth 4308'.		
Leasename:	OSA	Wellnumber:	008 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	11-JAN-14
Welldeptha:	5766	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	03-MAR-14
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000300301		

O614
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000299558

Districtnu:	1	Apinumber:	23730175
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	DF: 25.		
Locationde:	well is 9756.15' south along section line 11073.10' east at right angles to said line from the 0,0 pt Anaheim/H. Ford.		
Gissourcec:	sum		
Comments:	Well is directionally drilled show proposed coordinates from surface location and true vertical depth at total depth: 436.5' north and 1832.7' west. Estimated true vertical depth 3008'.		
Leasename:	OSA	Wellnumber:	009 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	19-JAN-14
Welldeptha:	4065	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	08-MAR-14
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000299558		

**O615
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000298173

Districtnu:	1	Apinumber:	23730124
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 32		
Locationde:	Well 9748.7' south along section line and 11070.7' east at right angles to said line fro the 0,0 pt Anaheim/H. Ford		
Gissourcec:	sum		
Comments:	Directionally drilled show proposed coordinates from surface location and true vertical depth: 3046' north and 2151' east. Estimated true vertical depth 2558'.		
Leasename:	OSA	Wellnumber:	010 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	23-OCT-13
Welldeptha:	4956	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	18-FEB-14
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000298173		

**O617
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000298175

Districtnu:	1	Apinumber:	23730125
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 32.2		
Locationde:	Well 9735.3' south along section line and 11071.9' east at right angles to said line from the 0,0 pt Anaheim/H.Ford		
Gissourcec:	sum		
Comments:	Directionally drilled show proposed coordinates from surface location and true vertical depth: 1629' north and 609' west. Estimated true vertical depth 4185'		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Leasename:	OSA	Wellnumber:	011 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	27-NOV-13
Welldeptha:	4697	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	24-FEB-14
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000298175		

O616
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000298174

Districtnu:	1	Apinumber:	23730125
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 32.2		
Locationde:	Well 9735.3' south along section line and 11071.9' east at right angles to said line from the 0,0 pt Anaheim/H.Ford		

Gissourcec: sum
 Comments: Directionally drilled show proposed coordinates from surface location and true vertical depth: 1629' north and 609' west. Estimated true vertical depth 4185'

Leasename:	OSA	Wellnumber:	011 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	27-NOV-13
Welldeptha:	4697	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	24-FEB-14
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000298174		

Q618
WSW
1/2 - 1 Mile

OIL_GAS CAOG11000215198

Districtnu:	1	Apinumber:	03723903
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles
Fieldname:	Old Wilmington (ABD)	Areaname:	Any Block
Section:	14	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	SG-6
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWS
Site id:	CAOG11000215198		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

P620
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199045

Districtnu:	1	Apinumber:	23701319
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.164	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	A	Wellnumber:	88
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199045		

P619
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199044

Districtnu:	1	Apinumber:	23701319
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	21.164	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	A	Wellnumber:	88
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199044		

O621
NW
1/2 - 1 Mile

OIL_GAS CAOG11000302810

Districtnu:	1	Apinumber:	23730274
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	25.7'	Locationde:	KB=14.5'
Gissourcec:	noi	Comments:	Not Reported
Leasename:	OSA	Wellnumber:	012

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	29-APR-14
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	NOG
Site id:	CAOG11000302810		

P622

NW

1/2 - 1 Mile

OIL_GAS CAOG11000223361

Districtnu:	1	Apinumber:	23701328
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	100
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223361		

P623

NW

1/2 - 1 Mile

OIL_GAS CAOG11000223353

Districtnu:	1	Apinumber:	23701318
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	87
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223353		

O624

WNW

1/2 - 1 Mile

OIL_GAS CAOG11000199196

Districtnu:	1	Apinumber:	23702290
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	9.202	Locationde:	R5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-36
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199196		

**O625
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199197

Districtnu:	1	Apinumber:	23702290
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	9.202	Locationde:	R5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-36
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199197		

**O626
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199198

Districtnu:	1	Apinumber:	23702290
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	9.202	Locationde:	R5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-36
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199198		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

O628
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199214

Districtnu:	1	Apinumber:	23702311
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	8.733	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 57
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199214		

O629
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199215

Districtnu:	1	Apinumber:	23702311
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	8.733	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 57
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199215		

O627
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199213

Districtnu:	1	Apinumber:	23702311
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	8.733	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 57

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199213		

O630

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000223415

Districtnu:	1	Apinumber:	23702136
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FJ-13
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223415		

P631

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000223364

Districtnu:	1	Apinumber:	23701402
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	97
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223364		

O632

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000199248

Districtnu:	1	Apinumber:	23702357
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	6.647	Locationde:	UT5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-80
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199248		

**O633
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199249

Districtnu:	1	Apinumber:	23702357
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	6.647	Locationde:	UT5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-80
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199249		

**P635
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199786

Districtnu:	1	Apinumber:	23723841
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	17.486	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 205
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199786		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

P634
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199785

Districtnu:	1	Apinumber:	23723841
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	17.486	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 205
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199785		

O636
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223537

Districtnu:	1	Apinumber:	23702306
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 52
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223537		

P637
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199042

Districtnu:	1	Apinumber:	23701317
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.209	Locationde:	R5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FRA-86

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199042		

P638

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199043

Districtnu:	1	Apinumber:	23701317
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.209	Locationde:	R5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FRA-86
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199043		

O639

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000199277

Districtnu:	1	Apinumber:	23702375
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	10.674	Locationde:	R-V
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-106
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199277		

O640

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000199278

Districtnu:	1	Apinumber:	23702375
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	10.674	Locationde:	R-V
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-106
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199278		

**O641
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000223528

Districtnu:	1	Apinumber:	23702294
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 40
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223528		

**O642
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000300846

Districtnu:	1	Apinumber:	23730226
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	DF 23	Locationde:	Not Reported
Gissourcec:	noi	Comments:	Estimated true vertical depth 94.5 tw
Leasename:	OSA	Wellnumber:	051
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000300846		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

P644
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199783

Districtnu:	1	Apinumber:	23723840
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	27.752	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-204
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	4150	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199783		

P643
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199782

Districtnu:	1	Apinumber:	23723840
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	27.752	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-204
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	4150	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199782		

P645
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199784

Districtnu:	1	Apinumber:	23723840
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	27.752	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-204

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	4150	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199784		

O646

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000198917

Districtnu:	1	Apinumber:	23700532
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	10.094	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 79
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198917		

P647

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000223527

Districtnu:	1	Apinumber:	23702293
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 39
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223527		

P648

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199041

Districtnu:	1	Apinumber:	23701316
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.843	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	A	Wellnumber:	85
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199041		

**O649
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000300847

Districtnu:	1	Apinumber:	23730227
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	DF 23	Locationde:	Not Reported
Gissourcec:	noi	Comments:	Estimated true depth 94.5 tw
Leasename:	OSA	Wellnumber:	052
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000300847		

**P652
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199243

Districtnu:	1	Apinumber:	23702351
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	8.07	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 72
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199243		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

P650
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199241

Districtnu:	1	Apinumber:	23702351
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	8.07	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 72
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199241		

P651
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199242

Districtnu:	1	Apinumber:	23702351
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	8.07	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 72
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199242		

O653
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000300911

Districtnu:	1	Apinumber:	23730229
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	DF 23	Locationde:	Not Reported
Gissourcec:	noi	Comments:	Not Reported
Leasename:	OSA	Wellnumber:	053

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	14-FEB-14
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000300911		

O654

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000300912

Districtnu:	1	Apinumber:	23730229
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	DF 23	Locationde:	Not Reported
Gissourcec:	noi	Comments:	Not Reported
Leasename:	OSA	Wellnumber:	053
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	14-FEB-14
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000300912		

P655

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000223416

Districtnu:	1	Apinumber:	23702137
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FJ-19
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223416		

O656

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000300913

Districtnu:	1	Apinumber:	23730230
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	DF 23	Locationde:	Not Reported
Gissourcec:	sum		
Comments:	If well is to be directionally drilled, show proposed coordinates and true verticle depth at total depth: 696 ft N and 1743' W. Estimated true verticle depth 3870.1.		
Leasename:	OSA	Wellnumber:	054
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	22-FEB-14
Welldeptha:	4162	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	03-MAR-14
Directiona:	Horizontally drilled	Gissymbol:	AOG
Site id:	CAOG11000300913		

**P657
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000223573

Districtnu:	1	Apinumber:	23702353
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block II Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FJ-74
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223573		

**O658
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000223419

Districtnu:	1	Apinumber:	23702140
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 35
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223419		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

O659
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223150

Districtnu:	1	Apinumber:	23700552
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FJ-112
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223150		

O660
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223151

Districtnu:	1	Apinumber:	23700552
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FJ-112
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223151		

O661
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223152

Districtnu:	1	Apinumber:	23700552
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FJ-112

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223152		

P662

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000223526

Districtnu:	1	Apinumber:	23702292
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 38
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223526		

P665

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000223548

Districtnu:	1	Apinumber:	23702323
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 69
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223548		

P663

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000223546

Districtnu:	1	Apinumber:	23702323
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 69
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223546		

**P664
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000223547

Districtnu:	1	Apinumber:	23702323
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 69
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223547		

**R666
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000300304

Districtnu:	1	Apinumber:	23730185
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 22.9		
Locationde:	Well 9731.78' south and 10928.33' east at right angles to said line from the 0,0 pt Anaheim/H.Ford.		
Gissourcec:	noi	Comments:	Not Reported
Leasename:	OSA	Wellnumber:	057
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000300304		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

R667
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000300305

Districtnu:	1	Apinumber:	23730185
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 22.9		
Locationde:	Well 9731.78' south and 10928.33' east at right angles to said line from the 0,0 pt Anaheim/H.Ford.		
Gissourcec:	noi	Comments:	Not Reported
Leasename:	OSA	Wellnumber:	057
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000300305		

R668
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000300302

Districtnu:	1	Apinumber:	23730184
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 22.9		
Locationde:	Well 9758.67' south and 10926.08' east at right angles to said line from the 0,0 pt Anaheim/H. Ford.		
Gissourcec:	sum		
Comments:	Well is to be directionally drilled show proposed coordinates from surface location and true vertical depth at total depth: 2' south and 3084.8' east. Estimated true vertical depth 4157.5'.		
Leasename:	OSA	Wellnumber:	055
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	05-MAR-14
Welldeptha:	5562	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	14-MAR-14
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000300302		

R669
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000300303

Districtnu:	1	Apinumber:	23730184
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Range:	13W	Basemeridi:	SB
Elevation:	KB 22.9		
Locationde:	Well 9758.67 ' south and 10926.08' east at right angles to said line from the 0,0 pt Anaheim/H. Ford.		
Gissourcec:	sum		
Comments:	Well is to be directionally drilled show proposed coordinates from surface location and true vertical depth at total depth: 2' south and 3084.8' east. Estimated true vertical depth 4157.5'.		
Leasename:	OSA	Wellnumber:	055
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	05-MAR-14
Welldeptha:	5562	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	14-MAR-14
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000300303		

**O670
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000198913

Districtnu:	1	Apinumber:	23700449
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	9.742	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 34
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198913		

**P671
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000223534

Districtnu:	1	Apinumber:	23702302
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 48
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223534		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

R672
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000300840

Districtnu:	1	Apinumber:	23730223
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	DF 22.8	Locationde:	Not Reported
Gissourcec:	sum	Comments:	Estimated true vertical depth: 94.5'
Leasename:	OSA	Wellnumber:	058
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Horizontally drilled	Gissymbol:	AOG
Site id:	CAOG11000300840		

O674
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199188

Districtnu:	1	Apinumber:	23702281
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	7.486	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 23
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199188		

O675
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199191

Districtnu:	1	Apinumber:	23702281
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	7.486	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 23

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199191		

O676

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000199190

Districtnu:	1	Apinumber:	23702281
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	7.486	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 23
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199190		

O673

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000199189

Districtnu:	1	Apinumber:	23702281
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	7.486	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 23
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199189		

R677

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000300839

Districtnu:	1	Apinumber:	23730222
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	DF 22.7		
Locationde:	Location of well 9710.8 ft. S and 10927.1 F East.		
Gissourcec:	sum		
Comments:	If well is to be directionally drilled: 1551 Ft N and 2909 Ft. W. Estimated TVD 2288'. Elevation 22.7ft.		
Leasename:	OSA	Wellnumber:	059
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	01-APR-14
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000300839		

**R678
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000300895

Districtnu:	1	Apinumber:	23730228
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.6' DF		
Locationde:	Location of well is 9697.3 ' S and 10928.2 ' E to said line. DF=14.5'		
Gissourcec:	sum		
Comments:	If well is to be directionally drilled, propose coordinates and TVD at total depth: 1578 ' N and 2928 ' E. ETVD 2384' tvd. Elevation = 22.6 '.		
Leasename:	OSA	Wellnumber:	060
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	10-APR-14
Welldeptha:	4783	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	18-APR-14
Directiona:	Horizontally drilled	Gissymbol:	AOG
Site id:	CAOG11000300895		

**R679
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000300896

Districtnu:	1	Apinumber:	23730228
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.6' DF		
Locationde:	Location of well is 9697.3 ' S and 10928.2 ' E to said line. DF=14.5'		
Gissourcec:	sum		
Comments:	If well is to be directionally drilled, propose coordinates and TVD at total depth: 1578 ' N and 2928 ' E. ETVD 2384' tvd. Elevation = 22.6 '.		
Leasename:	OSA	Wellnumber:	060
Epawell:	N	Hydraulica:	N

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Confidenti:	N	Spupdate:	10-APR-14
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Horizontally drilled	Gissymbol:	AOG
Site id:	CAOG11000300896		

**O681
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199195

Districtnu:	1	Apinumber:	23702286
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	7.829	Locationde:	UT5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-30
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199195		

**O680
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199194

Districtnu:	1	Apinumber:	23702286
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	7.829	Locationde:	UT5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-30
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199194		

**R683
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000300842

Districtnu:	1	Apinumber:	23730225
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.6 DF	Locationde:	DF 14.5'
Gissourcec:	sum	Comments:	Estimated true vertical depth 94.5 tw
Leasename:	OSA	Wellnumber:	061
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000300842		

**R684
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000300845

Districtnu:	1	Apinumber:	23730225
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.6 DF	Locationde:	DF 14.5'
Gissourcec:	sum	Comments:	Estimated true vertical depth 94.5 tw
Leasename:	OSA	Wellnumber:	061
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	19-APR-14
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000300845		

**R685
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000300844

Districtnu:	1	Apinumber:	23730225
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.6 DF	Locationde:	DF 14.5'
Gissourcec:	sum	Comments:	Estimated true vertical depth 94.5 tw
Leasename:	OSA	Wellnumber:	061
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000300844		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

R682
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000300843

Districtnu:	1	Apinumber:	23730225
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.6 DF	Locationde:	DF 14.5'
Gissourcec:	sum	Comments:	Estimated true vertical depth 94.5 tw
Leasename:	OSA	Wellnumber:	061
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	19-APR-14
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000300843		

R686
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223535

Districtnu:	1	Apinumber:	23702303
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FJ-49
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223535		

P687
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199010

Districtnu:	1	Apinumber:	23701282
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	14.708	Locationde:	LT6
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FR-101

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199010		

R688

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000223600

Districtnu:	1	Apinumber:	23702385
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 117
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223600		

R689

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000199279

Districtnu:	1	Apinumber:	23702376
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	6.927	Locationde:	R5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-107
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199279		

P690

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199040

Districtnu:	1	Apinumber:	23701315
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	11.033	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	A	Wellnumber:	84
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199040		

**R691
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199207

Districtnu:	1	Apinumber:	23702305
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	6.75	Locationde:	R5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-51
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199207		

**R692
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199208

Districtnu:	1	Apinumber:	23702305
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	6.75	Locationde:	R5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-51
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199208		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

R693
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223417

Districtnu:	1	Apinumber:	23702138
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block II Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FJ-24
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223417		

P694
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199039

Districtnu:	1	Apinumber:	23701314
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	10.604	Locationde:	T5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FRA-83
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199039		

R695
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223520

Districtnu:	1	Apinumber:	23702282
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 25

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223520		

P696

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199038

Districtnu:	1	Apinumber:	23701313
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	10.681	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	A	Wellnumber:	82
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199038		

R697

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000223521

Districtnu:	1	Apinumber:	23702283
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 26
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223521		

R699

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199037

Districtnu:	1	Apinumber:	23701312
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	10.041	Locationde:	F6
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FRA-81
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199037		

**R698
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199036

Districtnu:	1	Apinumber:	23701312
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	10.041	Locationde:	F6
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FRA-81
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199036		

**Q700
WSW
1/2 - 1 Mile**

OIL_GAS CAOG11000303216

Districtnu:	1	Apinumber:	23730290
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	39.1kb		
Locationde:	13846.2 ft South along property line and 10109.6 ft East at right angles said line from the 0,0 pt Anaheim/H. Ford		
Gissourcec:	noi	Comments:	Not Reported
Leasename:	OSG	Wellnumber:	003
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	22-JUL-14
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	NOG
Site id:	CAOG11000303216		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

Q701
WSW
1/2 - 1 Mile

OIL_GAS CAOG11000296605

Districtnu:	1	Apinumber:	23730081
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 27.1		
Locationde:	Well is 13805.5' south along section line and 10112.9' east at right angles to said line from the 0,0 pt Anaheim/H. Ford.		
Gissourcec:	sum		
Comments:	If the well is directionally drill show proposed coordinates from surface location and true vertical depth at total depth: 170' north and 2863' east. Estimated true vertical depth 2719'.		
Leasename:	OSG	Wellnumber:	001
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	07-AUG-13
Welldeptha:	5071	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	18-AUG-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000296605		

R702
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199180

Districtnu:	1	Apinumber:	23702247
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	8.59	Locationde:	TB5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-11
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199180		

R703
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199181

Districtnu:	1	Apinumber:	23702247
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Range:	13W	Basemeridi:	SB
Elevation:	8.59	Locationde:	TB5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-11
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199181		

Q704

WSW

1/2 - 1 Mile

OIL_GAS

CAOG11000296609

Districtnu:	1	Apinumber:	23730083
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 27.1		
Locationde:	Well 13859.44' south along section property line and 10108.12' east at right angeles to said line from the 0,0 pt Anaheim/H. Ford.		
Gissourcec:	noi		
Comments:	If well is to be directionally drilled show proposed coordinates from surface location and true vertical depth at total depth: 604.0' north and 3185.2' east. Esitmated true vertical depth 2641.1'.		
Leasename:	OSG	Wellnumber:	004
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000296609		

Q705

WSW

1/2 - 1 Mile

OIL_GAS

CAOG11000296610

Districtnu:	1	Apinumber:	23730083
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 27.1		
Locationde:	Well 13859.44' south along section property line and 10108.12' east at right angeles to said line from the 0,0 pt Anaheim/H. Ford.		
Gissourcec:	noi		
Comments:	If well is to be directionally drilled show proposed coordinates from surface location and true vertical depth at total depth: 604.0' north and 3185.2' east. Esitmated true vertical depth 2641.1'.		
Leasename:	OSG	Wellnumber:	004
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Directiona: Unknown Gissymbol: AOG
 Site id: CAOG11000296610

Q706
WSW
1/2 - 1 Mile

OIL_GAS CAOG11000296608

Districtnu:	1	Apinumber:	23730082
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 27.1'		
Locationde:	Location of well 13818.9' south along section line 10111.7' east at right angles to said line from the 0,0 pt Anaheim/H. Ford.		
Gissourcec:	sum		
Comments:	If well is to be directionally drilled, show proposed coordinates from surface location and true vertical depth at total depth 435.0' south and 1978.2' east. Estimated true vertical depth 3380.1'		
Leasename:	OSG	Wellnumber:	002
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	10-SEP-13
Welldeptha:	4078	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	19-SEP-13
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000296608		

R707
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199035

Districtnu:	1	Apinumber:	23701311
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	13.207	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	A	Wellnumber:	80
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199035		

R708
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223522

Districtnu:	1	Apinumber:	23702284
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 27
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223522		

**R710
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199193

Districtnu:	1	Apinumber:	23702285
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	6.404	Locationde:	UT5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-29
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199193		

**R709
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199192

Districtnu:	1	Apinumber:	23702285
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	6.404	Locationde:	UT5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-29
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199192		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

Q711
WSW
1/2 - 1 Mile

OIL_GAS CAOG11000299313

Districtnu:	1	Apinumber:	23730162
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 27.1		
Locationde:	Well is 13886.6' south and 10105.8' east at right angles to said line from the 0,0 pt Anaheim/H. Ford		
Gissourcec:	noi		
Comments:	Well is directionally drilled show proposed coordinates from surface location and true vertical depth at total depth: 142.3' north and 921.6' west. Estimated true vertical depth 3774.1'.		
Leasename:	OSG	Wellnumber:	006
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	05-JAN-14
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000299313		

R712
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199237

Districtnu:	1	Apinumber:	23702324
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	4.508	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 70
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199237		

Q714
WSW
1/2 - 1 Mile

OIL_GAS CAOG11000199301

Districtnu:	1	Apinumber:	23702408
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	14	Township:	05S
Range:	13W	Basemeridi:	SB

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Elevation:	11.045	Locationde:	Ranger V
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-218
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000199301		

Q713
WSW
1/2 - 1 Mile

OIL_GAS **CAOG11000199300**

Districtnu:	1	Apinumber:	23702408
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	14	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	11.045	Locationde:	Ranger V
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-218
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000199300		

Q715
WSW
1/2 - 1 Mile

OIL_GAS **CAOG11000299312**

Districtnu:	1	Apinumber:	23730161
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	27.1' DF		
Locationde:	Well is 13872.9' south and 10106.9' east at right angles to said line from the 0,0 pt Anaheim/H. Ford DF=12'		
Gissourcec:	sum		
Comments:	Well is directionally drilled show proposed coordinates from surface location and true vertical depth at total depth: 780.5' north and 548.6' west. Estimated true vertical depth 3485.1'.		
Leasename:	OSG	Wellnumber:	005
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	28-DEC-13
Welldeptha:	3663	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	05-JAN-14
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000299312		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

S716
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199034

Districtnu:	1	Apinumber:	23701310
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	11.502	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	A	Wellnumber:	79
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199034		

R717
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223515

Districtnu:	1	Apinumber:	23702249
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 14
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223515		

R720
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199212

Districtnu:	1	Apinumber:	23702309
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	8.914	Locationde:	T5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-55

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199212		

R718

WNW

1/2 - 1 Mile

OIL_GAS CAOG11000199210

Districtnu:	1	Apinumber:	23702309
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	8.914	Locationde:	T5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-55
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199210		

R719

WNW

1/2 - 1 Mile

OIL_GAS CAOG11000199211

Districtnu:	1	Apinumber:	23702309
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	8.914	Locationde:	T5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-55
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199211		

S721

NW

1/2 - 1 Mile

OIL_GAS CAOG11000199033

Districtnu:	1	Apinumber:	23701309
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	10.93	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	A	Wellnumber:	78
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199033		

Q722

WSW

1/2 - 1 Mile

OIL_GAS

CAOG11000299380

Districtnu:	1	Apinumber:	23730163
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 27.2		
Locationde:	Well 13913.1' south and 10103.4' east at right angles to said line from the 0,0 pt Anaheim/H. Ford.		
Gissourcec:	sum		
Comments:	Well is dirctionally drilled show proposed coordinates from surface location and true vertical depth at total depth: 803.2' south and 541.6' west. Estimated true vertical depth 4907.7'.		
Leasename:	OSG	Wellnumber:	008 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	15-JAN-14
Welldeptha:	4959	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	10-FEB-14
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000299380		

Q723

WSW

1/2 - 1 Mile

OIL_GAS

CAOG11000199302

Districtnu:	1	Apinumber:	23702410
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	14	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.709	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	L 222
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199302		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

Q724

WSW

1/2 - 1 Mile

OIL_GAS

CAOG11000296613

Districtnu:	1	Apinumber:	23730084
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 12.0		
Locationde:	Well 13926.7' south along section property line and 10102.1' east at right angles to said line from the 0,0 pt Anaheim/H. Ford.		
Gissourcec:	sum		
Comments:	If well is to be directionally drilled show proposed coordinates from surface location and true vertical depth at total depth: 2199.7' south and 2433.5' east. Estimated true vertical depth at total depth. Ground level @ 15.1' MSL.		
Leasename:	OSG	Wellnumber:	009 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-AUG-13
Welldeptha:	6512	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	25-OCT-13
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000296613		

Q725

WSW

1/2 - 1 Mile

OIL_GAS

CAOG11000296292

Districtnu:	1	Apinumber:	23730085
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 12.0		
Locationde:	Well 13940.1 south along section property line and 10100.9' east at right angles to said line from the 0,0 pt Anaheim/H. Ford.		
Gissourcec:	sum		
Comments:	If well is to be directionally drilled show proposed coordinates from surface location and true vertical depth at total depth: 2218.7' south and 3365' east. Estimated true vertical depth 4934'. Ground level @ 15.10' MSL		
Leasename:	OSG	Wellnumber:	010 I
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	19-SEP-13
Welldeptha:	6904	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	01-NOV-13
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000296292		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

Q726
WSW
1/2 - 1 Mile

OIL_GAS CAOG11000199303

Districtnu:	1	Apinumber:	23702411
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	14	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	16.272	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	L 225
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000199303		

S727
NW
1/2 - 1 Mile

OIL_GAS CAOG11000223352

Districtnu:	1	Apinumber:	23701308
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	77
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223352		

Q728
WSW
1/2 - 1 Mile

OIL_GAS CAOG11000199297

Districtnu:	1	Apinumber:	23702403
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.521	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	L 201

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199297		

Q729

WSW

1/2 - 1 Mile

OIL_GAS

CAOG11000199298

Districtnu:	1	Apinumber:	23702404
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	17.642	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	L 202
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199298		

T730

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000199178

Districtnu:	1	Apinumber:	23702246
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.298	Locationde:	R5
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	FJ-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199178		

T731

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000199179

Districtnu:	1	Apinumber:	23702246
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.298	Locationde:	R5
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	FJ-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199179		

**Q732
WSW
1/2 - 1 Mile**

OIL_GAS CAOG11000199304

Districtnu:	1	Apinumber:	23702414
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	14	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.604	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	L 229
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199304		

**T733
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000224250

Districtnu:	1	Apinumber:	23704607
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 18
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224250		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

Q734
WSW
1/2 - 1 Mile

OIL_GAS CAOG11000199305

Districtnu:	1	Apinumber:	23702416
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	14	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.131	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-231
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199305		

Q735
WSW
1/2 - 1 Mile

OIL_GAS CAOG11000199306

Districtnu:	1	Apinumber:	23702416
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	14	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.131	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-231
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199306		

R736
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223512

Districtnu:	1	Apinumber:	23702248
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 12

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223512		

R738

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000223514

Districtnu:	1	Apinumber:	23702248
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 12
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223514		

R737

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000223513

Districtnu:	1	Apinumber:	23702248
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 12
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223513		

Q739

WSW

1/2 - 1 Mile

OIL_GAS

CAOG11000199745

Districtnu:	1	Apinumber:	23721401
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	14	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.932	Locationde:	R5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-207
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000199745		

**S740
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199032

Districtnu:	1	Apinumber:	23701307
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	11.745	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	A	Wellnumber:	76
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199032		

**T741
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000223418

Districtnu:	1	Apinumber:	23702139
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block II Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FJ-28
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223418		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

R742
NW
1/2 - 1 Mile

OIL_GAS CAOG11000223517

Districtnu:	1	Apinumber:	23702278
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 20
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223517		

T743
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223538

Districtnu:	1	Apinumber:	23702307
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FJ-53
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223538		

U744
WSW
1/2 - 1 Mile

OIL_GAS CAOG11000199299

Districtnu:	1	Apinumber:	23702405
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	14	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	11.977	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	L 212

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000199299		

R745

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000223533

Districtnu:	1	Apinumber:	23702301
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 47
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223533		

Q746

WSW

1/2 - 1 Mile

OIL_GAS

CAOG11000302890

Districtnu:	1	Apinumber:	03730277
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	39.5' KB		
Locationde:	13821.75ft South and 9988.73ft East at right angles to said line from the 0,0pt Ananheim/H. Ford. KB = 12'		
Gissourcec:	noi	Comments:	Not Reported
Leasename:	OSG	Wellnumber:	013
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000302890		

S747

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199031

Districtnu:	1	Apinumber:	23701306
Blmwell:	N	Redrillcan:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	8.564	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	A	Wellnumber:	75
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199031		

U749
WSW
1/2 - 1 Mile

OIL_GAS **CAOG11000199137**

Districtnu:	1	Apinumber:	23702144
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	14	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	12.268	Locationde:	R5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-217
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199137		

U748
WSW
1/2 - 1 Mile

OIL_GAS **CAOG11000199136**

Districtnu:	1	Apinumber:	23702144
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	14	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	12.268	Locationde:	R5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FL-217
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199136		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

R750

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199204

Districtnu:	1	Apinumber:	23702300
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	12.781	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 46
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199204		

R751

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199205

Districtnu:	1	Apinumber:	23702300
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	12.781	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 46
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199205		

R752

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199206

Districtnu:	1	Apinumber:	23702300
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	12.781	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 46

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199206		

**T756
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000224206

Districtnu:	1	Apinumber:	23703116
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z1 9
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224206		

**T755
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000224205

Districtnu:	1	Apinumber:	23703116
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z1 9
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224205		

**T754
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000224208

Districtnu:	1	Apinumber:	23703116
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z1 9
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224208		

**T753
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000224207

Districtnu:	1	Apinumber:	23703116
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z1 9
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224207		

**S757
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199119

Districtnu:	1	Apinumber:	23701437
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	7.685	Locationde:	LT6
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FRA-74
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199119		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

R758
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199236

Districtnu:	1	Apinumber:	23702320
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.417	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 66
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199236		

S759
NW
1/2 - 1 Mile

OIL_GAS CAOG11000223351

Districtnu:	1	Apinumber:	23701305
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	73
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223351		

R760
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199176

Districtnu:	1	Apinumber:	23702244
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	12.588	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 7

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199176		

**R761
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199177

Districtnu:	1	Apinumber:	23702244
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	12.588	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 7
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199177		

**R762
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199287

Districtnu:	1	Apinumber:	23702383
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	13.339	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 115
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199287		

**R763
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199186

Districtnu:	1	Apinumber:	23702277
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.217	Locationde:	V UT
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 17
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199186		

**R764
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199187

Districtnu:	1	Apinumber:	23702277
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.217	Locationde:	V UT
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 17
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199187		

**S766
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199030

Districtnu:	1	Apinumber:	23701304
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	7.531	Locationde:	UT6
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FRA-72
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199030		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

S765

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199029

Districtnu:	1	Apinumber:	23701304
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	7.531	Locationde:	UT6
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FRA-72
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199029		

R767

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000198929

Districtnu:	1	Apinumber:	23700554
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	8.585	Locationde:	V UT
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 120
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000198929		

R768

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000198930

Districtnu:	1	Apinumber:	23700554
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	8.585	Locationde:	V UT
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 120

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000198930		

**T769
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000230248

Districtnu:	1	Apinumber:	23727327
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	9.2	Locationde:	EL 23.2 KB
Gissourcec:	sum	Comments:	Not Reported
Leasename:	OSM	Wellnumber:	002
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	31-MAR-12
Welldeptha:	4752	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	26-JUN-12
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000230248		

**T770
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000230249

Districtnu:	1	Apinumber:	23727327
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	9.2	Locationde:	EL 23.2 KB
Gissourcec:	sum	Comments:	Not Reported
Leasename:	OSM	Wellnumber:	002
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	31-MAR-12
Welldeptha:	4752	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	26-JUN-12
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000230249		

**T773
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000224204

Districtnu:	1	Apinumber:	23703115
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z1 8
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224204		

**T771
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000224202

Districtnu:	1	Apinumber:	23703115
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z1 8
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224202		

**T772
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000224203

Districtnu:	1	Apinumber:	23703115
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z1 8
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224203		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

R774
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223525

Districtnu:	1	Apinumber:	23702289
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 33
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223525		

T779
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000280217

Districtnu:	1	Apinumber:	23727469
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	DF 21.2		
Locationde:	Well is to be dirctionally drilled, show proposed coordinates from surfce location and true vertical depth at total depth 1891.6' North and 99.9' East. Estimated true vertical depth 5892.0		
Gissourcec:	sum	Comments:	Not Reported
Leasename:	OSM	Wellnumber:	005
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	14-FEB-13
Welldeptha:	6313	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	26-FEB-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000280217		

T777
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000280216

Districtnu:	1	Apinumber:	23727469
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	DF 21.2		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Locationde:	Well is to be dirctionally drilled, show proposed coordinates from surfce location and true vertical depth at total depth 1891.6' Norh and 99.9' East. Estimated true vertical depth 5892.0		
Gissourcec:	sum	Comments:	Not Reported
Leasename:	OSM	Wellnumber:	005
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	14-FEB-13
Welldeptha:	6313	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	26-FEB-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000280216		

T778

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000280218

Districtnu:	1	Apinumber:	23727469
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	DF 21.2		
Locationde:	Well is to be dirctionally drilled, show proposed coordinates from surfce location and true vertical depth at total depth 1891.6' Norh and 99.9' East. Estimated true vertical depth 5892.0		
Gissourcec:	sum	Comments:	Not Reported
Leasename:	OSM	Wellnumber:	005
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	14-FEB-13
Welldeptha:	6313	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	26-FEB-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000280218		

T775

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000279877

Districtnu:	1	Apinumber:	23727469
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	DF 21.2		
Locationde:	Well is to be dirctionally drilled, show proposed coordinates from surfce location and true vertical depth at total depth 1891.6' Norh and 99.9' East. Estimated true vertical depth 5892.0		
Gissourcec:	sum	Comments:	Not Reported
Leasename:	OSM	Wellnumber:	005
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	14-FEB-13
Welldeptha:	6313	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	26-FEB-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000279877		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

T776
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000279876

Districtnu:	1	Apinumber:	23727469
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	DF 21.2		
Locationde:	Well is to be dirctionally drilled, show proposed coordinates from surfce location and true vertical depth at total depth 1891.6' Norh and 99.9' East. Estimated true vertical depth 5892.0		
Gissourcec:	sum	Comments:	Not Reported
Leasename:	OSM	Wellnumber:	005
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	14-FEB-13
Welldeptha:	6313	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	26-FEB-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000279876		

S780
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199028

Districtnu:	1	Apinumber:	23701303
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	9.797	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	A	Wellnumber:	71
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199028		

R781
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223414

Districtnu:	1	Apinumber:	23702135
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block II Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FJ-9
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223414		

T782
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000294145

Districtnu:	1	Apinumber:	23727457
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.9 KB	Locationde:	Not Reported
Gissourcec:	sum		
Comments:	Well directionally drilled show proposed coordinates from surface location and true vertical depth at total depth 3425.2' South and 4530.5' East. Estimated true vertical depth 2622'.		
Leasename:	OSM	Wellnumber:	003
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	01-JAN-13
Welldeptha:	7139	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	19-JAN-13
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000294145		

S783
NW
1/2 - 1 Mile

OIL_GAS CAOG11000223359

Districtnu:	1	Apinumber:	23701326
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	98
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223359		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

R784
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223524

Districtnu:	1	Apinumber:	23702288
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 32
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223524		

S786
NW
1/2 - 1 Mile

OIL_GAS CAOG11000223349

Districtnu:	1	Apinumber:	23701302
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	70
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223349		

S785
NW
1/2 - 1 Mile

OIL_GAS CAOG11000223348

Districtnu:	1	Apinumber:	23701302
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	70

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223348		

S787

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000223350

Districtnu:	1	Apinumber:	23701302
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	70
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223350		

R788

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000199183

Districtnu:	1	Apinumber:	23702250
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	10.746	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 15
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199183		

R790

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000199185

Districtnu:	1	Apinumber:	23702250
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	10.746	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 15
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199185		

**R789
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199182

Districtnu:	1	Apinumber:	23702250
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	10.746	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 15
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199182		

**R791
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199184

Districtnu:	1	Apinumber:	23702250
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	10.746	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 15
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199184		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

T792
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000224182

Districtnu:	1	Apinumber:	23703090
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z 243
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224182		

T793
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000224183

Districtnu:	1	Apinumber:	23703090
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z 243
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224183		

T794
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000224184

Districtnu:	1	Apinumber:	23703090
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z 243

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224184		

**T795
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000223476

Districtnu:	1	Apinumber:	23702216
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FZ1-31
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223476		

**S796
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199027

Districtnu:	1	Apinumber:	23701301
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	13.4	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	A	Wellnumber:	69
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199027		

**V797
West
1/2 - 1 Mile**

OIL_GAS CAOG11000199658

Districtnu:	1	Apinumber:	23703056
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	10.318	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z 205
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199658		

V799
West
1/2 - 1 Mile

OIL_GAS CAOG11000199660

Districtnu:	1	Apinumber:	23703056
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	10.318	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z 205
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199660		

V798
West
1/2 - 1 Mile

OIL_GAS CAOG11000199659

Districtnu:	1	Apinumber:	23703056
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	10.318	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z 205
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199659		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

T802
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000224223

Districtnu:	1	Apinumber:	23703134
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FZ1-30
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000224223		

T801
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000224222

Districtnu:	1	Apinumber:	23703134
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FZ1-30
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000224222		

T800
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000224221

Districtnu:	1	Apinumber:	23703134
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FZ1-30

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000224221		

S803

NW

1/2 - 1 Mile

OIL_GAS CAOG11000223347

Districtnu:	1	Apinumber:	23701300
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	68
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223347		

T805

WNW

1/2 - 1 Mile

OIL_GAS CAOG11000224084

Districtnu:	1	Apinumber:	23702947
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z 23
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224084		

T807

WNW

1/2 - 1 Mile

OIL_GAS CAOG11000224086

Districtnu:	1	Apinumber:	23702947
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z 23
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224086		

**T806
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000224087

Districtnu:	1	Apinumber:	23702947
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z 23
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224087		

**T804
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000224085

Districtnu:	1	Apinumber:	23702947
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z 23
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224085		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

R808
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223511

Districtnu:	1	Apinumber:	23702245
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 8
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223511		

S809
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199780

Districtnu:	1	Apinumber:	23723839
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	16.673	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 203
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199780		

S810
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199781

Districtnu:	1	Apinumber:	23723839
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	16.673	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 203

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199781		

**T812
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000224218

Districtnu:	1	Apinumber:	23703127
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FZ1-19
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000224218		

**T811
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000224217

Districtnu:	1	Apinumber:	23703127
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FZ1-19
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000224217		

**U813
WSW
1/2 - 1 Mile**

OIL_GAS CAOG11000223613

Districtnu:	1	Apinumber:	23702409
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	L 220
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223613		

**U814
WSW
1/2 - 1 Mile**

OIL_GAS CAOG11000223154

Districtnu:	1	Apinumber:	23700555
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	14	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	L 223
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000223154		

**S815
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199777

Districtnu:	1	Apinumber:	23723838
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	17.597	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84906299.ssf
Leasename:	Not Reported	Wellnumber:	FJ-202
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	4577	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199777		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

S816

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199776

Districtnu:	1	Apinumber:	23723838
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	17.597	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84906299.ssf
Leasename:	Not Reported	Wellnumber:	FJ-202
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	4577	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199776		

S817

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199779

Districtnu:	1	Apinumber:	23723838
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	17.597	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84906299.ssf
Leasename:	Not Reported	Wellnumber:	FJ-202
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	4577	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199779		

S818

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199778

Districtnu:	1	Apinumber:	23723838
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	17.597	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84906299.ssf
Leasename:	Not Reported	Wellnumber:	FJ-202

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	4577	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199778		

**U819
WSW
1/2 - 1 Mile**

OIL_GAS CAOG11000223155

Districtnu:	1	Apinumber:	23700556
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block IV
Section:	14	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FL-224
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223155		

**T820
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000223498

Districtnu:	1	Apinumber:	23702235
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FZ-75
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223498		

**S821
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000223129

Districtnu:	1	Apinumber:	23700439
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	67
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223129		

V823
West
1/2 - 1 Mile

OIL_GAS CAOG11000199281

Districtnu:	1	Apinumber:	23702377
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	14.571	Locationde:	Tar V, T5
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	FJ-108
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199281		

V822
West
1/2 - 1 Mile

OIL_GAS CAOG11000199280

Districtnu:	1	Apinumber:	23702377
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	14.571	Locationde:	Tar V, T5
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	FJ-108
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199280		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

V824
West
1/2 - 1 Mile

OIL_GAS CAOG11000199282

Districtnu:	1	Apinumber:	23702377
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	14.571	Locationde:	Tar V, T5
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	FJ-108
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199282		

U825
WSW
1/2 - 1 Mile

OIL_GAS CAOG11000223614

Districtnu:	1	Apinumber:	23702412
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	14	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	L 226
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000223614		

S827
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199775

Districtnu:	1	Apinumber:	23723837
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	13.6	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 201

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199775		

S826

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199774

Districtnu:	1	Apinumber:	23723837
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	13.6	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 201
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199774		

U828

WSW

1/2 - 1 Mile

OIL_GAS

CAOG11000223615

Districtnu:	1	Apinumber:	23702413
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	14	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	L 228
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000223615		

V829

West

1/2 - 1 Mile

OIL_GAS

CAOG11000199741

Districtnu:	1	Apinumber:	23703161
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.304	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z1 61
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199741		

**U830
WSW
1/2 - 1 Mile**

OIL_GAS CAOG11000223616

Districtnu:	1	Apinumber:	23702415
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	14	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	L 230
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000223616		

**U831
WSW
1/2 - 1 Mile**

OIL_GAS CAOG11000226581

Districtnu:	1	Apinumber:	23725264
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	L 232
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	6115	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000226581		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

U832
WSW
1/2 - 1 Mile

OIL_GAS CAOG11000226591

Districtnu:	1	Apinumber:	23725324
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	FB V, Tar, horizontal well
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	L 233
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	4836	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000226591		

S833
NW
1/2 - 1 Mile

OIL_GAS CAOG11000223346

Districtnu:	1	Apinumber:	23701299
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block II Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	66
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223346		

U834
WSW
1/2 - 1 Mile

OIL_GAS CAOG11000223410

Districtnu:	1	Apinumber:	23702131
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block II Offshore
Section:	14	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FG-4

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000223410		

U836

WSW

1/2 - 1 Mile

OIL_GAS

CAOG11000223409

Districtnu:	1	Apinumber:	23702130
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	14	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FG-3
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223409		

U835

WSW

1/2 - 1 Mile

OIL_GAS

CAOG11000223408

Districtnu:	1	Apinumber:	23702130
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	14	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FG-3
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223408		

U837

WSW

1/2 - 1 Mile

OIL_GAS

CAOG11000223406

Districtnu:	1	Apinumber:	23702129
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	14	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FG-2
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223406		

**U838
WSW
1/2 - 1 Mile**

OIL_GAS CAOG11000223407

Districtnu:	1	Apinumber:	23702129
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	14	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FG-2
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223407		

**T839
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000224209

Districtnu:	1	Apinumber:	23703117
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z1 11
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224209		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

T840
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223469

Districtnu:	1	Apinumber:	23702211
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FZ1-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223469		

U841
WSW
1/2 - 1 Mile

OIL_GAS CAOG11000223404

Districtnu:	1	Apinumber:	23702128
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	14	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FG-1
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223404		

U842
WSW
1/2 - 1 Mile

OIL_GAS CAOG11000223405

Districtnu:	1	Apinumber:	23702128
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	14	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FG-1

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PWF
Site id:	CAOG11000223405		

V843

West

1/2 - 1 Mile

OIL_GAS

CAOG11000199133

Districtnu:	1	Apinumber:	23702143
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.715	Locationde:	R5
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	FJ-94
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199133		

V844

West

1/2 - 1 Mile

OIL_GAS

CAOG11000199134

Districtnu:	1	Apinumber:	23702143
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.715	Locationde:	R5
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	FJ-94
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199134		

V845

West

1/2 - 1 Mile

OIL_GAS

CAOG11000199135

Districtnu:	1	Apinumber:	23702143
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.715	Locationde:	R5
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	FJ-94
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199135		

**T846
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199209

Districtnu:	1	Apinumber:	23702308
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	17.073	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	J 54
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199209		

**U847
WSW
1/2 - 1 Mile**

OIL_GAS CAOG11000223611

Districtnu:	1	Apinumber:	23702406
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	14	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	L 213
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000223611		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

V848
West
1/2 - 1 Mile

OIL_GAS CAOG11000199771

Districtnu:	1	Apinumber:	23723745
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	16.728	Locationde:	UT5
Gissourcec:	gps	Comments:	84906299.ssf
Leasename:	Not Reported	Wellnumber:	FZ1-62
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199771		

S849
NW
1/2 - 1 Mile

OIL_GAS CAOG11000199026

Districtnu:	1	Apinumber:	23701298
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	13.236	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	A	Wellnumber:	65
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199026		

U850
WSW
1/2 - 1 Mile

OIL_GAS CAOG11000223612

Districtnu:	1	Apinumber:	23702407
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	14	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	L 215

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000223612		

**T851
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199657

Districtnu:	1	Apinumber:	23703053
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	11.912	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z 202
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199657		

**S852
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000223337

Districtnu:	1	Apinumber:	23701150
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	64
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223337		

**V853
West
1/2 - 1 Mile**

OIL_GAS CAOG11000199255

Districtnu:	1	Apinumber:	23702360
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	17.279	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	J 84
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199255		

**V854
West
1/2 - 1 Mile**

OIL_GAS CAOG11000198914

Districtnu:	1	Apinumber:	23700450
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.478	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	J 93
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198914		

**V855
West
1/2 - 1 Mile**

OIL_GAS CAOG11000199740

Districtnu:	1	Apinumber:	23703160
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.517	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z1 60
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199740		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

T858
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000224080

Districtnu:	1	Apinumber:	23702946
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z 21
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224080		

T859
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000224081

Districtnu:	1	Apinumber:	23702946
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z 21
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224081		

T857
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000224083

Districtnu:	1	Apinumber:	23702946
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z 21

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224083		

**T856
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000224082

Districtnu:	1	Apinumber:	23702946
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z 21
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224082		

**W860
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000224201

Districtnu:	1	Apinumber:	23703113
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z1 6
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224201		

**T861
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000298211

Districtnu:	1	Apinumber:	23730128
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	27.6' DF		
Locationde:	Well 9971.10' south along section property line and 10144.80' east at right angles to siad line from the 0 ,0pt Anaheim/H.Ford. DF = 21'		
Gissourcec:	sum		
Comments:	Well is to be directionally drilled, show proposed coordinates from surface location and true vertical depth at total depth: 2719' north and 82' west. Estimated true vertical depth 2176'.		
Leasename:	OSM	Wellnumber:	021
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	07-SEP-13
Welldeptha:	4070	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	18-SEP-13
Directiona:	Horizontally drilled	Gissymbol:	AOG
Site id:	CAOG11000298211		

**T862
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000230241

Districtnu:	1	Apinumber:	23727326
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	9.5'	Locationde:	KB 21.0'
Gissourcec:	opr	Comments:	Not Reported
Leasename:	OSM	Wellnumber:	001
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000230241		

**T863
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000304305

Districtnu:	1	Apinumber:	23730389
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	27.6' KB	Locationde:	KB=21'
Gissourcec:	noi	Comments:	Not Reported
Leasename:	OSM	Wellnumber:	022
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	NOG

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Site id: CAOG11000304305

V865
West
1/2 - 1 Mile

OIL_GAS CAOG11000199655

Districtnu:	1	Apinumber:	23703023
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.349	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z 95
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199655		

V866
West
1/2 - 1 Mile

OIL_GAS CAOG11000199656

Districtnu:	1	Apinumber:	23703023
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.349	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z 95
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199656		

V864
West
1/2 - 1 Mile

OIL_GAS CAOG11000199654

Districtnu:	1	Apinumber:	23703023
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.349	Locationde:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z 95
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199654		

V868
West
1/2 - 1 Mile

OIL_GAS CAOG11000199652

Districtnu:	1	Apinumber:	23703022
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	16.159	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z 94
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199652		

V867
West
1/2 - 1 Mile

OIL_GAS CAOG11000199651

Districtnu:	1	Apinumber:	23703022
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	16.159	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z 94
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199651		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

V869
West
1/2 - 1 Mile

OIL_GAS CAOG11000199653

Districtnu:	1	Apinumber:	23703022
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	16.159	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z 94
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199653		

T870
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000280064

Districtnu:	1	Apinumber:	23727466
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	KB 20.2		
Locationde:	Well is directionally drilled, show proposed coordinates from surface location and true verticl depth at total depth 1617.6' north and 1607' west. Estimated true vertical depth 3141.9.		
Gissourcec:	sum	Comments:	Not Reported
Leasename:	OSM	Wellnumber:	004
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000280064		

V871
West
1/2 - 1 Mile

OIL_GAS CAOG11000199175

Districtnu:	1	Apinumber:	23702236
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	17.539	Locationde:	R5

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	FZ-93
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199175		

W872
WNW
1/2 - 1 Mile

OIL_GAS **CAOG11000199598**

Districtnu:	1	Apinumber:	23702945
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	7.713	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z 20
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199598		

X873
WNW
1/2 - 1 Mile

OIL_GAS **CAOG11000199174**

Districtnu:	1	Apinumber:	23702228
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.44	Locationde:	R5
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	FZ-22
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199174		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

V874
West
1/2 - 1 Mile

OIL_GAS CAOG11000199648

Districtnu:	1	Apinumber:	23703020
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	16.681	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z 91
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199648		

V876
West
1/2 - 1 Mile

OIL_GAS CAOG11000199650

Districtnu:	1	Apinumber:	23703020
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	16.681	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z 91
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199650		

V875
West
1/2 - 1 Mile

OIL_GAS CAOG11000199649

Districtnu:	1	Apinumber:	23703020
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	16.681	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z 91

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199649		

**X877
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000224136

Districtnu:	1	Apinumber:	23703014
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FZ-85
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000224136		

**V880
West
1/2 - 1 Mile**

OIL_GAS CAOG11000199647

Districtnu:	1	Apinumber:	23703019
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.51	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z 90
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199647		

**V878
West
1/2 - 1 Mile**

OIL_GAS CAOG11000199645

Districtnu:	1	Apinumber:	23703019
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.51	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z 90
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199645		

**V879
West
1/2 - 1 Mile**

OIL_GAS CAOG11000199646

Districtnu:	1	Apinumber:	23703019
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.51	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z 90
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199646		

**W881
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000199630

Districtnu:	1	Apinumber:	23702986
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	8.439	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z 47
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199630		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

W882
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199631

Districtnu:	1	Apinumber:	23702986
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	8.439	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z 47
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199631		

V885
West
1/2 - 1 Mile

OIL_GAS CAOG11000199664

Districtnu:	1	Apinumber:	23703063
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.601	Locationde:	T5
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	FZ-214
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199664		

V884
West
1/2 - 1 Mile

OIL_GAS CAOG11000199663

Districtnu:	1	Apinumber:	23703063
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.601	Locationde:	T5
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	FZ-214

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199663		

V883

West

1/2 - 1 Mile

OIL_GAS

CAOG11000199662

Districtnu:	1	Apinumber:	23703063
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.601	Locationde:	T5
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	FZ-214
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199662		

V887

West

1/2 - 1 Mile

OIL_GAS

CAOG11000223540

Districtnu:	1	Apinumber:	23702310
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 56
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223540		

V888

West

1/2 - 1 Mile

OIL_GAS

CAOG11000223539

Districtnu:	1	Apinumber:	23702310
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 56
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223539		

V886
West
1/2 - 1 Mile

OIL_GAS CAOG11000223541

Districtnu:	1	Apinumber:	23702310
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 56
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223541		

W889
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000224241

Districtnu:	1	Apinumber:	23703154
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z1 53
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224241		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

V890
West
1/2 - 1 Mile

OIL_GAS CAOG11000224230

Districtnu:	1	Apinumber:	23703140
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z1 38
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224230		

W892
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199716

Districtnu:	1	Apinumber:	23703142
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	13.75	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z1 40
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199716		

W891
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199715

Districtnu:	1	Apinumber:	23703142
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	13.75	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z1 40

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199715		

W893

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000199717

Districtnu:	1	Apinumber:	23703142
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	13.75	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z1 40
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199717		

V894

West

1/2 - 1 Mile

OIL_GAS

CAOG11000199735

Districtnu:	1	Apinumber:	23703153
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	12.027	Locationde:	R5
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z1 51
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199735		

V895

West

1/2 - 1 Mile

OIL_GAS

CAOG11000199736

Districtnu:	1	Apinumber:	23703153
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	12.027	Locationde:	R5
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z1 51
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199736		

**Y896
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000223510

Districtnu:	1	Apinumber:	23702243
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 6
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223510		

**V898
West
1/2 - 1 Mile**

OIL_GAS CAOG11000198889

Districtnu:	1	Apinumber:	23700006
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.303	Locationde:	TB5
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	FJ-83
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000198889		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

V897
West
1/2 - 1 Mile

OIL_GAS CAOG11000198888

Districtnu:	1	Apinumber:	23700006
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	22.303	Locationde:	TB5
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	FJ-83
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000198888		

W899
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199708

Districtnu:	1	Apinumber:	23703129
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	11.652	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	Z1 24
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	2994	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000199708		

V902
West
1/2 - 1 Mile

OIL_GAS CAOG11000224148

Districtnu:	1	Apinumber:	23703055
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z 204

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224148		

V901
West
1/2 - 1 Mile

OIL_GAS CAOG11000224146

Districtnu:	1	Apinumber:	23703055
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z 204
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224146		

V900
West
1/2 - 1 Mile

OIL_GAS CAOG11000224147

Districtnu:	1	Apinumber:	23703055
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z 204
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224147		

X904
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000223493

Districtnu:	1	Apinumber:	23702230
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R5
Gissourcec:	gps	Comments:	
Leasename:	Not Reported	Wellnumber:	FZ-29
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000223493		

**X903
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000223492

Districtnu:	1	Apinumber:	23702230
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	R5
Gissourcec:	gps	Comments:	
Leasename:	Not Reported	Wellnumber:	FZ-29
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000223492		

**W905
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000223490

Districtnu:	1	Apinumber:	23702227
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FZ-18
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223490		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

V908
West
1/2 - 1 Mile

OIL_GAS CAOG11000199732

Districtnu:	1	Apinumber:	23703152
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.335	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	FZ1 50
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199732		

V906
West
1/2 - 1 Mile

OIL_GAS CAOG11000199731

Districtnu:	1	Apinumber:	23703152
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.335	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	FZ1 50
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199731		

V907
West
1/2 - 1 Mile

OIL_GAS CAOG11000199730

Districtnu:	1	Apinumber:	23703152
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.335	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	FZ1 50

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199730		

V910

West

1/2 - 1 Mile

OIL_GAS

CAOG11000199733

Districtnu:	1	Apinumber:	23703152
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.335	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	FZ1 50
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199733		

V909

West

1/2 - 1 Mile

OIL_GAS

CAOG11000199734

Districtnu:	1	Apinumber:	23703152
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.335	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	FZ1 50
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199734		

V911

West

1/2 - 1 Mile

OIL_GAS

CAOG11000224232

Districtnu:	1	Apinumber:	23703143
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z1 41
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224232		

V912
West
1/2 - 1 Mile

OIL_GAS **CAOG11000199739**

Districtnu:	1	Apinumber:	23703159
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.859	Locationde:	R5
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	FZ1-59
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199739		

V914
West
1/2 - 1 Mile

OIL_GAS **CAOG11000224159**

Districtnu:	1	Apinumber:	23703070
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z 221
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224159		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

V915
West
1/2 - 1 Mile

OIL_GAS CAOG11000224158

Districtnu:	1	Apinumber:	23703070
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z 221
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224158		

V913
West
1/2 - 1 Mile

OIL_GAS CAOG11000224160

Districtnu:	1	Apinumber:	23703070
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z 221
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224160		

Y916
NW
1/2 - 1 Mile

OIL_GAS CAOG11000223605

Districtnu:	1	Apinumber:	23702389
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 123

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223605		

Y917

NW

1/2 - 1 Mile

OIL_GAS CAOG11000199288

Districtnu:	1	Apinumber:	23702388
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	10.704	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	J 122
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199288		

Y918

NW

1/2 - 1 Mile

OIL_GAS CAOG11000198983

Districtnu:	1	Apinumber:	23701149
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.31	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	A	Wellnumber:	56
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198983		

Y921

NW

1/2 - 1 Mile

OIL_GAS CAOG11000198984

Districtnu:	1	Apinumber:	23701149
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.31	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	A	Wellnumber:	56
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198984		

**Y920
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000198985

Districtnu:	1	Apinumber:	23701149
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.31	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	A	Wellnumber:	56
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198985		

**Y919
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000198982

Districtnu:	1	Apinumber:	23701149
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	15.31	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	A	Wellnumber:	56
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198982		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

Y923

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000223602

Districtnu:	1	Apinumber:	23702386
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 119
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223602		

Y922

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000223601

Districtnu:	1	Apinumber:	23702386
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 119
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223601		

Y924

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000223603

Districtnu:	1	Apinumber:	23702386
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 119

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223603		

V925

West

1/2 - 1 Mile

OIL_GAS

CAOG11000223592

Districtnu:	1	Apinumber:	23702367
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FJ-96
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223592		

V926

West

1/2 - 1 Mile

OIL_GAS

CAOG11000223591

Districtnu:	1	Apinumber:	23702367
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FJ-96
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223591		

V927

West

1/2 - 1 Mile

OIL_GAS

CAOG11000223590

Districtnu:	1	Apinumber:	23702367
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FJ-96
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223590		

**Y929
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199202

Districtnu:	1	Apinumber:	23702299
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	11.934	Locationde:	R5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-45
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199202		

**Y928
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199201

Districtnu:	1	Apinumber:	23702299
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	11.934	Locationde:	R5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-45
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199201		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

Y930

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199203

Districtnu:	1	Apinumber:	23702299
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	11.934	Locationde:	R5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-45
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AWF
Site id:	CAOG11000199203		

Y931

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000223549

Districtnu:	1	Apinumber:	23702325
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 71
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223549		

Y932

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000223336

Districtnu:	1	Apinumber:	23701148
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	55

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223336		

V933

West

1/2 - 1 Mile

OIL_GAS

CAOG11000223141

Districtnu:	1	Apinumber:	23700533
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 95
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223141		

W934

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000224079

Districtnu:	1	Apinumber:	23702944
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z 19
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224079		

Y936

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199200

Districtnu:	1	Apinumber:	23702291
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	13.728	Locationde:	UT5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-37
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199200		

**Y935
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199199

Districtnu:	1	Apinumber:	23702291
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	13.728	Locationde:	UT5
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	FJ-37
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AWF
Site id:	CAOG11000199199		

**Y937
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000223507

Districtnu:	1	Apinumber:	23702240
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 3
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223507		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

W938
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000224077

Districtnu:	1	Apinumber:	23702942
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z 16
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224077		

V939
West
1/2 - 1 Mile

OIL_GAS CAOG11000223130

Districtnu:	1	Apinumber:	23700444
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FJ-86
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223130		

Y940
NW
1/2 - 1 Mile

OIL_GAS CAOG11000223606

Districtnu:	1	Apinumber:	23702394
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 130

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223606		

Y941

NW

1/2 - 1 Mile

OIL_GAS CAOG11000223335

Districtnu:	1	Apinumber:	23701147
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block VI
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	A	Wellnumber:	54
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223335		

W943

WNW

1/2 - 1 Mile

OIL_GAS CAOG11000230156

Districtnu:	1	Apinumber:	23727335
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	5.7'	Locationde:	DF 14.6'
Gissourcec:	sum	Comments:	Not Reported
Leasename:	OSM	Wellnumber:	009
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	18-MAY-12
Welldeptha:	2787	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000230156		

W944

WNW

1/2 - 1 Mile

OIL_GAS CAOG11000230157

Districtnu:	1	Apinumber:	23727335
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	5.7'	Locationde:	DF 14.6'
Gissourcec:	sum	Comments:	Not Reported
Leasename:	OSM	Wellnumber:	009
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	18-MAY-12
Welldeptha:	2787	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000230157		

**W942
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000230155

Districtnu:	1	Apinumber:	23727335
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	5.7'	Locationde:	DF 14.6'
Gissourcec:	sum	Comments:	Not Reported
Leasename:	OSM	Wellnumber:	009
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	18-MAY-12
Welldeptha:	2787	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000230155		

**Y945
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000223536

Districtnu:	1	Apinumber:	23702304
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 50
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223536		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

V948
West
1/2 - 1 Mile

OIL_GAS CAOG11000223577

Districtnu:	1	Apinumber:	23702361
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 85
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223577		

V946
West
1/2 - 1 Mile

OIL_GAS CAOG11000223579

Districtnu:	1	Apinumber:	23702361
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 85
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223579		

V947
West
1/2 - 1 Mile

OIL_GAS CAOG11000223578

Districtnu:	1	Apinumber:	23702361
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	J 85

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223578		

W950

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000223572

Districtnu:	1	Apinumber:	23702352
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FJ-73
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223572		

W949

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000223571

Districtnu:	1	Apinumber:	23702352
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	FJ-73
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWF
Site id:	CAOG11000223571		

W951

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000279878

Districtnu:	1	Apinumber:	23727470
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	N

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	DF 20.8		
Locationde:	Well is to be dirctionally drilled, show proposed coordinates from surfce location and true vertical depth at total depth 2048.7' Norh and 2488.8' West. Estimated true vertical depth 2143.6'.		
Gissourcec:	sum	Comments:	Not Reported
Leasename:	OSM	Wellnumber:	010
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	20-DEC-12
Welldeptha:	4586	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	31-DEC-12
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000279878		

**W952
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000224144

Districtnu:	1	Apinumber:	23703052
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z 201
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224144		

**Y953
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000224225

Districtnu:	1	Apinumber:	23703137
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z1 34
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224225		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

Y954

NW
1/2 - 1 Mile

OIL_GAS CAOG11000198981

Districtnu:	1	Apinumber:	23701146
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	16.787	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	A	Wellnumber:	53
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000198981		

W955

WNW
1/2 - 1 Mile

OIL_GAS CAOG11000224226

Districtnu:	1	Apinumber:	23703138
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z1 35
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000224226		

W956

WNW
1/2 - 1 Mile

OIL_GAS CAOG11000199247

Districtnu:	1	Apinumber:	23702356
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	19.252	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84902258.ssf
Leasename:	Not Reported	Wellnumber:	J 78

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199247		

W957

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000230288

Districtnu:	1	Apinumber:	23727329
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	20.4 KB	Locationde:	KB 14.0'
Gissourcec:	sum	Comments:	Not Reported
Leasename:	OSM	Wellnumber:	011
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	09-MAY-12
Welldeptha:	3642	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	28-AUG-12
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000230288		

Y961

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199702

Districtnu:	1	Apinumber:	23703112
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	12.714	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	Z1 5
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199702		

Y962

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199701

Districtnu:	1	Apinumber:	23703112
Blmwel:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	12.714	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	Z1 5
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199701		

**Y960
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199700

Districtnu:	1	Apinumber:	23703112
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	12.714	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	Z1 5
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199700		

**Y959
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000199698

Districtnu:	1	Apinumber:	23703112
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	12.714	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	Z1 5
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199698		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

Y958

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000199699

Districtnu:	1	Apinumber:	23703112
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Old Wilmington (ABD)	Areaname:	Fault Block V Offshore
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	12.714	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909238.ssf
Leasename:	Not Reported	Wellnumber:	Z1 5
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000199699		

W965

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000199254

Districtnu:	1	Apinumber:	23702359
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	10.275	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84906299.ssf
Leasename:	Not Reported	Wellnumber:	J 82
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199254		

W966

WNW

1/2 - 1 Mile

OIL_GAS

CAOG11000199253

Districtnu:	1	Apinumber:	23702359
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	10.275	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84906299.ssf
Leasename:	Not Reported	Wellnumber:	J 82

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199253		

W963

WNW

1/2 - 1 Mile

OIL_GAS CAOG11000199252

Districtnu:	1	Apinumber:	23702359
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	10.275	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84906299.ssf
Leasename:	Not Reported	Wellnumber:	J 82
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199252		

W964

WNW

1/2 - 1 Mile

OIL_GAS CAOG11000199251

Districtnu:	1	Apinumber:	23702359
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorma:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	10.275	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84906299.ssf
Leasename:	Not Reported	Wellnumber:	J 82
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000199251		

W967

WNW

1/2 - 1 Mile

OIL_GAS CAOG11000223962

Districtnu:	1	Apinumber:	23702824
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Not Reported
Leasename:	Not Reported	Wellnumber:	Z 34
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000223962		

**Y968
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000198980

Districtnu:	1	Apinumber:	23701145
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	A
Operatorna:	Tidelands Oil Prod. Co.	Countyname:	Los Angeles Offshore
Fieldname:	Wilmington	Areaname:	Fault Block V-B
Section:	11	Township:	05S
Range:	13W	Basemeridi:	SB
Elevation:	18.031	Locationde:	Not Reported
Gissourcec:	gps	Comments:	84909288.ssf
Leasename:	A	Wellnumber:	52
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	AOG
Site id:	CAOG11000198980		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
90802	37	0

Federal EPA Radon Zone for LOS ANGELES 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 LOS ANGELES COUNTY, CA

Number of sites tested: 63

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.711 pCi/L	98%	2%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	0.933 pCi/L	100%	0%	0%

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 and Wildlife

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.

California Earthquake Fault Lines

Source: California Division of Mines and Geology

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.

RADON

State Database: CA Radon

Source: Department of Public Health

Telephone: 916-210-8558

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.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

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.

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

Certified Sanborn Map Report

11183495 - Long Beach, CA
331 Windsor Way
Long Beach, CA 90802

Inquiry Number: 5511181.3

December 13, 2018

Certified Sanborn® Map Report



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

12/13/18

Site Name:

11183495 - Long Beach, CA
331 Windsor Way
Long Beach, CA 90802
EDR Inquiry # 5511181.3

Client Name:

GHD
6400 Shafer Court
Rosemont, IL 60018
Contact: Laura Grana



The Sanborn Library has been searched by EDR and maps covering the target property location as provided by GHD 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 # 1A5F-4B05-B24B
PO # NA
Project 11183495 - Long Beach, CA



Sanborn® Library search results

Certification #: 1A5F-4B05-B24B

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.

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

The Sanborn Library LLC Since 1866™

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Appendix E

Historical Aerial Photographs



11183495 - Long Beach, CA

331 Windsor Way

Long Beach, CA 90802

Inquiry Number: 5511181.8

December 13, 2018

The EDR Aerial Photo Decade Package



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Site Name:

11183495 - Long Beach, CA
 331 Windsor Way
 Long Beach, CA 90802
 EDR Inquiry # 5511181.8

Client Name:

GHD
 6400 Shafer Court
 Rosemont, IL 60018
 Contact: Laura Grana



Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

<u>Year</u>	<u>Scale</u>	<u>Details</u>	<u>Source</u>
2016	1"=500'	Flight Year: 2016	USDA/NAIP
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2005	1"=500'	Flight Year: 2005	USDA/NAIP
2002	1"=500'	Flight Date: June 10, 2002	USDA
1994	1"=500'	Acquisition Date: May 31, 1994	USGS/DOQQ
1989	1"=500'	Flight Date: August 22, 1989	USDA
1983	1"=500'	Flight Date: November 19, 1983	EDR Proprietary Brewster Pacific
1979	1"=500'	Flight Date: May 11, 1979	EDR Proprietary Brewster Pacific
1977	1"=500'	Flight Date: January 18, 1977	EDR Proprietary Brewster Pacific
1963	1"=500'	Flight Date: February 28, 1963	USGS
1953	1"=500'	Flight Date: November 19, 1953	USDA
1947	1"=500'	Flight Date: June 17, 1947	FAIR
1928	1"=500'	Flight Date: January 01, 1928	FAIR

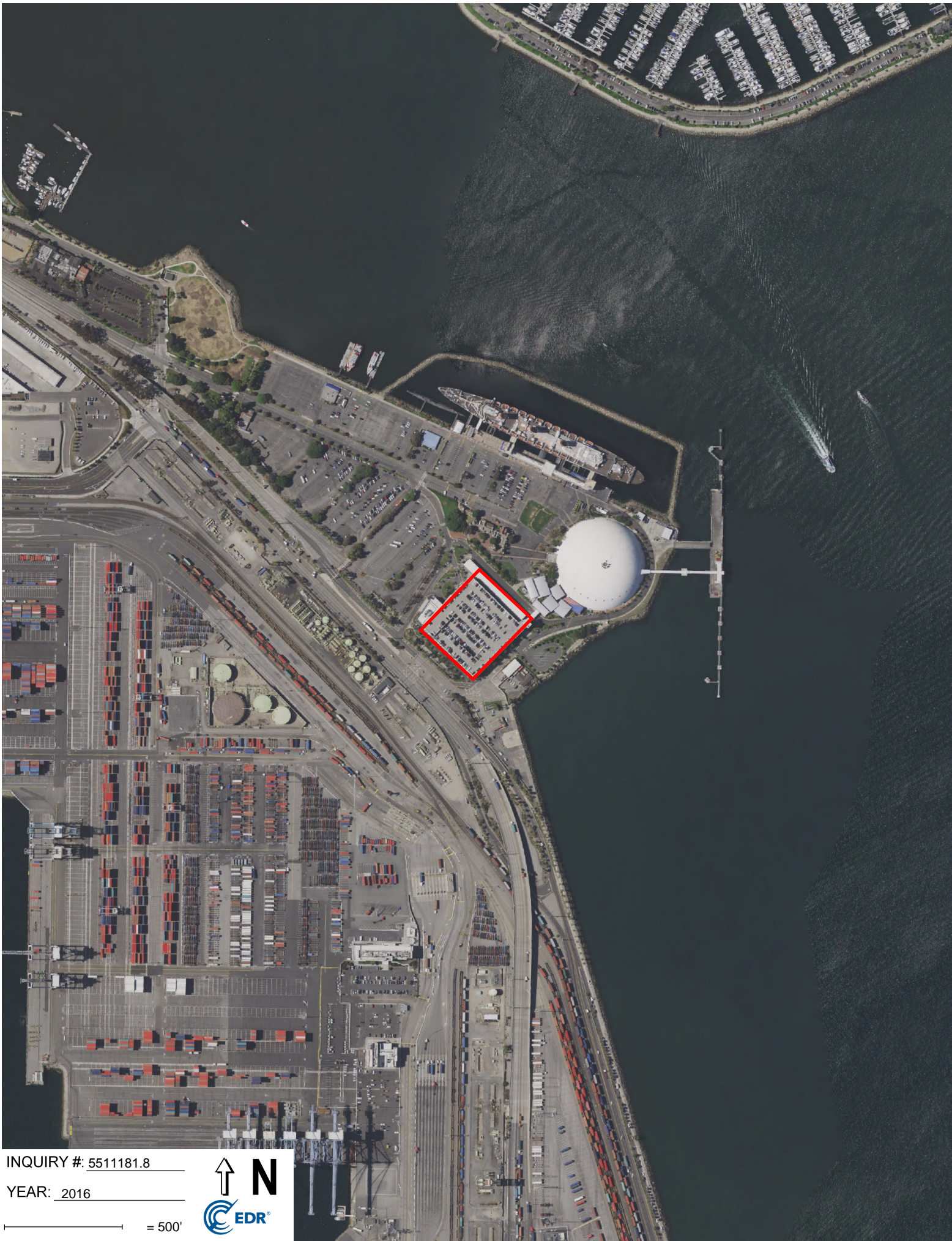
When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

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INQUIRY #: 5511181.8

YEAR: 2016

— = 500'



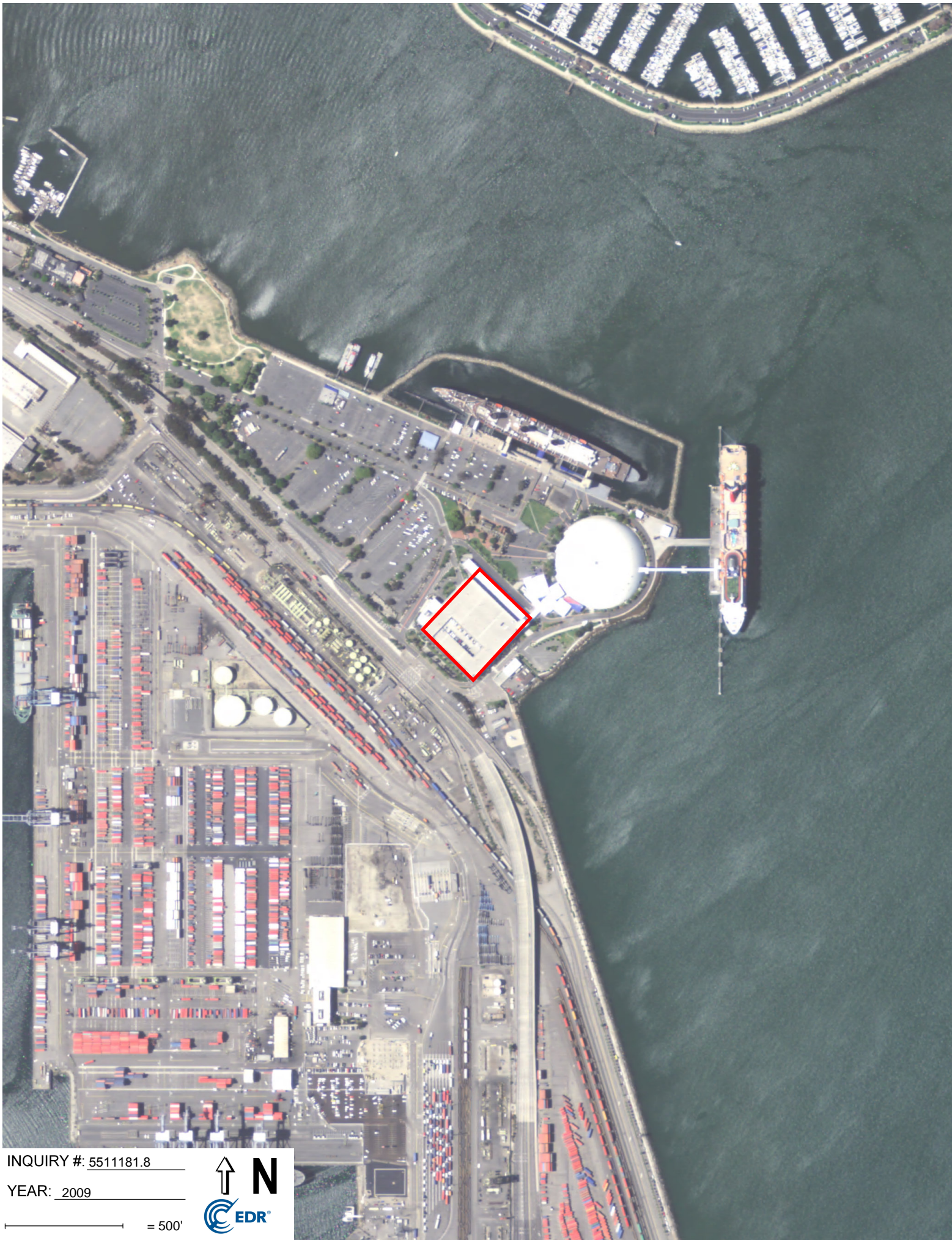


INQUIRY #: 5511181.8

YEAR: 2012

— = 500'





INQUIRY #: 5511181.8

YEAR: 2009

— = 500'



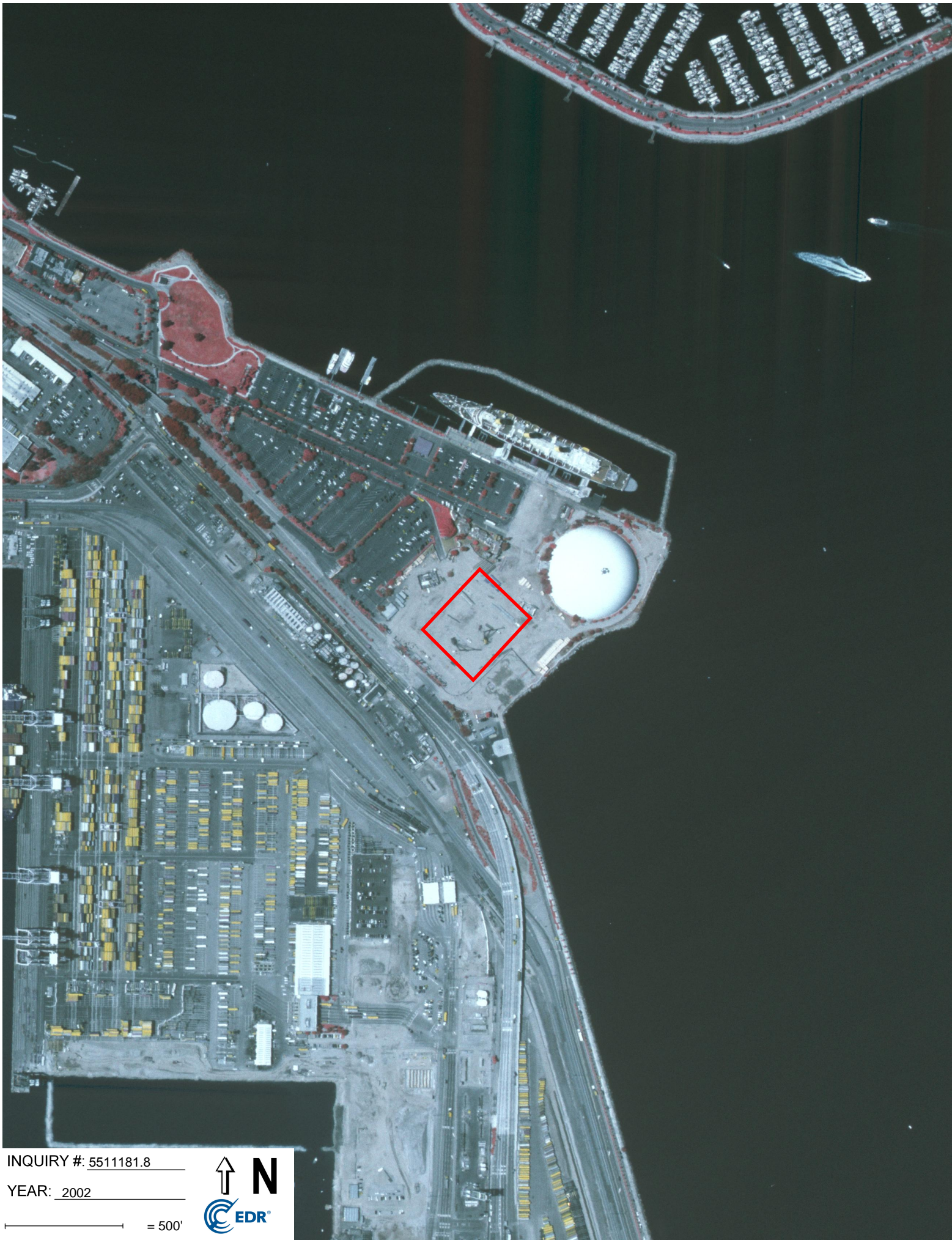


INQUIRY #: 5511181.8

YEAR: 2005

— = 500'



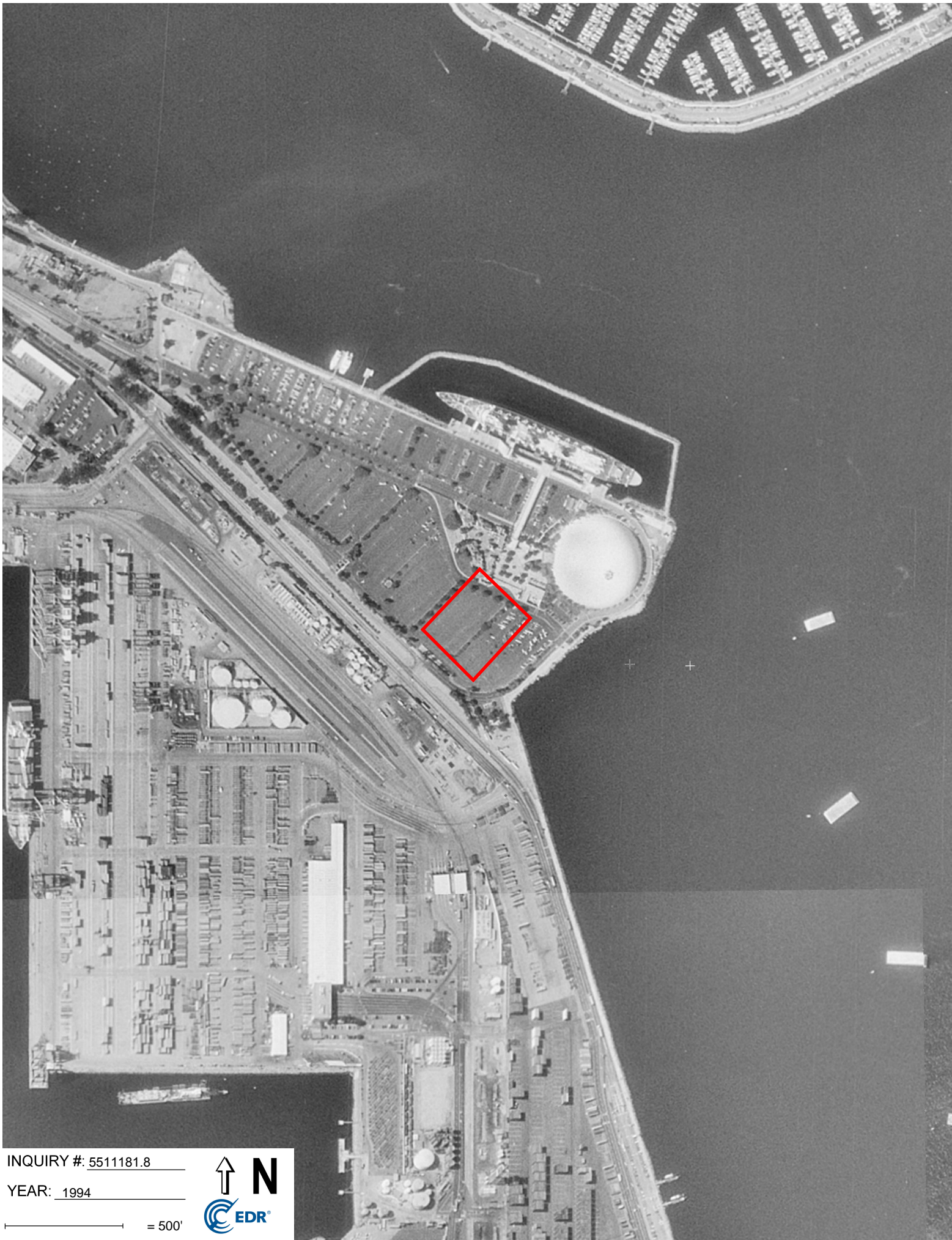


INQUIRY #: 5511181.8

YEAR: 2002

— = 500'





INQUIRY #: 5511181.8

YEAR: 1994

— = 500'





INQUIRY #: 5511181.8

YEAR: 1989

— = 500'





INQUIRY #: 5511181.8

YEAR: 1983

— = 500'





INQUIRY #: 5511181.8

YEAR: 1979

— = 500'



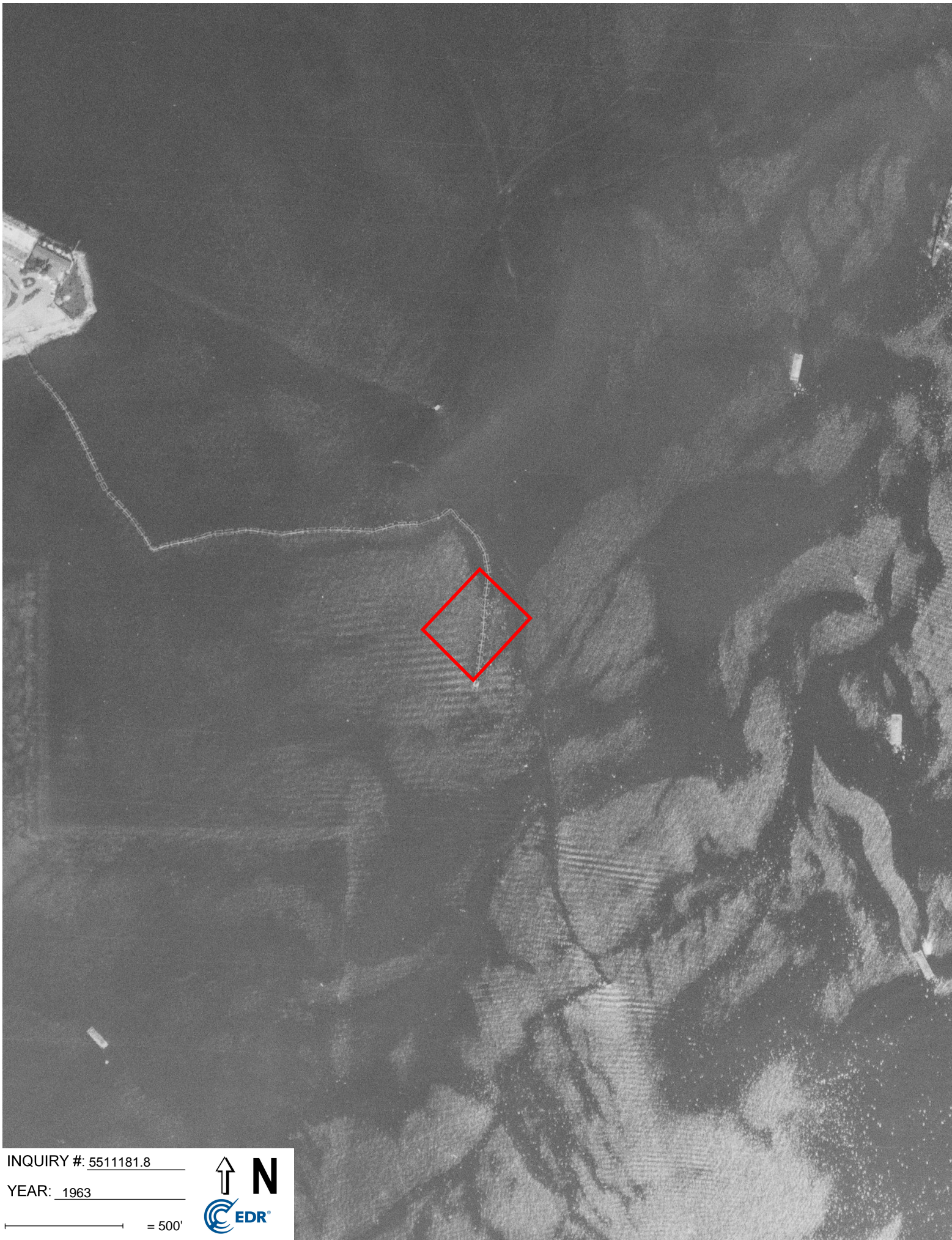


INQUIRY #: 5511181.8

YEAR: 1977

— = 500'



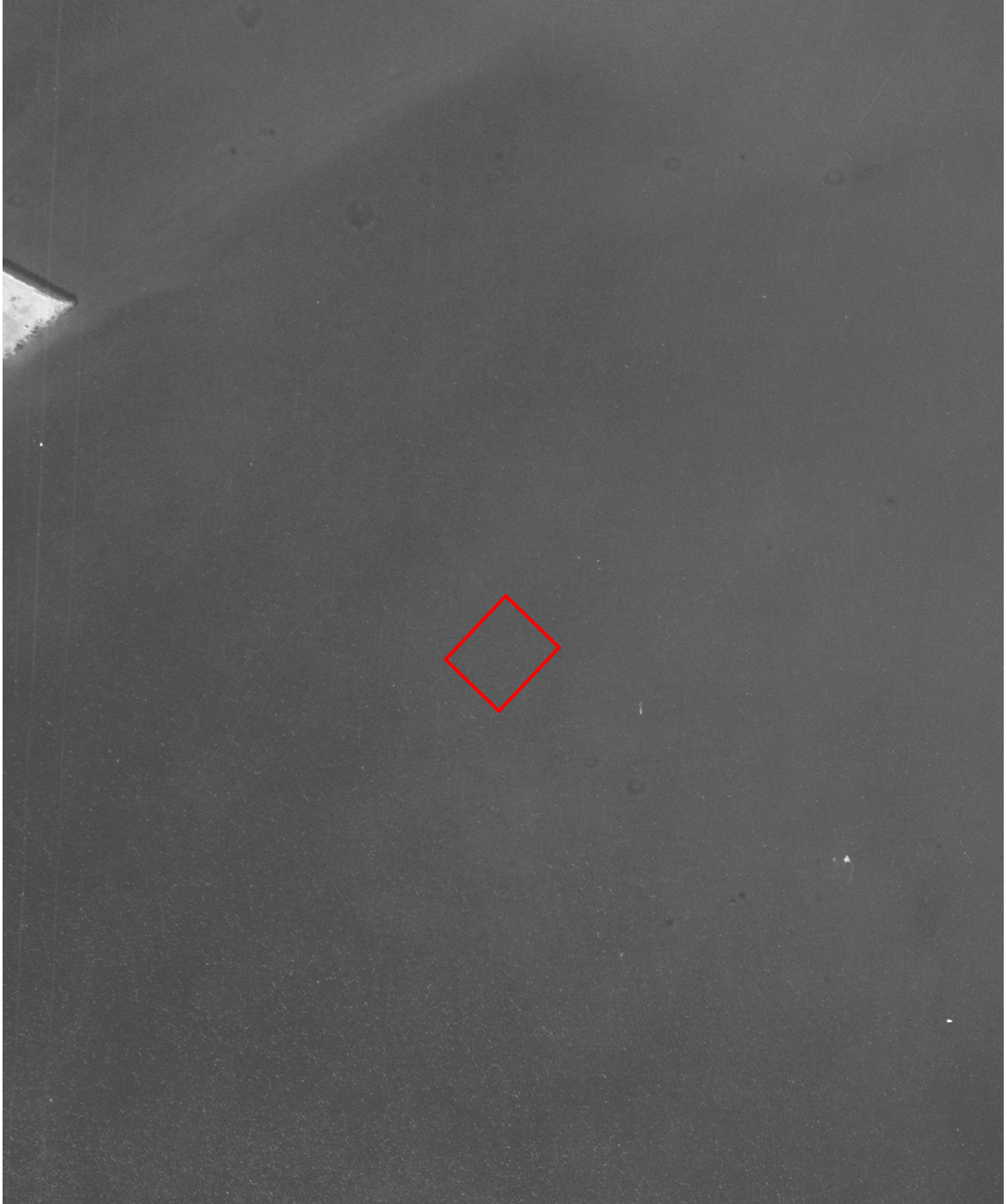


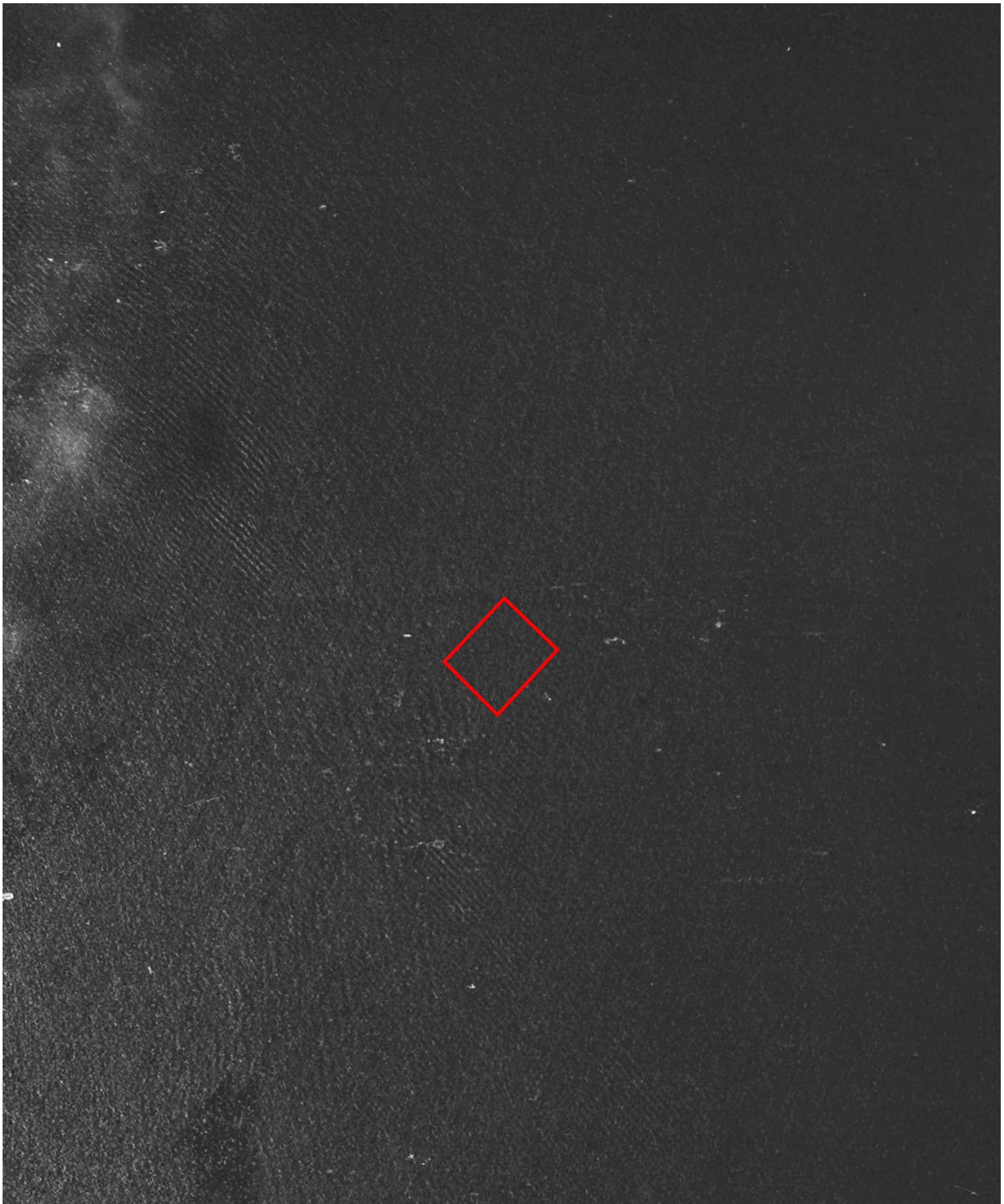
INQUIRY #: 5511181.8

YEAR: 1963

— = 500'





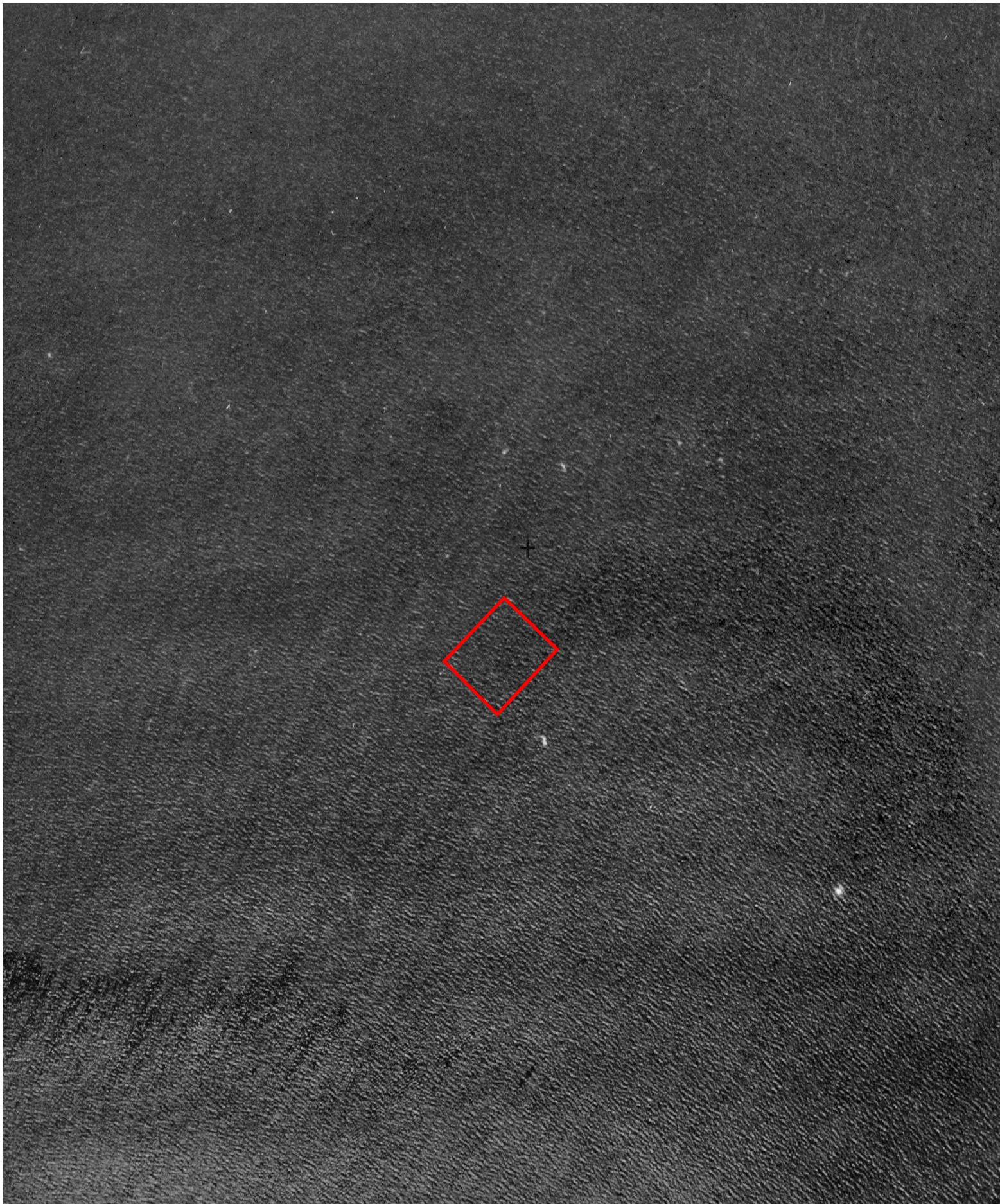


INQUIRY #: 5511181.8

YEAR: 1947

————— = 500'





INQUIRY #: 5511181.8

YEAR: 1928

— = 500'



Appendix F

City Directory Search Results

11183495 - Long Beach, CA

331 Windsor Way
Long Beach, CA 90802

Inquiry Number: 5511181.5
December 13, 2018

The EDR-City Directory Abstract

TABLE OF CONTENTS

SECTION

Executive Summary

Findings

City Directory Images

Thank you for your business.
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 Abstract 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 Abstract includes a search and abstract of available city directory data. For each address, the directory lists the name of the corresponding occupant at five year intervals.

Business directories including city, cross reference and telephone directories were reviewed, if available, at approximately five year intervals for the years spanning 1920 through 2014. This report compiles information gathered in this review by geocoding the latitude and longitude of properties identified and gathering information about properties within 660 feet of the target property.

A summary of the information obtained is provided in the text of this report.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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Data by

infoUSA[®]

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RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. An "X" indicates where information was identified in the source and provided in this report.

<u>Year</u>	<u>Source</u>	<u>TP</u>	<u>Adjoining</u>	<u>Text Abstract</u>	<u>Source Image</u>
2014	EDR Digital Archive	-	X	X	-
2010	EDR Digital Archive	-	X	X	-
2006	Haines Company, Inc.	X	X	X	-
2004	Haines Company	-	-	-	-
2003	Haines & Company	-	-	-	-
2001	Haines & Company, Inc.	X	-	X	-
2000	Haines	-	X	X	-
1999	Haines Company	-	-	-	-
1996	GTE	-	-	-	-
1995	Pacific Bell	X	-	X	-
1992	PACIFIC BELL WHITE PAGES	-	-	-	-
1991	Pacific Bell	X	-	X	-

EXECUTIVE SUMMARY

<u>Year</u>	<u>Source</u>	<u>TP</u>	<u>Adjoining</u>	<u>Text Abstract</u>	<u>Source Image</u>
1990	PACIFIC BELL WHITE PAGES	-	-	-	-
1986	Pacific Bell	-	-	-	-
1985	Pacific Bell	X	X	X	-
1981	Pacific Telephone	-	-	-	-
1980	Pacific Telephone	X	X	X	-
1976	R.L. Polk & Co Publishers	-	-	-	-
1975	Pacific Telephone	X	X	X	-
1972	R. L. Polk & Co.	X	-	X	-
1971	R. L. Polk & Co.	-	-	-	-
1970	Pacific Telephone	X	-	X	-
1969	Pacific Telephone	X	X	X	-
1967	R. L. Polk & Co.	X	-	X	-
1966	Pacific Telephone	-	-	-	-
1965	GTE	-	-	-	-
1964	Pacific Telephone	-	X	X	-
1963	Pacific Telephone	-	-	-	-
1962	Pacific Telephone	X	X	X	-
1961	R. L. Polk & Co.	-	-	-	-
1960	Pacific Telephone	-	-	-	-
1958	Pacific Telephone	-	-	-	-
1957	Pacific Telephone	-	-	-	-
1956	Pacific Telephone	X	-	X	-
1955	R. L. Polk & Co.	X	-	X	-
1954	R. L. Polk & Co.	-	-	-	-
1952	Los Angeles Directory Co.	-	-	-	-
1951	Los Angeles Directory Co Publishers	X	-	X	-
1950	Pacific Telephone	X	-	X	-
1949	Los Angeles Directory Co.	-	-	-	-
1948	Los Angeles Directory Co.	-	-	-	-
1947	Pacific Directory Co.	-	-	-	-
1946	Southern California Telephone Co	-	-	-	-
1945	The Glendale Directory Co.	X	-	X	-
1944	R. L. Polk & Co.	-	-	-	-
1942	Los Angeles Directory Co.	-	-	-	-
1940	Los Angeles Directory Co.	X	-	X	-
1939	Los Angeles Directory Co.	-	-	-	-
1938	Los Angeles Directory Company Publishers	-	-	-	-
1937	Los Angeles Directory Co.	-	-	-	-
1936	Los Angeles Directory Co.	-	-	-	-
1935	Los Angeles Directory Co.	-	-	-	-
1934	Los Angeles Directory Co.	-	-	-	-
1933	Los Angeles Directory Co.	-	-	-	-

EXECUTIVE SUMMARY

<u>Year</u>	<u>Source</u>	<u>TP</u>	<u>Adjoining</u>	<u>Text Abstract</u>	<u>Source Image</u>
1932	Los Angeles Directory Co.	X	-	X	-
1931	Los Angeles Directory Company Publishers	-	-	-	-
1930	Los Angeles Directory Co.	X	-	X	-
1929	Los Angeles Directory Co.	-	-	-	-
1928	Los Angeles Directory Co.	-	-	-	-
1927	Los Angeles Directory Co.	-	-	-	-
1926	Los Angeles Directory Co.	-	-	-	-
1925	Los Angeles Directory Co.	-	-	-	-
1924	Los Angeles Directory Co.	-	-	-	-
1923	Los Angeles Directory Co.	-	-	-	-
1921	Los Angeles Directory Co.	-	-	-	-
1920	Los Angeles Directory Co.	-	-	-	-

FINDINGS

TARGET PROPERTY INFORMATION

ADDRESS

331 Windsor Way
Long Beach, CA 90802

FINDINGS DETAIL

Target Property research detail.

Windsor

331 Windsor

<u>Year</u>	<u>Uses</u>	<u>Source</u>
2006	APARTMENTS CASTRAJON Maria G	Haines Company, Inc.
	GIRON ARaul	Haines Company, Inc.
	GONZALEZ LCadto	Haines Company, Inc.
	LEON Ruby D	Haines Company, Inc.
	LOPEZ Estroberto	Haines Company, Inc.
2001	APARTMENTS	Haines & Company, Inc.
	GONZALEZ Manuel	Haines & Company, Inc.
	LEON Ruby D	Haines & Company, Inc.
	MEDINA Salvador	Haines & Company, Inc.
	MENDEZ Richard	Haines & Company, Inc.
	RAMIREZ Gloria	Haines & Company, Inc.
1995	Andrade Rosa Maria	Pacific Bell
	Mendez Richard	Pacific Bell
1991	Andrade Ron	Pacific Bell
	Andrade Rosa Maria	Pacific Bell
	Gonzalez Sergio	Pacific Bell
	Mendez Richard	Pacific Bell
1985	Gonzalez Rolando Jr	Pacific Bell
	Holquin C	Pacific Bell
	Mender Frank	Pacific Bell
	Mender Richard	Pacific Bell
	Mendez Rigoberto	Pacific Bell
1980	ABALOS L	Pacific Telephone
	CARMONA MANUEL L	Pacific Telephone
	MENDEZ ANNIE	Pacific Telephone
	MENDEZ RICHARD	Pacific Telephone

FINDINGS

<u>Year</u>	<u>Uses</u>	<u>Source</u>
1975	Carmona Manuel L	Pacific Telephone
	Fenderson D L	Pacific Telephone
	Mendez Annie	Pacific Telephone
	Pomares Iraida	Pacific Telephone
1972	1POMARES IRAID	R. L. Polk & Co.
	2MENDEZ FRANK	R. L. Polk & Co.
	3MENDEZ RICH D	R. L. Polk & Co.
	4VACANT	R. L. Polk & Co.
	5CARMONA MANUEL L	R. L. Polk & Co.
	6AMARTINEZ LOUISE MRS	R. L. Polk & Co.
	6HAND SAVARRO	R. L. Polk & Co.
	7LISTO ANTONIO	R. L. Polk & Co.
	8VACANT	R. L. Polk & Co.
	APARTMENTS	R. L. Polk & Co.
1970	MENDEZ ANNIE	Pacific Telephone
1969	TODD ROSE MARY MRS	Pacific Telephone
	WILLIAMS VINCENT	Pacific Telephone
1967	1PEHFELD JAMES B	R. L. Polk & Co.
	2MENDEZ FRANK	R. L. Polk & Co.
	3PAYNE ROBT T	R. L. Polk & Co.
	4COBB FRED R	R. L. Polk & Co.
	5SMITH GEORGIANN	R. L. Polk & Co.
	6VACANT	R. L. Polk & Co.
	APARTMENTS	R. L. Polk & Co.
1962	BRADLEY ODETTE	Pacific Telephone
	LANGAN GLORIA	Pacific Telephone
	MILLER ARVID MRS	Pacific Telephone
	WHITE ROSALIE LILY	Pacific Telephone
1956	HATCH MARY E	Pacific Telephone
1955	HATCH MARY E MRS A	R. L. Polk & Co.
1951	HATCH W H 38	R. L. Polk & Co.
1950	HATCH WM HENRY R	Pacific Telephone
1945	WM H HATCH	The Glendale Directory Co.
1940	ALICE M RICE	Glendale Directory Co.
1932	Bevier E M Mrs	Los Angeles Directory Co.
	Bublitz Mary Mrs	Los Angeles Directory Co.
1930	AMOS M LARSON	Glendale Directory Co.

FINDINGS

ADJOINING PROPERTY DETAIL

The following Adjoining Property addresses were researched for this report. Detailed findings are provided for each address.

HARBOR SCENIC DR

1200 HARBOR SCENIC DR

<u>Year</u>	<u>Uses</u>	<u>Source</u>
1969	REEF COCKTAIL LOUNGE	Pacific Telephone
	REEF RESTAURANT THE	Pacific Telephone

QUEENS HWY

1119 QUEENS HWY

<u>Year</u>	<u>Uses</u>	<u>Source</u>
2006	BUILDING A&STRANSPORT	Haines Company, Inc.
	CATHOLIC	Haines Company, Inc.
	MARITIME MINISTRY	Haines Company, Inc.
	DRAGON EMPORIUM	Haines Company, Inc.
	KID 11 N UTHE	Haines Company, Inc.
	LANDOFFRUIT&	Haines Company, Inc.
	NUTS LONGBCH	Haines Company, Inc.
	CARRIAGE LONG BCH CRUISE	Haines Company, Inc.
	CENTER PAST TIMES	Haines Company, Inc.
	QUEEN MARY	Haines Company, Inc.
	PHOTOGRAPHY	Haines Company, Inc.
	SERVICE QUEENS SHELL	Haines Company, Inc.
	CASTLE RMS FOUNDATION	Haines Company, Inc.
	QUEEN MARY THE ROTARY CLB LONG	Haines Company, Inc.
	BCH ROYALCRYSTAL	Haines Company, Inc.
	ARTS SCOTTISH	Haines Company, Inc.
	HERITAGE CENTER	Haines Company, Inc.
	SCOTTISH	Haines Company, Inc.
	HERITAGE CENTER TEESHIRT	Haines Company, Inc.
	TERRITORYMAIN	Haines Company, Inc.
	TEE SHIRT 562 499 T	Haines Company, Inc.
	TERRITORYMARKET	Haines Company, Inc.
	PLCE VIDEO TAKES	Haines Company, Inc.
2000	BUILDING KID IN U THE	Haines

FINDINGS

<u>Year</u>	<u>Uses</u>	<u>Source</u>
2000	LAND OF FRUITS & NUTS	Haines
	LONG BCH CARRIAGE	Haines
	LONG BCH MARITIME FOUNDATION	Haines
	PAST TIMES	Haines
	QUEEN MARY PHOTOGRAPHY SERVICE	Haines
	QUEENS SHELL CASTLE	Haines
	R M S FNDTN QUEEN MARY THE	Haines
	ROTARY CLB LONG BCH	Haines
	ROYAL CRYSTAL ARTS	Haines
	SCOTTISH HERITAGE CENTER	Haines
	TEE SHIRT TERRITORYMAIN HALL	Haines
	TEE SHIRT TERRITORYMARKETPL CE	Haines
	VIDEO TAKES	Haines

1125 QUEENS HWY

<u>Year</u>	<u>Uses</u>	<u>Source</u>
2000	XXXX	Haines

1129 QUEENS HWY

<u>Year</u>	<u>Uses</u>	<u>Source</u>
2000	XXXX	Haines

1175 QUEENS HWY

<u>Year</u>	<u>Uses</u>	<u>Source</u>
2006	ISLAND EXPRESS HELICOPTERS	Haines Company, Inc.
2000	ISLAND EXPRESS HELICOPTERS	Haines
	PUTNAM INTERNATL	Haines

Queens Hwy S

1119 Queens Hwy S

<u>Year</u>	<u>Uses</u>	<u>Source</u>
2014	ROTARY CLUB OF LONG BEACH INC	EDR Digital Archive
	LONG BCH RTARY CHRTBLE FNDTION	EDR Digital Archive
	LONG BEACH CRUISE CENTER	EDR Digital Archive
	LONG BCH SCHLARSHIP FOUNDATION	EDR Digital Archive
	PAST TIMES	EDR Digital Archive
2010	PAST TIMES	EDR Digital Archive
	A & S TRANSPORT	EDR Digital Archive

FINDINGS

<u>Year</u>	<u>Uses</u>	<u>Source</u>
2010	LONG BEACH CRUISE CENTER	EDR Digital Archive
	MR STYLE NETWORK	EDR Digital Archive
	LONG BCH SCHLARSHIP FOUNDATION	EDR Digital Archive
	P & P SPORTS ENTERPRISES LLC	EDR Digital Archive
	ROTARY CLUB OF LONG BEACH INC	EDR Digital Archive
	LONG BCH RTARY CHRTBLE FNDTION	EDR Digital Archive
	LONG BEACH CARRIAGE CO	EDR Digital Archive

1171 Queens Hwy S

<u>Year</u>	<u>Uses</u>	<u>Source</u>
2010	SEMPRA ENERGY	EDR Digital Archive

1175 Queens Hwy S

<u>Year</u>	<u>Uses</u>	<u>Source</u>
2014	ISLAND EXPRESS HELICOPTERS	EDR Digital Archive
2010	ISLAND EXPRESS HELICOPTERS	EDR Digital Archive

S HARBOR SCENIC DR

965 S HARBOR SCENIC DR

<u>Year</u>	<u>Uses</u>	<u>Source</u>
1985	STEVEDORING SERVICES OF AMERICA LONG BEACH Main Ofc	Pacific Bell
	STEVEDORING SERVICES OF AMERICA-LONG BEACH MAIN OFC	Pacific Bell
1980	KOPPEL BULK TERMINAL	Pacific Telephone
	KOPPEL INC	Pacific Telephone
	KOPPEL BULK TERMINAL	Pacific Telephone
	Koppel Inc	Pacific Telephone

1200 S HARBOR SCENIC DR

<u>Year</u>	<u>Uses</u>	<u>Source</u>
1975	Reef Restaurant	Pacific Telephone
1964	KAI LOA HAWAILAN GDS	Pacific Telephone
	REEF RESTAURANT	Pacific Telephone
1962	REEF RESTAURANT	Pacific Telephone

FINDINGS

WINDSOR PL

310 WINDSOR PL

<u>Year</u>	<u>Uses</u>	<u>Source</u>
1969	THORNTON FRED W TATTOOING	Pacific Telephone

322 WINDSOR PL

<u>Year</u>	<u>Uses</u>	<u>Source</u>
1969	VACANT	Pacific Telephone
	KNOTT MARY	Pacific Telephone
	INGLE LINDA	Pacific Telephone
	GODRGEY DAVID	Pacific Telephone
	HATHAWAY HERBERT	Pacific Telephone
	NO RETURN	Pacific Telephone
	VACANT	Pacific Telephone
	REED JOHN	Pacific Telephone
	NORRIS QUESNELL	Pacific Telephone
	OANNA JOE R	Pacific Telephone
	DANNA SAM	Pacific Telephone
	VACANT	Pacific Telephone
	STRAND APARTMENTS	Pacific Telephone
	CHRISTEE EMORY	Pacific Telephone

324 WINDSOR PL

<u>Year</u>	<u>Uses</u>	<u>Source</u>
1969	WINNIPEG PL PROM 3100 E 3D NORTH	Pacific Telephone
	DANNA AUTO PARK	Pacific Telephone

Windsor Way

231 Windsor Way

<u>Year</u>	<u>Uses</u>	<u>Source</u>
2014	CARNIVAL CORPORATION	EDR Digital Archive
2010	CARNIVAL CORPORATION	EDR Digital Archive

FINDINGS

ADJOINING PROPERTY: ADDRESSES NOT IDENTIFIED IN RESEARCH SOURCE

The following Adjoining Property addresses were researched for this report, and the addresses were not identified in research source.

<u>Address Researched</u>	<u>Address Not Identified in Research Source</u>
1119 QUEENS HWY	2014, 2010, 2004, 2003, 2001, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
1119 Queens Hwy S	2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
1125 QUEENS HWY	2014, 2010, 2006, 2004, 2003, 2001, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
1129 QUEENS HWY	2014, 2010, 2006, 2004, 2003, 2001, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
1171 Queens Hwy S	2014, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
1175 QUEENS HWY	2014, 2010, 2004, 2003, 2001, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
1175 Queens Hwy S	2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
1200 HARBOR SCENIC DR	2014, 2010, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
1200 S HARBOR SCENIC DR	2014, 2010, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1963, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920

FINDINGS

Address Researched

231 Windsor Way

310 WINDSOR PL

322 WINDSOR PL

324 WINDSOR PL

965 S HARBOR SCENIC DR

Address Not Identified in Research Source

2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920

2014, 2010, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920

2014, 2010, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920

2014, 2010, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920

2014, 2010, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1981, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920

TARGET PROPERTY: ADDRESS NOT IDENTIFIED IN RESEARCH SOURCE

The following Target Property addresses were researched for this report, and the addresses were not identified in the research source.

Address Researched

331 Windsor Way

Address Not Identified in Research Source

2014, 2010, 2004, 2003, 2000, 1999, 1996, 1992, 1990, 1986, 1981, 1976, 1971, 1966, 1965, 1964, 1963, 1961, 1960, 1958, 1957, 1954, 1952, 1949, 1948, 1947, 1946, 1944, 1942, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1931, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920

Appendix G

Historical Topographic Maps

11183495 - Long Beach, CA

331 Windsor Way

Long Beach, CA 90802

Inquiry Number: 5511181.4

December 13, 2018

EDR Historical Topo Map Report

with QuadMatch™



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

12/13/18

Site Name:

11183495 - Long Beach, CA
331 Windsor Way
Long Beach, CA 90802
EDR Inquiry # 5511181.4

Client Name:

GHD
6400 Shafer Court
Rosemont, IL 60018
Contact: Laura Grana



EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by GHD were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDR's Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:**Coordinates:**

P.O.#	NA	Latitude:	33.750374 33° 45' 1" North
Project:	11183495 - Long Beach, CA	Longitude:	-118.190734 -118° 11' 27" West
		UTM Zone:	Zone 11 North
		UTM X Meters:	389714.63
		UTM Y Meters:	3735115.24
		Elevation:	15.00' above sea level

Maps Provided:

2012	1934
1981	1925
1972	1902
1964	1899
1949	1896
1947	
1943	
1941, 1942	

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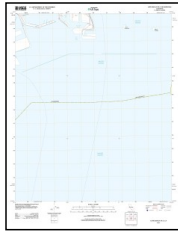
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Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2012 Source Sheets

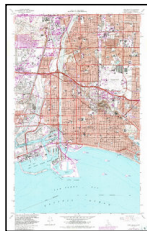


Long Beach OE S
2012
7.5-minute, 24000



Long Beach
2012
7.5-minute, 24000

1981 Source Sheets



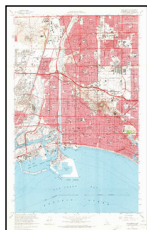
Long Beach
1981
7.5-minute, 24000
Aerial Photo Revised 1978

1972 Source Sheets



Long Beach
1972
7.5-minute, 24000
Aerial Photo Revised 1972

1964 Source Sheets



Long Beach
1964
7.5-minute, 24000
Aerial Photo Revised 1963

Topo Sheet Key

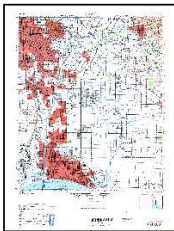
This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1949 Source Sheets



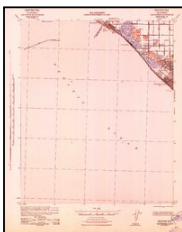
Long Beach
1949
7.5-minute, 24000

1947 Source Sheets

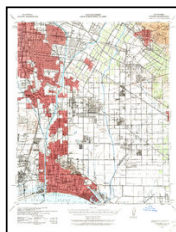


DOWNEY
1947
15-minute, 50000

1943 Source Sheets

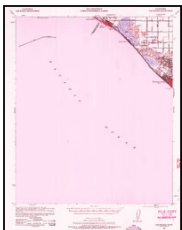


Las Bolsas
1943
15-minute, 62500

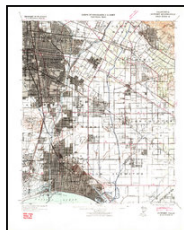


Downey
1943
15-minute, 62500
Aerial Photo Revised 1939

1941, 1942 Source Sheets



Las Bolsas
1941
15-minute, 62500
Aerial Photo Revised 1939

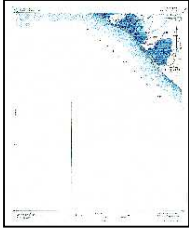


Downey
1942
15-minute, 62500

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1934 Source Sheets



LAS BOLSAS
1934
15-minute, 62500

1925 Source Sheets

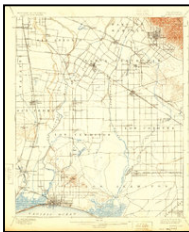


Long Beach
1925
7.5-minute, 24000



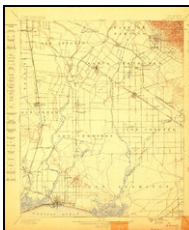
Wilmington
1925
7.5-minute, 24000

1902 Source Sheets



Downey
1902
15-minute, 62500

1899 Source Sheets



Downey
1899
15-minute, 62500

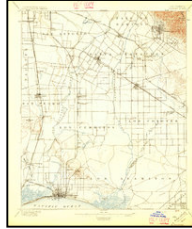
Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1896 Source Sheets



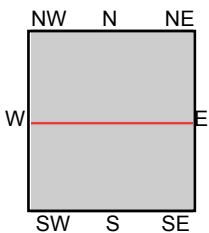
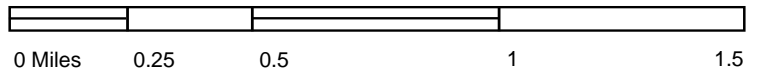
Las Bolsas
1896
15-minute, 62500



Downey
1896
15-minute, 62500



This report includes information from the following map sheet(s).



TP, Long Beach, 2012, 7.5-minute
S, Long Beach OE S, 2012, 7.5-minute

SITE NAME: 11183495 - Long Beach, CA
ADDRESS: 331 Windsor Way
Long Beach, CA 90802
CLIENT: GHD





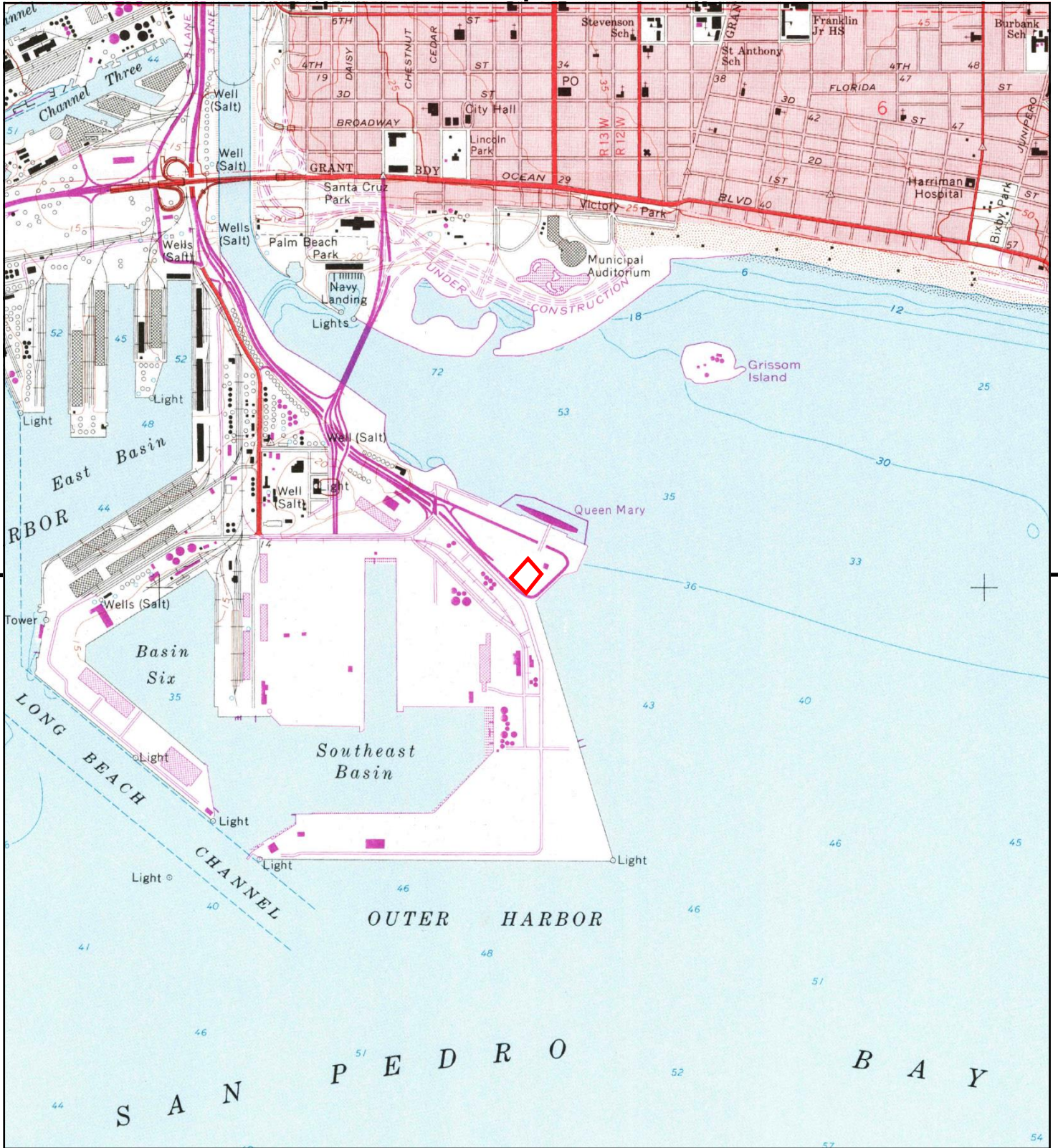
This report includes information from the following map sheet(s).



TP, Long Beach, 1981, 7.5-minute

SITE NAME: 11183495 - Long Beach, CA
 ADDRESS: 331 Windsor Way
 Long Beach, CA 90802
 CLIENT: GHD





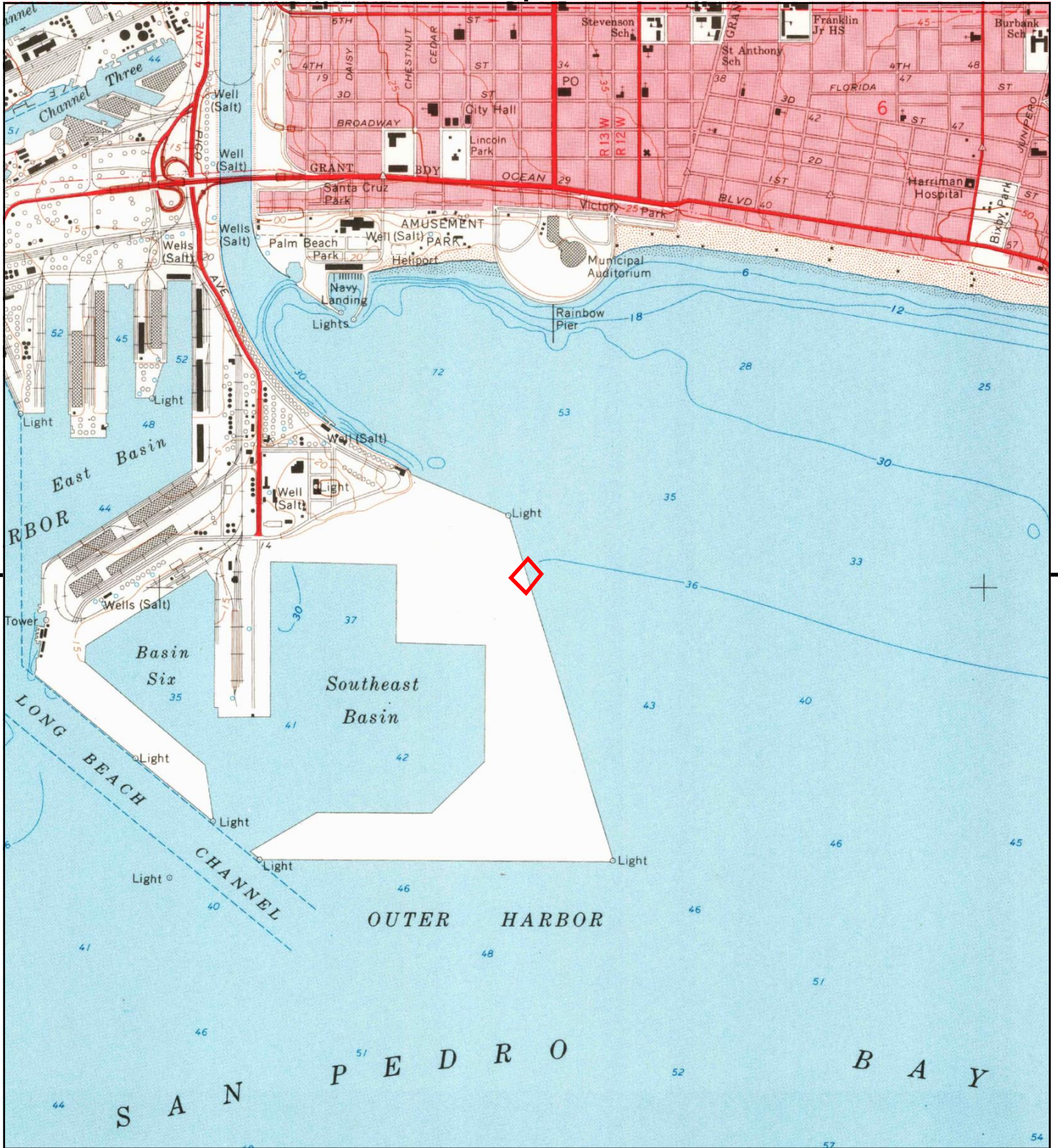
This report includes information from the following map sheet(s).



TP, Long Beach, 1972, 7.5-minute

SITE NAME: 11183495 - Long Beach, CA
 ADDRESS: 331 Windsor Way
 Long Beach, CA 90802
 CLIENT: GHD





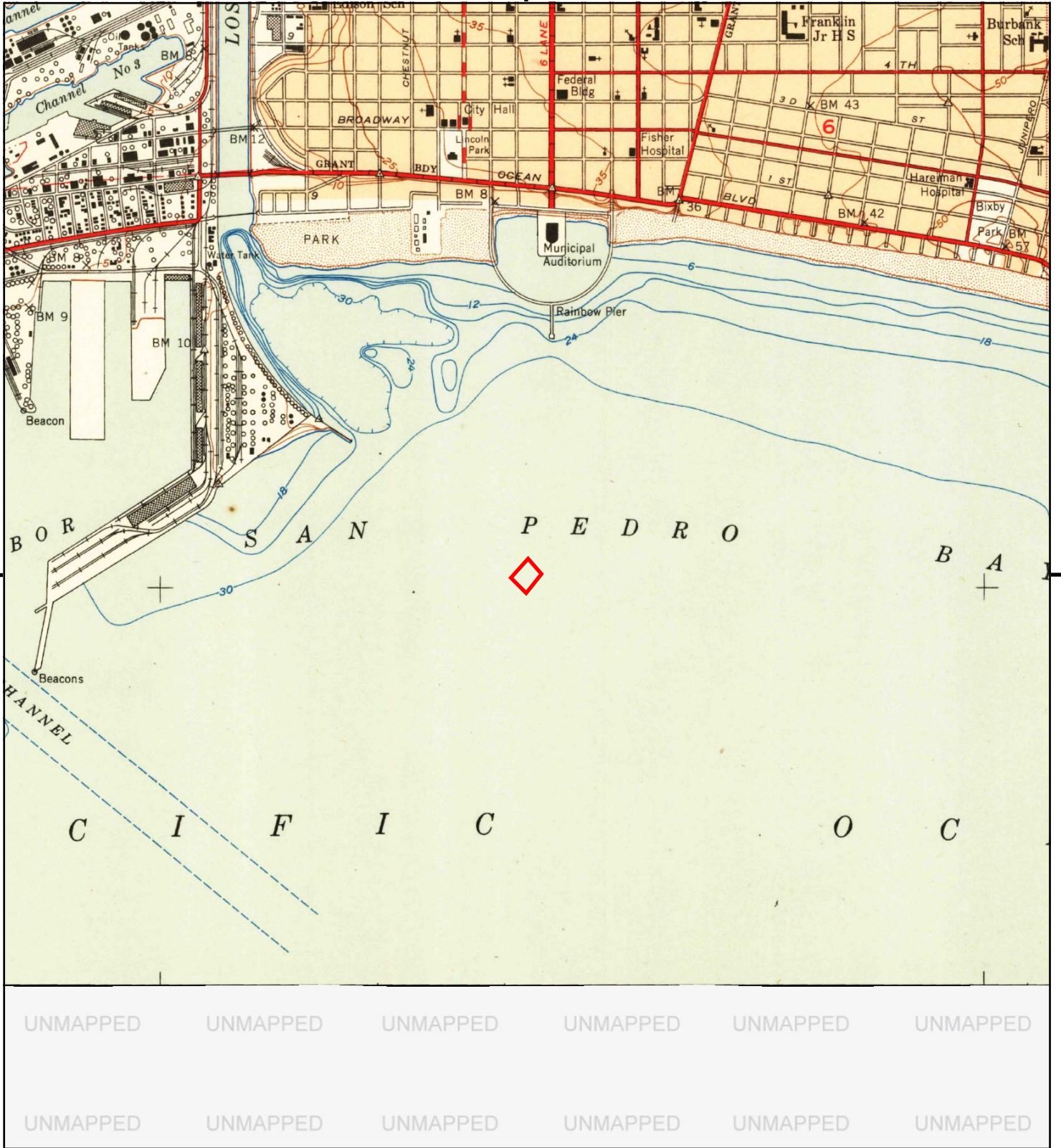
This report includes information from the following map sheet(s).



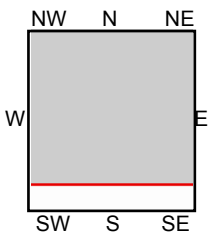
TP, Long Beach, 1964, 7.5-minute

SITE NAME: 11183495 - Long Beach, CA
 ADDRESS: 331 Windsor Way
 Long Beach, CA 90802
 CLIENT: GHD





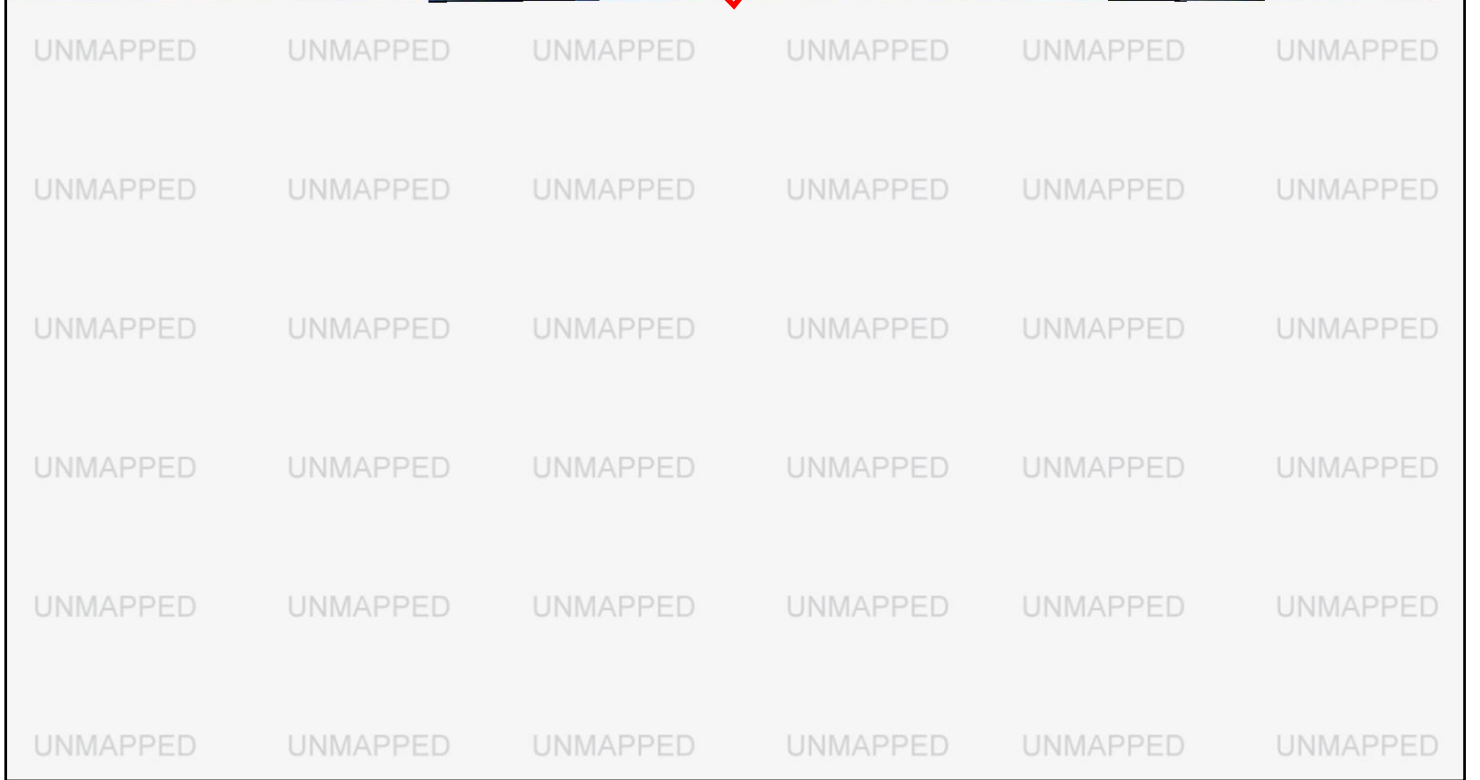
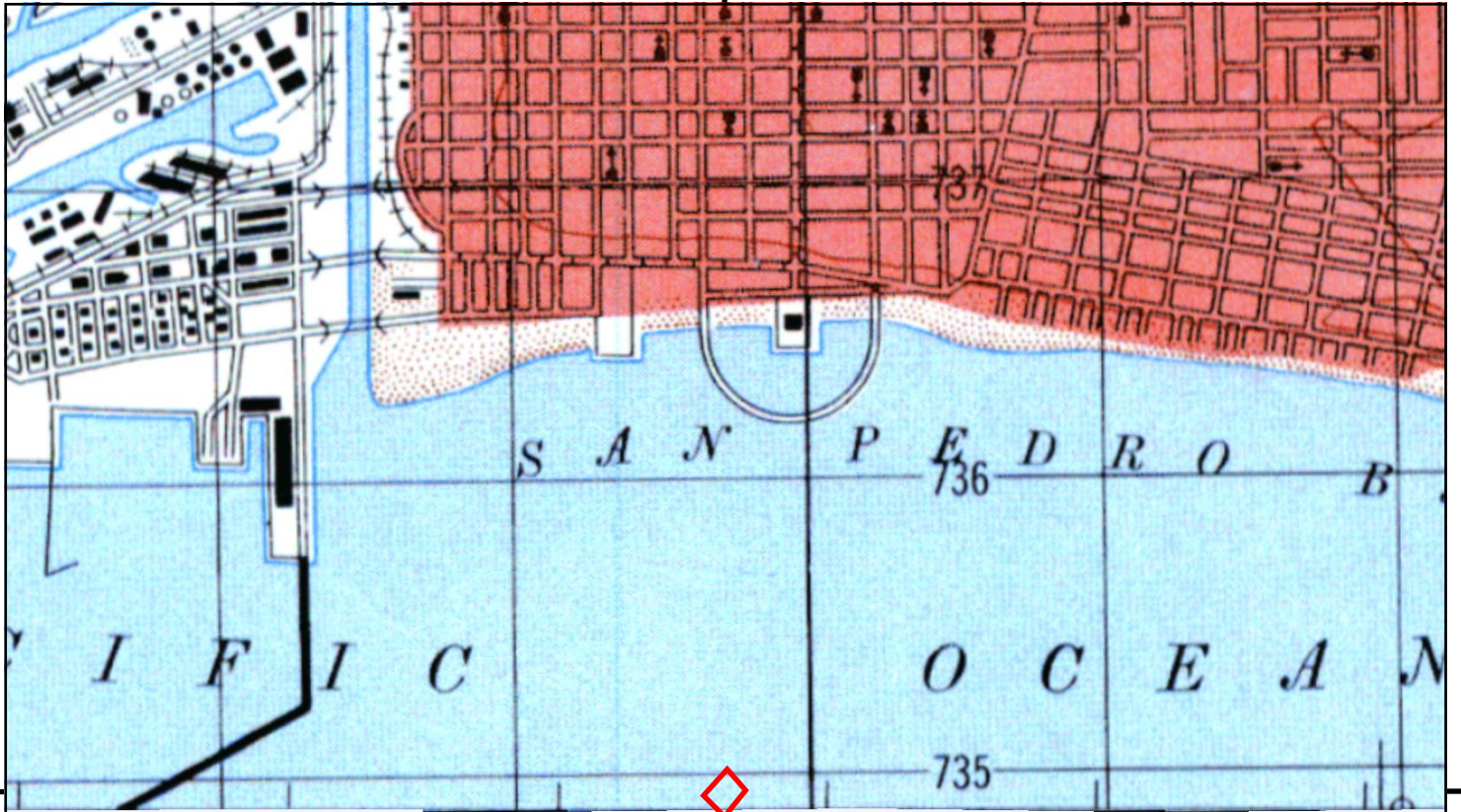
This report includes information from the following map sheet(s).



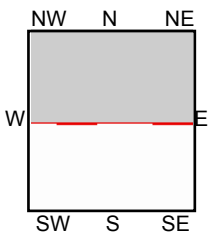
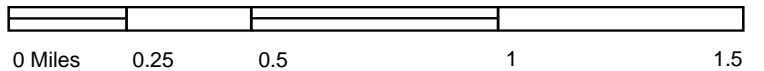
TP, Long Beach, 1949, 7.5-minute

SITE NAME: 11183495 - Long Beach, CA
 ADDRESS: 331 Windsor Way
 Long Beach, CA 90802
 CLIENT: GHD





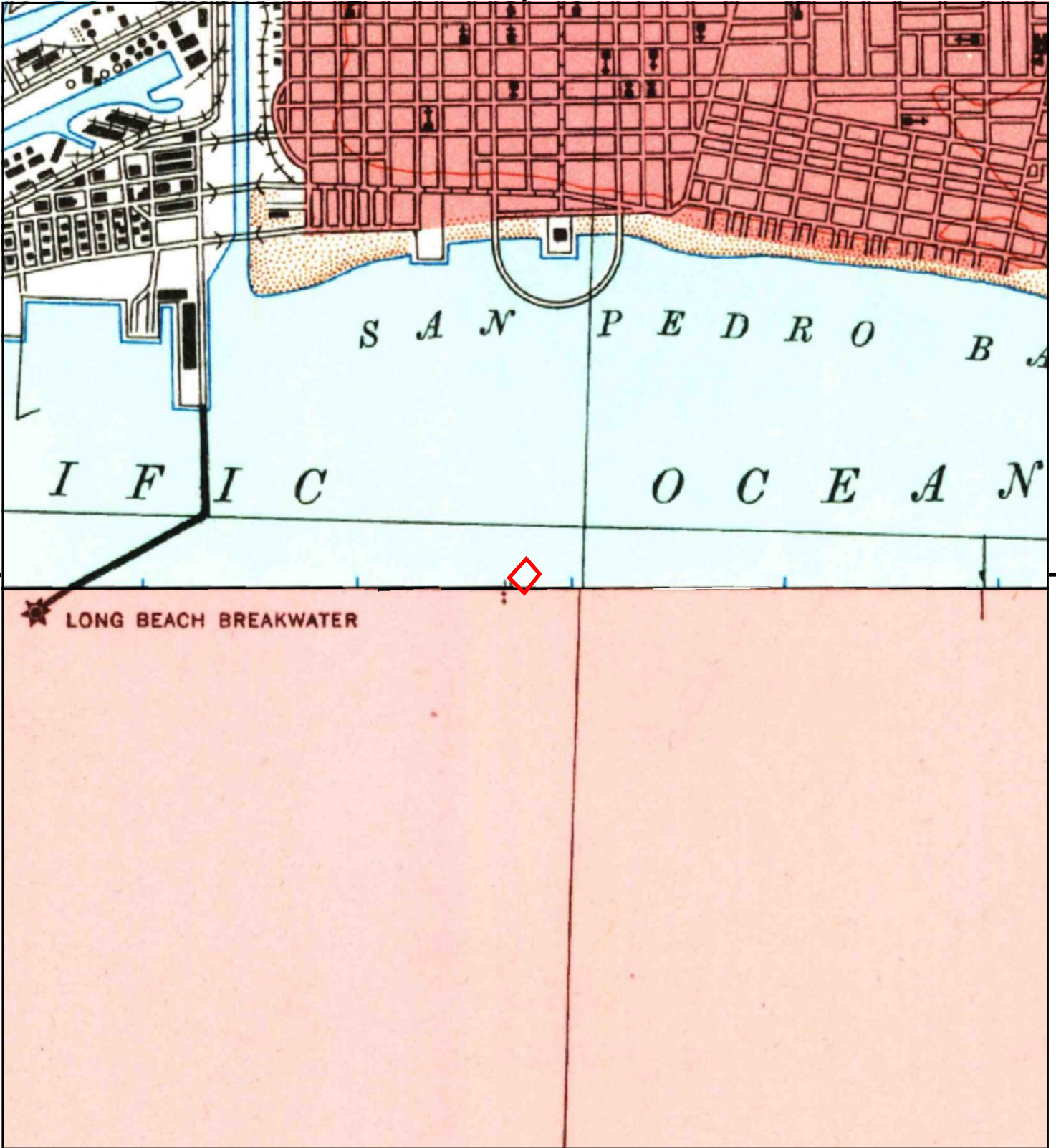
This report includes information from the following map sheet(s).



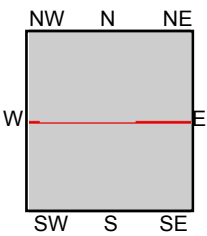
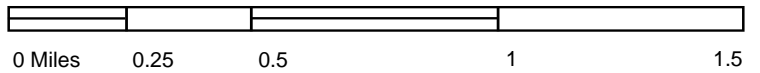
TP, DOWNEY, 1947, 15-minute

SITE NAME: 11183495 - Long Beach, CA
 ADDRESS: 331 Windsor Way
 Long Beach, CA 90802
 CLIENT: GHD





This report includes information from the following map sheet(s).



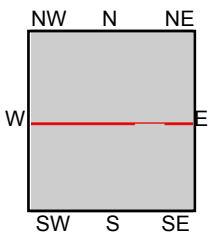
TP, Downey, 1943, 15-minute
SE, Las Bolsas, 1943, 15-minute

SITE NAME: 11183495 - Long Beach, CA
ADDRESS: 331 Windsor Way
Long Beach, CA 90802
CLIENT: GHD





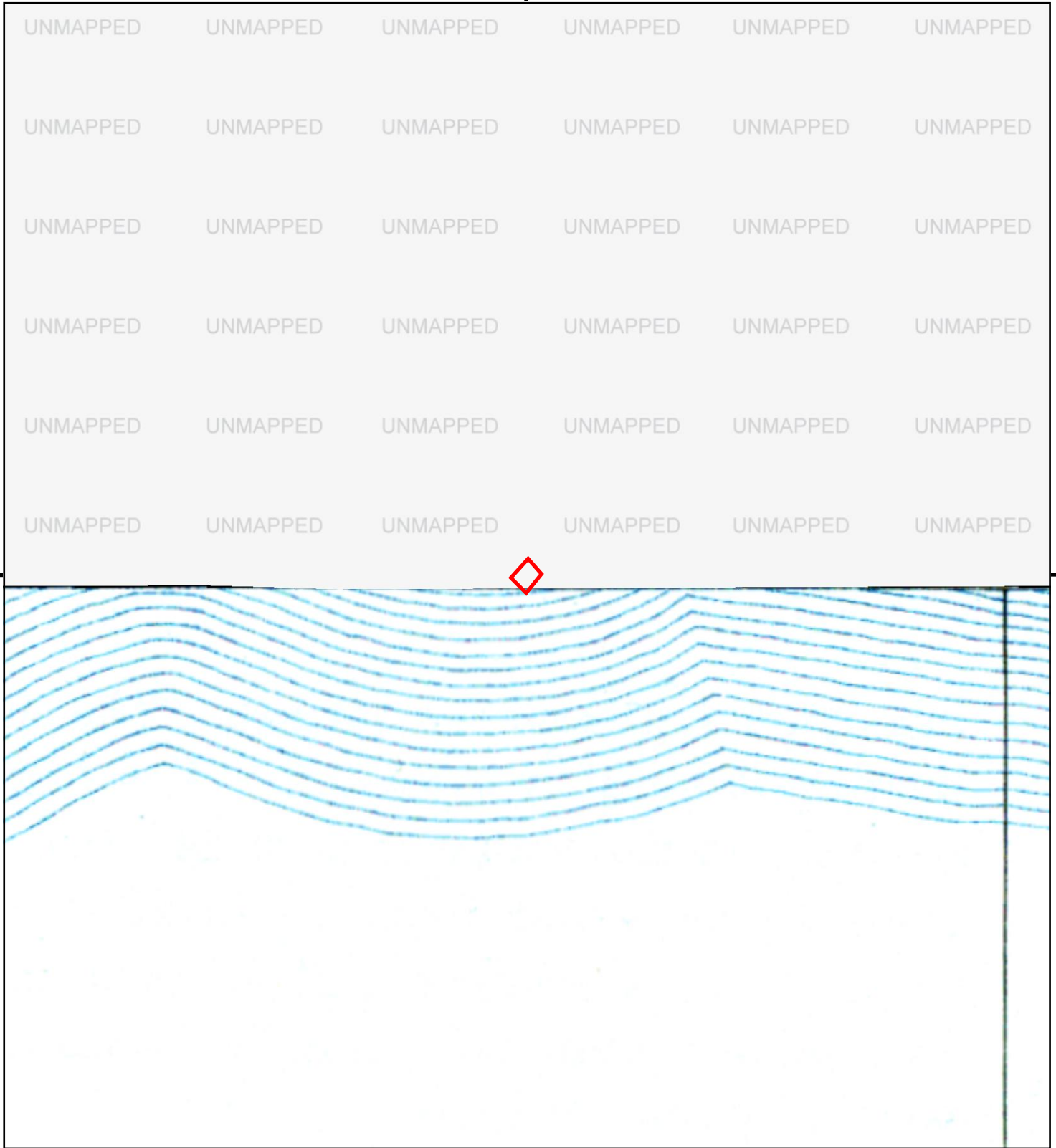
This report includes information from the following map sheet(s).



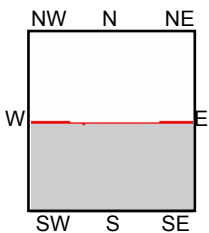
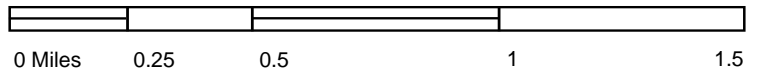
TP, Downey, 1942, 15-minute
SE, Las Bolsas, 1941, 15-minute

SITE NAME: 11183495 - Long Beach, CA
ADDRESS: 331 Windsor Way
Long Beach, CA 90802
CLIENT: GHD





This report includes information from the following map sheet(s).



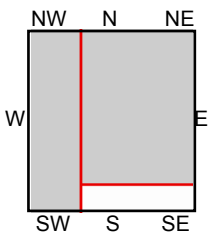
SE, LAS BOLSAS, 1934, 15-minute

SITE NAME: 11183495 - Long Beach, CA
ADDRESS: 331 Windsor Way
Long Beach, CA 90802
CLIENT: GHD





This report includes information from the following map sheet(s).



TP, Long Beach, 1925, 7.5-minute
W, Wilmington, 1925, 7.5-minute

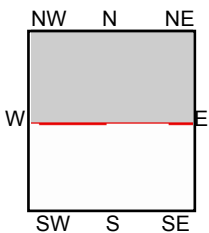
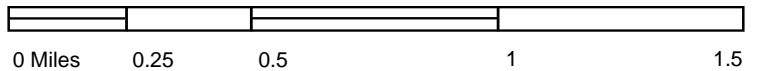
SITE NAME: 11183495 - Long Beach, CA
ADDRESS: 331 Windsor Way
Long Beach, CA 90802
CLIENT: GHD





UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED
UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED
UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED
UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED
UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED
UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED

This report includes information from the following map sheet(s).



TP, Downey, 1902, 15-minute

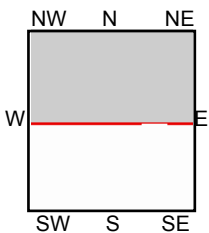
SITE NAME: 11183495 - Long Beach, CA
 ADDRESS: 331 Windsor Way
 Long Beach, CA 90802
 CLIENT: GHD





UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED
UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED
UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED
UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED
UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED
UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED	UNMAPPED

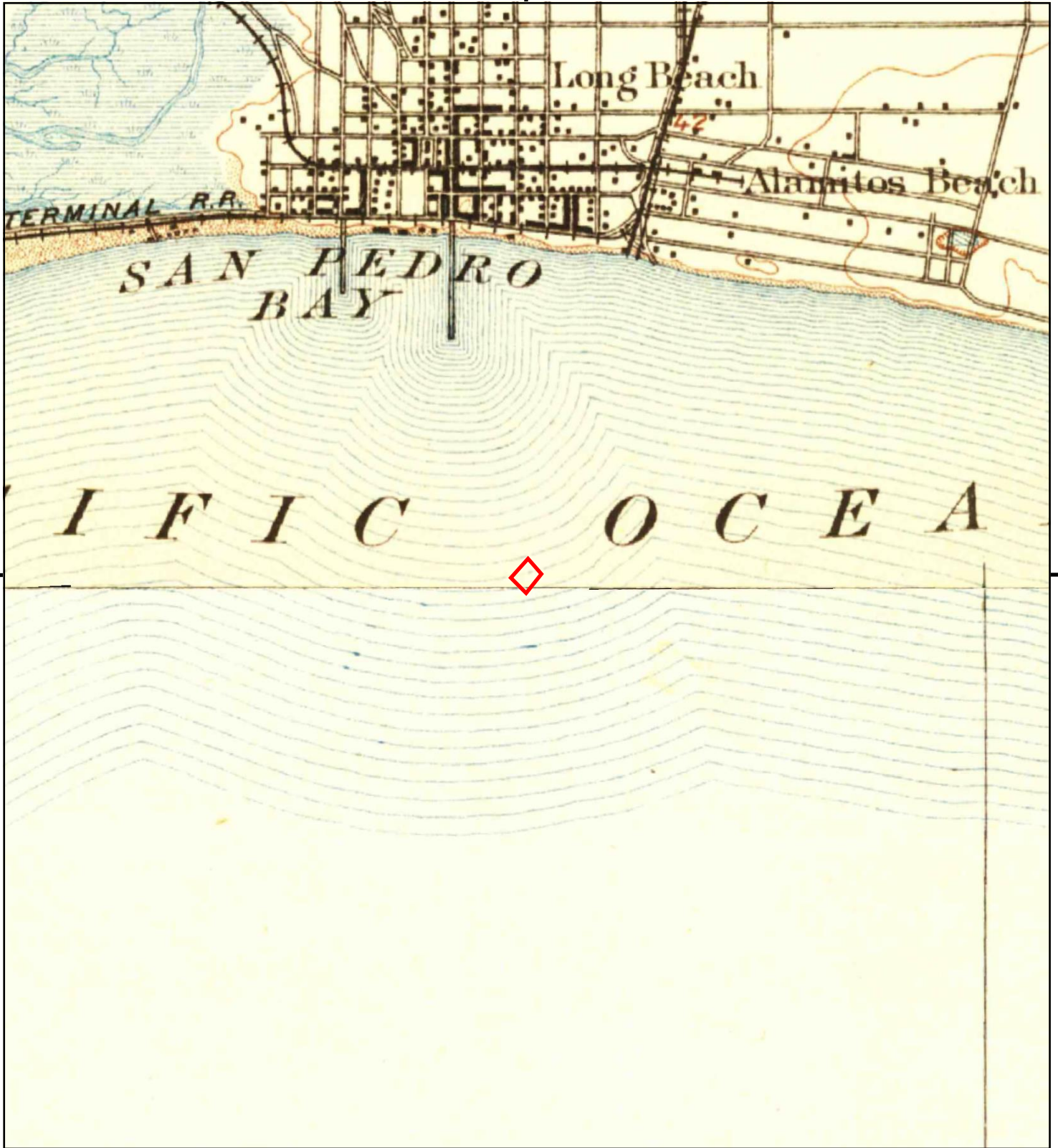
This report includes information from the following map sheet(s).



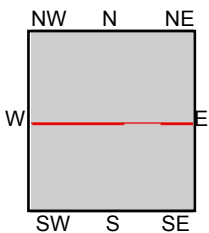
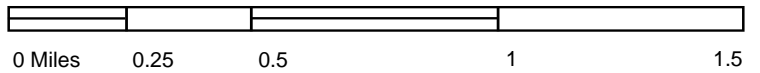
TP, Downey, 1899, 15-minute

SITE NAME: 11183495 - Long Beach, CA
 ADDRESS: 331 Windsor Way
 Long Beach, CA 90802
 CLIENT: GHD





This report includes information from the following map sheet(s).



TP, Downey, 1896, 15-minute
SE, Las Bolsas, 1896, 15-minute

SITE NAME: 11183495 - Long Beach, CA
ADDRESS: 331 Windsor Way
Long Beach, CA 90802
CLIENT: GHD



Appendix H

Environmental Lien

11183495 - LONG BEACH, CA
331 WINDSOR WAY
LONG BEACH, CA 90802

Inquiry Number: 5511181.10S
DECEMBER 18, 2018

EDR Environmental Lien and AUL Search

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com



EDR Environmental Lien and AUL Search

The EDR Environmental Lien Search Report provides results from a search of available current land title records for environmental cleanup liens and other activity and use limitations, such as engineering controls and institutional controls.

A network of professional, trained researchers, following established procedures, uses client supplied address information to:

- search for parcel information and/or legal description;
- search for ownership information;
- research official land title documents recorded at jurisdictional agencies such as recorders' offices, registries of deeds, county clerks' offices, etc.;
- access a copy of the deed;
- search for environmental encumbering instrument(s) associated with the deed;
- provide a copy of any environmental encumbrance(s) based upon a review of key words in the instrument(s) (title, parties involved, and description); and
- provide a copy of the deed or cite documents reviewed.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EDR Environmental Lien and AUL Search

TARGET PROPERTY INFORMATION

ADDRESS

11183495 - LONG BEACH, CA
331 WINDSOR WAY
LONG BEACH, CA 90802

RESEARCH SOURCE

Source 1: LOS ANGELES COUNTY RECORDER'S OFFICE
Source 2: CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
Source 3: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

PROPERTY INFORMATION

Deed 1

Type of Deed: NA
Title is vested in: LONG BEACH CITY
Title received from: NA
Date Executed: NA
Date Recorded: PRIOR TO 1980
Book: NA
Page: NA
Volume: NA
Instrument#: NA
Docket: NA
Land Record Comments: NA
Miscellaneous Comments: NO DEED IMAGE

Legal Description: RECLAIMED LANDS AS SHOWN ON PORT OF LONG BEACH MAP H D 43,000 REV 8-69 THAT PART OF PIER J LYING E OF A LINE HAVING AN EASTING OF 4,228,328 FT BASED ON CALIF COORDINATE SYSTEM ZONE 7, S 4,021,000 FT BASED ON SD SYSTEM

Current Owner: LONG BEACH CITY

Property Identifiers: 7436-021-907

Comments: NA

EDR Environmental Lien and AUL Search

ENVIRONMENTAL LIEN

Environmental Lien: Found Not Found

If Found:

1st Party: NA
2nd Party: NA
Dated: NA
Recorded: NA
Book: NA
Page: NA
Docket: NA
Volume: NA
Instrument #: NA
Comments: NA
Miscellaneous: NA

OTHER ACTIVITY AND USE LIMITATIONS (AULS)

Other AUL's: Found Not Found

If Found:

1st Party: NA
2nd Party: NA
Dated: NA
Recorded: NA
Book: NA
Page: NA
Docket: NA
Volume: NA
Instrument #: NA
Comments: NA
Miscellaneous: NA

EDR Environmental Lien and AUL Search

MISCELLANEOUS

Type of Instrument: NONE IDENTIFIED

First Party:

Second Party:

Date Executed:

Date Recorded:

Instrument #:

Book:

Page:

Comments:

Appendix I

User Questionnaire



Date

Reference No. _____

Phase I ESA User Questionnaire

Description of Site/Address: _____

Port of Long Beach Cruise Terminal (Wharf H)

231 Windsor Place, Long Beach, CA 90802

Introduction

As described in ASTM E1527-13, 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. The user should provide the following information to the environmental professional. Failure to conduct these inquiries could result in a determination that "all appropriate inquiries" is not complete.

1. Did a search of recorded land title records (or judicial records where appropriate) identify any environmental liens filed or recorded against the property under federal, tribal, state, or local law?

Carnival Corporation is a subleasee of Urban Commons Queensway, who in turn lease the facility from the City of Long Beach.

To Carnival' knowledge no environmental liens or records are filed against this property.

2. Did a search of recorded land title records (or judicial records where appropriate) identify any activity and use limitations (AULs), such as engineering controls, land use restrictions, or institutional controls that are in place at the property and/or have been filed or recorded against the property under federal, tribal, state, or local law?

Carnival Corporation is a subleasee of Urban Commons Queensway, who in turn lease the facility from the City of Long Beach.

To Carnival' knowledge no controls or restrictions are imposed against the property, which would limit Carnival from expanding its existing facilities for its current use.



3. Do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?

The original property (landfill area) was expanded to accommodate the passenger steam vessel Queen Mary as a museum, hotel and public attraction on board and adjacent land, as well as the Spruce Goose in a geodesic dome structure as a public attraction, including supporting parking facilities. Since, the Spruce Goose was relocated to a private museum in Oregon, providing Carnival the opportunity to lease almost half of the dome structure for its use as a cruise terminal. A parking garage and marine wharf were constructed to accommodate the cruise vessels. At the time also a municipal fire station was suited on the property to support surrounding areas, as well as helicopter service for passenger service towards Catalina Island.

The Cruise Terminal is surrounded at the westside by the Queen Mary property, northside the LA-River, eastside by the Pacific Ocean/San Pedro Bay and the fire station and at the southside by the Queenway Highway and the Helicopter Service

Carnival utilizes the cruise terminal and its' adjacent parking garage to facilitate check-in requirements, Customs and Border Protection processing requirements, opportunity for guests to park their vehicles and an infrastructure to provision the vessels and process guest luggage.

4. Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?

Carnival Corporation is a subleasee of Urban Commons Queensway, who in turn lease the facility from the City of Long Beach.

Lease payments, based upon Carnival' business volume, are fairly negotiated and considered appropriate for the property.



5. Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example,

a) Do you know the past uses of the property?

The original property (landfill area) was expanded to accommodate the passenger steam vessel Queen Mary as an museum, hotel and public attraction on board and adjacent land, as well as the Spruce Goose in a geodesic dome structure as a public attraction, including supporting parking facilities.

b) Do you know of specific chemicals that are present or once were present at the property?

The parking garage and the cruise terminal each have an emergency generator accommodated on a concrete slab, with a surface mounted fuel tank.

c) Do you know of spills or other chemical releases that have taken place at the property?

I do not.

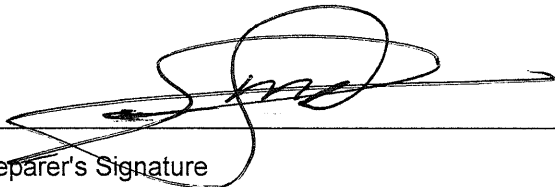
d) Do you know of any environmental cleanups that have taken place at the property?

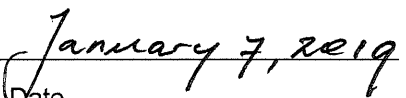
I do not.

6. Based on your knowledge and experience related to the property are there any obvious indicators that point to the presence or likely presence of releases at the property?

Carnival has no knowledge as to past releases at the property, nor is it aware of any current releases.

Preparer represents that, to the best of the Preparer's knowledge, the above statements and facts are true and correct; and, to the best of the Preparer's actual knowledge, no material facts have been suppressed or misstated.


Preparer's Signature


Date



This ASTM-E1527-13 All Appropriate Inquiry Questionnaire was completed by:

Name: Wilkin Mes

Title: Director – Cruise Terminal and Commercial Development

Firm: Carnival Cruise Line

Address: 231 Windsor Way

Phone Number: 305-599-2600, ext. 35025

Email Address: wmes@carnival.com



about GHD

GHD is one of the world's leading professional services companies operating in the global markets of water, energy and resources, environment, property and buildings, and transportation. We provide engineering, environmental, and construction services to private and public sector clients.

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SAMPLING AND ANALYSIS PLAN REPORT

Long Beach Cruise Terminal Dredging Environmental Investigation Project

Contract No. 5816

**Prepared for:
Atkins, North America
3780 Kilroy Airport Way, Suite 740
Long Beach, CA 90806**

ATKINS

Member of the SNC-Lavalin Group

Prepared by:

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February 2019



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SAMPLING AND ANALYSIS PLAN REPORT
Long Beach Cruise Terminal Dredging Environmental Investigation Project

Contract No. 5816

February 2019

TABLE OF CONTENTS

	<u>Page No.</u>
1.0 INTRODUCTION.....	1
1.1 Project Summary.....	1
1.2 Site Location	6
1.3 Roles and Responsibilities	6
2.0 SITE HISTORY AND HISTORICAL DATA REVIEW	8
2.1 January 2009 (Weston, 2009)	8
2.2 June 2000 (MEC, 2000).....	8
3.0 METHODS.....	9
3.1 Sampling and Testing Design	9
3.1.1 Sampling and Testing Approach.....	9
3.2 Sample Identification, Composite Areas, Sediment Collection and Testing.....	9
3.2.1 Environmental Testing.....	12
3.2.2 Summary of Carnival Cruise Line Terminal Testing and Evaluation Sequence	13
3.2.3 Evaluation Guidelines	13
3.3 Field Sampling Protocols.....	15
3.3.1 Positioning and Depth Measurements	15
3.3.2 Vibracore Sampling Methods	15
3.3.3 Vibracore Decontamination	16
3.3.4 Core Processing	16
3.3.5 LA-2 Reference and Control Sediments	17
3.3.6 Water Collection	17
3.3.7 Documentation and Sample Custody.....	17
3.4 Laboratory Testing Methods.....	20
3.4.1 Bulk Sediment Chemical Analyses.....	20
3.4.2 Elutriate Preparation Methods and Chemical Analysis	20
3.4.3 Tier III Biological Testing	20
4.0 RESULTS	29
4.1 Sediment Physical Results	29
4.2 Sediment Chemistry Results	29
4.3 Solid Phase Bioassay Results.....	29
4.4 Suspended Particulate Phase (SPP) Bioassay Results	29
4.5 Bioaccumulation Results	30
5.0 DISCUSSION.....	47
5.1 Grain Size Distribution	47
5.2 Bulk Sediment Chemistry	47
5.3 Benthic (Solid Phase) Bioassays.....	48
5.4 SPP (Suspended Particulate Phase) Water Column Bioassays.....	49
5.4.1 48-Hour Mussel Larvae Survival and Normal Embryonic Development Test.....	49

5.4.2	96-Hour Mysid Survival Test	49
5.4.3	96-Hour Juvenile Fish Survival Test	50
5.4.4	SPP Testing Conclusion.....	50
5.5	Bioaccumulation Testing for Ocean Placement.....	50
5.5.1	Bioaccumulation Survival.....	50
5.5.2	Assessment of Bioaccumulation Potential.....	50
5.5.3	Uptake of Lead.....	54
5.5.4	Uptake of Zinc	54
5.5.5	Uptake of DDTs.....	57
5.5.6	Uptake of PCB Congeners.....	67
5.5.7	Bioaccumulation Potential Conclusions	67
5.6	Summary and Conclusions	69
6.0	QUALITY CONTROL REQUIREMENTS.....	70
6.1	Field Sampling Quality Management	70
6.2	Chemical Analysis Quality Management	70
6.3	Biological Testing.....	72
67.0	REFERENCES CITED.....	73

APPENDICES

- APPENDIX A – Summary Results from the January 2009 Dredge Study (Weston, 2009)**
- APPENDIX B - Summary Results by MEC for Carnival Corporation (MEC, 2000)**
- APPENDIX C - Field Data Logs and Photographs**
- APPENDIX D - Analytical Laboratory Reports**
- APPENDIX E - Bioassay Laboratory Report**
- APPENDIX F - Analytical Quality Assurance/Quality Control Report**
- APPENDIX G - Grain Size Laboratory Report**

LIST OF TABLES

	<u>Page No.</u>
Table 1. Project Team and Responsibilities.....	6
Table 2. Key Project Contacts.....	7
Table 3. Actual Sampling Location Coordinates, Date and Time of Sampling, Core Depths, Mudline Elevations, and Sampling Elevations for the Carnival Cruise Terminal Dredging.	10
Table 4. Sediment Analytical Methods and Target Quantitation Limits Achieved.....	21
Table 5. Species, Methods, and End-Points for Biological Testing.	24
Table 6. Sediment Porewater Initial Water Quality Characteristics	24
Table 7. Tissue Analytical Methods and Quantitation Limits Achieved.....	26
Table 8. 2018 Carnival Cruise Terminal Sediment Physical Results.	30
Table 9. 2018 POLB Carnival Cruise Terminal Bulk Sediment Chemistry Results.	31
Table 10. Survival Results for the 10-day <i>Ampelisca abdita</i> Bioassays.....	34
Table 11. Survival Results for the 10-day <i>Neanthes arenaceodentata</i> Bioassays.....	35
Table 12. Replicate and Mean Survival and Normal Development Results and Median Effective and Lethal Concentrations for the Suspended Particulate-Phase 48-Hour Toxicity Tests Using <i>Mytilus galloprovincialis</i> Larvae.	36
Table 13. Replicate and Mean Survival Results and Median Lethal Concentrations for the 96- Hour Acute Suspended Particulate-Phase Toxicity Tests Using <i>Americamysis bahia</i>	37
Table 14. Replicate and Mean Survival Results and Median Lethal Concentrations for the 96- Hour Acute Suspended Particulate-Phase Toxicity Tests Using <i>Menidia beryllina</i> . .	37
Table 15. <i>Macoma nasuta</i> Bioaccumulation Test Survival Data.....	38
Table 16. <i>Nereis virens</i> Bioaccumulation Test Survival Data.....	38
Table 17. Bioaccumulation Potential Replicate and Mean Tissue Results for <i>Macoma nasuta</i> Exposed to Carnival Cruise, LA-2 Reference and Control Sediments.	39
Table 18. Bioaccumulation Potential Replicate and Mean Tissue Results for <i>Nereis virens</i> Exposed to Carnival Cruise, LA-2 Reference and Control Sediments.	41
Table 19. Statistical Results for the Carnival Cruise Terminal Composite Samples <i>Macoma</i> <i>nasuta</i> Detected Tissue Concentrations Compared to Reference and Control Tissue Concentrations.	43
Table 20. Statistical Results for the Carnival Cruise Terminal <i>Nereis virens</i> Detected Tissue Concentrations Compared to Reference and Control Tissue Concentrations.....	45
Table 21. 100% Elutriate SPP Water Column Bioassays Results.	49
Table 22. Lowest Relevant TRVs for Zinc in the ERED Database.	57
Table 23. Mean and 95% UCL Steady State Adjusted <i>Macoma Nasuta</i> Tissue Concentrations for DDTs.	65
Table 24. Mean and 95% UCL Steady State Adjusted <i>Nereis Virens</i> Tissue Concentrations for DDTs.....	65
Table 25. Selected Relevant TRVs from the ERED database for 2,4'-DDE and 4,4'-DDE.	66
Table 26. Counts of QC records per Chemical Category.	71
Table 27. Final QC Qualification Applied to Sample Results.....	71

LIST OF FIGURES

	<u>Page No.</u>
Figure 1. Location of Project Area within the Long Beach Harbor.	2
Figure 2. Specific Location of Carnival Cruise Ship Terminal in Long Beach Harbor.	3
Figure 3. Conceptual Plan of the Proposed Carnival Cruise Terminal Expansion Project.	4
Figure 4. Close-up of the Carnival Cruise Terminal Showing Bathymetric Data and Actual Sampling Locations.	5
Figure 5. Location of LA-2 Reference Site.	19
Figure 6. Relationship between Total DDT and Lipid Concentrations in <i>Nereis</i> Tissues.	53
Figure 7. Relationship between Total PCBs and Lipid Concentrations in <i>Nereis</i> Tissues.	53
Figure 8. Distribution of <i>Macoma nasuta</i> Lead Uptake.	55
Figure 9. Distribution of <i>Nereis virens</i> Lead Uptake.	55
Figure 10. Distribution of <i>Macoma nasuta</i> Zinc Uptake.	56
Figure 11. Distribution of <i>Nereis virens</i> Zinc Uptake.	56
Figure 12. Distribution of <i>Macoma nasuta</i> Total DDT Uptake.	58
Figure 13. Distribution of <i>Macoma nasuta</i> 2,4' DDD Uptake.	58
Figure 14. Distribution of <i>Macoma nasuta</i> 2,4' DDE Uptake.	59
Figure 15. Distribution of <i>Macoma nasuta</i> 4,4' DDD Uptake.	59
Figure 16. Distribution of <i>Macoma nasuta</i> 4,4' DDE Uptake.	60
Figure 17. Distribution of <i>Nereis virens</i> Total DDT Uptake.	60
Figure 18. Distribution of <i>Nereis virens</i> 2,4' DDD Uptake.	61
Figure 19. Distribution of <i>Nereis virens</i> 2,4' DDE Uptake.	61
Figure 20. Distribution of <i>Nereis virens</i> 4,4' DDD Uptake.	62
Figure 21. Distribution of <i>Nereis virens</i> 4,4' DDE Uptake.	62
Figure 22. Distribution of <i>Nereis virens</i> 4,4' DDT Uptake.	63
Figure 23. Distribution of <i>Macoma nasuta</i> Total PCB Uptake.	68
Figure 24. Distribution of <i>Nereis virens</i> Total PCB Uptake.	68

LIST OF ACRONYMS

ASTM	American Society for Testing and Materials	NOEC	No Observable Effects Concentration
ANOVA	Analysis of Variance	NOED	No Observed Effects Dose
BLK	Method or Procedural Blank	NMFS	National Marine Fishery Service
CDFW	California Department of Fish and Wildlife	ODMDS	Ocean Dredge Material Disposal Site
CESPD	Corps of Engineers South Pacific Division	OEHHA	Office of Environment Health Assoc.
CHHSL	California Human Health Screening Level	OTM	Ocean Testing Manual
COC	Chain of Custody	PAH	Polycyclic Aromatic Hydrocarbon
CSLC	California State Lands Commission	PCB	Polychlorinated biphenyl
CV	Coefficient of Variation	PDS	Post Digestion Spike
CWA	Clean Water Act	PPB	Parts Per Billion
CY	Cubic Yards	PPM	Parts per Million
DDD	Dichlorodiphenyldichloroethane	PPT	Parts per Trillion
DDE	Dichlorodiphenyldichloroethylene	PRG	Preliminary Remediation Goals
DDT	Dichlorodiphenyltrichloroethane	PVC	Polyvinyl Chloride
DGPS	Differential Global Positioning Satellite	RBC	Risk Based Concentrations
DMMT	Dredge Materials Management Team	RL	Reporting Limit
DUP	Laboratory Replicates	RPD	Relative Percent Difference
EC₅₀	50% of the Time Effects Concentration	RSL	Regional Screening Levels
ERED	Environmental Residue-Effects Database	RWQCB	Regional Water Quality Control Board
ERL	Effects Range-Low	SAP	Sampling and Analysis Plan
ERM	Effects Range-Medium	SAR	Sampling and Analysis Report
ERM_q	Effects Range-Medium Quotient	SC-DMMT	Southern California Dredge Material Management Team
HDPE	High Density Polyethylene	SDRWQCB	San Diego Regional Water Quality Control Board
HHMSSL	Human Health Medium Specific Screening Levels	SET	Standard Elutriate Test
ITM	Inland Testing Manual	SOP	Standard Operating Procedure
KCL	Potassium Chloride	SP	Solid Phase
LC₅₀	50% of the Time Lethal Concentration	SPP	Suspended Particulate Phase
LCL	Lower Control Limit	SURR	Surrogate Analysis
LCS	Laboratory Control Spike	SWAMP	Surface Water Ambient Monitoring Program
LCSD	Laboratory Control Spike Duplicate	TAC	Test Acceptability Criteria
LDPE	Low Density Polyethylene	TOC	Total Organic Carbon
LOED	Lowest Observed Effects Dose	TRPH	Total Recoverable Hydrocarbons
LPC	Limiting Permissible Concentration	TRV	Toxicity Reference Value
LSD	Least Significant Difference	TSS	Total Suspended Solids
MDL	Method Detection Limit	UCL	Upper Control Limit
MET	Modified Elutriate Extract	UCL	Upper Confidence Limit
MLLW	Mean Lower Low Water	USACE	U.S. Army Corps of Engineers
MS	Matrix Spike	USCG	U.S. Coast Guard
MSD	Matrix Spike Duplicate	USCS	Unified Soil Classification System
NAD	North American Datum	USEPA	U.S. Environmental Protection Agency
NA	Not Applicable	USFWS	U.S. Fish and Wildlife Service
ND	Not Detected	QA	Quality Assurance
NOAA	National Oceanic and Atmospheric Administration	QC	Quality Control

SAMPLING AND ANALYSIS PLAN REPORT

Long Beach Cruise Terminal Dredging Geotechnical and Environmental Investigation Project

February 2019

1.0 INTRODUCTION

Carnival Corporation & PLC (Carnival) proposed this project to conduct improvements to the Cruise Terminal at Wharf H in the Port of Long Beach (POLB), Long Beach, CA. Sediments to be dredged require an environmental and physical evaluation of sediment quality in order to support planning and permitting for dredging and off-shore placement.

This Sampling and Analysis Plan Report (SAPR) has been prepared on behalf of the Atkins North America and Carnival Corporation to detail procedures and results, including quality assurance/quality control (QA/QC) results, from the sampling and testing of sediments from the Long Beach Cruise Terminal identified for placement at the LA-2 Ocean Dredge Material Disposal Site (ODMDS). This work is being performed under Contract No. 5816.

1.1 Project Summary

The purpose of this project was to sample and test sediments from the Long Beach Cruise Terminal proposed for dredging to provide sediment quality data for evaluation of dredging and open water placement. Figures 1 and 2 show the general location of the project site within POLB. This SAPR is to fulfill requirements of the Ocean Testing Manual (OTM) (USACE and USEPA, 1991), Inland Testing Manual (ITM) (USACE and USEPA, 1998), the Clean Water Act (CWA), and Southern California Dredge Material Management Team (SC-DMMT) draft guidelines. Sampling and testing of this project was conducted according to the project Sampling and Analysis Plan (SAP) (Atkins, 2018) finalized on September 12, 2018.

The proposed project involves deepening the berth from the current design depth of -30 feet Mean Lower Low Water (MLLW) plus two feet of overdepth to a new design depth of -36 feet MLLW plus one foot of overdepth. The project aims to deepen and widen the current berth to accommodate the arrival of a larger cruise ship. Figure 3 shows the conceptual plan of the proposed project. The green line delineates the new berth perimeter template. The blue line indicates the portion of the existing berth footprint where the new template deviates from the existing template creating an extension of the current berth area.

Figure 4 presents the bathymetry at the site based on a recent hydrographic survey (GBA, 2017). The water depth ranges from approximately -28 ft to -47 feet MLLW within the berth perimeter. The proposed project calls for a new design depth of -36 feet MLLW plus one foot of paid overdepth and an additional one foot of tolerance to account for any inaccuracies inherent in the dredging process, for a total characterization depth of -38 feet MLLW. The areas enclosed by the bold contours (-37 ft MLLW) and the berth perimeter will need to be dredged to achieve the new depth as shown in Figure 4. The estimated available volume to be dredged to -37 feet is approximately 35,400 cubic yards (cy). The total volume consists of the following:

- Total dredging volume to -37 ft MLLW within Existing Berth: 29,000 cy
- Total dredging volume to -37 ft MLLW within proposed Berth Extension area: 6,400 cy

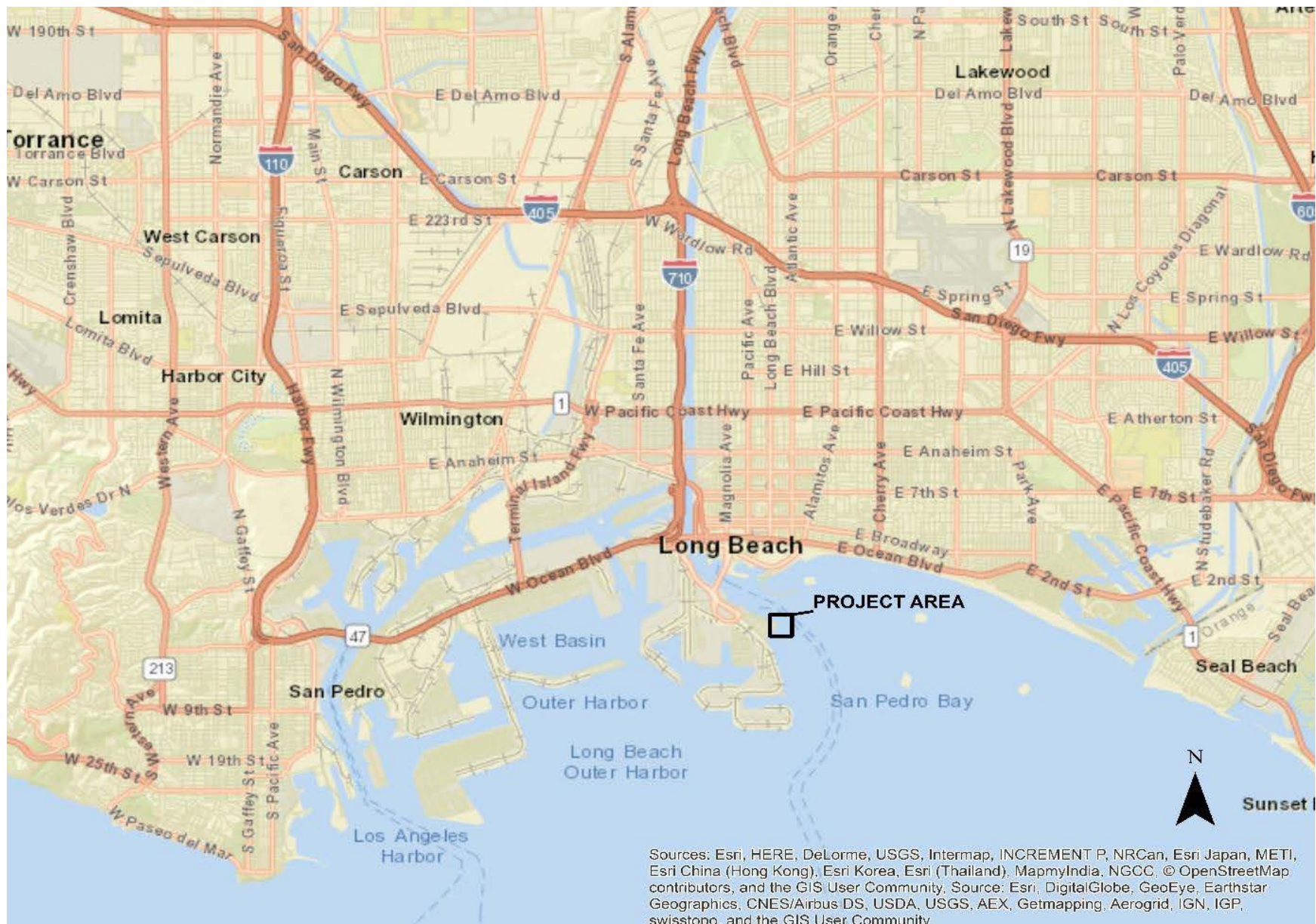


Figure 1. Location of Project Area within the Long Beach Harbor.



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community, Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community

Figure 2. Specific Location of Long Beach Cruise Terminal in Long Beach Harbor.

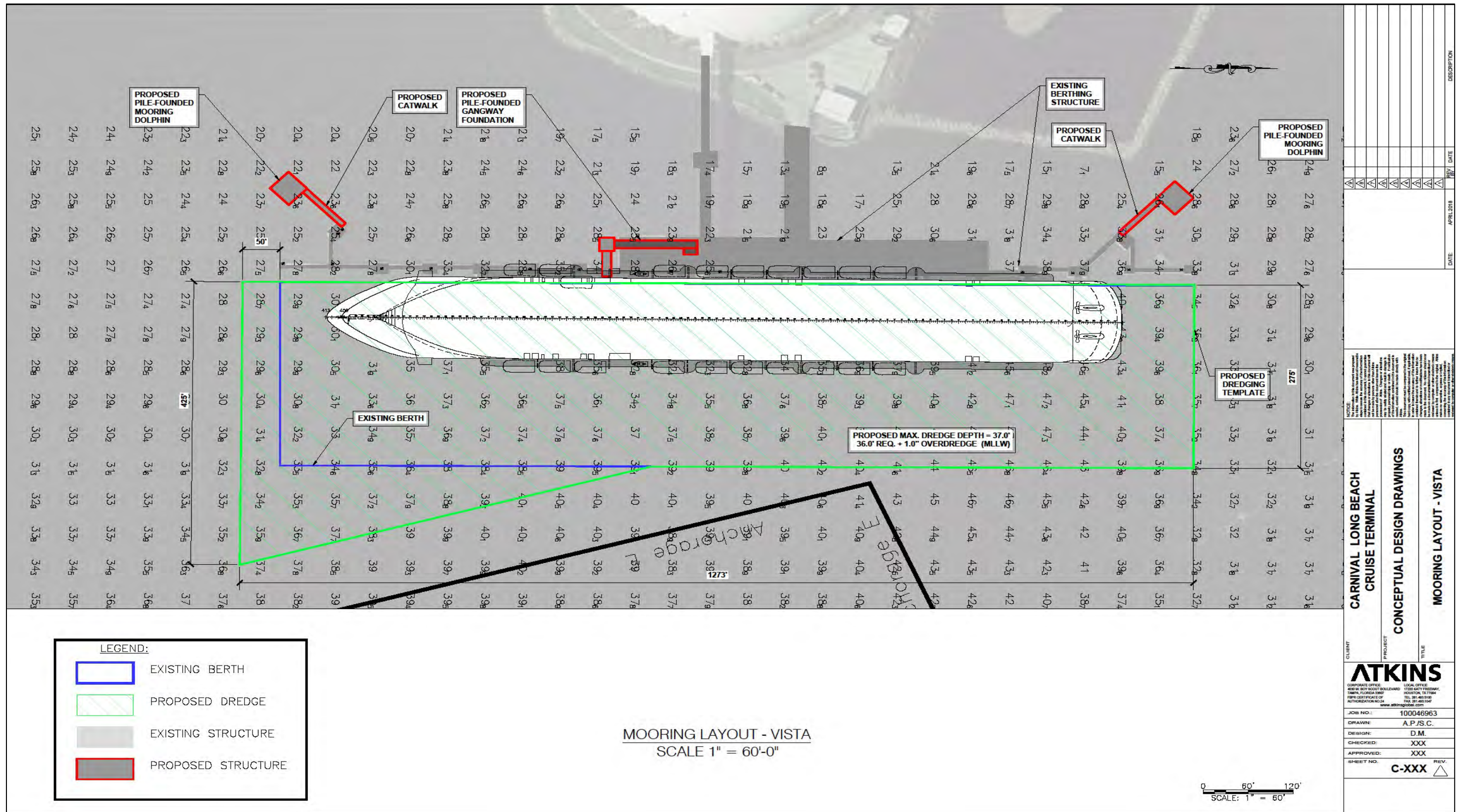


Figure 3. Conceptual Plan of the Proposed Long Beach Cruise Terminal Expansion Project.

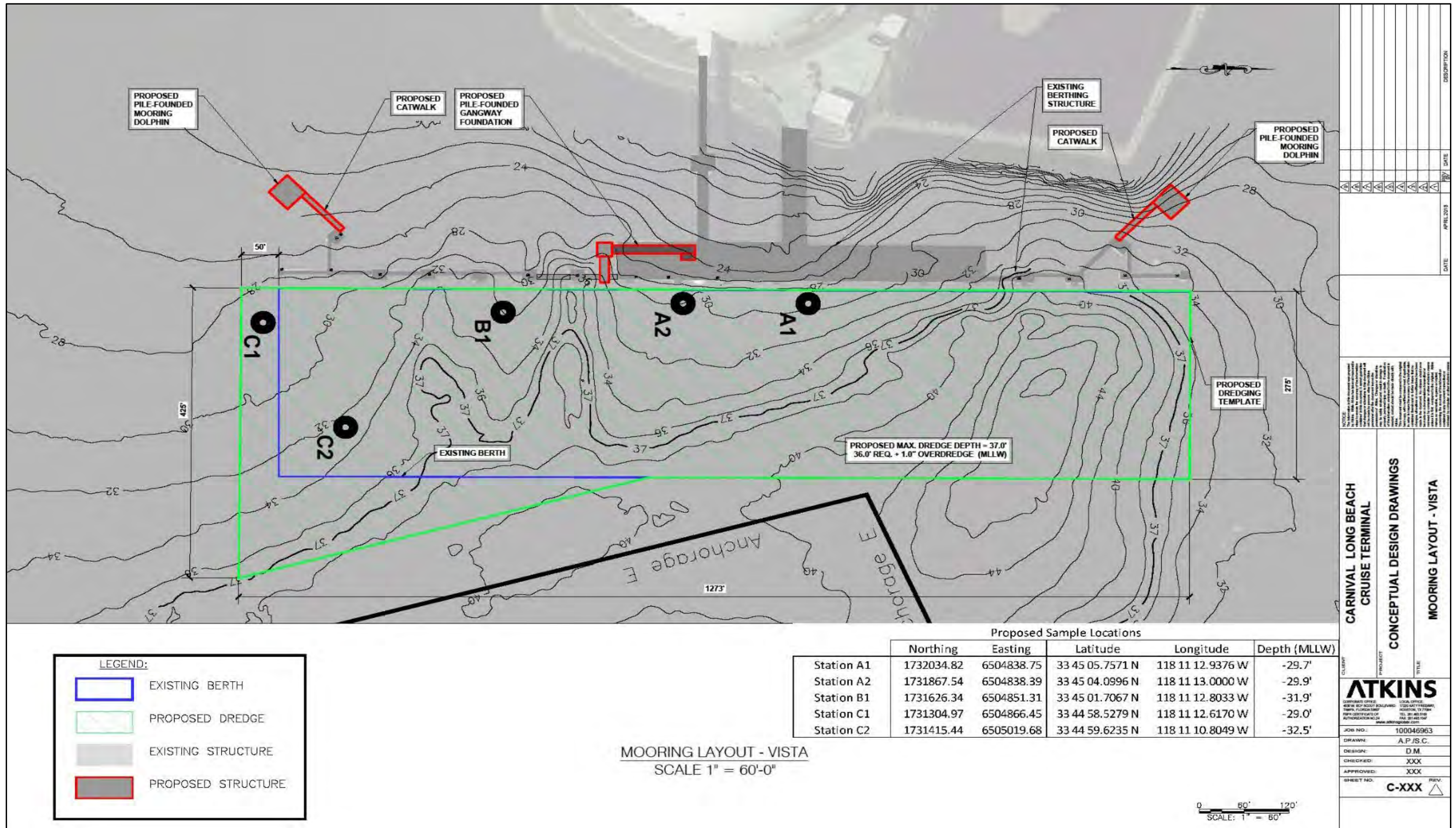


Figure 4. Close-up of the Long Beach Cruise Terminal Showing Bathymetric Data and Actual Sampling Locations.

1.2 Site Location

The Long Beach Cruise Terminal is located in Long Beach Harbor, California (Figure 1). Geographic coordinates (NAD 83) for the area of this project are approximately 33.7516° N and 118.1868° W.

1.3 Roles and Responsibilities

Project responsibilities and key contacts for this sediment characterization program are listed in Tables 1 and 2. Kinnetic Laboratories Inc. has provided the sampling and reporting services for this project. Analytical chemical testing of sediments for this project was primarily carried out by Eurofins Calscience (Cal-ELAP No. 2944). Tier III biological testing was carried out by Pacific EcoRisk (NELAP No. 04225CA).

Coordination of field operations, security requirements, and berthing options were made with the following contacts:

U.S. Coast Guard
 Notice to Mariners
D11LNM@uscg.mil.

Wilkin Mes
 Director, Long Beach Cruise Terminal at Carnival Cruise Lines
WMes@carnival.com

Port of Long Beach
 Harbor Patrol
 (562) 283-7820

Table 1. Project Team and Responsibilities

Responsibility	Name	Affiliation
Project Planning and Coordination	Mark Stroik	Atkins
	Brian Leslie	GHD
	Ken Kronschnabl	Kinnetic Laboratories
Sampling and Analysis Plan (SAP) Preparation	Mark Stroik	Atkins
	Minden Chan	Dewberry
Field Sample Collection and Transport	Charlie Davidson	Kinnetic Laboratories
	Dale Parent	Kinnetic Laboratories
Health and Safety Officer and Site Safety Plan	Greg Cotten	Kinnetic Laboratories
Laboratory Chemical Analyses	Kathy Burney	Eurofins
	Danielle Gonsman	Kinnetic Laboratories
Biological Testing	Mark McElroy	Pacific EcoRisk
QA/QC Management Analytical Laboratory QA/QC	Danielle Gonsman	Kinnetic Laboratories
	Amy Howk	Kinnetic Laboratories
	Kathy Burney	Eurofins
Technical Review	Ken Kronschnabl	Kinnetic Laboratories
	Mark Stroik	Atkins
	Brian Leslie	GHD
Final Report	Ken Kronschnabl	Kinnetic Laboratories
	Charlie Davidson	Kinnetic Laboratories
	Amy Howk	Kinnetic Laboratories

Table 2. Key Project Contacts

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2.0 SITE HISTORY AND HISTORICAL DATA REVIEW

This section provides a brief history of dredging activities at the Long Beach Cruise Terminal site.

2.1 January 2009 (Weston, 2009)

Sediments from the Long Beach Cruise Terminal berth area were collected and tested in 2009 by Weston for CH2MHill and Carnival Corporation. This project was associated with the maintenance dredging of the berth to its design depth of -30 ft MLLW, with a total dredging volume of approximately 2,000 cy. Cores were collected from three (3) stations and tested for physical and chemical characteristics. The test results were reported by Weston (2009) and summary results are provided in Appendix A.

The material was found to be predominantly fine-grained sediments consisting of 77-95% silt and clay across the sampling area. Moderate contaminant levels were present in the samples. Four metals (arsenic, copper, lead, and nickel) were found to exceed the NOAA Effects Range Low (ERL) benchmark value for marine sediment but did not exceed the Effects Range Median (ERM) for marine sediment (Long et al., 1995). Total DDTs exceeded the ERM threshold in the site-wide composite sample.

Additional tests of individual cores from the berth proper showed elevated PCBs and chlordane compared with the site-wide composite sample. PCBs and chlordane were found to exceed ERL and ERM values, respectively.

The elevated sediment levels of certain constituents were determined to be significant enough to preclude open-water disposal at the offshore ocean disposal site LA-2. As a result, biological testing was not conducted. Based on available information, the dredged material was temporarily stockpiled at Pier S in POLB (Manson, person. comm.) before being transported to a thermal treatment recycling Class II landfill facility operated by TPST Soil Recyclers of California in Adelanto, CA, for disposal as non-hazardous petroleum contaminated soil (BESI, 2009).

2.2 June 2000 (MEC, 2000)

Sediments from the Long Beach Cruise Terminal berth area were collected and tested in 2000 by MEC for Carnival Corporation (MEC, 2000) as part of a dredging project involving approximately 15,000 cy of material from the berth area. Cores were collected from four (4) stations and tested for physical and chemical characteristics. The test results are attached in Appendix B.

The material was found to be primarily silt (66-76%) and clay (12-21%). Sediment contamination levels were compared with the ERL and ERM levels. Metals and PAHs were found to be comparable or below the ERL levels. The only constituent that exceeded an ERM value was 4,4'-DDT at certain locations. PCBs and phenols were below reporting limits.

3.0 METHODS

This section describes the dredging design, study design and field and analytical methods for this testing program.

3.1 Sampling and Testing Design

The sampling and testing design in the project SAP and reiterated below covered data collection tasks for the Long Beach Cruise Terminal dredging, water elutriate sampling and testing, and the LA-2 reference area sampling and testing. Evaluation guidelines discussed in the SAP are also discussed below. The SAP originally had plans for testing for port fill requirements; however, this has been dropped from the program and only ocean disposal at the LA-2 ODMDS site is discussed in this report.

3.1.1 Sampling and Testing Approach

Sediment sampling was conducted at five (5) locations within the proposed Carnival Cruise Terminal dredge footprint as shown on Figure 4. The main approach was to sample sediments down to the new design depth plus allowable overdepth, composite individual samples together to form two composite samples, and subject the composite samples to chemical and biological testing to determine if the Long Beach Cruise Terminal dredge sediments are suitable for placement at the LA-2 ODMDS. The testing approach also included determining the physical properties of the sediments at each location and at different depths. Testing conducted followed the requirements and procedures detailed in the OTM (USACE/USEPA, 1991) with further guidance from Los Angeles District USACE guidelines (CESPL, undated) and from SC-DMMT draft guidelines. Acceptability guidelines published in these documents were used to evaluate suitability for the LA-2 ODMDS placement option.

3.2 Sample Identification, Composite Areas, Sediment Collection and Testing

Vibracore sampling, as described in Section 3.3.2 (Vibracore Sampling Methods), was carried out to collect subsurface sediment data from five locations at the Long Beach Cruise Terminal. The prefix for all vibracore locations used was “CCT-18-##-###” denoting the composite location and sample number in the ID. Sampling locations for each composite area sampled are shown on Figure 4. Geographic coordinates, approximate seafloor elevations, and elevations for the sample locations are listed in Table 3.

Table 3. Actual Sampling Location Coordinates, Date and Time of Sampling, Core Depths, Mudline Elevations, and Sampling Elevations for the Long Beach Cruise Terminal Dredging.

Comp. ID	Sample ID	Date Sampled	Time Sampled	Geographic Coordinates (NAD 83)		Mudline Elevation (ft MLLW)	Design Depth + Overdepth (ft MLLW) ¹	Core Recovery (ft)	Core Interval Sampled (ft., MLLW)	No. of Cores Collected
Composite- <i>a</i>	CCT-18-A1-a	10/30/2018	08:25	33° 45.095'	118° 11.215'	-30.0	-32.0	2.0	-30 to -32	10
	CCT-18-A2-a	10/30/2018	13:25	33° 45.068'	118° 11.217'	-30.5	-32.0	1.5	-30.5 to -32	6
Composite- <i>b</i>	CCT-18-A1-b	10/30/2018	08:25	33° 45.095'	118° 11.215'	-30.0	-38.5	11.0	-32 to -38.5 ²	1
	CCT-18-A2-b	10/30/2018	13:25	33° 45.068'	118° 11.217'	-30.5	-38.5	8.0	-32 to -38.5 ²	1
	CCT-18-B1-b	10/30/2018	17:00	33° 45.028'	118° 11.213'	-32.0	-38.5	10.8	-32 to -38.5 ²	1
	CCT-18-C1-b	10/31/2018	08:00	33° 44.975'	118° 11.210'	-29.5	-38.5	12.0	-29.5 to -38.5 ²	1
	CCT-18-C2-b	10/31/2018	08:40	33° 44.975'	118° 11.210'	-33.0	-38.5	8.5	-33 to -38.5 ²	1

¹ Design depth plus overdepth is the environmental sampling depth. Overdepth is two feet for all sample locations.

² This depth includes 0.5 feet of additional core for a Z-layer archive sample. The Z-layer archive was not included in the composite samples.

Stations A1 and A2 were located on the main shoal within the existing berth area. Station B1 was located toward the bow area of the existing berth on a shoal feature that historically occurred south of the main shoal. Since the depth at B1 is approximately at the historical maintenance depth of -32 ft MLLW, the cores from B1 consisted of new-work material only. Stations C1 and C2 were located around the south end of the existing berth on a prominent shoal that is historically present in the general area. Station C1 was located within the proposed extension area toward the south to characterize the material in the area that has never been dredged before. Sediments from C1 therefore consisted of new-work material only. Since the location of C2 was deeper than the historical maintenance depth of -32 ft MLLW, the cores from C2 also consisted of new-work material only.

Multiple cores were collected at each station. The total numbers of cores collected at individual stations was determined based on the sediment volume requirements of the physical, chemical, and biological test program. The number of cores collected are indicated in Table 3.

Vibracore borings were advanced to -38 feet MLLW plus an additional 0.5 feet to obtain a sample of material to be left in place after dredging (Z-layer). To account for potential dredging inaccuracies, the main core depth of -38 feet MLLW includes one foot of paid overdepth plus an additional foot of tolerance added to the proposed dredging design depth of -36 feet MLLW.

Cores collected from Stations A1 and A2 were stratified into three (3) discrete intervals as follows:

- Interval *a*: mudline to historical maintenance depth of -32 feet MLLW (maintenance material)
- Interval *b*: -32 to -38 feet MLLW (new-work material)
- Interval *z*: -38 to -38.5 feet MLLW (Z-layer)

Cores from Station C1, where no dredging has been conducted before, and Stations B1 and C2, where the existing depths are either at or greater than the historical maintenance depth of -32 feet MLLW, were stratified into two (2) discrete intervals only as follows:

- Interval *b*: mudline to -38 feet MLLW (new-work material)
- Interval *z*: -38 to -38.5 feet MLLW (Z-layer)

The individual segregated core sections at each station were then combined by interval into combined samples representing the corresponding intervals at the station, portions of which were then composited into areal composite samples for intervals *a* and *b* as follows:

- Composite-*a*: composite of Interval *a* from Stations A1 and A2 (maintenance material composite)
- Composite-*b*: composite of Interval *b* from all stations (new-work material composite)

Sediments below overdepth (sampling) elevations were not included in the sediment composite sample. The balance of the cores, together with all Z-layer samples, were archived for potential additional analyses as needed based on the findings of the tests. Archives samples included both the composite-*a* core interval (mudline to -32 feet, MLLW), the Composite-*b* core interval (-32 to -38 feet, MLLW) and the entire core interval from location CCT-18-C1-b. All chemistry archive samples are being stored frozen. Any excess sediment for Tier III testing was also archived until

holding times expired.

3.2.1 Environmental Testing

Bulk sediment analyses that were performed on the two area composite samples (Composite-*a* and Composite-*b*), on individual sample (C1-*b*), and the LA-2 reference sample are as follows:

- Grain Size Distribution (ASTM D 422)
- Specific Gravity (ASTM D 854 and C 127)
- Atterberg Limits (ASTM D 4318)
- Metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Se, Ag and Zn) (EPA 6020)
- Percent Solids (SM 2540B)
- Total Ammonia (SM 4500-NH3)
- Oil and Grease (EPA 1664A HEM)
- TRPH (EPA 1664A HEM SGT)
- Total Sulfides (EPA 376.2)
- Water Soluble Sulfides (EPA 376.2)
- TOC (EPA 9060A)
- TVS (EPA 160.4)
- Butyltins (Krone, et. al)
- Chlorinated Pesticides (EPA 8270C SIM + Toxaphene)
- Pyrethroid Pesticides (EPA 8270 (M)/TQ/E1)
- PCB Congeners (EPA 8270 SIM)
- Phenols (EPA 8270 SIM)
- Phthalates (EPA 8270 SIM)
- PAHs (EPA 8270 SIM)

A standard elutriate test (SET) was also prepared for the two area composite samples, the LA2-Reference sediment sample and the C1-*b* grab sediment sample, the elutriate was analyzed for the following:

- TSS (SM 2540D)
- TDS (SM 2540C)

Tier III testing conducted on the composite samples consisted of elutriate bioassays with three water column species, benthic bioassays with two infaunal species, and evaluation of bioaccumulation potential using two sediment-dwelling organisms. Benthic bioassays and bioaccumulation assays were also conducted on a sample of LA-2 reference sediments.

Five tissue replicates for each bioaccumulation species were analyzed for the following constituents:

- Arsenic (EPA 6020)
- Copper (EPA 6020)
- Lead (EPA 6020)
- Zinc (EPA 6020)

- DDT Compounds (EPA 8270C SIM)
- PCB Congeners (EPA 8270 SIM)

3.2.2 Summary of Carnival Cruise Line Terminal Testing and Evaluation Sequence

The testing and evaluation sequence for the Long Beach Carnival Cruise Line Terminal sediments is described in detail in the next subsection and is outlined as follows:

- 1) Bulk sediment chemical analyses were conducted on the two composite samples and one individual core as mentioned above.
- 2) Analytical results were evaluated using the sediment quality guidelines consisting of Effects Range Low (ERL) and Effects Range Medium (ERM) values developed by Long, *et al.* (1995) that correlate concentrations of selected contaminants with likelihood of adverse biological effects. Please note that ERLs and ERMs have not been developed for all analytes.
- 3) Tier III testing results were evaluated to determine if the sediments exceeded OTM and USEPA Region 9 criteria for open water placement.

In summary, if the sediments contaminant levels are low, the test sediments are not toxic to benthic organism compared to the reference sediments, the limiting permissible concentration was not exceeded with the elutriate bioassays, and the bioaccumulation potential of contaminants of concern from the test sediments is low compared to bioaccumulation potential of the reference sediments and to tissue residue biological effects, then the sediments are suitable for open water placement at the LA-2 ODMDS.

3.2.3 Evaluation Guidelines

As mentioned above, to aid in the evaluation of sediment test data, chemical concentrations of contaminants found within the sediments were compared to sediment quality guidelines (Long et al., 1995) developed by NOAA. These guidelines were used to screen sediments for contaminant concentrations that might cause biological effects. For any given contaminant, ERL guidelines represent the 10th percentile concentration value in the NOAA database that might be expected to cause adverse biological effects and ERM guidelines reflect the 50th percentile value in the database. Note that ERLs and ERMs were only used as a screening tool. They were not used to determine suitability.

As an additional measure of potential toxicity, the mean ERM quotient (ERMq) for the composite samples was calculated according to Long et al. (1998a) and Hyland et al. (1999). ERMq is calculated by dividing each contaminant concentration by its respective ERM value and then summing the results and dividing through by the number of contaminants as shown in the following equation:

$$ERMQuotient = \frac{1}{24} \sum \frac{SampleConcentration}{ERM}$$

In cases where concentrations of measured contaminants were below the method detection limit (MDL), a value of ½ the MDL was used for the ERMq calculations. For a general overall indication of toxicity, a quotient less than 0.1 is indicative of a low probability (<12%) of a highly

toxic response to marine amphipods (Long and MacDonald, 1998b). If there are no ERL exceedances in a sample, there is less than a 10% probability of a highly toxic response to marine amphipods. The probability of a highly toxic response increases to 71% for quotients greater than 1.0.

SPP bioassays using mysids, fish and the larvae of mussels were conducted on the sediment composite samples in order to evaluate water quality effects due to dumping of the sediments through the water column at the LA-2 ODMDS. Standard elutriates were prepared with site water from the harbor coring site locations, and water used to make the dilutions was from a clean open-coast source. Concurrent bioassays were performed on 100%, 50%, 10% and 1% elutriate concentrations and laboratory control water. Results of elutriate bioassays were statistically compared with control water bioassays. Elutriate extracts that produced significantly greater toxicity than control water, if any, were identified. OTM guidelines for interpretation of suspended particulate-phase bioassays require that initial mixing calculations be performed to determine the concentration of liquid and suspended particulate material at the edge of the mixing zone after dumping and within the mixing zone four hours after dumping for any sample producing toxicity sufficient to generate an LC₅₀ or EC₅₀. The statistical calculations to determine LC₅₀s and EC₅₀s are through interpolations. If the concentration at the edge of the mixing zone or within the mixing zone four hours after dumping does not exceed 1% of the LC₅₀ or EC₅₀, the sediment is judged to comply with water column toxicity criteria.

Solid phase (SP or benthic) bioassays were also conducted for ocean placement using polychaete worms and amphipods. Benthic bioassay results were statistically compared with bioassay results from reference sediments collected in the vicinity of LA-2 ODMDS and with control sediments collected from the organisms' home environment. Guidelines for interpretation of benthic bioassay results are published in the OTM. If survival responses in test sediment are statistically lower than those in reference sediment, and if the difference in mean survival between groups is greater than 10% (20% for amphipods), then the test sediment is considered to have the potential to significantly degrade the marine environment.

Twenty-eight-day bioaccumulation exposures were performed on the composite samples. Composite sediment exposures were run concurrently with exposures to LA-2 reference and control sediments.

The final phase of testing for open water placement was accomplished by analyzing the tissues of organisms that have completed 28-day exposure to test sediments along with baseline, control and reference sediments. A memorandum summarizing the sediment chemistry and bioassay results was submitted to the USEPA in late November 2018 (GHD, 2018). This memorandum recommended that the tissues derived from the bioaccumulation exposures be analyzed for arsenic, copper, lead, zinc, DDT compounds and PCB congeners. During a November 29, 2018 teleconference, USEPA concurred with the tissue analysis recommendations. After the tissue analyses were complete, concentrations of tissue residues from organisms exposed to reference sediments were compared with concentrations in organisms exposed to test sediments. Statistically elevated concentrations in the test tissues are considered to be potentially bioaccumulative. If this was the case for any given contaminant, then tissue residue data were evaluated to determine if these levels are important in terms of biological effects. These included

comparisons to FDA Action Levels and relevant (lowest or no observable effects concentrations for whole body effects) Toxicity Reference Values (TRVs) from USACE's Environmental Residue-Effects Database (ERED) (<https://ered.el.erdc.dren.mil/>).

3.3 Field Sampling Protocols

The field effort for this project took place from October 30 and 31, 2018. Vibracore sampling, reference site sampling, decontamination, sample processing and documentation procedures are discussed in this section.

3.3.1 Positioning and Depth Measurements

Positioning at sampling locations was accomplished using a differential GPS (DGPS) navigation system referenced to a local geodetic benchmark with positioning accuracies of 3 to 10 feet. The locations were recorded in both Geographic Coordinates (NAD 83) and State Plane Coordinates (CA Zone VI, NAD 83). Water depths were measured with a graduated lead line and corrected to mean lower low water (MLLW). Tidal stage was determined using NOAA real-time tidal stage data. These tide data were used to calculate the seafloor elevation/mudline for each site.

All sampling locations were located within 10 feet of project SAP target coordinates.

3.3.2 Vibracore Sampling Methods

All sediment samples were collected on October 30 and 31, 2018, using an electric vibracore that penetrated and obtained samples below the project sample elevations. The cores were taken to the target sampling elevations (project design elevations plus two feet for overdepth allowance). Refusal above the overdepth location was not encountered at any sampling location. At the conclusion of a successful vibracore, the core liner was removed and split open for inspection and sampling. Extrusion of the core was not allowed. Processing took place onboard the sampling vessel.

Vibracore sampling was conducted from the 35-foot Research Vessel *DW Hood*. This vessel, with a Uniflite hull, is outfitted with a 14-foot tall A-frame and 4-ton winch, suitable for handling the coring equipment. This vessel is fully equipped with all the necessary navigation, safety, and lifesaving devices per Coast Guard requirements. Three-point anchoring was conducted at each location with the assistance of a 17-foot Boston Whaler.

Kinnetic Laboratories' vibracore consists of a 4-inch diameter aluminum coring tube, a stainless steel cutting tip, and a stainless-steel core catcher. Inserted into the core tubes was food-grade clean polyethylene liners. The vibrating unit contains two counter-rotating motors encased in a waterproof aluminum housing. The motors are powered by a three-phase, 240-volt generator. The vibracore head and tube were lowered overboard with the A-frame and winch and then lowered to the mudline. The unit was then vibrated until it reached the target sampling elevation.

When penetration of the vibracore was complete, power was shut off to the vibra-head and the vibracore was brought aboard the *DW Hood*. A check valve, located on top of the core tube,

reduced or prevented sediment loss during pull-out. The length of sediment recovered was noted by measuring down the interior of the core tube to the top of the sediment. The core tube was then detached from the vibra-head, and the core cutting tip and catcher were removed. Afterwards, the core liners were removed and sealed on both ends and kept sealed until processed, which occurred shortly after collection.

3.3.3 Vibracore Decontamination

All sample contact surfaces were stainless-steel or food-grade clean polyethylene. Compositing tools were stainless steel. Except for the core liners, all contact surfaces of the sampling devices and the coring tubes were cleaned for each sampling area. The cleaning protocol consisted of a site water rinse, a Micro-90[®] soap wash, and then finished with deionized water rinses. The polyethylene core liners were new for each core. All rinsate was collected in containers and disposed of properly.

3.3.4 Core Processing

Whole cores were processed on deck. Cores were placed in a PVC core rack that was cleaned between cores. After placement in the core rack, core liners were split lengthwise to expose the recovered sediment. Once exposed, sediment that came in contact with the core liner was removed by scraping with a pre-cleaned stainless steel spoon. Each core was then photographed, measured, and logged according procedures at Kinnetic Laboratories.

Photographs were taken of each core (each photograph covered a maximum two-foot interval), and of sampling equipment and procedures. These pictures are provided in Appendix C along with the field logs.

Following logging, vertical composite subsamples for archiving and horizontal composite formation along with samples for grain size analyses were then formed by combining and homogenizing a representative sample from the mudline to the sampling depth for the specific composite sample, as described in Section 3.2.2, in a pre-cleaned stainless steel or Teflon[®]-coated tray. A 0.5-liter portion of each vertical composite subsample was placed in a pre-cleaned and certified glass jar with a Teflon[®]-lined lid for archived material. An additional representative portion of each vertical composite subsample was placed in a large pre-cleaned mixing bowl for area compositing. These composited sediments were placed in two 1-liter pre-cleaned and certified glass jars with a Teflon[®]-lined lids. All remaining material from each core after subsample formation and composite chemistry sample formation was placed in food-grade clean, 5-gallon LPDE bucket liners for the Tier III biological analyses. This material was later composited at Kinnetic Laboratories' facility in Santa Cruz on November 5, 2018 using a large commercial bread mixer and stainless-steel bowl. The composited sediment was delivered to Pacific EcoRisk on November 6, 2018.

Except for chemistry archival material, containers were completely filled to minimize air bubbles being trapped in the sample container. A small amount of headspace was allowed for archived chemistry samples to prevent container breakage during freezing. For the preservation of all sediment composite chemistry samples, filled containers were placed on ice immediately

following sampling and maintained at 2 to 4°C until analyzed. Archived samples for chemistry were placed on ice initially and then frozen as soon as possible. The sample containers, both jars and bags, were sealed to prevent any moisture loss and possible contamination.

3.3.5 LA-2 Reference and Control Sediments

The LA-2 reference site sample for Tier II and Tier III testing was obtained on October 31, 2018, using a chain-rigged, pipe dredge deployed from the *DW Hood*. Sampling took place in the vicinity of 33° 33' 1.2" N and 118° 10' 4.8" W in 598 feet of water (Figure 5). Navigation, sample compositing, recording, and preservation procedures followed those described for vibracore sampling.

Samples of control sediment were collected for biological testing by the laboratory. Control sediment for the solid phase bioassays and bioaccumulation exposures were the “home sediment” from the areas where the animals were collected.

3.3.6 Water Collection

Water was collected from in front of the Long Beach Cruise Terminal on October 30, 2018, for use in preparing elutriates for the SPP bioassays. Water was pumped using protocol cleaned hose and placed into QC grade cubitainers. Water samples were iced and delivered to the bioassay laboratory with the sediment samples, where they were held at 4°C until used.

3.3.7 Documentation and Sample Custody

All samples had their containers physically marked as to sample location, date, time and analyses. All samples were handled under Chain of Custody (COC) protocols beginning at the time of collection. Redundant sampling data was also recorded on field data log sheets. Copies of the field data logs are included in Appendix C.

Samples were considered to be “in custody” if they were (1) in the custodian’s possession or view, (2) in a secured place (locked) with restricted access, or (3) in a secure container. Standard COC procedures were used for all samples collected, transferred, and analyzed as part of this project. COC forms were used to identify the samples, custodians, and dates of transfer. Except for the shipping company, each person who had custody of the samples signed the COC form and ensured samples were stored properly and not left unattended unless properly secured.

Standard information on Chain of Custody forms included:

- Sample Identification
- Sample Collection Date and Time
- Sample Matrices (e.g., marine sediment)
- Analyses to be Performed
- Container Types
- Preservation Method
- Sampler Identification
- Dates of Transfer

- Names of Persons with Custody



Figure 5. Location of LA-2 Reference Site.

The completed COC forms were placed in a sealable plastic bag and taped to the inside of one or more coolers. COC records are included with the laboratory reports in Appendix D for the chemistry samples and Appendix E for the biological samples.

3.4 Laboratory Testing Methods

Physical and analytical chemical testing of sediments for this project used USEPA and USACE approved methodologies.

3.4.1 Bulk Sediment Chemical Analyses

The composite samples collected from the Long Beach Cruise Terminal and the LA-2 reference sample were analyzed for the parameters and quantification limits summarized in Table 4. Similar parameters and quantification limits were used for the individual core sample. All results are reported in dry weight unless noted otherwise. All analyses were conducted in a manner consistent with guidelines for dredge material testing methods in the USEPA/USACE ITM and OTM. Samples were extracted and analyzed within specified USEPA holding times, and all analyses were accomplished with appropriate quality control measures.

Discrete chemistry samples from each location not already analyzed are still being archived frozen. If required, additional direction will be provided for analysis of these archives.

3.4.2 Elutriate Preparation Methods and Chemical Analysis

Standard elutriate test (SET) samples were prepared according to OTM methods by Pacific EcoRisk (PER). Sediment were mixed with dredge site water in a 4:1 volumetric ratio. Vigorous mixing proceeded for 30 minutes, and the mixture was allowed to settle undisturbed for one hour. The supernatant (100% elutriate) was then siphoned off for bioassay testing without disturbing the settled material. TSS and TDS samples were also taken and analyzed from the prepared elutriates by Pacific EcoRisk. Additional sediment was collected from Paradise Cove (located in Central San Francisco Bay) on September 25, 2018 for use as the negative Control sediment (termed “Lab Control”) for the *A. abdita*, *N. arenaceodentata*, *M. nasuta*, and *N. virens* tests.

Modified elutriate test (MET) samples were also prepared and run by Eurofins Calscience. However, these results are not included in this report.

3.4.3 Tier III Biological Testing

The composite samples and the individual core sample along with LA-2 reference and control sediments (as mentioned above) were tested for toxicity and used for bioaccumulation exposures. Bioassay testing protocols followed the OTM for both SPP and SP bioassays and for the bioaccumulation exposures. Species, methods and endpoints used for the bioassays and bioaccumulation exposures are listed in Table 5. All bioassay species used in this testing program complied with OTM and ITM recommendations and guidelines for bioassay tests.

Table 4. Sediment Analytical Methods and Target Quantitation Limits Achieved.

Analyte	Method	Method Detection Limits (Dry Weight)	Laboratory Reporting Limits (Dry Weight)	USACE Target Detection Limits
CONVENTIONALS (mg/kg dry except where noted)				
Total Solids	SM 2540	0.1	0.1	0.1
Ammonia	SM 4500-NH3 B/C (M)	0.19 – 0.22	0.34 – 0.39	0.5
Oil & Grease	EPA 1664A (M) HEM	14 – 15	17 – 20	25
TRPH	EPA 1664A (M) HEM-SGT	14 – 16	17 – 20	25
Sulfides, Dissolved	Plumb (1981)	0.017	0.1	0.1
Sulfides, Total	Plumb (1981)	0.15 – 8.2 ¹	0.18 – 9.8 ¹	0.1
TOC (%)	EPA 9060A	0.03 – 0.034	0.086 – 0.098	0.1
TDS	SM 2540	0.87	100 ¹	2.5
TSS	SM 2540	0.829 – 0.83	1	5
TVS	SM 2540	0.18 – 0.19	0.18 – 0.19	0.1
METALS (mg/kg dry)				
Arsenic	EPA 6020	0.151 – 0.171	0.172 – 0.196	0.2
Cadmium	EPA 6020	0.0987 – 0.112	0.172 – 0.196	0.2
Chromium	EPA 6020	0.107 – 0.121	0.172 – 0.196	0.2
Copper	EPA 6020	0.0723 – 0.082	0.172 – 0.196	0.2
Lead	EPA 6020	0.114 – 0.129	0.172 – 0.196	0.2
Mercury	EPA 7471A	0.0111 – 0.0102	0.0379 – 0.0348	0.04
Nickel	EPA 6020	0.0873 – 0.0991	0.172 – 0.196	0.2
Selenium	EPA 6020	0.126 – 0.143	0.172 – 0.196	0.2
Silver	EPA 6020	0.054 – 0.0613	0.172 – 0.196	0.2
Zinc	EPA 6020	1.37 – 1.56	1.72 – 1.96	0.2
ORGANICS-CHLORINATED PESTICIDES (µg/kg dry)				
2,4' DDD	EPA 8270C PEST-SIM	0.13 – 0.15	0.34 – 0.39	2
2,4' DDE	EPA 8270C PEST-SIM	0.061 – 0.068	0.34 – 0.39	2
2,4' DDT	EPA 8270C PEST-SIM	0.11 – 0.12	0.34 – 0.39	2
4,4' DDD	EPA 8270C PEST-SIM	0.07 – 0.71	0.34 – 0.39	2
4,4' DDE	EPA 8270C PEST-SIM	0.071 – 0.79	0.34 – 0.39	2
4,4' DDT	EPA 8270C PEST-SIM	0.091 – 0.1	0.34 – 0.39	2
Total DDT	EPA 8270C PEST-SIM	--	0.34 – 0.39	2
Aldrin	EPA 8270C PEST-SIM	0.065 – 0.074	0.34 – 0.39	2
BHC-alpha	EPA 8270C PEST-SIM	0.099 – 0.11	0.34 – 0.39	2
BHC-beta	EPA 8270C PEST-SIM	0.12 – 0.13	0.34 – 0.39	2
BHC-delta	EPA 8270C PEST-SIM	0.16 – 0.18	0.34 – 0.39	2
BHC-gamma (Lindane)	EPA 8270C PEST-SIM	0.059 – 0.067	0.34 – 0.39	2
Chlordane (Technical)	EPA 8081A	9 – 10	17 – 19 ¹	10
Dieldrin	EPA 8270C PEST-SIM	0.18 – 0.21	0.34 – 0.39	2
Endosulfan sulfate	EPA 8270C PEST-SIM	0.18 – 0.2	0.34 – 0.39	2
Endosulfan I	EPA 8270C PEST-SIM	0.1 – 0.11	0.34 – 0.39	2
Endosulfan II	EPA 8270C PEST-SIM	0.16 – 0.18	0.34 – 0.39	2
Endrin	EPA 8270C PEST-SIM	0.098 – 0.11	0.34 – 0.39	2
Endrin aldehyde	EPA 8270C PEST-SIM	0.17 – 0.19	0.34 – 0.39	2
Endrin ketone	EPA 8270C PEST-SIM	0.096 – 0.11	0.34 – 0.39	2
Heptachlor	EPA 8270C PEST-SIM	0.089 – 0.1	0.34 – 0.39	2
Heptachlor epoxide	EPA 8270C PEST-SIM	0.077 – 0.086	0.34 – 0.39	2
Methoxychlor	EPA 8270C PEST-SIM	0.12 – 0.13	0.34 – 0.39	2
Toxaphene	EPA 8081A	15 – 17	34 – 39	40

Table 4 (Continued). Sediment Analytical Methods and Target Quantitation Limits Achieved.

Analyte	Method	Method Detection Limits (Dry Weight)	Laboratory Reporting Limits (Dry Weight)	USACE Target Detection Limits
ORGANICS-Pyrethroid Pesticides (µg/kg dry)				
Allethrin (Bioallethrin)	EPA 8270D (M)/TQ/EI	0.43 – 0.49	0.86 – 0.97	1
Bifenthrin	EPA 8270D (M)/TQ/EI	0.52 – 0.58	0.86 – 0.97	1
Cyfluthrin-beta (Baythroid)	EPA 8270D (M)/TQ/EI	0.43 – 0.49	0.86 – 0.97	1
Cyhalothrin-Lamba	EPA 8270D (M)/TQ/EI	0.43 – 0.49	0.86 – 0.97	1
Cypermethrin	EPA 8270D (M)/TQ/EI	0.43 – 0.49	0.86 – 0.97	1
Deltamethrin (Decamethrin)	EPA 8270D (M)/TQ/EI	0.43 – 0.49	0.86 – 0.97	1
Esfenvalerate	EPA 8270D (M)/TQ/EI	0.43 – 0.49	0.86 – 0.97	1
Fenpropathrin (Danitol)	EPA 8270D (M)/TQ/EI	0.43 – 0.49	0.86 – 0.97	1
Fenvalerate (sanmarton)	EPA 8270D (M)/TQ/EI	0.43 – 0.49	0.86 – 0.97	1
Fluvalinate	EPA 8270D (M)/TQ/EI	0.43 – 0.49	0.86 – 0.97	1
Permethrin (cis and trans)	EPA 8270D (M)/TQ/EI	0.86 – 0.97	1.7 – 1.9 ¹	1
Resmethrin/Bioresmethrin	EPA 8270D (M)/TQ/EI	0.73 – 0.83	0.86 – 0.97	1
Sumithrin (Phenothrin)	EPA 8270D (M)/TQ/EI	0.43 – 0.49	0.86 – 0.97	1
Tetramethrin	EPA 8270D (M)/TQ/EI	0.52 – 0.58	0.86 – 0.97	1
Tralomethrin	EPA 8270D (M)/TQ/EI	0.43 – 0.49	0.86 – 0.97	1
ORGANICS-BUTYLTINS (µg/kg dry)				
Monbutyltin	Krone et al., 1989	2.4 – 2.7	5.1 – 5.8	6
Dibutyltin	Krone et al., 1989	1.2 – 1.4	5.1 – 5.8	6
Tributyltin	Krone et al., 1989	2.5 – 2.9	5.1 – 5.8	6
Tetrabutyltin	Krone et al., 1989	1.3 – 1.4	5.1 – 5.8	6
ORGANICS-PHTHALATES (µg/kg dry)				
bis(2-ethylhexyl) phthalate	EPA 8270C (SIM)	2.6 – 3	85 – 98	50
Butyl benzyl phthalate	EPA 8270C (SIM)	3.3 – 3.9	85 – 98	50
Diethyl Phthalate	EPA 8270C (SIM)	2.7 – 3.2	85 – 98	50
Dimethyl Phthalate	EPA 8270C (SIM)	3.4 – 3.9	85 – 98 ¹	50
Di-n-butyl Phthalate	EPA 8270C (SIM)	3.2 – 3.7	85 – 98	50
Di-n-octyl Phthalate	EPA 8270C (SIM)	3.2 – 3.7	85 – 98	50
ORGANICS-PHENOLS (µg/kg dry)				
2,4,5-Trichlorophenol	EPA 8270C (SIM)	2.1 – 2.4	17 – 20	10
2,4,6-Trichlorophenol	EPA 8270C (SIM)	2.2 – 2.6	17 – 20	20
2,4-Dichlorophenol	EPA 8270C (SIM)	2.9 – 3.3	17 – 20	20
2,4-Dimethylphenol	EPA 8270C (SIM)	4.4 – 5.1	850 – 980	20
2,4-Dinitrophenol	EPA 8270C (SIM)	100 - 120	850 – 980	1000
2-Chlorophenol	EPA 8270C (SIM)	3.2 – 3.6	17 – 20	20
2-Methyl-4,6-dinitrophenol	EPA 8270C (SIM)	110 – 130	850 – 980	-- ¹
2-Methylphenol	EPA 8270C (SIM)	3.3 – 3.8	17 – 20	20
2-Nitrophenol	EPA 8270C (SIM)	2.8 – 3.3	850 – 980 ¹	20
3+4-Methylphenol	EPA 8270C (SIM)	6.2 – 7.1	17 – 20	-- ¹
4-Chloro-3-methylphenol	EPA 8270C (SIM)	3.5 - 4	17 – 20	20
Bisphenol A	EPA 8270C Bisphenol	3.6 – 4.1	17 – 20	-- ¹
Pentachlorophenol	EPA 8270C (SIM)	2.2 – 2.6	850 – 980	1000
Phenol	EPA 8270C (SIM)	3.9 – 4.5	17 – 20	30

Table 4 (Continued). Sediment Analytical Methods and Target Quantitation Limits Achieved.

Analyte	Method	Method Detection Limits (Dry Weight)	Laboratory Reporting Limits (Dry Weight)	USACE Target Detection Limits
ORGANICS-PCBs (µg/kg dry)				
PCB congeners of: 018, 028, 037, 044, 049, 052, 066, 070, 074, 077, 081, 087, 099, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138/158, 149, 151, 153, 156, 157, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, 206	EPA 8270C (SIM)	0.058 – 0.69 ¹	0.34 – 0.78	0.5
Total PCBs as sum of all individual PCB congeners	EPA 8270C (SIM)			0.5
ORGANICS-PAHs (µg/kg dry)				
1-Methylnaphthalene	EPA 8270C (SIM)	1.8 – 2.1	17 – 20	20
2-Methylnaphthalene	EPA 8270C (SIM)	2.8 – 3.2	17 – 20	20
Acenaphthene	EPA 8270C (SIM)	2.6 – 3	17 – 20	20
Acenaphthylene	EPA 8270C (SIM)	2.8 – 3.3	17 – 20	20
Anthracene	EPA 8270C (SIM)	3.3 – 3.8	17 – 20	20
Benzo[a]anthracene	EPA 8270C (SIM)	2.4 – 2.8	17 – 20	20
Benzo[a]pyrene	EPA 8270C (SIM)	2.4 – 2.7	17 – 20	20
Benzo[b]fluoranthene	EPA 8270C (SIM)	2.4 – 2.8	17 – 20	20
Benzo[g,h,i]perylene	EPA 8270C (SIM)	2.6 – 3	17 – 20	20
Benzo[k]fluoranthene	EPA 8270C (SIM)	2.5 – 2.9	17 – 20	20
Chrysene	EPA 8270C (SIM)	2.3 – 2.7	17 – 20	20
Dibenzo[a,h]anthracene	EPA 8270C (SIM)	2.5 – 2.8	17 – 20	20
Fluoranthene	EPA 8270C (SIM)	3 – 3.4	17 – 20	20
Fluorene	EPA 8270C (SIM)	2.8 – 3.2	17 – 20	20
Indeno[1,2,3-c,d]pyrene	EPA 8270C (SIM)	2.2 – 2.6	17 – 20	20
Naphthalene	EPA 8270C (SIM)	2.6 – 3	17 – 20	20
Phenanthrene	EPA 8270C (SIM)	2.9 – 3.4	17 – 20	20
Pyrene	EPA 8270C (SIM)	2.8 – 3.2	17 – 20	30

¹ Higher reporting limits due to dilution of the samples with no non-detects reported.

Table 5. Species, Methods, and End-Points for Biological Testing.

Test Type	Species	Method	End Points
SPP Bioassays:			
Bivalve Larvae	<i>Mytilus galloprovincialis</i>	EPA-600-R-95/136 (1995) ASTM E724-98 (2013a)	48 hr. survival and normal embryonic development
Mysid	<i>Americamysis bahia</i>	EPA-821-R-02-012 (2002)	96-hour survival
Teleost Fish	<i>Menidia beryllina</i>	EPA/600/R-94/025 (1991)	96-hour survival
SP Bioassays:			
Amphipod	<i>Ampelisca abdita</i>	ASTM E 1367-99 (2013b) USEPA 1994	10-day survival
Polychaete worm	<i>Neanthes arenaceodentata</i>	ASTM E 1611-00 (2013c)	10d-day survival
BIOACCUMULATION EXPOSURES:			
Clam	<i>Macoma nasuta</i>	ASTM E-1688-00a (2013d)	28-day benthic exposure
Worm	<i>Nereis virens</i>	ASTM E-1688-00a (2013d)	28-day benthic exposure

Upon arrival at Pacific EcoRisk on November 6, 2018, the temperatures of the sediments and routine water quality parameters (i.e. temperature, dissolved oxygen, salinity, and pH) of the waters were measured. Sediment porewater for total ammonia analysis was collected by centrifuging samples at 2,500g for 15 minutes; the resulting supernatant was carefully collected and analyzed for routine water quality characteristics (Table 6). All samples were stored at 4° Celsius (C) prior to use.

Table 6. Sediment Porewater Initial Water Quality Characteristics

Sample ID	pH	Salinity (ppt)	Total Ammonia (mg/L N)	Total Sulfide (mg/L)
LA2-Ref	7.66	33.9	2.12	0.022
CCT-18-Composite- <i>a</i>	7.73	33.6	9.76	0.091
CCT-18-Composite- <i>b</i>	7.75	33.1	18.8	0.026

The concentration of total ammonia in Composite-*b* sample exceeded the recommended threshold of 15 mg/L. Therefore, ammonia purging was conducted on this sample prior to SP test initiation through twice daily overlying water replacement coupled with aeration until the porewater total ammonia levels dropped below 15 mg/L.

The natural seawater used in these tests was obtained from the UC Davis Granite Canyon Marine Laboratory and is characterized as “pristine”; this water was stored at the PER laboratory in a 3000-gallon insulated HDPE tank maintained at 4°C. This seawater was 1-µm filtered and then adjusted to the desired test salinity (e.g., 28 ppt) via addition of Type 1 lab water (reverse osmosis, de-ionized water) prior to use in these tests (these diluted natural seawaters are referred to using the adjusted salinity level [e.g., ‘28 ppt seawater’]).

Bioassays

Multiple dilutions of elutriates for the SPP bioassays was prepared for testing. Testing was initiated on November 15, 2018 for *M. galloprovincialis*, *M. beryllina*, and *A. bahia*. All three species used were exposed to 100%, 50%, 10%, and 1% elutriate concentrations along with a 0% control concentration.

The SP bioassays were initiated on November 16, 2018 for *Neanthes arenaceodentata* and November 15, 2018 for *Ampelisca abdita*.

For all tests, water quality parameters (pH, temperature, salinity and dissolved oxygen) were monitored on a daily basis. Water samples from test chambers were also collected at specified intervals to monitor ammonia concentrations. For all bioassay tests, water samples for ammonia analysis were collected at test initiation and termination. All water quality monitoring data are provided in the bioassay laboratory report included as Appendix E.

Bioaccumulation Exposures

Prior to tissue analyses, the OTM and ITM requires a 28-day exposure period of two benthic species to test, reference, and control sediments following the methods listed in Table 5. Test species used, which conform to OTM and ITM recommendations, were as follows:

Nereis virens (worm) *Macoma nasuta* (clam)

These tests were initiated on November 14 and 15, 2018, respectively.

Water quality parameters (pH, temperature, salinity, dissolved oxygen, and ammonia) were monitored on overlying composite water samples each day of the 28 days of exposures. The animals were added to the test tanks and day zero began approximately 24 hours after the sediments and water were allowed to equilibrate. Water changes in the test aquaria were conducted approximately three times a week.

After 28 days of exposure, the sediment from each replicate was sieved and the surviving bivalves and polychaetes were collected and enumerated. The organisms were rinsed with clean seawater and then placed back into their original plastic tubs (now emptied of sediment and rinsed out) containing only 1 µm-filtered seawater to allow for depuration of the gastro-intestinal tracts. Approximately 24 hours later, the organisms were collected and placed inside Ziploc bags that were sealed and labeled for identification. These organisms were then frozen and stored in a sample

freezer. The frozen test organisms were subsequently shipped, on dry ice and under chain-of-custody, to Eurofins Calscience for remaining tissue processing and chemical analyses.

Tissue Chemistry

Methods and quantification limits used for the tissue analyses are provided in Table 7. The tissues were extracted and analyzed between December 28, 2018 and January 8, 2019. The results were reported in wet weight unless noted otherwise.

Table 7. Tissue Analytical Methods and Quantitation Limits Achieved.

Analyte	Method	Method Detection Limits (Dry Weight)	Laboratory Reporting Limits (Dry Weight)	SAP Reporting Limits (Wet Weight)
CONVENTIONALS (mg/kg except where noted)				
Lipids (% wet weight) ²	MeCl ₂ Extraction	0.1	0.1	0.1
ORGANICS-CHLORINATED PESTICIDES (µg/kg)				
2,4' DDD	EPA 8270C (SIM)	0.075 – 0.076	0.2	0.2
2,4' DDE	EPA 8270C (SIM)	0.034 – 0.035	0.2	0.2
2,4' DDT	EPA 8270C (SIM)	0.061 – 0.062	0.2	0.2
4,4' DDD	EPA 8270C (SIM)	0.039 – 0.04	0.197 – 0.2	0.2
4,4' DDE	EPA 8270C (SIM)	0.04 – 0.0405	0.197 – 0.2	0.2
4,4' DDT	EPA 8270C (SIM)	0.05184 – 0.053	0.197 – 0.2	0.2
Total DDT	EPA 8270C (SIM)	--	0.197 – 0.2	0.2
Arsenic	EPA 6020	0.047 – 0.04705	0.1	0.2
Cadmium	EPA 6020	0.0286 – 0.02861	0.1	0.2
Chromium	EPA 6020	0.01927 – 0.0193	0.1	0.2
Copper	EPA 6020	0.02096 – 0.0210	0.1	0.2
Lead	EPA 6020	0.03295 – 0.0330	0.1	0.2
Mercury	EPA 7471A	0.00329 – 0.005871	0.00895 – 0.01597	0.04
Nickel	EPA 6020	0.0253 – 0.02532	0.1	0.2
Selenium	EPA 6020	0.0834 – 0.08345	0.1	0.2
Silver	EPA 6020	0.0156 – 0.01565	0.1	0.2
Zinc	EPA 6020	0.397 – 0.3974	0.1	0.2
ORGANICS-PCBs (µg/kg)				
PCB congeners of: 018, 028, 037, 044, 049, 052, 066, 070, 074, 077, 081, 087, 099, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138/158, 149, 151, 153, 156, 157, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206.	EPA 8270C (SIM)	0.033 – 0.1928	0.199 – 0.4	0.5
Total PCBs as sum of all individual PCB congeners.	EPA 8270C (SIM)	--	0.199 – 0.4	0.5

Statistical Evaluations

Statistical analysis of experimental data was performed for each of the bioassay and bioaccumulation assessments. Tests of fundamental data assumptions (e.g., normality and variance homogeneity) were performed followed by the appropriate parametric or non-parametric analyses in accordance with the ITM and OTM.

Experiment-wide survival data from species bioassays were analyzed using one-way analysis of variance (ANOVA). Multiple comparison t-tests were then used to compare survival in each of the test sediments against survival in control sediment and reference sediment for normally distributed data. Wilcoxon Rank Sum Two Samples tests were run on non-normally distributed data. Prior to analyses, normality was evaluated with the Shapiro-Wilk test and homogeneity of variance was assessed with either Bartlett's Test or the F-Test. When necessary to satisfy these assumptions, proportional survival data were arcsine square-root transformed. Solid-phase statistical analyses were performed with CETIS® Version 1.9.2 statistical software.

Statistical analyses of all bioassay species and reference toxicant data were also performed using CETIS® Version 1.9.2 software. Comparisons between the dilution water and each test concentration were performed using either the equal variance two sample t-test or the Dunnett's Multiple Comparison test if data displayed homogenous variance and a normal distribution. Data with heterogeneous variance, or non-normal distributions were analyzed using Steel's Many-One Rank Sum test. Normality was evaluated with the Shapiro-Wilk test and homogeneity of variance was assessed with the Bartlett test, the F-Test or the Levene test.

Bioaccumulation assessment of tissues for two species was conducted. Arsenic, copper, lead, and zinc were detected in both species tissues and were analyzed statistically. Three of six DDT congeners and total DDT were evaluated for both *Macoma* and *Nereis* tissues. PCB congeners were not evaluated for *Macoma* due to numerous non-detected values but were analyzed for *Nereis*. The Composite-*a* and Composite-*b* samples were analyzed against the LA-2 reference sediments and control sediments when the composite means were higher than the reference means.

Analysis of the bioaccumulation from this set of tissue data generally followed the recommendations outlined in the OTM Section 13, Statistical Analysis for the 28-day dredged sediments vs. "reference" scenario. The statistical program XLSTAT (version 2019) by Addinsoft (www.xlstat.com) was used to find test site vs. reference differences. The non-parametric procedure for Two-Sample T-Tests was used on data without non-detected (ND) concentrations. The null hypothesis in this case assumes that the test sites are not significantly greater than the reference or control category, so it is a one-way probability layout ($p \leq 0.05$). In cases where non-detected data occurred in 50% or less of the samples, the Logrank test with equal weighing can be used. Where more than 50% of the samples were NDs, hypothesis testing was not to be performed because results are considered to be unreliable. The Logrank test was performed using the NCSS (version 12) statistical program (www.ncss.com). The Logrank test compares parametrically or by randomization techniques two survival curves generated by non-parametric Kaplan-Meier methods.

When NDs were absent, the reported results were used, this also includes J flagged values. Non-detected or left-censored tissue data occurred for both *Macoma* and *Nereis* tissues. Dealing with left-censored values in a tissue data set requires special handling procedures (see: Helsel, 2005, 2006, 2009, 2012, Singh et al., 2006). Initially, the detection limits (MDLs) are applied to all data marked as NDs. The goal with censored data analysis is to avoid analyzing substituted data with the applied MDLs. To do this, a new variable is created where data are separately coded with a detection indicator value of ones and zeros so that detected data (1s) can be clearly distinguished from NDs (0s). Hypothesis testing of censored data is based on the use of the new indicator variable and the Kaplan-Meier cumulative proportion data that are created.

The USEPA-sponsored statistical software package, ProUCL Version 5.1 for Environmental Applications for Datasets with and without ND observations (www.epa.gov/land-research/proucl-software) was used to generate the 95% confidence limits (LCLs & UCLs) for each parameter mean for all sites. ProUCL can derive estimated confidence limits for the tissue with 60% NDs present but these limits are questionable due to only two detected values being present (3 of 5 replicates are NDs). Determining 95% confidence limits allows the LCLs of the test sites to be statistically compared with the UCL of the reference and control for overlap or to an Action Level (as suggested by the OTM).

4.0 RESULTS

Tables 8 through 20 below summarize the physical, chemical and biological testing results for the Long Beach Cruise Terminal sediments. Tables do not include analytical quality assurance/quality control (QA/QC) data. Appendix D contains a complete set of analytical results including all associated QA/QC data. Appendix E contains all biological QA/QC data.

4.1 Sediment Physical Results

The two Long Beach Cruise Terminal composite samples, the Core C1-*b* sample, and the LA-2 reference sample underwent physical testing. Table 8 summarizes the sieve analysis and hydrometer results, Atterberg Limits, and specific gravity results for these samples. Raw physical data and grain size distribution curves for each sample are provided in Appendix G.

4.2 Sediment Chemistry Results

Table 9 provides a summary of the sediment chemical testing results for the Long Beach Cruise Terminal composite samples and LA-2 reference sample. Included in Table 9 are screening values consisting of NOAA ERL and ERM values. Any testing values highlighted exceed a screening value. Concentrations that exceed ERL values are bolded red. Sediment concentrations did not exceed an ERM value. Estimated values between the method detection limits and reporting limits were considered real values for the purpose of these comparisons.

Table 9 data are often coded. Values that were not detected above the method detection limit were assigned a “<” prefix symbol. Values estimated between the MDL and RL were tagged with a “J”. A “J” code may also indicate an estimated value due to QC data for that value being outside of certain QC objectives. The QA/QC report in Appendix F and table footnotes provide the definitions of all other qualifier codes.

4.3 Solid Phase Bioassay Results

Replicate and mean survival for the 10-day acute solid phase bioassays conducted on the Long Beach Cruise Terminal composite samples as well as the LA-2 reference sample are provided in Table 10 for *Ampelisca abdita* and Table 11 for *Neanthes arenaceodentata*. Initial sediment porewater measurements for the reference and composite samples are provided in Table 6. Initial ammonia levels for Composite-*a* were below levels expected to cause toxicity. This was not the case for Composite-*b* and as such, ammonia purging was conducted prior to test initiation.

4.4 Suspended Particulate Phase (SPP) Bioassay Results

Tables 12 through 14 summarize the SPP bioassay results for the Carnival Cruise Terminal composite samples. Table 12 summarizes the mean percent survival and normal development results and supporting replicate data for the 48-hour bivalve larvae SPP bioassays using the larvae of *Mytilus galloprovincialis* along with estimated EC₅₀ and LC₅₀ values. Table 13 summarizes mean survival results and supporting replicate data for the mysid shrimp (*Americamysis bahia*) 96-hour acute SPP bioassays along with calculated LC₅₀ values. Table 14 summarizes mean

survival results and supporting replicate data for the juvenile fish (*Menidia beryllina*) 96-hour acute SPP bioassays along with calculated LC₅₀ values. All tables for all three species include results for each replicate exposure to 100%, 50%, 10%, and 1% elutriate concentrations along with a 0% site water concentration.

4.5 Bioaccumulation Results

Survival data for the 28-day bioaccumulation exposures are presented in Table 15 for *Macoma nasuta* and Table 16 for *Nereis virens*. Table 17 summarizes replicate and mean tissue concentrations for the *Macoma* tissue analyses, and Table 18 summarizes replicate and mean tissue concentrations for the *Nereis* tissue analyses. Mean values were determined by substituting non-detected values according to the Kaplan-Meier cumulative proportion method. Tissue qualification codes are the same as those for the sediment samples.

Tissue burden statistical results are provided in Table 19 for *Macoma* and and Table 20 for *Nereis* for those analytes detected in the tissues. DDTs and total PCB lipid normalized results for the *Nereis* tissues were used in statistical testing since a positive relationship could be found between lipid and contaminant concentrations. A similar positive relationship could not be determined with the *Macoma* results. As such, *Macoma* DDTs and total PCB concentrations were not normalized to lipids. Mean concentrations in cells shaded green indicate statistically significant differences with mean reference tissue concentrations. Mean concentrations in cells shaded blue indicate statistically significant differences with mean reference and control tissue concentrations.

Table 8. 2018 Long Beach Cruise Terminal Sediment Physical Results.

Sample	Grain Size			Specific Gravity	Atterberg Limits			Classification
	Gravel (%)	Sand (%)	Silt and Clay		Liquid Limit	Plastic Limit	Plasticity Index	
Composite-a	0	16	84	2.80	42	32	10	ML
Composite-b	0	5	95	2.75	44	28	16	ML
C1-b	0	5	95	2.88	28	29	9	ML
LA-2 Ref	0	47	53	2.71	--	--	--	NP

Table 9. 2018 Long Beach Cruise Terminal Bulk Sediment Chemistry Results.

Valid Analyte Name	Units	Composite Samples		C1-b	LA2 Reference	NOAA Screening	
		a	b			Salt ERL ¹	Salt ERM ¹
SEDIMENT CONVENTIONALS							
Total Solids	%	51.1	58	55.7	56.5		
Total Ammonia	mg/kg dry	1.4	2.4	1.3	2.5		
Oil and Grease	mg/kg dry	700	560	800	83		
TRPH	mg/kg dry	330	410	590	24		
Dissolved Sulfides	mg/kg	<0.017	<0.017	<0.017	<0.017		
Total Sulfides	mg/kg dry	300	190	220	0.53		
Total Organic Carbon	%	2.2	1.5	1.4	0.36		
Total Volatile Solids	%	3.7	3.4	3.8	1.7		
METALS							
Arsenic	mg/kg dry	9.51	12.1	9.26	2.3	8.2	70
Cadmium	mg/kg dry	1.17	1.15	1.24	0.112J	1.2	9.6
Chromium	mg/kg dry	34.1	38.6	39.3	20.3	81	370
Copper	mg/kg dry	85.4	61.5	57	9.16	34	270
Lead	mg/kg dry	80.4	72.3	75.7	5.16	46.7	218
Mercury	mg/kg dry	0.14	0.168	0.168	0.0159J	0.15	0.71
Nickel	mg/kg dry	23.8	30	25.5	10.6	20.9	51.6
Selenium	mg/kg dry	4.3	2.8	3.06	0.744		
Silver	mg/kg dry	0.561	0.566	0.631	0.0855J	1	3.7
Zinc	mg/kg dry	211	174	189	44.4	150	410
ORGANOTINS							
Monobutyltin	µg/kg dry	<2.7	<2.4	<2.4	<2.4		
Dibutyltin	µg/kg dry	5.2J	3.3J	6.8	<1.3		
Tributyltin	µg/kg dry	<2.9	<2.5	<2.6	2.7J		
Tetrabutyltin	µg/kg dry	<1.4	<1.3	<1.3	<1.3		
PAH's							
1-Methylnaphthalene	µg/kg dry	5.7J	2.3J	2.4J	<1.9		
2-Methylnaphthalene	µg/kg dry	8.6J	4.2J	4.7J	<2.9	70	670
Acenaphthene	µg/kg dry	3.7J	<2.6	<2.7	<2.7	16	500
Acenaphthylene	µg/kg dry	6.3J	4.3J	4.2J	<2.9	44	640
Anthracene	µg/kg dry	10J	7.7J	9.7J	<3.4	85.3	1100
Benzo (a) Anthracene	µg/kg dry	37	24	32	<2.5	261	1600
Benzo (a) Pyrene	µg/kg dry	53	36	49	<2.4	430	1600
Benzo (b) Fluoranthene	µg/kg dry	56	36	52	<2.5		
Benzo (g,h,i) Perylene	µg/kg dry	42	17	25	<2.7		
Benzo (k) Fluoranthene	µg/kg dry	60	34	49	<2.6		
Chrysene	µg/kg dry	65	36	50	<2.4	384	2800
Dibenz (a,h) Anthracene	µg/kg dry	20	4.4J	12J	<2.5	63.4	260
Fluoranthene	µg/kg dry	99	49	70	<3.1	600	5100
Fluorene	µg/kg dry	7.5J	<2.8	<2.9	<2.9	19	540
Indeno (1,2,3-c,d) Pyrene	µg/kg dry	43	15J	28	<2.3		
Naphthalene	µg/kg dry	10J	4.2J	5.1J	<2.7	160	2100
Phenanthrene	µg/kg dry	40	19	28	<3	240	1500
Pyrene	µg/kg dry	96	58	70	<2.9	665	2600
Total PAHs	µg/kg dry	663	351	491	ND	4022	44792

Table 9 (Cont.). 2018 Long Beach Cruise Terminal Bulk Sediment Chemistry Results.

Valid Analyte Name	Units	CCT-18-Composite		CCT-18	LA2	NOAA Screening	
		a	b	C1-b	Reference	Salt ERL ¹	Salt ERM ¹
PCB CONGENERS							
PCB018	µg/kg dry	3.3	5.9	4.3	<0.11		
PCB028	µg/kg dry	4.5	4.7	4.4	<0.12		
PCB037	µg/kg dry	1.1	1.5	1.2	<0.11		
PCB044	µg/kg dry	6.5	6.8	7	<0.27		
PCB049	µg/kg dry	2.5	3.8	3.3	<0.087		
PCB052	µg/kg dry	6.5	7.1	6.3	<0.34		
PCB066	µg/kg dry	5.5	6.7	6	<0.22		
PCB070	µg/kg dry	5.3	7	6	<0.13		
PCB074	µg/kg dry	2.9	3.4	2.9	<0.16		
PCB077	µg/kg dry	1.4	1.3	1.1	<0.2		
PCB081	µg/kg dry	<0.18	<0.16	<0.16	<0.16		
PCB087	µg/kg dry	2.1	3.3	3.1	<0.2		
PCB099	µg/kg dry	3	2.8	2.9	<0.084		
PCB101	µg/kg dry	6.5	7	6.9	<0.078		
PCB105	µg/kg dry	9	4.3	6.8	<0.094		
PCB110	µg/kg dry	5.3	5.9	6.3	<0.06		
PCB114	µg/kg dry	<0.14	<0.13	<0.13	<0.13		
PCB118	µg/kg dry	6	5.2	5.3	<0.061		
PCB119	µg/kg dry	<0.12	<0.11	<0.11	<0.11		
PCB123	µg/kg dry	<0.14	<0.13	<0.13	<0.13		
PCB126	µg/kg dry	<0.11	<0.095	<0.098	<0.097		
PCB128	µg/kg dry	1.8	1.2	1.5	<0.21		
PCB132/153	µg/kg dry	7.9	7.2	8	<0.29		
PCB138/158	µg/kg dry	6.2	5.4	6.8	<0.62		
PCB149	µg/kg dry	4.5	4.3	5	<0.21		
PCB151	µg/kg dry	1.5	1.5	1.7	<0.15		
PCB156	µg/kg dry	0.81	<0.13	0.85	<0.14		
PCB157	µg/kg dry	<0.17	<0.15	<0.15	<0.15		
PCB167	µg/kg dry	<0.26	<0.23	<0.24	<0.23		
PCB168	µg/kg dry	6.2	<0.25	<0.25	<0.25		
PCB169	µg/kg dry	<0.13	<0.11	<0.12	<0.11		
PCB170	µg/kg dry	2.9	2	3	<0.2		
PCB177	µg/kg dry	1.1	<0.2	1.3	<0.21		
PCB180	µg/kg dry	4	4.1	5	<0.16		
PCB183	µg/kg dry	1.1	0.97	1	<0.16		
PCB187	µg/kg dry	2	1.8	2.4	<0.18		
PCB189	µg/kg dry	<0.12	<0.11	<0.11	<0.11		
PCB194	µg/kg dry	1.8	1.3	2.2	<0.13		
PCB201	µg/kg dry	<0.066	<0.059	<0.06	<0.06		
PCB206	µg/kg dry	1.9	<0.2	1.4	<0.2		
Total PCB Congeners	µg/kg dry	115	107	114	ND	22.7	180
CHLORINATED PESTICIDES							
2,4'-DDD	µg/kg dry	<0.15	5.1	<0.14	<0.13		
2,4'-DDE	µg/kg dry	4.4	6.9	3.9	<0.062		
2,4'-DDT	µg/kg dry	<0.12	<0.11	<0.11	<0.11		
4,4'-DDD	µg/kg dry	15	18	16	<0.07	2	20
4,4'-DDE	µg/kg dry	21	23	24	5.6	2.2	27
4,4'-DDT	µg/kg dry	<0.1	<0.091	<0.094	<0.093	1	7
Total DDT	µg/kg dry	40.4	53	43.9	5.6	1.58	46.1

Table 9 (Cont.). 2018 Long Beach Cruise Terminal Bulk Sediment Chemistry Results.

Valid Analyte Name	Units	CCT-18-Composite		CCT-18	LA2	NOAA Screening	
		a	b	C1-b	Reference	Salt ERL ¹	Salt ERM ¹
Aldrin	µg/kg dry	<0.074	<0.065	<0.067	<0.067		
BHC-alpha	µg/kg dry	<0.11	<0.099	<0.1	<0.1		
BHC-beta	µg/kg dry	<0.13	<0.12	<0.12	<0.12		
Chlordane (Technical)	µg/kg dry	<10	<9	<9.3	<9.2		
BHC-delta	µg/kg dry	<0.18	<0.16	<0.16	<0.16		
Dieldrin	µg/kg dry	<0.21	<0.18	<0.19	<0.19	0.02	8
Endosulfan I	µg/kg dry	<0.11	<0.1	<0.1	<0.1		
Endosulfan II	µg/kg dry	<0.18	<0.16	<0.16	<0.16		
Endosulfan Sulfate	µg/kg dry	<0.2	<0.18	<0.19	<0.18		
Endrin	µg/kg dry	6.1	<0.098	<0.1	<0.1		
Endrin Aldehyde	µg/kg dry	<0.19	<0.17	<0.18	<0.18		
Endrin Ketone	µg/kg dry	<0.11	<0.096	<0.099	<0.098		
BHC-gamma (Lindane)	µg/kg dry	<0.067	<0.059	<0.061	<0.061		
Heptachlor	µg/kg dry	<0.1	<0.089	<0.091	<0.091		
Heptachlor Epoxide	µg/kg dry	<0.086	<0.077	<0.079	<0.078		
Methoxychlor	µg/kg dry	<0.13	<0.12	<0.12	<0.12		
Toxaphene	ug/kg dry	<17	<15	<16	<16		
PHENOLS							
2,4,5-Trichlorophenol	µg/kg dry	<2.4	<2.1	<2.2	<2.1		
2,4,6-Trichlorophenol	µg/kg dry	<2.6	<2.2	<2.3	<2.3		
2,4-Dichlorophenol	µg/kg dry	<3.3	<2.9	<3	<3		
2,4-Dimethylphenol	µg/kg dry	<5.1	<4.4	<4.6	<4.6		
2,4-Dinitrophenol	µg/kg dry	<120	<100	<110	<110		
2-Chlorophenol	µg/kg dry	<3.6	<3.2	<3.3	<3.3		
2-Methylphenol	µg/kg dry	<3.8	<3.3	<3.5	<3.4		
2-Nitrophenol	µg/kg dry	<3.3	<2.8	<3	<2.9		
3/4-Methylphenol	µg/kg dry	24	6.8J	8.1J	<6.4		
4,6-Dinitro-2-Methylphenol	µg/kg dry	<130	<110	<120	<120		
4-Chloro-3-Methylphenol	µg/kg dry	<4	<3.5	<3.7	<3.6		
Bisphenol A	µg/kg dry	20U	17U	18U	<3.6		
Pentachlorophenol	µg/kg dry	270J	220J	240J	<2.3		
Phenol	µg/kg dry	<4.5	<3.9	<4.1	<4.1		
PHTHALATES							
bis-(2-Ethylhexyl) Phthalate	µg/kg dry	830	510	720	88U		
Benzyl Butyl Phthalate	µg/kg dry	98U	85U	89U	88U		
Diethyl Phthalate	µg/kg dry	5.7J	<2.7	4.5J	<2.8		
Dimethyl Phthalate	µg/kg dry	9J	<3.4	7.1J	<3.5		
Di-n-Butyl Phthalate	µg/kg dry	98U	85U	89U	88U		
Di-n-Octyl Phthalate	µg/kg dry	<3.7	<3.2	<3.4	<3.3		
PYRETHROIDS							
Allethrin	µg/kg dry	<0.49	<0.43	<0.44	<0.44		
Bifenthrin	µg/kg dry	11	3.9	4.3	<0.53		
Cyfluthrin	µg/kg dry	2	0.51J	<0.44	<0.44		
Cyhalothrin-lambda	µg/kg dry	<0.49	<0.43	<0.44	<0.44		
Cypermethrin	µg/kg dry	1.4	<0.43	0.56J	<0.44		
Deltamethrin:Tralomethrin	µg/kg dry	<0.49	<0.43	<0.44	<0.44		
Esfenvalerate:Fenvalerate	µg/kg dry	<0.49	<0.43	<0.44	<0.44		
Fenpropathrin	µg/kg dry	<0.49	<0.43	<0.44	<0.44		
Fluvalinate	µg/kg dry	<0.49	<0.43	<0.44	<0.44		
Phenothrin (Sumithrin)	µg/kg dry	<0.49	<0.43	<0.44	<0.44		

Table 9 (Cont.). 2018 Long Beach Cruise Terminal Bulk Sediment Chemistry Results.

Valid Analyte Name	Units	CCT-18-Composite		CCT-18	LA2 Reference	NOAA Screening	
		a	b	C1-b		Salt ERL ¹	Salt ERM ¹
Permethrin (cis/trans)	µg/kg dry	7.8	2.3	2.7	<0.88		
Resmethrin:Bioresmethrin	µg/kg dry	<0.83	<0.73	<0.76	<0.75		
Tetramethrin	µg/kg dry	<0.58	<0.52	<0.53	<0.53		
ERM Quotient		0.178	0.179	0.178	0.028		

Effects Range Low (ERL) and Effects Range Median (ERM) sediment quality objectives from Buchman (2008) and Long *et al.* (1995).

Red values exceed ERL values.

Red underlined values exceed ERM values.

ND = Not Detected

< = Not detected at the corresponding Method Detection Limit.

J = Estimated between the Reporting Limit and the Method Detection Limit.

U = Sample is ND at the RL due to a method blank detection.

Table 10. Survival Results for the 10-day *Ampelisca abdita* Bioassays.

Sample ID	Rep	# Alive Out of 20	% Survival	Mean % Survival
Lab Control	A	20	100	97
	B	20	100	
	C	20	100	
	D	19	95	
	E	18	90	
Composite-a	A	19	95	94
	B	20	100	
	C	18	90	
	D	18	90	
	E	19	95	
Composite-b	A	18	90	91
	B	17	85	
	C	19	95	
	D	18	90	
	E	19	95	
LA-2	A	20	100	96
	B	19	95	
	C	20	100	
	D	19	95	
	E	18	90	

Table 11. Survival Results for the 10-day *Neanthes arenaceodentata* Bioassays.

Sample ID	Rep	# Alive Out of 10	% Survival	Mean % Survival
Lab Control	A	10	100	100
	B	10	100	
	C	10	100	
	D	10	100	
	E	10	100	
Composite- <i>a</i>	A	10	100	98
	B	10	100	
	C	10	100	
	D	9	90	
	E	10	100	
Composite- <i>b</i>	A	10	100	100
	B	10	100	
	C	10	100	
	D	10	100	
	E	10	100	
LA-2	A	10	100	100
	B	10	100	
	C	10	100	
	D	10	100	
	E	10	100	

Table 12. Replicate and Mean Survival and Normal Development Results and Median Effective and Lethal Concentrations for the Suspended Particulate-Phase 48-Hour Toxicity Tests Using *Mytilus galloprovincialis* Larvae.

Elutriate Concentrations	Percent Survival at 48 Hours						LC ₅₀ (%)	Percent Normal Development at 48 Hours						EC ₅₀ (%)
	Rep A	Rep B	Rep C	Rep D	Rep E	Mean		Rep A	Rep B	Rep C	Rep D	Rep E	Mean	
<i>Composite-a</i>														
Lab Control	100	89.0	86.4	100	93.7	93.8	>100 ¹	95.5	97.7	92.2	93.2	95.2	94.7	>100 ¹
Salt Control	79.6	90.6	80.6	100.0	97.4	89.6		96.8	93.0	93.9	94.0	94.5	94.3	
Site Water	99.5	98.4	100.0	87.4	79.6	93.0		96.9	92.6	97.5	93.3	95.6	95.2	
1%	91.6	100	93.7	93.2	93.2	94.3		94.1	93.9	92.7	91.3	95.7	93.5	
10%	97.9	90.6	99.0	81.2	95.8	92.9		95.4	91.1	94.0	93.9	95.3	94.9	
50%	74.9	99.5	90.1	100	92.1	91.3		87.7	96.0	93.6	93.2	91.2	92.0	
100%	74.3	94.8	97.9	90.6	89.5	89.4		91.6	90.0	94.0	88.7	91.0	91.1	
<i>Composite-b</i>														
Lab Control	89.5	88.5	89.0	100	94.2	92.3	>100 ¹	94.5	91.8	92.4	95.7	93.3	93.5	>100 ¹
Salt Control	79.6	90.6	80.6	100.0	97.4	89.6		96.8	93.0	93.9	94.0	94.5	94.3	
Site Water	99.5	98.4	100.0	87.4	79.6	93.0		96.9	92.6	97.5	93.3	95.6	95.2	
1%	92.7	92.1	84.3	91.6	86.4	89.4		91.7	95.1	93.1	91.6	93.8	93.1	
10%	90.1	100	89.0	82.7	84.8	89.3		92.5	96.5	92.4	96.3	93.6	94.3	
50%	100	89.0	89.0	88.0	92.7	91.7		89.7	93.9	89.0	91.8	94.7	91.8	
100%	82.2	79.6	90.6	89.5	89.5	86.3		89.7	89.4	87.8	88.1	88.6	88.7	

¹ Due to the absence of significant impairment, the LC₅₀ and EC₅₀ could not be calculated but can be determined by inspection to be >100% elutriate.

Table 13. Replicate and Mean Survival Results and Median Lethal Concentrations for the 96-Hour Acute Suspended Particulate-Phase Toxicity Tests Using *Americamysis bahia*.

Elutriate Concentrations	Percent Survival at 96 Hours						LC ₅₀ (%)
	Rep A	Rep B	Rep C	Rep D	Rep E	Mean	
<i>Composite-a</i>							
Lab Control	90	100	90	100	100	96	>100 ¹
Site Water	100	100	100	100	100	100	
1%	100	100	100	90	100	98	
10%	100	100	100	100	100	100	
50%	100	100	100	100	90	98	
100%	90	100	100	100	100	98	
<i>Composite-b</i>							
Lab Control	100	100	100	100	100	100	>100 ¹
Site Water	100	100	100	100	100	100	
1%	80	100	100	100	100	96	
10%	90	90	90	100	100	94	
50%	100	100	100	90	100	98	
100%	100	100	100	100	100	100	

¹ Due to the absence of significant impairment, the LC₅₀ could not be calculated but can be determined by inspection to be >100% elutriate.

Table 14. Replicate and Mean Survival Results and Median Lethal Concentrations for the 96-Hour Acute Suspended Particulate-Phase Toxicity Tests Using *Menidia beryllina*.

Elutriate Concentrations	Percent Survival at 96 Hours						LC ₅₀ (%)
	Rep A	Rep B	Rep C	Rep D	Rep E	Mean	
<i>Composite-a</i>							
Lab Control	100	100	90	100	100	98	>100 ¹
Site Water	100	100	100	100	100	100	
1%	100	100	90	80	100	94	
10%	100	100	100	100	100	100	
50%	100	100	100	90	90	96	
100%	80	80	100	100	100	92	
<i>Composite-b</i>							
Lab Control	90	100	100	100	100	98	>100 ¹
Site Water	100	100	100	100	100	100	
1%	100	100	90	90	100	96	
10%	100	90	100	90	100	96	
50%	100	100	100	100	100	100	
100%	100	90	100	100	100	98	

¹ Due to the absence of significant impairment, the LC₅₀ could not be calculated but can be determined by inspection to be >100% elutriate.

Table 15. *Macoma nasuta* Bioaccumulation Test Survival Data.

Sample ID	Rep	# Alive Out of 20	% Survival	Mean % Survival
Lab Control	A	17	85	86
	B	17	85	
	C	17	85	
	D	16	80	
	E	19	95	
Composite-a	A	18	90	91
	B	18	90	
	C	18	90	
	D	19	95	
	E	18	90	
Composite-b	A	18	90	94
	B	19	95	
	C	19	95	
	D	19	95	
	E	19	95	
LA-2	A	19	95	94
	B	20	100	
	C	17	85	
	D	19	95	
	E	19	95	

Table 16. *Neris virens* Bioaccumulation Test Survival Data.

Sample ID	Rep	# Alive Out of 10	% Survival	Mean % Survival
Lab Control	A	10	100	100
	B	10	100	
	C	10	100	
	D	10	100	
	E	10	100	
Composite-a	A	10	100	100
	B	10	100	
	C	10	100	
	D	10	100	
	E	10	100	
Composite-b	A	10	100	96
	B	10	100	
	C	9	90	
	D	9	90	
	E	10	100	
LA-2	A	10	100	100
	B	10	100	
	C	10	100	
	D	10	100	
	E	10	100	

Table 17. Bioaccumulation Potential Replicate and Mean Tissue Results for *Macoma nasuta* Exposed to Carnival Cruise, LA-2 Reference and Control Sediments.

Analytes	Units	Comp-a-						Comp-b-						Control-						LA2-REF-						T0-Mean	
		A	B	C	D	E	Mean	A	B	C	D	E	Mean	A	B	C	D	E	Mean	A	B	C	D	E	Mean		
Conventionals																											
% Lipids	%	0.31	0.15	0.28	0.34	0.33	0.28	0.36	0.29	0.58	0.44	0.52	0.44	0.3	0.43	0.26	0.3	0.24	0.31	0.34	0.28	0.15	0.17	0.37	0.262	0.636	
Metals																											
Arsenic	mg/kg	2.87	2.67	2.76	2.81	3.03	2.83	2.87	2.66	3.19	2.65	3.08	2.89	3.13	3.06	2.32	2.89	2.9	2.86	2.48	2.41	2.92	2.64	2.51	2.592	3.31	
Copper	mg/kg	1.15	1.07	1.07	1.2	1.37	1.17	0.892	0.901	1.12	1.11	1.02	1.01	1.05	1.09	1.01	1.17	0.942	1.05	0.889	0.953	0.858	0.853	0.883	0.887	1.09	
Lead	mg/kg	0.492	0.453	0.438	0.438	0.576	0.479	0.492	0.431	0.523	0.517	0.372	0.467	0.154	0.148	0.152	0.172	0.14	0.153	0.100J	0.117	0.104	0.089J	0.100	0.102	0.081	
Zinc	mg/kg	11.9	11.4	10.1	10.9	14.1	11.7	9.7	12.0	11.7	12.5	11.9	11.6	11.4	12.1	10.7	12.8	12.6	11.9	9.04	12.0	9.05	9.87	12.7	10.5	13.0	
OC Pesticides																											
2,4'-DDD	ug/kg	<0.075	<0.076	<0.076	0.17J	0.18J	0.115	0.4	0.39	0.51	0.33	0.29	0.384	<0.076	<0.076	<0.075	<0.075	<0.076	ND	<0.076	<0.076	<0.076	<0.076	<0.076	ND	ND	
2,4'-DDE	ug/kg	0.72	0.7	0.8	0.59	0.77	0.716	1.4	1.2	1.3	0.84	1.3	1.2	0.33	0.34	0.39	0.35	0.4	0.362	0.6	0.5	0.35	0.33	0.48	0.452	0.134	
2,4'-DDT	ug/kg	<0.062	<0.062	<0.062	<0.062	<0.062	ND	<0.062	<0.062	<0.061	<0.062	0.19J	0.087	<0.062	<0.062	<0.061	<0.061	<0.062	ND	<0.062	<0.062	<0.062	<0.062	<0.062	ND	ND	
4,4'-DDD	ug/kg	1.4	1.1	0.87	0.84	1.2	1.082	2.4	2.7	2.6	2.1UJ-	2.8UJ-	2.45	0.75	0.73	0.94	0.92	0.6	0.788	1.1	0.67	0.91	0.59	0.8	0.814	0.716	
4,4'-DDE	ug/kg	4.2	6.3	3.7	3.2	4.9	4.46	5.8	6.4	5.9	4.2	4.1	5.28	0.38	0.48	0.66	0.41	0.99	0.584	3.5	4.6	1.7	2.3	3.3	3.08	0.334	
4,4'-DDT	ug/kg	0.052UJ-	0.052UJ-	0.052UJ-	0.052UJ-	0.053UJ-	ND	<0.052	<0.052	<0.052	0.44J	0.2J		0.053UJ-	0.052UJ-	0.052UJ-	0.052UJ-	0.053UJ-	ND	0.052UJ-	0.052UJ-	0.052UJ-	0.053UJ-	0.052UJ-	ND	ND	
Total DDTs		6.32	8.10	5.37	4.80	7.05	6.33	10.0	10.7	10.3	7.91	8.88	9.56	1.46	1.55	1.99	1.68	1.99	1.73	5.20	5.77	2.96	3.22	4.58	4.35	1.20	
PCB Congeners																											
PCB018	ug/kg	<0.07	<0.071	0.35	0.33	0.4		1.2	1.2	1.2	0.87	<0.071		<0.071	<0.071	<0.07	<0.07	<0.071		<0.071	<0.071	<0.071	<0.071	<0.071			
PCB028	ug/kg	0.46	<0.033	0.49	0.39	0.71		1.1	0.94	1.2	0.91	0.89		<0.034	<0.033	<0.033	<0.033	<0.034		<0.033	<0.033	<0.033	<0.034	<0.033			
PCB037	ug/kg	<0.06	<0.06	<0.06	<0.06	<0.06		0.23	<0.06	<0.06	<0.06	<0.06		0.26	<0.06	<0.06	<0.06	<0.06		<0.06	<0.06	<0.06	<0.06	<0.06			
PCB044	ug/kg	<0.086	<0.086	0.5	0.34	0.56		0.86	0.84	1.0	0.62	<0.087		<0.087	<0.086	<0.086	<0.086	<0.087		<0.086	<0.086	<0.086	<0.087	<0.086			
PCB049	ug/kg	0.58	<0.11	0.47	0.79	0.66		1.2	1.0	1.3	1.2	0.7		<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11			
PCB052	ug/kg	0.98	<0.062	0.79	0.66	1.2		2.0	1.8	2.4	1.5	1.5		<0.063	<0.062	<0.062	<0.062	<0.063		<0.062	<0.062	<0.062	<0.063	<0.062			
PCB066	ug/kg	0.7	0.62	0.75	0.6	0.89		1.7	1.7	1.6	1.3	1.2		<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
PCB070	ug/kg	0.85	0.71	0.92	0.71	1.1		1.9	2.1	2.2	1.5	1.4		<0.06	<0.059	<0.059	<0.059	<0.06		<0.059	<0.059	<0.059	<0.06	<0.059			
PCB074	ug/kg	0.55	0.48	0.54	0.43	0.49		1.1	1.2	1.2	0.82	0.72		<0.087	<0.086	<0.086	<0.086	<0.087		<0.086	<0.086	<0.086	<0.087	<0.086			
PCB077	ug/kg	<0.077	<0.077	<0.077	<0.077	<0.078		<0.077	<0.077	<0.076	<0.077	<0.078		<0.078	<0.077	<0.076	<0.076	<0.078		<0.077	<0.077	<0.077	<0.078	<0.077			
PCB081	ug/kg	<0.12	<0.12	<0.12	<0.12	<0.12		<0.12	<0.12	<0.12	<0.12	<0.12		<0.12	<0.12	<0.12	<0.12	<0.12		<0.12	<0.12	<0.12	<0.12	<0.12			
PCB087	ug/kg	0.58	0.39	0.46	0.43	0.63		0.55	0.94	0.87	0.42	0.59		<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11			
PCB099	ug/kg	0.58	0.49	0.5	0.44	0.57		0.67	1.0	0.97	0.67	0.68		<0.061	<0.06	<0.06	<0.06	<0.061		<0.06	<0.06	<0.06	<0.061	<0.06			
PCB101	ug/kg	1.1	0.95	0.93	0.93	1.2		1.4	2.0	2.1	1.5	1.4		<0.098	<0.097	<0.096	<0.096	<0.098		<0.097	<0.097	<0.097	<0.098	<0.097			
PCB105	ug/kg	<0.054	<0.054	0.4	0.4	0.64		0.53	0.66	0.55	0.39	0.35		<0.055	<0.054	<0.054	<0.054	<0.055		<0.054	<0.054	<0.054	<0.055	<0.054			
PCB110	ug/kg	1.2	1.1	1.0	0.93	1.4		1.4	1.9	1.9	1.1	1.5		<0.046	<0.046	<0.045	<0.045	<0.046		<0.046	<0.046	<0.046	<0.046	<0.046			
PCB114	ug/kg	<0.081	<0.082	<0.082	<0.082	<0.082		<0.082	<0.082	<0.081	<0.081	<0.082		<0.082	<0.082	<0.081	<0.081	<0.082		<0.082	<0.082	<0.082	<0.082	<0.082			
PCB118	ug/kg	0.82	0.73	0.8	0.72	1.2		0.9	1.4	1.5	0.89	1.1		<0.084	<0.084	<0.083	<0.083	<0.084		<0.084	<0.084	<0.084	<0.084	<0.084			
PCB119	ug/kg	<0.094	<0.094	<0.094	<0.094	<0.094		<0.094	<0.094	<0.093	<0.094	<0.094		<0.094	<0.094	<0.093	<0.093	<0.094		<0.094	<0.094	<0.094	<0.094	<0.094			
PCB123	ug/kg	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
PCB126	ug/kg	<0.079	<0.08	<0.08	<0.08	<0.08		<0.08	<0.08	<0.079	<0.079	<0.08		<0.08	<0.08	<0.079	<0.079	<0.08		<0.08	<0.08	<0.08	<0.08	<0.08			
PCB128	ug/kg	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
PCB132/153	ug/kg	1.2	0.98	0.95	0.83	1.4		1.1	1.5	1.6	0.99	1.3		<0.17	<0.17	<0.17	<0.17	<0.17		0.2J	<0.17	0.2J	<0.17	0.35J			
PCB138/158	ug/kg	1.0	0.88	0.83	0.8	1.4		0.84	1.4	1.3	<0.093	<0.094		<0.094	<0.094	<0.093	<0.093	<0.094		<0.094	<0.094	<0.094	<0.094	<0.094			
PCB149	ug/kg	0.67	0.64	0.67	0.71	0.94		0.91	1.1	0.97	0.75	0.71		<0.098	<0.097	<0.096	<0.096	<0.098		<0.097	<0.097	<0.097	<0.098	<0.097			
PCB151	ug/kg	<0.067	<0.067	0.28	<0.067	0.3		0.2	0.31	0.3	<0.067	<0.067		<0.067	<0.067	<0.066	<0.066	<0.067		<0.067	<0.067	<0.067	<0.067	<0.067			
PCB156	ug/kg	<0.057	<0.057	<0.057	<0.057	<0.058		<0.057	<0.057	<0.057	<0.057	<0.058		<0.058	<0.057	<0.057	<0.057	<0.058		<0.057	<0.057	<0.057	<0.058	<0.057			
PCB157	ug/kg	<0.052	<0.052	<0.052	<0.052	<0.052		<0.052	<0.052	<0.051	<0.052	<0.052		<0.052	<0.052	<0.051	<0.051	<0.052		<0.052	<0.052	<0.052	<0.052	<0.052			
PCB167	ug/kg	<0.061	<0.061	<0.061	<0.061	<0.062		<0.061	<0.061	<0.061	<0.061	<0.062		<0.062	<0.061	<0.061	<0.061	<0.062		<0.061	<0.061	<0.061	<0.062	<0.061			
PCB168	ug/kg	<0.048	<0.048	<0.048	<0.048	<0.049		<0.048	<0.048	<0.048	<0.048	<0.049		<0.049	<0.048	<0.											

Table 17 (Continued). Bioaccumulation Potential Replicate and Mean Tissue Results for *Macoma nasuta* Exposed to Carnival Cruise, LA-2 Reference and Control Sediments.

Analytes	Units	Comp-a-						Comp-b-						Control-						LA2-REF-						T0-Mean
		A	B	C	D	E	Mean	A	B	C	D	E	Mean	A	B	C	D	E	Mean	A	B	C	D	E	Mean	
PCB183	ug/kg	<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11		
PCB187	ug/kg	<0.083	<0.084	0.24	<0.084	0.35		0.23	0.26	0.32	<0.083	<0.084		<0.084	<0.084	<0.083	<0.083	<0.084		<0.084	<0.084	<0.084	<0.084	<0.084		
PCB189	ug/kg	<0.06	<0.061	<0.061	<0.061	<0.061		<0.061	<0.061	<0.06	<0.06	<0.061		<0.061	<0.061	<0.06	<0.06	<0.061		<0.061	<0.061	<0.061	<0.061	<0.061		
PCB194	ug/kg	<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11		
PCB201	ug/kg	<0.096	<0.096	<0.096	<0.096	<0.097		<0.096	<0.096	<0.095	<0.096	<0.097		<0.097	<0.096	<0.095	<0.095	<0.097		<0.096	<0.096	<0.096	<0.097	<0.096		
PCB206	ug/kg	<0.19	<0.19	<0.19	<0.19	<0.19		<0.19	<0.19	<0.19	<0.19	<0.19		<0.19	<0.19	<0.19	<0.19	<0.19		<0.19	<0.19	<0.19	<0.19	<0.19		
Total PCBs		11.3	7.97	12.3	10.8	16.5	11.8	20.4	24.1	25.0	15.8	14.0	19.9	0.26	ND	ND	ND	ND	0.204	0.2	ND	0.2	ND	0.35	0.226	

Notes:

Bolded Values and Blue shaded cells indicate statistically significant differences in mean concentrations between test and LA-5 reference tissues.

J = Estimated value between the method detection limit and reporting limit. A "J" value may also indicate an estimated value due to that value not meeting certain QC objectives.

J+ = A high-biased estimate.

< = Not detected at the method detection limit. ND = not detected.

"U" = not detected at the reporting limit.

"UJ-" = not detected estimated low value.

Table 18. Bioaccumulation Potential Replicate and Mean Tissue Results for *Nereis virens* Exposed to Carnival Cruise, LA-2 Reference and Control Sediments.

Analytes	Units	Comp-a-						Comp-b-						Control-						LA2-REF-						T0-	
		A	B	C	D	E	Mean	A	B	C	D	E	Mean	A	B	C	D	E	Mean	A	B	C	D	E	Mean	Mean	
Conventionals																											
% Lipids	%	0.75	0.59	0.61	0.89	1.5	0.87	1.2	1.2	1.2	0.9	0.58	1.0	1	1.1	0.93	0.92	1.2	1.0	0.63	0.9	0.89	0.82	0.76	0.80	1.1	
Metals																											
Arsenic	mg/kg	2.14	2.11	2.19	1.95	2.12	2.10	2.05	2.0	1.79	2.0	2.0	1.97	2.03	1.85	1.83	1.94	1.76	1.88	2.04	2.1	2.36	2.13	2.15	2.16	2.91	
Copper	mg/kg	1.1	1.25	1.47	1.21	1.34	1.27	1.02	0.957	1.29	1.07	1.03	1.073	1.49	1.44	1.33	1.27	1.26	1.36	1.17	1.23	1.91	0.955	1.11	1.27	1.18	
Lead	mg/kg	0.434	0.577	0.436	0.358	0.838	0.529	0.387	0.259	0.482	0.342	0.341	0.362	0.434	0.279	0.29	0.294	0.275	0.314	0.361	0.44	1.38	0.319	0.283	0.557	0.265	
Zinc	mg/kg	41.2	31.9	14.6	20.1	12.7	24.1	22.8	33.2	7.27	7.72	21.1	18.4	30.3	19.2	25.0	15.9	27.5	23.6	15.1	8.39	9.73	7.32	20.0	12.1	11.2	
OC Pesticides																											
2,4'-DDD	ug/kg	0.39	<0.076	<0.076	<0.075	1.1	0.343	1.0	1.3	0.68	0.24	<0.075	0.659	0.4	0.76	0.32	<0.075	<0.076	0.326	0.37	0.53	0.44	<0.076	0.46	0.375	0.142	
2,4'-DDE	ug/kg	0.68	0.61	0.78	0.68	3.5	1.25	2.3	4.8	2.3	0.69	0.53	2.12	1.2	1.4	0.96	0.76	0.63	0.99	0.31	0.82	0.49	0.34	0.27	0.446	0.398	
2,4'-DDT	ug/kg	<0.062	<0.062	<0.062	<0.061	<0.062	ND	<0.061	<0.062	<0.062	<0.062	<0.062	ND	<0.061	<0.062	<0.062	<0.061	<0.062	ND	<0.062	<0.062	<0.061	<0.062	<0.062	ND	ND	
4,4'-DDD	ug/kg	1.4	0.91	0.82UJ-	0.84UJ-	4.1UJ-	0.988	3.9UJ-	4.0UJ-	3.1UJ-	2.0UJ-	2.0UJ-	ND	1.4	1.6	1.2	1.3	0.91	1.28	1.4	1.9	1.8	0.94	1.9	1.59	0.794	
4,4'-DDE	ug/kg	0.57	0.79	0.47	0.64	1.3	0.754	1.3	0.83	0.98	0.48	0.84	0.886	0.4	0.62	0.54	0.86	0.34	0.552	0.52	0.58	1.0	0.56	0.52	0.636	0.546	
4,4'-DDT	ug/kg	0.16J	<0.052	0.052UJ-	0.052UJ-	0.052UJ-	ND	0.052UJ-	0.052UJ-	0.052UJ-	0.052UJ-	0.052UJ-	ND	0.62	<0.052	<0.052	<0.052	0.24	0.203	<0.053	<0.052	<0.052	<0.053	<0.053	ND	0.337	
Total DDTs		3.20	2.31	2.07	2.16	10.0	3.95	8.50	10.9	7.06	3.41	3.37	6.65	4.02	4.38	3.02	2.92	2.12	3.29	2.60	3.83	3.73	1.84	3.15	3.03	2.16	
PCB Congeners																											
PCB018	ug/kg	0.21	<0.071	<0.071	<0.07	0.25		0.75	0.73	0.62	0.25	0.42		<0.07	<0.07	<0.07	<0.07	<0.071		<0.071	<0.071	<0.07	<0.071	<0.071			
PCB028	ug/kg	<0.033	<0.033	<0.033	<0.033	<0.033		0.41	<0.033	0.36	<0.033	<0.033		<0.033	<0.033	<0.033	<0.033	<0.033		<0.034	<0.033	<0.033	<0.034	<0.034			
PCB037	ug/kg	<0.06	<0.06	<0.06	<0.059	<0.06		<0.059	<0.06	<0.06	<0.06	<0.06		<0.06	<0.06	<0.06	<0.06	<0.06		<0.06	<0.06	<0.06	<0.06	<0.06			
PCB044	ug/kg	<0.086	<0.086	<0.086	<0.085	<0.086		<0.085	<0.086	0.78	<0.086	<0.086		<0.086	<0.086	<0.086	<0.086	<0.086		<0.087	<0.086	<0.086	<0.087	<0.087			
PCB049	ug/kg	<0.11	<0.11	<0.11	<0.11	<0.11		0.39	0.33	0.39	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11			
PCB052	ug/kg	0.47	0.53	0.53	<0.061	0.9		1.9	1.6	1.9	0.7	0.93		0.36	<0.062	<0.062	<0.062	<0.062		<0.063	<0.062	<0.062	<0.063	<0.063			
PCB066	ug/kg	0.26	0.38	<0.1	<0.1	<0.1		0.55	0.64	0.5	0.39	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
PCB070	ug/kg	<0.059	<0.059	<0.059	<0.058	<0.059		<0.058	<0.059	<0.059	<0.059	<0.059		<0.059	<0.059	<0.059	<0.059	<0.059		<0.06	<0.059	<0.059	<0.06	<0.06			
PCB074	ug/kg	<0.086	<0.086	<0.086	<0.085	<0.086		<0.085	<0.086	<0.086	<0.086	<0.086		<0.086	<0.086	<0.086	<0.086	<0.086		<0.087	<0.086	<0.086	<0.087	<0.087			
PCB077	ug/kg	<0.077	<0.077	<0.077	<0.076	<0.077		<0.076	<0.077	<0.077	<0.077	<0.077		<0.076	<0.077	<0.077	<0.076	<0.077		<0.078	<0.077	<0.076	<0.078	<0.078			
PCB081	ug/kg	<0.12	<0.12	<0.12	<0.12	<0.12		<0.12	<0.12	<0.12	<0.12	<0.12		<0.12	<0.12	<0.12	<0.12	<0.12		<0.12	<0.12	<0.12	<0.12	<0.12			
PCB087	ug/kg	<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11			
PCB099	ug/kg	0.39	0.34	0.26	0.28	0.51		0.67	0.51	0.58	0.23	0.3		0.25	0.25	<0.06	0.22	<0.06		0.41	0.34	0.4	0.29	0.38			
PCB101	ug/kg	0.63	0.68	0.64	0.55	0.97		1.4	1.3	1.4	0.6	0.73		0.57	0.43	0.36	0.48	<0.097		0.41	0.62	0.48	0.45	0.76			
PCB105	ug/kg	0.23	<0.054	<0.054	<0.054	0.71		<0.054	<0.054	<0.054	<0.054	0.32		<0.054	<0.054	<0.054	<0.054	<0.054		<0.055	0.39	<0.054	<0.055	0.36			
PCB110	ug/kg	0.39	0.43	0.36	0.32	0.67		0.98	0.72	0.83	0.48	0.54		<0.045	<0.045	<0.045	0.28	<0.046		<0.046	<0.046	<0.045	<0.046	0.43			
PCB114	ug/kg	<0.082	<0.082	<0.082	<0.08	<0.082		<0.08	<0.081	<0.082	<0.082	<0.081		<0.081	<0.081	<0.081	<0.081	<0.082		<0.082	<0.082	<0.081	<0.082	<0.082			
PCB118	ug/kg	0.39	0.58	0.27	0.37	0.7		0.65	0.7	0.79	<0.084	0.35		<0.083	0.31	0.26	0.36	<0.084		0.32	0.47	<0.083	0.43	0.36			
PCB119	ug/kg	<0.094	<0.094	<0.094	<0.093	<0.094		<0.093	<0.094	<0.094	<0.094	<0.094		<0.093	<0.094	<0.094	<0.093	<0.094		<0.094	<0.094	<0.093	<0.094	<0.094			
PCB123	ug/kg	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
PCB126	ug/kg	<0.08	<0.08	<0.08	<0.078	<0.08		<0.078	<0.079	<0.08	<0.08	<0.079		<0.079	<0.079	<0.079	<0.079	<0.08		<0.08	<0.08	<0.079	<0.08	<0.08			
PCB128	ug/kg	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
PCB132/153	ug/kg	1.6	1.8	1.4	1.5	2.4		2.2	2.3	2.4	2.0	1.4		1.7	2.0	1.9	1.8	1.7		1.3	1.9	2.3	1.6	2.1			
PCB138/158	ug/kg	1.1	1.4	<0.094	<0.093	1.7		<0.093	<0.093	<0.094	1.1	1.2		1.3	1.4	1.1	1.4	1.3		1.2	1.3	1.7	1.1	1.6			
PCB149	ug/kg	0.71	0.73	0.64	0.62	0.91		1.0	0.91	1.0	0.84	0.59		0.75	0.86	0.58	0.74	0.84		0.48	0.72	0.79	0.63	0.81			
PCB151	ug/kg	0.27	<0.067	<0.067	<0.066	<0.067		<0.066	<0.067	<0.067	<0.067	<0.067		<0.066	<0.067	<0.067	<0.066	<0.067		<0.067	<0.067	<0.066	<0.067	<0.067			
PCB156	ug/kg	<0.057	<0.057	<0.057	<0.056	<0.057		<0.056	<0.057	<0.057	<0.057	<0.057		<0.057	<0.057	<0.057	<0.057	<0.057		<0.058	<0.057	<0.057	<0.058	<0.058			
PCB157	ug/kg	<0.052	<0.052	<0.052	<0.051	<0.052		<0.051	<0.052	<0.052	<0.052	<0.052		<0.051	<0.052	<0.052	<0.051	<0.052		<0.052	<0.052	<0.051	<0.052	<0.052			

Table 18 (Continued). Bioaccumulation Potential Replicate and Mean Tissue Results for *Nereis virens* Exposed to Carnival Cruise, LA-2 Reference and Control Sediments.

Analytes	Units	Comp-a-						Comp-b-						Control-						LA2-REF-						T0-Mean
		A	B	C	D	E	Mean	A	B	C	D	E	Mean	A	B	C	D	E	Mean	A	B	C	D	E	Mean	
PCB167	ug/kg	<0.061	<0.061	<0.061	<0.06	<0.061		<0.06	<0.061	<0.061	<0.061	<0.061		<0.061	<0.061	<0.061	<0.061	<0.061		<0.062	<0.061	<0.061	<0.062	<0.062		
PCB168	ug/kg	<0.048	<0.048	<0.048	<0.048	<0.048		<0.048	<0.048	<0.048	<0.048	<0.048		<0.048	<0.048	<0.048	<0.048	<0.048		<0.049	<0.048	<0.048	<0.049	<0.049		
PCB169	ug/kg	<0.061	<0.061	<0.061	<0.06	<0.061		<0.06	<0.06	<0.061	<0.061	<0.06		<0.06	<0.06	<0.06	<0.06	<0.061		<0.061	<0.061	<0.06	<0.061	<0.061		
PCB170	ug/kg	<0.063	<0.063	<0.063	<0.062	<0.063		<0.062	<0.063	<0.063	0.32	<0.063		<0.062	<0.063	<0.063	0.35	<0.063		<0.063	<0.063	<0.062	<0.063	0.3		
PCB177	ug/kg	<0.087	<0.087	<0.087	<0.085	<0.087		<0.085	<0.086	<0.087	<0.087	<0.086		<0.086	<0.086	<0.086	<0.086	<0.087		<0.087	<0.087	<0.086	<0.087	<0.087		
PCB180	ug/kg	0.63	0.8	<0.042	0.56	0.58		0.92	0.77	1.1	0.65	0.49		0.52	0.91	0.62	0.64	1.1		<0.042	<0.042	0.81	0.74	0.73		
PCB183	ug/kg	0.26	0.27	0.26	<0.11	0.29		0.3	<0.11	0.29	0.25	<0.11		<0.11	0.31	0.25	0.44	0.36		<0.11	0.28	0.45	0.26	0.31		
PCB187	ug/kg	0.66	0.5	0.45	0.59	0.51		0.55	0.69	0.65	0.62	0.39		0.64	0.71	0.58	1.2	0.83		0.5	0.71	0.85	0.7	0.59		
PCB189	ug/kg	<0.061	<0.061	<0.061	<0.06	<0.061		<0.06	<0.06	<0.061	<0.061	<0.06		<0.06	<0.06	<0.06	<0.06	<0.061		<0.061	<0.061	<0.06	<0.061	<0.061		
PCB194	ug/kg	<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11		
PCB201	ug/kg	<0.096	<0.096	<0.096	<0.095	<0.096		<0.095	<0.096	<0.096	<0.096	<0.096		<0.095	<0.096	<0.096	<0.095	<0.096		<0.097	<0.096	<0.095	<0.097	<0.097		
PCB206	ug/kg	<0.19	<0.19	<0.19	<0.19	<0.19		<0.19	<0.19	<0.19	<0.19	<0.19		<0.19	<0.19	<0.19	<0.19	<0.19		<0.19	<0.19	<0.19	<0.19	<0.19		
Total PCBs	ug/kg	8.20	8.44	4.81	4.79	11.1	7.47	12.7	11.2	13.6	8.43	7.66	10.7	6.09	7.18	5.65	7.91	6.13	6.59	4.62	6.73	7.78	6.2	8.73	6.81	4.61

Notes:
Bolded Values and Blue shaded cells indicate statistically significant differences in mean concentrations between test and LA-2 reference tissues.
 J = Estimated value between the method detection limit and reporting limit. A "J" value may also indicate an estimated value due to that value not meeting certain QC objectives.
 J+ = A high-biased estimate.
 "UJ-" = not detected estimated low value.

Table 19. Statistical Results for the Carnival Cruise Terminal Composite Samples *Macoma nasuta* Detected Tissue Concentrations Compared to Reference and Control Tissue Concentrations.

Analyte	Sample	n	% ND	Mean	Standard Deviation (n-1)	Lower Bound on Mean (95%)	Upper Bound on Mean (95%)	FDA Action Level
% Lipids	Composite-a	5	0	0.28	0.077	0.21	0.356	--
	Composite-b	5	0	0.44	0.117	0.326	0.55	
	Control	5	0	0.31	0.074	0.235	0.377	
	LA-2 Ref	5	0	0.26	0.099	0.168	0.356	
	T0	5	0	0.64	0.156	0.487	0.785	
Arsenic (mg/kg)	Composite-a	5	0	2.83	0.135	2.70	2.96	--
	Composite-b	5	0	2.89	0.243	2.63	3.12	
	Control	5	0	2.86	0.319	2.56	3.16	
	LA-2 Ref	5	0	2.59	0.201	2.40	2.78	
	T0	5	0	3.31	0.195	3.12	3.50	
Copper (mg/kg)	Composite-a	5	0	1.17	0.124	1.05	1.29	--
	Composite-b	5	0	1.01	0.11	0.905	1.11	
	Control	5	0	1.05	0.0855	0.970	1.13	
	LA-2 Ref	5	0	0.887	0.0399	0.849	0.925	
	T0	5	0	1.09	0.116	0.980	1.20	
Lead (mg/kg)	Composite-a	5	0	0.479	0.0583	0.423	0.535	--
	Composite-b	5	0	0.467	0.0644	0.406	0.528	
	Control	5	0	0.153	0.0118	0.142	0.164	
	LA-2 Ref	5	0	0.102	0.0101	0.092	0.112	
	T0	5	0	0.081	0.00929	0.072	0.09	
Zinc (mg/kg)	Composite-a	5	0	11.7	1.507	10.2	13.1	--
	Composite-b	5	0	11.6	1.094	10.5	12.6	
	Control	5	0	11.9	0.87	11.1	12.8	
	LA-2 Ref	5	0	10.5	1.711	8.9	12.1	
	T0	5	0	13.0	1.064	12.0	14.0	
2,4'-DDD (µg/kg)	Composite-a	5	3	0.115	0.0491	N/A	N/A	5,000 (Fish)
	Composite-b	5	0	0.384	0.0835	0.304	0.464	
	Control	5	5	ND	NA	NA	NA	
	LA-2 Ref	5	5	ND	NA	NA	NA	
	T0	5	5	ND	NA	NA	NA	
2,4'-DDE (µg/kg)	Composite-a	5	0	0.716	0.0808	0.64	0.793	5,000 (Fish)
	Composite-b	5	0	1.21	0.218	1.00	1.41	
	Control	5	0	0.362	0.0311	0.332	0.392	
	LA-2 Ref	5	0	0.452	0.112	0.345	0.559	
	T0	5	4	0.134	0.198	NA	NA	
4,4'-DDD (µg/kg)	Composite-a	5	0	1.08	0.234	0.859	1.30	5,000 (Fish)
	Composite-b	5	2	2.45	0.229	2.15	2.749	
	Control	5	0	0.788	0.142	0.653	0.923	
	LA-2 Ref	5	0	0.814	0.201	0.622	1.01	
	T0	5	0	0.716	0.248	0.479	0.953	

Table 19. Statistical Results for the Long Beach Carnival Cruise Terminal *Macoma nasuta* Detected Tissue Concentrations Compared to Reference and Control Tissue Concentrations (Continued).

Analyte	Sample	n	% ND	Mean	Standard Deviation (n-1)	Lower Bound on Mean (95%)	Upper Bound on Mean (95%)	FDA Action Level
4,4'-DDE (µg/kg)	Composite-a	5	0	4.46	1.205	3.31	5.61	5,000 (Fish)
	Composite-b	5	0	5.28	1.057	4.27	6.29	
	Control	5	0	0.584	0.252	0.344	0.824	
	LA-2 Ref	5	0	3.08	1.123	2.009	4.15	
	T0	5	0	0.334	0.073	0.264	0.404	
Total DDT's (µg/kg)	Composite-a	5	0	6.33	1.315	5.075	7.58	5,000 (Fish)
	Composite-b	5	0	9.56	1.143	8.47	10.6	
	Control	5	0	1.73	0.246	1.50	1.97	
	LA-2 Ref	5	0	4.35	1.225	3.18	5.51	
	T0	5	0	1.20	0.327	0.886	1.51	
Total PCB's (µg/kg)	Composite-a	5	0	11.8	3.092	8.82	14.7	3,000 (Red Meat)
	Composite-b	5	0	19.9	4.858	15.2	24.5	
	Control	5	4	0.204	0.028	N/A	N/A	
	LA-2 Ref	5	2	0.226	0.0622	0.153	0.299	
	T0	5	5	NA	NA	NA	NA	

Bolded values are higher than reference values.

Mean tissue concentrations shaded in blue are statistically elevated ($p \leq 0.05$) over mean reference and control tissue concentrations.

Mean tissue concentrations shaded in orange are statistically elevated ($p \leq 0.05$) over mean reference tissue concentrations only.

NA = value unable to be calculated due to high percentage of non-detect samples.

Italicized values were not statistically evaluated due to the number of NDs or the test results were not higher than the reference or control results.

Table 20. Statistical Results for the Carnival Cruise Terminal *Nereis virens* Detected Tissue Concentrations Compared to Reference and Control Tissue Concentrations.

Analyte	Sample	n	% ND	Mean	Standard Deviation (n-1)	Lower Bound on Mean (95%)	Upper Bound on Mean (95%)	FDA Action Level
% Lipids	Composite-a	5	0	0.87	0.373	0.512	1.22	--
	Composite-b	5	0	1.0	0.276	0.753	1.28	
	Control	5	0	1.0	0.119	0.916	1.144	
	LA-2 Ref	5	0	0.80	0.111	0.694	0.906	
	T0	5	0	0.76	0.207	0.563	0.957	
Arsenic (mg/kg)	Composite-a	5	0	2.10	0.0904	2.016	2.188	--
	Composite-b	5	0	1.97	0.102	1.878	2.058	
	Control	5	0	1.88	0.105	1.782	1.982	
	LA-2 Ref	5	0	2.16	0.121	2.04	2.272	
	T0	5	0	2.91	0.371	2.555	3.261	
Copper (mg/kg)	Composite-a	5	0	1.27	0.139	1.141	1.407	--
	Composite-b	5	0	1.07	0.128	0.951	1.195	
	Control	5	0	1.36	0.103	1.26	1.456	
	LA-2 Ref	5	0	1.28	0.369	0.923	1.627	
	T0	5	0	1.18	0.196	0.992	1.366	
Lead (mg/kg)	Composite-a	5	0	0.529	0.19	0.348	0.71	--
	Composite-b	5	0	0.362	0.0814	0.284	0.44	
	Control	5	0	0.314	0.0673	0.245	0.383	
	LA-2 Ref	5	0	0.557	0.464	-0.565	1.679	
	T0	5	0	0.265	0.0409	0.226	0.304	
Zinc (mg/kg)	Composite-a	5	0	24.1	12.14	12.53	35.67	--
	Composite-b	5	0	18.4	11	7.94	28.9	
	Control	5	0	23.6	5.931	17.93	29.23	
	LA-2 Ref	5	0	12.1	5.33	7.03	17.19	
	T0	5	0	11.2	3.186	8.17	14.25	
2,4'-DDD (µg/kg-lipid)	Composite-a	5	3	0.301	0.398	NA	NA	5,000 (Fish)
	Composite-b	5	1	0.576	0.457	0.189	0.963	
	Control	5	2	0.312	0.253	0.037	0.587	
	LA-2 Ref	5	1	0.474	0.158	0.26	0.688	
	T0	5	2	0.18	0.0556	0.132	0.228	
2,4'-DDE (µg/kg-lipid)	Composite-a	5	0	1.26	0.627	0.665	1.86	5,000 (Fish)
	Composite-b	5	0	1.90	1.291	0.672	3.13	
	Control	5	0	0.971	0.303	0.682	1.26	
	LA-2 Ref	5	0	0.545	0.218	0.338	0.75	
	T0	5	0	0.566	0.49	0.099	1.03	
4,4'-DDD (µg/kg)	Composite-a	5	3	0.988	0.241	NA	NA	5,000 (Fish)
	Composite-b	5	5	ND	N/A	NA	NA	
	Control	5	0	1.28	0.255	1.039	1.52	
	LA-2 Ref	5	0	1.59	0.417	1.191	1.99	
	T0	5	0	0.794	0.362	0.449	1.14	

Table 20. Statistical Results for the Long Beach Carnival Cruise Terminal *Nereis virens* Detected Tissue Concentrations Compared to Reference and Control Tissue Concentrations (Continued).

Analyte	Sample	n	% ND	Mean	Standard Deviation (n-1)	Lower Bound on Mean (95%)	Upper Bound on Mean (95%)	FDA Action Level
4,4'-DDE (µg/kg-lipid)	Composite-a	5	0	0.891	0.256	0.647	1.14	5,000 (Fish)
	Composite-b	5	0	0.915	0.36	0.572	1.26	
	Control	5	0	0.552	0.246	0.317	0.787	
	LA-2 Ref	5	0	0.792	0.198	0.603	0.981	
	T0	5	0	0.795	0.45	0.366	1.22	
4,4'-DDT (µg/kg)	Composite-a	5	4	<i>0.0736</i>	0.0432	NA	NA	5,000 (Fish)
	Composite-b	5	5	<i>ND</i>	NA	NA	NA	
	Control	5	3	0.203	0.221	NA	NA	
	LA-2 Ref	5	5	<i>ND</i>	NA	NA	NA	
	T0	5	3	0.337	0.486	NA	NA	
Total DDT's (µg/kg-lipid)	Composite-a	5	0	4.13	1.577	2.63	5.64	5,000 (Fish)
	Composite-b	5	0	6.33	1.941	4.48	8.18	
	Control	5	0	3.24	0.913	2.37	4.11	
	LA-2 Ref	5	0	3.79	0.867	3.03	4.56	
	T0	5	0	2.94	0.86	2.12	3.76	
Total PCB's (µg/kg-lipid)	Composite-a	5	0	9.18	2.688	4.91	10.0	3,000 (Red Meat)
	Composite-b	5	0	10.8	2.601	8.24	13.2	
	Control	5	0	6.48	0.927	5.71	7.48	
	LA-2 Ref	5	0	8.52	1.565	5.32	8.30	
	T0	5	0	6.11	1.118	3.54	5.67	

Bolded values are higher than reference values.

Mean tissue concentrations shaded in blue are statistically elevated ($p \leq 0.05$) over mean reference and control tissue concentrations.

Mean tissue concentrations shaded in orange are statistically elevated ($p \leq 0.05$) over mean reference tissue concentrations only.

NA = value unable to be calculated due to high percentage of non-detect samples.

Italicized values were not statistically evaluated due to the number of NDs or the test results were not higher than the reference or control results.

5.0 DISCUSSION

Subsections that follow describe the physical, chemical, and biological testing results, as summarized in Tables 8 through 20, in terms of sediment screening levels and objectives for ODMDS placement.

5.1 Grain Size Distribution

All three Carnival samples (Composite-*a*, Composite-*b* and C1-*b*) were described as primarily silt (ML). The fines content in the Composite-*a* sample was 84%, and the fines content in the Composite-*b* and C1-*b* samples was 95%. In comparison, the fines content in the LA-2 reference sample was 53%.

5.2 Bulk Sediment Chemistry

Most sediment conventional analyses were elevated in all three Long Beach Cruise Terminal samples compared to the LA-2 reference sample. Notably elevated concentrations above LA-2 reference concentrations are as follows:

- TRPH and oil and grease concentrations in all samples were roughly a magnitude higher.
- Total sulfide concentrations in all samples were roughly 500 times higher.
- The concentration of Total Organic Carbon, at 1.4% to 2.2% between all samples, was roughly four to six times higher.
- Total volatile solids concentrations were roughly two times higher.

Concentrations of total solids, ammonia and dissolved sulfides in the Long Beach Cruise Terminal sediment samples were similar to those in the LA-2 reference sample.

Compared to NOAA effects based screening levels (Long et. al., 1995) and LA-2 reference data, contaminant concentrations were elevated for some metals in the Long Beach Cruise Terminal sediments. Arsenic, copper, lead, nickel, and zinc exceeded corresponding ERL values in both composite samples and the C1-*b* sample. In addition, cadmium exceeded its corresponding ERL value in the C1-*b* sample, and mercury exceeded its corresponding ERL value in the Composite-*b* sample and the C1-*b* sample. There were no metal ERM exceedances in any sample, and there were no metal ERL exceedances in the LA-2 reference sample. As a result, most metal concentrations in the test sediments were elevated over concentrations in the LA-2 reference sediments.

A few organic compounds exceeded NOAA effects based screening levels and LA-2 reference values in the Long Beach Cruise Terminal sediment samples. Total PCB congener concentrations for Composite-*a*, Composite-*b*, and the C1-*b* samples were elevated above the corresponding ERL value, and PCB congeners were not present in the LA-2 reference sediments. Total DDT, 4,4'-DDD, 4,4'-DDE concentrations were between corresponding ERL and ERM values in both composite samples as well as the C1-*b* core sample. Total DDT and 4,4'-DDE were also elevated above ERL values in the LA-2 reference sediments. Most PAH compounds were detected in the Long Beach Cruise Terminal sediment samples, but none were detected in the LA-2 reference sample. However, there were no PAH compounds that exceeded an ERL value.

The following are other organic compounds detected in the Long Beach Cruise Terminal samples above method detection limits (MDLs):

- Endrin was detected in the Composite-*a* sample (6.1 µg/kg) but not in the LA-2 reference sample (MDL=0.1).
- Pentachlorophenol concentrations in all three Long Beach Cruise Terminal samples were between the MDL and reporting limit (RL) but below the MDL in the LA-2 reference sample.
- Bis-(2ethylhexyl) phthalate concentrations in all three Long Beach Cruise Terminal samples (510 to 830 µg/kg) were a magnitude higher than the MDL but below the MDL in the LA-2 reference sample.
- Two other phthalate compound concentrations in the Composite-*a* and C1-*b* samples were estimated values between the MDL and RL.
- Bifenthrin concentrations in the all three Long Beach Cruise Terminal samples (4.3 to 11 µg/kg) were roughly four to 11 times higher than the RL (1.0 µg/kg). Bifenthrin was not detected in the LA-2 reference sample.
- Cyfluthrin and cypermethrin were detected in the Composite-*a* sample at concentrations of 2.0 and 1.4 µg/kg, respectively, but not in the LA-2 reference sample. Cyfluthrin was also detected in the Composite-*b* sample but at an estimated concentration slightly above the MDL.
- Permethrin concentrations in the all three Long Beach Cruise Terminal samples (2.3 to 7.8 µg/kg) were roughly two to eight times higher than the RL (1.0 µg/kg). Permethrin was not detected in the LA-2 reference sample.

The mean ERM quotient (ERM_q) among all chemical constituents with ERM values was 0.18 for all three Carnival samples. With an ERM_q of 0.1, there is less than a 12% probability of a toxic response to marine amphipods (Long and MacDonald, 1998b). Therefore, the chemistry results predict a moderate chance that the Carnival sediments would cause significant toxicity to marine amphipods.

5.3 Benthic (Solid Phase) Bioassays

Mean survival of *Ampelisca abdita* in the control sediments after the 10-day exposures was acceptable at 97%. Mean *Ampelisca* survival results (Table 10) were 94% for Composite-*a* and 91% for Composite-*b* compared to 96% for the LA-2 reference sample. Since the composite sample survival rates were not statistically reduced relative to the survival in the LA-2 reference sediments, neither Long Beach Cruise Terminal composite sample was toxic to *Ampelisca abdita*.

Mean *Neanthes arenaceodentata* survival was 98% for Composite-*a* and 100% for Composite-*b* compared to 100% for the LA-2 reference sample (Table 11). Since both composite sample survival rates were almost equivalent to the survival rate in the LA-2 reference sediments, neither Long Beach Cruise Terminal composite samples were toxic to *Neanthes arenaceodentata*.

5.4 SPP (Suspended Particulate Phase) Water Column Bioassays

Table 21 summarizes the outcomes of the SPP bioassays and the 100% elutriate survival data presented in Tables 12 through 14. These bioassays are discussed separately below for each of the three species.

Table 21. 100% Elutriate SPP Water Column Bioassays Results.

Composite	Species	Mean Percent Survival (Normal Development) in 100% Elutriate	LC ₅₀ (EC ₅₀)	Exceed the LPC?
Composite-a	<i>Mytilus</i>	89.4 (91.1)	>100% (>100%)	No
	<i>Americamysis</i>	98	>100%	No
	<i>Menidia</i>	92	>100%	No
Composite-b	<i>Mytilus</i>	86.3 (88.7)	>100% (>100%)	No
	<i>Americamysis</i>	100	>100%	No
	<i>Menidia</i>	98	>100%	No

5.4.1 48-Hour Mussel Larvae Survival and Normal Embryonic Development Test

Mean survival of *Mytilus galloprovincialis* (mussel) embryos was greater than 92% in the laboratory controls, indicating an acceptable survival response to the test organisms (Table 12). Mean survival in the 100% test elutriates was 89.4% for Composite-a and 86.3% for Composite-b and were not statistically reduced relative to the dilution water (laboratory control) nor site water control (93.0% mean survival). Resulting LC₅₀ values were both greater than 100% elutriate. Therefore, no acute water column toxicity is expected based on elutriate exposures to *Mytilus*.

Mean normally developed mussel embryos were greater than 93% in the laboratory control samples and was 95.2% in the site water (Table 12). Mean normally developed embryos in the 100% test elutriates was 91.1% for Composite-a and 88.7% for Composite-b and were not statistically reduced relative to the laboratory control and site water. Resulting EC₅₀ values were both greater than 100% elutriate. Therefore, no chronic water column toxicity is expected based on elutriate exposures to *Mytilus*.

5.4.2 96-Hour Mysid Survival Test

Mean survival of *Americamysis bahia* exposed for 96 hours to the undiluted elutriate SET extracts formed from the Long Beach Cruise Terminal composite samples was 98% for Composite-a and 100% for Composite-b compared to mean control survivals of 96% and 100% (Table 13). None of the composite samples were statistically reduced relative to the dilution water (laboratory controls) nor site water control (100% mean survival). Resulting LC₅₀ values were all greater than 100% elutriate, indicating no toxicity to mysids after 96 hours of exposure.

5.4.3 96-Hour Juvenile Fish Survival Test

Mean survival of juvenile *Menidia berylinna* exposed for 96 hours to the undiluted elutriate SET extracts formed from the Long Beach Cruise Terminal composite samples was 92% for Composite-*a* and 98% for Composite-*b*, compared to mean control survivals of 98% (Table 14). Test sample mean survivals were not statistically reduced relative to the dilution water (laboratory control) nor site water control (100% mean survival), indicating no toxicity to fish after 96 hours of exposure.

5.4.4 SPP Testing Conclusion

Since there was no observed toxicity in the water column tests with any of the composite samples, the limiting permissible concentrations (LPCs) for discharging the Long Beach Cruise Terminal sediments through the water column were met.

5.5 Bioaccumulation Testing for Ocean Placement

Bioaccumulation potential testing is discussed in terms of meeting the LPC for ocean placement. Each chemical evaluated is discussed separately.

5.5.1 Bioaccumulation Survival

Though the main purpose of the bioaccumulation tests is to determine whether contaminants of concern will bioaccumulate up to marine invertebrates from sediment, survival of the clams and worms during the exposure period was also measured. After 28-day bioaccumulation exposures, mean *Macoma* survival was 91% and 94% for Composite-*a* and Composite-*b*, respectively, and mean *Nereis* survival was 100% and 96% for Composite-*a* and Composite-*b*, respectively (Tables 13 and 14) compared to 94% and 86% for the reference and control exposures to *Macoma*, respectively, and 100% for the reference and control exposures to *Nereis*. Therefore, the 28-day survival data for the clams and worms further supports the results of the toxicity tests described above that indicate that the test sediments are not toxic to benthic organisms.

5.5.2 Assessment of Bioaccumulation Potential

Tissues of the clams and worms resulting from the bioaccumulation exposures were analyzed for contaminants of concern. Based on sediment chemistry data and consultation with the USEPA Region IX, tissues derived from the bioaccumulation exposures were analyzed for arsenic, copper, lead, zinc, DDT compounds, and PCB congeners.

As indicated in the OTM, the statistical comparison of tissue residues in the treatments to the reference tissue residues provides a starting point to the tiered evaluation. Because variability between replicates in the reference tissues is typically low, a statistical significance may be observed without biological relevance. In this case, other points of comparison and interpretation are used, including an evaluation of the magnitude of difference, a comparison of observed tissue residues with critical body residue levels. These points of evaluation will be discussed in the following sections.

The null hypotheses tested were that residue concentrations in the the test tissues were not statistically different than residue concentrations in the reference tissues and that residue concentrations in the the test tissues were not statistically different than residue concentrations in the control tissues. Statistical conclusions for *Macoma* are provided in Table 19 and statistical conclusions for *Nereis* are provided in Table 20. Mean concentrations in blue shaded cells indicate statistically significant differences with mean reference and control tissue concentrations. Mean concentrations in green shaded cells indicate statistically significant differences with mean reference tissue concentrations only.

Statistical hypothesis testing was not or could not be conducted for all analytes in all samples for the following reasons:

- 2,4'-DDD was not statistically evaluated in the Composite-*a* and Composite-*b* *Macoma* tissues because this isomer was not detected in the reference and control tissues.
- 2,4'-DDD was not statistically evaluated in the Composite-*a* *Nereis* tissues because the isomer was not detected in more than half the replicates.
- 4,4'-DDD was not statistically evaluated in the Composite-*a* and Composite-*b* *Nereis* tissues because the isomer was not detected or was less than mean tissue concentrations for the reference and control.
- 4,4'-DDT was not statistically evaluated in the Composite-*a* *Nereis* tissues because the isomer was not detected in more than half the test, reference and control replicates. 4,4'-DDT was not detected in the Composite-*b* *Nereis* tissues.

Since mean arsenic and copper concentrations in both *Macoma* and *Nereis* baseline (T0) tissues were similar to or higher than mean test tissue concentrations for either of the composite samples being evaluated, bioaccumulation of arsenic and copper is not predicted, and therefore, ecological and human health effects associated with arsenic and copper uptake from the test sediments are not predicted. In addition, since 4,4'-DDT was not detected in the *Macoma* tissues and was higher in the T0 *Nereis* tissues, ecological and human health effects associated with 4,4'-DDT uptake from the test sediments are not predicted. Therefore, only the statistically significant bioaccumulation of lead, zinc, PCBs, and the remaining DDT isomers as well as total DDT will be discussed further.

Nereis tissue results for 2,4'-DDD, 2,4'-DDE, 4,4'-DDE, total DDT, and PCBs were normalized to lipids since positive relationships were found between those concentrations and lipid concentrations. Figures 6 and 7 show the relationship between lipids and total DDT and lipids and total PCBs, respectively.

For mean tissue concentrations that were detected in the test tissues and were determined to be statistically higher than mean reference concentrations, the upper 95% confidence limits (95% UCL) were compared to FDA action levels and the lowest relevant ecological effects data among invertebrates unless, in the case of DDT, there are no relevant ecological effects data for marine invertebrates. As previously mentioned, ecological effects data used were Toxicity Reference Values (TRVs) in USACE's online Environmental Residue Effects Database (ERED) (<https://ered.el.erdc.dren.mil/>). Only no effects concentration (NOEC) and lowest effects concentration (LOEC) end points were queried with the preference being the use of a LOEC

endpoint. TRVs chosen were only for measurable biological effects such as mortality, reproduction and growth.

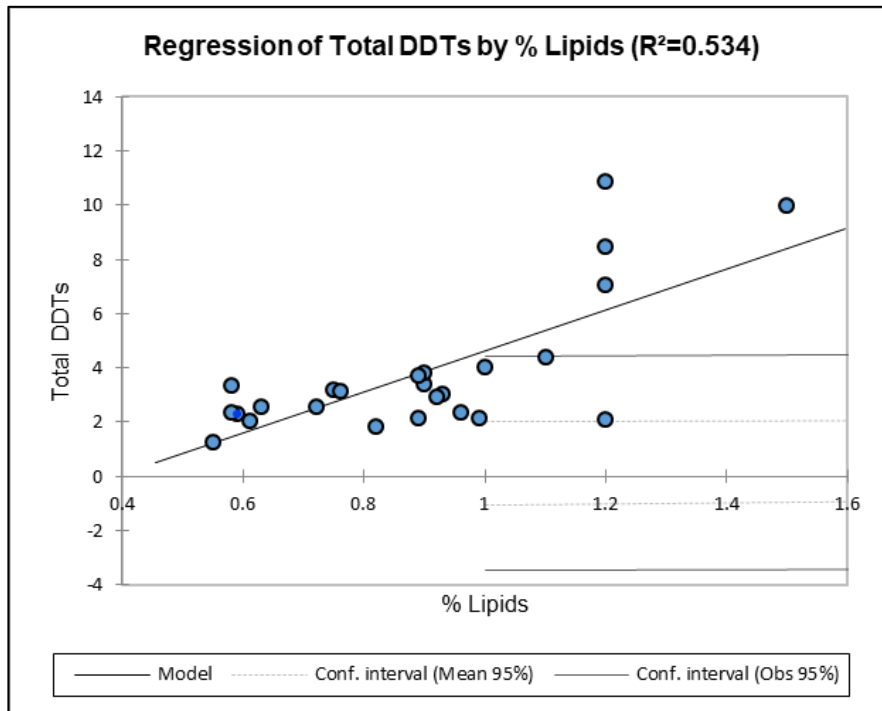


Figure 6. Relationship between Total DDT and Lipid Concentrations in *Nereis* Tissues.

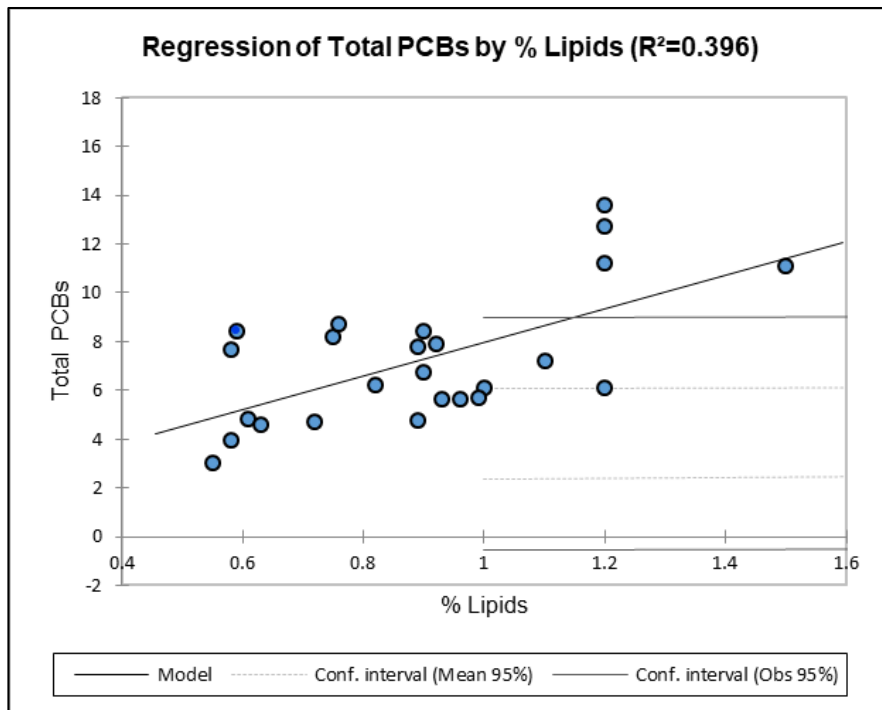


Figure 7. Relationship between Total PCBs and Lipid Concentrations in *Nereis* Tissues.

5.5.3 Uptake of Lead

The distribution of lead uptake among *Macoma* and *Nereis* test, control, and reference tissues are shown on Figures 8 and 9, respectively. Mean concentrations of lead in the Composite-*a* and Composite-*b* *Macoma* tissue samples after 28 days of exposures were statistically higher than mean concentrations of lead in the *Macoma* tissues from the 28 days of reference sediment exposures (Table 19). Lead was not statistically elevated in the *Nereis* test tissues compared to the *Nereis* reference tissues.

Statistically significant mean uptakes of lead in the Composite-*a* and Composite-*b* *Macoma* test tissues (0.479 and 0.467 mg/kg, respectively) were about five times higher than the mean uptake in the *Macoma* reference tissues (0.102 mg/kg) and three times higher than the mean uptake in the *Macoma* control tissues (0.153 mg/kg). Mean uptakes of lead in the *Macoma* test tissues were also about six times higher than the concentration of lead in the T0 tissue sample (0.081mg/kg). The distribution of lead in the *Nereis* test, reference, Control and T0 tissues were roughly similar (Figure 9).

There is no FDA Action Level for lead and there are no known fish advisories based on lead. Therefore, mean and 95% UCL lead tissue burdens are only discussed in terms of ecological effects based on TRVs. The lowest, most relevant lead value in the ERED for a marine invertebrate was a survival and development LOEC of 31.4 mg/kg for the Purple Sea Urchin *Paracentrotus lividus*, which is a couple magnitudes higher than the Long Beach Cruise Terminal 95% UCL *Macoma* tissue concentrations. There was also a survival NOEC of 0.58 mg/kg for the Purple Sea Urchin that was slightly higher than the Composite-*a* and Composite-*b* mean *Macoma* tissue concentrations. Since there is little evidence showing that lead biomagnifies (Suedel et al., 1994), it seems unlikely that lead bioaccumulation from the Long Beach Cruise Terminal sediments will have any ecological impacts. Therefore, the statistically significant bioaccumulation of lead observed with the *Macoma* assays is considered minor and ecological effects associated with lead uptake from these sediments are not predicted to be observed at LA-2 ODMDS.

5.5.4 Uptake of Zinc

The distribution of zinc uptake among *Macoma* and *Nereis* test, control, and reference tissues is shown on Figures 10 and 11, respectively. The mean concentration of zinc in the Composite-*a* *Nereis* tissues after 28 days of exposures was statistically higher by a factor of two than the mean concentration of zinc in the *Nereis* tissues from the 28 days of reference exposures (Table 20). Note that the mean *Nereis* T0 tissue concentration for Zinc (11.2 µg/kg) was about half the mean *Nereis* Composite-*a* zinc concentration (24.1 µg/kg), and the mean *Nereis* control concentration (23.6 µg/kg) was also statistically elevated over LA-2 *Nereis* reference concentration (12.1 µg/kg). Therefore, zinc concentrations in the *Nereis* Composite-*a* test tissues are biased high. Zinc was not statistically elevated in any of the *Macoma* test tissues compared to the *Macoma* reference tissues.

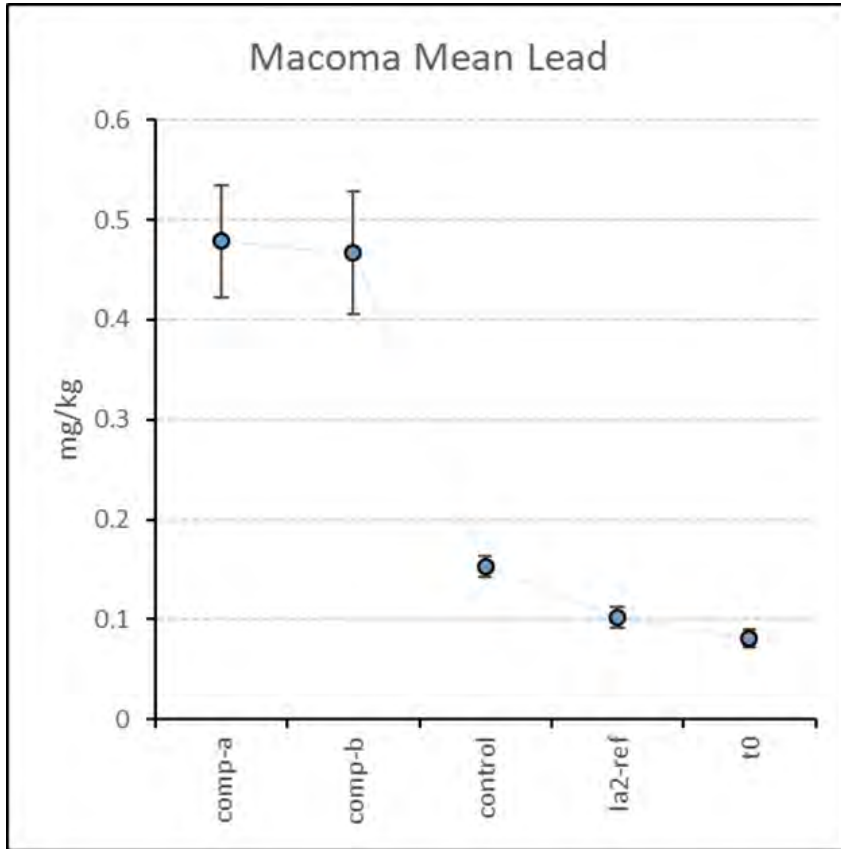


Figure 8. Distribution of *Macoma nasuta* Lead Uptake.

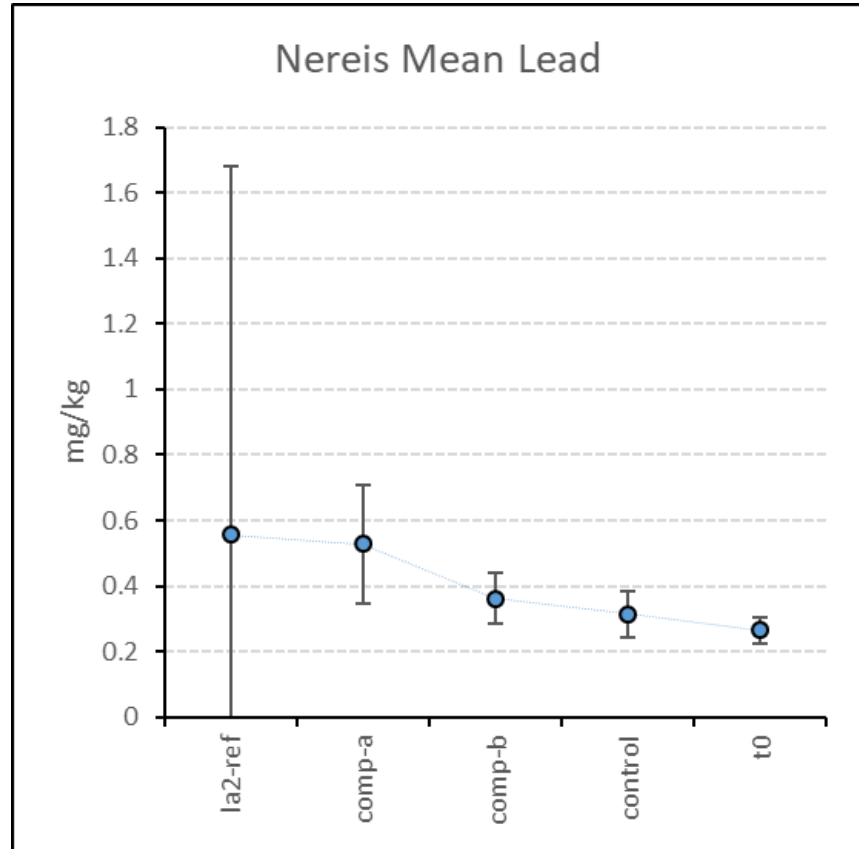


Figure 9. Distribution of *Nereis virens* Lead Uptake.

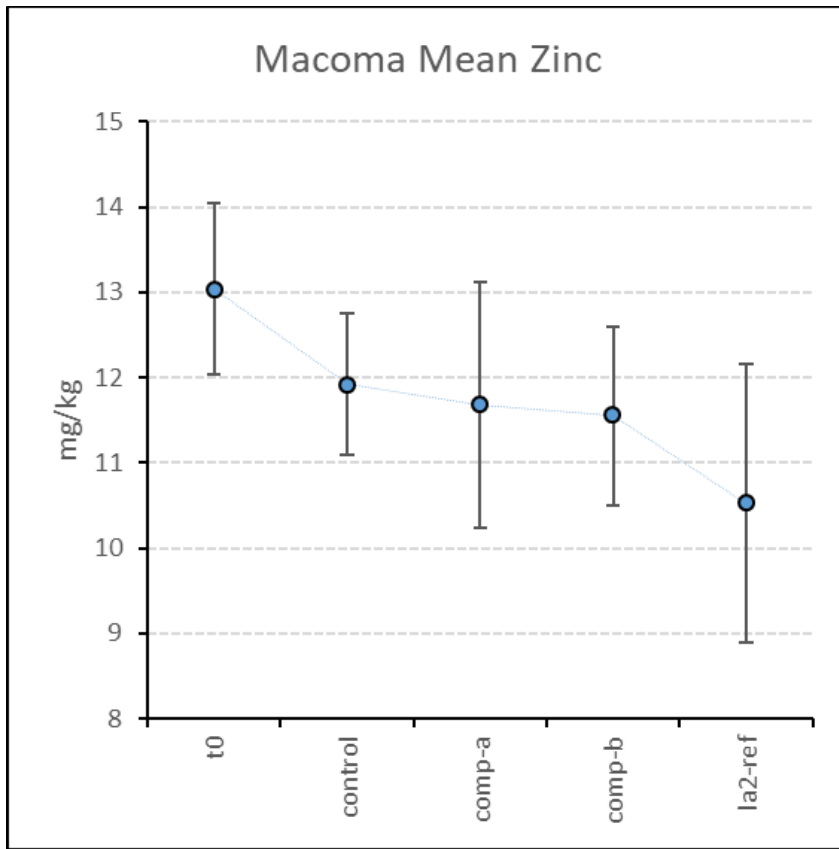


Figure 10. Distribution of *Macoma nasuta* Zinc Uptake.

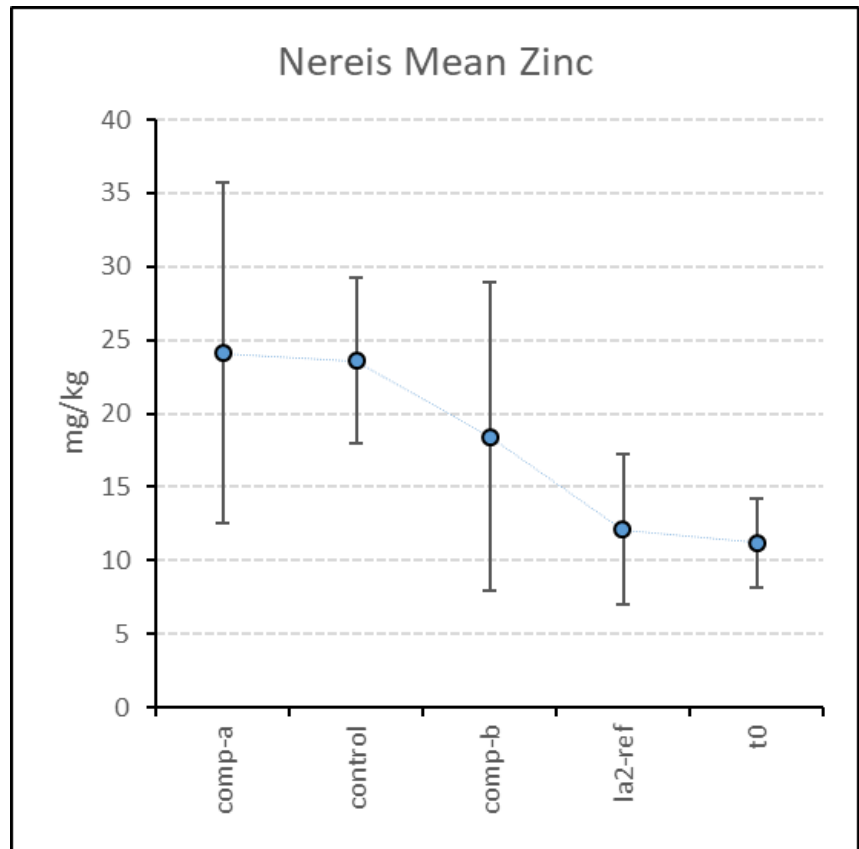


Figure 11. Distribution of *Nereis virens* Zinc Uptake.

There is no FDA Action Level for zinc and there are no known fish advisories based on zinc. Therefore, zinc tissue burdens are only discussed in terms of ecological effects based on TRVs. There are several low and relevant zinc TRVs in the ERED for marine invertebrates. These TRVs, which were similar to or slightly less than the 95% UCL concentration (35.7 µg/kg) in Composite-*a Nereis* test tissues, are summarized in Table 22. If you subtract off the 14.3 µg/kg T0 95% UCL concentration from the Composite-*a* 95% UCL concentration, the result (20.7 µg/kg) is mostly less than the Table 22 TRVs.

Table 22. Lowest Relevant TRVs for Zinc in the ERED Database.

Species	Classification	TRV (mg/kg)	Toxicity End Point	Exposure Route	Effect
<i>Allorchestetes</i>	Amphipod	28	LOEC	Water	Growth and
<i>Mytilus edulis</i>	Mollusk	25	LOEC	Water	Growth
<i>Mytilus edulis</i>	Mollusk	26	LOEC	Water	Mortality
<i>Paracentrotus lividus</i>	Echinoderm	40.6	LOEC	Water	Development
<i>Australonereis ehlersi</i>	Polychaete	20	NOEC	Combined	Mortality

Since there is little evidence showing that zinc biomagnifies (Suedel et al., 1994) plus the lowest, most relevant TRV in Table 21 (Mollusk LOEC) is higher than the Composite-*a Nereis* tissue concentration, it seems unlikely that zinc bioaccumulation from the Long Beach Cruise Terminal sediments will have any ecological impacts. This coupled with the fact that there was also statistically significant Control uptake of lead, the statistically significant bioaccumulation of zinc observed with the *Nereis* assays is considered minor and ecological effects associated with zinc uptake from these sediments are not predicted to be observed at the LA-2 ODMDS.

5.5.5 Uptake of DDTs

The distribution of *Macoma* total DDT uptake along with the distributions of four of the DDT isomers detected among test, Control, and reference tissues are shown on Figures 12 through 16. There was statistically significant ($p \leq 0.05$) mean uptake of total DDT in the Composite-*a* and Composite-*b Macoma* tissues compared to the LA-2 reference tissues (Table 19). Mean *Macoma* tissue concentrations were 6.33 and 9.56 µg/kg for these composite samples, respectively, compared to 4.35 µg/kg in the LA-2 reference tissue samples (roughly two times higher). The five detected isomers were also statistically elevated in the test tissues from one or both of the composite samples. DDT concentrations in the test, reference and Control tissue were biased high with a mean T0 total DDT concentration of 1.2 µg/kg.

The distribution of *Nereis* total DDT uptake along with the distributions of the five DDT isomers detected among test, control, and reference tissues are shown on Figures 17 through 22. There was statistically significant ($p \leq 0.05$) mean uptake of total DDT in the Composite-*b Nereis* tissues compared to the LA-2 reference tissues (Table 20). The mean *Nereis* tissue concentration for this composite was 6.22 µg/kg-lipid compared to 3.79 µg/kg-lipid for the LA-2 reference tissues (less than two times higher). 2,4'-DDE was the only isomer that was also statistically elevated in the Composite-*b* test tissues as well as in the Composite-*a* test tissues. DDT concentrations in the test, reference and control tissues were biased high with a mean T0 total DDT concentration of 2.94 µg/kg-lipid.

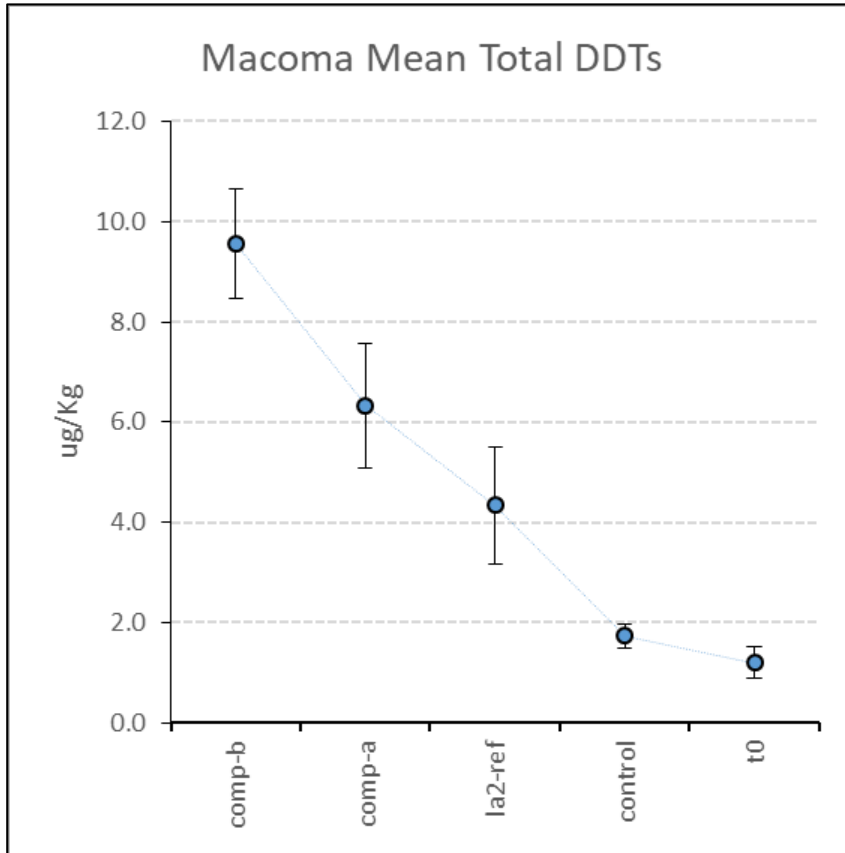


Figure 12. Distribution of *Macoma nasuta* Total DDT Uptake.

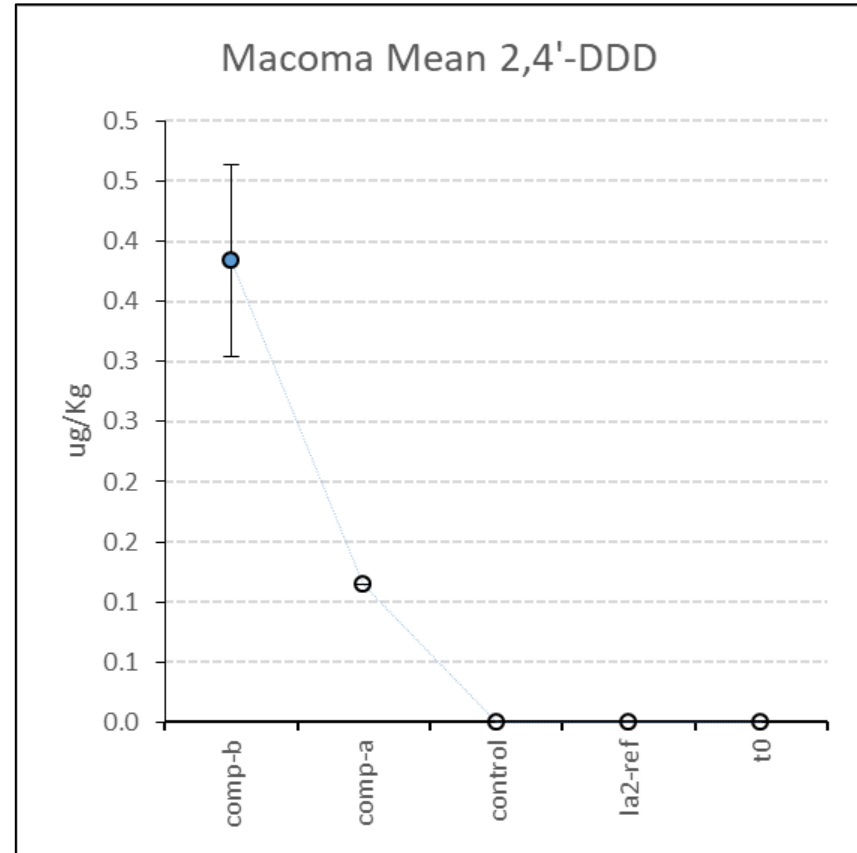


Figure 13. Distribution of *Macoma nasuta* 2,4' DDD Uptake.

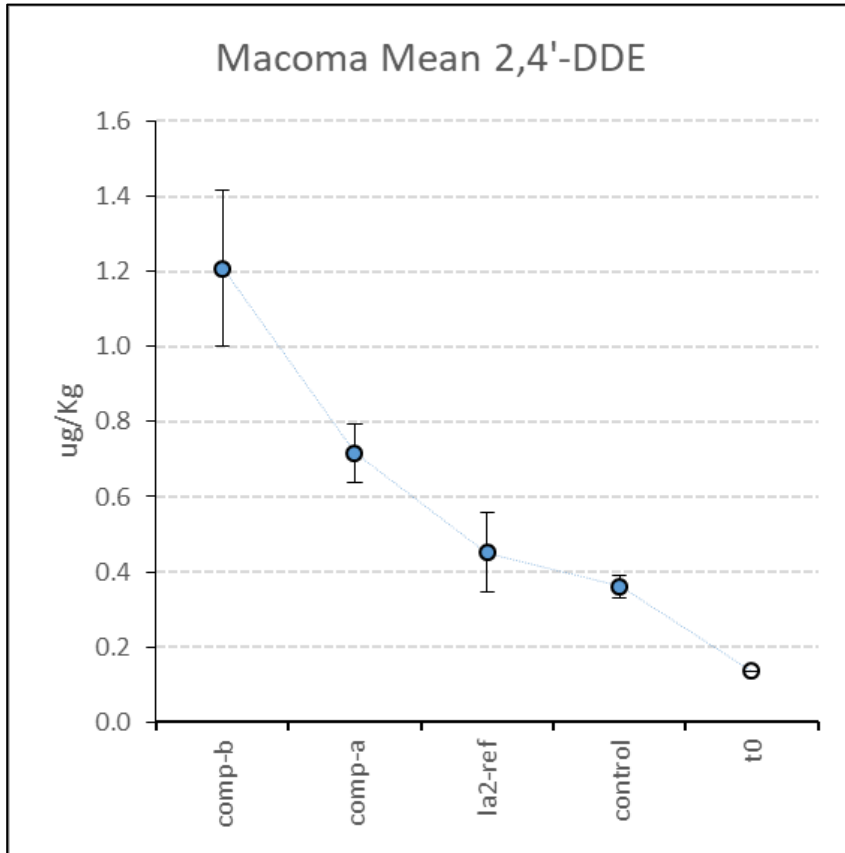


Figure 14. Distribution of *Macoma nasuta* 2,4' DDE Uptake.

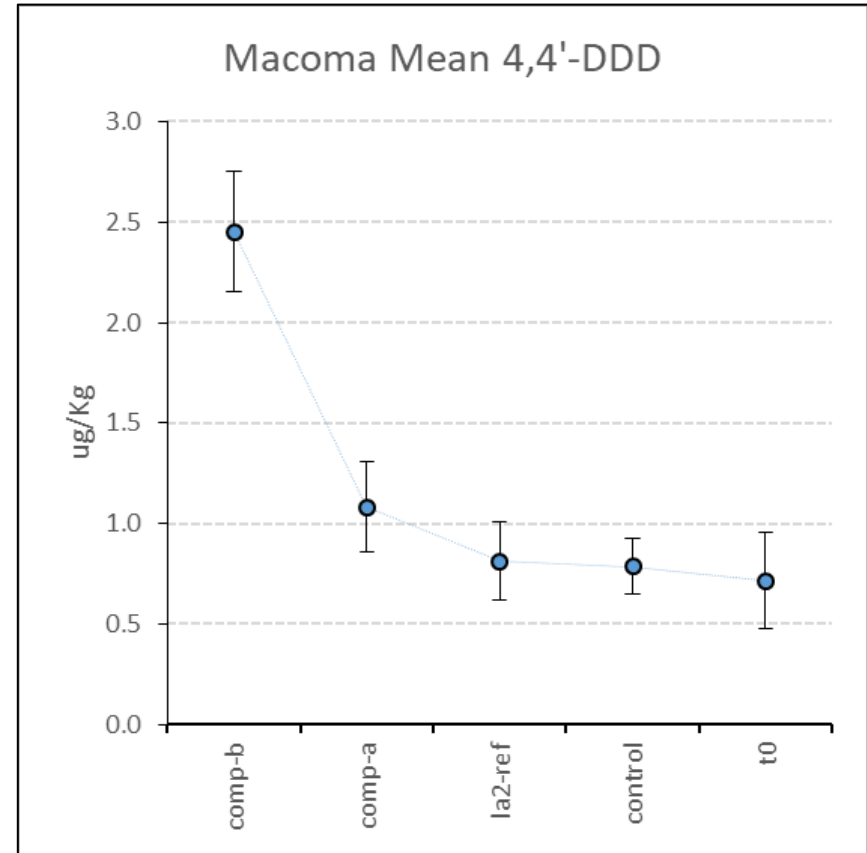


Figure 15. Distribution of *Macoma nasuta* 4,4' DDD Uptake.

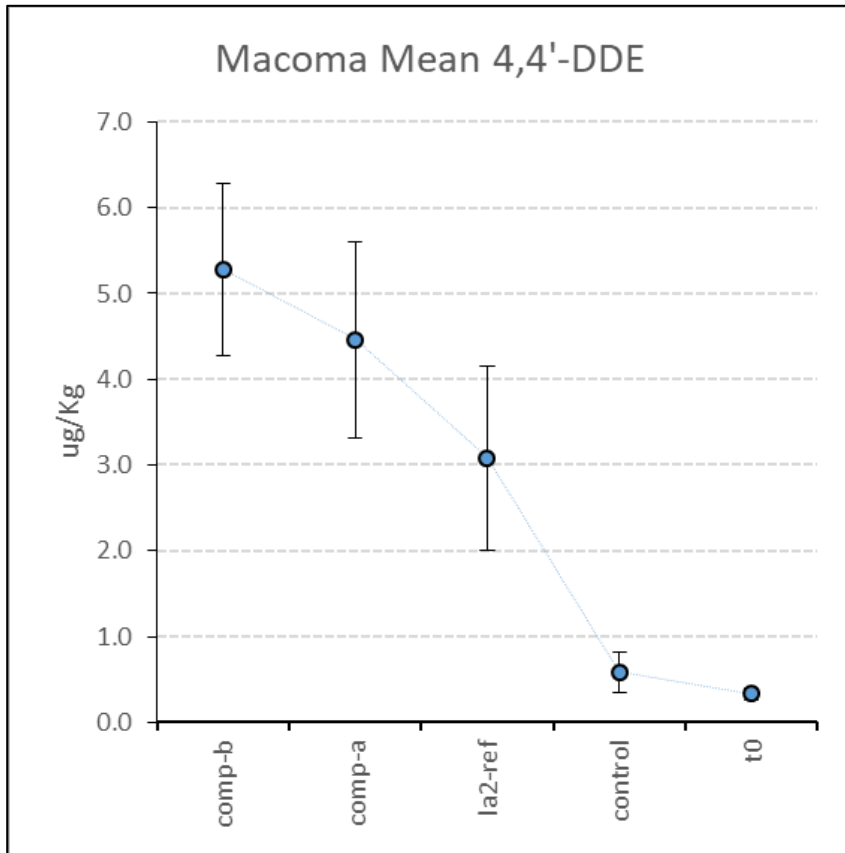


Figure 16. Distribution of *Macoma nasuta* 4,4' DDE Uptake.

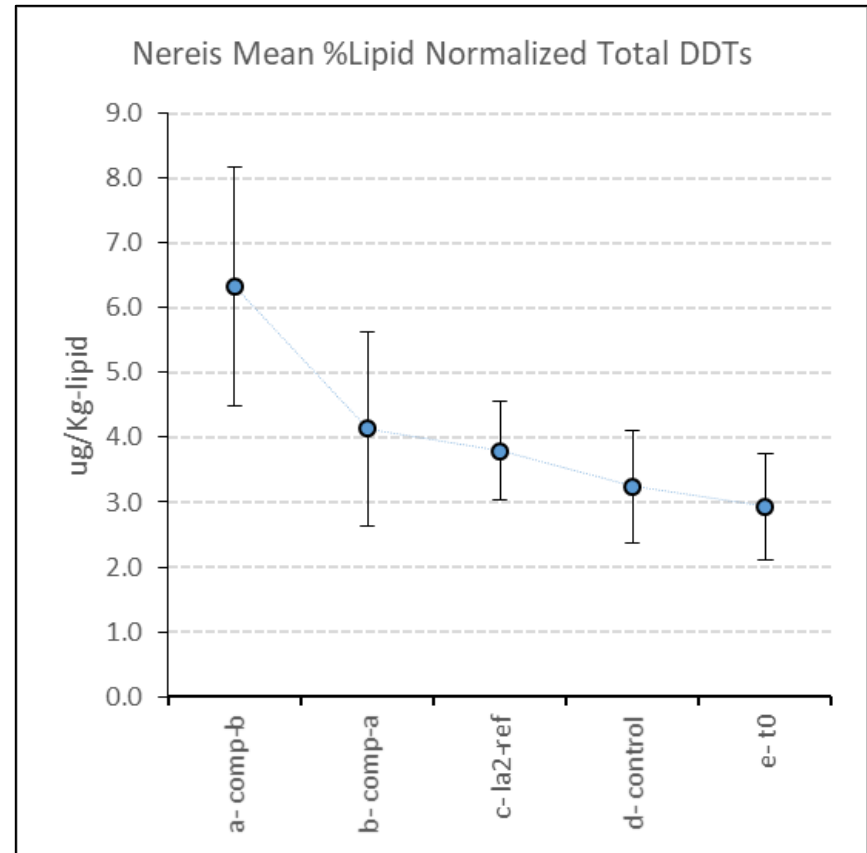


Figure 17. Distribution of *Nereis virens* Total DDT Uptake.

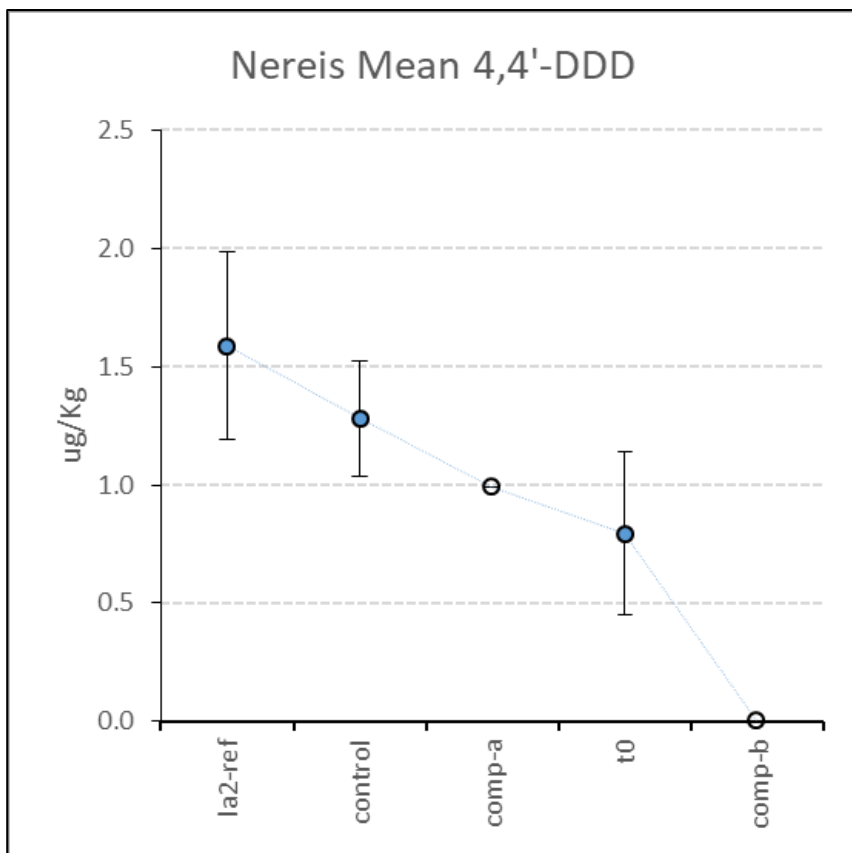


Figure 18. Distribution of *Nereis virens* 2,4' DDD Uptake.

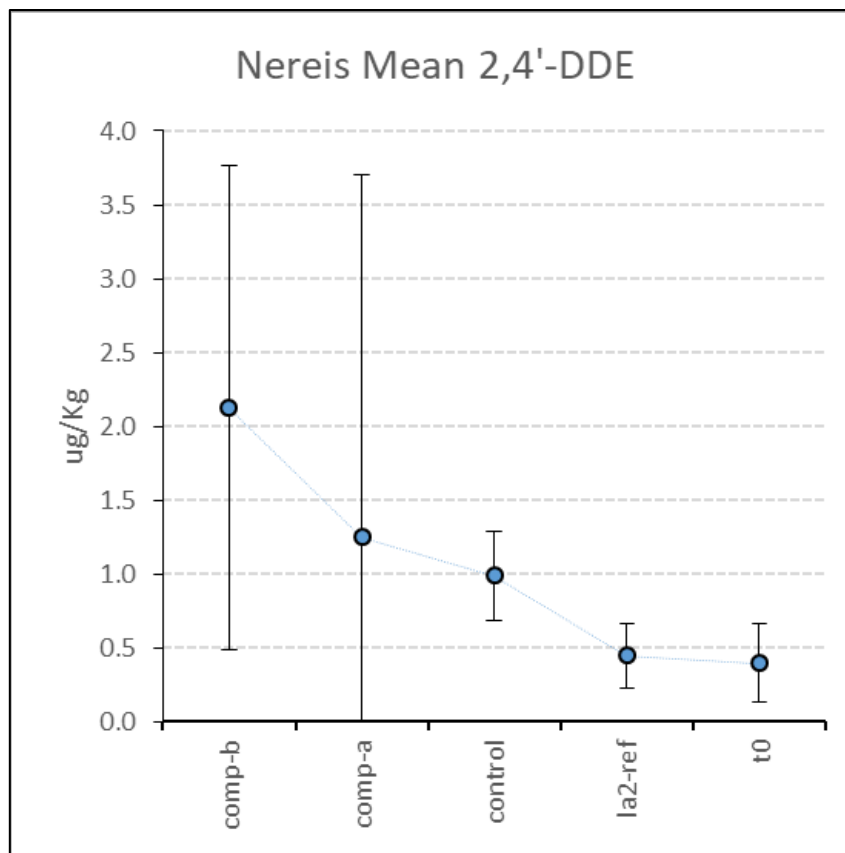


Figure 19. Distribution of *Nereis virens* 2,4' DDE Uptake.

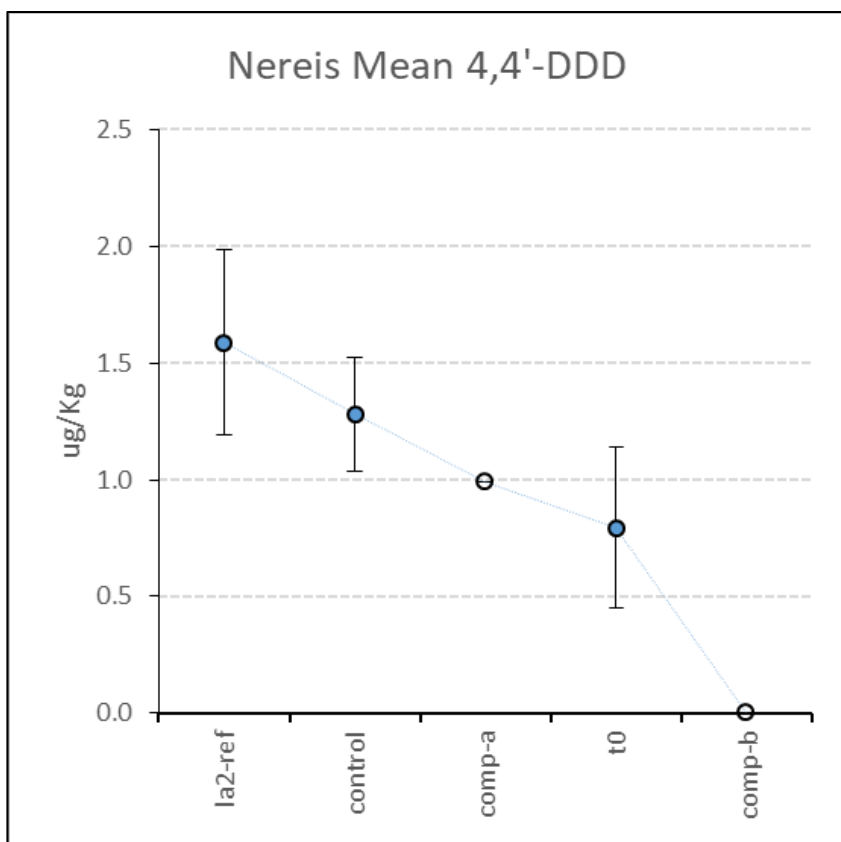


Figure 20. Distribution of *Nereis virens* 4,4' DDD Uptake.

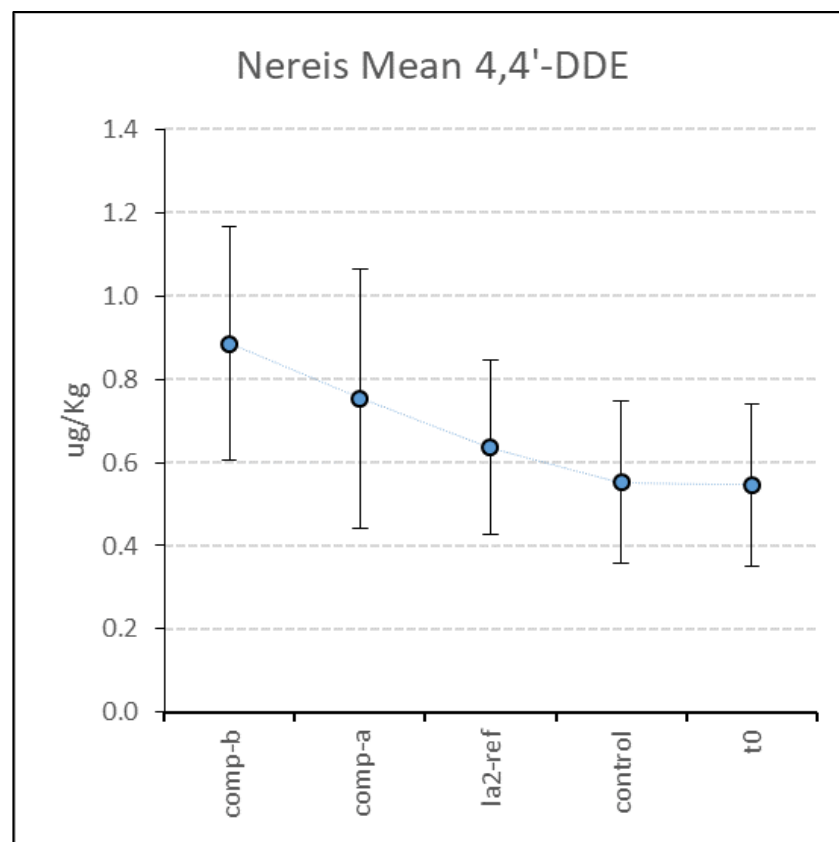


Figure 21. Distribution of *Nereis virens* 4,4' DDE Uptake.

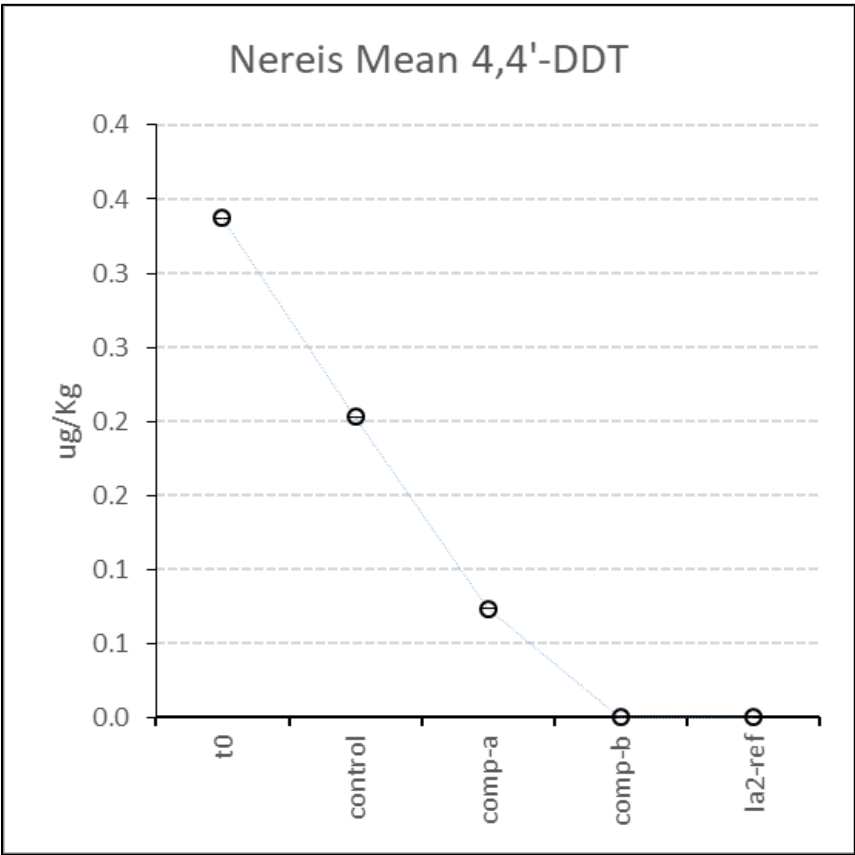


Figure 22. Distribution of *Nereis virens* 4,4' DDT Uptake.

Bioaccumulation protocols assume tissue concentrations are in at least 80% of steady state with surrounding sediments when comparing tissue values to Action Levels and effects data. According to the ITM, at least 80% of steady state is not usually reached for DDT compounds after 28 days of exposures. According to USACE guidance (Kennedy et. al., 2010), 63% of total DDT and 56% to 77% of the DDT isomers reach steady state in *Macoma* after 28 days of exposure. For *Nereis*, 56% of total DDT and 50% to 63% of the DDT isomers reach steady state after 28 days of exposure. Therefore, the measured tissue DDT values from the 28-day exposures to *Macoma* and *Nereis* were multiplied by corresponding correction factors. Mean and 95% UCL steady state adjusted 2,4'-DDD, 2,4'-DDE, 4,4'-DDD, 4,4'-DDE and total DDT concentrations are provided in Table 23 for *Macoma* and Table 24 for *Nereis*. The 2,4-DDT, 4,4'-DDT were not included since they were either not detected or detected at non-significant levels.

The mean and 95% UCL steady state adjusted tissue concentrations were further evaluated against the FDA Action Level for DDD, DDE and DDT and to relevant TRVs in the ERED for certain DDT analogues. Since 2,4'-DDD, 2,4'-DDE, 2,4'-DDD and 4,4'-DDE were the primary DDT analogs in the Carnival Cruise Terminal tissues, mean and 95% UCL steady-state adjusted concentrations of these analogs were used for comparisons to the ERED effects concentrations. The adjusted mean and 95% UCL total DDT concentrations for the test tissues show that they are magnitudes lower than the FDA Action level of 5,000 µg/kg. Most of the ERED data are associated with organisms belonging to freshwater food webs. There are no relevant marine invertebrate effects data for the DDD and DDE analogues. The lowest somewhat relevant TRVs found in the database for the DDD and DDE analogues are provided in Table 25. There were no TRVs found for 2,4'-DDD.

The lowest somewhat relevant TRV found for 2,4'-DDE was a reproductive NOEC of 510 µg/kg for Chinook Salmon. This value is 247 times higher than the highest steady-state adjusted 95% UCL concentration for the *Macoma* test tissues, and 125 times higher than the highest steady state adjusted 95% UCL concentration for the *Nereis* test tissues. The lowest somewhat relevant TRV found for 4,4'-DDD was a reproductive NOEC of 180 µg/kg for an Osprey. The highest steady state adjusted 95% UCL concentration for the *Macoma* and *Nereis* tissues was 55 times less than this value. The lowest LOEC value for 4,4'-DDD was a reproductive LOEC of 1,484 µg/kg for a Bottlenose Dolphin. The lowest somewhat relevant TRV found for 4,4'-DDE was a reproductive NOEC of 2.5 µg/kg for an Osprey. The steady state adjusted 95% UCL concentrations for the *Macoma* and *Nereis* tissues are higher than this value. However, Ospreys tend to forage bottom dwelling fish in more shallow coastal waters and would not be expected to forage at LA-2. The lowest, most relevant 4,4'-DDE TRV found was for Brown Pelicans, and it consisted of a reproductive NOEC of 1,770 µg/kg. This value is about 167 times or more higher than the steady state adjusted 95% UCL concentrations for *Macoma* and *Nereis*.

Table 23. Mean and 95% UCL Steady State Adjusted *Macoma Nasuta* Tissue Concentrations for DDTs.

Sample	Steady-State Corrected Mean Values (µg/kg)					Steady-State Corrected 95% UCL Values (µg/kg)				
	2,4'-DDD	2,4'-DDE	4,4'-DDD	4,4'-DDE	Total DDT	2,4'-DDD	2,4'-DDE	4,4'-DDD	4,4'-DDE	Total DDT
	1.6x	1.7x	1.6x	2.0x	1.7x	1.6x	1.7x	1.6x	2.0x	1.7x
Composite-a	0.184	1.22	1.73	8.92	10.8	NA	1.22	1.95	8.92	10.8
Composite-b	0.614	2.06	3.92	10.6	16.2	0.742	2.06	3.29	10.6	16.2
LA-2 Reference	ND	0.615	1.26	1.17	2.94	NA	0.615	0.985	1.17	2.94
Control	ND	0.768	1.30	6.16	7.39	NA	0.768	1.23	6.16	7.39
T0	ND	0.228	1.12	0.668	2.04	NA	0.228	0.364	0.668	2.04

ND = Not Detected

NA= Not enough replicate detections to calculate a 95% confidence limit.

Table 24. Mean and 95% UCL Steady State Adjusted *Nereis Virens* Tissue Concentrations for DDTs.

Sample	Steady-State Corrected Mean Values (µg/kg)					Steady-State Corrected 95% UCL Values (µg/kg)				
	2,4'-DDD*	2,4'-DDE*	4,4'-DDD	4,4'-DDE*	Total DDT*	2,4'-DDD*	2,4'-DDE*	4,4'-DDD	4,4'-DDE*	Total DDT*
	1.4x	1.3x	1.6x	1.1x	1.6x	1.4x	1.3x	1.6x	1.1x	1.6x
Composite-	0.421	1.64	1.58	0.980	6.61	NA	2.42	NA	1.25	16.0
Composite-	0.806	2.47	NA	1.01	10.1	1.348	4.07	NA	1.39	21.1
LA-2	0.437	1.26	2.05	0.607	5.18	0.822	1.64	2.43	0.866	12.0
Control	0.664	0.708	2.54	0.871	6.06	0.963	0.975	3.18	1.08	13.3
T0	0.252	0.736	1.270	0.874	4.70	0.319	1.34	1.82	1.34	9.07

*Normalized to Lipids.

ND = Not Detected

NA= Not enough replicate detections to calculate a 95% confidence limit.

Table 25. Selected Relevant TRVs from the ERED database for 2,4'-DDE and 4,4'-DDE.

Analyte	Species	ERED Effects Concentration (µg/kg)	Effect Class	Toxicity Measure	Exposure Route
2,4'-DDE	<i>Tursiops truncatus</i> (Bottle Nose Dolphin)	857	Reproduction	LOEC	Combined Routes
2,4'-DDE	<i>Oncorhynchus tshawytscha</i> (Chinook Salmon)	510	Reproduction (Egg)	NOEC	Water
2,4'-DDE	<i>Poecilia latipinna</i> (Sailfin Molly)	4,300	Growth and Mortality (Injection)	NOEC	Absorption
4,4'-DDD	<i>Pandion haliaetus</i> (Osprey)	180	Reproduction (Egg)	NOEC	Not Specified
4,4'-DDD	<i>Tursiops truncatus</i> (Bottlenose Dolphin)	1,484	Reproduction	LOEC	Combined Routes
4,4'-DDE	<i>Pandion haliaetus</i> (Osprey)	2.5	Reproduction (Plasma)	NOEC	Combined Routes
4,4'-DDE	<i>Pelecanus occidentalis</i> (Brown Pelican)	1,770	Reproduction (Egg)	NOEC	Combined Routes
4,4'-DDE	<i>Nycticorax nycticorax</i> (Blact-Crowned Night Heron)	460	Reproduction (Egg)	NOEC	Combined Routes

The trophic transfer and biomagnification of DDT and its derivatives in aquatic food chains have been well documented. AMEC Foster Wheeler (2016) conducted a comprehensive aquatic food web study in San Diego Bay. They generally found an increase in total DDT with increasing trophic levels. Mean concentrations in foraging fish (11.3 µg/kg) and predatory fish (12.3 µg/kg) were generally twice as high as mean concentrations among benthic invertebrate classes (6.0 to 7.1 µg/kg). Other studies summarized in a paper by Suedel et al. (1994), though, indicates that trophic transfer of DDD and DDE does not occur sufficiently to result in marine food-chain biomagnification. Regardless, all pertinent DDT analog residue effects data are many times higher than the steady-state adjusted mean and 95% UCL tissue concentrations and biomagnification factors would need to be quite high for predators eating invertebrates to obtain tissue burdens that would be high enough to cause toxicity in the predator. They would also need to be high for concentrations to reach levels in fish that would exceed screening levels for the protection of humans (OHHEA Advisory Tissue Levels of no more than three servings per week at concentrations of 390 to 520 µg/kg wet weight). Therefore, ecological and human effects associated with DDT analog uptake from the Long Beach Cruise Terminal sediments are not predicted to be observed at the LA-2 ODMDS.

5.5.6 Uptake of PCB Congeners

The distribution of *Macoma* total PCB congener uptake among test, reference and control tissues is shown on Figure 23. There was statistically significant ($p \leq 0.05$) mean uptake of total PCBs in *Macoma* exposed to the Long Beach Cruise Terminal composite samples compared to the average uptake of total PCBs in the tissues of *Macoma* exposed to the LA-2 reference sediments (Table 19). Average uptake of total PCBs in *Macoma* exposed to the Composite-*a* and Composite-*b* sediments was 11.8 and 19.9 $\mu\text{g}/\text{kg}$, respectively, compared to 0.226 $\mu\text{g}/\text{kg}$ for *Macoma* exposed to the LA-2 reference sediments and 0.204 $\mu\text{g}/\text{kg}$ for *Macoma* exposed to the control sediments. As such, the mean concentrations of total PCBs in the Long Beach Cruise Terminal *Macoma* tissues were almost two magnitudes higher than the mean reference and control concentrations.

The distribution of total PCB uptake among test, control and reference *Nereis* tissues is shown on Figure 24. There was statistically significant ($p \leq 0.05$) mean uptake of total PCBs in *Nereis* exposed to the Composite-*b* sample compared to the average uptake of total PCBs in the tissues of *Nereis* exposed to the LA-2 reference sediments and control sediments (Table 20). Mean uptake of total PCBs in the Composite-*a* tissues was not statistically higher than mean uptake in the LA-2 reference tissues. Average uptake of total PCBs in *Nereis* exposed to the Composite-*b* sediments was 10.8 $\mu\text{g}/\text{kg-lipid}$ compared to 8.52 and 6.48 $\mu\text{g}/\text{kg-lipid}$ for *Nereis* exposed to the LA-2 reference and control sediments, respectively. Note that the mean concentration of total PCBs in the T0 *Nereis* tissues was 6.11 $\mu\text{g}/\text{kg-lipid}$, indicating mean concentrations in the test, reference and control tissues were biased high. After subtracting off the T0 concentration, the mean concentrations of total PCBs in the *Nereis* test tissues were roughly two times higher than mean reference concentrations and roughly 13 times higher than the mean control concentration.

The mean and 95% UCL total PCB concentrations were further evaluated against the FDA Action Level and to relevant TRVs for total PCBs in the ERED. The mean and 95% UCL total PCBs were not steady state adjusted since all PCB congeners reach at least 80% steady-state after 28 days of exposure (Kennedy et. al., 2010). The 95% UCL tissue concentrations were magnitudes less than the FDA Action Level (2,000 $\mu\text{g}/\text{kg}$). The ERED queries were limited to LOEC endpoints with measurable biological effects to marine invertebrates. Although there are numerous endpoints in the ERED that are relevant to invertebrates, one value, recommended by USEPA for other Southern California dredge projects, was selected as being most relevant. Specifically, USEPA identified a LOEC of 146 $\mu\text{g}/\text{kg}$ (Total PCBs) associated with growth impairment of the sea star *Asterias rubens*, as the most appropriate TRV from the ERED. Consequently, the 95% UCL total PCB concentrations for both *Macoma* and *Nereis* were compared to USEPA's selected TRV and were found to be statistically lower than this value by 7 to 12 times for *Macoma* and 13 to 16 times for *Nereis*. Therefore, ecological effects associated with PCB uptake from the test sediments are not predicted to be observed at the LA-2 ODMDS.

5.5.7 Bioaccumulation Potential Conclusions

Based on the data presented, the dredged material meets the LPC for bioaccumulation and complies with the benthic criteria of paragraph 227.13(c)(3) in Title 40, Code of Federal Regulations, Parts 220-228 (40 CFR 220-228) (USACE and USEPA, 1991, Appendix A). As a result, no further information is necessary to determine compliance with bioaccumulation regulations

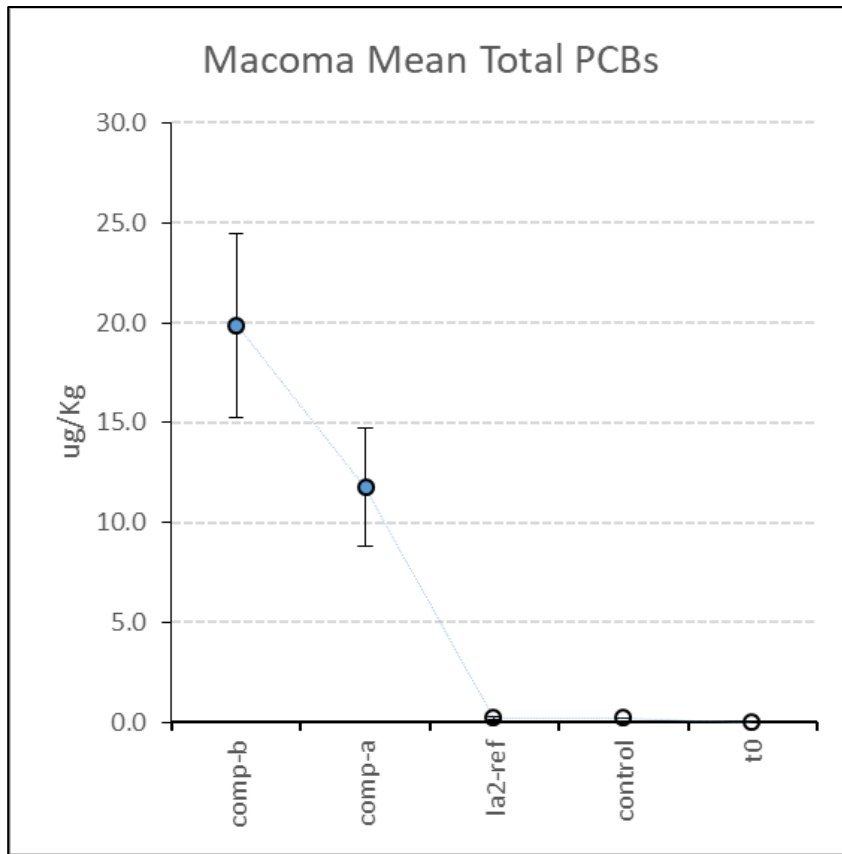


Figure 23. Distribution of *Macoma nasuta* Total PCB Uptake.

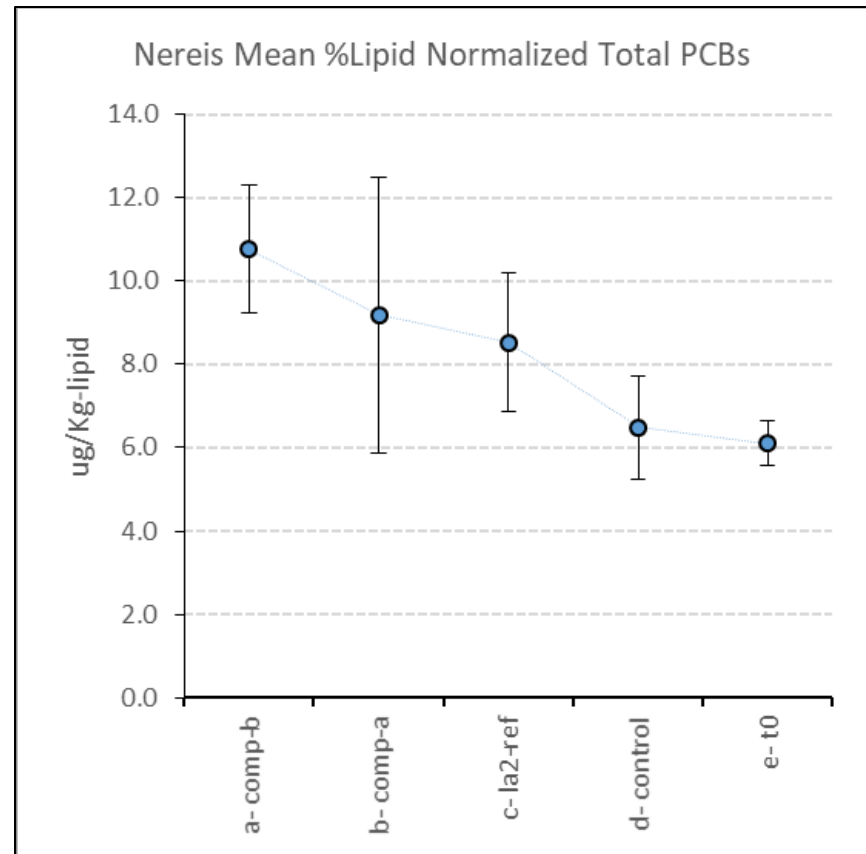


Figure 24. Distribution of *Nereis virens* Total PCB Uptake.

5.6 Summary and Conclusions

The Long Beach Cruise Terminal sediments showed moderate chemical contamination. Chemical data for several constituents were above NOAA effects levels. In terms of ecological effects, several metals, 4,4' DDD, 4,4' DDE, total DDTs, and total PCBs were the major contaminants of concern in the composite and individual core samples. Other constituent concentrations were elevated in the Long Beach Cruise Terminal samples compared to the LA-2 reference sample.

Despite the observed sediment concentrations, none of the sediments from any of the composite areas were toxic to *Ampelisca* and *Neanthes*. There was also no observed water column toxicity.

Critical body residues in the clam and worm tissues compared to FDA action levels, TRVs, and fish advisory levels, in the case of DDTs, indicate that all contaminant concentrations in tissues of organisms exposed to the Long Beach Cruise Terminal sediments were below corresponding published levels. As such, the LPC for bioaccumulation was not exceeded. Due to this and the fact that there was a lack of benthic and water column toxicity, it is recommended that sediments from the Long Beach Cruise Terminal be environmentally suitable for placement at the LA-2 ODMDS.

6.0 QUALITY CONTROL REQUIREMENTS

Formal QA/QC procedures were followed for this project. The objectives of the QA/QC Program were to fully document the field and laboratory data collected, to maintain data integrity from the time of field collection through storage and archiving, and to produce the highest quality data possible. Quality assurance involves all of the planned and systematic actions necessary to provide confidence that work performed by the project team conforms to contract requirements, laboratory methodologies, state and federal regulation requirements, and corporate Standard Operating Procedures (SOPs). The program is designed to allow the data to be assessed by the following parameters: Precision, Accuracy, Comparability, Representativeness, and Completeness. These parameters are controlled by adhering to documented methods and procedures (SOPs), and by the analysis of quality control (QC) samples on a routine basis.

6.1 Field Sampling Quality Management

Field quality control procedures were followed and included adherence to SOPs, field documentation, formal sample documentation and tracking, use of certified clean laboratory containers, protocol cleaning, and sample preservation.

6.2 Chemical Analysis Quality Management

Analytical chemistry QC is formalized by EPA and State Certification agencies and involves internal quality control checks for precision and accuracy. Any issues associated with the analytical laboratory quality control checks are summarized in Appendix F.

QA/QC findings presented are based on the validation of the data according to the quality assurance objectives detailed in the project SAP and in Appendix F. Guidance was used from EPA National Functional Guidelines for inorganic and organic data review (USEPA, 2017a and 2017b).

As the first step in the validation process, all results were carefully reviewed to check that the laboratories met project reporting limits and that chemical analyses were completed within holding times. All wet weight detection limits and reporting limits for this project, as specified in the SC-DMMT SAP guidance document, were met. All analyses were completed within EPA specified holding times.

QA/QC records (1,231 total) for the water, sediment and tissue analyses included method blanks, laboratory duplicates, laboratory control samples and their duplicates (LCS/LCSDs), matrix spikes and matrix spike duplicates (MS/MSDs), post digestion spikes (PDS) and surrogates. Total numbers of QC records by type are summarized in Table 26. Twelve sediment sample results and forty tissue results (1.5% of the results) were qualified as a result of the QC review. Data qualifiers are summarized in Table 27. All qualifications were a result of MS/MSD data that were outside QC objectives and from method blank detections. The reasoning behind these qualifications is explained in Appendix F. Despite these minor QC issues, overall evaluation of the analytical QA/QC data indicates that the chemical data are for the most part within established performance criteria and can be used for characterization of sediments in the Long Beach Cruise Terminal project area.

Table 26. Counts of QC records per Chemical Category.

Analyte Group	BLK	DUP	LCS / LCSD	MS / MSD	PDS	SURR	Total
<i>Water</i>							
TSS	1	1	2				4
TDS	1	1	2				4
Water Totals	2	2	4				8
<i>Sediment</i>							
Percent Solids	1	1					2
Ammonia	1		2	2			5
Total Organic Carbon	1		2	2			5
Total Volatile Solids		2					2
O&G	1		2	2			5
TRPH	1		2	2			5
Dissolved Sulfides	1	1	2				4
Total Sulfides	1	1	2				4
Total Metals	10		20	20	9		59
PAH's, Phthalates & Phenols	38		17	34		30	119
Chlorinated Pesticides	23		20	40		26	109
PCB Congeners	40		15	30		10	95
Butyltins	4		4	4		5	17
Pyrethroids	13		26	26		5	70
Sediment Totals	135	5	114	162	9	76	501
<i>Tissues</i>							
Percent Lipids	3	3					6
Total Metals	30		60	60			150
DDTs	18		18	18		106	160
PCB Congeners	120		90	90		106	406
Tissue Totals	171	3	168	168		212	722

Table 27. Final QC Qualification Applied to Sample Results.

Analyte	# Samples Qualified	Final Qualifier	BLK	DUP	LCS	MS	PDS	SURR
<i>Phenols – Sediment</i>								
Bisphenol A	3	U	U					
<i>Phthalates –2017 Sediment</i>								
Bis(2-Ethylhexyl) Phthalate	1	U	U					
Butyl Benzyl Phthalate	4	U	U					
Di-n-Butyl Phthalate	4	U	U					
<i>OC Pesticides – Tissues</i>								
4,4'-DDD	10	UJ-				UJ-		
4,4'-DDT	30	J/UJ-	J			J/UJ-		
Total number of affected samples	52							
Percentage of all samples	1.5%							

6.3 Biological Testing

Quality assurance procedures employed for this project were consistent with the procedures detailed in the ITM and OTM. Sediments used for biological testing were stored at $\leq 4^{\circ}$ C and were used within the eight week holding time period.

Summary bioassay and bioaccumulation testing and quality assurance information is provided in the bioassay report (Appendix F). This report includes documentation of: 1) test animal collection, shipping and holding/acclimation, 2) water quality parameters monitored during the test, and 3) the positive (reference toxicant) control. Negative control performance is also included in the bioassay report.

Data quality objectives and the associated quality control measures for aquatic toxicity testing are stipulated in the specified bioassay protocols. Measures included test temperatures and acceptable limits of variation, minimum acceptable dissolved oxygen levels with aeration procedures used, and acceptable pH range. These parameters were measured at test initiation and daily thereafter. Salinity ranges are specified for marine tests and the samples were adjusted accordingly. Salinity was measured daily for the bioassays. Measurements of porewater ammonia and sulfides were conducted upon receipt and prior to SP test initiation and at test completion. Overlying water ammonia measurements were made at SP test initiation and termination. Ammonia measurements for the bioaccumulation exposures were made at test initiation and weekly thereafter. Laboratory instruments were calibrated daily. All water quality parameters measured at the beginning and during biological testing were within appropriate limits.

Protocols also provide guidance on test organisms procurement, care and acclimation. Pacific EcoRisk maintains laboratory logbooks documenting these factors. Organism assignment to test tanks and test tank positioning in the laboratory are randomized.

Two other important bioassay QA measures are the inclusion of a negative experimental control, where organisms are simultaneously exposed to laboratory test conditions in the absence of a toxicant stress, and the inclusion of reference toxicant bioassays, in which the organisms are exposed to standard toxicants. Reference toxicant bioassays using potassium chloride (KCL) were run concurrently with and under the same conditions as the bioassays of the test material. Control charts are maintained in the laboratory for each species/toxicant combination. A minimum of five bioassays is required for a valid control chart, and upper and lower limits are developed which are two standard deviations on either side of the mean. Precision is quantified in the control charts by calculation of the coefficient of variation (CV). The application of a maximum acceptable value for the CV or the minimum significant difference (MSD) increases data reliability, and many newer protocols specify such maximum acceptable values. With the exception of the *L. plumulosus* reference toxicant test, bioassays met both negative and positive control test acceptability criteria (TAC) for this project. Although the *L. plumulosus* reference toxicant test survival response in that test's Lab Water Control treatment was slightly below test acceptability goal of 90% survival, the LC₅₀ for this test was consistent with the "typical response" range established by the reference toxicant test database for this species. Therefore, the concentration-response relationships for the sediment elutriate tests and reference toxicant tests were determined to be acceptable.

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Appendix A
Summary Results from the January 2009 Dredge
Study
(Weston, 2009)

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Summary Results from the January 2009 Dredge
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Figure 2. Cruise Terminal Project Area with Sampling Locations

3.0 PRELIMINARY RESULTS

3.1 Field Results

The number of cores, core locations, core lengths, water depths, and sampling depths at each station are provided in Table 2.

Table 2. Actual Core Locations, Core Lengths, and Sample Depths for Sediment Core Samples Collected from Carnival Cruise Terminal, POLB

Date	Time	Station Identification (ID)	Attempt	Tide (ft)	Water Depth (ft)	MLLW (ft) Water Depth - Tide	Latitude (WGS 84)	Longitude (WGS 84)	Penetration (ft)	Core Length Submitted for Analysis	Composite ID	Composite Analyses**	Comments
11/4/2008	11:50	CT1	1	4.3	33.0	-28.7	33.751439	-118.186862	5.5	4.0	CT	Chemical & Physical	None
11/4/2008	12:00	CT1	2	4.4	33.0	-28.6	33.751439	-118.186862	5.5	4.0			None
11/4/2008	12:20	CT1	3	4.5	33.0	-28.5	33.751439	-118.186862	5.5	4.0			None
11/4/2008	10:30	CT2	1	4.0	31.8	-27.8	33.749339	-118.186911	5.5	4.5			None
11/4/2008	10:45	CT2	2	4.0	31.8	-27.8	33.749339	-118.186911	6.0	4.0			None
11/4/2008	10:55	CT2	3	4.1	31.8	-27.7	33.749339	-118.186911	5.0	3.5			None
11/4/2008	11:05	CT2	4	4.2	31.8	-27.6	33.749339	-118.186911	5.0	0			No recovery; bag liner folded inside tube
11/4/2008	11:18	CT2	5	4.2	31.8	-27.6	33.749339	-118.186911	6.0	4.0			None
11/4/2008	9:10	CT3	1	3.8	33.6	-29.8	33.748451	-118.186921	5.5	4.5			None
11/4/2008	9:40	CT3	2	3.9	33.6	-29.7	33.748451	-118.186921	5.5	4.0			None
11/4/2008	10:02	CT3	3	3.9	33.6	-29.7	33.748451	-118.186921	5.5	4.0			None

3.2 Results of Physical and Chemical Analyses

3.2.1 Grain Size Distribution

The grain size distributions of the three individual samples were similar among stations, demonstrating elevated concentrations of silt (Table 3). The sample from station CT1 consisted of 85.8% fine-grained materials (61.7% silt, and 24.1% clay), and 14.22% coarse-grained materials (0.02% gravel and 14.2% sand). The sample from station CT2 consisted of 77.0% fine-grained materials (61.5% silt, and 15.5% clay), and 23.0% coarse-grained materials (0.00% gravel and 23.0% sand). The sample from station CT3 consisted of 98.4% fine-grained materials (64.6% silt, and 33.8% clay), and 1.6% coarse-grained materials (0.00% gravel and 1.6% sand).

Table 3. Grain Size Distribution of Sediment Samples from Three Locations

Parameter	CT1	CT2	CT3
Grain Size Distribution			
% gravel	0.02	0.00	0.00
% sand	14.2	23.0	1.6
% silt	61.7	61.5	64.6
% clay	24.1	15.5	33.8

3.2.2 Sediment Chemistry Results

Results of physical and chemical analyses are shown in Table 4. TTLCs are not shown because no analytes exceeded their respective TTLC value.

In the CT composite sample, total organic carbon (TOC) was measured at 0.69%. Heavy metals were detected at low levels in the composite sample. Five metals (cadmium, chromium, mercury, silver, and zinc) were below their respective ER-L values. Four metals (arsenic, copper, lead, nickel) exceeded their respective ER-L value but were below the corresponding ER-M value. Eighteen individual polycyclic aromatic hydrocarbons (PAHs) were detected in the composite sample. All PAHs were below ER-L values, with the exception of dibenz[a,h]anthracene, which was slightly above its ER-L value, but below the ER-M value. The concentration of total detectable PAHs were also well below their respective ER-L value. Four individual polychlorinated biphenyl (PCB) congeners were detected at low levels in the composite sample. Total detectable PCBs were below their respective ER-L value. The only chlorinated pesticides detected in the composite sample were dichlorodiphenyltrichloroethane (DDT) derivatives. Concentrations of 4,4'-DDD, 4,4'-DDE, and total detectable DDTs exceeded their respective ER-M values.

To confirm this finding (i.e., elevated DDTs) and to further assess individual station locations (if possible) for pesticides and PCBs within the revised dredge footprint, the individual core from station CT1 was submitted for additional chemistry analyses. Results of this analysis demonstrated similar concentrations of DDTs and PCBs in CT1, relative to the initially analyzed composite sample. In addition to DDT, chlordane and some of its constituents (alpha- and gamma-chlordane, and cis- and trans-nonachlor) were also detected in CT1 and total chlordane exceeded the ER-M value. A review of quality assurance (QA)/quality control (QC) results for chlorinated pesticides and the chromatograms confirmed the findings.

Analyses have also been performed to evaluate the concentration of other analytes including phthalates, phenols, and organotins. Results will be presented in the final report.

Table 4. Results of Physical and Chemical Analyses

Parameter	Units	ERL value	ERM value	CT_Comp	CT1
General Chemistry					
Ammonia-N	mg/dry kg			8.75	
Dissolved Sulfides	mg/dry kg			<0.2	
Percent Solids	Percent			61.8	
Total Organic Carbon	Percent			0.69	
Total Sulfides	mg/dry kg			130.4	
Specific Gravity				2.63	
Trace Metals					
Arsenic (As)	µg/dry g	8.2	70	10.66	
Cadmium (Cd)	µg/dry g	1.2	9.6	0.777	
Chromium (Cr)	µg/dry g	81	370	51.68	
Copper (Cu)	µg/dry g	34	270	47.77	
Lead (Pb)	µg/dry g	46.7	218	59.52	
Mercury (Hg)	µg/dry g	0.15	0.71	0.12	
Nickel (Ni)	µg/dry g	20.9	51.6	33.72	
Selenium (Se)	µg/dry g			0.278	
Silver (Ag)	µg/dry g	1	3.7	0.353	
Zinc (Zn)	µg/dry g	150	410	132.9	
PCBs					
Aroclor 1016	ng/dry g			<10	
Aroclor 1221	ng/dry g			<10	
Aroclor 1232	ng/dry g			<10	
Aroclor 1242	ng/dry g			<10	
Aroclor 1248	ng/dry g			<10	
Aroclor 1254	ng/dry g			<10	
Aroclor 1260	ng/dry g			<10	
PCB003	ng/dry g			<1	
PCB008	ng/dry g			<1	
PCB018	ng/dry g			<1	
PCB028	ng/dry g			<1	
PCB031	ng/dry g			<1	
PCB033	ng/dry g			<1	
PCB037	ng/dry g			<1	
PCB044	ng/dry g			<1	
PCB049	ng/dry g			<1	
PCB052	ng/dry g			7.7	
PCB056/060	ng/dry g			<1	
PCB066	ng/dry g			6.6	
PCB070	ng/dry g			2.1	
PCB074	ng/dry g			1.9	
PCB077	ng/dry g			<1	
PCB081	ng/dry g			<1	
PCB087	ng/dry g			<1	
PCB095	ng/dry g			<1	
PCB097	ng/dry g			<1	
PCB099	ng/dry g			<1	
PCB101	ng/dry g			<1	
PCB105	ng/dry g			<1	
PCB110	ng/dry g			<1	
PCB114	ng/dry g			<1	
PCB118	ng/dry g			<1	
PCB119	ng/dry g			<1	
PCB123	ng/dry g			<1	
PCB126	ng/dry g			<1	
PCB128	ng/dry g			<1	

Parameter	Units	ERL value	ERM value	CT_Comp	CT1
PCB138	ng/dry g			<1	
PCB141	ng/dry g			<1	
PCB149	ng/dry g			<1	
PCB151	ng/dry g			<1	
PCB153	ng/dry g			<1	
PCB156	ng/dry g			<1	
PCB157	ng/dry g			<1	
PCB158	ng/dry g			<1	
PCB167	ng/dry g			<1	
PCB168+132	ng/dry g			<1	
PCB169	ng/dry g			<1	
PCB170	ng/dry g			<1	
PCB174	ng/dry g			<1	
PCB177	ng/dry g			<1	
PCB180	ng/dry g			<1	
PCB183	ng/dry g			<1	
PCB187	ng/dry g			<1	
PCB189	ng/dry g			<1	
PCB194	ng/dry g			<1	
PCB195	ng/dry g			<1	
PCB200	ng/dry g			<1	
PCB201	ng/dry g			<1	
PCB203	ng/dry g			<1	
PCB206	ng/dry g			<1	
PCB209	ng/dry g			<1	
Total PCBs	ng/dry g	22.7	180	18.3	
Pesticides					
2,4'-DDD	ng/dry g			<1	3.2
2,4'-DDE	ng/dry g			<1	4.6
2,4'-DDT	ng/dry g			<1	<1
4,4'-DDD	ng/dry g	2	20	25.5	15.3
4,4'-DDE	ng/dry g	2.2	27	37.3	27.8
4,4'-DDT	ng/dry g	1	7	<1	<1
Total DDTs	ng/dry g	1.58	46.1	62.8	50.9
Aldrin	ng/dry g			<1	<1
BHC-alpha	ng/dry g			<1	<1
BHC-beta	ng/dry g			<1	<1
BHC-delta	ng/dry g			<1	<1
BHC-gamma	ng/dry g			<1	<1
Chlordane-alpha	ng/dry g			<1	6.7
Chlordane-gamma	ng/dry g			<1	7.9
Total Detectable Chlordane	ng/dry g	0.5	6	0	14.6
DCPA (Dacthal)	ng/dry g			<5	<5
Dicofol	ng/dry g			<1	3
Dieldrin	ng/dry g			<1	<1
Endosulfan Sulfate	ng/dry g			<1	<1
Endosulfan-I	ng/dry g			<1	<1
Endosulfan-II	ng/dry g			<1	<1
Endrin	ng/dry g			<1	<1
Endrin Aldehyde	ng/dry g			<1	<1
Endrin Ketone	ng/dry g			<1	<1
Heptachlor	ng/dry g			<1	<1
Heptachlor Epoxide	ng/dry g			<1	<1
Methoxychlor	ng/dry g			<1	<1
Mirex	ng/dry g			<1	<1
Oxychlordane	ng/dry g			<1	<1
Perthane	ng/dry g			<5	<5

Parameter	Units	ERL value	ERM value	CT_Comp	CT1
Toxaphene	ng/dry g			<10	<10
cis-Nonachlor	ng/dry g			<1	2.3
trans-Nonachlor	ng/dry g			<1	4
Phenols					
2,4,6-Trichlorophenol	ng/dry g			<50	
2,4-Dichlorophenol	ng/dry g			<50	
2,4-Dimethylphenol	ng/dry g			<100	
2,4-Dinitrophenol	ng/dry g			<100	
2-Chlorophenol	ng/dry g			<50	
2-Methyl-4,6-dinitrophenol	ng/dry g			<100	
2-Nitrophenol	ng/dry g			<100	
4-Chloro-3-methylphenol	ng/dry g			<100	
4-Nitrophenol	ng/dry g			<100	
Pentachlorophenol	ng/dry g			<50	
Phenol	ng/dry g			<100	
Phthalates					
Butylbenzyl Phthalate	ng/dry g			50	
Di-n-butyl Phthalate	ng/dry g			<75	
Di-n-octyl Phthalate	ng/dry g			<10	
Diethyl Phthalate	ng/dry g			<100	
Dimethyl Phthalate	ng/dry g			<50	
bis(2-Ethylhexyl) Phthalate	ng/dry g			546	
Organotins					
Dibutyltin	ng/dry g			<1	
Monobutyltin	ng/dry g			<1	
Tetrabutyltin	ng/dry g			<1	
Tributyltin	ng/dry g			<1	
Polynuclear Aromatic Hydrocarbons					
1-Methylnaphthalene	ng/dry g			<1	
1-Methylphenanthrene	ng/dry g			<1	
2,3,5-Trimethylnaphthalene	ng/dry g			<1	
2,6-Dimethylnaphthalene	ng/dry g			6.2	
2-Methylnaphthalene	ng/dry g			1.6	
Acenaphthene	ng/dry g			<1	
Acenaphthylene	ng/dry g			4.2	
Anthracene	ng/dry g			14.4	
Benzo[a]anthracene	ng/dry g			36.2	
Benzo[a]pyrene	ng/dry g			84.6	
Benzo[b]fluoranthene	ng/dry g			64.4	
Benzo[e]pyrene	ng/dry g			62	
Benzo[g,h,i]perylene	ng/dry g			103.3	
Benzo[k]fluoranthene	ng/dry g			47.7	
Biphenyl	ng/dry g			<1	
Chrysene	ng/dry g			55.5	
Dibenz[a,h]anthracene	ng/dry g			73.6	
Dibenzothiophene	ng/dry g			<1	
Fluoranthene	ng/dry g			45.1	
Fluorene	ng/dry g			<1	
Indeno[1,2,3-c,d]pyrene	ng/dry g			122.5	
Naphthalene	ng/dry g			1.8	
Perylene	ng/dry g			39.5	
Phenanthrene	ng/dry g			17	
Pyrene	ng/dry g			54.2	
Total PAHs	ng/dry g	4022	44792	833.8	

Appendix B
Summary Results from MEC for Carnival
Corporation
(MEC, 2000)

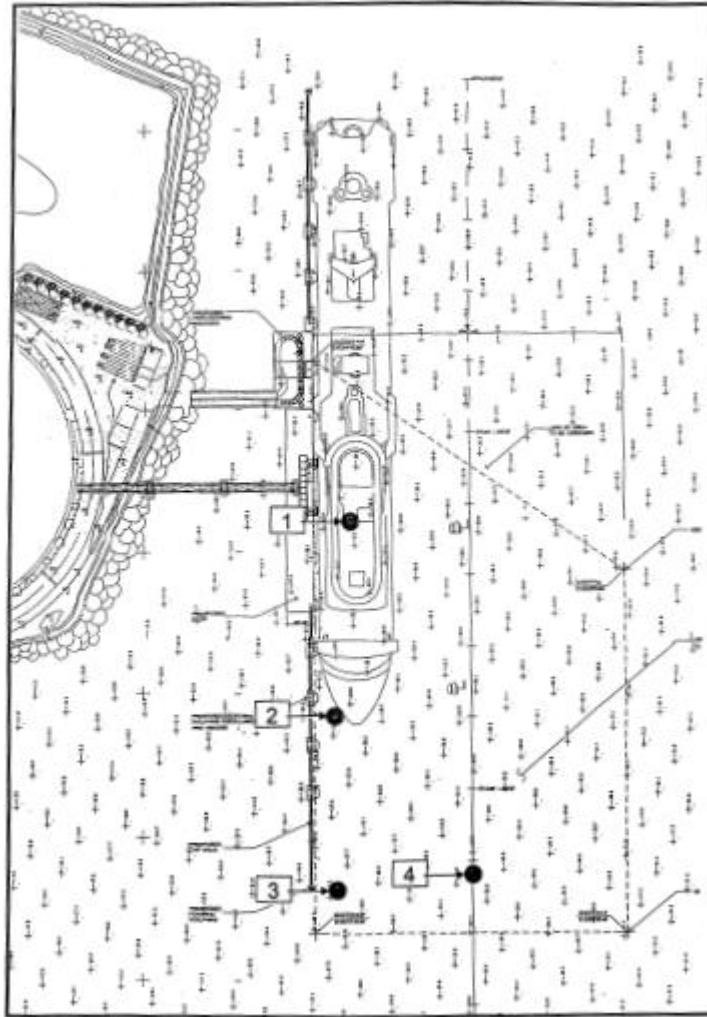


Figure 2. Sampling locations.

Table 2. Chemical Analytes Detected in Sediment Station Samples						
Analyte	Station 1	Station 2	Station 3	Station 4	ER-L	ER-M
Pesticides (ug/kg dry weight)						
4,4 -DDD	14(8)*	4	7	4	2	20
4,4-DDE	8(9)*	5	7	7	2.2	27
4,4-DDT	51(4)*	ND	ND	10	1	7
PAHs (ug/kg dry weight)						
Fluoranthene	37	ND	ND	ND	600	5100
Pyrene	40	36	ND	36	665	2600
Benzo(b)fluoranthene	50	ND	ND	ND	NA	NA
Benzo(a)pyrene	36	ND	ND	ND	430	1600
Benzo(ghi)perylene	50	ND	ND	ND	NA	NA
Total PAHs	213	36(ND)*	ND	36	4022	44792
Phthalates (ug/kg dry weight)						
Bis(2-ethylhexyl)phthalate	582	357(299)*	292	626	NA	NA
Butylbenzylphthalate	36	29(19)*	23	35	NA	NA
Di-n-butylphthalate	40	39(32)*	36	36	NA	NA
Diethylphthalate	ND	373(ND)*	ND	ND	NA	NA
Metals (mg/kg dry weight)						
Arsenic	9.7	7.7	5.9	7.2	8.2	70
Cadmium	0.9	0.6	0.4	0.7	1.2	9.6
Chromium	33	29	27	33	81	370
Copper	38	31	25	33	34	270
Lead	62	40	35	50	46.7	218
Mercury	0.08	0.17	0.13	0.14	0.15	0.71
Nickel	23	22	19	23	20.9	51.6
Silver	0.3	0.2	0.4	0.2	1	3.7
Zinc	121	91	86	112	150	410
Selenium	0.6	0.6	0.4	0.5	NA	NA
TRPH (mg/kg dry weight)	150	85	76(74)*	139	NA	NA
Total Sulfides (mg/kg dry weight)	54	65	49	98	NA	NA

ND = not detected in sample above sample detection limit concentrations.

* Sample run in duplicate. Differences in duplicate values are due to variations in sample homogeneity.

ER-L and ER-M values are from Long, E.R., D.D. MacDonald, S.L. Smith, and F.D. Calder, 1995.

Incidence of adverse biological effects within ranges of chemical concentrations in marine and estuarine sediments.*

Appendix C
Field Data Logs and Photographs

Carnival Cruise Terminal Expansion

A1 - 1 CORE LOG SHEET

Date: 10/30/2018	Time: 8:25 AM
Client: Atkins	Vessel: D.W. Hood
Crew: T. Barnes , C. Davidson , R. Marquez , S. Stringer	
Navigation Equipment: Garmin GPSMAP 840xs	Sampling Equipment: KLI Vibracore
Sampled Latitude: 33° 45' 05.7"	Sampled Longitude: -118° 11' 12.9"
If moved, why:	
Water Depth (ft.): 32.00	Tidal Stage (+/- ft.): 2.00
Actual Mudline Elevation (ft. MLLW): -30.00	Target Sampling Depth (ft.): -38.50
Penetration (ft.): 11.50	Recovery (ft.): 11.00
Percent Recovery: 96%	Core Interval Sampled (ft.): 8.50
Fines/Suspect Layer? (Y/N): N	If Y, layer interval (ft.):

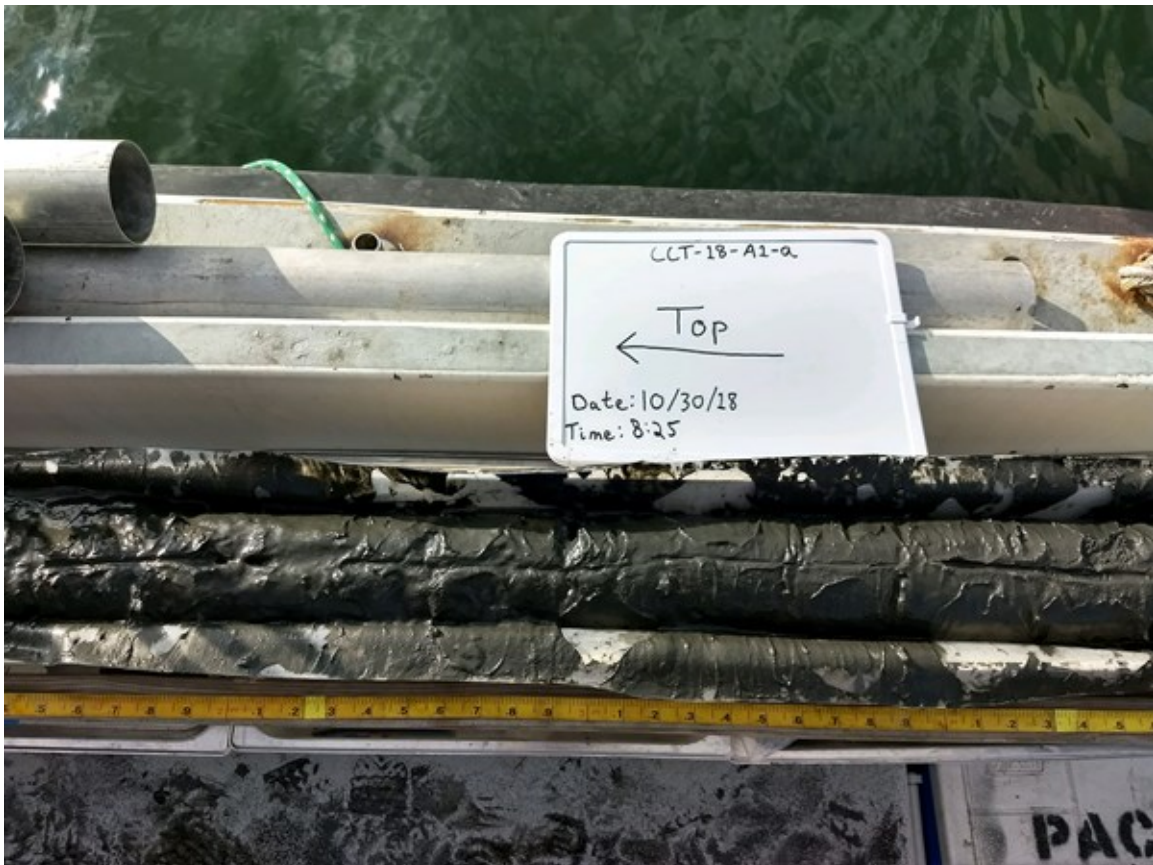
Notes: A total of ten cores were taken for sampling at this location. Interval sampled is loose silt (ML), with no visible sand content. The core becomes more compact toward the last few feet of the sampling interval (less saturated), but the dark-grey color is homogeneous throughout. No odor is detected, and no additional debris is observed.

Field Log Photo

A1 0 - 2ft 10/30/2018, 8:25 AM



A1 2 - 4ft 10/30/2018, 8:25 AM



A1 4 - 6ft 10/30/2018, 8:25 AM



A1 6 - 8ft 10/30/2018, 8:25 AM



A1 8 - 10ft 10/30/2018, 8:25 AM



A1 10 - 12ft 10/30/2018, 8:25 AM



Carnival Cruise Terminal Expansion

A2 - 1 CORE LOG SHEET

Date: 10/30/2018	Time: 1:25 PM
Client: Atkins	Vessel: D.W. Hood
Crew: T. Barnes , C. Davidson , R. Marquez , S. Stringer	
Navigation Equipment: Garmin GPSMAP 840xs	Sampling Equipment: KLI Vibracore
Sampled Latitude: 33° 45' 04.1"	Sampled Longitude: -118° 11' 13.0"
If moved, why:	
Water Depth (ft.): 34.50	Tidal Stage (+/- ft.): 4.00
Actual Mudline Elevation (ft. MLLW): -30.50	Target Sampling Depth (ft.): -38.50
Penetration (ft.):	Recovery (ft.): 8.00
Percent Recovery: 0%	Core Interval Sampled (ft.): 8.00
Fines/Suspect Layer? (Y/N): N	If Y, layer interval (ft.):

Notes: A total of six cores were taken for sampling at this location. Sediment is silty (ML) with no visible sand content; sediment is fairly compact throughout sampling interval, but still soft and slightly water saturated particularly towards the top of the core. There is a dark-brown/dark-grey color which is homogeneous throughout. No odor is detected and no natural or human-made debris.

Field Log Photo

A2 0 - 2ft 10/30/2018, 1:25 PM



A2 2 - 4ft 10/30/2018, 1:25 PM



A2 4 - 6ft 10/30/2018, 1:25 PM



A2 6 - 8ft 10/30/2018, 1:25 PM



Carnival Cruise Terminal Expansion

B1 - 1 CORE LOG SHEET

Date: 10/30/2018	Time: 5:00 PM
Client: Atkins	Vessel: D.W. Hood
Crew: T. Barnes , C. Davidson , R. Marquez , S. Stringer	
Navigation Equipment: Garmin GPSMAP 840xs	Sampling Equipment: KLI Vibracore
Sampled Latitude: 33° 45' 01.7"	Sampled Longitude: -118° 11' 12.8"
If moved, why:	
Water Depth (ft.): 35.50	Tidal Stage (+/- ft.): 3.50
Actual Mudline Elevation (ft. MLLW): -32.00	Target Sampling Depth (ft.): -38.50
Penetration (ft.): 11.00	Recovery (ft.): 10.80
Percent Recovery: 98%	Core Interval Sampled (ft.): 6.50
Fines/Suspect Layer? (Y/N): N	If Y, layer interval (ft.):

Notes: First try not enough recovery so second attempt made. Sediment in sampling interval is silty (ML) with no visible sand. Core is fairly well saturated throughout making it soft, except for last foot or so which is more compact but still loose. The core has a dark-grey color throughout with a slight dark-green tint toward the top foot. No odor detected and no debris found.

Field Log Photo

B1 0 - 2ft 10/30/2018, 5:00 PM



B1 2 - 4ft 10/30/2018, 5:00 PM



B1 4 - 6ft 10/30/2018, 5:00 PM



B1 6 - 8ft 10/30/2018, 5:00 PM



Carnival Cruise Terminal Expansion

C1 - 1 CORE LOG SHEET

Date: 10/31/2018	Time: 7:51 AM
Client: Atkins	Vessel: D.W. Hood
Crew: T. Barnes , C. Davidson , R. Marquez , S. Stringer	
Navigation Equipment: Garmin GPSMAP 840xs	Sampling Equipment: KLI Vibracore
Sampled Latitude: 33° 44' 58.5"	Sampled Longitude: -118° 11' 12.6"
If moved, why:	
Water Depth (ft.): 32.50	Tidal Stage (+/- ft.): 3.00
Actual Mudline Elevation (ft. MLLW): -29.50	Target Sampling Depth (ft.): -38.50
Penetration (ft.): 12.00	Recovery (ft.): 12.00
Percent Recovery: 100%	Core Interval Sampled (ft.): 9.00
Fines/Suspect Layer? (Y/N): N	If Y, layer interval (ft.):

Notes: Sediment in the sampling interval is mostly loose silt (ML) that is generally fairly water saturated until the final two feet of the core (still soft). Core is dark-grey throughout the entirety of the core, and no odor is detected. No debris is found, and there is no visible sand.

Field Log Photo

C1 0 - 2ft 10/31/2018, 7:51 AM



C1 2 - 4ft 10/31/2018, 7:51 AM



C1 4 - 6ft 10/31/2018, 7:51 AM



C1 6 - 8ft 10/31/2018, 7:51 AM



C1 8 - 10ft 10/31/2018, 7:51 AM



Carnival Cruise Terminal Expansion

C2 - 1 CORE LOG SHEET

Date: 10/31/2018	Time: 8:40 AM
Client: Atkins	Vessel: D.W. Hood
Crew: T. Barnes , C. Davidson , R. Marquez , S. Stringer	
Navigation Equipment: Garmin GPSMAP 840xs	Sampling Equipment: KLI Vibracore
Sampled Latitude: 33° 44' 59.6"	Sampled Longitude: -118° 11' 10.8"
If moved, why:	
Water Depth (ft.): 35.50	Tidal Stage (+/- ft.): 2.50
Actual Mudline Elevation (ft. MLLW): -33.00	Target Sampling Depth (ft.): -38.50
Penetration (ft.): 9.00	Recovery (ft.): 8.50
Percent Recovery: 94%	Core Interval Sampled (ft.): 5.50
Fines/Suspect Layer? (Y/N): N	If Y, layer interval (ft.):

Notes: Sediment was dark-grey/dark-brown throughout most of the core, with the color getting slightly darker towards the last two feet. The entire core is silt (ML) with no visible sand, is generally fairly soft and loose throughout, and has no observable debris. No odor is detected.

Field Log Photo

C2 0 - 2ft 10/31/2018, 8:40 AM



C2 2 - 4ft 10/31/2018, 8:40 AM



C2 4 - 6ft 10/31/2018, 8:40 AM



C2 6 - 8ft 10/31/2018, 8:40 AM



Appendix D
Analytical Laboratory Reports



Calscience



WORK ORDER NUMBER: 18-10-2389

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Kinnetic Laboratories, Inc.

Client Project Name: POLB Carnival Cruise Terminal 2018

Attention: Danielle Gonsman
307 Washington Street
Santa Cruz, CA 95060-4928

Approved for release on 11/14/2018 by:
Carla Hollowell
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience (Calscience) certifies that the test results provided in this report meet all NELAC Institute requirements for parameters for which accreditation is required or available. Any exceptions to NELAC Institute requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: POLB Carnival Cruise Terminal 2018
 Work Order Number: 18-10-2389

1	Work Order Narrative.	3
2	Sample Summary.	5
3	Client Sample Data.	6
	3.1 EPA 1664A (M) HEM: Oil and Grease (Solid).	6
	3.2 EPA 1664A (M) HEM-SGT: Oil and Grease (Solid).	7
	3.3 EPA 376.2 (M) Total Sulfide (Solid).	8
	3.4 EPA 376.2 (M) Dissolved Sulfide (Solid).	9
	3.5 EPA 9060A Total Organic Carbon (Solid).	10
	3.6 SM 2540 B (M) Total Solids (Solid).	11
	3.7 SM 4500-NH3 B/C (M) Ammonia (Solid).	12
	3.8 Pyrethroids by EPA 8270D (M)/TQ/EI (Solid).	13
	3.9 EPA 6020 ICP/MS Metals (Solid).	18
	3.10 EPA 7471A Mercury (Solid).	21
	3.11 EPA 8081A Organochlorine Pesticides (Solid).	22
	3.12 EPA 8270C Bisphenol (Solid).	24
	3.13 EPA 8270C SIM OC Pesticides (Solid).	25
	3.14 EPA 8270C SIM (Solid).	33
	3.15 EPA 8270C SIM PCB Congeners (Solid).	43
	3.16 Krone et al. Organotins (Solid).	53
4	Quality Control Sample Data.	55
	4.1 MS/MSD.	55
	4.2 PDS/PDSD.	68
	4.3 Sample Duplicate.	69
	4.4 LCS/LCSD.	72
5	Glossary of Terms and Qualifiers.	87
6	Chain-of-Custody/Sample Receipt Form.	88
7	Subcontract Narrative.	100
8	Subcontract Report, Volatile Solids (WECK), 18-10-2389.	101

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 10/31/18. They were assigned to Work Order 18-10-2389.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

DoD Projects:

The test results contained in this report are accredited under the laboratory's ISO/IEC 17025:2005 and DoD-ELAP accreditation issued by the ANSI-ASQ National Accreditation Board. Refer to certificate and scope of accreditation ADE-1864.

Surrogate recovery for EPA 8270D pyrethroids exceeded established control limits for one sample due to matrix interference, but the sample was non-detect (ND) for all analytes. The results have been flagged with the appropriate qualifiers and are released with no further action.

Surrogate recovery for EPA 8081A pesticides exceeded established control limits for one sample due to matrix interference, but the sample was non-detect (ND) for all analytes. The results have been flagged with the appropriate qualifiers and are released with no further action.

Work Order Narrative

Work Order: 18-10-2389Page 2 of 2

In the Method Blanks for EPA 8270C SVOCs, bisphenol-A and three phthalates were detected at concentrations below their respective Reporting Limits. The results have been flagged with the appropriate qualifier and are released with no further action.

For EPA 1664A, the concentration of Oil and Grease detected in the parent sample was four times or greater than that of the matrix spike concentration; therefore the control limits do not apply. The results have been flagged with the appropriate qualifier and are released with no further action.

For EPA 8270D pyrethroids, the MS and/or MSD recoveries and/or the MS/MSD RPD were outside of established control limits for two constituents due to matrix interference. The results have been flagged with the appropriate qualifier and are released with no further action.

For EPA 6020 the concentration of zinc detected in the parent sample was four times or greater than that of the matrix spike concentrations; therefore the control limits do not apply. The results have been flagged with the appropriate qualifier and are released with no further action.

For EPA 6020, the MS/MSD recoveries for copper were outside established control limits due to matrix interference. The results have been flagged with the appropriate qualifiers and are released with no further action.

For EPA 7471A, the MS and MSD recoveries for mercury were outside of established control limits due to matrix interference. The results have been flagged with the appropriate qualifiers and are released with no further action.

For EPA 8081A, the MS and MSD recoveries for toxaphene were outside of established control limits due to matrix interference. The results have been flagged with the appropriate qualifiers and are released with no further action.

For EPA 8270C pesticides, the MS/MSD recoveries and/or the MS/MSD RPD for several constituents were outside of established control limits due to matrix interference. The results have been flagged with the appropriate qualifier and are released with no further action.



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Sample Summary

Client: Kinnetic Laboratories, Inc.	Work Order: 18-10-2389
307 Washington Street	Project Name: POLB Carnival Cruise Terminal 2018
Santa Cruz, CA 95060-4928	PO Number:
	Date/Time Received: 10/31/18 17:15
	Number of Containers: 4

Attn: Danielle Gonsman

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
CCT-18-Composite-a	18-10-2389-1	10/30/18 13:25	1	Sediment
CCT-18-Composite-b	18-10-2389-2	10/31/18 08:40	1	Sediment
CCT-18-C1-b	18-10-2389-3	10/31/18 08:00	1	Sediment
LA2-Ref	18-10-2389-4	10/31/18 13:30	1	Sediment

Return to Contents



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 1664A (M)
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	N/A	11/09/18	11/09/18 17:00	I1109HEML1

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM: Oil and Grease	700	20	15	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	N/A	11/09/18	11/09/18 17:00	I1109HEML1

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM: Oil and Grease	560	17	14	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	N/A	11/09/18	11/09/18 17:00	I1109HEML1

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM: Oil and Grease	800	18	14	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	N/A	11/09/18	11/09/18 17:00	I1109HEML1

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM: Oil and Grease	83	18	14	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-929-40	N/A	Solid	N/A	11/09/18	11/09/18 17:00	I1109HEML1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM: Oil and Grease	ND	10	7.9	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 1664A (M)
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	N/A	11/09/18	11/09/18 19:00	I1109HEML2

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	330	20	16	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	N/A	11/09/18	11/09/18 19:00	I1109HEML2

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	410	17	14	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	N/A	11/09/18	11/09/18 19:00	I1109HEML2

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	590	18	15	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	N/A	11/09/18	11/09/18 19:00	I1109HEML2

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	24	18	14	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-931-23	N/A	Solid	N/A	11/09/18	11/09/18 19:00	I1109HEML2

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	10	8.1	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 376.2M
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	N/A	11/01/18	11/01/18 16:00	I1101SL1

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Sulfide, Total	300	9.8	8.2	50.0	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	N/A	11/01/18	11/01/18 16:00	I1101SL1

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Sulfide, Total	190	8.6	7.2	50.0	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	N/A	11/01/18	11/01/18 16:00	I1101SL1

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Sulfide, Total	220	9.0	7.5	50.0	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	N/A	11/01/18	11/01/18 16:00	I1101SL1

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Sulfide, Total	0.53	0.18	0.15	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-352-172	N/A	Solid	N/A	11/01/18	11/01/18 16:00	I1101SL1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Sulfide, Total	ND	0.10	0.084	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 10/31/18
 Work Order: 18-10-2389
 Preparation: N/A
 Method: EPA 376.2M
 Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	N/A	11/06/18	11/06/18 11:50	11106DSL1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Sulfide, Dissolved	ND	0.10	0.017	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	N/A	11/06/18	11/06/18 11:50	11106DSL1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Sulfide, Dissolved	ND	0.10	0.017	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	N/A	11/06/18	11/06/18 11:50	11106DSL1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Sulfide, Dissolved	ND	0.10	0.017	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	N/A	11/06/18	11/06/18 11:50	11106DSL1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Sulfide, Dissolved	ND	0.10	0.017	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-354-92	N/A	Solid	N/A	11/06/18	11/06/18 11:50	11106DSL1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Sulfide, Dissolved	ND	0.10	0.017	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 9060A
Units: %

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	TOC 10	11/07/18	11/08/18 16:57	I1107TOCL1

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Carbon, Total Organic	2.2	0.098	0.034	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	TOC 10	11/07/18	11/08/18 16:57	I1107TOCL1

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Carbon, Total Organic	1.5	0.086	0.030	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	TOC 10	11/07/18	11/08/18 16:57	I1107TOCL1

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Carbon, Total Organic	1.4	0.090	0.031	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	TOC 10	11/07/18	11/08/18 16:57	I1107TOCL1

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Carbon, Total Organic	0.36	0.088	0.031	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-06-013-1918	N/A	Solid	TOC 10	11/07/18	11/08/18 16:57	I1107TOCL1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Carbon, Total Organic	ND	0.050	0.017	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: SM 2540 B (M)
Units: %

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	N/A	11/05/18	11/05/18 14:00	11105TSB1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total	51.1	0.100	0.100	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	N/A	11/05/18	11/05/18 14:00	11105TSB1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total	58.0	0.100	0.100	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	N/A	11/05/18	11/05/18 14:00	11105TSB1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total	55.7	0.100	0.100	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	N/A	11/05/18	11/05/18 14:00	11105TSB1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total	56.5	0.100	0.100	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-05-019-4290	N/A	Solid	N/A	11/05/18	11/05/18 14:00	11105TSB1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total	ND	0.100	0.100	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: SM 4500-NH3 B/C (M)
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	BUR12	11/01/18	11/01/18 17:00	I1101NH3L1

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Ammonia (as N)	1.4	0.39	0.22	1.00	

CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	BUR12	11/01/18	11/01/18 17:00	I1101NH3L1
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Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Ammonia (as N)	2.4	0.34	0.19	1.00	

CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	BUR12	11/01/18	11/01/18 17:00	I1101NH3L1
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Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Ammonia (as N)	1.3	0.36	0.20	1.00	

LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	BUR12	11/01/18	11/01/18 17:00	I1101NH3L1
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Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Ammonia (as N)	2.5	0.35	0.20	1.00	

Method Blank	099-12-816-192	N/A	Solid	BUR12	11/01/18	11/01/18 17:00	I1101NH3L1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Ammonia (as N)	ND	0.20	0.11	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 10/31/18
 Work Order: 18-10-2389
 Preparation: EPA 3541
 Method: EPA 8270D (M)/TQ/EI
 Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	GCTQ 1	11/07/18	11/11/18 22:39	181107L12

Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Allethrin	ND	0.97	0.49	1.00	
Bifenthrin	11	0.97	0.58	1.00	
Cyfluthrin	2.0	0.97	0.49	1.00	
Cypermethrin	1.4	0.97	0.49	1.00	
Deltamethrin/Tralomethrin	ND	0.97	0.49	1.00	
Fenpropathrin	ND	0.97	0.49	1.00	
Fenvalerate/Esfenvalerate	ND	0.97	0.49	1.00	
Fluvalinate	ND	0.97	0.49	1.00	
Permethrin (cis/trans)	7.8	1.9	0.97	1.00	
Phenothrin	ND	0.97	0.49	1.00	
Resmethrin/Bioresmethrin	ND	0.97	0.83	1.00	
Tetramethrin	ND	0.97	0.58	1.00	
lambda-Cyhalothrin	ND	0.97	0.49	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
Dibutylchloroendate	112	14-116			

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270D (M)/TQ/EI
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	GCTQ 1	11/07/18	11/11/18 23:31	181107L12

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Allethrin	ND	0.86	0.43	1.00	
Bifenthrin	3.9	0.86	0.52	1.00	
Cyfluthrin	0.51	0.86	0.43	1.00	J
Cypermethrin	ND	0.86	0.43	1.00	
Deltamethrin/Tralomethrin	ND	0.86	0.43	1.00	
Fenpropathrin	ND	0.86	0.43	1.00	
Fenvalerate/Esfenvalerate	ND	0.86	0.43	1.00	
Fluvalinate	ND	0.86	0.43	1.00	
Permethrin (cis/trans)	2.3	1.7	0.86	1.00	
Phenothrin	ND	0.86	0.43	1.00	
Resmethrin/Bioresmethrin	ND	0.86	0.73	1.00	
Tetramethrin	ND	0.86	0.52	1.00	
lambda-Cyhalothrin	ND	0.86	0.43	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
Dibutylchloroendate	109	14-116			

 Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 10/31/18
 Work Order: 18-10-2389
 Preparation: EPA 3541
 Method: EPA 8270D (M)/TQ/EI
 Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	GCTQ 1	11/07/18	11/12/18 00:22	181107L12

Comment(s):
 - Results are reported on a dry weight basis.
 - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Allethrin	ND	0.89	0.44	1.00	
Bifenthrin	4.3	0.89	0.53	1.00	
Cyfluthrin	ND	0.89	0.44	1.00	
Cypermethrin	0.56	0.89	0.44	1.00	J
Deltamethrin/Tralomethrin	ND	0.89	0.44	1.00	
Fenpropathrin	ND	0.89	0.44	1.00	
Fenvalerate/Esfenvalerate	ND	0.89	0.44	1.00	
Fluvalinate	ND	0.89	0.44	1.00	
Permethrin (cis/trans)	2.7	1.8	0.89	1.00	
Phenothrin	ND	0.89	0.44	1.00	
Resmethrin/Bioresmethrin	ND	0.89	0.76	1.00	
Tetramethrin	ND	0.89	0.53	1.00	
lambda-Cyhalothrin	ND	0.89	0.44	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
Dibutylchloroendate	111	14-116			

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270D (M)/TQ/EI
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 4 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	GCTQ 1	11/07/18	11/12/18 01:14	181107L12

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Allethrin	ND	0.88	0.44	1.00	
Bifenthrin	ND	0.88	0.53	1.00	
Cyfluthrin	ND	0.88	0.44	1.00	
Cypermethrin	ND	0.88	0.44	1.00	
Deltamethrin/Tralomethrin	ND	0.88	0.44	1.00	
Fenpropathrin	ND	0.88	0.44	1.00	
Fenvalerate/Esfenvalerate	ND	0.88	0.44	1.00	
Fluvalinate	ND	0.88	0.44	1.00	
Permethrin (cis/trans)	ND	1.8	0.88	1.00	
Phenothrin	ND	0.88	0.44	1.00	
Resmethrin/Bioresmethrin	ND	0.88	0.75	1.00	
Tetramethrin	ND	0.88	0.53	1.00	
lambda-Cyhalothrin	ND	0.88	0.44	1.00	
Surrogate	Rec. (%)	Control Limits	Qualifiers		
Dibutylchloroendate	124	14-116	1,2,7		

 Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 10/31/18
 Work Order: 18-10-2389
 Preparation: EPA 3541
 Method: EPA 8270D (M)/TQ/EI
 Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 5 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-403-184	N/A	Solid	GCTQ 1	11/08/18	11/11/18 21:48	181107L12

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Allethrin	ND	0.50	0.25	1.00	
Bifenthrin	ND	0.50	0.30	1.00	
Cyfluthrin	ND	0.50	0.25	1.00	
Cypermethrin	ND	0.50	0.25	1.00	
Deltamethrin/Tralomethrin	ND	0.50	0.25	1.00	
Fenpropathrin	ND	0.50	0.25	1.00	
Fenvalerate/Esfenvalerate	ND	0.50	0.25	1.00	
Fluvalinate	ND	0.50	0.25	1.00	
Permethrin (cis/trans)	ND	1.0	0.50	1.00	
Phenothrin	ND	0.50	0.25	1.00	
Resmethrin/Bioresmethrin	ND	0.50	0.42	1.00	
Tetramethrin	ND	0.50	0.30	1.00	
lambda-Cyhalothrin	ND	0.50	0.25	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibutylchloroendate	78	14-116	


 Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	ICP/MS 05	11/09/18	11/10/18 03:05	181109L01E

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	9.51	0.196	0.171	1.00	
Cadmium	1.17	0.196	0.112	1.00	
Chromium	34.1	0.196	0.121	1.00	
Copper	85.4	0.196	0.0820	1.00	
Lead	80.4	0.196	0.129	1.00	
Nickel	23.8	0.196	0.0991	1.00	
Selenium	4.30	0.196	0.143	1.00	
Silver	0.561	0.196	0.0613	1.00	
Zinc	211	1.96	1.56	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	ICP/MS 05	11/09/18	11/10/18 03:09	181109L01E

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	12.1	0.172	0.151	1.00	
Cadmium	1.15	0.172	0.0987	1.00	
Chromium	38.6	0.172	0.107	1.00	
Copper	61.5	0.172	0.0723	1.00	
Lead	72.3	0.172	0.114	1.00	
Nickel	30.0	0.172	0.0873	1.00	
Selenium	2.80	0.172	0.126	1.00	
Silver	0.566	0.172	0.0540	1.00	
Zinc	174	1.72	1.37	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	ICP/MS 05	11/09/18	11/10/18 03:44	181109L01E

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	9.26	0.180	0.157	1.00	
Cadmium	1.24	0.180	0.103	1.00	
Chromium	39.3	0.180	0.111	1.00	
Copper	57.0	0.180	0.0752	1.00	
Lead	75.7	0.180	0.118	1.00	
Nickel	25.5	0.180	0.0909	1.00	
Selenium	3.06	0.180	0.131	1.00	
Silver	0.631	0.180	0.0562	1.00	
Zinc	189	1.80	1.43	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	ICP/MS 05	11/09/18	11/10/18 03:48	181109L01E

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.30	0.177	0.155	1.00	
Cadmium	0.112	0.177	0.101	1.00	J
Chromium	20.3	0.177	0.110	1.00	
Copper	9.16	0.177	0.0742	1.00	
Lead	5.16	0.177	0.117	1.00	
Nickel	10.6	0.177	0.0896	1.00	
Selenium	0.744	0.177	0.129	1.00	
Silver	0.0855	0.177	0.0554	1.00	J
Zinc	44.4	1.77	1.41	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 10/31/18
 Work Order: 18-10-2389
 Preparation: EPA 3050B
 Method: EPA 6020
 Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-15-254-689	N/A	Solid	ICP/MS 05	11/09/18	11/10/18 02:41	181109L01E

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	ND	0.100	0.0873	1.00	
Cadmium	ND	0.100	0.0572	1.00	
Chromium	ND	0.100	0.0621	1.00	
Copper	ND	0.100	0.0419	1.00	
Lead	ND	0.100	0.0659	1.00	
Nickel	ND	0.100	0.0506	1.00	
Selenium	ND	0.100	0.0731	1.00	
Silver	ND	0.100	0.0313	1.00	
Zinc	ND	1.00	0.795	1.00	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	Mercury 08	11/12/18	11/12/18 16:52	181112L02E

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	0.140	0.0379	0.0111	1.00	

CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	Mercury 08	11/12/18	11/12/18 16:54	181112L02E
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Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	0.168	0.0328	0.00964	1.00	

CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	Mercury 08	11/12/18	11/12/18 16:56	181112L02E
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Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	0.168	0.0378	0.0111	1.00	

LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	Mercury 08	11/12/18	11/12/18 16:59	181112L02E
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Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	0.0159	0.0348	0.0102	1.00	J

Method Blank	099-16-278-493	N/A	Solid	Mercury 08	11/12/18	11/12/18 16:04	181112L02E
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.0200	0.00587	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8081A
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	GC 44	11/06/18	11/12/18 13:52	181106L07A

Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Chlordane	ND	19	10	1.00	
Toxaphene	ND	39	17	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	77	25-145	
Decachlorobiphenyl	236	24-168	2,7

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	GC 44	11/06/18	11/12/18 14:06	181106L07A

Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Chlordane	ND	17	9.0	1.00	
Toxaphene	ND	34	15	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	78	25-145	
Decachlorobiphenyl	82	24-168	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	GC 44	11/06/18	11/12/18 14:21	181106L07A

Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Chlordane	ND	18	9.3	1.00	
Toxaphene	ND	35	16	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	80	25-145	
Decachlorobiphenyl	85	24-168	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8081A
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	GC 44	11/06/18	11/12/18 14:35	181106L07A

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Chlordane	ND	17	9.2	1.00	
Toxaphene	ND	35	16	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	68	25-145	
Decachlorobiphenyl	67	24-168	

Method Blank	099-16-824-34	N/A	Solid	GC 44	11/06/18	11/12/18 12:27	181106L07A
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Chlordane	ND	10	5.3	1.00	
Toxaphene	ND	20	9.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	65	25-145	
Decachlorobiphenyl	82	24-168	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3545
Method: EPA 8270C Bisphenol
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	GC/MS JJJ	11/09/18	11/13/18 13:48	181109L13

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Bisphenol A	14	20	4.1	1.00	B,J

CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	GC/MS JJJ	11/09/18	11/13/18 14:05	181109L13
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Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Bisphenol A	8.6	17	3.6	1.00	B,J

CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	GC/MS JJJ	11/09/18	11/13/18 14:23	181109L13
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Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Bisphenol A	5.4	18	3.7	1.00	B,J

LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	GC/MS JJJ	11/09/18	11/13/18 14:41	181109L13
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Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Bisphenol A	ND	18	3.6	1.00	

Method Blank	099-14-401-28	N/A	Solid	GC/MS JJJ	11/09/18	11/13/18 13:12	181109L13
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Bisphenol A	2.9	10	2.1	1.00	J

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	GC/MS BBB	11/07/18	11/13/18 17:29	181107L12

Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Aldrin	ND	0.39	0.074	1.00	
Alpha-BHC	ND	0.39	0.11	1.00	
Beta-BHC	ND	0.39	0.13	1.00	
2,4'-DDD	ND	0.39	0.15	1.00	
2,4'-DDE	4.4	0.39	0.068	1.00	
2,4'-DDT	ND	0.39	0.12	1.00	
4,4'-DDD	15	0.39	0.078	1.00	
4,4'-DDT	ND	0.39	0.10	1.00	
Delta-BHC	ND	0.39	0.18	1.00	
Dieldrin	ND	0.39	0.21	1.00	
Endosulfan I	ND	0.39	0.11	1.00	
Endosulfan II	ND	0.39	0.18	1.00	
Endosulfan Sulfate	ND	0.39	0.20	1.00	
Endrin	6.1	0.39	0.11	1.00	
Endrin Aldehyde	ND	0.39	0.19	1.00	
Endrin Ketone	ND	0.39	0.11	1.00	
Gamma-BHC	ND	0.39	0.067	1.00	
Heptachlor	ND	0.39	0.10	1.00	
Heptachlor Epoxide	ND	0.39	0.086	1.00	
Methoxychlor	ND	0.39	0.13	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	65	25-200	
2,4,5,6-Tetrachloro-m-Xylene	40	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	GC/MS BBB	11/07/18	11/13/18 18:58	181107L12

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
4,4'-DDE	21	3.9	0.79	10.0	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
Dibutylchlorodate	57	25-200			
2,4,5,6-Tetrachloro-m-Xylene	39	25-200			



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Page 3 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	GC/MS BBB	11/07/18	11/13/18 17:44	181107L12

Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Aldrin	ND	0.34	0.065	1.00	
Alpha-BHC	ND	0.34	0.099	1.00	
Beta-BHC	ND	0.34	0.12	1.00	
2,4'-DDD	5.1	0.34	0.13	1.00	
2,4'-DDE	6.9	0.34	0.061	1.00	
2,4'-DDT	ND	0.34	0.11	1.00	
4,4'-DDT	ND	0.34	0.091	1.00	
Delta-BHC	ND	0.34	0.16	1.00	
Dieldrin	ND	0.34	0.18	1.00	
Endosulfan I	ND	0.34	0.10	1.00	
Endosulfan II	ND	0.34	0.16	1.00	
Endosulfan Sulfate	ND	0.34	0.18	1.00	
Endrin	ND	0.34	0.098	1.00	
Endrin Aldehyde	ND	0.34	0.17	1.00	
Endrin Ketone	ND	0.34	0.096	1.00	
Gamma-BHC	ND	0.34	0.059	1.00	
Heptachlor	ND	0.34	0.089	1.00	
Heptachlor Epoxide	ND	0.34	0.077	1.00	
Methoxychlor	ND	0.34	0.12	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	61	25-200	
2,4,5,6-Tetrachloro-m-Xylene	43	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Project: POLB Carnival Cruise Terminal 2018

Page 4 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	GC/MS BBB	11/07/18	11/13/18 19:13	181107L12

Comment(s): - Results are reported on a dry weight basis.
 - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
4,4'-DDD	18	3.4	0.69	10.0	
4,4'-DDE	23	3.4	0.70	10.0	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
Dibutylchlorodate	59	25-200			
2,4,5,6-Tetrachloro-m-Xylene	44	25-200			

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Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 5 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	GC/MS BBB	11/07/18	11/13/18 17:58	181107L12

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Aldrin	ND	0.36	0.067	1.00	
Alpha-BHC	ND	0.36	0.10	1.00	
Beta-BHC	ND	0.36	0.12	1.00	
2,4'-DDD	ND	0.36	0.14	1.00	
2,4'-DDE	3.9	0.36	0.062	1.00	
2,4'-DDT	ND	0.36	0.11	1.00	
4,4'-DDT	ND	0.36	0.094	1.00	
Delta-BHC	ND	0.36	0.16	1.00	
Dieldrin	ND	0.36	0.19	1.00	
Endosulfan I	ND	0.36	0.10	1.00	
Endosulfan II	ND	0.36	0.16	1.00	
Endosulfan Sulfate	ND	0.36	0.19	1.00	
Endrin	ND	0.36	0.10	1.00	
Endrin Aldehyde	ND	0.36	0.18	1.00	
Endrin Ketone	ND	0.36	0.099	1.00	
Gamma-BHC	ND	0.36	0.061	1.00	
Heptachlor	ND	0.36	0.091	1.00	
Heptachlor Epoxide	ND	0.36	0.079	1.00	
Methoxychlor	ND	0.36	0.12	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	67	25-200	
2,4,5,6-Tetrachloro-m-Xylene	43	25-200	

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Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 6 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	GC/MS BBB	11/07/18	11/13/18 19:28	181107L12

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
4,4'-DDD	16	3.6	0.71	10.0	
4,4'-DDE	24	3.6	0.72	10.0	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibutylchlorodate	120	25-200	
2,4,5,6-Tetrachloro-m-Xylene	44	25-200	



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Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 7 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	GC/MS BBB	11/07/18	11/13/18 18:13	181107L12

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Aldrin	ND	0.35	0.067	1.00	
Alpha-BHC	ND	0.35	0.10	1.00	
Beta-BHC	ND	0.35	0.12	1.00	
2,4'-DDD	ND	0.35	0.13	1.00	
2,4'-DDE	ND	0.35	0.062	1.00	
2,4'-DDT	ND	0.35	0.11	1.00	
4,4'-DDD	ND	0.35	0.070	1.00	
4,4'-DDE	5.6	0.35	0.071	1.00	
4,4'-DDT	ND	0.35	0.093	1.00	
Delta-BHC	ND	0.35	0.16	1.00	
Dieldrin	ND	0.35	0.19	1.00	
Endosulfan I	ND	0.35	0.10	1.00	
Endosulfan II	ND	0.35	0.16	1.00	
Endosulfan Sulfate	ND	0.35	0.18	1.00	
Endrin	ND	0.35	0.10	1.00	
Endrin Aldehyde	ND	0.35	0.18	1.00	
Endrin Ketone	ND	0.35	0.098	1.00	
Gamma-BHC	ND	0.35	0.061	1.00	
Heptachlor	ND	0.35	0.091	1.00	
Heptachlor Epoxide	ND	0.35	0.078	1.00	
Methoxychlor	ND	0.35	0.12	1.00	
Surrogate	Rec. (%)	Control Limits	Qualifiers		
Dibutylchloroendate	37	25-200			
2,4,5,6-Tetrachloro-m-Xylene	34	25-200			

Return to Contents

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 Work Order: 18-10-2389
 Preparation: EPA 3541
 Method: EPA 8270C PEST-SIM
 Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 8 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-154-115	N/A	Solid	GC/MS BBB	11/07/18	11/13/18 14:30	181107L12

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Aldrin	ND	0.20	0.038	1.00	
Alpha-BHC	ND	0.20	0.058	1.00	
Beta-BHC	ND	0.20	0.067	1.00	
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	ND	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	ND	0.20	0.040	1.00	
4,4'-DDE	ND	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.053	1.00	
Delta-BHC	ND	0.20	0.093	1.00	
Dieldrin	ND	0.20	0.11	1.00	
Endosulfan I	ND	0.20	0.058	1.00	
Endosulfan II	ND	0.20	0.091	1.00	
Endosulfan Sulfate	ND	0.20	0.10	1.00	
Endrin	ND	0.20	0.057	1.00	
Endrin Aldehyde	ND	0.20	0.099	1.00	
Endrin Ketone	ND	0.20	0.055	1.00	
Gamma-BHC	ND	0.20	0.034	1.00	
Heptachlor	ND	0.20	0.051	1.00	
Heptachlor Epoxide	ND	0.20	0.044	1.00	
Methoxychlor	ND	0.20	0.067	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	73	25-200	
2,4,5,6-Tetrachloro-m-Xylene	89	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	GC/MS MM	11/06/18	11/09/18 16:09	181106L06

Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
1-Methylnaphthalene	5.7	20	2.1	1.00	J
2,4,5-Trichlorophenol	ND	20	2.4	1.00	
2,4,6-Trichlorophenol	ND	20	2.6	1.00	
2,4-Dichlorophenol	ND	20	3.3	1.00	
2,4-Dimethylphenol	ND	980	5.1	1.00	
2,4-Dinitrophenol	ND	980	120	1.00	
2-Chlorophenol	ND	20	3.6	1.00	
2-Methylnaphthalene	8.6	20	3.2	1.00	J
2-Methylphenol	ND	20	3.8	1.00	
2-Nitrophenol	ND	980	3.3	1.00	
3/4-Methylphenol	24	20	7.1	1.00	
4,6-Dinitro-2-Methylphenol	ND	980	130	1.00	
4-Chloro-3-Methylphenol	ND	20	4.0	1.00	
Acenaphthene	3.7	20	3.0	1.00	J
Acenaphthylene	6.3	20	3.3	1.00	J
Anthracene	10	20	3.8	1.00	J
Benzo (a) Anthracene	37	20	2.8	1.00	
Benzo (a) Pyrene	53	20	2.7	1.00	
Benzo (b) Fluoranthene	56	20	2.8	1.00	
Benzo (g,h,i) Perylene	42	20	3.0	1.00	
Benzo (k) Fluoranthene	60	20	2.9	1.00	
Bis(2-Ethylhexyl) Phthalate	830	98	3.0	1.00	B
Butyl Benzyl Phthalate	71	98	3.9	1.00	B,J
Chrysene	65	20	2.7	1.00	
Di-n-Butyl Phthalate	83	98	3.7	1.00	B,J
Di-n-Octyl Phthalate	ND	98	3.7	1.00	
Dibenz (a,h) Anthracene	20	20	2.8	1.00	
Diethyl Phthalate	5.7	98	3.2	1.00	J
Dimethyl Phthalate	9.0	98	3.9	1.00	J
Fluoranthene	99	20	3.4	1.00	
Fluorene	7.5	20	3.2	1.00	J
Indeno (1,2,3-c,d) Pyrene	43	20	2.6	1.00	
Naphthalene	10	20	3.0	1.00	J

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Method: EPA 8270C SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Pentachlorophenol	270	980	2.6	1.00	J
Phenanthrene	40	20	3.4	1.00	
Phenol	ND	20	4.5	1.00	
Pyrene	96	20	3.2	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2,4,6-Tribromophenol	63	32-143	
2-Fluorobiphenyl	36	14-146	
2-Fluorophenol	27	15-138	
Nitrobenzene-d5	26	18-162	
p-Terphenyl-d14	84	34-148	
Phenol-d6	43	17-141	

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Page 3 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	GC/MS MM	11/06/18	11/09/18 16:34	181106L06

Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
1-Methylnaphthalene	2.3	17	1.8	1.00	J
2,4,5-Trichlorophenol	ND	17	2.1	1.00	
2,4,6-Trichlorophenol	ND	17	2.2	1.00	
2,4-Dichlorophenol	ND	17	2.9	1.00	
2,4-Dimethylphenol	ND	850	4.4	1.00	
2,4-Dinitrophenol	ND	850	100	1.00	
2-Chlorophenol	ND	17	3.2	1.00	
2-Methylnaphthalene	4.2	17	2.8	1.00	J
2-Methylphenol	ND	17	3.3	1.00	
2-Nitrophenol	ND	850	2.8	1.00	
3/4-Methylphenol	6.8	17	6.2	1.00	J
4,6-Dinitro-2-Methylphenol	ND	850	110	1.00	
4-Chloro-3-Methylphenol	ND	17	3.5	1.00	
Acenaphthene	ND	17	2.6	1.00	
Acenaphthylene	4.3	17	2.8	1.00	J
Anthracene	7.7	17	3.3	1.00	J
Benzo (a) Anthracene	24	17	2.4	1.00	
Benzo (a) Pyrene	36	17	2.4	1.00	
Benzo (b) Fluoranthene	36	17	2.4	1.00	
Benzo (g,h,i) Perylene	17	17	2.6	1.00	
Benzo (k) Fluoranthene	34	17	2.5	1.00	
Bis(2-Ethylhexyl) Phthalate	510	85	2.6	1.00	B
Butyl Benzyl Phthalate	48	85	3.3	1.00	B,J
Chrysene	36	17	2.3	1.00	
Di-n-Butyl Phthalate	36	85	3.2	1.00	B,J
Di-n-Octyl Phthalate	ND	85	3.2	1.00	
Dibenz (a,h) Anthracene	4.4	17	2.5	1.00	J
Diethyl Phthalate	ND	85	2.7	1.00	
Dimethyl Phthalate	ND	85	3.4	1.00	
Fluoranthene	49	17	3.0	1.00	
Fluorene	ND	17	2.8	1.00	
Indeno (1,2,3-c,d) Pyrene	15	17	2.2	1.00	J
Naphthalene	4.2	17	2.6	1.00	J

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Project: POLB Carnival Cruise Terminal 2018

Page 4 of 10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Pentachlorophenol	220	850	2.2	1.00	J
Phenanthrene	19	17	2.9	1.00	
Phenol	ND	17	3.9	1.00	
Pyrene	58	17	2.8	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2,4,6-Tribromophenol	53	32-143	
2-Fluorobiphenyl	36	14-146	
2-Fluorophenol	27	15-138	
Nitrobenzene-d5	22	18-162	
p-Terphenyl-d14	82	34-148	
Phenol-d6	43	17-141	

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Page 5 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	GC/MS MM	11/06/18	11/09/18 17:00	181106L06

Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
1-Methylnaphthalene	2.4	18	1.9	1.00	J
2,4,5-Trichlorophenol	ND	18	2.2	1.00	
2,4,6-Trichlorophenol	ND	18	2.3	1.00	
2,4-Dichlorophenol	ND	18	3.0	1.00	
2,4-Dimethylphenol	ND	890	4.6	1.00	
2,4-Dinitrophenol	ND	890	110	1.00	
2-Chlorophenol	ND	18	3.3	1.00	
2-Methylnaphthalene	4.7	18	2.9	1.00	J
2-Methylphenol	ND	18	3.5	1.00	
2-Nitrophenol	ND	890	3.0	1.00	
3/4-Methylphenol	8.1	18	6.5	1.00	J
4,6-Dinitro-2-Methylphenol	ND	890	120	1.00	
4-Chloro-3-Methylphenol	ND	18	3.7	1.00	
Acenaphthene	ND	18	2.7	1.00	
Acenaphthylene	4.2	18	3.0	1.00	J
Anthracene	9.7	18	3.5	1.00	J
Benzo (a) Anthracene	32	18	2.5	1.00	
Benzo (a) Pyrene	49	18	2.5	1.00	
Benzo (b) Fluoranthene	52	18	2.5	1.00	
Benzo (g,h,i) Perylene	25	18	2.7	1.00	
Benzo (k) Fluoranthene	49	18	2.6	1.00	
Bis(2-Ethylhexyl) Phthalate	720	89	2.7	1.00	B
Butyl Benzyl Phthalate	78	89	3.5	1.00	B,J
Chrysene	50	18	2.4	1.00	
Di-n-Butyl Phthalate	52	89	3.4	1.00	B,J
Di-n-Octyl Phthalate	ND	89	3.4	1.00	
Dibenz (a,h) Anthracene	12	18	2.6	1.00	J
Diethyl Phthalate	4.5	89	2.9	1.00	J
Dimethyl Phthalate	7.1	89	3.6	1.00	J
Fluoranthene	70	18	3.1	1.00	
Fluorene	ND	18	2.9	1.00	
Indeno (1,2,3-c,d) Pyrene	28	18	2.3	1.00	
Naphthalene	5.1	18	2.7	1.00	J

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 6 of 10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Pentachlorophenol	240	890	2.3	1.00	J
Phenanthrene	28	18	3.1	1.00	
Phenol	ND	18	4.1	1.00	
Pyrene	70	18	2.9	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2,4,6-Tribromophenol	68	32-143	
2-Fluorobiphenyl	36	14-146	
2-Fluorophenol	28	15-138	
Nitrobenzene-d5	24	18-162	
p-Terphenyl-d14	83	34-148	
Phenol-d6	46	17-141	

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 7 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	GC/MS MM	11/06/18	11/09/18 17:25	181106L06

Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
1-Methylnaphthalene	ND	18	1.9	1.00	
2,4,5-Trichlorophenol	ND	18	2.1	1.00	
2,4,6-Trichlorophenol	ND	18	2.3	1.00	
2,4-Dichlorophenol	ND	18	3.0	1.00	
2,4-Dimethylphenol	ND	880	4.6	1.00	
2,4-Dinitrophenol	ND	880	110	1.00	
2-Chlorophenol	ND	18	3.3	1.00	
2-Methylnaphthalene	ND	18	2.9	1.00	
2-Methylphenol	ND	18	3.4	1.00	
2-Nitrophenol	ND	880	2.9	1.00	
3/4-Methylphenol	ND	18	6.4	1.00	
4,6-Dinitro-2-Methylphenol	ND	880	120	1.00	
4-Chloro-3-Methylphenol	ND	18	3.6	1.00	
Acenaphthene	ND	18	2.7	1.00	
Acenaphthylene	ND	18	2.9	1.00	
Anthracene	ND	18	3.4	1.00	
Benzo (a) Anthracene	ND	18	2.5	1.00	
Benzo (a) Pyrene	ND	18	2.4	1.00	
Benzo (b) Fluoranthene	ND	18	2.5	1.00	
Benzo (g,h,i) Perylene	ND	18	2.7	1.00	
Benzo (k) Fluoranthene	ND	18	2.6	1.00	
Bis(2-Ethylhexyl) Phthalate	15	88	2.7	1.00	B,J
Butyl Benzyl Phthalate	9.2	88	3.5	1.00	B,J
Chrysene	ND	18	2.4	1.00	
Di-n-Butyl Phthalate	16	88	3.3	1.00	B,J
Di-n-Octyl Phthalate	ND	88	3.3	1.00	
Dibenz (a,h) Anthracene	ND	18	2.5	1.00	
Diethyl Phthalate	ND	88	2.8	1.00	
Dimethyl Phthalate	ND	88	3.5	1.00	
Fluoranthene	ND	18	3.1	1.00	
Fluorene	ND	18	2.9	1.00	
Indeno (1,2,3-c,d) Pyrene	ND	18	2.3	1.00	
Naphthalene	ND	18	2.7	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 8 of 10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Pentachlorophenol	ND	880	2.3	1.00	
Phenanthrene	ND	18	3.0	1.00	
Phenol	ND	18	4.1	1.00	
Pyrene	ND	18	2.9	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2,4,6-Tribromophenol	83	32-143			
2-Fluorobiphenyl	48	14-146			
2-Fluorophenol	35	15-138			
Nitrobenzene-d5	31	18-162			
p-Terphenyl-d14	94	34-148			
Phenol-d6	55	17-141			

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 9 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-256-239	N/A	Solid	GC/MS MM	11/06/18	11/09/18 15:43	181106L06

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
1-Methylnaphthalene	ND	10	1.1	1.00	
2,4,5-Trichlorophenol	ND	10	1.2	1.00	
2,4,6-Trichlorophenol	ND	10	1.3	1.00	
2,4-Dichlorophenol	ND	10	1.7	1.00	
2,4-Dimethylphenol	ND	500	2.6	1.00	
2,4-Dinitrophenol	ND	500	60	1.00	
2-Chlorophenol	ND	10	1.9	1.00	
2-Methylnaphthalene	ND	10	1.6	1.00	
2-Methylphenol	ND	10	2.0	1.00	
2-Nitrophenol	ND	500	1.7	1.00	
3/4-Methylphenol	ND	10	3.6	1.00	
4,6-Dinitro-2-Methylphenol	ND	500	66	1.00	
4-Chloro-3-Methylphenol	ND	10	2.1	1.00	
Acenaphthene	ND	10	1.5	1.00	
Acenaphthylene	ND	10	1.7	1.00	
Anthracene	ND	10	1.9	1.00	
Benzo (a) Anthracene	ND	10	1.4	1.00	
Benzo (a) Pyrene	ND	10	1.4	1.00	
Benzo (b) Fluoranthene	ND	10	1.4	1.00	
Benzo (g,h,i) Perylene	ND	10	1.5	1.00	
Benzo (k) Fluoranthene	ND	10	1.5	1.00	
Bis(2-Ethylhexyl) Phthalate	8.0	50	1.5	1.00	J
Butyl Benzyl Phthalate	5.4	50	2.0	1.00	J
Chrysene	ND	10	1.4	1.00	
Di-n-Butyl Phthalate	11	50	1.9	1.00	J
Di-n-Octyl Phthalate	ND	50	1.9	1.00	
Dibenz (a,h) Anthracene	ND	10	1.4	1.00	
Diethyl Phthalate	ND	50	1.6	1.00	
Dimethyl Phthalate	ND	50	2.0	1.00	
Fluoranthene	ND	10	1.8	1.00	
Fluorene	ND	10	1.6	1.00	
Indeno (1,2,3-c,d) Pyrene	ND	10	1.3	1.00	
Naphthalene	ND	10	1.5	1.00	
Pentachlorophenol	ND	500	1.3	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 10 of 10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Phenanthrene	ND	10	1.7	1.00	
Phenol	ND	10	2.3	1.00	
Pyrene	ND	10	1.6	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2,4,6-Tribromophenol	75	32-143			
2-Fluorobiphenyl	39	14-146			
2-Fluorophenol	30	15-138			
Nitrobenzene-d5	22	18-162			
p-Terphenyl-d14	99	34-148			
Phenol-d6	57	17-141			



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	GC/MS HHH	11/07/18	11/09/18 20:45	181107L13

Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	3.3	0.39	0.13	1.00	
PCB028	4.5	0.39	0.14	1.00	
PCB037	1.1	0.39	0.12	1.00	
PCB044	6.5	0.39	0.30	1.00	
PCB049	2.5	0.39	0.097	1.00	
PCB052	6.5	0.39	0.37	1.00	
PCB066	5.5	0.39	0.24	1.00	
PCB070	5.3	0.39	0.14	1.00	
PCB074	2.9	0.39	0.18	1.00	
PCB077	1.4	0.39	0.23	1.00	
PCB081	ND	0.39	0.18	1.00	
PCB087	2.1	0.39	0.22	1.00	
PCB099	3.0	0.39	0.092	1.00	
PCB101	6.5	0.39	0.086	1.00	
PCB105	9.0	0.39	0.10	1.00	
PCB110	5.3	0.39	0.066	1.00	
PCB114	ND	0.39	0.14	1.00	
PCB118	6.0	0.39	0.067	1.00	
PCB119	ND	0.39	0.12	1.00	
PCB123	ND	0.39	0.14	1.00	
PCB126	ND	0.39	0.11	1.00	
PCB128	1.8	0.39	0.23	1.00	
PCB132/153	7.9	0.78	0.32	1.00	
PCB138/158	6.2	0.78	0.69	1.00	
PCB149	4.5	0.39	0.23	1.00	
PCB151	1.5	0.39	0.17	1.00	
PCB156	0.81	0.39	0.15	1.00	
PCB157	ND	0.39	0.17	1.00	
PCB167	ND	0.39	0.26	1.00	
PCB168	6.2	0.39	0.28	1.00	
PCB169	ND	0.39	0.13	1.00	
PCB170	2.9	0.39	0.22	1.00	
PCB177	1.1	0.39	0.23	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB180	4.0	0.39	0.18	1.00	
PCB183	1.1	0.39	0.18	1.00	
PCB187	2.0	0.39	0.20	1.00	
PCB189	ND	0.39	0.12	1.00	
PCB194	1.8	0.39	0.14	1.00	
PCB201	ND	0.39	0.066	1.00	
PCB206	1.9	0.39	0.23	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	102	14-146			
p-Terphenyl-d14	99	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	GC/MS HHH	11/07/18	11/09/18 21:08	181107L13

Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	5.9	0.34	0.11	1.00	
PCB028	4.7	0.34	0.12	1.00	
PCB037	1.5	0.34	0.10	1.00	
PCB044	6.8	0.34	0.26	1.00	
PCB049	3.8	0.34	0.085	1.00	
PCB052	7.1	0.34	0.33	1.00	
PCB066	6.7	0.34	0.21	1.00	
PCB070	7.0	0.34	0.12	1.00	
PCB074	3.4	0.34	0.16	1.00	
PCB077	1.3	0.34	0.20	1.00	
PCB081	ND	0.34	0.16	1.00	
PCB087	3.3	0.34	0.19	1.00	
PCB099	2.8	0.34	0.082	1.00	
PCB101	7.0	0.34	0.076	1.00	
PCB105	4.3	0.34	0.092	1.00	
PCB110	5.9	0.34	0.058	1.00	
PCB114	ND	0.34	0.13	1.00	
PCB118	5.2	0.34	0.060	1.00	
PCB119	ND	0.34	0.11	1.00	
PCB123	ND	0.34	0.13	1.00	
PCB126	ND	0.34	0.095	1.00	
PCB128	1.2	0.34	0.21	1.00	
PCB132/153	7.2	0.69	0.28	1.00	
PCB138/158	5.4	0.69	0.61	1.00	
PCB149	4.3	0.34	0.20	1.00	
PCB151	1.5	0.34	0.15	1.00	
PCB156	ND	0.34	0.13	1.00	
PCB157	ND	0.34	0.15	1.00	
PCB167	ND	0.34	0.23	1.00	
PCB168	ND	0.34	0.25	1.00	
PCB169	ND	0.34	0.11	1.00	
PCB170	2.0	0.34	0.19	1.00	
PCB177	ND	0.34	0.20	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 4 of 10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB180	4.1	0.34	0.16	1.00	
PCB183	0.97	0.34	0.16	1.00	
PCB187	1.8	0.34	0.18	1.00	
PCB189	ND	0.34	0.11	1.00	
PCB194	1.3	0.34	0.13	1.00	
PCB201	ND	0.34	0.059	1.00	
PCB206	ND	0.34	0.20	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	97	14-146			
p-Terphenyl-d14	95	34-148			



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 5 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	GC/MS HHH	11/07/18	11/09/18 21:32	181107L13

Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	4.3	0.36	0.12	1.00	
PCB028	4.4	0.36	0.12	1.00	
PCB037	1.2	0.36	0.11	1.00	
PCB044	7.0	0.36	0.27	1.00	
PCB049	3.3	0.36	0.088	1.00	
PCB052	6.3	0.36	0.34	1.00	
PCB066	6.0	0.36	0.22	1.00	
PCB070	6.0	0.36	0.13	1.00	
PCB074	2.9	0.36	0.16	1.00	
PCB077	1.1	0.36	0.21	1.00	
PCB081	ND	0.36	0.16	1.00	
PCB087	3.1	0.36	0.20	1.00	
PCB099	2.9	0.36	0.084	1.00	
PCB101	6.9	0.36	0.079	1.00	
PCB105	6.8	0.36	0.095	1.00	
PCB110	6.3	0.36	0.060	1.00	
PCB114	ND	0.36	0.13	1.00	
PCB118	5.3	0.36	0.061	1.00	
PCB119	ND	0.36	0.11	1.00	
PCB123	ND	0.36	0.13	1.00	
PCB126	ND	0.36	0.098	1.00	
PCB128	1.5	0.36	0.21	1.00	
PCB132/153	8.0	0.71	0.29	1.00	
PCB138/158	6.8	0.71	0.63	1.00	
PCB149	5.0	0.36	0.21	1.00	
PCB151	1.7	0.36	0.16	1.00	
PCB156	0.85	0.36	0.14	1.00	
PCB157	ND	0.36	0.15	1.00	
PCB167	ND	0.36	0.24	1.00	
PCB168	ND	0.36	0.25	1.00	
PCB169	ND	0.36	0.12	1.00	
PCB170	3.0	0.36	0.20	1.00	
PCB177	1.3	0.36	0.21	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 6 of 10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB180	5.0	0.36	0.16	1.00	
PCB183	1.0	0.36	0.17	1.00	
PCB187	2.4	0.36	0.18	1.00	
PCB189	ND	0.36	0.11	1.00	
PCB194	2.2	0.36	0.13	1.00	
PCB201	ND	0.36	0.060	1.00	
PCB206	1.4	0.36	0.21	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	91	14-146			
p-Terphenyl-d14	93	34-148			



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 7 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	GC/MS HHH	11/07/18	11/09/18 21:56	181107L13

Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.35	0.11	1.00	
PCB028	ND	0.35	0.12	1.00	
PCB037	ND	0.35	0.11	1.00	
PCB044	ND	0.35	0.27	1.00	
PCB049	ND	0.35	0.087	1.00	
PCB052	ND	0.35	0.34	1.00	
PCB066	ND	0.35	0.22	1.00	
PCB070	ND	0.35	0.13	1.00	
PCB074	ND	0.35	0.16	1.00	
PCB077	ND	0.35	0.20	1.00	
PCB081	ND	0.35	0.16	1.00	
PCB087	ND	0.35	0.20	1.00	
PCB099	ND	0.35	0.084	1.00	
PCB101	ND	0.35	0.078	1.00	
PCB105	ND	0.35	0.094	1.00	
PCB110	ND	0.35	0.060	1.00	
PCB114	ND	0.35	0.13	1.00	
PCB118	ND	0.35	0.061	1.00	
PCB119	ND	0.35	0.11	1.00	
PCB123	ND	0.35	0.13	1.00	
PCB126	ND	0.35	0.097	1.00	
PCB128	ND	0.35	0.21	1.00	
PCB132/153	ND	0.70	0.29	1.00	
PCB138/158	ND	0.70	0.62	1.00	
PCB149	ND	0.35	0.21	1.00	
PCB151	ND	0.35	0.15	1.00	
PCB156	ND	0.35	0.14	1.00	
PCB157	ND	0.35	0.15	1.00	
PCB167	ND	0.35	0.23	1.00	
PCB168	ND	0.35	0.25	1.00	
PCB169	ND	0.35	0.11	1.00	
PCB170	ND	0.35	0.20	1.00	
PCB177	ND	0.35	0.21	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 8 of 10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB180	ND	0.35	0.16	1.00	
PCB183	ND	0.35	0.16	1.00	
PCB187	ND	0.35	0.18	1.00	
PCB189	ND	0.35	0.11	1.00	
PCB194	ND	0.35	0.13	1.00	
PCB201	ND	0.35	0.060	1.00	
PCB206	ND	0.35	0.20	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	83	14-146			
p-Terphenyl-d14	99	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 9 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-418-343	N/A	Solid	GC/MS HHH	11/07/18	11/09/18 18:46	181107L13

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.065	1.00	
PCB028	ND	0.20	0.069	1.00	
PCB037	ND	0.20	0.061	1.00	
PCB044	ND	0.20	0.15	1.00	
PCB049	ND	0.20	0.050	1.00	
PCB052	ND	0.20	0.19	1.00	
PCB066	ND	0.20	0.12	1.00	
PCB070	ND	0.20	0.072	1.00	
PCB074	ND	0.20	0.090	1.00	
PCB077	ND	0.20	0.12	1.00	
PCB081	ND	0.20	0.090	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.047	1.00	
PCB101	ND	0.20	0.044	1.00	
PCB105	ND	0.20	0.053	1.00	
PCB110	ND	0.20	0.034	1.00	
PCB114	ND	0.20	0.074	1.00	
PCB118	ND	0.20	0.035	1.00	
PCB119	ND	0.20	0.062	1.00	
PCB123	ND	0.20	0.073	1.00	
PCB126	ND	0.20	0.055	1.00	
PCB128	ND	0.20	0.12	1.00	
PCB132/153	ND	0.40	0.16	1.00	
PCB138/158	ND	0.40	0.35	1.00	
PCB149	ND	0.20	0.12	1.00	
PCB151	ND	0.20	0.088	1.00	
PCB156	ND	0.20	0.077	1.00	
PCB157	ND	0.20	0.085	1.00	
PCB167	ND	0.20	0.13	1.00	
PCB168	ND	0.20	0.14	1.00	
PCB169	ND	0.20	0.065	1.00	
PCB170	ND	0.20	0.11	1.00	
PCB177	ND	0.20	0.12	1.00	
PCB180	ND	0.20	0.092	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 10/31/18
 Work Order: 18-10-2389
 Preparation: EPA 3541
 Method: EPA 8270C SIM PCB Congeners
 Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 10 of 10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.093	1.00	
PCB187	ND	0.20	0.10	1.00	
PCB189	ND	0.20	0.064	1.00	
PCB194	ND	0.20	0.074	1.00	
PCB201	ND	0.20	0.034	1.00	
PCB206	ND	0.20	0.12	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	66	14-146			
p-Terphenyl-d14	84	34-148			

Return to Contents 

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3550B (M)
Method: Organotins by Krone et al.
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	GC/MS Y	11/02/18	11/06/18 21:56	181102L13

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	5.2	5.8	1.4	1.00	J
Monobutyltin	ND	5.8	2.7	1.00	
Tetrabutyltin	ND	5.8	1.4	1.00	
Tributyltin	ND	5.8	2.9	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	78	27-135	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	GC/MS Y	11/02/18	11/06/18 22:13	181102L13

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	3.3	5.1	1.2	1.00	J
Monobutyltin	ND	5.1	2.4	1.00	
Tetrabutyltin	ND	5.1	1.3	1.00	
Tributyltin	ND	5.1	2.5	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	76	27-135	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	GC/MS Y	11/02/18	11/06/18 22:30	181102L13

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	6.8	5.2	1.3	1.00	
Monobutyltin	ND	5.2	2.4	1.00	
Tetrabutyltin	ND	5.2	1.3	1.00	
Tributyltin	ND	5.2	2.6	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	90	27-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 10/31/18
 Work Order: 18-10-2389
 Preparation: EPA 3550B (M)
 Method: Organotins by Krone et al.
 Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	GC/MS Y	11/02/18	11/06/18 22:47	181102L13

Comment(s): - Results are reported on a dry weight basis.
 - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	ND	5.2	1.3	1.00	
Monobutyltin	ND	5.2	2.4	1.00	
Tetrabutyltin	ND	5.2	1.3	1.00	
Tributyltin	2.7	5.2	2.6	1.00	J

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	60	27-135	

Method Blank	099-07-016-1656	N/A	Solid	GC/MS Y	11/02/18	11/06/18 17:36	181102L13
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	ND	3.0	0.73	1.00	
Monobutyltin	ND	3.0	1.4	1.00	
Tetrabutyltin	ND	3.0	0.74	1.00	
Tributyltin	ND	3.0	1.5	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	60	27-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 1664A (M)

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 13

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Composite-b	Sample	Sediment	N/A	11/09/18	11/09/18 17:00	I1109HEMS1
CCT-18-Composite-b	Matrix Spike	Sediment	N/A	11/09/18	11/09/18 17:00	I1109HEMS1
CCT-18-Composite-b	Matrix Spike Duplicate	Sediment	N/A	11/09/18	11/09/18 17:00	I1109HEMS1

<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
HEM: Oil and Grease	326.4	40.00	360.0	4X	363.3	4X	78-114	4X	0-18	Q

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 1664A (M)

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 13

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Composite-b	Sample	Sediment	N/A	11/09/18	11/09/18 19:00	I1109HEMS2
CCT-18-Composite-b	Matrix Spike	Sediment	N/A	11/09/18	11/09/18 19:00	I1109HEMS2
CCT-18-Composite-b	Matrix Spike Duplicate	Sediment	N/A	11/09/18	11/09/18 19:00	I1109HEMS2

<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
HEM - SGT: Oil and Grease	239.8	20.00	256.7	4X	253.3	4X	64-132	4X	0-34	Q

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 9060A

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 13

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Composite-a	Sample	Sediment	TOC 10	11/07/18	11/08/18 16:57	I1107TOCS1
CCT-18-Composite-a	Matrix Spike	Sediment	TOC 10	11/07/18	11/08/18 16:57	I1107TOCS1
CCT-18-Composite-a	Matrix Spike Duplicate	Sediment	TOC 10	11/07/18	11/08/18 16:57	I1107TOCS1

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Carbon, Total Organic	1.113	3.000	3.451	78	3.570	82	75-125	3	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: SM 4500-NH3 B/C (M)

Project: POLB Carnival Cruise Terminal 2018

Page 4 of 13

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
18-10-1992-1	Sample	Sediment	BUR12	11/01/18	11/01/18 17:00	I1101NH3S1
18-10-1992-1	Matrix Spike	Sediment	BUR12	11/01/18	11/01/18 17:00	I1101NH3S1
18-10-1992-1	Matrix Spike Duplicate	Sediment	BUR12	11/01/18	11/01/18 17:00	I1101NH3S1

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Ammonia (as N)	0.5600	10.00	10.36	98	10.50	99	70-130	1	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270D (M)/TQ/EI

Project: POLB Carnival Cruise Terminal 2018

Page 5 of 13

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
CCT-18-Composite-b	Sample	Sediment	GCTQ 1	11/07/18	11/11/18 23:31	181107S12				
CCT-18-Composite-b	Matrix Spike	Sediment	GCTQ 1	11/08/18	11/12/18 02:05	181107S12				
CCT-18-Composite-b	Matrix Spike Duplicate	Sediment	GCTQ 1	11/08/18	11/12/18 02:57	181107S12				
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Allethrin	ND	5.000	2.488	50	2.851	57	10-148	14	0-30	
Bifenthrin	2.277	5.000	3.476	24	3.679	28	26-128	6	0-30	3
Cyfluthrin	ND	5.000	5.092	102	5.808	116	10-131	13	0-30	
Cypermethrin	ND	5.000	4.561	91	5.188	104	10-136	13	0-30	
Deltamethrin/Tralomethrin	ND	5.000	5.869	117	6.324	126	13-190	7	0-30	
Fenpropathrin	ND	5.000	5.482	110	5.949	119	10-148	8	0-30	
Fenvalerate/Esfenvalerate	ND	5.000	6.080	122	6.774	135	10-149	11	0-30	
Fluvalinate	ND	5.000	4.330	87	4.800	96	10-121	10	0-30	
Permethrin (cis/trans)	1.351	5.000	4.676	66	5.739	88	45-123	20	0-30	
Phenothrin	ND	5.000	6.606	132	6.753	135	45-165	2	0-30	
Resmethrin/Bioresmethrin	ND	5.000	4.885	98	5.694	114	38-164	15	0-30	
Tetramethrin	ND	5.000	5.318	106	5.939	119	15-153	11	0-30	
lambda-Cyhalothrin	ND	5.000	5.636	113	6.631	133	10-123	16	0-30	3

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3050B
Method: EPA 6020

Project: POLB Carnival Cruise Terminal 2018

Page 6 of 13

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Composite-a	Sample	Sediment	ICP/MS 05	11/09/18	11/10/18 03:05	181109S01E
CCT-18-Composite-a	Matrix Spike	Sediment	ICP/MS 05	11/09/18	11/10/18 02:51	181109S01E
CCT-18-Composite-a	Matrix Spike Duplicate	Sediment	ICP/MS 05	11/09/18	11/10/18 02:55	181109S01E

<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Arsenic	4.858	25.00	28.18	93	31.12	105	80-120	10	0-20	
Cadmium	0.5986	25.00	25.44	99	27.56	108	80-120	8	0-20	
Chromium	17.44	25.00	40.93	94	42.57	100	80-120	4	0-20	
Copper	43.65	25.00	53.24	38	57.98	57	80-120	9	0-20	3
Lead	41.07	25.00	63.90	91	66.42	101	80-120	4	0-20	
Nickel	12.16	25.00	35.34	93	37.60	102	80-120	6	0-20	
Selenium	2.195	25.00	24.30	88	26.75	98	80-120	10	0-20	
Silver	0.2867	12.50	11.58	90	12.23	96	80-120	5	0-20	
Zinc	107.7	25.00	132.5	4X	136.4	4X	80-120	4X	0-20	Q

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: POLB Carnival Cruise Terminal 2018

Page 7 of 13

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Composite-a	Sample	Sediment	Mercury 08	11/12/18	11/12/18 16:52	181112S02E
CCT-18-Composite-a	Matrix Spike	Sediment	Mercury 08	11/12/18	11/13/18 16:20	181112S02E
CCT-18-Composite-a	Matrix Spike Duplicate	Sediment	Mercury 08	11/12/18	11/13/18 16:26	181112S02E

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	0.07150	0.8350	0.5925	62	0.5825	61	76-136	2	0-16	3

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8081A

Project: POLB Carnival Cruise Terminal 2018

Page 8 of 13

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Composite-b	Sample	Sediment	GC 44	11/06/18	11/12/18 14:06	181106S07A
CCT-18-Composite-b	Matrix Spike	Sediment	GC 44	11/06/18	11/12/18 13:24	181106S07A
CCT-18-Composite-b	Matrix Spike Duplicate	Sediment	GC 44	11/06/18	11/12/18 13:38	181106S07A

<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Chlordane	ND	50.00	48.78	98	47.05	94	50-135	4	0-25	
Toxaphene	ND	100.0	40.59	41	43.94	44	50-135	8	0-25	3

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3545
Method: EPA 8270C Bisphenol

Project: POLB Carnival Cruise Terminal 2018

Page 9 of 13

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Composite-b	Sample	Sediment	GC/MS JJJ	11/09/18	11/13/18 14:05	181109S13
CCT-18-Composite-b	Matrix Spike	Sediment	GC/MS JJJ	11/09/18	11/13/18 14:59	181109S13
CCT-18-Composite-b	Matrix Spike Duplicate	Sediment	GC/MS JJJ	11/09/18	11/13/18 15:17	181109S13

<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Bisphenol A	ND	100.0	74.05	74	83.55	84	50-150	12	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM

Project: POLB Carnival Cruise Terminal 2018

Page 10 of 13

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Composite-b	Sample	Sediment	GC/MS BBB	11/07/18	11/13/18 19:13	181107S12
CCT-18-Composite-b	Matrix Spike	Sediment	GC/MS BBB	11/07/18	11/13/18 16:20	181107S12
CCT-18-Composite-b	Matrix Spike Duplicate	Sediment	GC/MS BBB	11/07/18	11/13/18 16:35	181107S12

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Aldrin	ND	5.000	5.200	104	4.519	90	25-200	14	0-25	
Alpha-BHC	ND	5.000	7.059	141	5.972	119	25-200	17	0-25	
Beta-BHC	ND	5.000	4.385	88	3.590	72	25-200	20	0-25	
4,4'-DDD	10.32	5.000	20.43	202	19.49	183	25-200	5	0-25	3
4,4'-DDE	13.26	5.000	24.11	217	23.16	198	25-200	4	0-25	3
4,4'-DDT	ND	5.000	2.262	45	1.859	37	25-200	20	0-25	
Delta-BHC	ND	5.000	6.513	130	5.789	116	25-200	12	0-25	
Dieldrin	ND	5.000	12.93	259	17.07	341	25-200	28	0-25	3,4
Endosulfan I	ND	5.000	6.234	125	6.338	127	25-200	2	0-25	
Endosulfan II	ND	5.000	4.257	85	3.523	70	25-200	19	0-25	
Endosulfan Sulfate	ND	5.000	6.201	124	6.511	130	25-200	5	0-25	
Endrin	ND	5.000	6.665	133	6.700	134	25-200	1	0-25	
Endrin Aldehyde	ND	5.000	2.579	52	3.116	62	25-200	19	0-25	
Endrin Ketone	ND	5.000	8.617	172	7.492	150	25-200	14	0-25	
Gamma-BHC	ND	5.000	7.414	148	7.309	146	25-200	1	0-25	
Heptachlor	ND	5.000	5.497	110	4.275	85	25-200	25	0-25	
Heptachlor Epoxide	ND	5.000	6.638	133	5.658	113	25-200	16	0-25	
Methoxychlor	ND	5.000	2.822	56	2.212	44	25-200	24	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM

Project: POLB Carnival Cruise Terminal 2018

Page 11 of 13

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
CCT-18-Composite-b	Sample	Sediment	GC/MS MM	11/06/18	11/09/18 16:34	181106S06				
CCT-18-Composite-b	Matrix Spike	Sediment	GC/MS MM	11/06/18	11/09/18 17:50	181106S06				
CCT-18-Composite-b	Matrix Spike Duplicate	Sediment	GC/MS MM	11/06/18	11/09/18 18:16	181106S06				
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
2,4,6-Trichlorophenol	ND	1000	919.2	92	932.5	93	40-160	1	0-20	
2,4-Dichlorophenol	ND	1000	830.9	83	846.2	85	40-160	2	0-20	
2-Methylphenol	ND	1000	728.4	73	753.2	75	40-160	3	0-20	
2-Nitrophenol	ND	1000	633.7	63	654.6	65	40-160	3	0-20	
4-Chloro-3-Methylphenol	ND	1000	896.1	90	904.7	90	40-160	1	0-20	
Acenaphthene	ND	1000	806.8	81	827.6	83	40-160	3	0-20	
Benzo (a) Pyrene	20.88	1000	997.1	98	1009	99	17-163	1	0-20	
Chrysene	21.14	1000	970.1	95	994.4	97	17-168	2	0-20	
Di-n-Butyl Phthalate	ND	1000	892.0	89	878.9	88	40-160	1	0-20	
Dimethyl Phthalate	ND	1000	837.0	84	860.2	86	40-160	3	0-20	
Fluoranthene	28.23	1000	1004	98	1025	100	26-137	2	0-20	
Fluorene	ND	1000	886.6	89	899.0	90	59-121	1	0-20	
Naphthalene	ND	1000	592.3	59	601.9	60	21-133	2	0-20	
Phenanthrene	10.75	1000	920.6	91	924.6	91	54-120	0	0-20	
Phenol	ND	1000	624.9	62	649.8	65	40-160	4	0-20	
Pyrene	33.57	1000	968.4	93	990.0	96	6-156	2	0-46	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners

Project: POLB Carnival Cruise Terminal 2018

Page 12 of 13

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Composite-a	Sample	Sediment	GC/MS HHH	11/07/18	11/09/18 20:45	181107S13
CCT-18-Composite-a	Matrix Spike	Sediment	GC/MS HHH	11/07/18	11/09/18 19:58	181107S13
CCT-18-Composite-a	Matrix Spike Duplicate	Sediment	GC/MS HHH	11/07/18	11/09/18 20:21	181107S13

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
PCB018	1.668	50.00	48.28	93	47.03	91	50-150	3	0-25	
PCB028	2.279	50.00	53.85	103	55.06	106	50-150	2	0-25	
PCB044	3.301	50.00	48.72	91	48.38	90	50-150	1	0-25	
PCB052	3.325	50.00	49.52	92	47.84	89	50-150	3	0-25	
PCB066	2.824	50.00	51.53	97	50.64	96	50-150	2	0-25	
PCB077	0.6951	50.00	43.06	85	41.93	82	50-150	3	0-25	
PCB101	3.329	50.00	48.58	91	50.40	94	50-150	4	0-25	
PCB105	4.594	50.00	45.99	83	48.87	89	50-150	6	0-25	
PCB118	3.055	50.00	46.87	88	45.85	86	50-150	2	0-25	
PCB126	ND	50.00	44.49	89	42.91	86	50-150	4	0-25	
PCB128	0.9360	50.00	44.26	87	42.52	83	50-150	4	0-25	
PCB170	1.470	50.00	50.43	98	50.95	99	50-150	1	0-25	
PCB180	2.042	50.00	48.37	93	47.64	91	50-150	2	0-25	
PCB187	1.040	50.00	44.53	87	43.16	84	50-150	3	0-25	
PCB206	0.9661	50.00	42.17	82	41.71	81	50-150	1	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



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Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3550B (M)
Method: Organotins by Krone et al.

Project: POLB Carnival Cruise Terminal 2018

Page 13 of 13

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
CCT-18-Composite-b	Sample	Sediment	GC/MS Y	11/02/18	11/06/18 22:13	181102S13A				
CCT-18-Composite-b	Matrix Spike	Sediment	GC/MS Y	11/02/18	11/06/18 18:45	181102S13A				
CCT-18-Composite-b	Matrix Spike Duplicate	Sediment	GC/MS Y	11/02/18	11/06/18 19:03	181102S13A				
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Tetrabutyltin	ND	100.0	67.39	67	75.47	75	33-129	11	0-36	
Tributyltin	ND	100.0	65.61	66	74.80	75	34-142	13	0-50	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



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Quality Control - PDS

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3050B
Method: EPA 6020

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
CCT-18-Composite-a	Sample	Sediment	ICP/MS 05	11/09/18 00:00	11/10/18 03:05	181109S01E
CCT-18-Composite-a	PDS	Sediment	ICP/MS 05	11/09/18 00:00	11/10/18 02:58	181109S01E

Parameter	Sample Conc.	Spike Added	PDS Conc.	PDS %Rec.	%Rec. CL	Qualifiers
Arsenic	4.858	25.00	30.63	103	75-125	
Cadmium	0.5986	25.00	27.20	106	75-125	
Chromium	17.44	25.00	43.08	103	75-125	
Copper	43.65	25.00	68.96	101	75-125	
Lead	41.07	25.00	67.90	107	75-125	
Nickel	12.16	25.00	37.55	102	75-125	
Selenium	2.195	25.00	28.60	106	75-125	
Silver	0.2867	12.50	12.70	99	75-125	
Zinc	107.7	25.00	135.1	4X	75-125	Q


 Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



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Quality Control - Sample Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 376.2M

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
CCT-18-Composite-a	Sample	Sediment	N/A	11/01/18 00:00	11/01/18 16:00	I1101SD1
CCT-18-Composite-a	Sample Duplicate	Sediment	N/A	11/01/18 00:00	11/01/18 16:00	I1101SD1

<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Sulfide, Total	152.5	150.0	2	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Sample Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 376.2M

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
LA2-Ref	Sample	Sediment	N/A	11/06/18 00:00	11/06/18 11:50	I1106DSS1
LA2-Ref	Sample Duplicate	Sediment	N/A	11/06/18 00:00	11/06/18 11:50	I1106DSS1

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Sulfide, Dissolved	ND	ND	N/A	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



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Quality Control - Sample Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: SM 2540 B (M)

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
CCT-18-Composite-a	Sample	Sediment	N/A	11/05/18 00:00	11/05/18 14:00	I1105TSD1
CCT-18-Composite-a	Sample Duplicate	Sediment	N/A	11/05/18 00:00	11/05/18 14:00	I1105TSD1

<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Solids, Total	51.10	51.00	0	0-10	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



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Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 1664A (M)

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-16-929-40	LCS	Solid	N/A	11/09/18	11/09/18 17:00	I1109HEML1
099-16-929-40	LCSD	Solid	N/A	11/09/18	11/09/18 17:00	I1109HEML1

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
HEM: Oil and Grease	40.00	36.62	92	36.64	92	78-114	0	0-18	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 1664A (M)

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-16-931-23	LCS	Solid	N/A	11/09/18	11/09/18 19:00	I1109HEML2
099-16-931-23	LCSD	Solid	N/A	11/09/18	11/09/18 19:00	I1109HEML2

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
HEM - SGT: Oil and Grease	20.00	16.64	83	16.66	83	64-132	0	0-34	



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 376.2M

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-16-352-172	LCS	Solid	N/A	11/01/18	11/01/18 16:00	I1101SL1
099-16-352-172	LCSD	Solid	N/A	11/01/18	11/01/18 16:00	I1101SL1

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Sulfide, Total	1.000	0.8000	80	0.8500	85	80-120	6	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



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Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 376.2M

Project: POLB Carnival Cruise Terminal 2018

Page 4 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-16-354-92	LCS	Solid	N/A	11/06/18	11/06/18 11:50	I1106DSL1			
099-16-354-92	LCSD	Solid	N/A	11/06/18	11/06/18 11:50	I1106DSL1			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Sulfide, Dissolved	1.000	0.9000	90	0.9000	90	80-120	0	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



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Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 9060A

Project: POLB Carnival Cruise Terminal 2018

Page 5 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-06-013-1918	LCS	Solid	TOC 10	11/07/18	11/08/18 16:57	I1107TOCL1
099-06-013-1918	LCSD	Solid	TOC 10	11/07/18	11/08/18 16:57	I1107TOCL1

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Carbon, Total Organic	0.6000	0.4814	80	0.5554	93	80-120	14	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



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Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: SM 4500-NH3 B/C (M)

Project: POLB Carnival Cruise Terminal 2018

Page 6 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-12-816-192	LCS	Solid	BUR12	11/01/18	11/01/18 17:00	I1101NH3L1			
099-12-816-192	LCSD	Solid	BUR12	11/01/18	11/01/18 17:00	I1101NH3L1			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Ammonia (as N)	10.00	9.660	97	9.800	98	80-120	1	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



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Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270D (M)/TQ/EI

Project: POLB Carnival Cruise Terminal 2018

Page 7 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number				
099-14-403-184	LCS	Solid	GCTQ 1	11/08/18	11/11/18 20:05	181107L12				
099-14-403-184	LCSD	Solid	GCTQ 1	11/08/18	11/11/18 20:56	181107L12				
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Allethrin	5.000	4.170	83	4.309	86	10-148	0-171	3	0-25	
Bifenthrin	5.000	4.256	85	4.330	87	26-128	9-145	2	0-25	
Cyfluthrin	5.000	4.704	94	5.007	100	10-131	0-151	6	0-25	
Cypermethrin	5.000	4.195	84	4.617	92	10-136	0-157	10	0-25	
Deltamethrin/Tralomethrin	5.000	5.061	101	5.438	109	13-190	0-220	7	0-25	
Fenpropathrin	5.000	4.190	84	4.528	91	10-148	0-171	8	0-25	
Fenvalerate/Esfenvalerate	5.000	4.486	90	4.847	97	10-149	0-172	8	0-25	
Fluvalinate	5.000	4.142	83	4.421	88	10-121	0-140	7	0-25	
Permethrin (cis/trans)	5.000	5.320	106	5.658	113	45-123	32-136	6	0-25	
Phenothrin	5.000	4.767	95	4.996	100	45-165	25-185	5	0-25	
Resmethrin/Bioresmethrin	5.000	5.239	105	5.701	114	38-164	17-185	8	0-25	
Tetramethrin	5.000	4.652	93	5.073	101	15-153	0-176	9	0-25	
lambda-Cyhalothrin	5.000	4.386	88	4.872	97	10-123	0-142	11	0-25	

Total number of LCS compounds: 13

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3050B
Method: EPA 6020

Project: POLB Carnival Cruise Terminal 2018

Page 8 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-15-254-689	LCS	Solid	ICP/MS 05	11/09/18	11/10/18 02:44	181109L01E
099-15-254-689	LCSD	Solid	ICP/MS 05	11/09/18	11/10/18 02:48	181109L01E

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	25.00	25.49	102	25.40	102	80-120	0	0-20	
Cadmium	25.00	26.53	106	25.87	103	80-120	3	0-20	
Chromium	25.00	25.54	102	25.01	100	80-120	2	0-20	
Copper	25.00	25.33	101	24.48	98	80-120	3	0-20	
Lead	25.00	26.41	106	25.92	104	80-120	2	0-20	
Nickel	25.00	25.73	103	25.73	103	80-120	0	0-20	
Selenium	25.00	23.56	94	23.26	93	80-120	1	0-20	
Silver	12.50	12.80	102	12.39	99	80-120	3	0-20	
Zinc	25.00	26.65	107	27.22	109	80-120	2	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



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Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: POLB Carnival Cruise Terminal 2018

Page 9 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-16-278-493	LCS	Solid	Mercury 08	11/12/18	11/12/18 16:06	181112L02E
099-16-278-493	LCSD	Solid	Mercury 08	11/12/18	11/12/18 17:01	181112L02E

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	0.8350	0.7459	89	0.7390	88	82-124	1	0-16	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 10/31/18
 Work Order: 18-10-2389
 Preparation: EPA 3541
 Method: EPA 8081A

Project: POLB Carnival Cruise Terminal 2018

Page 10 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-16-824-34	LCS	Solid	GC 44	11/06/18	11/12/18 16:24	181106L07A

<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Chlordane	50.00	46.55	93	50-135	
Toxaphene	100.0	73.28	73	50-135	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



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Quality Control - LCS

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 10/31/18
 Work Order: 18-10-2389
 Preparation: EPA 3545
 Method: EPA 8270C Bisphenol

Project: POLB Carnival Cruise Terminal 2018

Page 11 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-14-401-28	LCS	Solid	GC/MS JJJ	11/09/18	11/13/18 12:54	181109L13

<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Bisphenol A	100.0	96.52	97	50-150	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



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Quality Control - LCS

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM

Project: POLB Carnival Cruise Terminal 2018

Page 12 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number	
099-16-154-115	LCS	Solid	GC/MS BBB	11/07/18	11/13/18 14:45	181107L12	
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>ME CL</u>	<u>Qualifiers</u>
Aldrin		5.000	3.915	78	25-200	0-229	
Alpha-BHC		5.000	5.149	103	25-200	0-229	
Beta-BHC		5.000	5.224	104	25-200	0-229	
4,4'-DDD		5.000	3.894	78	25-200	0-229	
4,4'-DDE		5.000	4.296	86	25-200	0-229	
4,4'-DDT		5.000	4.389	88	25-200	0-229	
Delta-BHC		5.000	5.274	105	25-200	0-229	
Dieldrin		5.000	4.261	85	25-200	0-229	
Endosulfan I		5.000	4.435	89	25-200	0-229	
Endosulfan II		5.000	4.556	91	25-200	0-229	
Endosulfan Sulfate		5.000	3.478	70	25-200	0-229	
Endrin		5.000	3.751	75	25-200	0-229	
Endrin Aldehyde		5.000	3.237	65	25-200	0-229	
Endrin Ketone		5.000	4.492	90	25-200	0-229	
Gamma-BHC		5.000	4.962	99	25-200	0-229	
Heptachlor		5.000	4.765	95	25-200	0-229	
Heptachlor Epoxide		5.000	5.098	102	25-200	0-229	
Methoxychlor		5.000	4.096	82	25-200	0-229	

Total number of LCS compounds: 18

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM

Project: POLB Carnival Cruise Terminal 2018

Page 13 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number	
099-14-256-239	LCS	Solid	GC/MS MM	11/06/18	11/09/18 15:18	181106L06	
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>ME CL</u>	<u>Qualifiers</u>
2,4,6-Trichlorophenol		1000	870.9	87	40-160	20-180	
2,4-Dichlorophenol		1000	808.8	81	40-160	20-180	
2-Methylphenol		1000	745.5	75	40-160	20-180	
2-Nitrophenol		1000	587.2	59	40-160	20-180	
4-Chloro-3-Methylphenol		1000	827.4	83	40-160	20-180	
Acenaphthene		1000	749.9	75	48-108	38-118	
Benzo (a) Pyrene		1000	1039	104	17-163	0-187	
Chrysene		1000	932.7	93	17-168	0-193	
Di-n-Butyl Phthalate		1000	796.7	80	40-160	20-180	
Dimethyl Phthalate		1000	842.0	84	40-160	20-180	
Fluoranthene		1000	948.1	95	26-137	8-156	
Fluorene		1000	848.4	85	59-121	49-131	
Naphthalene		1000	427.5	43	21-133	2-152	
Phenanthrene		1000	855.9	86	54-120	43-131	
Phenol		1000	664.1	66	40-160	20-180	
Pyrene		1000	859.7	86	28-106	15-119	

Total number of LCS compounds: 16

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Quality Control - LCS

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 10/31/18
 Work Order: 18-10-2389
 Preparation: EPA 3541
 Method: EPA 8270C SIM PCB Congeners

Project: POLB Carnival Cruise Terminal 2018

Page 14 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number	
099-16-418-343	LCS	Solid	GC/MS HHH	11/07/18	11/09/18 19:10	181107L13	
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>ME CL</u>	<u>Qualifiers</u>
PCB018		50.00	42.15	84	24-132	6-150	
PCB028		50.00	46.37	93	31-133	14-150	
PCB044		50.00	45.21	90	36-120	22-134	
PCB052		50.00	44.04	88	31-121	16-136	
PCB066		50.00	52.94	106	43-139	27-155	
PCB077		50.00	47.97	96	41-131	26-146	
PCB101		50.00	48.83	98	37-121	23-135	
PCB105		50.00	49.81	100	48-132	34-146	
PCB118		50.00	48.48	97	46-136	31-151	
PCB126		50.00	49.98	100	38-134	22-150	
PCB128		50.00	48.39	97	40-130	25-145	
PCB170		50.00	47.42	95	40-124	26-138	
PCB180		50.00	50.82	102	41-143	24-160	
PCB187		50.00	46.73	93	39-129	24-144	
PCB206		50.00	43.48	87	33-135	16-152	

Total number of LCS compounds: 15

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents



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Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3550B (M)
Method: Organotins by Krone et al.

Project: POLB Carnival Cruise Terminal 2018

Page 15 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-07-016-1656	LCS	Solid	GC/MS Y	11/02/18	11/06/18 17:53	181102L13			
099-07-016-1656	LCSD	Solid	GC/MS Y	11/02/18	11/06/18 18:28	181102L13			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Tetrabutyltin	100.0	55.21	55	55.69	56	40-142	1	0-20	
Tributyltin	100.0	43.61	44	47.08	47	33-147	8	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Glossary of Terms and Qualifiers

Work Order: 18-10-2389

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

Chain of Custody Record

To: Eurofins Calscience
7440 Lincoln Way
Garden Grove, CA 92841
Phone: (714) 895-5494

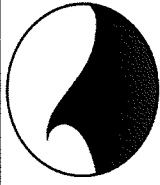
From: Kinnetic Laboratories, Inc
10377 Los Alamitos Blvd.
Los Alamitos, CA 90720
(562) 357-4685

Contact: Kathy Burney

Contact: Danielle Gonsman

Laboratory Project #: 965180
Quote #: 965180

18-10-2389



Project: POLB Carnival Cruise Terminal 2018
Complete by: 10-DAY TAT

Matrix: Sediment

Project #: 5816.05

Sample ID	Station ID	Sample Date	Sample Time	Sample Type	Analysis	Container	Pres	No. of Containers	LabID	Condition Upon Receipt
CCT-18-Composite-a	Comp Area- a	10/30/18	1325	Comp	Bulk Chemistry*	32-oz WMGJ	4° C	1	1	
CCT-18-Composite-b	Comp Area- b	10/31/18	0840	Comp	Bulk Chemistry*	32-oz WMGJ	4° C	1	2	
CCT-18-C1-b	Area C1-b	10/31/18	0800	Grab	Bulk Chemistry*	32-oz WMGJ	4° C	1	3	
LA2-Ref	LA2- Reference	10/31/18	1330	Grab	Bulk Chemistry*	32-oz WMGJ	4° C	1	4	

Data Report MUST include the following: Sample ID, Analytical Method, Detection Limit, Date of Extraction if applicable, Analytical Results and Signature of QA Reviewer. All times on this sheet are military time. Submit all PDF/EDD reports to edd@kinneticlabs.net.

Special Instructions/Comments: Report on a dry weight basis. *See attached Table for analyses and required detection limits. Follow methods in quote #965180.
Bulk Chemistry includes: % Solids, NH3, Total & Diss. Sulfide, TOC, O&G, TRPH, TVS, Metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Se, Ag, Zn), Organotins, PAHs, PCB Congeners, OC Pesticides, Phenols, Phthalates, Pyrethroids. MUST MEET QUOTED TAT

Sampled and Relinquished By:	Date/Time:	Transporter	Received By:	Date/Time:
<i>[Signature]</i>	10/31/18 1715	KL1	<i>[Signature]</i> EC	10-31-18 17:15
Relinquished By:	Date/Time:	Transporter	Received By:	Date/Time:



TABLE 2. VESSELS, HOLDING TIMES, AND PRESERVATION METHODS

PARAMETER	SAMPLE SIZE	CONTAINER	MAX. HOLDING TIME	PRESERVATION
BULK SEDIMENT SAMPLES				
Grain Size	100 g	8-oz glass (Teflon or polyethylene for mercury)	6 months	4°C
Total Solids	10 g		14 days	4°C
			6 months	-18°C
TOC	50 g		14 days	4°C
			6 months	-18°C
Ammonia, Sulfides			7 days	4°C
Metals			6 months (28 days for Mercury)	4°C
	2 years (excl. Mercury)		-18°C	
PAHs, Pesticides, PCBs, Pyrethroids	30 g	16-oz glass	14 days	4°C
			1 year	-18°C
			40 days after extraction	4°C
Tier III Biological Tests	60 L	3.5-gal polyethylene bucket liners	8 weeks	4°C
ELUTRIATE SAMPLES				
Metals	100 ml	500-ml high-density polyethylene (HDPE)	6 months (28 days for Mercury)	Nitric acid to pH<2
PAHs, Pesticides, PCBs, Pyrethroids	1 L	1-L amber glass	7 days	4°C

4.2. Testing

The samples collected will be tested at a laboratory accredited by National Environmental Laboratory Accreditation Program (NELAP). Sediment physical, chemical, and biological tests will be performed according to the framework presented below to provide a basis for management option determination.

4.2.1. Bulk Sediment Physical and Chemical Testing

Physical and chemical analyses will be conducted on two (2) areal composite samples Composite-*a* (maintenance) and Composite-*b* (new-work), one (1) individual sample C1-*b* (new-work), and the grab samples from LA-2 as needed (Section 4.2.3). The archived samples will provide for any additional test needs within appropriate holding times as shown in Table 2. Since the new-work material is of unknown nature, the tests on C1-*b* will help determine whether the berth-wide new-work composite Composite-*b* reasonably represents the new-work material overall or, in case of significant difference between the two samples, additional tests are needed. Standard procedures as outlined in applicable testing manuals including Ocean Testing Manual (OTM) (USEPA/USACE, 1991), Inland Testing Manual (ITM) (USEPA/USACE, 1998), and Upland Testing Manual (UTM) (USACE, 2003) will be followed throughout the testing program.

Table 3 summarizes the proposed tests parameters, methods, and reporting limits for the bulk physical and chemical tests to be conducted for the project. The results from the bulk sediment physical and chemical tests will be used as the basis for all ensuing testing decisions as discussed in the following sections.

TABLE 3. PHYSICAL AND CHEMICAL TESTS

PARAMETER	METHOD	MDL	RL	UNIT	ERL	ERM
PHYSICAL/CONVENTIONALS						
Grain Size	Plumb (1981)		0.1	%		
Specific Gravity			0.01			
Total Solids	SM 2540		0.1	%		
Atterberg Limits	ASTM D4318		1	%		
Ammonia	EPA 350.1M		0.5	mg/kg		
Oil & Grease	EPA 1664		25			
TRPH			25			
Sulfides, Dissolved		Plumb (1981)			0.1	
Sulfides, Total			0.1			
TOC	EPA 9060A		0.1	%		
TDS	SM 2540		2.5	mg/L		
TSS			5			
TVS			0.1			
METALS						
Arsenic	EPA 6020	0.051	0.2	mg/kg	8.2	70
Cadmium		0.005			1.2	9.6
Chromium		0.017			81	370
Copper		0.018			34	270
Lead		0.009			46.7	218
Mercury	EPA 7471A	0.001	0.04		0.15	0.71
Nickel	EPA 6020	0.016	0.2		20.9	51.6
Selenium		0.035				
Silver		0.004			1	3.7
Zink		0.26			150	410
ORGANOTINS						
Dibutyltin	Krone et al. (1989)	0.6	6	µg/kg		
Monobutyltin		0.97				
Tetrabutyltin		0.36				
Tributyltin		0.33				
PAHS						
1-Methylnapthalene	EPA 8270C SIM	1.04	20	µg/kg		
2-Methylnapthalene		1.04				
2,4,5-Trichlorophenol		1.5	10			
2,4,6-Trichlorophenol		3.6	20			
2,4-Dichlorophenol		2.7				
2,4-Dimethylphenol		3.1				
2,4-Dinitrophenol		63	1000			
2-Chlorophenol		3.4	20			
2-Methylnapthalene		0.92				



PARAMETER	METHOD	MDL	RL	UNIT	ERL	ERM
Acenaphthene		0.76				
Acenaphthylene		0.73				
Anthracene		0.66				
Benzo(a)anthracene		1.01				
Benzo(a)pyrene		0.64				
Benzo (b) Fluoranthene		0.77				
Benzo (g,h,i) Perylene		1.14				
Benzo (k) Fluoranthene		0.96				
Chrysene		0.76				
Dibenz (a,h) Anthracene		0.53				
Fluoranthene		0.78				
Fluorene		0.7				
Indeno (1,2,3-c,d) Pyrene		0.66				
Naphthalene		0.83				
N-Nitrosodimethylamine		0.251	2			
Pentachlorophenol		88	1000			
Phenanthrene		1.08	20			
Phenols		3.7	30			
Pyrene		0.82	20			
Total PAHs					4022	44792
PCBS						
PCB 018		0.086				
PCB 028		0.53				
PCB 037		0.12				
PCB 044		0.25				
PCB 049		0.095				
PCB 052		0.15				
PCB 066		0.1				
PCB 070		0.15				
PCB 074		0.1				
PCB 077		0.082				
PCB 081	EPA 8082A ECD	0.07	0.5	µg/kg		
PCB 087		0.15				
PCB 099		0.079				
PCB 101		0.078				
PCB 105		0.053				
PCB 110		0.082				
PCB 114		0.068				
PCB 118		0.078				
PCB 119		0.072				
PCB 123		0.092				

Return to Contents



PARAMETER	METHOD	MDL	RL	UNIT	ERL	ERM	
PCB 126		0.072					
PCB 128		0.08					
PCB 138		0.075					
PCB 149		0.07					
PCB 151		0.069					
PCB 153		0.097					
PCB 156		0.073					
PCB 157		0.076					
PCB 158		0.07					
PCB 167		0.088					
PCB 168		0.069					
PCB 169		0.093					
PCB 170		0.066					
PCB 177		0.089					
PCB 180		0.083					
PCB 183		0.064					
PCB 187		0.087					
PCB 189		0.068					
PCB 194		0.082					
PCB 201		0.13					
PCB 206		0.078					
Total PCBs					22.7	180	
PESTICIDES							
2,4'-DDD	EPA 8081A	0.2	2	µg/kg			
2,4'-DDE		0.18					
2,4'-DDT		0.14					
4,4'-DDD		0.26				2	20
4,4'-DDE		0.3				2.2	27
4,4'-DDT		0.33				1	7
Total DDTs						1.58	46.1
Aldrin		0.31	2				
Alpha-BHC		0.29					
Beta-BHC		0.26					
Chlordane		1.9	10			0.5	6
Delta-BHC		0.32	2				
Dieldrin		0.23					
Endosulfan I		0.36					
Endosulfan II		0.18					
Endosulfan Sulfate		0.26					
Endrin		0.2					
Endrin Aldehyde		0.2					

Return to Contents

PARAMETER	METHOD	MDL	RL	UNIT	ERL	ERM
Endrin Ketone		0.3	40			
Gamma-BHC		0.23				
Heptachlor		0.22				
Heptachlor Epoxide		0.18				
Methoxychlor		0.17				
Toxaphene		8.5				
PHENOLS						
2-Methylphenol	EPA 8270C SIM	5.3	20	µg/kg		
2-Nitrophenol		2.4				
3,4-Methylphenol						
4,6-Dinitro-2-Methylphenol			20			
4-Chloro-3-Methylphenol		3.5				
Bisphenol A						
PHTHALATES						
Bis(2-Ethylhexyl) Phthalate	EPA 8270C SIM	4.1	20	µg/kg		
Butylbenzyl Phthalate		4.4				
Diethyl Phthalate		5				
Dimethyl Phthalate		5.4				
Di-n-butyl Phthalate		5.1				
Di-n-octyl Phthalate		4.7				
PYRETHROIDS						
Allethrin (Bioallethrin)	GC/MS/MS	0.09	1	µg/kg		
Bifenthrin		0.085				
Cyfluthrin-beta (Baythroid)		0.1				
Cyhalothrin-Lamba		0.078				
Cypermethrin		0.15				
Deltamethrin (Decamethrin)		0.093				
Esfenvalerate		0.087				
Fenpropathrin (Danitol)		0.091				
Fenvalerate (sanmarton)		0.094				
Fluvalinate		0.12				
Permethrin (cis and trans)		0.088				
Resmethrin (Bioresmethrin)		0.079				
Resmethrin		0.013				
Sumithrin (Phenothrin)		0.09				
Tetramethrin		0.085				
Tralomethrin		0.1				



In addition to sediment testing, water samples from LA-2 and harbor area will be analyzed for the background levels of contaminants of concern at the disposal sites for use in the initial mixing zone and water column compliance analyses.

4.2.2. Effluent Elutriate Testing

Effluent Elutriate Test (EET) will be performed based on the contamination levels and characteristics identified in the bulk tests as outlined above and in Table 3. The objective of the EET is to evaluate the quality of potential effluents from confined site(s) during or after placement if contaminants of concern are present in significant levels in the dredged material. Although POLB has Best Management Practices (BMPs) in place across the harbor, additional project-specific mitigation measures will need to be implemented to address any potential impact of effluents from transitional and/or final placement sites.

The EET will be conducted once all bulk chemistry tests have been completed, results analyzed, and constituent(s) of concern (if any) identified. If the bulk chemistry tests indicate minimal contamination in the sediments, consultation with the DMMT agencies will be made to determine the need for further testing by EET. Once decided to proceed, EET will be conducted on the composite sample with the highest levels of constituents of concern. Standard procedure and protocol for EET as specified in the UTM (USACE, 2003) will be followed.

The EET will use surface water samples collected from the berth dredging area as dilution water. In each test, the sediment and water samples will be combined to produce a slurry mixture at a concentration of 150 g/L. The slurry will then undergo vigorous mixing via aeration for 1 hour at room temperature before being allowed to settle for 24 hours. After settlement, the overlying liquid with remaining suspended phase will be siphoned out and centrifuged to remove the solids phase to produce the test elutriate. Table 4 presents the proposed parameters, methods, and reporting limits for the EET. The original water samples will also be tested for the same parameters as reference.

The test results will be compared with applicable water quality objectives for the receiving water of Los Angeles Region as outlined in the Basin Plan (LARWQCB, 1995) to support management option assessment for the dredged material. In cases where water quality objectives are not available for the contaminants of concern, bioassays may be considered to determine compliance.

TABLE 4. EFFLUENT ELUTRIATE TESTS

PARAMETER	METHOD	RL	UNIT	
METALS			µg/L	
Arsenic	EPA 1640/6020	0.03		
Cadmium		0.03		
Chromium		0.2		
Copper		0.03		
Lead		0.03		
Mercury		EPA 7470A		0.05
Nickel	EPA 1640/6020	0.2		
Selenium		0.05		
Silver		0.05		
Zink		1.0		
PAHs				0.2
1-Methylnaphthalene	EPA 8270C SIM			
2-Methylnaphthalene				
1,6,7-Trimethylnaphthalene				
2,6-Dimethylnaphthalene				
1-Methylphenanthrene				
Acenaphthene				
Acenaphthylene				
Anthracene				
Benzo(a) Anthracene				
Benzo(a) Pyrene				
Benzo (b) Fluoranthene				
Benzo (g,h,i) Perylene				
Benzo (k) Fluoranthene				
Biphenyl				
Chrysene				
Dibenz (a,h) Anthracene				
Fluoranthene				
Fluorene				
Indeno (1,2,3-c,d) Pyrene				
Naphthalene				
Perylene				
Phenanthrene				
Pyrene				
Total HPAHs				



PARAMETER	METHOD	RL	UNIT
<i>PCB Congeners</i>			
PCB 003	USEPA 8270C SIM	0.02	
PCB 008			
PCB 018			
PCB 028			
PCB 031			
PCB 033			
PCB 037			
PCB 044			
PCB 049			
PCB 052			
PCB 056			
PCB 060			
PCB 066			
PCB 070			
PCB 074			
PCB 077			
PCB 081			
PCB 087			
PCB 095			
PCB 097			
PCB 099			
PCB 101			
PCB 105			
PCB 110			
PCB 114			
PCB 118			
PCB 119			
PCB 123			
PCB 126			
PCB 128			
PCB 132			
PCB 138/158			
PCB 141	0.02		
PCB 149			
PCB 151			
PCB 153			
PCB 156			

Return to Contents



PARAMETER	METHOD	RL	UNIT	
PCB 157				
PCB 167				
PCB 168				
PCB 169				
PCB 170				
PCB 174				
PCB 177				
PCB 180				
PCB 183				
PCB 184				
PCB 187				
PCB 189				
PCB 194				
PCB 195				
PCB 200				
PCB 201				
PCB 203				
PCB 206				
PCB 209				
PESTICIDES			µg/L	
2,4'-DDD	US EPA 8081A	0.05		
2,4'-DDE				
2,4'-DDT				
4,4'-DDD				
4,4'-DDE				
4,4'-DDT				
Aldrin				
Alpha-Chlordane				
Alpha-BHC				
Beta-BHC				
Chlordane				
Cis-Nonachlor				
Delta-BHC				
Dieldrin				
Endosulfan I				
Endosulfan II				
Endrin Ketone				
Gamma-Chlordane				

Return to Contents



PARAMETER	METHOD	RL	UNIT	
Gamma-BHC			µg/L	
Heptachlor				
Heptachlor Epoxide				
Methoxychlor				
Toxaphene				2.0
Trans-Nonachlor				0.05
Total DDTs				
PYRETHROIDS				
Bifenthrin	EPA 8270D modified TQ/EI	0.002		
Cyfluthrin, Total				
Cypermethrin, Total				
Deltamethrin				
Esfenvalerate/Fenvalerate, Total				
Fenpropathrin				
Permethrin (cis and trans)			0.004	
Warrior (Lambda Cyhalothrin), Total			0.002	

Return to Contents

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: Kinnetic

DATE: 10/3/2018

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC6 (CF: 0.0°C); Temperature (w/o CF): 1.7 °C (w/ CF): 1.7 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter
 Checked by: H4MW

CUSTODY SEAL:
 Cooler Present and Intact Present but Not Intact Not Present N/A Checked by: H4MW
 Sample(s) Present and Intact Present but Not Intact Not Present N/A Checked by: WFSO

SAMPLE CONDITION:

	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers			
<input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time			
Sampler's name indicated on COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and in good condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper containers for analyses requested	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sufficient volume/mass for analyses requested	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within holding time	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aqueous samples for certain analyses received within 15-minute holding time			
<input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Proper preservation chemical(s) noted on COC and/or sample container	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Unpreserved aqueous sample(s) received for certain analyses			
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals			
Acid/base preserved samples - pH within acceptable range	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Container(s) for certain analysis free of headspace.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500)			
<input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CONTAINER TYPE: (Trip Blank Lot Number: _____)
Aqueous: VOA VOAh VOAn₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB 125PBz_{na} (pH__9)
 250AGB 250CGB 250CGBs (pH__2) 250PB 250PBn (pH__2) 500AGB 500AGJ 500AGJs (pH__2) 500PB
 1AGB 1AGBna₂ 1AGBs (pH__2) 1AGBs (O&G) 1PB 1PBna (pH__12) _____ _____ _____
Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (____) EnCores® (____) TerraCores® (____) _____ _____
Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (Sediment): ICGJ _____ _____
 Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag
 Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO₃, **na** = NaOH, **na₂** = Na₂S₂O₃, **p** = H₃PO₄, Labeled/Checked by: WFSO
s = H₂SO₄, **u** = ultra-pure, **x** = Na₂SO₃+NaHSO₄.H₂O, **z_{na}** = Zn (CH₃CO₂)₂ + NaOH Reviewed by: WWE



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Subcontractor Analysis Report

Work Order: 18-10-2389

Page 1 of 1

One or more samples in this work order have tests that were subcontracted. The subcontract report(s) follows.

For subcontracted tests, please reference the laboratory information noted below.

1. Weck Laboratories, Inc. - City of Industry,CA NELAP 04229CA
Various


Return to Contents

Work Orders: 8K02022

Report Date: 11/12/2018

Project: 18-10-2389/POLB Carnival Cruise

Received Date: 11/2/2018

Turnaround Time: Normal

Phones: (714) 895-5494

Fax: (714) 894-7501

Attn: Carla Lee Hollowell

P.O. #:

Client: Eurofins Calscience, Inc.
 7440 Lincoln Way
 Garden Grove, CA 92841-1432

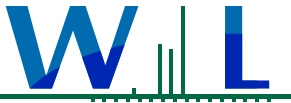
Billing Code:

Dear Carla Lee Hollowell,

Enclosed are the results of analyses for samples received 11/02/18 with the Chain-of-Custody document. The samples were received in good condition, at 2.4 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Sample Results

Sample:	CCT-18-Composite-a 8K02022-01 (Solid)						Sampled: 10/30/18 13:25 by Client
Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 160.4M	Batch ID: W8K0115	Instr: Inst	Prepared: 11/02/18 16:33			Analyst: sar	
Total Volatile Solids	3.7	0.18	0.18	% by Weight	1	11/02/18 18:00	
Sample:	CCT-18-Composite-b 8K02022-02 (Solid)						Sampled: 10/30/18 8:40 by Client
Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 160.4M	Batch ID: W8K0115	Instr: Inst	Prepared: 11/02/18 16:33			Analyst: sar	
Total Volatile Solids	3.4	0.18	0.18	% by Weight	1	11/02/18 18:00	
Sample:	CCT-18-C1-b 8K02022-03 (Solid)						Sampled: 10/30/18 8:00 by Client
Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 160.4M	Batch ID: W8K0115	Instr: Inst	Prepared: 11/02/18 16:33			Analyst: sar	
Total Volatile Solids	3.8	0.19	0.19	% by Weight	1	11/02/18 18:00	
Sample:	LA2-Ref 8K02022-04 (Solid)						Sampled: 10/30/18 13:30 by Client
Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 160.4M	Batch ID: W8K0115	Instr: Inst	Prepared: 11/02/18 16:33			Analyst: sar	
Total Volatile Solids	1.7	0.18	0.18	% by Weight	1	11/02/18 18:00	



WECK LABORATORIES, INC.

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Duplicate (W8K0115-DUP1)		Source: 8K02022-04			Prepared & Analyzed: 11/02/18						
Total Volatile Solids	1.45	0.18	0.18	% by Weight		1.67			14	30	
Duplicate (W8K0115-DUP2)		Source: 8J25073-01			Prepared & Analyzed: 11/02/18						
Total Volatile Solids	4.81	0.18	0.18	% by Weight		4.09			16	30	

[Return to Contents](#)

Notes and Definitions

Item	Definition
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
Dil	Dilution
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
% Rec	Percent Recovery
Source	Sample that was matrix spiked or duplicated.
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ) and Detection Limit for Reporting (DLR)
MDA	Minimum Detectable Activity
NR	Not Reportable
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.
 An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)
 All results are expressed on wet weight basis unless otherwise specified.
 All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS 002.

Certified Analyses Summary

Analyte	CAS #	Not Accredited By	Accredited By
EPA 160.4M in Solid Total Volatile Solids		DoD-ISO	

Reviewed by:



Regina Giancola
 Project Manager



Return to Contents

ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO 17025 #L2457.01 • LACSD #10143 •
 NELAP-CA #04229CA • NELAP-OR #4047 • NJ-DEP #CA015 • NV-DEP #NAC 445A • SCAQMD #93LA1006

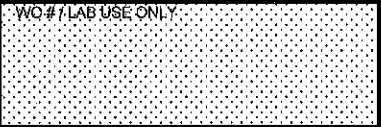
This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.



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WECK

OK02022



CHAIN OF CUSTODY RECORD

DATE: 11/02/18
PAGE: 1 OF 1

7440 Lincoln Way, Garden Grove, CA 92841-1427 • (714) 895-5494
For courier service / sample drop off information, contact us26_sales@eurofinsus.com or call us.

LABORATORY CLIENT: Eurofins
ADDRESS:
CITY: GARDEN GROVE STATE: ZIP:
TEL: E-MAIL: carlahollowell@eurofinsus.com
CLIENT PROJECT NAME / NUMBER: 18-10-2389 / POLB Carnival Cruise
PROJECT CONTACT: CARLA LEE HOLLOWELL
P.O. NO.:
SAMPLER(S): (PRINT)

REQUESTED ANALYSES

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):
[] SAME DAY [] 24 HR [] 48 HR [] 72 HR [] 5 DAYS [] STANDARD
[] COELT EDF GLOBAL ID: LOG CODE:

SPECIAL INSTRUCTIONS:
NTAT
J Flag
Please provide results in EDD format + PDF Format

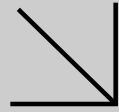
Table with columns: LAB USE ONLY, SAMPLE ID, SAMPLING (DATE, TIME), MATRIX, NO. OF CONT., Unpreserved, Preserved, Field Filtered, EPA 160.4 Volatile Solids, ECI SAMPLE ID #. Rows include CCT-18-Composite-a, CCT-18-Composite-b, CCT-18-C1-b, LA2-Ref.

Relinquished by: (Signature) [Signature]
Received by: (Signature/Affiliation) [Signature] 2.4°C
Date: 11/2/18 Time: 10:11

Return to Contents



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WORK ORDER NUMBER: 18-12-1618

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Kinnetic Laboratories, Inc.

Client Project Name: POLB Carnival Cruise Terminal 2018

Attention: Amy Howk
307 Washington Street
Santa Cruz, CA 95060-4928

Approved for release on 01/11/2019 by:
Carla Hollowell
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience (Calscience) certifies that the test results provided in this report meet all NELAC Institute requirements for parameters for which accreditation is required or available. Any exceptions to NELAC Institute requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.



Contents

Client Project Name: POLB Carnival Cruise Terminal 2018
Work Order Number: 18-12-1618

1	Work Order Narrative.	3
2	Sample Summary.	5
3	Client Sample Data.	7
	3.1 % Lipids via MeCl2 Ext. (NOAA 1993a) (Tissue).	7
	3.2 EPA 6020 ICP/MS Metals (Tissue).	16
	3.3 EPA 7471A Mercury (Tissue).	43
	3.4 EPA 8270C SIM OC Pesticides (Tissue).	52
	3.5 EPA 8270C SIM PCB Congeners (Tissue).	79
4	Quality Control Sample Data.	185
	4.1 MS/MSD.	185
	4.2 PDS/PDSD.	197
	4.3 Sample Duplicate.	200
	4.4 LCS/LCSD.	203
5	Glossary of Terms and Qualifiers.	215
6	Chain-of-Custody/Sample Receipt Form.	216

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 12/18/18. They were assigned to Work Order 18-12-1618.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

DoD Projects:

The test results contained in this report are accredited under the laboratory's ISO/IEC 17025:2005 and DoD-ELAP accreditation issued by the ANSI-ASQ National Accreditation Board. Refer to certificate and scope of accreditation ADE-1864.

Work Order Comments:

For EPA 6020, the MS recovery for zinc was outside of established control limits due to matrix interference. The results have been flagged with the appropriate qualifiers and are released with no further action.

For EPA 7471A, the MS and MSD recoveries and/or the MS/MSD RPD for mercury were outside of established control limits due to matrix interference. The results have been flagged with the appropriate qualifiers and are released with no further

Work Order Narrative

Work Order: 18-12-1618

Page 2 of 2

action.

For EPA 8270C SIM PCB Congeners, a surrogate failed for Sample 46, and was re-run for confirmation. The MS recovery for PCB 126 was outside of established control limits due to matrix interference. The results have been flagged with the appropriate qualifiers and are released with no further action.

For EPA 8270 PEST-SIM, 4,4'-DDT was detected in the Method Blank at a concentration below the Reporting Limit. The MS and MSD recoveries and/or the MS/MSD RPD were outside of established control limits for 4,4'-DDT and 4,4'-DDD due to matrix interference. The MS/MSDs were rerun for confirmation, with similar results. For all the above, the results have been flagged with the appropriate qualifiers and are released with no further action.

Most samples were analyzed or extracted outside the EPA Method recommended solid sample holding times for certain analyses. However, the samples were frozen after collection (prior to holding time expiration) at -18°C, and remained frozen until the laboratory was ready to prepare the samples for analysis. Eurofins Calscience, Inc. follows SWAMP criteria and the Puget Sound Protocol (USEPA/PSWQAT, 1997, Table 2) for holding times in tissue samples, which states holding times may be extended up to six months to one year (two years for metals) if stored frozen at -18°C after collection. Therefore, the sample results have not been flagged as exceeding the EPA Method recommended holding time.



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Sample Summary

Client: Kinnetic Laboratories, Inc.	Work Order:	18-12-1618
307 Washington Street	Project Name:	POLB Carnival Cruise Terminal 2018
Santa Cruz, CA 95060-4928	PO Number:	
	Date/Time Received:	12/18/18 14:00
	Number of Containers:	50

Attn: Amy Howk

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
Macoma-T0-A	18-12-1618-1	11/15/18 12:00	1	Tissue
Macoma-T0-B	18-12-1618-2	11/15/18 12:01	1	Tissue
Macoma-T0-C	18-12-1618-3	11/15/18 12:02	1	Tissue
Macoma-T0-D	18-12-1618-4	11/15/18 12:03	1	Tissue
Macoma-T0-E	18-12-1618-5	11/15/18 12:04	1	Tissue
Control-Macoma-A	18-12-1618-6	12/13/18 12:00	1	Tissue
Control-Macoma-B	18-12-1618-7	12/13/18 12:01	1	Tissue
Control-Macoma-C	18-12-1618-8	12/13/18 12:02	1	Tissue
Control-Macoma-D	18-12-1618-9	12/13/18 12:03	1	Tissue
Control-Macoma-E	18-12-1618-10	12/13/18 12:04	1	Tissue
LA2-REF-Macoma-A	18-12-1618-11	12/13/18 12:05	1	Tissue
LA2-REF-Macoma-B	18-12-1618-12	12/13/18 12:06	1	Tissue
LA2-REF-Macoma-C	18-12-1618-13	12/13/18 12:07	1	Tissue
LA2-REF-Macoma-D	18-12-1618-14	12/13/18 12:08	1	Tissue
LA2-REF-Macoma-E	18-12-1618-15	12/13/18 12:09	1	Tissue
CCT-18-Comp-a-Macoma-A	18-12-1618-16	12/13/18 12:10	1	Tissue
CCT-18-Comp-a-Macoma-B	18-12-1618-17	12/13/18 12:11	1	Tissue
CCT-18-Comp-a-Macoma-C	18-12-1618-18	12/13/18 12:12	1	Tissue
CCT-18-Comp-a-Macoma-D	18-12-1618-19	12/13/18 12:13	1	Tissue
CCT-18-Comp-a-Macoma-E	18-12-1618-20	12/13/18 12:14	1	Tissue
CCT-18-Comp-b-Macoma-A	18-12-1618-21	12/13/18 12:15	1	Tissue
CCT-18-Comp-b-Macoma-B	18-12-1618-22	12/13/18 12:16	1	Tissue
CCT-18-Comp-b-Macoma-C	18-12-1618-23	12/13/18 12:17	1	Tissue
CCT-18-Comp-b-Macoma-D	18-12-1618-24	12/13/18 12:18	1	Tissue
CCT-18-Comp-b-Macoma-E	18-12-1618-25	12/13/18 12:19	1	Tissue
Nereis-T0-A	18-12-1618-26	11/14/18 12:00	1	Tissue
Nereis-T0-B	18-12-1618-27	11/14/18 12:01	1	Tissue
Nereis-T0-C	18-12-1618-28	11/14/18 12:02	1	Tissue
Nereis-T0-D	18-12-1618-29	11/14/18 12:03	1	Tissue
Nereis-T0-E	18-12-1618-30	11/14/18 12:04	1	Tissue
Control-Nereis-A	18-12-1618-31	12/12/18 12:00	1	Tissue
Control-Nereis-B	18-12-1618-32	12/12/18 12:01	1	Tissue
Control-Nereis-C	18-12-1618-33	12/12/18 12:02	1	Tissue
Control-Nereis-D	18-12-1618-34	12/12/18 12:03	1	Tissue
Control-Nereis-E	18-12-1618-35	12/12/18 12:04	1	Tissue
LA2-REF-Nereis-A	18-12-1618-36	12/12/18 12:05	1	Tissue
LA2-REF-Nereis-B	18-12-1618-37	12/12/18 12:06	1	Tissue
LA2-REF-Nereis-C	18-12-1618-38	12/12/18 12:07	1	Tissue
LA2-REF-Nereis-D	18-12-1618-39	12/12/18 12:08	1	Tissue
LA2-REF-Nereis-E	18-12-1618-40	12/12/18 12:09	1	Tissue
CCT-18-Comp-a-Nereis-A	18-12-1618-41	12/12/18 12:10	1	Tissue
CCT-18-Comp-a-Nereis-B	18-12-1618-42	12/12/18 12:11	1	Tissue

Return to Contents



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Sample Summary

Client: Kinnetic Laboratories, Inc.	Work Order: 18-12-1618
307 Washington Street	Project Name: POLB Carnival Cruise Terminal 2018
Santa Cruz, CA 95060-4928	PO Number:
	Date/Time Received: 12/18/18 14:00
	Number of Containers: 50

Attn: Amy Howk

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
CCT-18-Comp-a-Nereis-C	18-12-1618-43	12/12/18 12:12	1	Tissue
CCT-18-Comp-a-Nereis-D	18-12-1618-44	12/12/18 12:13	1	Tissue
CCT-18-Comp-a-Nereis-E	18-12-1618-45	12/12/18 12:14	1	Tissue
CCT-18-Comp-b-Nereis-A	18-12-1618-46	12/12/18 12:15	1	Tissue
CCT-18-Comp-b-Nereis-B	18-12-1618-47	12/12/18 12:16	1	Tissue
CCT-18-Comp-b-Nereis-C	18-12-1618-48	12/12/18 12:17	1	Tissue
CCT-18-Comp-b-Nereis-D	18-12-1618-49	12/12/18 12:18	1	Tissue
CCT-18-Comp-b-Nereis-E	18-12-1618-50	12/12/18 12:19	1	Tissue



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)
Units: %

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-A	18-12-1618-1-AA	11/15/18 12:00	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.52	0.10	0.10	1.00	

Macoma-T0-B	18-12-1618-2-AA	11/15/18 12:01	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.53	0.10	0.10	1.00	

Macoma-T0-C	18-12-1618-3-AA	11/15/18 12:02	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.65	0.10	0.10	1.00	

Macoma-T0-D	18-12-1618-4-AA	11/15/18 12:03	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.90	0.10	0.10	1.00	

Macoma-T0-E	18-12-1618-5-AA	11/15/18 12:04	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.58	0.10	0.10	1.00	

Control-Macoma-A	18-12-1618-6-AA	12/13/18 12:00	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.30	0.10	0.10	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)
Units: %

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-B	18-12-1618-7-AA	12/13/18 12:01	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.43	0.10	0.10	1.00	

Control-Macoma-C	18-12-1618-8-AA	12/13/18 12:02	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.26	0.10	0.10	1.00	

Control-Macoma-D	18-12-1618-9-AA	12/13/18 12:03	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.30	0.10	0.10	1.00	

Control-Macoma-E	18-12-1618-10-AA	12/13/18 12:04	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.24	0.10	0.10	1.00	

LA2-REF-Macoma-A	18-12-1618-11-AA	12/13/18 12:05	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.34	0.10	0.10	1.00	

LA2-REF-Macoma-B	18-12-1618-12-AA	12/13/18 12:06	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.28	0.10	0.10	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)
Units: %

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-C	18-12-1618-13-AA	12/13/18 12:07	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.15	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-D	18-12-1618-14-AA	12/13/18 12:08	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.17	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-E	18-12-1618-15-AA	12/13/18 12:09	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.37	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-A	18-12-1618-16-AA	12/13/18 12:10	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.31	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-B	18-12-1618-17-AA	12/13/18 12:11	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.15	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-C	18-12-1618-18-AA	12/13/18 12:12	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.28	0.10	0.10	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)
Units: %

Project: POLB Carnival Cruise Terminal 2018

Page 4 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-D	18-12-1618-19-AA	12/13/18 12:13	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.34	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-E	18-12-1618-20-AA	12/13/18 12:14	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.33	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-A	18-12-1618-21-AA	12/13/18 12:15	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.36	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-B	18-12-1618-22-AA	12/13/18 12:16	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.29	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-C	18-12-1618-23-AA	12/13/18 12:17	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.58	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-D	18-12-1618-24-AA	12/13/18 12:18	Tissue	N/A	12/28/18	01/02/19 00:00	181228B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.44	0.10	0.10	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)
Units: %

Project: POLB Carnival Cruise Terminal 2018

Page 5 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-E	18-12-1618-25-AA	12/13/18 12:19	Tissue	N/A	12/28/18	01/02/19 00:00	181228B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.52	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-A	18-12-1618-26-AA	11/14/18 12:00	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.99	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-B	18-12-1618-27-AA	11/14/18 12:01	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.96	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-C	18-12-1618-28-AA	11/14/18 12:02	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.58	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-D	18-12-1618-29-AA	11/14/18 12:03	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.72	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-E	18-12-1618-30-AA	11/14/18 12:04	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.55	0.10	0.10	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)
Units: %

Project: POLB Carnival Cruise Terminal 2018

Page 6 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-A	18-12-1618-31-AA	12/12/18 12:00	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	1.0	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-B	18-12-1618-32-AA	12/12/18 12:01	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	1.1	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-C	18-12-1618-33-AA	12/12/18 12:02	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.93	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-D	18-12-1618-34-AA	12/12/18 12:03	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.92	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-E	18-12-1618-35-AA	12/12/18 12:04	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	1.2	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-A	18-12-1618-36-AA	12/12/18 12:05	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.63	0.10	0.10	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)
Units: %

Project: POLB Carnival Cruise Terminal 2018

Page 7 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-B	18-12-1618-37-AA	12/12/18 12:06	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.90	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-C	18-12-1618-38-AA	12/12/18 12:07	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.89	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-D	18-12-1618-39-AA	12/12/18 12:08	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.82	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-E	18-12-1618-40-AA	12/12/18 12:09	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.76	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-A	18-12-1618-41-AA	12/12/18 12:10	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.75	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-B	18-12-1618-42-AA	12/12/18 12:11	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.59	0.10	0.10	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)
Units: %

Project: POLB Carnival Cruise Terminal 2018

Page 8 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-C	18-12-1618-43-AA	12/12/18 12:12	Tissue	N/A	12/28/18	01/02/19 00:00	181228B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.61	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-D	18-12-1618-44-AA	12/12/18 12:13	Tissue	N/A	12/28/18	01/02/19 00:00	181228B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.89	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-E	18-12-1618-45-AA	12/12/18 12:14	Tissue	N/A	12/28/18	01/02/19 00:00	181228B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	1.5	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-A	18-12-1618-46-AA	12/12/18 12:15	Tissue	N/A	12/28/18	01/02/19 00:00	181228B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	1.2	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-B	18-12-1618-47-AA	12/12/18 12:16	Tissue	N/A	12/28/18	01/02/19 00:00	181228B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	1.2	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-C	18-12-1618-48-AA	12/12/18 12:17	Tissue	N/A	12/28/18	01/02/19 00:00	181228B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	1.2	0.10	0.10	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)
Units: %

Project: POLB Carnival Cruise Terminal 2018

Page 9 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-D	18-12-1618-49-AA	12/12/18 12:18	Tissue	N/A	12/28/18	01/02/19 00:00	181228B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.90	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-E	18-12-1618-50-AA	12/12/18 12:19	Tissue	N/A	12/28/18	01/02/19 00:00	181228B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.58	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-104-254	N/A	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	ND	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-104-255	N/A	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	ND	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-104-256	N/A	Tissue	N/A	12/28/18	01/02/19 00:00	181228B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	ND	0.10	0.10	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-A	18-12-1618-1-AA	11/15/18 12:00	Tissue	ICP/MS 05	12/20/18	12/20/18 15:45	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	3.21	0.100	0.0470	1.00	
Cadmium	0.0392	0.100	0.0286	1.00	J
Chromium	0.102	0.100	0.0193	1.00	
Copper	0.957	0.100	0.0210	1.00	
Lead	0.0734	0.100	0.0330	1.00	J
Nickel	0.317	0.100	0.0253	1.00	
Selenium	0.247	0.100	0.0834	1.00	
Silver	0.0361	0.100	0.0156	1.00	J
Zinc	11.2	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-B	18-12-1618-2-AA	11/15/18 12:01	Tissue	ICP/MS 05	12/20/18	12/20/18 17:23	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	3.22	0.100	0.0470	1.00	
Cadmium	0.0361	0.100	0.0286	1.00	J
Chromium	0.0869	0.100	0.0193	1.00	J
Copper	1.24	0.100	0.0210	1.00	
Lead	0.0783	0.100	0.0330	1.00	J
Nickel	0.355	0.100	0.0253	1.00	
Selenium	0.296	0.100	0.0834	1.00	
Silver	0.0534	0.100	0.0156	1.00	J
Zinc	13.8	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-C	18-12-1618-3-AA	11/15/18 12:02	Tissue	ICP/MS 05	12/20/18	12/20/18 17:27	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	3.38	0.100	0.0470	1.00	
Cadmium	0.0520	0.100	0.0286	1.00	J
Chromium	0.144	0.100	0.0193	1.00	
Copper	1.06	0.100	0.0210	1.00	
Lead	0.0826	0.100	0.0330	1.00	J
Nickel	0.378	0.100	0.0253	1.00	
Selenium	0.272	0.100	0.0834	1.00	
Silver	0.0462	0.100	0.0156	1.00	J
Zinc	13.4	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-D	18-12-1618-4-AA	11/15/18 12:03	Tissue	ICP/MS 05	12/20/18	12/20/18 17:30	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	3.62	0.100	0.0470	1.00	
Cadmium	0.0440	0.100	0.0286	1.00	J
Chromium	0.0703	0.100	0.0193	1.00	J
Copper	1.02	0.100	0.0210	1.00	
Lead	0.0749	0.100	0.0330	1.00	J
Nickel	0.293	0.100	0.0253	1.00	
Selenium	0.322	0.100	0.0834	1.00	
Silver	0.0790	0.100	0.0156	1.00	J
Zinc	13.1	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-E	18-12-1618-5-AA	11/15/18 12:04	Tissue	ICP/MS 05	12/20/18	12/20/18 17:34	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	3.13	0.100	0.0470	1.00	
Cadmium	0.0437	0.100	0.0286	1.00	J
Chromium	0.0942	0.100	0.0193	1.00	J
Copper	1.18	0.100	0.0210	1.00	
Lead	0.0965	0.100	0.0330	1.00	J
Nickel	0.359	0.100	0.0253	1.00	
Selenium	0.252	0.100	0.0834	1.00	
Silver	0.0589	0.100	0.0156	1.00	J
Zinc	13.7	1.00	0.397	1.00	

Control-Macoma-A	18-12-1618-6-AA	12/13/18 12:00	Tissue	ICP/MS 05	12/20/18	12/20/18 17:37	181220L01
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	3.13	0.100	0.0470	1.00	
Cadmium	ND	0.100	0.0286	1.00	
Chromium	0.274	0.100	0.0193	1.00	
Copper	1.05	0.100	0.0210	1.00	
Lead	0.154	0.100	0.0330	1.00	
Nickel	0.546	0.100	0.0253	1.00	
Selenium	0.287	0.100	0.0834	1.00	
Silver	0.0236	0.100	0.0156	1.00	J
Zinc	11.4	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 4 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-B	18-12-1618-7-AA	12/13/18 12:01	Tissue	ICP/MS 05	12/20/18	12/20/18 17:41	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	3.06	0.100	0.0470	1.00	
Cadmium	ND	0.100	0.0286	1.00	
Chromium	0.240	0.100	0.0193	1.00	
Copper	1.09	0.100	0.0210	1.00	
Lead	0.148	0.100	0.0330	1.00	
Nickel	0.533	0.100	0.0253	1.00	
Selenium	0.235	0.100	0.0834	1.00	
Silver	0.0283	0.100	0.0156	1.00	J
Zinc	12.1	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-C	18-12-1618-8-AA	12/13/18 12:02	Tissue	ICP/MS 05	12/20/18	12/20/18 17:44	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.32	0.100	0.0470	1.00	
Cadmium	ND	0.100	0.0286	1.00	
Chromium	0.363	0.100	0.0193	1.00	
Copper	1.01	0.100	0.0210	1.00	
Lead	0.152	0.100	0.0330	1.00	
Nickel	0.631	0.100	0.0253	1.00	
Selenium	0.230	0.100	0.0834	1.00	
Silver	0.0173	0.100	0.0156	1.00	J
Zinc	10.7	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 5 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-D	18-12-1618-9-AA	12/13/18 12:03	Tissue	ICP/MS 05	12/20/18	12/20/18 17:48	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.89	0.100	0.0470	1.00	
Cadmium	ND	0.100	0.0286	1.00	
Chromium	0.330	0.100	0.0193	1.00	
Copper	1.17	0.100	0.0210	1.00	
Lead	0.172	0.100	0.0330	1.00	
Nickel	0.637	0.100	0.0253	1.00	
Selenium	0.263	0.100	0.0834	1.00	
Silver	0.0609	0.100	0.0156	1.00	J
Zinc	12.8	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-E	18-12-1618-10-AA	12/13/18 12:04	Tissue	ICP/MS 05	12/20/18	12/20/18 17:51	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.90	0.100	0.0470	1.00	
Cadmium	0.0501	0.100	0.0286	1.00	J
Chromium	0.249	0.100	0.0193	1.00	
Copper	0.942	0.100	0.0210	1.00	
Lead	0.140	0.100	0.0330	1.00	
Nickel	0.527	0.100	0.0253	1.00	
Selenium	0.262	0.100	0.0834	1.00	
Silver	0.0224	0.100	0.0156	1.00	J
Zinc	12.6	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 12/18/18
 Work Order: 18-12-1618
 Preparation: EPA 3050B
 Method: EPA 6020
 Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 6 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-A	18-12-1618-11-AA	12/13/18 12:05	Tissue	ICP/MS 05	12/20/18	12/20/18 18:05	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.48	0.100	0.0470	1.00	
Cadmium	ND	0.100	0.0286	1.00	
Chromium	0.163	0.100	0.0193	1.00	
Copper	0.889	0.100	0.0210	1.00	
Lead	0.0999	0.100	0.0330	1.00	J
Nickel	0.293	0.100	0.0253	1.00	
Selenium	0.276	0.100	0.0834	1.00	
Silver	0.0215	0.100	0.0156	1.00	J
Zinc	9.04	1.00	0.397	1.00	

LA2-REF-Macoma-B	18-12-1618-12-AA	12/13/18 12:06	Tissue	ICP/MS 05	12/20/18	12/20/18 18:09	181220L01
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.41	0.100	0.0470	1.00	
Cadmium	0.0350	0.100	0.0286	1.00	J
Chromium	0.229	0.100	0.0193	1.00	
Copper	0.953	0.100	0.0210	1.00	
Lead	0.117	0.100	0.0330	1.00	
Nickel	0.375	0.100	0.0253	1.00	
Selenium	0.207	0.100	0.0834	1.00	
Silver	0.0319	0.100	0.0156	1.00	J
Zinc	12.0	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 7 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-C	18-12-1618-13-AA	12/13/18 12:07	Tissue	ICP/MS 05	12/20/18	12/20/18 18:12	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.92	0.100	0.0470	1.00	
Cadmium	ND	0.100	0.0286	1.00	
Chromium	0.174	0.100	0.0193	1.00	
Copper	0.858	0.100	0.0210	1.00	
Lead	0.104	0.100	0.0330	1.00	
Nickel	0.315	0.100	0.0253	1.00	
Selenium	0.212	0.100	0.0834	1.00	
Silver	0.0448	0.100	0.0156	1.00	J
Zinc	9.05	1.00	0.397	1.00	

LA2-REF-Macoma-D	18-12-1618-14-AA	12/13/18 12:08	Tissue	ICP/MS 05	12/20/18	12/20/18 18:16	181220L01
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.64	0.100	0.0470	1.00	
Cadmium	0.0319	0.100	0.0286	1.00	J
Chromium	0.140	0.100	0.0193	1.00	
Copper	0.853	0.100	0.0210	1.00	
Lead	0.0888	0.100	0.0330	1.00	J
Nickel	0.349	0.100	0.0253	1.00	
Selenium	0.249	0.100	0.0834	1.00	
Silver	0.0258	0.100	0.0156	1.00	J
Zinc	9.87	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 8 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-E	18-12-1618-15-AA	12/13/18 12:09	Tissue	ICP/MS 05	12/20/18	12/20/18 18:19	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.51	0.100	0.0470	1.00	
Cadmium	0.0373	0.100	0.0286	1.00	J
Chromium	0.177	0.100	0.0193	1.00	
Copper	0.883	0.100	0.0210	1.00	
Lead	0.100	0.100	0.0330	1.00	
Nickel	0.327	0.100	0.0253	1.00	
Selenium	0.222	0.100	0.0834	1.00	
Silver	0.0201	0.100	0.0156	1.00	J
Zinc	12.7	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-A	18-12-1618-16-AA	12/13/18 12:10	Tissue	ICP/MS 05	12/20/18	12/20/18 18:23	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.87	0.100	0.0470	1.00	
Cadmium	0.0319	0.100	0.0286	1.00	J
Chromium	0.169	0.100	0.0193	1.00	
Copper	1.15	0.100	0.0210	1.00	
Lead	0.492	0.100	0.0330	1.00	
Nickel	0.396	0.100	0.0253	1.00	
Selenium	0.269	0.100	0.0834	1.00	
Silver	0.0418	0.100	0.0156	1.00	J
Zinc	11.9	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 9 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-B	18-12-1618-17-AA	12/13/18 12:11	Tissue	ICP/MS 05	12/20/18	12/20/18 18:26	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	2.67	0.100	0.0470	1.00	
Cadmium	0.0315	0.100	0.0286	1.00	J
Chromium	0.157	0.100	0.0193	1.00	
Copper	1.07	0.100	0.0210	1.00	
Lead	0.453	0.100	0.0330	1.00	
Nickel	0.378	0.100	0.0253	1.00	
Selenium	0.254	0.100	0.0834	1.00	
Silver	0.0414	0.100	0.0156	1.00	J
Zinc	11.4	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-C	18-12-1618-18-AA	12/13/18 12:12	Tissue	ICP/MS 05	12/20/18	12/20/18 18:30	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	2.76	0.100	0.0470	1.00	
Cadmium	0.0389	0.100	0.0286	1.00	J
Chromium	0.149	0.100	0.0193	1.00	
Copper	1.07	0.100	0.0210	1.00	
Lead	0.438	0.100	0.0330	1.00	
Nickel	0.375	0.100	0.0253	1.00	
Selenium	0.258	0.100	0.0834	1.00	
Silver	0.0446	0.100	0.0156	1.00	J
Zinc	10.1	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 10 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-D	18-12-1618-19-AA	12/13/18 12:13	Tissue	ICP/MS 05	12/20/18	12/20/18 18:52	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.81	0.100	0.0470	1.00	
Cadmium	ND	0.100	0.0286	1.00	
Chromium	0.185	0.100	0.0193	1.00	
Copper	1.20	0.100	0.0210	1.00	
Lead	0.438	0.100	0.0330	1.00	
Nickel	0.329	0.100	0.0253	1.00	
Selenium	0.243	0.100	0.0834	1.00	
Silver	0.0250	0.100	0.0156	1.00	J
Zinc	10.9	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-E	18-12-1618-20-AA	12/13/18 12:14	Tissue	ICP/MS 05	12/20/18	12/20/18 18:56	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	3.03	0.100	0.0470	1.00	
Cadmium	0.0396	0.100	0.0286	1.00	J
Chromium	0.300	0.100	0.0193	1.00	
Copper	1.37	0.100	0.0210	1.00	
Lead	0.576	0.100	0.0330	1.00	
Nickel	0.646	0.100	0.0253	1.00	
Selenium	0.291	0.100	0.0834	1.00	
Silver	0.0449	0.100	0.0156	1.00	J
Zinc	14.1	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 11 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-A	18-12-1618-21-AA	12/13/18 12:15	Tissue	ICP/MS 05	12/20/18	12/20/18 16:03	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	2.87	0.100	0.0470	1.00	
Cadmium	0.0306	0.100	0.0286	1.00	J
Chromium	0.192	0.100	0.0193	1.00	
Copper	0.892	0.100	0.0210	1.00	
Lead	0.492	0.100	0.0330	1.00	
Nickel	0.373	0.100	0.0253	1.00	
Selenium	0.196	0.100	0.0834	1.00	
Silver	0.0791	0.100	0.0156	1.00	J
Zinc	9.67	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-B	18-12-1618-22-AA	12/13/18 12:16	Tissue	ICP/MS 05	12/20/18	12/20/18 18:59	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	2.66	0.100	0.0470	1.00	
Cadmium	0.0369	0.100	0.0286	1.00	J
Chromium	0.191	0.100	0.0193	1.00	
Copper	0.901	0.100	0.0210	1.00	
Lead	0.431	0.100	0.0330	1.00	
Nickel	0.359	0.100	0.0253	1.00	
Selenium	0.236	0.100	0.0834	1.00	
Silver	0.0222	0.100	0.0156	1.00	J
Zinc	12.0	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 12 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-C	18-12-1618-23-AA	12/13/18 12:17	Tissue	ICP/MS 05	12/20/18	12/20/18 19:03	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	3.19	0.100	0.0470	1.00	
Cadmium	0.0373	0.100	0.0286	1.00	J
Chromium	0.206	0.100	0.0193	1.00	
Copper	1.12	0.100	0.0210	1.00	
Lead	0.523	0.100	0.0330	1.00	
Nickel	0.429	0.100	0.0253	1.00	
Selenium	0.263	0.100	0.0834	1.00	
Silver	0.0407	0.100	0.0156	1.00	J
Zinc	11.7	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-D	18-12-1618-24-AA	12/13/18 12:18	Tissue	ICP/MS 05	12/20/18	12/20/18 19:06	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.65	0.100	0.0470	1.00	
Cadmium	0.0405	0.100	0.0286	1.00	J
Chromium	0.217	0.100	0.0193	1.00	
Copper	1.11	0.100	0.0210	1.00	
Lead	0.517	0.100	0.0330	1.00	
Nickel	0.378	0.100	0.0253	1.00	
Selenium	0.227	0.100	0.0834	1.00	
Silver	0.0193	0.100	0.0156	1.00	J
Zinc	12.5	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 13 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-E	18-12-1618-25-AA	12/13/18 12:19	Tissue	ICP/MS 05	12/20/18	12/20/18 19:10	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	3.08	0.100	0.0470	1.00	
Cadmium	0.0327	0.100	0.0286	1.00	J
Chromium	0.144	0.100	0.0193	1.00	
Copper	1.02	0.100	0.0210	1.00	
Lead	0.372	0.100	0.0330	1.00	
Nickel	0.352	0.100	0.0253	1.00	
Selenium	0.245	0.100	0.0834	1.00	
Silver	0.0639	0.100	0.0156	1.00	J
Zinc	11.9	1.00	0.397	1.00	

Nereis-T0-A	18-12-1618-26-AA	11/14/18 12:00	Tissue	ICP/MS 05	12/20/18	12/20/18 19:13	181220L02
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	3.07	0.100	0.0470	1.00	
Cadmium	0.0471	0.100	0.0286	1.00	J
Chromium	0.0866	0.100	0.0193	1.00	J
Copper	1.24	0.100	0.0210	1.00	
Lead	0.323	0.100	0.0330	1.00	
Nickel	0.165	0.100	0.0253	1.00	
Selenium	0.235	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	9.12	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 14 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-B	18-12-1618-27-AA	11/14/18 12:01	Tissue	ICP/MS 05	12/20/18	12/20/18 19:17	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	2.74	0.100	0.0470	1.00	
Cadmium	0.0432	0.100	0.0286	1.00	J
Chromium	0.0726	0.100	0.0193	1.00	J
Copper	1.44	0.100	0.0210	1.00	
Lead	0.294	0.100	0.0330	1.00	
Nickel	0.140	0.100	0.0253	1.00	
Selenium	0.300	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	12.7	1.00	0.397	1.00	

Nereis-T0-C	18-12-1618-28-AA	11/14/18 12:02	Tissue	ICP/MS 05	12/20/18	12/20/18 20:00	181220L02
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	2.81	0.100	0.0470	1.00	
Cadmium	0.0434	0.100	0.0286	1.00	J
Chromium	0.0785	0.100	0.0193	1.00	J
Copper	1.16	0.100	0.0210	1.00	
Lead	0.239	0.100	0.0330	1.00	
Nickel	0.139	0.100	0.0253	1.00	
Selenium	0.248	0.100	0.0834	1.00	
Silver	0.0184	0.100	0.0156	1.00	J
Zinc	12.6	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 12/18/18
 Work Order: 18-12-1618
 Preparation: EPA 3050B
 Method: EPA 6020
 Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 15 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-D	18-12-1618-29-AA	11/14/18 12:03	Tissue	ICP/MS 05	12/20/18	12/20/18 20:03	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	3.45	0.100	0.0470	1.00	
Cadmium	0.0367	0.100	0.0286	1.00	J
Chromium	0.103	0.100	0.0193	1.00	
Copper	1.16	0.100	0.0210	1.00	
Lead	0.235	0.100	0.0330	1.00	
Nickel	0.173	0.100	0.0253	1.00	
Selenium	0.259	0.100	0.0834	1.00	
Silver	0.0187	0.100	0.0156	1.00	J
Zinc	14.8	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-E	18-12-1618-30-AA	11/14/18 12:04	Tissue	ICP/MS 05	12/20/18	12/20/18 20:07	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.47	0.100	0.0470	1.00	
Cadmium	0.0355	0.100	0.0286	1.00	J
Chromium	0.0800	0.100	0.0193	1.00	J
Copper	0.893	0.100	0.0210	1.00	
Lead	0.235	0.100	0.0330	1.00	
Nickel	0.135	0.100	0.0253	1.00	
Selenium	0.192	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	6.83	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 12/18/18
 Work Order: 18-12-1618
 Preparation: EPA 3050B
 Method: EPA 6020
 Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 16 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-A	18-12-1618-31-AA	12/12/18 12:00	Tissue	ICP/MS 05	12/20/18	12/20/18 20:10	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.03	0.100	0.0470	1.00	
Cadmium	0.0820	0.100	0.0286	1.00	J
Chromium	0.315	0.100	0.0193	1.00	
Copper	1.49	0.100	0.0210	1.00	
Lead	0.434	0.100	0.0330	1.00	
Nickel	0.492	0.100	0.0253	1.00	
Selenium	0.252	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	30.3	1.00	0.397	1.00	

Control-Nereis-B	18-12-1618-32-AA	12/12/18 12:01	Tissue	ICP/MS 05	12/20/18	12/20/18 20:14	181220L02
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	1.85	0.100	0.0470	1.00	
Cadmium	0.0544	0.100	0.0286	1.00	J
Chromium	0.0370	0.100	0.0193	1.00	J
Copper	1.44	0.100	0.0210	1.00	
Lead	0.279	0.100	0.0330	1.00	
Nickel	0.162	0.100	0.0253	1.00	
Selenium	0.208	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	19.2	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 17 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-C	18-12-1618-33-AA	12/12/18 12:02	Tissue	ICP/MS 05	12/20/18	12/20/18 20:17	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	1.83	0.100	0.0470	1.00	
Cadmium	0.0510	0.100	0.0286	1.00	J
Chromium	0.0713	0.100	0.0193	1.00	J
Copper	1.33	0.100	0.0210	1.00	
Lead	0.290	0.100	0.0330	1.00	
Nickel	0.183	0.100	0.0253	1.00	
Selenium	0.207	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	25.0	1.00	0.397	1.00	

Control-Nereis-D	18-12-1618-34-AA	12/12/18 12:03	Tissue	ICP/MS 05	12/20/18	12/20/18 20:21	181220L02
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	1.94	0.100	0.0470	1.00	
Cadmium	0.0530	0.100	0.0286	1.00	J
Chromium	0.0291	0.100	0.0193	1.00	J
Copper	1.27	0.100	0.0210	1.00	
Lead	0.294	0.100	0.0330	1.00	
Nickel	0.161	0.100	0.0253	1.00	
Selenium	0.255	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	15.9	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 18 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-E	18-12-1618-35-AA	12/12/18 12:04	Tissue	ICP/MS 05	12/20/18	12/20/18 20:24	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	1.76	0.100	0.0470	1.00	
Cadmium	0.0507	0.100	0.0286	1.00	J
Chromium	0.147	0.100	0.0193	1.00	
Copper	1.26	0.100	0.0210	1.00	
Lead	0.275	0.100	0.0330	1.00	
Nickel	0.273	0.100	0.0253	1.00	
Selenium	0.231	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	27.5	1.00	0.397	1.00	

LA2-REF-Nereis-A	18-12-1618-36-AA	12/12/18 12:05	Tissue	ICP/MS 05	12/20/18	12/20/18 20:28	181220L02
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.04	0.100	0.0470	1.00	
Cadmium	0.0648	0.100	0.0286	1.00	J
Chromium	0.0434	0.100	0.0193	1.00	J
Copper	1.17	0.100	0.0210	1.00	
Lead	0.361	0.100	0.0330	1.00	
Nickel	0.141	0.100	0.0253	1.00	
Selenium	0.208	0.100	0.0834	1.00	
Silver	0.0237	0.100	0.0156	1.00	J
Zinc	15.1	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 19 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-B	18-12-1618-37-AA	12/12/18 12:06	Tissue	ICP/MS 05	12/20/18	12/20/18 20:42	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.10	0.100	0.0470	1.00	
Cadmium	0.0665	0.100	0.0286	1.00	J
Chromium	0.0476	0.100	0.0193	1.00	J
Copper	1.23	0.100	0.0210	1.00	
Lead	0.440	0.100	0.0330	1.00	
Nickel	0.146	0.100	0.0253	1.00	
Selenium	0.241	0.100	0.0834	1.00	
Silver	0.0220	0.100	0.0156	1.00	J
Zinc	8.39	1.00	0.397	1.00	

LA2-REF-Nereis-C	18-12-1618-38-AA	12/12/18 12:07	Tissue	ICP/MS 05	12/20/18	12/20/18 20:46	181220L02
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.36	0.100	0.0470	1.00	
Cadmium	0.0538	0.100	0.0286	1.00	J
Chromium	0.304	0.100	0.0193	1.00	
Copper	1.91	0.100	0.0210	1.00	
Lead	1.38	0.100	0.0330	1.00	
Nickel	2.21	0.100	0.0253	1.00	
Selenium	0.311	0.100	0.0834	1.00	
Silver	0.0257	0.100	0.0156	1.00	J
Zinc	9.73	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 20 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-D	18-12-1618-39-AA	12/12/18 12:08	Tissue	ICP/MS 05	12/20/18	12/20/18 20:49	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.13	0.100	0.0470	1.00	
Cadmium	0.0619	0.100	0.0286	1.00	J
Chromium	0.0503	0.100	0.0193	1.00	J
Copper	0.955	0.100	0.0210	1.00	
Lead	0.319	0.100	0.0330	1.00	
Nickel	0.127	0.100	0.0253	1.00	
Selenium	0.206	0.100	0.0834	1.00	
Silver	0.0210	0.100	0.0156	1.00	J
Zinc	7.32	1.00	0.397	1.00	

LA2-REF-Nereis-E	18-12-1618-40-AA	12/12/18 12:09	Tissue	ICP/MS 05	12/20/18	12/20/18 20:53	181220L02
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.15	0.100	0.0470	1.00	
Cadmium	0.0711	0.100	0.0286	1.00	J
Chromium	0.0468	0.100	0.0193	1.00	J
Copper	1.11	0.100	0.0210	1.00	
Lead	0.283	0.100	0.0330	1.00	
Nickel	0.110	0.100	0.0253	1.00	
Selenium	0.257	0.100	0.0834	1.00	
Silver	0.0296	0.100	0.0156	1.00	J
Zinc	20.0	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 12/18/18
 Work Order: 18-12-1618
 Preparation: EPA 3050B
 Method: EPA 6020
 Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 21 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-A	18-12-1618-41-AA	12/12/18 12:10	Tissue	ICP/MS 05	12/20/18	12/20/18 20:56	181220L03

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.14	0.100	0.0470	1.00	
Cadmium	0.0647	0.100	0.0286	1.00	J
Chromium	0.0444	0.100	0.0193	1.00	J
Copper	1.10	0.100	0.0210	1.00	
Lead	0.434	0.100	0.0330	1.00	
Nickel	0.203	0.100	0.0253	1.00	
Selenium	0.195	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	41.2	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-B	18-12-1618-42-AA	12/12/18 12:11	Tissue	ICP/MS 05	12/20/18	12/20/18 21:00	181220L03

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.11	0.100	0.0470	1.00	
Cadmium	0.0633	0.100	0.0286	1.00	J
Chromium	0.169	0.100	0.0193	1.00	
Copper	1.25	0.100	0.0210	1.00	
Lead	0.577	0.100	0.0330	1.00	
Nickel	0.265	0.100	0.0253	1.00	
Selenium	0.187	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	31.9	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 22 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-C	18-12-1618-43-AA	12/12/18 12:12	Tissue	ICP/MS 05	12/20/18	12/20/18 17:04	181220L03

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.19	0.100	0.0470	1.00	
Cadmium	0.0672	0.100	0.0286	1.00	J
Chromium	0.0431	0.100	0.0193	1.00	J
Copper	1.47	0.100	0.0210	1.00	
Lead	0.436	0.100	0.0330	1.00	
Nickel	0.161	0.100	0.0253	1.00	
Selenium	0.235	0.100	0.0834	1.00	
Silver	0.0158	0.100	0.0156	1.00	J
Zinc	14.6	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-D	18-12-1618-44-AA	12/12/18 12:13	Tissue	ICP/MS 05	12/20/18	12/20/18 21:03	181220L03

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	1.95	0.100	0.0470	1.00	
Cadmium	0.0566	0.100	0.0286	1.00	J
Chromium	0.0738	0.100	0.0193	1.00	J
Copper	1.21	0.100	0.0210	1.00	
Lead	0.358	0.100	0.0330	1.00	
Nickel	0.155	0.100	0.0253	1.00	
Selenium	0.205	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	20.1	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 23 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-E	18-12-1618-45-AA	12/12/18 12:14	Tissue	ICP/MS 05	12/20/18	12/20/18 21:07	181220L03

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.12	0.100	0.0470	1.00	
Cadmium	0.0883	0.100	0.0286	1.00	J
Chromium	0.191	0.100	0.0193	1.00	
Copper	1.34	0.100	0.0210	1.00	
Lead	0.838	0.100	0.0330	1.00	
Nickel	0.259	0.100	0.0253	1.00	
Selenium	0.271	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	12.7	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-A	18-12-1618-46-AA	12/12/18 12:15	Tissue	ICP/MS 05	12/20/18	12/20/18 21:10	181220L03

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.05	0.100	0.0470	1.00	
Cadmium	0.0687	0.100	0.0286	1.00	J
Chromium	0.0472	0.100	0.0193	1.00	J
Copper	1.02	0.100	0.0210	1.00	
Lead	0.387	0.100	0.0330	1.00	
Nickel	0.143	0.100	0.0253	1.00	
Selenium	0.209	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	22.8	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 24 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-B	18-12-1618-47-AA	12/12/18 12:16	Tissue	ICP/MS 05	12/20/18	12/20/18 21:14	181220L03

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.00	0.100	0.0470	1.00	
Cadmium	0.0539	0.100	0.0286	1.00	J
Chromium	0.103	0.100	0.0193	1.00	
Copper	0.957	0.100	0.0210	1.00	
Lead	0.259	0.100	0.0330	1.00	
Nickel	0.169	0.100	0.0253	1.00	
Selenium	0.180	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	33.2	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-C	18-12-1618-48-AA	12/12/18 12:17	Tissue	ICP/MS 05	12/20/18	12/20/18 21:28	181220L03

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	1.79	0.100	0.0470	1.00	
Cadmium	0.0785	0.100	0.0286	1.00	J
Chromium	0.0642	0.100	0.0193	1.00	J
Copper	1.29	0.100	0.0210	1.00	
Lead	0.482	0.100	0.0330	1.00	
Nickel	0.155	0.100	0.0253	1.00	
Selenium	0.244	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	7.27	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 25 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-D	18-12-1618-49-AA	12/12/18 12:18	Tissue	ICP/MS 05	12/20/18	12/20/18 21:31	181220L03

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.00	0.100	0.0470	1.00	
Cadmium	0.0445	0.100	0.0286	1.00	J
Chromium	0.156	0.100	0.0193	1.00	
Copper	1.07	0.100	0.0210	1.00	
Lead	0.342	0.100	0.0330	1.00	
Nickel	0.223	0.100	0.0253	1.00	
Selenium	0.269	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	7.72	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-E	18-12-1618-50-AA	12/12/18 12:19	Tissue	ICP/MS 05	12/20/18	12/20/18 21:35	181220L03

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.00	0.100	0.0470	1.00	
Cadmium	0.0630	0.100	0.0286	1.00	J
Chromium	0.0324	0.100	0.0193	1.00	J
Copper	1.03	0.100	0.0210	1.00	
Lead	0.341	0.100	0.0330	1.00	
Nickel	0.161	0.100	0.0253	1.00	
Selenium	0.214	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	21.1	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 26 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-15-258-122	N/A	Tissue	ICP/MS 05	12/20/18	12/20/18 14:49	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	ND	0.100	0.0470	1.00	
Cadmium	ND	0.100	0.0286	1.00	
Chromium	ND	0.100	0.0193	1.00	
Copper	ND	0.100	0.0210	1.00	
Lead	ND	0.100	0.0330	1.00	
Nickel	ND	0.100	0.0253	1.00	
Selenium	ND	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	ND	1.00	0.397	1.00	

Method Blank	099-15-258-123	N/A	Tissue	ICP/MS 05	12/20/18	12/20/18 14:52	181220L02
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	ND	0.100	0.0470	1.00	
Cadmium	ND	0.100	0.0286	1.00	
Chromium	ND	0.100	0.0193	1.00	
Copper	ND	0.100	0.0210	1.00	
Lead	ND	0.100	0.0330	1.00	
Nickel	ND	0.100	0.0253	1.00	
Selenium	ND	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	ND	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 12/18/18
 Work Order: 18-12-1618
 Preparation: EPA 3050B
 Method: EPA 6020
 Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 27 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-15-258-124	N/A	Tissue	ICP/MS 05	12/20/18	12/20/18 14:56	181220L03

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	ND	0.100	0.0470	1.00	
Cadmium	ND	0.100	0.0286	1.00	
Chromium	ND	0.100	0.0193	1.00	
Copper	ND	0.100	0.0210	1.00	
Lead	ND	0.100	0.0330	1.00	
Nickel	ND	0.100	0.0253	1.00	
Selenium	ND	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	ND	1.00	0.397	1.00	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-A	18-12-1618-1-AA	11/15/18 12:00	Tissue	Mercury 07	01/02/19	01/02/19 15:16	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.00949	0.00349	1.00	

Macoma-T0-B	18-12-1618-2-AA	11/15/18 12:01	Tissue	Mercury 07	01/02/19	01/02/19 15:23	190102L02T
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.00949	0.00349	1.00	

Macoma-T0-C	18-12-1618-3-AA	11/15/18 12:02	Tissue	Mercury 07	01/02/19	01/02/19 15:25	190102L02T
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.00949	0.00349	1.00	

Macoma-T0-D	18-12-1618-4-AA	11/15/18 12:03	Tissue	Mercury 07	01/02/19	01/02/19 15:27	190102L02T
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.00988	0.00363	1.00	

Macoma-T0-E	18-12-1618-5-AA	11/15/18 12:04	Tissue	Mercury 07	01/02/19	01/02/19 15:30	190102L02T
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.00968	0.00356	1.00	

Control-Macoma-A	18-12-1618-6-AA	12/13/18 12:00	Tissue	Mercury 07	01/02/19	01/02/19 15:36	190102L02T
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.00988	0.00363	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-B	18-12-1618-7-AA	12/13/18 12:01	Tissue	Mercury 07	01/02/19	01/02/19 15:39	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00998	0.00367	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-C	18-12-1618-8-AA	12/13/18 12:02	Tissue	Mercury 07	01/02/19	01/02/19 15:41	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00912	0.00336	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-D	18-12-1618-9-AA	12/13/18 12:03	Tissue	Mercury 07	01/02/19	01/02/19 15:43	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00939	0.00345	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-E	18-12-1618-10-AA	12/13/18 12:04	Tissue	Mercury 07	01/02/19	01/02/19 15:45	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00930	0.00342	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-A	18-12-1618-11-AA	12/13/18 12:05	Tissue	Mercury 07	01/02/19	01/02/19 15:48	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00949	0.00349	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-B	18-12-1618-12-AA	12/13/18 12:06	Tissue	Mercury 07	01/02/19	01/02/19 15:50	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00930	0.00342	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-C	18-12-1618-13-AA	12/13/18 12:07	Tissue	Mercury 07	01/02/19	01/02/19 15:52	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00930	0.00342	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-D	18-12-1618-14-AA	12/13/18 12:08	Tissue	Mercury 07	01/02/19	01/02/19 15:55	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00930	0.00342	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-E	18-12-1618-15-AA	12/13/18 12:09	Tissue	Mercury 07	01/02/19	01/02/19 15:57	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00978	0.00359	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-A	18-12-1618-16-AA	12/13/18 12:10	Tissue	Mercury 07	01/02/19	01/02/19 16:04	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00939	0.00345	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-B	18-12-1618-17-AA	12/13/18 12:11	Tissue	Mercury 07	01/02/19	01/02/19 16:06	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00930	0.00342	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-C	18-12-1618-18-AA	12/13/18 12:12	Tissue	Mercury 07	01/02/19	01/02/19 16:08	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00978	0.00359	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 4 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-D	18-12-1618-19-AA	12/13/18 12:13	Tissue	Mercury 07	01/02/19	01/02/19 16:11	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00930	0.00342	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-E	18-12-1618-20-AA	12/13/18 12:14	Tissue	Mercury 07	01/02/19	01/02/19 16:13	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00988	0.00363	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-A	18-12-1618-21-AA	12/13/18 12:15	Tissue	Mercury 08	01/02/19	01/02/19 15:25	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00939	0.00345	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-B	18-12-1618-22-AA	12/13/18 12:16	Tissue	Mercury 08	01/02/19	01/02/19 15:32	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00968	0.00356	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-C	18-12-1618-23-AA	12/13/18 12:17	Tissue	Mercury 08	01/02/19	01/02/19 15:34	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00988	0.00363	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-D	18-12-1618-24-AA	12/13/18 12:18	Tissue	Mercury 08	01/02/19	01/02/19 15:37	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00958	0.00352	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 5 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-E	18-12-1618-25-AA	12/13/18 12:19	Tissue	Mercury 08	01/02/19	01/02/19 15:39	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00978	0.00359	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-A	18-12-1618-26-AA	11/14/18 12:00	Tissue	Mercury 08	01/02/19	01/02/19 15:46	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00949	0.00349	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-B	18-12-1618-27-AA	11/14/18 12:01	Tissue	Mercury 08	01/02/19	01/02/19 15:48	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00958	0.00352	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-C	18-12-1618-28-AA	11/14/18 12:02	Tissue	Mercury 08	01/02/19	01/02/19 15:50	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00939	0.00345	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-D	18-12-1618-29-AA	11/14/18 12:03	Tissue	Mercury 08	01/02/19	01/02/19 15:52	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00930	0.00342	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-E	18-12-1618-30-AA	11/14/18 12:04	Tissue	Mercury 08	01/02/19	01/02/19 15:55	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00968	0.00356	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 6 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-A	18-12-1618-31-AA	12/12/18 12:00	Tissue	Mercury 08	01/02/19	01/02/19 15:57	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00978	0.00359	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-B	18-12-1618-32-AA	12/12/18 12:01	Tissue	Mercury 08	01/02/19	01/02/19 15:59	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00958	0.00352	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-C	18-12-1618-33-AA	12/12/18 12:02	Tissue	Mercury 08	01/02/19	01/02/19 16:02	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00949	0.00349	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-D	18-12-1618-34-AA	12/12/18 12:03	Tissue	Mercury 08	01/02/19	01/02/19 16:04	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00988	0.00363	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-E	18-12-1618-35-AA	12/12/18 12:04	Tissue	Mercury 08	01/02/19	01/02/19 16:06	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00895	0.00329	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-A	18-12-1618-36-AA	12/12/18 12:05	Tissue	Mercury 07	01/02/19	01/02/19 17:41	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	0.00601	0.00930	0.00342	1.00	J

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 7 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-B	18-12-1618-37-AA	12/12/18 12:06	Tissue	Mercury 07	01/02/19	01/02/19 17:43	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	0.00521	0.00930	0.00342	1.00	J

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-C	18-12-1618-38-AA	12/12/18 12:07	Tissue	Mercury 07	01/02/19	01/02/19 17:46	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	0.00490	0.0101	0.00371	1.00	J

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-D	18-12-1618-39-AA	12/12/18 12:08	Tissue	Mercury 07	01/02/19	01/02/19 17:48	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	0.00680	0.00949	0.00349	1.00	J

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-E	18-12-1618-40-AA	12/12/18 12:09	Tissue	Mercury 07	01/02/19	01/02/19 17:50	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00978	0.00359	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-A	18-12-1618-41-AA	12/12/18 12:10	Tissue	Mercury 07	01/02/19	01/02/19 16:33	190102L04T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	0.00560	0.00930	0.00342	1.00	J

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-B	18-12-1618-42-AA	12/12/18 12:11	Tissue	Mercury 07	01/02/19	01/03/19 14:19	190102L04T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00958	0.00352	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 8 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-C	18-12-1618-43-AA	12/12/18 12:12	Tissue	Mercury 07	01/02/19	01/02/19 16:22	190102L04T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	0.00666	0.00939	0.00345	1.00	J

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-D	18-12-1618-44-AA	12/12/18 12:13	Tissue	Mercury 07	01/02/19	01/02/19 16:38	190102L04T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	0.00477	0.00939	0.00345	1.00	J

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-E	18-12-1618-45-AA	12/12/18 12:14	Tissue	Mercury 07	01/02/19	01/02/19 16:40	190102L04T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00988	0.00363	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-A	18-12-1618-46-AA	12/12/18 12:15	Tissue	Mercury 07	01/02/19	01/02/19 16:43	190102L04T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00978	0.00359	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-B	18-12-1618-47-AA	12/12/18 12:16	Tissue	Mercury 07	01/02/19	01/02/19 16:45	190102L04T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00949	0.00349	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-C	18-12-1618-48-AA	12/12/18 12:17	Tissue	Mercury 07	01/02/19	01/02/19 16:47	190102L04T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00968	0.00356	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 9 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-D	18-12-1618-49-AA	12/12/18 12:18	Tissue	Mercury 07	01/02/19	01/02/19 16:49	190102L04T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00958	0.00352	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-E	18-12-1618-50-AA	12/12/18 12:19	Tissue	Mercury 07	01/02/19	01/02/19 16:52	190102L04T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	0.00470	0.00958	0.00352	1.00	J

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-276-69	N/A	Tissue	Mercury 07	01/02/19	01/02/19 15:09	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00958	0.00352	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-276-71	N/A	Tissue	Mercury 08	01/02/19	01/02/19 15:18	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00958	0.00352	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-276-70	N/A	Tissue	Mercury 07	01/02/19	01/02/19 16:15	190102L04T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00958	0.00352	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-A	18-12-1618-1-AA	11/15/18 12:00	Tissue	GC/MS BBB	12/27/18	01/04/19 18:40	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.075	1.00	
2,4'-DDE	ND	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.91	0.20	0.039	1.00	
4,4'-DDE	0.24	0.20	0.040	1.00	
4,4'-DDT	0.21	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	68	25-200	
2,4,5,6-Tetrachloro-m-Xylene	64	25-200	

Macoma-T0-B	18-12-1618-2-AA	11/15/18 12:01	Tissue	GC/MS BBB	12/27/18	01/04/19 18:55	181227L19
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	ND	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.29	0.20	0.040	1.00	
4,4'-DDE	0.38	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	52	25-200	
2,4,5,6-Tetrachloro-m-Xylene	56	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-C	18-12-1618-3-AA	11/15/18 12:02	Tissue	GC/MS BBB	12/27/18	01/05/19 17:02	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	ND	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.87	0.20	0.040	1.00	
4,4'-DDE	0.39	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.053	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibutylchloroendate	84	25-200	
2,4,5,6-Tetrachloro-m-Xylene	65	25-200	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-D	18-12-1618-4-AA	11/15/18 12:03	Tissue	GC/MS BBB	12/27/18	01/05/19 17:17	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	ND	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.77	0.20	0.040	1.00	
4,4'-DDE	0.39	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibutylchloroendate	77	25-200	
2,4,5,6-Tetrachloro-m-Xylene	66	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 12/18/18
 Work Order: 18-12-1618
 Preparation: EPA 3541
 Method: EPA 8270C PEST-SIM
 Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-E	18-12-1618-5-AA	11/15/18 12:04	Tissue	GC/MS BBB	12/27/18	01/05/19 17:32	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.53	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.74	0.20	0.040	1.00	
4,4'-DDE	0.27	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	67	25-200	
2,4,5,6-Tetrachloro-m-Xylene	66	25-200	

Control-Macoma-A	18-12-1618-6-AA	12/13/18 12:00	Tissue	GC/MS BBB	12/27/18	01/05/19 17:47	181227L19
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.33	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.75	0.20	0.040	1.00	
4,4'-DDE	0.38	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.053	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	57	25-200	
2,4,5,6-Tetrachloro-m-Xylene	67	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 4 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-B	18-12-1618-7-AA	12/13/18 12:01	Tissue	GC/MS BBB	12/27/18	01/05/19 18:02	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.34	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.73	0.20	0.040	1.00	
4,4'-DDE	0.48	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	53	25-200	
2,4,5,6-Tetrachloro-m-Xylene	62	25-200	

Control-Macoma-C	18-12-1618-8-AA	12/13/18 12:02	Tissue	GC/MS BBB	12/27/18	01/05/19 18:17	181227L19
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.075	1.00	
2,4'-DDE	0.39	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.061	1.00	
4,4'-DDD	0.94	0.20	0.039	1.00	
4,4'-DDE	0.66	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	53	25-200	
2,4,5,6-Tetrachloro-m-Xylene	57	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 5 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-D	18-12-1618-9-AA	12/13/18 12:03	Tissue	GC/MS BBB	12/27/18	01/05/19 18:32	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.075	1.00	
2,4'-DDE	0.35	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.061	1.00	
4,4'-DDD	0.92	0.20	0.039	1.00	
4,4'-DDE	0.41	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	58	25-200	
2,4,5,6-Tetrachloro-m-Xylene	63	25-200	

Control-Macoma-E	18-12-1618-10-AA	12/13/18 12:04	Tissue	GC/MS BBB	12/27/18	01/05/19 18:47	181227L19
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.40	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.60	0.20	0.040	1.00	
4,4'-DDE	0.99	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.053	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	53	25-200	
2,4,5,6-Tetrachloro-m-Xylene	58	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 6 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-A	18-12-1618-11-AA	12/13/18 12:05	Tissue	GC/MS BBB	12/27/18	01/05/19 19:02	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.60	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	1.1	0.20	0.040	1.00	
4,4'-DDE	3.5	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	58	25-200	
2,4,5,6-Tetrachloro-m-Xylene	62	25-200	

LA2-REF-Macoma-B	18-12-1618-12-AA	12/13/18 12:06	Tissue	GC/MS BBB	12/27/18	01/05/19 19:17	181227L19
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.50	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.67	0.20	0.040	1.00	
4,4'-DDE	4.6	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	64	25-200	
2,4,5,6-Tetrachloro-m-Xylene	65	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 7 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-C	18-12-1618-13-AA	12/13/18 12:07	Tissue	GC/MS BBB	12/27/18	01/05/19 19:32	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.35	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.91	0.20	0.040	1.00	
4,4'-DDE	1.7	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	64	25-200	
2,4,5,6-Tetrachloro-m-Xylene	58	25-200	

LA2-REF-Macoma-D	18-12-1618-14-AA	12/13/18 12:08	Tissue	GC/MS BBB	12/27/18	01/05/19 19:47	181227L19
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.33	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.59	0.20	0.040	1.00	
4,4'-DDE	2.3	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.053	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	62	25-200	
2,4,5,6-Tetrachloro-m-Xylene	57	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Project: POLB Carnival Cruise Terminal 2018

Page 8 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-E	18-12-1618-15-AA	12/13/18 12:09	Tissue	GC/MS BBB	12/27/18	01/05/19 20:02	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.48	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.80	0.20	0.040	1.00	
4,4'-DDE	3.3	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	65	25-200	
2,4,5,6-Tetrachloro-m-Xylene	61	25-200	

CCT-18-Comp-a-Macoma-A	18-12-1618-16-AA	12/13/18 12:10	Tissue	GC/MS BBB	12/27/18	01/05/19 20:17	181227L19
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.075	1.00	
2,4'-DDE	0.72	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	1.4	0.20	0.039	1.00	
4,4'-DDE	4.2	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	78	25-200	
2,4,5,6-Tetrachloro-m-Xylene	73	25-200	

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Project: POLB Carnival Cruise Terminal 2018

Page 9 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-B	18-12-1618-17-AA	12/13/18 12:11	Tissue	GC/MS BBB	12/27/18	01/05/19 20:32	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.70	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	1.1	0.20	0.040	1.00	
4,4'-DDE	6.3	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	86	25-200	
2,4,5,6-Tetrachloro-m-Xylene	64	25-200	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-C	18-12-1618-18-AA	12/13/18 12:12	Tissue	GC/MS BBB	12/27/18	01/05/19 20:47	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.80	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.87	0.20	0.040	1.00	
4,4'-DDE	3.7	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	66	25-200	
2,4,5,6-Tetrachloro-m-Xylene	64	25-200	

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Work Order: 18-12-1618
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Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 10 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-D	18-12-1618-19-AA	12/13/18 12:13	Tissue	GC/MS BBB	12/27/18	01/05/19 21:02	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.17	0.20	0.076	1.00	J
2,4'-DDE	0.59	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.84	0.20	0.040	1.00	
4,4'-DDE	3.2	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	66	25-200	
2,4,5,6-Tetrachloro-m-Xylene	64	25-200	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-E	18-12-1618-20-AA	12/13/18 12:14	Tissue	GC/MS BBB	12/27/18	01/05/19 21:17	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.18	0.20	0.076	1.00	J
2,4'-DDE	0.77	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	1.2	0.20	0.040	1.00	
4,4'-DDE	4.9	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.053	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	61	25-200	
2,4,5,6-Tetrachloro-m-Xylene	60	25-200	

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Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 11 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-A	18-12-1618-21-AA	12/13/18 12:15	Tissue	GC/MS BBB	12/27/18	01/05/19 21:32	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.40	0.20	0.076	1.00	
2,4'-DDE	1.4	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	2.4	0.20	0.040	1.00	
4,4'-DDE	5.8	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	80	25-200	
2,4,5,6-Tetrachloro-m-Xylene	74	25-200	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-B	18-12-1618-22-AA	12/13/18 12:16	Tissue	GC/MS BBB	12/27/18	01/05/19 21:47	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.39	0.20	0.076	1.00	
2,4'-DDE	1.2	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	2.7	0.20	0.040	1.00	
4,4'-DDE	6.4	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	76	25-200	
2,4,5,6-Tetrachloro-m-Xylene	68	25-200	

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Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 12 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-C	18-12-1618-23-AA	12/13/18 12:17	Tissue	GC/MS BBB	12/27/18	01/05/19 22:02	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.51	0.20	0.075	1.00	
2,4'-DDE	1.3	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.061	1.00	
4,4'-DDD	2.6	0.20	0.039	1.00	
4,4'-DDE	5.9	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	68	25-200	
2,4,5,6-Tetrachloro-m-Xylene	62	25-200	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-D	18-12-1618-24-AA	12/13/18 12:18	Tissue	GC/MS BBB	12/28/18	01/09/19 11:20	181228L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.33	0.20	0.075	1.00	
2,4'-DDE	0.84	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	2.1	0.20	0.039	1.00	
4,4'-DDE	4.2	0.20	0.040	1.00	
4,4'-DDT	0.44	0.20	0.052	1.00	B

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	88	25-200	
2,4,5,6-Tetrachloro-m-Xylene	76	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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 Work Order: 18-12-1618
 Preparation: EPA 3541
 Method: EPA 8270C PEST-SIM
 Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 13 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-E	18-12-1618-25-AA	12/13/18 12:19	Tissue	GC/MS BBB	12/28/18	01/09/19 11:35	181228L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.29	0.20	0.076	1.00	
2,4'-DDE	1.3	0.20	0.035	1.00	
2,4'-DDT	0.19	0.20	0.062	1.00	J
4,4'-DDD	2.8	0.20	0.040	1.00	
4,4'-DDE	4.1	0.20	0.040	1.00	
4,4'-DDT	0.20	0.20	0.053	1.00	B

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	95	25-200	
2,4,5,6-Tetrachloro-m-Xylene	80	25-200	

Nereis-T0-A	18-12-1618-26-AA	11/14/18 12:00	Tissue	GC/MS BBB	12/27/18	01/05/19 22:17	181227L20
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.20	0.20	0.075	1.00	
2,4'-DDE	0.55	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.82	0.20	0.039	1.00	
4,4'-DDE	0.58	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	26	25-200	
2,4,5,6-Tetrachloro-m-Xylene	65	25-200	

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Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 14 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-B	18-12-1618-27-AA	11/14/18 12:01	Tissue	GC/MS BBB	12/27/18	01/07/19 17:52	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.19	0.20	0.076	1.00	J
2,4'-DDE	0.25	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	1.4	0.20	0.040	1.00	
4,4'-DDE	0.32	0.20	0.040	1.00	
4,4'-DDT	0.23	0.20	0.053	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	33	25-200	
2,4,5,6-Tetrachloro-m-Xylene	54	25-200	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-C	18-12-1618-28-AA	11/14/18 12:02	Tissue	GC/MS BBB	12/27/18	01/08/19 13:02	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.82	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.70	0.20	0.040	1.00	
4,4'-DDE	0.87	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.053	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	26	25-200	
2,4,5,6-Tetrachloro-m-Xylene	82	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Project: POLB Carnival Cruise Terminal 2018

Page 15 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-D	18-12-1618-29-AA	11/14/18 12:03	Tissue	GC/MS BBB	12/27/18	01/08/19 20:49	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.17	0.20	0.075	1.00	J
2,4'-DDE	0.17	0.20	0.035	1.00	J
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.49	0.20	0.039	1.00	
4,4'-DDE	0.44	0.20	0.040	1.00	
4,4'-DDT	1.3	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	31	25-200	
2,4,5,6-Tetrachloro-m-Xylene	98	25-200	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-E	18-12-1618-30-AA	11/14/18 12:04	Tissue	GC/MS BBB	12/27/18	01/09/19 12:20	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.075	1.00	
2,4'-DDE	0.20	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.56	0.20	0.039	1.00	
4,4'-DDE	0.52	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	30	25-200	
2,4,5,6-Tetrachloro-m-Xylene	149	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 16 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-A	18-12-1618-31-AA	12/12/18 12:00	Tissue	GC/MS BBB	12/27/18	01/09/19 12:35	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.40	0.20	0.075	1.00	
2,4'-DDE	1.2	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.061	1.00	
4,4'-DDD	1.4	0.20	0.039	1.00	
4,4'-DDE	0.40	0.20	0.040	1.00	
4,4'-DDT	0.62	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	31	25-200	
2,4,5,6-Tetrachloro-m-Xylene	123	25-200	

Control-Nereis-B	18-12-1618-32-AA	12/12/18 12:01	Tissue	GC/MS BBB	12/27/18	01/08/19 21:34	181227L20
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.76	0.20	0.075	1.00	
2,4'-DDE	1.4	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	1.6	0.20	0.039	1.00	
4,4'-DDE	0.62	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	27	25-200	
2,4,5,6-Tetrachloro-m-Xylene	108	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 17 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-C	18-12-1618-33-AA	12/12/18 12:02	Tissue	GC/MS BBB	12/27/18	01/09/19 12:50	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.32	0.20	0.075	1.00	
2,4'-DDE	0.96	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	1.2	0.20	0.039	1.00	
4,4'-DDE	0.54	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	25	25-200	
2,4,5,6-Tetrachloro-m-Xylene	129	25-200	

Control-Nereis-D	18-12-1618-34-AA	12/12/18 12:03	Tissue	GC/MS BBB	12/27/18	01/08/19 20:34	181227L20
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.075	1.00	
2,4'-DDE	0.76	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.061	1.00	
4,4'-DDD	1.3	0.20	0.039	1.00	
4,4'-DDE	0.86	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	111	25-200	
2,4,5,6-Tetrachloro-m-Xylene	103	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 18 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-E	18-12-1618-35-AA	12/12/18 12:04	Tissue	GC/MS BBB	12/27/18	01/08/19 14:48	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.63	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.91	0.20	0.040	1.00	
4,4'-DDE	0.34	0.20	0.040	1.00	
4,4'-DDT	0.24	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	28	25-200	
2,4,5,6-Tetrachloro-m-Xylene	96	25-200	

LA2-REF-Nereis-A	18-12-1618-36-AA	12/12/18 12:05	Tissue	GC/MS BBB	12/27/18	01/08/19 15:05	181227L20
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.37	0.20	0.076	1.00	
2,4'-DDE	0.31	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	1.4	0.20	0.040	1.00	
4,4'-DDE	0.52	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.053	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	105	25-200	
2,4,5,6-Tetrachloro-m-Xylene	87	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 19 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-B	18-12-1618-37-AA	12/12/18 12:06	Tissue	GC/MS BBB	12/27/18	01/08/19 15:20	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.53	0.20	0.076	1.00	
2,4'-DDE	0.82	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	1.9	0.20	0.040	1.00	
4,4'-DDE	0.58	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	83	25-200	
2,4,5,6-Tetrachloro-m-Xylene	79	25-200	

LA2-REF-Nereis-C	18-12-1618-38-AA	12/12/18 12:07	Tissue	GC/MS BBB	12/27/18	01/08/19 15:35	181227L20
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.44	0.20	0.075	1.00	
2,4'-DDE	0.49	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.061	1.00	
4,4'-DDD	1.8	0.20	0.039	1.00	
4,4'-DDE	1.0	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	126	25-200	
2,4,5,6-Tetrachloro-m-Xylene	100	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 20 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-D	18-12-1618-39-AA	12/12/18 12:08	Tissue	GC/MS BBB	12/27/18	01/08/19 15:50	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.34	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.94	0.20	0.040	1.00	
4,4'-DDE	0.56	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.053	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	90	25-200	
2,4,5,6-Tetrachloro-m-Xylene	93	25-200	

LA2-REF-Nereis-E	18-12-1618-40-AA	12/12/18 12:09	Tissue	GC/MS BBB	12/27/18	01/08/19 16:05	181227L20
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.46	0.20	0.076	1.00	
2,4'-DDE	0.27	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	1.9	0.20	0.040	1.00	
4,4'-DDE	0.52	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.053	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	127	25-200	
2,4,5,6-Tetrachloro-m-Xylene	150	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 21 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-A	18-12-1618-41-AA	12/12/18 12:10	Tissue	GC/MS BBB	12/27/18	01/08/19 16:20	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.39	0.20	0.076	1.00	
2,4'-DDE	0.68	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	1.4	0.20	0.040	1.00	
4,4'-DDE	0.57	0.20	0.040	1.00	
4,4'-DDT	0.16	0.20	0.052	1.00	J

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	65	25-200	
2,4,5,6-Tetrachloro-m-Xylene	86	25-200	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-B	18-12-1618-42-AA	12/12/18 12:11	Tissue	GC/MS BBB	12/27/18	01/08/19 16:35	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.61	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.91	0.20	0.040	1.00	
4,4'-DDE	0.79	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	63	25-200	
2,4,5,6-Tetrachloro-m-Xylene	82	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 22 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-C	18-12-1618-43-AA	12/12/18 12:12	Tissue	GC/MS BBB	12/28/18	01/08/19 16:55	181228L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.78	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.82	0.20	0.040	1.00	
4,4'-DDE	0.47	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	64	25-200	
2,4,5,6-Tetrachloro-m-Xylene	81	25-200	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-D	18-12-1618-44-AA	12/12/18 12:13	Tissue	GC/MS BBB	12/28/18	01/08/19 17:10	181228L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.075	1.00	
2,4'-DDE	0.68	0.20	0.034	1.00	
2,4'-DDT	ND	0.20	0.061	1.00	
4,4'-DDD	0.84	0.20	0.039	1.00	
4,4'-DDE	0.64	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	66	25-200	
2,4,5,6-Tetrachloro-m-Xylene	87	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 23 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-E	18-12-1618-45-AA	12/12/18 12:14	Tissue	GC/MS BBB	12/28/18	01/08/19 17:25	181228L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	1.1	0.20	0.076	1.00	
2,4'-DDE	3.5	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	4.1	0.20	0.040	1.00	
4,4'-DDE	1.3	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	66	25-200	
2,4,5,6-Tetrachloro-m-Xylene	92	25-200	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-A	18-12-1618-46-AA	12/12/18 12:15	Tissue	GC/MS BBB	12/28/18	01/08/19 17:40	181228L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	1.0	0.20	0.075	1.00	
2,4'-DDE	2.3	0.20	0.034	1.00	
2,4'-DDT	ND	0.20	0.061	1.00	
4,4'-DDD	3.9	0.20	0.039	1.00	
4,4'-DDE	1.3	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	72	25-200	
2,4,5,6-Tetrachloro-m-Xylene	75	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 24 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-B	18-12-1618-47-AA	12/12/18 12:16	Tissue	GC/MS BBB	12/28/18	01/08/19 17:55	181228L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	1.3	0.20	0.075	1.00	
2,4'-DDE	4.8	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	4.0	0.20	0.039	1.00	
4,4'-DDE	0.83	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	60	25-200	
2,4,5,6-Tetrachloro-m-Xylene	83	25-200	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-C	18-12-1618-48-AA	12/12/18 12:17	Tissue	GC/MS BBB	12/28/18	01/08/19 18:10	181228L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.68	0.20	0.076	1.00	
2,4'-DDE	2.3	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	3.1	0.20	0.040	1.00	
4,4'-DDE	0.98	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	49	25-200	
2,4,5,6-Tetrachloro-m-Xylene	82	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 25 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-D	18-12-1618-49-AA	12/12/18 12:18	Tissue	GC/MS BBB	12/28/18	01/08/19 18:33	181228L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.24	0.20	0.076	1.00	
2,4'-DDE	0.69	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	2.0	0.20	0.040	1.00	
4,4'-DDE	0.48	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	78	25-200	
2,4,5,6-Tetrachloro-m-Xylene	84	25-200	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-E	18-12-1618-50-AA	12/12/18 12:19	Tissue	GC/MS BBB	12/28/18	01/09/19 17:13	181228L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.075	1.00	
2,4'-DDE	0.53	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	2.0	0.20	0.039	1.00	
4,4'-DDE	0.84	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	69	25-200	
2,4,5,6-Tetrachloro-m-Xylene	72	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 26 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-790-42	N/A	Tissue	GC/MS BBB	12/28/18	01/04/19 18:25	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	ND	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	ND	0.20	0.040	1.00	
4,4'-DDE	ND	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.053	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	56	25-200	
2,4,5,6-Tetrachloro-m-Xylene	63	25-200	

Method Blank	099-16-790-43	N/A	Tissue	GC/MS BBB	12/28/18	01/05/19 13:49	181227L20
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	ND	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	ND	0.20	0.040	1.00	
4,4'-DDE	ND	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.053	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	94	25-200	
2,4,5,6-Tetrachloro-m-Xylene	80	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 27 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-790-44	N/A	Tissue	GC/MS BBB	12/28/18	01/08/19 11:19	181228L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	ND	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	ND	0.20	0.040	1.00	
4,4'-DDE	ND	0.20	0.040	1.00	
4,4'-DDT	0.18	0.20	0.053	1.00	J

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	112	25-200	
2,4,5,6-Tetrachloro-m-Xylene	93	25-200	


 Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-A	18-12-1618-1-AA	11/15/18 12:00	Tissue	GC/MS HHH	12/27/18	01/04/19 15:30	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	ND	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	ND	0.20	0.083	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.093	1.00	
PCB149	ND	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	61	14-146			
p-Terphenyl-d14	115	34-148			



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-B	18-12-1618-2-AA	11/15/18 12:01	Tissue	GC/MS HHH	12/27/18	01/04/19 16:16	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	ND	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 12/18/18
 Work Order: 18-12-1618
 Preparation: EPA 3541
 Method: EPA 8270C SIM PCB Congeners
 Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 4 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	52	14-146			
p-Terphenyl-d14	108	34-148			

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 5 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-C	18-12-1618-3-AA	11/15/18 12:02	Tissue	GC/MS HHH	12/27/18	01/04/19 16:39	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.034	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.087	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.063	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.060	1.00	
PCB074	ND	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.061	1.00	
PCB101	ND	0.20	0.098	1.00	
PCB105	ND	0.20	0.055	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.098	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 6 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	90	14-146			
p-Terphenyl-d14	120	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 7 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-D	18-12-1618-4-AA	11/15/18 12:03	Tissue	GC/MS HHH	12/27/18	01/04/19 17:02	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	ND	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 8 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	92	14-146			
p-Terphenyl-d14	124	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 9 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-E	18-12-1618-5-AA	11/15/18 12:04	Tissue	GC/MS HHH	12/27/18	01/04/19 17:25	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	ND	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 10 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	85	14-146			
p-Terphenyl-d14	115	34-148			



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 11 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-A	18-12-1618-6-AA	12/13/18 12:00	Tissue	GC/MS HHH	12/27/18	01/04/19 17:49	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.034	1.00	
PCB037	0.26	0.20	0.060	1.00	
PCB044	ND	0.20	0.087	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.063	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.060	1.00	
PCB074	ND	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.061	1.00	
PCB101	ND	0.20	0.098	1.00	
PCB105	ND	0.20	0.055	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.098	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 12/18/18
 Work Order: 18-12-1618
 Preparation: EPA 3541
 Method: EPA 8270C SIM PCB Congeners
 Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 12 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2-Fluorobiphenyl	57	14-146	
p-Terphenyl-d14	115	34-148	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 13 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-B	18-12-1618-7-AA	12/13/18 12:01	Tissue	GC/MS HHH	12/27/18	01/08/19 18:04	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	ND	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 14 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	74	14-146			
p-Terphenyl-d14	119	34-148			



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 15 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-C	18-12-1618-8-AA	12/13/18 12:02	Tissue	GC/MS HHH	12/27/18	01/04/19 18:35	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.076	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	ND	0.20	0.096	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	ND	0.20	0.083	1.00	
PCB119	ND	0.20	0.093	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.39	0.17	1.00	
PCB138/158	ND	0.39	0.093	1.00	
PCB149	ND	0.20	0.096	1.00	
PCB151	ND	0.20	0.066	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.051	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.062	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	ND	0.20	0.041	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 12/18/18
 Work Order: 18-12-1618
 Preparation: EPA 3541
 Method: EPA 8270C SIM PCB Congeners
 Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 16 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.095	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	52	14-146			
p-Terphenyl-d14	94	34-148			



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 17 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-D	18-12-1618-9-AA	12/13/18 12:03	Tissue	GC/MS HHH	12/27/18	01/04/19 18:58	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.076	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	ND	0.20	0.096	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	ND	0.20	0.083	1.00	
PCB119	ND	0.20	0.093	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.39	0.093	1.00	
PCB149	ND	0.20	0.096	1.00	
PCB151	ND	0.20	0.066	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.051	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.062	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	ND	0.20	0.041	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 18 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.095	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	71	14-146			
p-Terphenyl-d14	110	34-148			



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 19 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-E	18-12-1618-10-AA	12/13/18 12:04	Tissue	GC/MS HHH	12/27/18	01/08/19 18:28	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.034	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.087	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.063	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.060	1.00	
PCB074	ND	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.061	1.00	
PCB101	ND	0.20	0.098	1.00	
PCB105	ND	0.20	0.055	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.098	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 20 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	71	14-146			
p-Terphenyl-d14	116	34-148			



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 21 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-A	18-12-1618-11-AA	12/13/18 12:05	Tissue	GC/MS HHH	12/27/18	01/04/19 19:45	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	ND	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	0.20	0.40	0.17	1.00	J
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 22 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	65	14-146			
p-Terphenyl-d14	102	34-148			



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 23 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-B	18-12-1618-12-AA	12/13/18 12:06	Tissue	GC/MS HHH	12/27/18	01/08/19 18:52	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	ND	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 24 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	68	14-146			
p-Terphenyl-d14	119	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 25 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-C	18-12-1618-13-AA	12/13/18 12:07	Tissue	GC/MS HHH	12/27/18	01/05/19 12:12	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	ND	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	0.20	0.40	0.17	1.00	J
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 26 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	63	14-146			
p-Terphenyl-d14	106	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 27 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-D	18-12-1618-14-AA	12/13/18 12:08	Tissue	GC/MS HHH	12/27/18	01/05/19 12:35	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.034	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.087	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.063	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.060	1.00	
PCB074	ND	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.061	1.00	
PCB101	ND	0.20	0.098	1.00	
PCB105	ND	0.20	0.055	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.098	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 28 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	66	14-146			
p-Terphenyl-d14	114	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 29 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-E	18-12-1618-15-AA	12/13/18 12:09	Tissue	GC/MS HHH	12/27/18	01/05/19 12:58	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	ND	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	0.35	0.40	0.17	1.00	J
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 30 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	76	14-146			
p-Terphenyl-d14	113	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 31 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-A	18-12-1618-16-AA	12/13/18 12:10	Tissue	GC/MS HHH	12/27/18	01/08/19 19:15	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.070	1.00	
PCB028	0.46	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	0.58	0.20	0.11	1.00	
PCB052	0.98	0.20	0.062	1.00	
PCB066	0.70	0.20	0.10	1.00	
PCB070	0.85	0.20	0.059	1.00	
PCB074	0.55	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	0.58	0.20	0.11	1.00	
PCB099	0.58	0.20	0.060	1.00	
PCB101	1.1	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	1.2	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	0.82	0.20	0.083	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.2	0.40	0.17	1.00	
PCB138/158	1.0	0.40	0.093	1.00	
PCB149	0.67	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 32 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	72	14-146			
p-Terphenyl-d14	121	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 33 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-B	18-12-1618-17-AA	12/13/18 12:11	Tissue	GC/MS HHH	12/27/18	01/08/19 19:40	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	0.62	0.20	0.10	1.00	
PCB070	0.71	0.20	0.059	1.00	
PCB074	0.48	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	0.39	0.20	0.11	1.00	
PCB099	0.49	0.20	0.060	1.00	
PCB101	0.95	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	1.1	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.73	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	0.98	0.40	0.17	1.00	
PCB138/158	0.88	0.40	0.094	1.00	
PCB149	0.64	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 34 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	62	14-146			
p-Terphenyl-d14	107	34-148			

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 35 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-C	18-12-1618-18-AA	12/13/18 12:12	Tissue	GC/MS HHH	12/27/18	01/05/19 14:07	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	0.35	0.20	0.071	1.00	
PCB028	0.49	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	0.50	0.20	0.086	1.00	
PCB049	0.47	0.20	0.11	1.00	
PCB052	0.79	0.20	0.062	1.00	
PCB066	0.75	0.20	0.10	1.00	
PCB070	0.92	0.20	0.059	1.00	
PCB074	0.54	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	0.46	0.20	0.11	1.00	
PCB099	0.50	0.20	0.060	1.00	
PCB101	0.93	0.20	0.097	1.00	
PCB105	0.40	0.20	0.054	1.00	
PCB110	1.0	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.80	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	0.95	0.40	0.17	1.00	
PCB138/158	0.83	0.40	0.094	1.00	
PCB149	0.67	0.20	0.097	1.00	
PCB151	0.28	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	0.38	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 36 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	0.24	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	53	14-146			
p-Terphenyl-d14	108	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 37 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-D	18-12-1618-19-AA	12/13/18 12:13	Tissue	GC/MS HHH	12/27/18	01/05/19 14:30	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB018	0.33	0.20	0.071	1.00	
PCB028	0.39	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	0.34	0.20	0.086	1.00	
PCB049	0.79	0.20	0.11	1.00	
PCB052	0.66	0.20	0.062	1.00	
PCB066	0.60	0.20	0.10	1.00	
PCB070	0.71	0.20	0.059	1.00	
PCB074	0.43	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	0.43	0.20	0.11	1.00	
PCB099	0.44	0.20	0.060	1.00	
PCB101	0.93	0.20	0.097	1.00	
PCB105	0.40	0.20	0.054	1.00	
PCB110	0.93	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.72	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	0.83	0.40	0.17	1.00	
PCB138/158	0.80	0.40	0.094	1.00	
PCB149	0.71	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	0.35	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 38 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	64	14-146			
p-Terphenyl-d14	110	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 39 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-E	18-12-1618-20-AA	12/13/18 12:14	Tissue	GC/MS HHH	12/27/18	01/05/19 14:53	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	0.40	0.20	0.071	1.00	
PCB028	0.71	0.20	0.034	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	0.56	0.20	0.087	1.00	
PCB049	0.66	0.20	0.11	1.00	
PCB052	1.2	0.20	0.063	1.00	
PCB066	0.89	0.20	0.10	1.00	
PCB070	1.1	0.20	0.060	1.00	
PCB074	0.49	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	0.63	0.20	0.11	1.00	
PCB099	0.57	0.20	0.061	1.00	
PCB101	1.2	0.20	0.098	1.00	
PCB105	0.64	0.20	0.055	1.00	
PCB110	1.4	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	1.2	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.4	0.40	0.17	1.00	
PCB138/158	1.4	0.40	0.094	1.00	
PCB149	0.94	0.20	0.098	1.00	
PCB151	0.30	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	0.46	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 40 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	0.35	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	59	14-146			
p-Terphenyl-d14	108	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 41 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-A	18-12-1618-21-AA	12/13/18 12:15	Tissue	GC/MS HHH	12/27/18	01/05/19 18:51	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	1.2	0.20	0.071	1.00	
PCB028	1.1	0.20	0.033	1.00	
PCB037	0.23	0.20	0.060	1.00	
PCB044	0.86	0.20	0.086	1.00	
PCB049	1.2	0.20	0.11	1.00	
PCB052	2.0	0.20	0.062	1.00	
PCB066	1.7	0.20	0.10	1.00	
PCB070	1.9	0.20	0.059	1.00	
PCB074	1.1	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	0.55	0.20	0.11	1.00	
PCB099	0.67	0.20	0.060	1.00	
PCB101	1.4	0.20	0.097	1.00	
PCB105	0.53	0.20	0.054	1.00	
PCB110	1.4	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.90	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.1	0.40	0.17	1.00	
PCB138/158	0.84	0.40	0.094	1.00	
PCB149	0.91	0.20	0.097	1.00	
PCB151	0.20	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	0.36	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 42 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	0.23	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	64	14-146			
p-Terphenyl-d14	81	34-148			



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 43 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-B	18-12-1618-22-AA	12/13/18 12:16	Tissue	GC/MS HHH	12/27/18	01/05/19 19:14	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	1.2	0.20	0.071	1.00	
PCB028	0.94	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	0.84	0.20	0.086	1.00	
PCB049	1.0	0.20	0.11	1.00	
PCB052	1.8	0.20	0.062	1.00	
PCB066	1.7	0.20	0.10	1.00	
PCB070	2.1	0.20	0.059	1.00	
PCB074	1.2	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	0.94	0.20	0.11	1.00	
PCB099	1.0	0.20	0.060	1.00	
PCB101	2.0	0.20	0.097	1.00	
PCB105	0.66	0.20	0.054	1.00	
PCB110	1.9	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	1.4	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.5	0.40	0.17	1.00	
PCB138/158	1.4	0.40	0.094	1.00	
PCB149	1.1	0.20	0.097	1.00	
PCB151	0.31	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	0.29	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	0.54	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 44 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	0.26	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	62	14-146			
p-Terphenyl-d14	115	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 45 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-C	18-12-1618-23-AA	12/13/18 12:17	Tissue	GC/MS HHH	12/27/18	01/05/19 19:38	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	1.2	0.20	0.070	1.00	
PCB028	1.2	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	1.0	0.20	0.086	1.00	
PCB049	1.3	0.20	0.11	1.00	
PCB052	2.4	0.20	0.062	1.00	
PCB066	1.6	0.20	0.10	1.00	
PCB070	2.2	0.20	0.059	1.00	
PCB074	1.2	0.20	0.086	1.00	
PCB077	ND	0.20	0.076	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	0.87	0.20	0.11	1.00	
PCB099	0.97	0.20	0.060	1.00	
PCB101	2.1	0.20	0.096	1.00	
PCB105	0.55	0.20	0.054	1.00	
PCB110	1.9	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	1.5	0.20	0.083	1.00	
PCB119	ND	0.20	0.093	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.6	0.39	0.17	1.00	
PCB138/158	1.3	0.39	0.093	1.00	
PCB149	0.97	0.20	0.096	1.00	
PCB151	0.30	0.20	0.066	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.051	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.062	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	0.50	0.20	0.041	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 12/18/18
 Work Order: 18-12-1618
 Preparation: EPA 3541
 Method: EPA 8270C SIM PCB Congeners
 Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 46 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	0.32	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.095	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	60	14-146			
p-Terphenyl-d14	106	34-148			

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 47 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-D	18-12-1618-24-AA	12/13/18 12:18	Tissue	GC/MS HHH	12/28/18	01/07/19 18:24	181228L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB018	0.87	0.20	0.070	1.00	
PCB028	0.91	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	0.62	0.20	0.086	1.00	
PCB049	1.2	0.20	0.11	1.00	
PCB052	1.5	0.20	0.062	1.00	
PCB066	1.3	0.20	0.10	1.00	
PCB070	1.5	0.20	0.059	1.00	
PCB074	0.82	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	0.42	0.20	0.11	1.00	
PCB099	0.67	0.20	0.060	1.00	
PCB101	1.5	0.20	0.097	1.00	
PCB105	0.39	0.20	0.054	1.00	
PCB110	1.1	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	0.89	0.20	0.083	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	0.99	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.093	1.00	
PCB149	0.75	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	0.40	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 48 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	66	14-146			
p-Terphenyl-d14	70	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 49 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-E	18-12-1618-25-AA	12/13/18 12:19	Tissue	GC/MS HHH	12/28/18	01/07/19 18:48	181228L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	0.89	0.20	0.034	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.087	1.00	
PCB049	0.70	0.20	0.11	1.00	
PCB052	1.5	0.20	0.063	1.00	
PCB066	1.2	0.20	0.10	1.00	
PCB070	1.4	0.20	0.060	1.00	
PCB074	0.72	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	0.59	0.20	0.11	1.00	
PCB099	0.68	0.20	0.061	1.00	
PCB101	1.4	0.20	0.098	1.00	
PCB105	0.35	0.20	0.055	1.00	
PCB110	1.5	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	1.1	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.3	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	0.71	0.20	0.098	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Kinnetic Laboratories, Inc.
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Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 50 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	72	14-146			
p-Terphenyl-d14	107	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
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Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 51 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-A	18-12-1618-26-AA	11/14/18 12:00	Tissue	GC/MS HHH	12/27/18	01/05/19 20:01	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.29	0.20	0.060	1.00	
PCB101	0.47	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	0.27	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	0.47	0.20	0.083	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.4	0.40	0.17	1.00	
PCB138/158	1.2	0.40	0.093	1.00	
PCB149	0.56	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	0.53	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 52 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	0.49	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	75	14-146			
p-Terphenyl-d14	139	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 53 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-B	18-12-1618-27-AA	11/14/18 12:01	Tissue	GC/MS HHH	12/27/18	01/05/19 20:24	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.034	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.087	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.063	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.060	1.00	
PCB074	ND	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.34	0.20	0.061	1.00	
PCB101	0.40	0.20	0.098	1.00	
PCB105	ND	0.20	0.055	1.00	
PCB110	0.26	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.39	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.4	0.40	0.17	1.00	
PCB138/158	1.0	0.40	0.094	1.00	
PCB149	0.57	0.20	0.098	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	0.57	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 54 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.25	0.20	0.11	1.00	
PCB187	0.44	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	30	14-146			
p-Terphenyl-d14	103	34-148			



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Analytical Report

Kinnetic Laboratories, Inc.
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Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 55 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-C	18-12-1618-28-AA	11/14/18 12:02	Tissue	GC/MS HHH	12/27/18	01/05/19 20:47	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.034	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.087	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.063	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.060	1.00	
PCB074	ND	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.22	0.20	0.061	1.00	
PCB101	0.43	0.20	0.098	1.00	
PCB105	ND	0.20	0.055	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.37	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	0.90	0.40	0.17	1.00	
PCB138/158	0.80	0.40	0.094	1.00	
PCB149	0.41	0.20	0.098	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	0.36	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 56 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	0.49	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	54	14-146			
p-Terphenyl-d14	108	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
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Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 57 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-D	18-12-1618-29-AA	11/14/18 12:03	Tissue	GC/MS HHH	12/27/18	01/05/19 21:11	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.31	0.20	0.060	1.00	
PCB101	0.45	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	ND	0.20	0.083	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.5	0.40	0.17	1.00	
PCB138/158	1.2	0.40	0.093	1.00	
PCB149	0.71	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 58 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	0.53	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	97	14-146			
p-Terphenyl-d14	128	34-148			



Calscience

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Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 59 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-E	18-12-1618-30-AA	11/14/18 12:04	Tissue	GC/MS HHH	12/27/18	01/08/19 20:04	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	0.29	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	0.32	0.20	0.083	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	0.95	0.40	0.17	1.00	
PCB138/158	0.71	0.40	0.093	1.00	
PCB149	0.37	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	0.41	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
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Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 60 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	59	14-146			
p-Terphenyl-d14	113	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 61 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-A	18-12-1618-31-AA	12/12/18 12:00	Tissue	GC/MS HHH	12/27/18	01/05/19 21:58	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	0.36	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.076	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.25	0.20	0.060	1.00	
PCB101	0.57	0.20	0.096	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	ND	0.20	0.083	1.00	
PCB119	ND	0.20	0.093	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.7	0.39	0.17	1.00	
PCB138/158	1.3	0.39	0.093	1.00	
PCB149	0.75	0.20	0.096	1.00	
PCB151	ND	0.20	0.066	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.051	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.062	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	0.52	0.20	0.041	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 62 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	0.64	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.095	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	61	14-146			
p-Terphenyl-d14	103	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 63 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-B	18-12-1618-32-AA	12/12/18 12:01	Tissue	GC/MS HHH	12/27/18	01/05/19 22:22	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.25	0.20	0.060	1.00	
PCB101	0.43	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	0.31	0.20	0.083	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	2.0	0.40	0.17	1.00	
PCB138/158	1.4	0.40	0.093	1.00	
PCB149	0.86	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	0.91	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 64 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.31	0.20	0.11	1.00	
PCB187	0.71	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	75	14-146			
p-Terphenyl-d14	128	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 65 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-C	18-12-1618-33-AA	12/12/18 12:02	Tissue	GC/MS HHH	12/27/18	01/07/19 12:11	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	0.36	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	0.26	0.20	0.083	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.9	0.40	0.17	1.00	
PCB138/158	1.1	0.40	0.093	1.00	
PCB149	0.58	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	0.62	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 66 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.25	0.20	0.11	1.00	
PCB187	0.58	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	74	14-146			
p-Terphenyl-d14	101	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 67 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-D	18-12-1618-34-AA	12/12/18 12:03	Tissue	GC/MS HHH	12/27/18	01/07/19 14:45	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.076	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.22	0.20	0.060	1.00	
PCB101	0.48	0.20	0.096	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	0.28	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	0.36	0.20	0.083	1.00	
PCB119	ND	0.20	0.093	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.8	0.39	0.17	1.00	
PCB138/158	1.4	0.39	0.093	1.00	
PCB149	0.74	0.20	0.096	1.00	
PCB151	ND	0.20	0.066	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.051	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	0.35	0.20	0.062	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	0.64	0.20	0.041	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 68 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.44	0.20	0.11	1.00	
PCB187	1.2	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.095	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	82	14-146			
p-Terphenyl-d14	127	34-148			


 Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 69 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-E	18-12-1618-35-AA	12/12/18 12:04	Tissue	GC/MS HHH	12/27/18	01/07/19 15:08	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	ND	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.7	0.40	0.17	1.00	
PCB138/158	1.3	0.40	0.094	1.00	
PCB149	0.84	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	1.1	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 70 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.36	0.20	0.11	1.00	
PCB187	0.83	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	67	14-146			
p-Terphenyl-d14	109	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 71 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-A	18-12-1618-36-AA	12/12/18 12:05	Tissue	GC/MS HHH	12/27/18	01/07/19 15:31	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.034	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.087	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.063	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.060	1.00	
PCB074	ND	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.41	0.20	0.061	1.00	
PCB101	0.41	0.20	0.098	1.00	
PCB105	ND	0.20	0.055	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.32	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.3	0.40	0.17	1.00	
PCB138/158	1.2	0.40	0.094	1.00	
PCB149	0.48	0.20	0.098	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 72 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	0.50	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	61	14-146			
p-Terphenyl-d14	101	34-148			



Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 73 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-B	18-12-1618-37-AA	12/12/18 12:06	Tissue	GC/MS HHH	12/27/18	01/07/19 15:55	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.34	0.20	0.060	1.00	
PCB101	0.62	0.20	0.097	1.00	
PCB105	0.39	0.20	0.054	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.47	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.9	0.40	0.17	1.00	
PCB138/158	1.3	0.40	0.094	1.00	
PCB149	0.72	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 74 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.28	0.20	0.11	1.00	
PCB187	0.71	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	59	14-146			
p-Terphenyl-d14	93	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 75 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-C	18-12-1618-38-AA	12/12/18 12:07	Tissue	GC/MS HHH	12/27/18	01/07/19 16:18	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.076	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.40	0.20	0.060	1.00	
PCB101	0.48	0.20	0.096	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	ND	0.20	0.083	1.00	
PCB119	ND	0.20	0.093	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	2.3	0.39	0.17	1.00	
PCB138/158	1.7	0.39	0.093	1.00	
PCB149	0.79	0.20	0.096	1.00	
PCB151	ND	0.20	0.066	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.051	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.062	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	0.81	0.20	0.041	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 76 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.45	0.20	0.11	1.00	
PCB187	0.85	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.095	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	62	14-146			
p-Terphenyl-d14	127	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 77 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-D	18-12-1618-39-AA	12/12/18 12:08	Tissue	GC/MS HHH	12/27/18	01/07/19 16:44	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.034	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.087	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.063	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.060	1.00	
PCB074	ND	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.29	0.20	0.061	1.00	
PCB101	0.45	0.20	0.098	1.00	
PCB105	ND	0.20	0.055	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.43	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.6	0.40	0.17	1.00	
PCB138/158	1.1	0.40	0.094	1.00	
PCB149	0.63	0.20	0.098	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	0.74	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 78 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.26	0.20	0.11	1.00	
PCB187	0.70	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	75	14-146			
p-Terphenyl-d14	119	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 79 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-E	18-12-1618-40-AA	12/12/18 12:09	Tissue	GC/MS HHH	12/27/18	01/07/19 17:09	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.034	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.087	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.063	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.060	1.00	
PCB074	ND	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.38	0.20	0.061	1.00	
PCB101	0.76	0.20	0.098	1.00	
PCB105	0.36	0.20	0.055	1.00	
PCB110	0.43	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.36	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	2.1	0.40	0.17	1.00	
PCB138/158	1.6	0.40	0.094	1.00	
PCB149	0.81	0.20	0.098	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	0.30	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	0.73	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 80 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.31	0.20	0.11	1.00	
PCB187	0.59	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	81	14-146			
p-Terphenyl-d14	117	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 81 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-A	18-12-1618-41-AA	12/12/18 12:10	Tissue	GC/MS HHH	12/27/18	01/07/19 17:32	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB018	0.21	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	0.47	0.20	0.062	1.00	
PCB066	0.26	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.39	0.20	0.060	1.00	
PCB101	0.63	0.20	0.097	1.00	
PCB105	0.23	0.20	0.054	1.00	
PCB110	0.39	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.39	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.6	0.40	0.17	1.00	
PCB138/158	1.1	0.40	0.094	1.00	
PCB149	0.71	0.20	0.097	1.00	
PCB151	0.27	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	0.63	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 82 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.26	0.20	0.11	1.00	
PCB187	0.66	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	66	14-146			
p-Terphenyl-d14	76	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 83 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-B	18-12-1618-42-AA	12/12/18 12:11	Tissue	GC/MS HHH	12/27/18	01/07/19 17:56	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	0.53	0.20	0.062	1.00	
PCB066	0.38	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.34	0.20	0.060	1.00	
PCB101	0.68	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	0.43	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.58	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.8	0.40	0.17	1.00	
PCB138/158	1.4	0.40	0.094	1.00	
PCB149	0.73	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	0.80	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 84 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.27	0.20	0.11	1.00	
PCB187	0.50	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	66	14-146			
p-Terphenyl-d14	105	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 85 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-C	18-12-1618-43-AA	12/12/18 12:12	Tissue	GC/MS HHH	12/28/18	01/07/19 19:11	181228L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	0.53	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.26	0.20	0.060	1.00	
PCB101	0.64	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	0.36	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.27	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.4	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	0.64	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 86 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.26	0.20	0.11	1.00	
PCB187	0.45	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	58	14-146			
p-Terphenyl-d14	96	34-148			

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 87 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-D	18-12-1618-44-AA	12/12/18 12:13	Tissue	GC/MS HHH	12/28/18	01/07/19 19:34	181228L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.059	1.00	
PCB044	ND	0.20	0.085	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.061	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.058	1.00	
PCB074	ND	0.20	0.085	1.00	
PCB077	ND	0.20	0.076	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.28	0.20	0.059	1.00	
PCB101	0.55	0.20	0.096	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	0.32	0.20	0.045	1.00	
PCB114	ND	0.20	0.080	1.00	
PCB118	0.37	0.20	0.082	1.00	
PCB119	ND	0.20	0.093	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.078	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.5	0.39	0.17	1.00	
PCB138/158	ND	0.39	0.093	1.00	
PCB149	0.62	0.20	0.096	1.00	
PCB151	ND	0.20	0.066	1.00	
PCB156	ND	0.20	0.056	1.00	
PCB157	ND	0.20	0.051	1.00	
PCB167	ND	0.20	0.060	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.062	1.00	
PCB177	ND	0.20	0.085	1.00	
PCB180	0.56	0.20	0.041	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 88 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	0.59	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.095	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	56	14-146			
p-Terphenyl-d14	106	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 89 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-E	18-12-1618-45-AA	12/12/18 12:14	Tissue	GC/MS HHH	12/28/18	01/07/19 19:58	181228L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	0.25	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	0.90	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.51	0.20	0.060	1.00	
PCB101	0.97	0.20	0.097	1.00	
PCB105	0.71	0.20	0.054	1.00	
PCB110	0.67	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.70	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	2.4	0.40	0.17	1.00	
PCB138/158	1.7	0.40	0.094	1.00	
PCB149	0.91	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	0.58	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 90 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.29	0.20	0.11	1.00	
PCB187	0.51	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	51	14-146			
p-Terphenyl-d14	84	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 91 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-A	18-12-1618-46-AA	12/12/18 12:15	Tissue	GC/MS HHH	12/28/18	01/07/19 20:22	181228L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	0.75	0.20	0.070	1.00	
PCB028	0.41	0.20	0.033	1.00	
PCB037	ND	0.20	0.059	1.00	
PCB044	ND	0.20	0.085	1.00	
PCB049	0.39	0.20	0.11	1.00	
PCB052	1.9	0.20	0.061	1.00	
PCB066	0.55	0.20	0.10	1.00	
PCB070	ND	0.20	0.058	1.00	
PCB074	ND	0.20	0.085	1.00	
PCB077	ND	0.20	0.076	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.67	0.20	0.059	1.00	
PCB101	1.4	0.20	0.096	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	0.98	0.20	0.045	1.00	
PCB114	ND	0.20	0.080	1.00	
PCB118	0.65	0.20	0.082	1.00	
PCB119	ND	0.20	0.093	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.078	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	2.2	0.39	0.17	1.00	
PCB138/158	ND	0.39	0.093	1.00	
PCB149	1.0	0.20	0.096	1.00	
PCB151	ND	0.20	0.066	1.00	
PCB156	ND	0.20	0.056	1.00	
PCB157	ND	0.20	0.051	1.00	
PCB167	ND	0.20	0.060	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.062	1.00	
PCB177	ND	0.20	0.085	1.00	
PCB180	0.92	0.20	0.041	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 92 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.30	0.20	0.11	1.00	
PCB187	0.55	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.095	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	12	14-146	2,6		
p-Terphenyl-d14	96	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 93 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-B	18-12-1618-47-AA	12/12/18 12:16	Tissue	GC/MS HHH	12/28/18	01/07/19 20:47	181228L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	0.73	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	0.33	0.20	0.11	1.00	
PCB052	1.6	0.20	0.062	1.00	
PCB066	0.64	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.51	0.20	0.060	1.00	
PCB101	1.3	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	0.72	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	0.70	0.20	0.083	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	2.3	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.093	1.00	
PCB149	0.91	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	0.77	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 94 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	0.69	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	51	14-146			
p-Terphenyl-d14	96	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 95 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-C	18-12-1618-48-AA	12/12/18 12:17	Tissue	GC/MS HHH	12/28/18	01/07/19 21:11	181228L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	0.62	0.20	0.071	1.00	
PCB028	0.36	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	0.78	0.20	0.086	1.00	
PCB049	0.39	0.20	0.11	1.00	
PCB052	1.9	0.20	0.062	1.00	
PCB066	0.50	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.58	0.20	0.060	1.00	
PCB101	1.4	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	0.83	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.79	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	2.4	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	1.0	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	1.1	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 96 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.29	0.20	0.11	1.00	
PCB187	0.65	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	57	14-146			
p-Terphenyl-d14	100	34-148			

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 97 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-D	18-12-1618-49-AA	12/12/18 12:18	Tissue	GC/MS HHH	12/28/18	01/08/19 11:19	181228L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	0.25	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	0.70	0.20	0.062	1.00	
PCB066	0.39	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.23	0.20	0.060	1.00	
PCB101	0.60	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	0.48	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	2.0	0.40	0.17	1.00	
PCB138/158	1.1	0.40	0.094	1.00	
PCB149	0.84	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	0.32	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	0.65	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 98 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.25	0.20	0.11	1.00	
PCB187	0.62	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	51	14-146			
p-Terphenyl-d14	94	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 99 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-E	18-12-1618-50-AA	12/12/18 12:19	Tissue	GC/MS HHH	12/28/18	01/08/19 13:23	181228L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	0.42	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	0.93	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.30	0.20	0.060	1.00	
PCB101	0.73	0.20	0.097	1.00	
PCB105	0.32	0.20	0.054	1.00	
PCB110	0.54	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	0.35	0.20	0.083	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.4	0.40	0.17	1.00	
PCB138/158	1.2	0.40	0.093	1.00	
PCB149	0.59	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	0.49	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 100 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	0.39	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	56	14-146			
p-Terphenyl-d14	92	34-148			


 Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 101 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-780-96	N/A	Tissue	GC/MS HHH	12/27/18	01/04/19 10:44	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.034	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.087	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.063	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.060	1.00	
PCB074	ND	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.061	1.00	
PCB101	ND	0.20	0.098	1.00	
PCB105	ND	0.20	0.055	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.098	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 102 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	131	14-146			
p-Terphenyl-d14	101	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 103 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-780-97	N/A	Tissue	GC/MS HHH	12/27/18	01/05/19 16:22	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.034	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.087	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.063	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.060	1.00	
PCB074	ND	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.061	1.00	
PCB101	ND	0.20	0.098	1.00	
PCB105	ND	0.20	0.055	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.098	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 104 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	74	14-146			
p-Terphenyl-d14	107	34-148			



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 105 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-780-98	N/A	Tissue	GC/MS HHH	12/28/18	01/07/19 12:34	181228L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.034	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.087	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.063	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.060	1.00	
PCB074	ND	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.061	1.00	
PCB101	ND	0.20	0.098	1.00	
PCB105	ND	0.20	0.055	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.098	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 106 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	69	14-146			
p-Terphenyl-d14	90	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Macoma-T0-A	Sample	Tissue	ICP/MS 05	12/20/18	12/20/18 15:45	181220S01
Macoma-T0-A	Matrix Spike	Tissue	ICP/MS 05	12/20/18	12/20/18 15:31	181220S01
Macoma-T0-A	Matrix Spike Duplicate	Tissue	ICP/MS 05	12/20/18	12/20/18 15:35	181220S01

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	3.207	12.50	16.08	103	16.13	103	80-120	0	0-20	
Cadmium	ND	12.50	13.16	105	13.19	106	80-120	0	0-20	
Chromium	0.1024	12.50	13.75	109	12.94	103	80-120	6	0-20	
Copper	0.9569	12.50	13.33	99	12.79	95	80-120	4	0-20	
Lead	ND	12.50	12.39	99	12.05	96	80-120	3	0-20	
Nickel	0.3172	12.50	12.78	100	12.71	99	80-120	1	0-20	
Selenium	0.2471	12.50	11.95	94	12.13	95	80-120	1	0-20	
Silver	ND	6.250	5.932	95	5.957	95	80-120	0	0-20	
Zinc	11.19	12.50	24.23	104	23.25	96	80-120	4	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Comp-b-Macoma-A	Sample	Tissue	ICP/MS 05	12/20/18	12/20/18 16:03	181220S02
CCT-18-Comp-b-Macoma-A	Matrix Spike	Tissue	ICP/MS 05	12/20/18	12/20/18 15:49	181220S02
CCT-18-Comp-b-Macoma-A	Matrix Spike Duplicate	Tissue	ICP/MS 05	12/20/18	12/20/18 15:52	181220S02

<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Arsenic	2.870	12.50	15.50	101	15.66	102	80-120	1	0-20	
Cadmium	ND	12.50	13.02	104	13.19	106	80-120	1	0-20	
Chromium	0.1922	12.50	12.84	101	12.86	101	80-120	0	0-20	
Copper	0.8920	12.50	12.80	95	12.73	95	80-120	1	0-20	
Lead	0.4916	12.50	12.57	97	12.85	99	80-120	2	0-20	
Nickel	0.3729	12.50	12.31	95	12.80	99	80-120	4	0-20	
Selenium	0.1956	12.50	12.28	97	12.32	97	80-120	0	0-20	
Silver	ND	6.250	5.769	92	5.864	94	80-120	2	0-20	
Zinc	9.665	12.50	22.36	102	23.37	110	80-120	4	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Comp-a-Nereis-C	Sample	Tissue	ICP/MS 05	12/20/18	12/20/18 17:04	181220S03
CCT-18-Comp-a-Nereis-C	Matrix Spike	Tissue	ICP/MS 05	12/20/18	12/20/18 16:47	181220S03
CCT-18-Comp-a-Nereis-C	Matrix Spike Duplicate	Tissue	ICP/MS 05	12/20/18	12/20/18 16:54	181220S03

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	2.190	12.50	14.85	101	15.03	103	80-120	1	0-20	
Cadmium	ND	12.50	13.28	106	13.21	106	80-120	0	0-20	
Chromium	ND	12.50	13.32	107	13.16	105	80-120	1	0-20	
Copper	1.470	12.50	13.42	96	12.89	91	80-120	4	0-20	
Lead	0.4361	12.50	12.77	99	12.87	99	80-120	1	0-20	
Nickel	0.1613	12.50	12.79	101	12.73	101	80-120	0	0-20	
Selenium	0.2349	12.50	12.14	95	12.16	95	80-120	0	0-20	
Silver	ND	6.250	5.912	95	5.820	93	80-120	2	0-20	
Zinc	14.57	12.50	29.86	122	24.86	82	80-120	18	0-20	3

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: POLB Carnival Cruise Terminal 2018

Page 4 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Macoma-T0-A	Sample	Tissue	Mercury 07	01/02/19	01/02/19 15:16	190102S02
Macoma-T0-A	Matrix Spike	Tissue	Mercury 07	01/02/19	01/02/19 15:18	190102S02
Macoma-T0-A	Matrix Spike Duplicate	Tissue	Mercury 07	01/02/19	01/03/19 14:16	190102S02

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	ND	0.5000	0.3246	65	0.3373	67	76-136	4	0-16	3

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: POLB Carnival Cruise Terminal 2018

Page 5 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Comp-a-Nereis-C	Sample	Tissue	Mercury 07	01/02/19	01/02/19 16:22	190102S04
CCT-18-Comp-a-Nereis-C	Matrix Spike	Tissue	Mercury 07	01/02/19	01/02/19 16:24	190102S04
CCT-18-Comp-a-Nereis-C	Matrix Spike Duplicate	Tissue	Mercury 07	01/02/19	01/02/19 16:31	190102S04

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	ND	0.5000	0.3683	74	0.2882	58	76-136	24	0-16	3,4

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: POLB Carnival Cruise Terminal 2018

Page 6 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Comp-b-Macoma-A	Sample	Tissue	Mercury 08	01/02/19	01/02/19 15:25	190102S03
CCT-18-Comp-b-Macoma-A	Matrix Spike	Tissue	Mercury 08	01/02/19	01/02/19 15:28	190102S03
CCT-18-Comp-b-Macoma-A	Matrix Spike Duplicate	Tissue	Mercury 08	01/02/19	01/02/19 15:30	190102S03

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	ND	0.8350	0.4222	51	0.4616	55	76-136	9	0-16	3

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM

Project: POLB Carnival Cruise Terminal 2018

Page 7 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Macoma-T0-E	Sample	Tissue	GC/MS BBB	12/27/18	01/05/19 17:32	181227S19
Macoma-T0-E	Matrix Spike	Tissue	GC/MS BBB	12/27/18	01/08/19 12:32	181227S19
Macoma-T0-E	Matrix Spike Duplicate	Tissue	GC/MS BBB	12/27/18	01/08/19 12:47	181227S19

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
4,4'-DDD	0.7379	5.000	4.954	84	4.256	70	25-200	15	0-25	
4,4'-DDE	0.2679	5.000	4.307	81	5.194	99	25-200	19	0-25	
4,4'-DDT	ND	5.000	0.3984	8	0.4134	8	25-200	4	0-25	3

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



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Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM

Project: POLB Carnival Cruise Terminal 2018

Page 8 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Comp-b-Macoma-C	Sample	Tissue	GC/MS BBB	12/27/18	01/05/19 22:02	181227S20
CCT-18-Comp-b-Macoma-C	Matrix Spike	Tissue	GC/MS BBB	12/27/18	01/05/19 14:34	181227S20
CCT-18-Comp-b-Macoma-C	Matrix Spike Duplicate	Tissue	GC/MS BBB	12/28/18	01/05/19 14:49	181227S20

<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
4,4'-DDD	2.565	5.000	7.468	98	8.271	114	25-200	10	0-25	
4,4'-DDE	5.910	5.000	10.30	88	12.11	124	25-200	16	0-25	
4,4'-DDT	ND	5.000	1.946	39	1.319	26	25-200	38	0-25	4

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM

Project: POLB Carnival Cruise Terminal 2018

Page 9 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Comp-b-Macoma-E	Sample	Tissue	GC/MS BBB	12/28/18	01/09/19 11:35	181228S17
CCT-18-Comp-b-Macoma-E	Matrix Spike	Tissue	GC/MS BBB	12/28/18	01/08/19 20:03	181228S17
CCT-18-Comp-b-Macoma-E	Matrix Spike Duplicate	Tissue	GC/MS BBB	12/28/18	01/08/19 20:19	181228S17

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
4,4'-DDD	2.762	5.000	3.062	6	2.862	2	25-200	7	0-25	3
4,4'-DDE	4.127	5.000	6.342	44	5.648	30	25-200	12	0-25	
4,4'-DDT	0.2018	5.000	0.7531	11	0.3690	3	25-200	68	0-25	3,4

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



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Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners

Project: POLB Carnival Cruise Terminal 2018

Page 10 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
Macoma-T0-A	Sample	Tissue	GC/MS HHH	12/27/18	01/04/19 15:30	181227S17				
Macoma-T0-A	Matrix Spike	Tissue	GC/MS HHH	12/27/18	01/08/19 20:52	181227S17				
Macoma-T0-A	Matrix Spike Duplicate	Tissue	GC/MS HHH	12/27/18	01/08/19 21:15	181227S17				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
PCB018	ND	50.00	48.04	96	40.26	81	50-150	18	0-25	
PCB028	ND	50.00	63.28	127	53.07	106	50-150	18	0-25	
PCB044	ND	50.00	60.14	120	50.66	101	50-150	17	0-25	
PCB052	ND	50.00	57.39	115	47.95	96	50-150	18	0-25	
PCB066	ND	50.00	72.08	144	59.61	119	50-150	19	0-25	
PCB077	ND	50.00	62.39	125	53.29	107	50-150	16	0-25	
PCB101	ND	50.00	63.59	127	53.25	107	50-150	18	0-25	
PCB105	ND	50.00	64.90	130	56.35	113	50-150	14	0-25	
PCB118	ND	50.00	70.40	141	61.04	122	50-150	14	0-25	
PCB126	ND	50.00	70.61	141	62.33	125	50-150	12	0-25	
PCB128	ND	50.00	65.93	132	56.24	112	50-150	16	0-25	
PCB170	ND	50.00	58.72	117	48.84	98	50-150	18	0-25	
PCB180	ND	50.00	73.46	147	61.74	123	50-150	17	0-25	
PCB187	ND	50.00	69.70	139	60.66	121	50-150	14	0-25	
PCB206	ND	50.00	61.21	122	48.44	97	50-150	23	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners

Project: POLB Carnival Cruise Terminal 2018

Page 11 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Comp-b-Macoma-B	Sample	Tissue	GC/MS HHH	12/27/18	01/05/19 19:14	181227S18
CCT-18-Comp-b-Macoma-B	Matrix Spike	Tissue	GC/MS HHH	12/27/18	01/05/19 18:04	181227S18
CCT-18-Comp-b-Macoma-B	Matrix Spike Duplicate	Tissue	GC/MS HHH	12/27/18	01/05/19 18:27	181227S18

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
PCB018	1.231	50.00	38.88	75	47.20	92	50-150	19	0-25	
PCB028	0.9450	50.00	51.92	102	65.88	130	50-150	24	0-25	
PCB044	0.8423	50.00	48.32	95	62.16	123	50-150	25	0-25	
PCB052	1.771	50.00	48.12	93	61.30	119	50-150	24	0-25	
PCB066	1.724	50.00	59.74	116	75.68	148	50-150	24	0-25	
PCB077	ND	50.00	54.50	109	61.26	123	50-150	12	0-25	
PCB101	2.025	50.00	54.00	104	64.65	125	50-150	18	0-25	
PCB105	0.6588	50.00	69.59	138	66.31	131	50-150	5	0-25	
PCB118	1.392	50.00	72.75	143	73.49	144	50-150	1	0-25	
PCB126	ND	50.00	75.47	151	72.23	144	50-150	4	0-25	3
PCB128	ND	50.00	71.32	143	68.33	137	50-150	4	0-25	
PCB170	0.2909	50.00	45.79	91	58.30	116	50-150	24	0-25	
PCB180	0.5423	50.00	73.41	146	73.43	146	50-150	0	0-25	
PCB187	0.2604	50.00	74.70	149	72.16	144	50-150	3	0-25	
PCB206	ND	50.00	51.63	103	59.97	120	50-150	15	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners

Project: POLB Carnival Cruise Terminal 2018

Page 12 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Comp-b-Macoma-D	Sample	Tissue	GC/MS HHH	12/28/18	01/07/19 18:24	181228S18
CCT-18-Comp-b-Macoma-D	Matrix Spike	Tissue	GC/MS HHH	12/28/18	01/07/19 13:44	181228S18
CCT-18-Comp-b-Macoma-D	Matrix Spike Duplicate	Tissue	GC/MS HHH	12/28/18	01/07/19 14:07	181228S18

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
PCB018	0.8730	50.00	32.09	62	30.71	60	50-150	4	0-25	
PCB028	0.9148	50.00	39.89	78	39.20	77	50-150	2	0-25	
PCB044	0.6158	50.00	37.79	74	35.41	70	50-150	6	0-25	
PCB052	1.466	50.00	36.50	70	35.31	68	50-150	3	0-25	
PCB066	1.259	50.00	43.42	84	40.85	79	50-150	6	0-25	
PCB077	ND	50.00	37.13	74	36.13	72	50-150	3	0-25	
PCB101	1.451	50.00	39.30	76	37.45	72	50-150	5	0-25	
PCB105	0.3904	50.00	39.63	78	37.83	75	50-150	5	0-25	
PCB118	0.8918	50.00	42.30	83	39.67	78	50-150	6	0-25	
PCB126	ND	50.00	43.03	86	40.60	81	50-150	6	0-25	
PCB128	ND	50.00	40.32	81	37.22	74	50-150	8	0-25	
PCB170	ND	50.00	38.71	77	36.67	73	50-150	5	0-25	
PCB180	0.4022	50.00	42.82	85	41.07	81	50-150	4	0-25	
PCB187	ND	50.00	43.83	88	39.99	80	50-150	9	0-25	
PCB206	ND	50.00	42.44	85	35.08	70	50-150	19	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - PDS

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
Macoma-T0-A	Sample	Tissue	ICP/MS 05	12/20/18 00:00	12/20/18 15:45	181220S01
Macoma-T0-A	PDS	Tissue	ICP/MS 05	12/20/18 00:00	12/20/18 15:38	181220S01

<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>PDS Conc.</u>	<u>PDS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic	3.207	12.50	16.51	106	75-125	
Cadmium	ND	12.50	13.92	111	75-125	
Chromium	0.1024	12.50	13.43	107	75-125	
Copper	0.9569	12.50	13.31	99	75-125	
Lead	ND	12.50	13.26	106	75-125	
Nickel	0.3172	12.50	13.40	105	75-125	
Selenium	0.2471	12.50	12.78	100	75-125	
Silver	ND	6.250	6.371	102	75-125	
Zinc	11.19	12.50	24.22	104	75-125	


 Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - PDS

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
CCT-18-Comp-b-Macoma-A	Sample	Tissue	ICP/MS 05	12/20/18 00:00	12/20/18 16:03	181220S02
CCT-18-Comp-b-Macoma-A	PDS	Tissue	ICP/MS 05	12/20/18 00:00	12/20/18 15:56	181220S02

Parameter	Sample Conc.	Spike Added	PDS Conc.	PDS %Rec.	%Rec. CL	Qualifiers
Arsenic	2.870	12.50	16.38	108	75-125	
Cadmium	ND	12.50	13.78	110	75-125	
Chromium	0.1922	12.50	13.85	109	75-125	
Copper	0.8920	12.50	13.76	103	75-125	
Lead	0.4916	12.50	13.65	105	75-125	
Nickel	0.3729	12.50	13.76	107	75-125	
Selenium	0.1956	12.50	12.85	101	75-125	
Silver	ND	6.250	6.505	104	75-125	
Zinc	9.665	12.50	23.26	109	75-125	



Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - PDS

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
CCT-18-Comp-a-Nereis-C	Sample	Tissue	ICP/MS 05	12/20/18 00:00	12/20/18 17:04	181220S03
CCT-18-Comp-a-Nereis-C	PDS	Tissue	ICP/MS 05	12/20/18 00:00	12/20/18 16:57	181220S03

Parameter	Sample Conc.	Spike Added	PDS Conc.	PDS %Rec.	%Rec. CL	Qualifiers
Arsenic	2.190	12.50	16.07	111	75-125	
Cadmium	ND	12.50	14.29	114	75-125	
Chromium	ND	12.50	13.87	111	75-125	
Copper	1.470	12.50	14.41	104	75-125	
Lead	0.4361	12.50	13.64	106	75-125	
Nickel	0.1613	12.50	13.86	110	75-125	
Selenium	0.2349	12.50	13.11	103	75-125	
Silver	ND	6.250	6.328	101	75-125	
Zinc	14.57	12.50	28.63	112	75-125	


 Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Sample Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
Macoma-T0-A	Sample	Tissue	N/A	12/27/18 00:00	12/28/18 00:00	181227D15
Macoma-T0-A	Sample Duplicate	Tissue	N/A	12/27/18 00:00	12/28/18 00:00	181227D15

<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
% Lipids	0.5250	0.5100	3	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Sample Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
CCT-18-Comp-b-Macoma-B	Sample	Tissue	N/A	12/27/18 00:00	01/02/19 00:00	181227D16
CCT-18-Comp-b-Macoma-B	Sample Duplicate	Tissue	N/A	12/27/18 00:00	01/02/19 00:00	181227D16

<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
% Lipids	0.2890	0.2600	11	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Sample Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
CCT-18-Comp-b-Macoma-E	Sample	Tissue	N/A	12/28/18 00:00	01/02/19 00:00	181228D16
CCT-18-Comp-b-Macoma-E	Sample Duplicate	Tissue	N/A	12/28/18 00:00	01/02/19 00:00	181228D16

<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
% Lipids	0.5200	0.4880	6	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-15-258-122	LCS	Tissue	ICP/MS 05	12/20/18	12/20/18 14:59	181220L01			
099-15-258-122	LCSD	Tissue	ICP/MS 05	12/20/18	12/20/18 15:10	181220L01			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	12.50	12.37	99	12.09	97	80-120	2	0-20	
Cadmium	12.50	12.70	102	12.80	102	80-120	1	0-20	
Chromium	12.50	12.83	103	12.65	101	80-120	1	0-20	
Copper	12.50	11.82	95	11.93	95	80-120	1	0-20	
Lead	12.50	12.37	99	12.22	98	80-120	1	0-20	
Nickel	12.50	12.34	99	12.05	96	80-120	2	0-20	
Selenium	12.50	11.07	89	10.83	87	80-120	2	0-20	
Silver	6.250	6.129	98	6.365	102	80-120	4	0-20	
Zinc	12.50	12.23	98	12.56	100	80-120	3	0-20	

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-15-258-123	LCS	Tissue	ICP/MS 05	12/20/18	12/20/18 15:03	181220L02			
099-15-258-123	LCSD	Tissue	ICP/MS 05	12/20/18	12/20/18 15:13	181220L02			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	12.50	12.16	97	12.12	97	80-120	0	0-20	
Cadmium	12.50	12.80	102	12.65	101	80-120	1	0-20	
Chromium	12.50	12.79	102	12.57	101	80-120	2	0-20	
Copper	12.50	11.94	96	11.71	94	80-120	2	0-20	
Lead	12.50	12.32	99	12.30	98	80-120	0	0-20	
Nickel	12.50	12.06	96	12.00	96	80-120	1	0-20	
Selenium	12.50	10.57	85	10.52	84	80-120	0	0-20	
Silver	6.250	5.917	95	5.959	95	80-120	1	0-20	
Zinc	12.50	12.23	98	12.25	98	80-120	0	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-15-258-124	LCS	Tissue	ICP/MS 05	12/20/18	12/20/18 15:06	181220L03			
099-15-258-124	LCSD	Tissue	ICP/MS 05	12/20/18	12/20/18 15:17	181220L03			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	12.50	12.27	98	12.22	98	80-120	0	0-20	
Cadmium	12.50	12.80	102	12.57	101	80-120	2	0-20	
Chromium	12.50	12.71	102	12.73	102	80-120	0	0-20	
Copper	12.50	12.08	97	11.77	94	80-120	3	0-20	
Lead	12.50	12.36	99	12.21	98	80-120	1	0-20	
Nickel	12.50	12.23	98	12.22	98	80-120	0	0-20	
Selenium	12.50	10.89	87	10.61	85	80-120	3	0-20	
Silver	6.250	6.083	97	5.925	95	80-120	3	0-20	
Zinc	12.50	12.36	99	12.21	98	80-120	1	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: POLB Carnival Cruise Terminal 2018

Page 4 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-16-276-69	LCS	Tissue	Mercury 07	01/02/19	01/02/19 15:11	190102L02T			
099-16-276-69	LCSD	Tissue	Mercury 07	01/02/19	01/02/19 15:14	190102L02T			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	0.8350	0.7727	93	0.7826	94	82-124	1	0-16	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: POLB Carnival Cruise Terminal 2018

Page 5 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-16-276-70	LCS	Tissue	Mercury 07	01/02/19	01/02/19 16:17	190102L04T			
099-16-276-70	LCSD	Tissue	Mercury 07	01/02/19	01/02/19 16:20	190102L04T			
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS Conc.</u>	<u>LCS %Rec.</u>	<u>LCSD Conc.</u>	<u>LCSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Mercury	0.8350	0.7588	91	0.7551	90	82-124	0	0-16	

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: POLB Carnival Cruise Terminal 2018

Page 6 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-16-276-71	LCS	Tissue	Mercury 08	01/02/19	01/02/19 15:21	190102L03T			
099-16-276-71	LCSD	Tissue	Mercury 08	01/02/19	01/02/19 15:23	190102L03T			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	0.8350	0.7798	93	0.7807	94	82-124	0	0-16	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM

Project: POLB Carnival Cruise Terminal 2018

Page 7 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-16-790-42	LCS	Tissue	GC/MS BBB	12/28/18	01/05/19 13:19	181227L19			
099-16-790-42	LCSD	Tissue	GC/MS BBB	12/28/18	01/05/19 13:34	181227L19			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
4,4'-DDD	5.000	2.699	54	3.019	60	25-200	11	0-25	
4,4'-DDE	5.000	3.471	69	3.909	78	25-200	12	0-25	
4,4'-DDT	5.000	3.323	66	3.776	76	25-200	13	0-25	

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM

Project: POLB Carnival Cruise Terminal 2018

Page 8 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-16-790-43	LCS	Tissue	GC/MS BBB	12/28/18	01/05/19 14:04	181227L20			
099-16-790-43	LCSD	Tissue	GC/MS BBB	12/28/18	01/05/19 14:19	181227L20			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
4,4'-DDD	5.000	2.975	59	3.454	69	25-200	15	0-25	
4,4'-DDE	5.000	3.732	75	4.341	87	25-200	15	0-25	
4,4'-DDT	5.000	3.762	75	4.363	87	25-200	15	0-25	

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM

Project: POLB Carnival Cruise Terminal 2018

Page 9 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-16-790-44	LCS	Tissue	GC/MS BBB	12/28/18	01/08/19 12:05	181228L17			
099-16-790-44	LCSD	Tissue	GC/MS BBB	12/28/18	01/08/19 11:49	181228L17			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
4,4'-DDD	5.000	3.576	72	3.444	69	25-200	4	0-25	
4,4'-DDE	5.000	3.944	79	4.096	82	25-200	4	0-25	
4,4'-DDT	5.000	3.398	68	3.656	73	25-200	7	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners

Project: POLB Carnival Cruise Terminal 2018

Page 10 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number				
099-16-780-96	LCS	Tissue	GC/MS HHH	12/27/18	01/04/19 11:08	181227L17				
099-16-780-96	LCSD	Tissue	GC/MS HHH	12/27/18	01/04/19 11:31	181227L17				
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
PCB018	50.00	48.71	97	48.10	96	50-150	33-167	1	0-25	
PCB028	50.00	57.58	115	56.56	113	50-150	33-167	2	0-25	
PCB044	50.00	55.26	111	54.46	109	50-150	33-167	1	0-25	
PCB052	50.00	54.84	110	54.13	108	50-150	33-167	1	0-25	
PCB066	50.00	63.16	126	62.77	126	50-150	33-167	1	0-25	
PCB077	50.00	57.28	115	55.58	111	50-150	33-167	3	0-25	
PCB101	50.00	61.52	123	59.59	119	50-150	33-167	3	0-25	
PCB105	50.00	60.72	121	59.05	118	50-150	33-167	3	0-25	
PCB118	50.00	61.88	124	60.08	120	50-150	33-167	3	0-25	
PCB126	50.00	64.93	130	64.72	129	50-150	33-167	0	0-25	
PCB128	50.00	60.13	120	58.42	117	50-150	33-167	3	0-25	
PCB170	50.00	59.31	119	59.72	119	50-150	33-167	1	0-25	
PCB180	50.00	63.36	127	62.24	124	50-150	33-167	2	0-25	
PCB187	50.00	66.21	132	63.52	127	50-150	33-167	4	0-25	
PCB206	50.00	70.57	141	73.19	146	50-150	33-167	4	0-25	

Total number of LCS compounds: 15

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners

Project: POLB Carnival Cruise Terminal 2018

Page 11 of 12

Quality Control Sample ID	Type	Matrix		Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-16-780-97	LCS	Tissue		GC/MS HHH	12/27/18	01/05/19 17:16	181227L18			
099-16-780-97	LCSD	Tissue		GC/MS HHH	12/27/18	01/05/19 17:40	181227L18			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
PCB018	50.00	48.18	96	46.90	94	50-150	33-167	3	0-25	
PCB028	50.00	57.23	114	53.92	108	50-150	33-167	6	0-25	
PCB044	50.00	52.23	104	50.31	101	50-150	33-167	4	0-25	
PCB052	50.00	48.95	98	49.45	99	50-150	33-167	1	0-25	
PCB066	50.00	58.85	118	59.63	119	50-150	33-167	1	0-25	
PCB077	50.00	45.11	90	42.67	85	50-150	33-167	6	0-25	
PCB101	50.00	40.48	81	50.60	101	50-150	33-167	22	0-25	
PCB105	50.00	44.75	89	44.84	90	50-150	33-167	0	0-25	
PCB118	50.00	51.08	102	46.91	94	50-150	33-167	9	0-25	
PCB126	50.00	53.56	107	50.85	102	50-150	33-167	5	0-25	
PCB128	50.00	51.52	103	46.45	93	50-150	33-167	10	0-25	
PCB170	50.00	52.39	105	59.55	119	50-150	33-167	13	0-25	
PCB180	50.00	55.67	111	50.47	101	50-150	33-167	10	0-25	
PCB187	50.00	56.56	113	50.21	100	50-150	33-167	12	0-25	
PCB206	50.00	63.49	127	74.08	148	50-150	33-167	15	0-25	

Total number of LCS compounds: 15

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners

Project: POLB Carnival Cruise Terminal 2018

Page 12 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number				
099-16-780-98	LCS	Tissue	GC/MS HHH	12/28/18	01/07/19 12:57	181228L18				
099-16-780-98	LCSD	Tissue	GC/MS HHH	12/28/18	01/07/19 13:21	181228L18				
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
PCB018	50.00	50.05	100	52.52	105	50-150	33-167	5	0-25	
PCB028	50.00	57.82	116	61.09	122	50-150	33-167	5	0-25	
PCB044	50.00	53.76	108	58.27	117	50-150	33-167	8	0-25	
PCB052	50.00	53.18	106	56.23	112	50-150	33-167	6	0-25	
PCB066	50.00	61.28	123	64.87	130	50-150	33-167	6	0-25	
PCB077	50.00	53.08	106	57.81	116	50-150	33-167	9	0-25	
PCB101	50.00	56.51	113	61.15	122	50-150	33-167	8	0-25	
PCB105	50.00	55.11	110	59.27	119	50-150	33-167	7	0-25	
PCB118	50.00	55.63	111	61.85	124	50-150	33-167	11	0-25	
PCB126	50.00	56.95	114	64.14	128	50-150	33-167	12	0-25	
PCB128	50.00	52.05	104	55.73	111	50-150	33-167	7	0-25	
PCB170	50.00	56.29	113	59.06	118	50-150	33-167	5	0-25	
PCB180	50.00	56.79	114	60.83	122	50-150	33-167	7	0-25	
PCB187	50.00	56.12	112	63.95	128	50-150	33-167	13	0-25	
PCB206	50.00	55.06	110	60.48	121	50-150	33-167	9	0-25	

Total number of LCS compounds: 15

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Glossary of Terms and Qualifiers

Work Order: 18-12-1618

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

Chain of Custody Record

To: Eurofins Calscience
7440 Lincoln Way
Garden Grove, CA 92841
Phone: (714) 895-5494

From: Kinnetic Laboratories, Inc
307 Washington St.
Santa Cruz, CA 95060
(562)595-8700

Contact: Kathy Burney/Carla Hollowell

Date Received: 11/15/18

Lab #: 18-12-1618

Project: POLB Carnival Cruise Terminal 2018

Matrix: Tissue

Project #: 5816.05

Sample ID	Station ID	Sample Date	Sample Time	Sample Type	Analysis	Container	Pres	No. of Containers	LabID	Condition Upon Receipt
Macoma-T0-A	T0 Macoma	11/15/18	1200	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
Macoma-T0-B	T0 Macoma	11/15/18	1201	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
Macoma-T0-C	T0 Macoma	11/15/18	1202	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
Macoma-T0-D	T0 Macoma	11/15/18	1203	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
Macoma-T0-E	T0 Macoma	11/15/18	1204	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
Control-Macoma-A	Control Macoma	12/13/18	1200	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
Control-Macoma-B	Control Macoma	12/13/18	1201	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
Control-Macoma-C	Control Macoma	12/13/18	1202	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
Control-Macoma-D	Control Macoma	12/13/18	1203	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
Control-Macoma-E	Control Macoma	12/13/18	1204	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		

Data Report MUST include the following: Sample ID, Analytical Method, Detection Limit, Date of Extraction if applicable, Analytical Results and Signature of QA Reviewer. All times on this sheet are military time. Email PDF reports/KLI Excel EDDS/Invoices to edd@kinneticlabs.net.

Please refer to the project SAP for specific QA/QC requirements.

Special Instructions/Comments: Homogenize and analyze EACH discrete replicate. Limited sample volume. Reference SAP for target reporting limits and list of required PCB Congeners. *Metals include: As, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn, plus Hg. **DDTs include: 2,4-DDT, 2,4-DDE, 2,4-DDD, 4,4-DDT, 4,4-DDE and 4,4-DDD. T0 samples have been stored frozen. TAT MUST BE MET!

Sampled and Relinquished By	Date/Time	Transporter	Received By	Date/Time
Kelly	12/17/18 1245	PER	[Signature]	12/18/18 1245
[Signature]	12/17/18 1730	(650)	[Signature]	12/18/18 14:00



Chain of Custody Record

To: Eurofins Calscience
7440 Lincoln Way
Garden Grove, CA 92841
Phone: (714) 895-5494

From: Kinnetic Laboratories, Inc
307 Washington St.
Santa Cruz, CA 95060
(562)595-8700

Date Received: 

Lab #: 

Contact: Kathy Burney/Caria Hollowell

Contact: Amy Howk/Danielle Gonsman

Project: POLB Carnival Cruise Terminal 2018

Matrix: Tissue

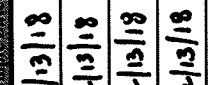
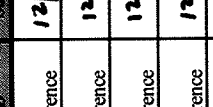
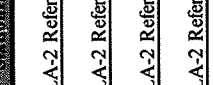
Project #: 5816.05

Sample ID	Station ID	Sample Date	Sample Time	Sample Type	Analysis	Container	Pres.	No. of Containers	Lab ID	Condition Upon Receipt
LA2-REF-Macoma-A	LA-2 Reference	12/13/18	1205	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
LA2-REF-Macoma-B	LA-2 Reference	12/13/18	1206	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
LA2-REF-Macoma-C	LA-2 Reference	12/13/18	1207	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
LA2-REF-Macoma-D	LA-2 Reference	12/13/18	1208	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
LA2-REF-Macoma-E	LA-2 Reference	12/13/18	1209	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-a-Macoma-A	Comp Area-a	12/13/18	1210	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-a-Macoma-B	Comp Area-a	12/13/18	1211	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-a-Macoma-C	Comp Area-a	12/13/18	1212	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-a-Macoma-D	Comp Area-a	12/13/18	1213	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-a-Macoma-E	Comp Area-a	12/13/18	1214	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		

Data Report MUST include the following: Sample ID, Analytical Method, Detection Limit, Date of Extraction if applicable, Date of Analysis, Analytical Results and Signature of QA Reviewer. All times on this sheet are military time. Email PDF reports/KLI Excel EDDs/Invoices to edd@kinneticlabs.net.

Please refer to the project SAP for specific QA/QC requirements.

Special Instructions/Comments: Homogenize and analyze EACH discrete replicate. Limited sample volume. Reference SAP for target reporting limits and list of required PCB Congeners. *Metals include: As, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn, plus Hg. **DDTs include: 2,4-DDT, 2,4-DDE, 2,4-DDD, 4,4-DDT, 4,4-DDE and 4,4-DDD.

Sample and Relinquished By	Date/Time	Transferor	Date/Time	Received By	Date/Time
Trevor Kelly	12/17/18 1245	PER	12/17/18 1245		12/18/18 045
	12/18/18 1730	680	12/18/18 1730		12/18/18 14:00



Chain of Custody Record

To: Eurofins Calscience
7440 Lincoln Way
Garden Grove, CA 92841
Phone: (714) 895-5494

Date Received:
Lab #:
From: Kinnetic Laboratories, Inc
307 Washington St.
Santa Cruz, CA 95060
(562)595-8700

Contact: Kathy Burney/Carla Hollowell
Project: POLB Carnival Cruise Terminal 2018
Matrix: Tissue
Project #: 5816.05

Sample ID	Station ID	Sample Date	Sample Time	Sample Type	Analysis	Temp	No. of Containers	Label ID	Condition Upon Receipt
CCT-18-Comp-b-Miacoma-A	Comp Area-b	12/13/18	1215	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	4 °C	1		
CCT-18-Comp-b-Miacoma-B	Comp Area-b	12/13/18	1216	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	4 °C	1		
CCT-18-Comp-b-Miacoma-C	Comp Area-b	12/13/18	1217	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	4 °C	1		
CCT-18-Comp-b-Miacoma-D	Comp Area-b	12/13/18	1218	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	4 °C	1		
CCT-18-Comp-b-Miacoma-E	Comp Area-b	12/13/18	1219	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	4 °C	1		
Nereis-T0-A	T0 Nereis	11/14/18	1200	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	4 °C	1		
Nereis-T0-B	T0 Nereis	11/14/18	1201	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	4 °C	1		
Nereis-T0-C	T0 Nereis	11/14/18	1202	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	4 °C	1		
Nereis-T0-D	T0 Nereis	11/14/18	1203	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	4 °C	1		
Nereis-T0-E	T0 Nereis	11/14/18	1204	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	4 °C	1		

Data Report MUST include the following: Sample ID, Analytical Method, Detection Limit, Date of Extraction if applicable, Date of Analysis, Analytical Results and Signature of QA Reviewer. All times on this sheet are military time. Email PDF reports/KLI Excel EDDs/Invoices to edd@kinneticlabs.net. Please refer to the project SAP for specific QA/QC requirements.

Special Instructions/Comments: Homogenize and analyze EACH discrete replicate. Limited sample volume. Reference SAP for target reporting limits and list of required PCB Congeners. *Metals include: As, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn, plus Hg. **DDTs include: 2,4-DDT, 2,4-DDE, 2,4-DDD, 4,4-DDT, 4,4-DDE and 4,4-DDD. T0 samples have been stored frozen.

Sample and Relinquished By:	Date/Time	Transporter	Received By:	Date/Time
Trevor Kelly - Eddy PER	12/17/18 1245		ECI	12/18/18 0445
Carla Hollowell to GSD	12/18/18 1730	(GSD)	Carla Hollowell	12/18/18 14:00



Chain of Custody Record

To: Eurofins Calscience
7440 Lincoln Way
Garden Grove, CA 92841
Phone: (714) 895-5494

From: Kinnetic Laboratories, Inc
307 Washington St.
Santa Cruz, CA 95060
(562)695-9700

Date Received: 12/18
Lab #: 1018

Contact: Kathy Burney/Caria Hollowell
Contact: Amy Howk/Danielle Gonsman

Project: POLB Carnival Cruise Terminal 2018
Matrix: Tissue
Project #: 5816.05

Sample ID	Station ID	Sample Date	Sample Time	Sample Type	Analysis	Container	Pres	No. of Containers	Lab ID	Condition Upon Receipt
Control-Nereis-A	Control Nereis	12/12/18	1200	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
Control-Nereis-B	Control Nereis	12/12/18	1201	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
Control-Nereis-C	Control Nereis	12/12/18	1202	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
Control-Nereis-D	Control Nereis	12/12/18	1203	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
Control-Nereis-E	Control Nereis	12/12/19	1204	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
LA2-REF-Nereis-A	LA-2 Reference	12/12/18	1205	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
LA2-REF-Nereis-B	LA-2 Reference	12/12/18	1206	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
LA2-REF-Nereis-C	LA-2 Reference	12/12/18	1207	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
LA2-REF-Nereis-D	LA-2 Reference	12/12/18	1208	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
LA2-REF-Nereis-E	LA-2 Reference	12/12/18	1209	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		

Data Report MUST include the following: Sample ID, Analytical Method, Detection Limit, Date of Extraction if applicable, Date of Analysis, Analytical Results and Signature of QA Reviewer. All times on this sheet are military time. Email PDF reports/KLI Excel EDDs/Invoices to edd@kinneticlabs.net.

Please refer to the project SAP for specific QA/QC requirements.

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Sampled and Relinquished By	Date/Time	Transporter	Date/Time	Received By	Date/Time
Trevor Kelly	12/17/18 1730	PER	12/17/18 1245	ECI	12/18/18 1245
ECI	12/17/18 1730	(650)		Amal EC	12/18/18 14:00



Chain of Custody Record

To: Eurofins Calscience
7440 Lincoln Way
Garden Grove, CA 92841
Phone: (714) 895-5494

Date Received: 12/18/18

Lab #: 1419

From: Kinnetic Laboratories, Inc
307 Washington St.
Santa Cruz, CA 95060
(562)595-8700



Contact: Kathy Burney/Carla Hollowell

Project: POLB Carnival Cruise Terminal 2018

Matrix: Tissue

Project #: 5816.05

Sample ID	Station ID	Sample Date	Sample Time	Sample Type	Analysis	Container	Pres	No. of Containers	Lab ID	Condition Upon Receipt
CCT-18-Comp-a-Nereis-A	Comp Area-a	12/12/18	12:10	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-a-Nereis-B	Comp Area-a	12/12/18	12:11	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-a-Nereis-C	Comp Area-a	12/12/18	12:12	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-a-Nereis-D	Comp Area-a	12/12/18	12:13	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-a-Nereis-E	Comp Area-a	12/12/18	12:14	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-b-Nereis-A	Comp Area-b	12/12/18	12:15	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-b-Nereis-B	Comp Area-b	12/12/18	12:16	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-b-Nereis-C	Comp Area-b	12/12/18	12:17	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-b-Nereis-D	Comp Area-b	12/12/18	12:18	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-b-Nereis-E	Comp Area-b	12/12/18	12:19	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		

Data Report MUST include the following: Sample ID, Analytical Method, Detection Limit, Date of Extraction if applicable, Date of Analysis, Analytical Results and Signature of QA Reviewer. All times on this sheet are military time. Email PDF reports/KLI Excel EDDs/Invoices to edd@kinneticlabs.net.

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Sampled and Relinquished By:	Date/Time	Transporter	Received By:	Date/Time
Trevor Kelly ELM	PER 12/17/18 1245			EC 12/17/18 1245
	to G80	(GSO)	double ec	12/18/18 14:00





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www.gso.com

1/18

Ship From
CAL SCIENCE- CONCORD
ALAN KEMP
5063 COMMERCIAL CIRCLE
#H
CONCORD, CA 94520

Tracking #: 543150970

NPS



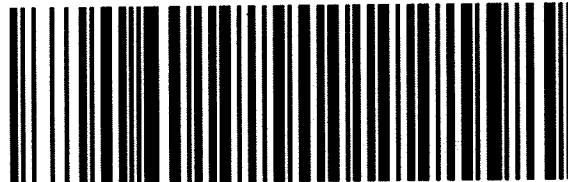
Ship To
CEL
SAMPLE RECEIVING
7440 LINCOLN WAY
GARDEN GROVE, CA 92841

ORC
GARDEN GROVE

C

COD: \$0.00
Weight: 0 lb(s)
Reference:
PER
Delivery Instructions:

S92841A



95419556

Print Date: 12/17/2018 2:09 PM

LABEL INSTRUCTIONS:

- Do not copy or reprint this label for additional shipments - each package must have a unique barcode.**
- Step 1: Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer.
- Step 2: Fold this page in half.
- Step 3: Securely attach this label to your package and do not cover the barcode.

TERMS AND CONDITIONS:

By giving us your shipment to deliver, you agree to all of the GSO service terms & conditions including, but not limited to; limits of liability, declared value conditions, and claim procedures which are available on our website at www.gso.com.

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: Kinnetic Laboratories

DATE: 12/18/2018

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC6 (CF: 0.0°C); Temperature (w/o CF): -0.7 °C (w/ CF): -0.7 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter
 Checked by: TLS

CUSTODY SEAL:
 Cooler Present and Intact Present but Not Intact Not Present N/A
 Sample(s) Present and Intact Present but Not Intact Not Present N/A
 Checked by: TLS
 Checked by: mm

SAMPLE CONDITION:

	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers			
<input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time			
Sampler's name indicated on COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and in good condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper containers for analyses requested	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sufficient volume/mass for analyses requested	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within holding time	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aqueous samples for certain analyses received within 15-minute holding time			
<input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Proper preservation chemical(s) noted on COC and/or sample container	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Unpreserved aqueous sample(s) received for certain analyses			
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals			
Acid/base preserved samples - pH within acceptable range	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Container(s) for certain analysis free of headspace.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500)			
<input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: VOA VOAh VOAn₂ 100PJ 100PJa₂ 125AGB 125AGBh 125AGBp 125PB 125PBz_{na} (pH__9)
 250AGB 250CGB 250CGBs (pH__2) 250PB 250PBn (pH__2) 500AGB 500AGJ 500AGJs (pH__2) 500PB
 1AGB 1AGBna₂ 1AGBs (pH__2) 1AGBs (O&G) 1PB 1PBna (pH__12) _____ _____ _____

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (____) EnCores® (____) TerraCores® (____) _____ _____ _____

Air: Tedlar™ Canister Sorbent Tube PUF _____ **Other Matrix** (TISSUE): Z _____ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag
 Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO₃, **na** = NaOH, **na₂** = Na₂S₂O₃, **p** = H₃PO₄, Labeled/Checked by: UPZ
s = H₂SO₄, **u** = ultra-pure, **x** = Na₂SO₃+NaHSO₄.H₂O, **z_{na}** = Zn (CH₃CO₂)₂ + NaOH Reviewed by: UPZ

Appendix B
Sediment Collection and Testing Performed by MEC
for Carnival Corporation
(MEC, 2000)

Appendix E
Bioassay Laboratory Report



Ken Kronschnabl
Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060

December 14, 2018

Dear Mr. Kronschnabl:

Please find attached an electronic copy of the report “Biological Testing of the Sediment Samples Collected from the Port of Long Beach Carnival Cruise Terminal” in PDF format. Hard copies can be provided upon request.

If you have any questions, please give me a call at (707) 207-7760. I look forward to hearing from you.

Sincerely,

Michael McElroy
Senior Project Manager



Pacific EcoRisk is accredited in accordance with NELAP (ORELAP ID 4043). Pacific EcoRisk certifies that the test results reported herein conform to the most current NELAP requirements for parameters for which accreditation is required and available. Any exceptions to NELAP requirements are noted, where applicable, in the body of the report. This report shall not be reproduced, except in full, without the written consent of Pacific EcoRisk. This testing was performed under Lab Order 29525.

DATA REPORT

Biological Testing of the Sediment Samples Collected from the Port of Long Beach Carnival Cruise Terminal

Prepared for

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060

Prepared by

Pacific EcoRisk
2250 Cordelia Road
Fairfield, CA 94534

December 2018



PACIFIC ECORISK
ENVIRONMENTAL CONSULTING & TESTING

Table of Contents

	Page
1. INTRODUCTION	1
2. METHODS	1
2.1 Biological Testing Procedures.....	1
2.2 Receipt and Handling of Sediment Sample.....	2
2.3 Source of Natural Seawater	2
2.4 Sediment Porewater Characterization	2
2.5 Solid-Phase Sediment Toxicity Testing with <i>Ampelisca abdita</i>	2
2.5.1 Reference Toxicant Testing of the <i>Ampelisca abdita</i>	3
2.6 Solid-Phase Sediment Toxicity Testing with <i>Neanthes arenaceodentata</i>	4
2.6.1 Reference Toxicant Testing of the <i>Neanthes arenaceodentata</i>	5
2.7 Water Column (Sediment Elutriate) Toxicity Test Procedures.....	6
2.7.1 Preparation of Sediment Elutriate	6
2.7.2 Sediment Elutriate Toxicity Testing with <i>Mytilus galloprovincialis</i>	6
2.7.2.1 Preparation of Bivalve Embryos	6
2.7.2.2 Embryo Development Toxicity Test Procedures	6
2.7.2.3 Reference Toxicant Testing of the <i>Mytilus galloprovincialis</i> Embryos.....	7
2.7.3 Sediment Elutriate Toxicity Testing with <i>Americamysis bahia</i>	7
2.7.3.1 Reference Toxicant Testing of the <i>Americamysis bahia</i>	8
2.7.4 Sediment Elutriate Toxicity Testing with <i>Menidia beryllina</i>	8
2.7.4.1 Reference Toxicant Testing of the <i>Menidia beryllina</i>	9
2.8 Sediment Bioaccumulation Testing with <i>Macoma nasuta</i> and <i>Nereis virens</i>	10
3. BIOLOGICAL TESTING RESULTS	12
3.1 Effects of POLB Carnival Cruise Sediments on <i>Ampelisca abdita</i>	12
3.1.1 Reference Toxicant Toxicity to <i>Ampelisca abdita</i>	13
3.2 Effects of POLB Carnival Cruise Sediments on <i>Neanthes arenaceodentata</i>	13
3.2.1 Reference Toxicant Toxicity to <i>Neanthes arenaceodentata</i>	14
3.3 Effects of POLB Carnival Cruise Sediment Elutriates to <i>Mytilus galloprovincialis</i>	14
3.3.1 Reference Toxicant Toxicity to <i>Mytilus galloprovincialis</i> Embryos	15
3.4 Effects of POLB Carnival Cruise Sediment Elutriates to <i>Americamysis bahia</i>	16
3.4.1 Reference Toxicant Toxicity to <i>Americamysis bahia</i>	17
3.5 Effects of POLB Carnival Cruise Sediment Elutriates to <i>Menidia beryllina</i>	17
3.5.1 Reference Toxicant Toxicity to <i>Menidia beryllina</i>	18
3.6 Sediment Bioaccumulation Test Data for <i>Macoma nasuta</i>	19
3.7 Sediment Bioaccumulation Test Data for <i>Nereis virens</i>	19
3.8 Biological Testing QA/QC Summary	19
4. REFERENCES	21



Appendices

- Appendix A Chain-of-Custody Records for the Collection and Delivery of the Port of Long Beach Carnival Cruise Terminal Sediments
- Appendix B Water Quality Characteristics of Whole Sediment Test Porewaters and Overlying Waters
- Appendix C Test Data and Summary of Statistics for the Toxicity Evaluation of the Port of Long Beach Carnival Cruise Terminal Sediments with the Amphipod, *Ampelisca abdita*
- Appendix D Test Data and Summary of Statistics for the Reference Toxicant Evaluation of the Amphipod, *Ampelisca abdita*
- Appendix E Test Data and Summary of Statistics for the Toxicity Evaluation of the Port of Long Beach Carnival Cruise Terminal Sediment with the Polychaete, *Neanthes arenaceodentata*
- Appendix F Test Data and Summary of Statistics for the Reference Toxicant Evaluation of the Polychaete, *Neanthes arenaceodentata*
- Appendix G Test Data and Summary of Statistics for the Evaluation of the Toxicity of the Port of Long Beach Carnival Cruise Terminal Sediment Elutriates with Bivalve (*Mytilus galloprovincialis*) Embryos
- Appendix H Test Data and Summary of Statistics for the Reference Toxicant Evaluation of the *Mytilus galloprovincialis* Embryos
- Appendix I Test Data and Summary of Statistics for the Evaluation of the Toxicity of the Port of Long Beach Carnival Cruise Terminal Sediment Elutriates to Mysids (*Americamysis bahia*)
- Appendix J Test Data and Summary of Statistics for the Reference Toxicant Evaluation of the Mysid, *Americamysis bahia*
- Appendix K Test Data and Summary of Statistics for the Evaluation of the Toxicity of the Port of Long Beach Carnival Cruise Terminal Sediment Elutriates to Inland Silversides (*Menidia beryllina*)
- Appendix L Test Data and Summary of Statistics for the Reference Toxicant Evaluations of the Inland Silverside, *Menidia beryllina*
- Appendix M Test Data for Port of Long Beach Carnival Cruise Terminal Sediment Bioaccumulation Tests with the Bivalve, *Macoma nasuta*



Appendices (continued)

Appendix N Test Data for Port of Long Beach Carnival Cruise Terminal Sediment
Bioaccumulation Tests with the Polychaete, *Nereis virens*

Appendix O Bioassay Standard Test Conditions



List of Tables

	Page
Table 2-1. Sediment Porewater Initial Water Quality Characteristics	2
Table 3-1. <i>Ampelisca abdita</i> Survival in the POLB Carnival Cruise Sediments.....	12
Table 3-2. Reference Toxicant Testing: Effects of KCl on <i>Ampelisca abdita</i>	13
Table 3-3. <i>Neanthes arenaceodentata</i> Survival in the POLB Carnival Cruise Sediments.....	13
Table 3-4. Reference Toxicant Testing: Effects of KCl on <i>Neanthes arenaceodentata</i>	14
Table 3-5. Effects of CCT-18-Composite-a Sediment Elutriate on <i>Mytilus galloprovincialis</i>	14
Table 3-6. Effects of CCT-18-Composite-b Sediment Elutriate on <i>Mytilus galloprovincialis</i>	15
Table 3-7. Reference Toxicant Testing: Effects of KCl on <i>Mytilus galloprovincialis</i>	15
Table 3-8. Effects of CCT-18-Composite-a Sediment Elutriate on <i>Americamysis bahia</i>	16
Table 3-9. Effects of CCT-18-Composite-b Sediment Elutriate on <i>Americamysis bahia</i>	16
Table 3-10. Reference Toxicant Testing: Effects of KCl on <i>Americamysis bahia</i>	17
Table 3-11. Effects of CCT-18-Composite-a Sediment Elutriate on <i>Menidia beryllina</i>	17
Table 3-12. Effects of CCT-18-Composite-b Sediment Elutriate on <i>Menidia beryllina</i>	18
Table 3-13. Reference Toxicant Testing: Effects of KCl on <i>Menidia beryllina</i>	18
Table 3-14. Sediment Bioaccumulation Test with <i>Macoma nasuta</i>	19
Table 3-15. Sediment Bioaccumulation Test with <i>Nereis virens</i>	19



1. INTRODUCTION

Kinnetic Laboratories, Inc. (Kinnetic) has contracted Pacific EcoRisk (PER) to perform whole sediment and water column (sediment elutriate) bioassay testing of sediments in support of the Port of Long Beach Carnival Cruise Terminal (POLB Carnival Cruise) sampling and testing. The performance and results of this testing are presented in this report.

2. METHODS

2.1 Biological Testing Procedures

There were up to seven different biological tests performed for the site composite samples:

1. a 10-day sediment amphipod survival test with *Ampelisca abdita*;
2. a 10-day sediment juvenile polychaete survival test with *Neanthes arenaceodentata*;
3. a 48-hr standard elutriate bivalve embryo survival and development test with *Mytilus galloprovincialis*;
4. a 96-hr standard elutriate mysid survival test with *Americamysis bahia*;
5. a 96-hr standard elutriate larval fish survival test with *Menidia beryllina*;
6. a 28-day bioaccumulation test with the clam *Macoma nasuta*; and
7. a 28-day bioaccumulation test with the polychaete *Nereis virens*.

The methods used in conducting these tests followed established guidelines:

- Method E1367-03. Standard Test Method for Measuring the Toxicity of Sediment-Associated Contaminants with Estuarine and Marine Invertebrates. (ASTM 2014);
- Method E1611-00. Standard Guide for Conducting Sediment Tests with Polychaetous Annelids. (ASTM 2013);
- Method E724-98. Standard Guide for Conducting Static Acute Toxicity Tests Starting with Embryos of Four Species of Saltwater Bivalve Molluscs. (ASTM 2012);
- Method E1688-10. Standard Guide for Determination of the Bioaccumulation of Sediment-Associated Contaminants by Benthic Invertebrates. (ASTM 2016);
- Testing Manual for the Evaluation of Dredged Material Proposed for Ocean Disposal. (Ocean Testing Manual, US EPA/ACOE, 1991);
- Testing Manual for the Evaluation of Dredged Material Discharged in Waters of the U.S. (Inland Testing Manual, US EPA/USACE, 1998);
- Methods for Assessing the Toxicity of Sediment-Associated Contaminants with Estuarine and Marine Amphipods. (US EPA 1994);
- Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition. (US EPA, 2002); and
- Public Notice 01-01. DMMO Guidelines for Implementing of the Inland Testing Manual in the San Francisco Bay Region. U.S. Army Corps of Engineers, US Army Corps of Engineers Operations and Readiness Branch, San Francisco, CA. USACE (2001).



2.2 Receipt and Handling of Sediment Sample

On October 30 and 31, 2018, sediment samples were collected from POLB Carnival Cruise. ‘Site water’ for use in preparing the sediment elutriates was collected from POLB Carnival Cruise on October 31; a reference sediment designated LA2-Ref was collected on October 31. The sediment samples had been composited prior to delivery to PER. These samples were delivered to the PER testing lab, on ice and under chain-of-custody, on November 6, 2018. Upon receipt at the PER testing laboratory, the samples were logged in and stored in the dark and under refrigeration (i.e., at 4°C for the sediment and 0-6°C for the water sample) until needed. Additional sediment was collected from Paradise Cove (located in Central San Francisco Bay) on September 25, 2018 for use as the negative Control sediment (termed “Lab Control”) for the *A. abdita*, *N. arenaceodentata*, *M. nasuta*, and *N. virens* tests. The chain-of-custody records for the collection and delivery of these samples are provided in Appendix A.

2.3 Source of Natural Seawater

The natural seawater used in these tests was obtained from the UC Davis Granite Canyon Marine Laboratory and is characterized as “pristine”; this water was stored at the PER laboratory in a 3000-gallon insulated HDPE tank maintained at 4°C. This seawater was 1-µm filtered and then adjusted to the desired test salinity (e.g., 28 ppt) via addition of Type 1 lab water (reverse-osmosis, de-ionized water) prior to use in these tests (these diluted natural seawaters are referred to using the adjusted salinity level [e.g., ‘28 ppt seawater’]).

2.4 Sediment Porewater Characterization

Upon receipt, the sediment samples were individually homogenized in large stainless steel bowls. Aliquots of each of the homogenized site sediments were centrifuged at 2,500 rpm for 15 minutes; the resulting supernatant porewaters were carefully collected and analyzed for routine water quality characteristics (Table 2-1).

Table 2-1. Sediment Porewater Initial Water Quality Characteristics.

Sample ID	pH	Salinity (ppt)	Total Ammonia (mg/L N)	Total Sulfide (mg/L)
LA2-Ref	7.66	33.9	2.12	0.022
CCT-18-Composite-a	7.73	33.6	9.76	0.091
CCT-18-Composite-b	7.75	33.1	18.8	0.026

2.5 Solid-Phase Sediment Toxicity Testing with *Ampelisca abdita*

The *A. abdita* used in this testing were collected from a San Francisco Bay field population by Pacific Ecorisk. Upon receipt at the PER lab, the organisms were maintained in aerated tanks of 28 ppt seawater at 20°C prior to use in the testing.



SAMPLING AND ANALYSIS PLAN REPORT

Long Beach Cruise Terminal Dredging Environmental Investigation Project

Contract No. 5816

**Prepared for:
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ATKINS

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February 2019



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SAMPLING AND ANALYSIS PLAN REPORT
Long Beach Cruise Terminal Dredging Environmental Investigation Project

Contract No. 5816

February 2019

TABLE OF CONTENTS

	<u>Page No.</u>
1.0 INTRODUCTION.....	1
1.1 Project Summary.....	1
1.2 Site Location	6
1.3 Roles and Responsibilities	6
2.0 SITE HISTORY AND HISTORICAL DATA REVIEW	8
2.1 January 2009 (Weston, 2009)	8
2.2 June 2000 (MEC, 2000).....	8
3.0 METHODS.....	9
3.1 Sampling and Testing Design	9
3.1.1 Sampling and Testing Approach.....	9
3.2 Sample Identification, Composite Areas, Sediment Collection and Testing.....	9
3.2.1 Environmental Testing.....	12
3.2.2 Summary of Carnival Cruise Line Terminal Testing and Evaluation Sequence	13
3.2.3 Evaluation Guidelines	13
3.3 Field Sampling Protocols	15
3.3.1 Positioning and Depth Measurements	15
3.3.2 Vibracore Sampling Methods	15
3.3.3 Vibracore Decontamination	16
3.3.4 Core Processing	16
3.3.5 LA-2 Reference and Control Sediments	17
3.3.6 Water Collection	17
3.3.7 Documentation and Sample Custody.....	17
3.4 Laboratory Testing Methods.....	20
3.4.1 Bulk Sediment Chemical Analyses.....	20
3.4.2 Elutriate Preparation Methods and Chemical Analysis	20
3.4.3 Tier III Biological Testing	20
4.0 RESULTS	29
4.1 Sediment Physical Results	29
4.2 Sediment Chemistry Results	29
4.3 Solid Phase Bioassay Results.....	29
4.4 Suspended Particulate Phase (SPP) Bioassay Results	29
4.5 Bioaccumulation Results	30
5.0 DISCUSSION	47
5.1 Grain Size Distribution	47
5.2 Bulk Sediment Chemistry	47
5.3 Benthic (Solid Phase) Bioassays.....	48
5.4 SPP (Suspended Particulate Phase) Water Column Bioassays.....	49
5.4.1 48-Hour Mussel Larvae Survival and Normal Embryonic Development Test.....	49

5.4.2	96-Hour Mysid Survival Test	49
5.4.3	96-Hour Juvenile Fish Survival Test	50
5.4.4	SPP Testing Conclusion.....	50
5.5	Bioaccumulation Testing for Ocean Placement.....	50
5.5.1	Bioaccumulation Survival.....	50
5.5.2	Assessment of Bioaccumulation Potential.....	50
5.5.3	Uptake of Lead.....	54
5.5.4	Uptake of Zinc	54
5.5.5	Uptake of DDTs.....	57
5.5.6	Uptake of PCB Congeners.....	67
5.5.7	Bioaccumulation Potential Conclusions	67
5.6	Summary and Conclusions	69
6.0	QUALITY CONTROL REQUIREMENTS.....	70
6.1	Field Sampling Quality Management	70
6.2	Chemical Analysis Quality Management	70
6.3	Biological Testing.....	72
67.0	REFERENCES CITED.....	73

APPENDICES

- APPENDIX A – Summary Results from the January 2009 Dredge Study (Weston, 2009)**
- APPENDIX B - Summary Results by MEC for Carnival Corporation (MEC, 2000)**
- APPENDIX C - Field Data Logs and Photographs**
- APPENDIX D - Analytical Laboratory Reports**
- APPENDIX E - Bioassay Laboratory Report**
- APPENDIX F - Analytical Quality Assurance/Quality Control Report**
- APPENDIX G - Grain Size Laboratory Report**

LIST OF TABLES

	<u>Page No.</u>
Table 1. Project Team and Responsibilities.....	6
Table 2. Key Project Contacts.....	7
Table 3. Actual Sampling Location Coordinates, Date and Time of Sampling, Core Depths, Mudline Elevations, and Sampling Elevations for the Carnival Cruise Terminal Dredging.	10
Table 4. Sediment Analytical Methods and Target Quantitation Limits Achieved.....	21
Table 5. Species, Methods, and End-Points for Biological Testing.	24
Table 6. Sediment Porewater Initial Water Quality Characteristics	24
Table 7. Tissue Analytical Methods and Quantitation Limits Achieved.....	26
Table 8. 2018 Carnival Cruise Terminal Sediment Physical Results.	30
Table 9. 2018 POLB Carnival Cruise Terminal Bulk Sediment Chemistry Results.	31
Table 10. Survival Results for the 10-day <i>Ampelisca abdita</i> Bioassays.....	34
Table 11. Survival Results for the 10-day <i>Neanthes arenaceodentata</i> Bioassays.....	35
Table 12. Replicate and Mean Survival and Normal Development Results and Median Effective and Lethal Concentrations for the Suspended Particulate-Phase 48-Hour Toxicity Tests Using <i>Mytilus galloprovincialis</i> Larvae.	36
Table 13. Replicate and Mean Survival Results and Median Lethal Concentrations for the 96-Hour Acute Suspended Particulate-Phase Toxicity Tests Using <i>Americamysis bahia</i>	37
Table 14. Replicate and Mean Survival Results and Median Lethal Concentrations for the 96-Hour Acute Suspended Particulate-Phase Toxicity Tests Using <i>Menidia beryllina</i> . .	37
Table 15. <i>Macoma nasuta</i> Bioaccumulation Test Survival Data.....	38
Table 16. <i>Nereis virens</i> Bioaccumulation Test Survival Data.....	38
Table 17. Bioaccumulation Potential Replicate and Mean Tissue Results for <i>Macoma nasuta</i> Exposed to Carnival Cruise, LA-2 Reference and Control Sediments.	39
Table 18. Bioaccumulation Potential Replicate and Mean Tissue Results for <i>Nereis virens</i> Exposed to Carnival Cruise, LA-2 Reference and Control Sediments.	41
Table 19. Statistical Results for the Carnival Cruise Terminal Composite Samples <i>Macoma nasuta</i> Detected Tissue Concentrations Compared to Reference and Control Tissue Concentrations.	43
Table 20. Statistical Results for the Carnival Cruise Terminal <i>Nereis virens</i> Detected Tissue Concentrations Compared to Reference and Control Tissue Concentrations.....	45
Table 21. 100% Elutriate SPP Water Column Bioassays Results.	49
Table 22. Lowest Relevant TRVs for Zinc in the ERED Database.	57
Table 23. Mean and 95% UCL Steady State Adjusted <i>Macoma Nasuta</i> Tissue Concentrations for DDTs.	65
Table 24. Mean and 95% UCL Steady State Adjusted <i>Nereis Virens</i> Tissue Concentrations for DDTs.....	65
Table 25. Selected Relevant TRVs from the ERED database for 2,4'-DDE and 4,4'-DDE.	66
Table 26. Counts of QC records per Chemical Category.	71
Table 27. Final QC Qualification Applied to Sample Results.....	71

LIST OF FIGURES

	<u>Page No.</u>
Figure 1. Location of Project Area within the Long Beach Harbor.	2
Figure 2. Specific Location of Carnival Cruise Ship Terminal in Long Beach Harbor.	3
Figure 3. Conceptual Plan of the Proposed Carnival Cruise Terminal Expansion Project.	4
Figure 4. Close-up of the Carnival Cruise Terminal Showing Bathymetric Data and Actual Sampling Locations.	5
Figure 5. Location of LA-2 Reference Site.	19
Figure 6. Relationship between Total DDT and Lipid Concentrations in <i>Nereis</i> Tissues.	53
Figure 7. Relationship between Total PCBs and Lipid Concentrations in <i>Nereis</i> Tissues.	53
Figure 8. Distribution of <i>Macoma nasuta</i> Lead Uptake.	55
Figure 9. Distribution of <i>Nereis virens</i> Lead Uptake.	55
Figure 10. Distribution of <i>Macoma nasuta</i> Zinc Uptake.	56
Figure 11. Distribution of <i>Nereis virens</i> Zinc Uptake.	56
Figure 12. Distribution of <i>Macoma nasuta</i> Total DDT Uptake.	58
Figure 13. Distribution of <i>Macoma nasuta</i> 2,4' DDD Uptake.	58
Figure 14. Distribution of <i>Macoma nasuta</i> 2,4' DDE Uptake.	59
Figure 15. Distribution of <i>Macoma nasuta</i> 4,4' DDD Uptake.	59
Figure 16. Distribution of <i>Macoma nasuta</i> 4,4' DDE Uptake.	60
Figure 17. Distribution of <i>Nereis virens</i> Total DDT Uptake.	60
Figure 18. Distribution of <i>Nereis virens</i> 2,4' DDD Uptake.	61
Figure 19. Distribution of <i>Nereis virens</i> 2,4' DDE Uptake.	61
Figure 20. Distribution of <i>Nereis virens</i> 4,4' DDD Uptake.	62
Figure 21. Distribution of <i>Nereis virens</i> 4,4' DDE Uptake.	62
Figure 22. Distribution of <i>Nereis virens</i> 4,4' DDT Uptake.	63
Figure 23. Distribution of <i>Macoma nasuta</i> Total PCB Uptake.	68
Figure 24. Distribution of <i>Nereis virens</i> Total PCB Uptake.	68

LIST OF ACRONYMS

ASTM	American Society for Testing and Materials	NOEC	No Observable Effects Concentration
ANOVA	Analysis of Variance	NOED	No Observed Effects Dose
BLK	Method or Procedural Blank	NMFS	National Marine Fishery Service
CDFW	California Department of Fish and Wildlife	ODMDS	Ocean Dredge Material Disposal Site
CESPD	Corps of Engineers South Pacific Division	OEHHA	Office of Environment Health Assoc.
CHHSL	California Human Health Screening Level	OTM	Ocean Testing Manual
COC	Chain of Custody	PAH	Polycyclic Aromatic Hydrocarbon
CSLC	California State Lands Commission	PCB	Polychlorinated biphenyl
CV	Coefficient of Variation	PDS	Post Digestion Spike
CWA	Clean Water Act	PPB	Parts Per Billion
CY	Cubic Yards	PPM	Parts per Million
DDD	Dichlorodiphenyldichloroethane	PPT	Parts per Trillion
DDE	Dichlorodiphenyldichloroethylene	PRG	Preliminary Remediation Goals
DDT	Dichlorodiphenyltrichloroethane	PVC	Polyvinyl Chloride
DGPS	Differential Global Positioning Satellite	RBC	Risk Based Concentrations
DMMT	Dredge Materials Management Team	RL	Reporting Limit
DUP	Laboratory Replicates	RPD	Relative Percent Difference
EC₅₀	50% of the Time Effects Concentration	RSL	Regional Screening Levels
ERED	Environmental Residue-Effects Database	RWQCB	Regional Water Quality Control Board
ERL	Effects Range-Low	SAP	Sampling and Analysis Plan
ERM	Effects Range-Medium	SAR	Sampling and Analysis Report
ERM_q	Effects Range-Medium Quotient	SC-DMMT	Southern California Dredge Material Management Team
HDPE	High Density Polyethylene	SDRWQCB	San Diego Regional Water Quality Control Board
HHMSSL	Human Health Medium Specific Screening Levels	SET	Standard Elutriate Test
ITM	Inland Testing Manual	SOP	Standard Operating Procedure
KCL	Potassium Chloride	SP	Solid Phase
LC₅₀	50% of the Time Lethal Concentration	SPP	Suspended Particulate Phase
LCL	Lower Control Limit	SURR	Surrogate Analysis
LCS	Laboratory Control Spike	SWAMP	Surface Water Ambient Monitoring Program
LCSD	Laboratory Control Spike Duplicate	TAC	Test Acceptability Criteria
LDPE	Low Density Polyethylene	TOC	Total Organic Carbon
LOED	Lowest Observed Effects Dose	TRPH	Total Recoverable Hydrocarbons
LPC	Limiting Permissible Concentration	TRV	Toxicity Reference Value
LSD	Least Significant Difference	TSS	Total Suspended Solids
MDL	Method Detection Limit	UCL	Upper Control Limit
MET	Modified Elutriate Extract	UCL	Upper Confidence Limit
MLLW	Mean Lower Low Water	USACE	U.S. Army Corps of Engineers
MS	Matrix Spike	USCG	U.S. Coast Guard
MSD	Matrix Spike Duplicate	USCS	Unified Soil Classification System
NAD	North American Datum	USEPA	U.S. Environmental Protection Agency
NA	Not Applicable	USFWS	U.S. Fish and Wildlife Service
ND	Not Detected	QA	Quality Assurance
NOAA	National Oceanic and Atmospheric Administration	QC	Quality Control

SAMPLING AND ANALYSIS PLAN REPORT

Long Beach Cruise Terminal Dredging Geotechnical and Environmental Investigation Project

February 2019

1.0 INTRODUCTION

Carnival Corporation & PLC (Carnival) proposed this project to conduct improvements to the Cruise Terminal at Wharf H in the Port of Long Beach (POLB), Long Beach, CA. Sediments to be dredged require an environmental and physical evaluation of sediment quality in order to support planning and permitting for dredging and off-shore placement.

This Sampling and Analysis Plan Report (SAPR) has been prepared on behalf of the Atkins North America and Carnival Corporation to detail procedures and results, including quality assurance/quality control (QA/QC) results, from the sampling and testing of sediments from the Long Beach Cruise Terminal identified for placement at the LA-2 Ocean Dredge Material Disposal Site (ODMDS). This work is being performed under Contract No. 5816.

1.1 Project Summary

The purpose of this project was to sample and test sediments from the Long Beach Cruise Terminal proposed for dredging to provide sediment quality data for evaluation of dredging and open water placement. Figures 1 and 2 show the general location of the project site within POLB. This SAPR is to fulfill requirements of the Ocean Testing Manual (OTM) (USACE and USEPA, 1991), Inland Testing Manual (ITM) (USACE and USEPA, 1998), the Clean Water Act (CWA), and Southern California Dredge Material Management Team (SC-DMMT) draft guidelines. Sampling and testing of this project was conducted according to the project Sampling and Analysis Plan (SAP) (Atkins, 2018) finalized on September 12, 2018.

The proposed project involves deepening the berth from the current design depth of -30 feet Mean Lower Low Water (MLLW) plus two feet of overdepth to a new design depth of -36 feet MLLW plus one foot of overdepth. The project aims to deepen and widen the current berth to accommodate the arrival of a larger cruise ship. Figure 3 shows the conceptual plan of the proposed project. The green line delineates the new berth perimeter template. The blue line indicates the portion of the existing berth footprint where the new template deviates from the existing template creating an extension of the current berth area.

Figure 4 presents the bathymetry at the site based on a recent hydrographic survey (GBA, 2017). The water depth ranges from approximately -28 ft to -47 feet MLLW within the berth perimeter. The proposed project calls for a new design depth of -36 feet MLLW plus one foot of paid overdepth and an additional one foot of tolerance to account for any inaccuracies inherent in the dredging process, for a total characterization depth of -38 feet MLLW. The areas enclosed by the bold contours (-37 ft MLLW) and the berth perimeter will need to be dredged to achieve the new depth as shown in Figure 4. The estimated available volume to be dredged to -37 feet is approximately 35,400 cubic yards (cy). The total volume consists of the following:

- Total dredging volume to -37 ft MLLW within Existing Berth: 29,000 cy
- Total dredging volume to -37 ft MLLW within proposed Berth Extension area: 6,400 cy

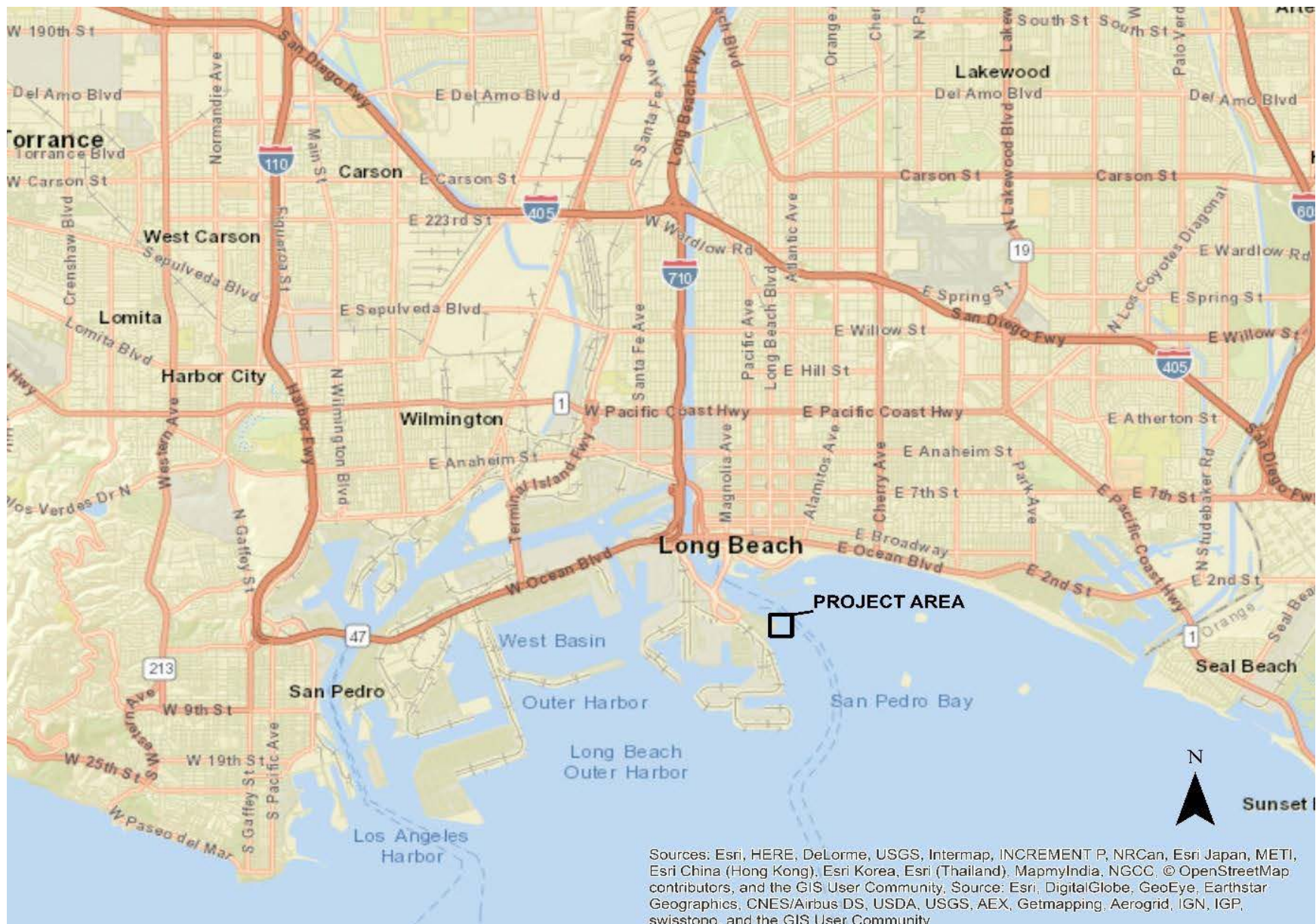


Figure 1. Location of Project Area within the Long Beach Harbor.



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community, Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community

Figure 2. Specific Location of Long Beach Cruise Terminal in Long Beach Harbor.

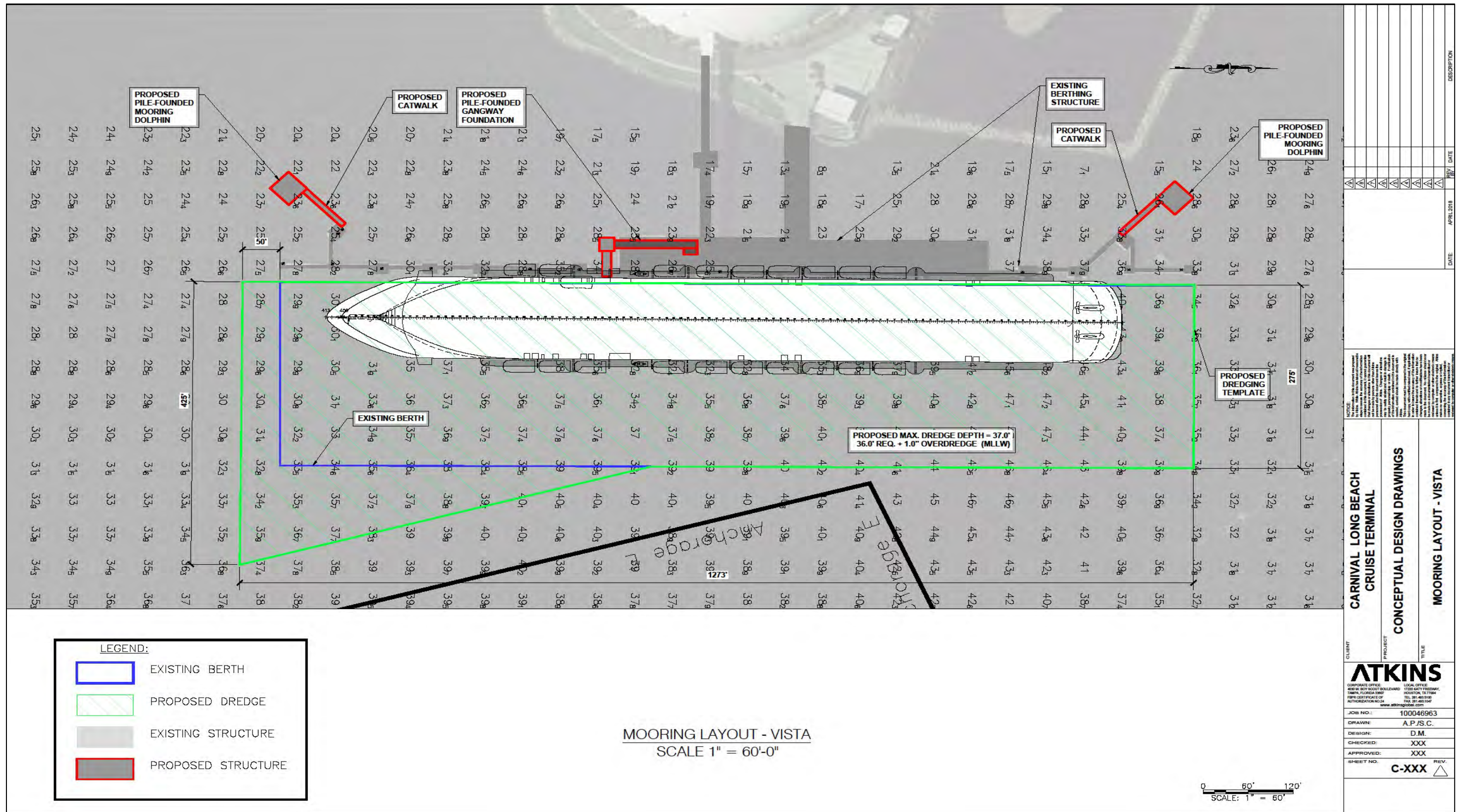


Figure 3. Conceptual Plan of the Proposed Long Beach Cruise Terminal Expansion Project.

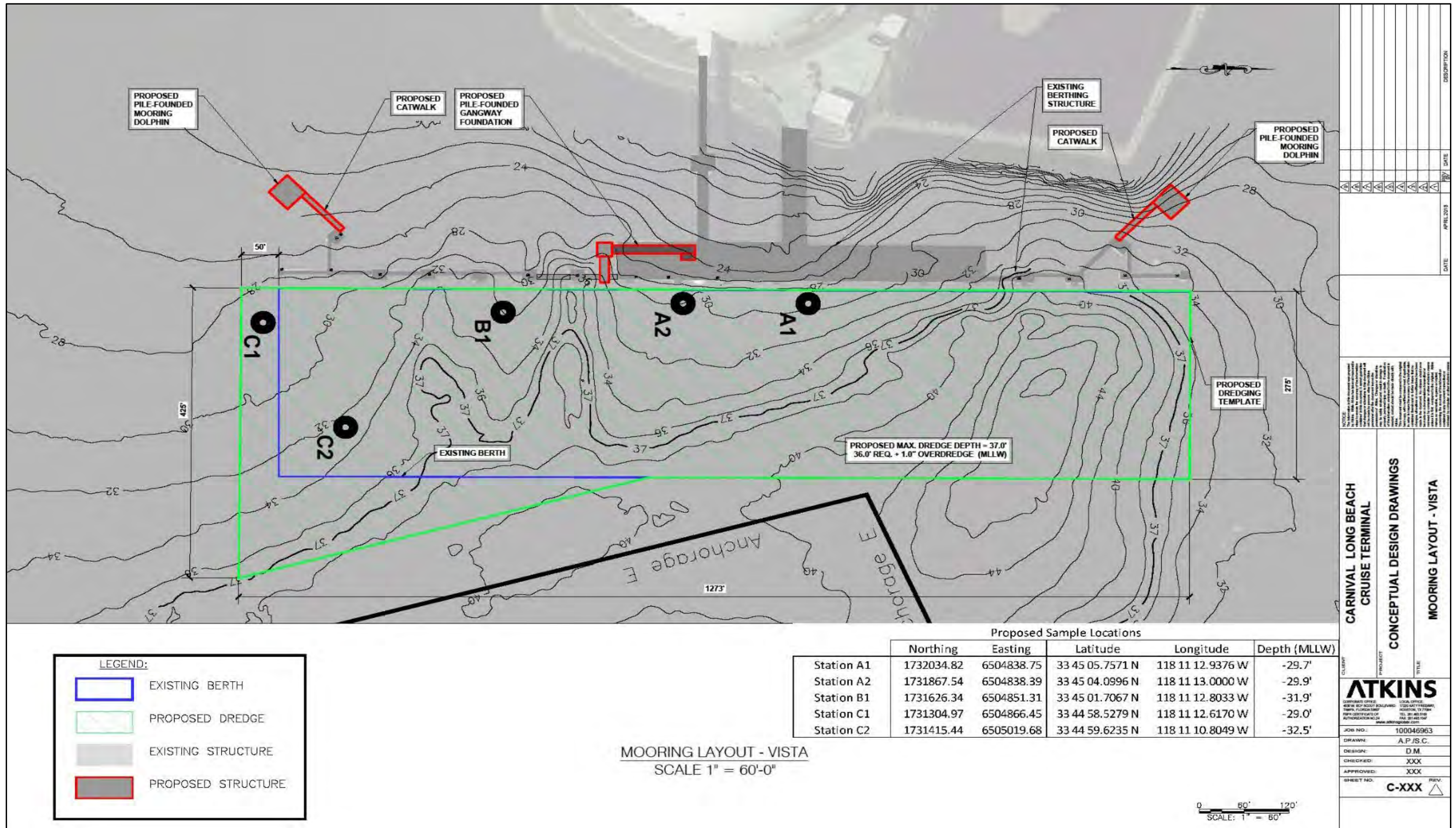


Figure 4. Close-up of the Long Beach Cruise Terminal Showing Bathymetric Data and Actual Sampling Locations.

1.2 Site Location

The Long Beach Cruise Terminal is located in Long Beach Harbor, California (Figure 1). Geographic coordinates (NAD 83) for the area of this project are approximately 33.7516° N and 118.1868° W.

1.3 Roles and Responsibilities

Project responsibilities and key contacts for this sediment characterization program are listed in Tables 1 and 2. Kinnetic Laboratories Inc. has provided the sampling and reporting services for this project. Analytical chemical testing of sediments for this project was primarily carried out by Eurofins Calscience (Cal-ELAP No. 2944). Tier III biological testing was carried out by Pacific EcoRisk (NELAP No. 04225CA).

Coordination of field operations, security requirements, and berthing options were made with the following contacts:

U.S. Coast Guard
 Notice to Mariners
D11LNM@uscg.mil.

Wilkin Mes
 Director, Long Beach Cruise Terminal at Carnival Cruise Lines
WMes@carnival.com

Port of Long Beach
 Harbor Patrol
 (562) 283-7820

Table 1. Project Team and Responsibilities

Responsibility	Name	Affiliation
Project Planning and Coordination	Mark Stroik	Atkins
	Brian Leslie	GHD
	Ken Kronschnabl	Kinnetic Laboratories
Sampling and Analysis Plan (SAP) Preparation	Mark Stroik	Atkins
	Minden Chan	Dewberry
Field Sample Collection and Transport	Charlie Davidson	Kinnetic Laboratories
	Dale Parent	Kinnetic Laboratories
Health and Safety Officer and Site Safety Plan	Greg Cotten	Kinnetic Laboratories
Laboratory Chemical Analyses	Kathy Burney	Eurofins
	Danielle Gonsman	Kinnetic Laboratories
Biological Testing	Mark McElroy	Pacific EcoRisk
QA/QC Management Analytical Laboratory QA/QC	Danielle Gonsman	Kinnetic Laboratories
	Amy Howk	Kinnetic Laboratories
	Kathy Burney	Eurofins
Technical Review	Ken Kronschnabl	Kinnetic Laboratories
	Mark Stroik	Atkins
	Brian Leslie	GHD
Final Report	Ken Kronschnabl	Kinnetic Laboratories
	Charlie Davidson	Kinnetic Laboratories
	Amy Howk	Kinnetic Laboratories

Table 2. Key Project Contacts

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2.0 SITE HISTORY AND HISTORICAL DATA REVIEW

This section provides a brief history of dredging activities at the Long Beach Cruise Terminal site.

2.1 January 2009 (Weston, 2009)

Sediments from the Long Beach Cruise Terminal berth area were collected and tested in 2009 by Weston for CH2MHill and Carnival Corporation. This project was associated with the maintenance dredging of the berth to its design depth of -30 ft MLLW, with a total dredging volume of approximately 2,000 cy. Cores were collected from three (3) stations and tested for physical and chemical characteristics. The test results were reported by Weston (2009) and summary results are provided in Appendix A.

The material was found to be predominantly fine-grained sediments consisting of 77-95% silt and clay across the sampling area. Moderate contaminant levels were present in the samples. Four metals (arsenic, copper, lead, and nickel) were found to exceed the NOAA Effects Range Low (ERL) benchmark value for marine sediment but did not exceed the Effects Range Median (ERM) for marine sediment (Long et al., 1995). Total DDTs exceeded the ERM threshold in the site-wide composite sample.

Additional tests of individual cores from the berth proper showed elevated PCBs and chlordane compared with the site-wide composite sample. PCBs and chlordane were found to exceed ERL and ERM values, respectively.

The elevated sediment levels of certain constituents were determined to be significant enough to preclude open-water disposal at the offshore ocean disposal site LA-2. As a result, biological testing was not conducted. Based on available information, the dredged material was temporarily stockpiled at Pier S in POLB (Manson, person. comm.) before being transported to a thermal treatment recycling Class II landfill facility operated by TPST Soil Recyclers of California in Adelanto, CA, for disposal as non-hazardous petroleum contaminated soil (BESI, 2009).

2.2 June 2000 (MEC, 2000)

Sediments from the Long Beach Cruise Terminal berth area were collected and tested in 2000 by MEC for Carnival Corporation (MEC, 2000) as part of a dredging project involving approximately 15,000 cy of material from the berth area. Cores were collected from four (4) stations and tested for physical and chemical characteristics. The test results are attached in Appendix B.

The material was found to be primarily silt (66-76%) and clay (12-21%). Sediment contamination levels were compared with the ERL and ERM levels. Metals and PAHs were found to be comparable or below the ERL levels. The only constituent that exceeded an ERM value was 4,4'-DDT at certain locations. PCBs and phenols were below reporting limits.

3.0 METHODS

This section describes the dredging design, study design and field and analytical methods for this testing program.

3.1 Sampling and Testing Design

The sampling and testing design in the project SAP and reiterated below covered data collection tasks for the Long Beach Cruise Terminal dredging, water elutriate sampling and testing, and the LA-2 reference area sampling and testing. Evaluation guidelines discussed in the SAP are also discussed below. The SAP originally had plans for testing for port fill requirements; however, this has been dropped from the program and only ocean disposal at the LA-2 ODMDS site is discussed in this report.

3.1.1 Sampling and Testing Approach

Sediment sampling was conducted at five (5) locations within the proposed Carnival Cruise Terminal dredge footprint as shown on Figure 4. The main approach was to sample sediments down to the new design depth plus allowable overdepth, composite individual samples together to form two composite samples, and subject the composite samples to chemical and biological testing to determine if the Long Beach Cruise Terminal dredge sediments are suitable for placement at the LA-2 ODMDS. The testing approach also included determining the physical properties of the sediments at each location and at different depths. Testing conducted followed the requirements and procedures detailed in the OTM (USACE/USEPA, 1991) with further guidance from Los Angeles District USACE guidelines (CESPL, undated) and from SC-DMMT draft guidelines. Acceptability guidelines published in these documents were used to evaluate suitability for the LA-2 ODMDS placement option.

3.2 Sample Identification, Composite Areas, Sediment Collection and Testing

Vibracore sampling, as described in Section 3.3.2 (Vibracore Sampling Methods), was carried out to collect subsurface sediment data from five locations at the Long Beach Cruise Terminal. The prefix for all vibracore locations used was “CCT-18-##-###” denoting the composite location and sample number in the ID. Sampling locations for each composite area sampled are shown on Figure 4. Geographic coordinates, approximate seafloor elevations, and elevations for the sample locations are listed in Table 3.

Table 3. Actual Sampling Location Coordinates, Date and Time of Sampling, Core Depths, Mudline Elevations, and Sampling Elevations for the Long Beach Cruise Terminal Dredging.

Comp. ID	Sample ID	Date Sampled	Time Sampled	Geographic Coordinates (NAD 83)		Mudline Elevation (ft MLLW)	Design Depth + Overdepth (ft MLLW) ¹	Core Recovery (ft)	Core Interval Sampled (ft., MLLW)	No. of Cores Collected
Composite-a	CCT-18-A1-a	10/30/2018	08:25	33° 45.095'	118° 11.215'	-30.0	-32.0	2.0	-30 to -32	10
	CCT-18-A2-a	10/30/2018	13:25	33° 45.068'	118° 11.217'	-30.5	-32.0	1.5	-30.5 to -32	6
Composite-b	CCT-18-A1-b	10/30/2018	08:25	33° 45.095'	118° 11.215'	-30.0	-38.5	11.0	-32 to -38.5 ²	1
	CCT-18-A2-b	10/30/2018	13:25	33° 45.068'	118° 11.217'	-30.5	-38.5	8.0	-32 to -38.5 ²	1
	CCT-18-B1-b	10/30/2018	17:00	33° 45.028'	118° 11.213'	-32.0	-38.5	10.8	-32 to -38.5 ²	1
	CCT-18-C1-b	10/31/2018	08:00	33° 44.975'	118° 11.210'	-29.5	-38.5	12.0	-29.5 to -38.5 ²	1
	CCT-18-C2-b	10/31/2018	08:40	33° 44.975'	118° 11.210'	-33.0	-38.5	8.5	-33 to -38.5 ²	1

¹ Design depth plus overdepth is the environmental sampling depth. Overdepth is two feet for all sample locations.

² This depth includes 0.5 feet of additional core for a Z-layer archive sample. The Z-layer archive was not included in the composite samples.

Stations A1 and A2 were located on the main shoal within the existing berth area. Station B1 was located toward the bow area of the existing berth on a shoal feature that historically occurred south of the main shoal. Since the depth at B1 is approximately at the historical maintenance depth of -32 ft MLLW, the cores from B1 consisted of new-work material only. Stations C1 and C2 were located around the south end of the existing berth on a prominent shoal that is historically present in the general area. Station C1 was located within the proposed extension area toward the south to characterize the material in the area that has never been dredged before. Sediments from C1 therefore consisted of new-work material only. Since the location of C2 was deeper than the historical maintenance depth of -32 ft MLLW, the cores from C2 also consisted of new-work material only.

Multiple cores were collected at each station. The total numbers of cores collected at individual stations was determined based on the sediment volume requirements of the physical, chemical, and biological test program. The number of cores collected are indicated in Table 3.

Vibracore borings were advanced to -38 feet MLLW plus an additional 0.5 feet to obtain a sample of material to be left in place after dredging (Z-layer). To account for potential dredging inaccuracies, the main core depth of -38 feet MLLW includes one foot of paid overdepth plus an additional foot of tolerance added to the proposed dredging design depth of -36 feet MLLW.

Cores collected from Stations A1 and A2 were stratified into three (3) discrete intervals as follows:

- Interval *a*: mudline to historical maintenance depth of -32 feet MLLW (maintenance material)
- Interval *b*: -32 to -38 feet MLLW (new-work material)
- Interval *z*: -38 to -38.5 feet MLLW (Z-layer)

Cores from Station C1, where no dredging has been conducted before, and Stations B1 and C2, where the existing depths are either at or greater than the historical maintenance depth of -32 feet MLLW, were stratified into two (2) discrete intervals only as follows:

- Interval *b*: mudline to -38 feet MLLW (new-work material)
- Interval *z*: -38 to -38.5 feet MLLW (Z-layer)

The individual segregated core sections at each station were then combined by interval into combined samples representing the corresponding intervals at the station, portions of which were then composited into areal composite samples for intervals *a* and *b* as follows:

- Composite-*a*: composite of Interval *a* from Stations A1 and A2 (maintenance material composite)
- Composite-*b*: composite of Interval *b* from all stations (new-work material composite)

Sediments below overdepth (sampling) elevations were not included in the sediment composite sample. The balance of the cores, together with all Z-layer samples, were archived for potential additional analyses as needed based on the findings of the tests. Archives samples included both the composite-*a* core interval (mudline to -32 feet, MLLW), the Composite-*b* core interval (-32 to -38 feet, MLLW) and the entire core interval from location CCT-18-C1-b. All chemistry archive samples are being stored frozen. Any excess sediment for Tier III testing was also archived until

holding times expired.

3.2.1 Environmental Testing

Bulk sediment analyses that were performed on the two area composite samples (Composite-*a* and Composite-*b*), on individual sample (C1-*b*), and the LA-2 reference sample are as follows:

- Grain Size Distribution (ASTM D 422)
- Specific Gravity (ASTM D 854 and C 127)
- Atterberg Limits (ASTM D 4318)
- Metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Se, Ag and Zn) (EPA 6020)
- Percent Solids (SM 2540B)
- Total Ammonia (SM 4500-NH3)
- Oil and Grease (EPA 1664A HEM)
- TRPH (EPA 1664A HEM SGT)
- Total Sulfides (EPA 376.2)
- Water Soluble Sulfides (EPA 376.2)
- TOC (EPA 9060A)
- TVS (EPA 160.4)
- Butyltins (Krone, et. al)
- Chlorinated Pesticides (EPA 8270C SIM + Toxaphene)
- Pyrethroid Pesticides (EPA 8270 (M)/TQ/E1)
- PCB Congeners (EPA 8270 SIM)
- Phenols (EPA 8270 SIM)
- Phthalates (EPA 8270 SIM)
- PAHs (EPA 8270 SIM)

A standard elutriate test (SET) was also prepared for the two area composite samples, the LA2-Reference sediment sample and the C1-*b* grab sediment sample, the elutriate was analyzed for the following:

- TSS (SM 2540D)
- TDS (SM 2540C)

Tier III testing conducted on the composite samples consisted of elutriate bioassays with three water column species, benthic bioassays with two infaunal species, and evaluation of bioaccumulation potential using two sediment-dwelling organisms. Benthic bioassays and bioaccumulation assays were also conducted on a sample of LA-2 reference sediments.

Five tissue replicates for each bioaccumulation species were analyzed for the following constituents:

- Arsenic (EPA 6020)
- Copper (EPA 6020)
- Lead (EPA 6020)
- Zinc (EPA 6020)

- DDT Compounds (EPA 8270C SIM)
- PCB Congeners (EPA 8270 SIM)

3.2.2 Summary of Carnival Cruise Line Terminal Testing and Evaluation Sequence

The testing and evaluation sequence for the Long Beach Carnival Cruise Line Terminal sediments is described in detail in the next subsection and is outlined as follows:

- 1) Bulk sediment chemical analyses were conducted on the two composite samples and one individual core as mentioned above.
- 2) Analytical results were evaluated using the sediment quality guidelines consisting of Effects Range Low (ERL) and Effects Range Medium (ERM) values developed by Long, *et al.* (1995) that correlate concentrations of selected contaminants with likelihood of adverse biological effects. Please note that ERLs and ERMs have not been developed for all analytes.
- 3) Tier III testing results were evaluated to determine if the sediments exceeded OTM and USEPA Region 9 criteria for open water placement.

In summary, if the sediments contaminant levels are low, the test sediments are not toxic to benthic organism compared to the reference sediments, the limiting permissible concentration was not exceeded with the elutriate bioassays, and the bioaccumulation potential of contaminants of concern from the test sediments is low compared to bioaccumulation potential of the reference sediments and to tissue residue biological effects, then the sediments are suitable for open water placement at the LA-2 ODMDS.

3.2.3 Evaluation Guidelines

As mentioned above, to aid in the evaluation of sediment test data, chemical concentrations of contaminants found within the sediments were compared to sediment quality guidelines (Long et al., 1995) developed by NOAA. These guidelines were used to screen sediments for contaminant concentrations that might cause biological effects. For any given contaminant, ERL guidelines represent the 10th percentile concentration value in the NOAA database that might be expected to cause adverse biological effects and ERM guidelines reflect the 50th percentile value in the database. Note that ERLs and ERMs were only used as a screening tool. They were not used to determine suitability.

As an additional measure of potential toxicity, the mean ERM quotient (ERMq) for the composite samples was calculated according to Long et al. (1998a) and Hyland et al. (1999). ERMq is calculated by dividing each contaminant concentration by its respective ERM value and then summing the results and dividing through by the number of contaminants as shown in the following equation:

$$ERMQuotient = \frac{1}{24} \sum \frac{SampleConcentration}{ERM}$$

In cases where concentrations of measured contaminants were below the method detection limit (MDL), a value of ½ the MDL was used for the ERMq calculations. For a general overall indication of toxicity, a quotient less than 0.1 is indicative of a low probability (<12%) of a highly

toxic response to marine amphipods (Long and MacDonald, 1998b). If there are no ERL exceedances in a sample, there is less than a 10% probability of a highly toxic response to marine amphipods. The probability of a highly toxic response increases to 71% for quotients greater than 1.0.

SPP bioassays using mysids, fish and the larvae of mussels were conducted on the sediment composite samples in order to evaluate water quality effects due to dumping of the sediments through the water column at the LA-2 ODMDS. Standard elutriates were prepared with site water from the harbor coring site locations, and water used to make the dilutions was from a clean open-coast source. Concurrent bioassays were performed on 100%, 50%, 10% and 1% elutriate concentrations and laboratory control water. Results of elutriate bioassays were statistically compared with control water bioassays. Elutriate extracts that produced significantly greater toxicity than control water, if any, were identified. OTM guidelines for interpretation of suspended particulate-phase bioassays require that initial mixing calculations be performed to determine the concentration of liquid and suspended particulate material at the edge of the mixing zone after dumping and within the mixing zone four hours after dumping for any sample producing toxicity sufficient to generate an LC₅₀ or EC₅₀. The statistical calculations to determine LC₅₀s and EC₅₀s are through interpolations. If the concentration at the edge of the mixing zone or within the mixing zone four hours after dumping does not exceed 1% of the LC₅₀ or EC₅₀, the sediment is judged to comply with water column toxicity criteria.

Solid phase (SP or benthic) bioassays were also conducted for ocean placement using polychaete worms and amphipods. Benthic bioassay results were statistically compared with bioassay results from reference sediments collected in the vicinity of LA-2 ODMDS and with control sediments collected from the organisms' home environment. Guidelines for interpretation of benthic bioassay results are published in the OTM. If survival responses in test sediment are statistically lower than those in reference sediment, and if the difference in mean survival between groups is greater than 10% (20% for amphipods), then the test sediment is considered to have the potential to significantly degrade the marine environment.

Twenty-eight-day bioaccumulation exposures were performed on the composite samples. Composite sediment exposures were run concurrently with exposures to LA-2 reference and control sediments.

The final phase of testing for open water placement was accomplished by analyzing the tissues of organisms that have completed 28-day exposure to test sediments along with baseline, control and reference sediments. A memorandum summarizing the sediment chemistry and bioassay results was submitted to the USEPA in late November 2018 (GHD, 2018). This memorandum recommended that the tissues derived from the bioaccumulation exposures be analyzed for arsenic, copper, lead, zinc, DDT compounds and PCB congeners. During a November 29, 2018 teleconference, USEPA concurred with the tissue analysis recommendations. After the tissue analyses were complete, concentrations of tissue residues from organisms exposed to reference sediments were compared with concentrations in organisms exposed to test sediments. Statistically elevated concentrations in the test tissues are considered to be potentially bioaccumulative. If this was the case for any given contaminant, then tissue residue data were evaluated to determine if these levels are important in terms of biological effects. These included

comparisons to FDA Action Levels and relevant (lowest or no observable effects concentrations for whole body effects) Toxicity Reference Values (TRVs) from USACE's Environmental Residue-Effects Database (ERED) (<https://ered.el.erdc.dren.mil/>).

3.3 Field Sampling Protocols

The field effort for this project took place from October 30 and 31, 2018. Vibracore sampling, reference site sampling, decontamination, sample processing and documentation procedures are discussed in this section.

3.3.1 Positioning and Depth Measurements

Positioning at sampling locations was accomplished using a differential GPS (DGPS) navigation system referenced to a local geodetic benchmark with positioning accuracies of 3 to 10 feet. The locations were recorded in both Geographic Coordinates (NAD 83) and State Plane Coordinates (CA Zone VI, NAD 83). Water depths were measured with a graduated lead line and corrected to mean lower low water (MLLW). Tidal stage was determined using NOAA real-time tidal stage data. These tide data were used to calculate the seafloor elevation/mudline for each site.

All sampling locations were located within 10 feet of project SAP target coordinates.

3.3.2 Vibracore Sampling Methods

All sediment samples were collected on October 30 and 31, 2018, using an electric vibracore that penetrated and obtained samples below the project sample elevations. The cores were taken to the target sampling elevations (project design elevations plus two feet for overdepth allowance). Refusal above the overdepth location was not encountered at any sampling location. At the conclusion of a successful vibracore, the core liner was removed and split open for inspection and sampling. Extrusion of the core was not allowed. Processing took place onboard the sampling vessel.

Vibracore sampling was conducted from the 35-foot Research Vessel *DW Hood*. This vessel, with a Uniflite hull, is outfitted with a 14-foot tall A-frame and 4-ton winch, suitable for handling the coring equipment. This vessel is fully equipped with all the necessary navigation, safety, and lifesaving devices per Coast Guard requirements. Three-point anchoring was conducted at each location with the assistance of a 17-foot Boston Whaler.

Kinnetic Laboratories' vibracore consists of a 4-inch diameter aluminum coring tube, a stainless steel cutting tip, and a stainless-steel core catcher. Inserted into the core tubes was food-grade clean polyethylene liners. The vibrating unit contains two counter-rotating motors encased in a waterproof aluminum housing. The motors are powered by a three-phase, 240-volt generator. The vibracore head and tube were lowered overboard with the A-frame and winch and then lowered to the mudline. The unit was then vibrated until it reached the target sampling elevation.

When penetration of the vibracore was complete, power was shut off to the vibra-head and the vibracore was brought aboard the *DW Hood*. A check valve, located on top of the core tube,

reduced or prevented sediment loss during pull-out. The length of sediment recovered was noted by measuring down the interior of the core tube to the top of the sediment. The core tube was then detached from the vibra-head, and the core cutting tip and catcher were removed. Afterwards, the core liners were removed and sealed on both ends and kept sealed until processed, which occurred shortly after collection.

3.3.3 Vibracore Decontamination

All sample contact surfaces were stainless-steel or food-grade clean polyethylene. Compositing tools were stainless steel. Except for the core liners, all contact surfaces of the sampling devices and the coring tubes were cleaned for each sampling area. The cleaning protocol consisted of a site water rinse, a Micro-90[®] soap wash, and then finished with deionized water rinses. The polyethylene core liners were new for each core. All rinsate was collected in containers and disposed of properly.

3.3.4 Core Processing

Whole cores were processed on deck. Cores were placed in a PVC core rack that was cleaned between cores. After placement in the core rack, core liners were split lengthwise to expose the recovered sediment. Once exposed, sediment that came in contact with the core liner was removed by scraping with a pre-cleaned stainless steel spoon. Each core was then photographed, measured, and logged according procedures at Kinnetic Laboratories.

Photographs were taken of each core (each photograph covered a maximum two-foot interval), and of sampling equipment and procedures. These pictures are provided in Appendix C along with the field logs.

Following logging, vertical composite subsamples for archiving and horizontal composite formation along with samples for grain size analyses were then formed by combining and homogenizing a representative sample from the mudline to the sampling depth for the specific composite sample, as described in Section 3.2.2, in a pre-cleaned stainless steel or Teflon[®]-coated tray. A 0.5-liter portion of each vertical composite subsample was placed in a pre-cleaned and certified glass jar with a Teflon[®]-lined lid for archived material. An additional representative portion of each vertical composite subsample was placed in a large pre-cleaned mixing bowl for area compositing. These composited sediments were placed in two 1-liter pre-cleaned and certified glass jars with a Teflon[®]-lined lids. All remaining material from each core after subsample formation and composite chemistry sample formation was placed in food-grade clean, 5-gallon LPDE bucket liners for the Tier III biological analyses. This material was later composited at Kinnetic Laboratories' facility in Santa Cruz on November 5, 2018 using a large commercial bread mixer and stainless-steel bowl. The composited sediment was delivered to Pacific EcoRisk on November 6, 2018.

Except for chemistry archival material, containers were completely filled to minimize air bubbles being trapped in the sample container. A small amount of headspace was allowed for archived chemistry samples to prevent container breakage during freezing. For the preservation of all sediment composite chemistry samples, filled containers were placed on ice immediately

following sampling and maintained at 2 to 4°C until analyzed. Archived samples for chemistry were placed on ice initially and then frozen as soon as possible. The sample containers, both jars and bags, were sealed to prevent any moisture loss and possible contamination.

3.3.5 LA-2 Reference and Control Sediments

The LA-2 reference site sample for Tier II and Tier III testing was obtained on October 31, 2018, using a chain-rigged, pipe dredge deployed from the *DW Hood*. Sampling took place in the vicinity of 33° 33' 1.2" N and 118° 10' 4.8" W in 598 feet of water (Figure 5). Navigation, sample compositing, recording, and preservation procedures followed those described for vibracore sampling.

Samples of control sediment were collected for biological testing by the laboratory. Control sediment for the solid phase bioassays and bioaccumulation exposures were the “home sediment” from the areas where the animals were collected.

3.3.6 Water Collection

Water was collected from in front of the Long Beach Cruise Terminal on October 30, 2018, for use in preparing elutriates for the SPP bioassays. Water was pumped using protocol cleaned hose and placed into QC grade cubitainers. Water samples were iced and delivered to the bioassay laboratory with the sediment samples, where they were held at 4°C until used.

3.3.7 Documentation and Sample Custody

All samples had their containers physically marked as to sample location, date, time and analyses. All samples were handled under Chain of Custody (COC) protocols beginning at the time of collection. Redundant sampling data was also recorded on field data log sheets. Copies of the field data logs are included in Appendix C.

Samples were considered to be “in custody” if they were (1) in the custodian’s possession or view, (2) in a secured place (locked) with restricted access, or (3) in a secure container. Standard COC procedures were used for all samples collected, transferred, and analyzed as part of this project. COC forms were used to identify the samples, custodians, and dates of transfer. Except for the shipping company, each person who had custody of the samples signed the COC form and ensured samples were stored properly and not left unattended unless properly secured.

Standard information on Chain of Custody forms included:

- Sample Identification
- Sample Collection Date and Time
- Sample Matrices (e.g., marine sediment)
- Analyses to be Performed
- Container Types
- Preservation Method
- Sampler Identification
- Dates of Transfer

- Names of Persons with Custody



Figure 5. Location of LA-2 Reference Site.

The completed COC forms were placed in a sealable plastic bag and taped to the inside of one or more coolers. COC records are included with the laboratory reports in Appendix D for the chemistry samples and Appendix E for the biological samples.

3.4 Laboratory Testing Methods

Physical and analytical chemical testing of sediments for this project used USEPA and USACE approved methodologies.

3.4.1 Bulk Sediment Chemical Analyses

The composite samples collected from the Long Beach Cruise Terminal and the LA-2 reference sample were analyzed for the parameters and quantification limits summarized in Table 4. Similar parameters and quantification limits were used for the individual core sample. All results are reported in dry weight unless noted otherwise. All analyses were conducted in a manner consistent with guidelines for dredge material testing methods in the USEPA/USACE ITM and OTM. Samples were extracted and analyzed within specified USEPA holding times, and all analyses were accomplished with appropriate quality control measures.

Discrete chemistry samples from each location not already analyzed are still being archived frozen. If required, additional direction will be provided for analysis of these archives.

3.4.2 Elutriate Preparation Methods and Chemical Analysis

Standard elutriate test (SET) samples were prepared according to OTM methods by Pacific EcoRisk (PER). Sediment were mixed with dredge site water in a 4:1 volumetric ratio. Vigorous mixing proceeded for 30 minutes, and the mixture was allowed to settle undisturbed for one hour. The supernatant (100% elutriate) was then siphoned off for bioassay testing without disturbing the settled material. TSS and TDS samples were also taken and analyzed from the prepared elutriates by Pacific EcoRisk. Additional sediment was collected from Paradise Cove (located in Central San Francisco Bay) on September 25, 2018 for use as the negative Control sediment (termed “Lab Control”) for the *A. abdita*, *N. arenaceodentata*, *M. nasuta*, and *N. virens* tests.

Modified elutriate test (MET) samples were also prepared and run by Eurofins Calscience. However, these results are not included in this report.

3.4.3 Tier III Biological Testing

The composite samples and the individual core sample along with LA-2 reference and control sediments (as mentioned above) were tested for toxicity and used for bioaccumulation exposures. Bioassay testing protocols followed the OTM for both SPP and SP bioassays and for the bioaccumulation exposures. Species, methods and endpoints used for the bioassays and bioaccumulation exposures are listed in Table 5. All bioassay species used in this testing program complied with OTM and ITM recommendations and guidelines for bioassay tests.

Table 4. Sediment Analytical Methods and Target Quantitation Limits Achieved.

Analyte	Method	Method Detection Limits (Dry Weight)	Laboratory Reporting Limits (Dry Weight)	USACE Target Detection Limits
CONVENTIONALS (mg/kg dry except where noted)				
Total Solids	SM 2540	0.1	0.1	0.1
Ammonia	SM 4500-NH3 B/C (M)	0.19 – 0.22	0.34 – 0.39	0.5
Oil & Grease	EPA 1664A (M) HEM	14 – 15	17 – 20	25
TRPH	EPA 1664A (M) HEM-SGT	14 – 16	17 – 20	25
Sulfides, Dissolved	Plumb (1981)	0.017	0.1	0.1
Sulfides, Total	Plumb (1981)	0.15 – 8.2 ¹	0.18 – 9.8 ¹	0.1
TOC (%)	EPA 9060A	0.03 – 0.034	0.086 – 0.098	0.1
TDS	SM 2540	0.87	100 ¹	2.5
TSS	SM 2540	0.829 – 0.83	1	5
TVS	SM 2540	0.18 – 0.19	0.18 – 0.19	0.1
METALS (mg/kg dry)				
Arsenic	EPA 6020	0.151 – 0.171	0.172 – 0.196	0.2
Cadmium	EPA 6020	0.0987 – 0.112	0.172 – 0.196	0.2
Chromium	EPA 6020	0.107 – 0.121	0.172 – 0.196	0.2
Copper	EPA 6020	0.0723 – 0.082	0.172 – 0.196	0.2
Lead	EPA 6020	0.114 – 0.129	0.172 – 0.196	0.2
Mercury	EPA 7471A	0.0111 – 0.0102	0.0379 – 0.0348	0.04
Nickel	EPA 6020	0.0873 – 0.0991	0.172 – 0.196	0.2
Selenium	EPA 6020	0.126 – 0.143	0.172 – 0.196	0.2
Silver	EPA 6020	0.054 – 0.0613	0.172 – 0.196	0.2
Zinc	EPA 6020	1.37 – 1.56	1.72 – 1.96	0.2
ORGANICS-CHLORINATED PESTICIDES (µg/kg dry)				
2,4' DDD	EPA 8270C PEST-SIM	0.13 – 0.15	0.34 – 0.39	2
2,4' DDE	EPA 8270C PEST-SIM	0.061 – 0.068	0.34 – 0.39	2
2,4' DDT	EPA 8270C PEST-SIM	0.11 – 0.12	0.34 – 0.39	2
4,4' DDD	EPA 8270C PEST-SIM	0.07 – 0.71	0.34 – 0.39	2
4,4' DDE	EPA 8270C PEST-SIM	0.071 – 0.79	0.34 – 0.39	2
4,4' DDT	EPA 8270C PEST-SIM	0.091 – 0.1	0.34 – 0.39	2
Total DDT	EPA 8270C PEST-SIM	--	0.34 – 0.39	2
Aldrin	EPA 8270C PEST-SIM	0.065 – 0.074	0.34 – 0.39	2
BHC-alpha	EPA 8270C PEST-SIM	0.099 – 0.11	0.34 – 0.39	2
BHC-beta	EPA 8270C PEST-SIM	0.12 – 0.13	0.34 – 0.39	2
BHC-delta	EPA 8270C PEST-SIM	0.16 – 0.18	0.34 – 0.39	2
BHC-gamma (Lindane)	EPA 8270C PEST-SIM	0.059 – 0.067	0.34 – 0.39	2
Chlordane (Technical)	EPA 8081A	9 – 10	17 – 19 ¹	10
Dieldrin	EPA 8270C PEST-SIM	0.18 – 0.21	0.34 – 0.39	2
Endosulfan sulfate	EPA 8270C PEST-SIM	0.18 – 0.2	0.34 – 0.39	2
Endosulfan I	EPA 8270C PEST-SIM	0.1 – 0.11	0.34 – 0.39	2
Endosulfan II	EPA 8270C PEST-SIM	0.16 – 0.18	0.34 – 0.39	2
Endrin	EPA 8270C PEST-SIM	0.098 – 0.11	0.34 – 0.39	2
Endrin aldehyde	EPA 8270C PEST-SIM	0.17 – 0.19	0.34 – 0.39	2
Endrin ketone	EPA 8270C PEST-SIM	0.096 – 0.11	0.34 – 0.39	2
Heptachlor	EPA 8270C PEST-SIM	0.089 – 0.1	0.34 – 0.39	2
Heptachlor epoxide	EPA 8270C PEST-SIM	0.077 – 0.086	0.34 – 0.39	2
Methoxychlor	EPA 8270C PEST-SIM	0.12 – 0.13	0.34 – 0.39	2
Toxaphene	EPA 8081A	15 – 17	34 – 39	40

Table 4 (Continued). Sediment Analytical Methods and Target Quantitation Limits Achieved.

Analyte	Method	Method Detection Limits (Dry Weight)	Laboratory Reporting Limits (Dry Weight)	USACE Target Detection Limits
ORGANICS-Pyrethroid Pesticides (µg/kg dry)				
Allethrin (Bioallethrin)	EPA 8270D (M)/TQ/EI	0.43 – 0.49	0.86 – 0.97	1
Bifenthrin	EPA 8270D (M)/TQ/EI	0.52 – 0.58	0.86 – 0.97	1
Cyfluthrin-beta (Baythroid)	EPA 8270D (M)/TQ/EI	0.43 – 0.49	0.86 – 0.97	1
Cyhalothrin-Lamba	EPA 8270D (M)/TQ/EI	0.43 – 0.49	0.86 – 0.97	1
Cypermethrin	EPA 8270D (M)/TQ/EI	0.43 – 0.49	0.86 – 0.97	1
Deltamethrin (Decamethrin)	EPA 8270D (M)/TQ/EI	0.43 – 0.49	0.86 – 0.97	1
Esfenvalerate	EPA 8270D (M)/TQ/EI	0.43 – 0.49	0.86 – 0.97	1
Fenpropathrin (Danitol)	EPA 8270D (M)/TQ/EI	0.43 – 0.49	0.86 – 0.97	1
Fenvalerate (sanmarton)	EPA 8270D (M)/TQ/EI	0.43 – 0.49	0.86 – 0.97	1
Fluvalinate	EPA 8270D (M)/TQ/EI	0.43 – 0.49	0.86 – 0.97	1
Permethrin (cis and trans)	EPA 8270D (M)/TQ/EI	0.86 – 0.97	1.7 – 1.9 ¹	1
Resmethrin/Bioresmethrin	EPA 8270D (M)/TQ/EI	0.73 – 0.83	0.86 – 0.97	1
Sumithrin (Phenothrin)	EPA 8270D (M)/TQ/EI	0.43 – 0.49	0.86 – 0.97	1
Tetramethrin	EPA 8270D (M)/TQ/EI	0.52 – 0.58	0.86 – 0.97	1
Tralomethrin	EPA 8270D (M)/TQ/EI	0.43 – 0.49	0.86 – 0.97	1
ORGANICS-BUTYLTINS (µg/kg dry)				
Monbutyltin	Krone et al., 1989	2.4 – 2.7	5.1 – 5.8	6
Dibutyltin	Krone et al., 1989	1.2 – 1.4	5.1 – 5.8	6
Tributyltin	Krone et al., 1989	2.5 – 2.9	5.1 – 5.8	6
Tetrabutyltin	Krone et al., 1989	1.3 – 1.4	5.1 – 5.8	6
ORGANICS-PHTHALATES (µg/kg dry)				
bis(2-ethylhexyl) phthalate	EPA 8270C (SIM)	2.6 – 3	85 – 98	50
Butyl benzyl phthalate	EPA 8270C (SIM)	3.3 – 3.9	85 – 98	50
Diethyl Phthalate	EPA 8270C (SIM)	2.7 – 3.2	85 – 98	50
Dimethyl Phthalate	EPA 8270C (SIM)	3.4 – 3.9	85 – 98 ¹	50
Di-n-butyl Phthalate	EPA 8270C (SIM)	3.2 – 3.7	85 – 98	50
Di-n-octyl Phthalate	EPA 8270C (SIM)	3.2 – 3.7	85 – 98	50
ORGANICS-PHENOLS (µg/kg dry)				
2,4,5-Trichlorophenol	EPA 8270C (SIM)	2.1 – 2.4	17 – 20	10
2,4,6-Trichlorophenol	EPA 8270C (SIM)	2.2 – 2.6	17 – 20	20
2,4-Dichlorophenol	EPA 8270C (SIM)	2.9 – 3.3	17 – 20	20
2,4-Dimethylphenol	EPA 8270C (SIM)	4.4 – 5.1	850 – 980	20
2,4-Dinitrophenol	EPA 8270C (SIM)	100 - 120	850 – 980	1000
2-Chlorophenol	EPA 8270C (SIM)	3.2 – 3.6	17 – 20	20
2-Methyl-4,6-dinitrophenol	EPA 8270C (SIM)	110 – 130	850 – 980	-- ¹
2-Methylphenol	EPA 8270C (SIM)	3.3 – 3.8	17 – 20	20
2-Nitrophenol	EPA 8270C (SIM)	2.8 – 3.3	850 – 980 ¹	20
3+4-Methylphenol	EPA 8270C (SIM)	6.2 – 7.1	17 – 20	-- ¹
4-Chloro-3-methylphenol	EPA 8270C (SIM)	3.5 - 4	17 – 20	20
Bisphenol A	EPA 8270C Bisphenol	3.6 – 4.1	17 – 20	-- ¹
Pentachlorophenol	EPA 8270C (SIM)	2.2 – 2.6	850 – 980	1000
Phenol	EPA 8270C (SIM)	3.9 – 4.5	17 – 20	30

Table 4 (Continued). Sediment Analytical Methods and Target Quantitation Limits Achieved.

Analyte	Method	Method Detection Limits (Dry Weight)	Laboratory Reporting Limits (Dry Weight)	USACE Target Detection Limits
ORGANICS-PCBs (µg/kg dry)				
PCB congeners of: 018, 028, 037, 044, 049, 052, 066, 070, 074, 077, 081, 087, 099, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138/158, 149, 151, 153, 156, 157, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, 206	EPA 8270C (SIM)	0.058 – 0.69 ¹	0.34 – 0.78	0.5
Total PCBs as sum of all individual PCB congeners	EPA 8270C (SIM)			0.5
ORGANICS-PAHs (µg/kg dry)				
1-Methylnaphthalene	EPA 8270C (SIM)	1.8 – 2.1	17 – 20	20
2-Methylnaphthalene	EPA 8270C (SIM)	2.8 – 3.2	17 – 20	20
Acenaphthene	EPA 8270C (SIM)	2.6 – 3	17 – 20	20
Acenaphthylene	EPA 8270C (SIM)	2.8 – 3.3	17 – 20	20
Anthracene	EPA 8270C (SIM)	3.3 – 3.8	17 – 20	20
Benzo[a]anthracene	EPA 8270C (SIM)	2.4 – 2.8	17 – 20	20
Benzo[a]pyrene	EPA 8270C (SIM)	2.4 – 2.7	17 – 20	20
Benzo[b]fluoranthene	EPA 8270C (SIM)	2.4 – 2.8	17 – 20	20
Benzo[g,h,i]perylene	EPA 8270C (SIM)	2.6 – 3	17 – 20	20
Benzo[k]fluoranthene	EPA 8270C (SIM)	2.5 – 2.9	17 – 20	20
Chrysene	EPA 8270C (SIM)	2.3 – 2.7	17 – 20	20
Dibenzo[a,h]anthracene	EPA 8270C (SIM)	2.5 – 2.8	17 – 20	20
Fluoranthene	EPA 8270C (SIM)	3 – 3.4	17 – 20	20
Fluorene	EPA 8270C (SIM)	2.8 – 3.2	17 – 20	20
Indeno[1,2,3-c,d]pyrene	EPA 8270C (SIM)	2.2 – 2.6	17 – 20	20
Naphthalene	EPA 8270C (SIM)	2.6 – 3	17 – 20	20
Phenanthrene	EPA 8270C (SIM)	2.9 – 3.4	17 – 20	20
Pyrene	EPA 8270C (SIM)	2.8 – 3.2	17 – 20	30

¹ Higher reporting limits due to dilution of the samples with no non-detects reported.

Table 5. Species, Methods, and End-Points for Biological Testing.

Test Type	Species	Method	End Points
SPP Bioassays:			
Bivalve Larvae	<i>Mytilus galloprovincialis</i>	EPA-600-R-95/136 (1995) ASTM E724-98 (2013a)	48 hr. survival and normal embryonic development
Mysid	<i>Americamysis bahia</i>	EPA-821-R-02-012 (2002)	96-hour survival
Teleost Fish	<i>Menidia beryllina</i>	EPA/600/R-94/025 (1991)	96-hour survival
SP Bioassays:			
Amphipod	<i>Ampelisca abdita</i>	ASTM E 1367-99 (2013b) USEPA 1994	10-day survival
Polychaete worm	<i>Neanthes arenaceodentata</i>	ASTM E 1611-00 (2013c)	10d-day survival
BIOACCUMULATION EXPOSURES:			
Clam	<i>Macoma nasuta</i>	ASTM E-1688-00a (2013d)	28-day benthic exposure
Worm	<i>Nereis virens</i>	ASTM E-1688-00a (2013d)	28-day benthic exposure

Upon arrival at Pacific EcoRisk on November 6, 2018, the temperatures of the sediments and routine water quality parameters (i.e. temperature, dissolved oxygen, salinity, and pH) of the waters were measured. Sediment porewater for total ammonia analysis was collected by centrifuging samples at 2,500g for 15 minutes; the resulting supernatant was carefully collected and analyzed for routine water quality characteristics (Table 6). All samples were stored at 4° Celsius (C) prior to use.

Table 6. Sediment Porewater Initial Water Quality Characteristics

Sample ID	pH	Salinity (ppt)	Total Ammonia (mg/L N)	Total Sulfide (mg/L)
LA2-Ref	7.66	33.9	2.12	0.022
CCT-18-Composite- <i>a</i>	7.73	33.6	9.76	0.091
CCT-18-Composite- <i>b</i>	7.75	33.1	18.8	0.026

The concentration of total ammonia in Composite-*b* sample exceeded the recommended threshold of 15 mg/L. Therefore, ammonia purging was conducted on this sample prior to SP test initiation through twice daily overlying water replacement coupled with aeration until the porewater total ammonia levels dropped below 15 mg/L.

The natural seawater used in these tests was obtained from the UC Davis Granite Canyon Marine Laboratory and is characterized as “pristine”; this water was stored at the PER laboratory in a 3000-gallon insulated HDPE tank maintained at 4°C. This seawater was 1-µm filtered and then adjusted to the desired test salinity (e.g., 28 ppt) via addition of Type 1 lab water (reverse osmosis, de-ionized water) prior to use in these tests (these diluted natural seawaters are referred to using the adjusted salinity level [e.g., ‘28 ppt seawater’]).

Bioassays

Multiple dilutions of elutriates for the SPP bioassays was prepared for testing. Testing was initiated on November 15, 2018 for *M. galloprovincialis*, *M. beryllina*, and *A. bahia*. All three species used were exposed to 100%, 50%, 10%, and 1% elutriate concentrations along with a 0% control concentration.

The SP bioassays were initiated on November 16, 2018 for *Neanthes arenaceodentata* and November 15, 2018 for *Ampelisca abdita*.

For all tests, water quality parameters (pH, temperature, salinity and dissolved oxygen) were monitored on a daily basis. Water samples from test chambers were also collected at specified intervals to monitor ammonia concentrations. For all bioassay tests, water samples for ammonia analysis were collected at test initiation and termination. All water quality monitoring data are provided in the bioassay laboratory report included as Appendix E.

Bioaccumulation Exposures

Prior to tissue analyses, the OTM and ITM requires a 28-day exposure period of two benthic species to test, reference, and control sediments following the methods listed in Table 5. Test species used, which conform to OTM and ITM recommendations, were as follows:

Nereis virens (worm) *Macoma nasuta* (clam)

These tests were initiated on November 14 and 15, 2018, respectively.

Water quality parameters (pH, temperature, salinity, dissolved oxygen, and ammonia) were monitored on overlying composite water samples each day of the 28 days of exposures. The animals were added to the test tanks and day zero began approximately 24 hours after the sediments and water were allowed to equilibrate. Water changes in the test aquaria were conducted approximately three times a week.

After 28 days of exposure, the sediment from each replicate was sieved and the surviving bivalves and polychaetes were collected and enumerated. The organisms were rinsed with clean seawater and then placed back into their original plastic tubs (now emptied of sediment and rinsed out) containing only 1 µm-filtered seawater to allow for depuration of the gastro-intestinal tracts. Approximately 24 hours later, the organisms were collected and placed inside Ziploc bags that were sealed and labeled for identification. These organisms were then frozen and stored in a sample

freezer. The frozen test organisms were subsequently shipped, on dry ice and under chain-of-custody, to Eurofins Calscience for remaining tissue processing and chemical analyses.

Tissue Chemistry

Methods and quantification limits used for the tissue analyses are provided in Table 7. The tissues were extracted and analyzed between December 28, 2018 and January 8, 2019. The results were reported in wet weight unless noted otherwise.

Table 7. Tissue Analytical Methods and Quantitation Limits Achieved.

Analyte	Method	Method Detection Limits (Dry Weight)	Laboratory Reporting Limits (Dry Weight)	SAP Reporting Limits (Wet Weight)
CONVENTIONALS (mg/kg except where noted)				
Lipids (% wet weight) ²	MeCl ₂ Extraction	0.1	0.1	0.1
ORGANICS-CHLORINATED PESTICIDES (µg/kg)				
2,4' DDD	EPA 8270C (SIM)	0.075 – 0.076	0.2	0.2
2,4' DDE	EPA 8270C (SIM)	0.034 – 0.035	0.2	0.2
2,4' DDT	EPA 8270C (SIM)	0.061 – 0.062	0.2	0.2
4,4' DDD	EPA 8270C (SIM)	0.039 – 0.04	0.197 – 0.2	0.2
4,4' DDE	EPA 8270C (SIM)	0.04 – 0.0405	0.197 – 0.2	0.2
4,4' DDT	EPA 8270C (SIM)	0.05184 – 0.053	0.197 – 0.2	0.2
Total DDT	EPA 8270C (SIM)	--	0.197 – 0.2	0.2
Arsenic	EPA 6020	0.047 – 0.04705	0.1	0.2
Cadmium	EPA 6020	0.0286 – 0.02861	0.1	0.2
Chromium	EPA 6020	0.01927 – 0.0193	0.1	0.2
Copper	EPA 6020	0.02096 – 0.0210	0.1	0.2
Lead	EPA 6020	0.03295 – 0.0330	0.1	0.2
Mercury	EPA 7471A	0.00329 – 0.005871	0.00895 – 0.01597	0.04
Nickel	EPA 6020	0.0253 – 0.02532	0.1	0.2
Selenium	EPA 6020	0.0834 – 0.08345	0.1	0.2
Silver	EPA 6020	0.0156 – 0.01565	0.1	0.2
Zinc	EPA 6020	0.397 – 0.3974	0.1	0.2
ORGANICS-PCBs (µg/kg)				
PCB congeners of: 018, 028, 037, 044, 049, 052, 066, 070, 074, 077, 081, 087, 099, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138/158, 149, 151, 153, 156, 157, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206.	EPA 8270C (SIM)	0.033 – 0.1928	0.199 – 0.4	0.5
Total PCBs as sum of all individual PCB congeners.	EPA 8270C (SIM)	--	0.199 – 0.4	0.5

Statistical Evaluations

Statistical analysis of experimental data was performed for each of the bioassay and bioaccumulation assessments. Tests of fundamental data assumptions (e.g., normality and variance homogeneity) were performed followed by the appropriate parametric or non-parametric analyses in accordance with the ITM and OTM.

Experiment-wide survival data from species bioassays were analyzed using one-way analysis of variance (ANOVA). Multiple comparison t-tests were then used to compare survival in each of the test sediments against survival in control sediment and reference sediment for normally distributed data. Wilcoxon Rank Sum Two Samples tests were run on non-normally distributed data. Prior to analyses, normality was evaluated with the Shapiro-Wilk test and homogeneity of variance was assessed with either Bartlett's Test or the F-Test. When necessary to satisfy these assumptions, proportional survival data were arcsine square-root transformed. Solid-phase statistical analyses were performed with CETIS® Version 1.9.2 statistical software.

Statistical analyses of all bioassay species and reference toxicant data were also performed using CETIS® Version 1.9.2 software. Comparisons between the dilution water and each test concentration were performed using either the equal variance two sample t-test or the Dunnett's Multiple Comparison test if data displayed homogenous variance and a normal distribution. Data with heterogeneous variance, or non-normal distributions were analyzed using Steel's Many-One Rank Sum test. Normality was evaluated with the Shapiro-Wilk test and homogeneity of variance was assessed with the Bartlett test, the F-Test or the Levene test.

Bioaccumulation assessment of tissues for two species was conducted. Arsenic, copper, lead, and zinc were detected in both species tissues and were analyzed statistically. Three of six DDT congeners and total DDT were evaluated for both *Macoma* and *Nereis* tissues. PCB congeners were not evaluated for *Macoma* due to numerous non-detected values but were analyzed for *Nereis*. The Composite-*a* and Composite-*b* samples were analyzed against the LA-2 reference sediments and control sediments when the composite means were higher than the reference means.

Analysis of the bioaccumulation from this set of tissue data generally followed the recommendations outlined in the OTM Section 13, Statistical Analysis for the 28-day dredged sediments vs. "reference" scenario. The statistical program XLSTAT (version 2019) by Addinsoft (www.xlstat.com) was used to find test site vs. reference differences. The non-parametric procedure for Two-Sample T-Tests was used on data without non-detected (ND) concentrations. The null hypothesis in this case assumes that the test sites are not significantly greater than the reference or control category, so it is a one-way probability layout ($p \leq 0.05$). In cases where non-detected data occurred in 50% or less of the samples, the Logrank test with equal weighing can be used. Where more than 50% of the samples were NDs, hypothesis testing was not to be performed because results are considered to be unreliable. The Logrank test was performed using the NCSS (version 12) statistical program (www.ncss.com). The Logrank test compares parametrically or by randomization techniques two survival curves generated by non-parametric Kaplan-Meier methods.

When NDs were absent, the reported results were used, this also includes J flagged values. Non-detected or left-censored tissue data occurred for both *Macoma* and *Nereis* tissues. Dealing with left-censored values in a tissue data set requires special handling procedures (see: Helsel, 2005, 2006, 2009, 2012, Singh et al., 2006). Initially, the detection limits (MDLs) are applied to all data marked as NDs. The goal with censored data analysis is to avoid analyzing substituted data with the applied MDLs. To do this, a new variable is created where data are separately coded with a detection indicator value of ones and zeros so that detected data (1s) can be clearly distinguished from NDs (0s). Hypothesis testing of censored data is based on the use of the new indicator variable and the Kaplan-Meier cumulative proportion data that are created.

The USEPA-sponsored statistical software package, ProUCL Version 5.1 for Environmental Applications for Datasets with and without ND observations (www.epa.gov/land-research/proucl-software) was used to generate the 95% confidence limits (LCLs & UCLs) for each parameter mean for all sites. ProUCL can derive estimated confidence limits for the tissue with 60% NDs present but these limits are questionable due to only two detected values being present (3 of 5 replicates are NDs). Determining 95% confidence limits allows the LCLs of the test sites to be statistically compared with the UCL of the reference and control for overlap or to an Action Level (as suggested by the OTM).

4.0 RESULTS

Tables 8 through 20 below summarize the physical, chemical and biological testing results for the Long Beach Cruise Terminal sediments. Tables do not include analytical quality assurance/quality control (QA/QC) data. Appendix D contains a complete set of analytical results including all associated QA/QC data. Appendix E contains all biological QA/QC data.

4.1 Sediment Physical Results

The two Long Beach Cruise Terminal composite samples, the Core C1-*b* sample, and the LA-2 reference sample underwent physical testing. Table 8 summarizes the sieve analysis and hydrometer results, Atterberg Limits, and specific gravity results for these samples. Raw physical data and grain size distribution curves for each sample are provided in Appendix G.

4.2 Sediment Chemistry Results

Table 9 provides a summary of the sediment chemical testing results for the Long Beach Cruise Terminal composite samples and LA-2 reference sample. Included in Table 9 are screening values consisting of NOAA ERL and ERM values. Any testing values highlighted exceed a screening value. Concentrations that exceed ERL values are bolded red. Sediment concentrations did not exceed an ERM value. Estimated values between the method detection limits and reporting limits were considered real values for the purpose of these comparisons.

Table 9 data are often coded. Values that were not detected above the method detection limit were assigned a “<” prefix symbol. Values estimated between the MDL and RL were tagged with a “J”. A “J” code may also indicate an estimated value due to QC data for that value being outside of certain QC objectives. The QA/QC report in Appendix F and table footnotes provide the definitions of all other qualifier codes.

4.3 Solid Phase Bioassay Results

Replicate and mean survival for the 10-day acute solid phase bioassays conducted on the Long Beach Cruise Terminal composite samples as well as the LA-2 reference sample are provided in Table 10 for *Ampelisca abdita* and Table 11 for *Neanthes arenaceodentata*. Initial sediment porewater measurements for the reference and composite samples are provided in Table 6. Initial ammonia levels for Composite-*a* were below levels expected to cause toxicity. This was not the case for Composite-*b* and as such, ammonia purging was conducted prior to test initiation.

4.4 Suspended Particulate Phase (SPP) Bioassay Results

Tables 12 through 14 summarize the SPP bioassay results for the Carnival Cruise Terminal composite samples. Table 12 summarizes the mean percent survival and normal development results and supporting replicate data for the 48-hour bivalve larvae SPP bioassays using the larvae of *Mytilus galloprovincialis* along with estimated EC₅₀ and LC₅₀ values. Table 13 summarizes mean survival results and supporting replicate data for the mysid shrimp (*Americamysis bahia*) 96-hour acute SPP bioassays along with calculated LC₅₀ values. Table 14 summarizes mean

survival results and supporting replicate data for the juvenile fish (*Menidia beryllina*) 96-hour acute SPP bioassays along with calculated LC₅₀ values. All tables for all three species include results for each replicate exposure to 100%, 50%, 10%, and 1% elutriate concentrations along with a 0% site water concentration.

4.5 Bioaccumulation Results

Survival data for the 28-day bioaccumulation exposures are presented in Table 15 for *Macoma nasuta* and Table 16 for *Nereis virens*. Table 17 summarizes replicate and mean tissue concentrations for the *Macoma* tissue analyses, and Table 18 summarizes replicate and mean tissue concentrations for the *Nereis* tissue analyses. Mean values were determined by substituting non-detected values according to the Kaplan-Meier cumulative proportion method. Tissue qualification codes are the same as those for the sediment samples.

Tissue burden statistical results are provided in Table 19 for *Macoma* and and Table 20 for *Nereis* for those analytes detected in the tissues. DDTs and total PCB lipid normalized results for the *Nereis* tissues were used in statistical testing since a positive relationship could be found between lipid and contaminant concentrations. A similar positive relationship could not be determined with the *Macoma* results. As such, *Macoma* DDTs and total PCB concentrations were not normalized to lipids. Mean concentrations in cells shaded green indicate statistically significant differences with mean reference tissue concentrations. Mean concentrations in cells shaded blue indicate statistically significant differences with mean reference and control tissue concentrations.

Table 8. 2018 Long Beach Cruise Terminal Sediment Physical Results.

Sample	Grain Size			Specific Gravity	Atterberg Limits			Classification
	Gravel (%)	Sand (%)	Silt and Clay		Liquid Limit	Plastic Limit	Plasticity Index	
Composite-a	0	16	84	2.80	42	32	10	ML
Composite-b	0	5	95	2.75	44	28	16	ML
C1-b	0	5	95	2.88	28	29	9	ML
LA-2 Ref	0	47	53	2.71	--	--	--	NP

Table 9. 2018 Long Beach Cruise Terminal Bulk Sediment Chemistry Results.

Valid Analyte Name	Units	Composite Samples		C1-b	LA2 Reference	NOAA Screening	
		a	b			Salt ERL ¹	Salt ERM ¹
SEDIMENT CONVENTIONALS							
Total Solids	%	51.1	58	55.7	56.5		
Total Ammonia	mg/kg dry	1.4	2.4	1.3	2.5		
Oil and Grease	mg/kg dry	700	560	800	83		
TRPH	mg/kg dry	330	410	590	24		
Dissolved Sulfides	mg/kg	<0.017	<0.017	<0.017	<0.017		
Total Sulfides	mg/kg dry	300	190	220	0.53		
Total Organic Carbon	%	2.2	1.5	1.4	0.36		
Total Volatile Solids	%	3.7	3.4	3.8	1.7		
METALS							
Arsenic	mg/kg dry	9.51	12.1	9.26	2.3	8.2	70
Cadmium	mg/kg dry	1.17	1.15	1.24	0.112J	1.2	9.6
Chromium	mg/kg dry	34.1	38.6	39.3	20.3	81	370
Copper	mg/kg dry	85.4	61.5	57	9.16	34	270
Lead	mg/kg dry	80.4	72.3	75.7	5.16	46.7	218
Mercury	mg/kg dry	0.14	0.168	0.168	0.0159J	0.15	0.71
Nickel	mg/kg dry	23.8	30	25.5	10.6	20.9	51.6
Selenium	mg/kg dry	4.3	2.8	3.06	0.744		
Silver	mg/kg dry	0.561	0.566	0.631	0.0855J	1	3.7
Zinc	mg/kg dry	211	174	189	44.4	150	410
ORGANOTINS							
Monobutyltin	µg/kg dry	<2.7	<2.4	<2.4	<2.4		
Dibutyltin	µg/kg dry	5.2J	3.3J	6.8	<1.3		
Tributyltin	µg/kg dry	<2.9	<2.5	<2.6	2.7J		
Tetrabutyltin	µg/kg dry	<1.4	<1.3	<1.3	<1.3		
PAH's							
1-Methylnaphthalene	µg/kg dry	5.7J	2.3J	2.4J	<1.9		
2-Methylnaphthalene	µg/kg dry	8.6J	4.2J	4.7J	<2.9	70	670
Acenaphthene	µg/kg dry	3.7J	<2.6	<2.7	<2.7	16	500
Acenaphthylene	µg/kg dry	6.3J	4.3J	4.2J	<2.9	44	640
Anthracene	µg/kg dry	10J	7.7J	9.7J	<3.4	85.3	1100
Benzo (a) Anthracene	µg/kg dry	37	24	32	<2.5	261	1600
Benzo (a) Pyrene	µg/kg dry	53	36	49	<2.4	430	1600
Benzo (b) Fluoranthene	µg/kg dry	56	36	52	<2.5		
Benzo (g,h,i) Perylene	µg/kg dry	42	17	25	<2.7		
Benzo (k) Fluoranthene	µg/kg dry	60	34	49	<2.6		
Chrysene	µg/kg dry	65	36	50	<2.4	384	2800
Dibenz (a,h) Anthracene	µg/kg dry	20	4.4J	12J	<2.5	63.4	260
Fluoranthene	µg/kg dry	99	49	70	<3.1	600	5100
Fluorene	µg/kg dry	7.5J	<2.8	<2.9	<2.9	19	540
Indeno (1,2,3-c,d) Pyrene	µg/kg dry	43	15J	28	<2.3		
Naphthalene	µg/kg dry	10J	4.2J	5.1J	<2.7	160	2100
Phenanthrene	µg/kg dry	40	19	28	<3	240	1500
Pyrene	µg/kg dry	96	58	70	<2.9	665	2600
Total PAHs	µg/kg dry	663	351	491	ND	4022	44792

Table 9 (Cont.). 2018 Long Beach Cruise Terminal Bulk Sediment Chemistry Results.

Valid Analyte Name	Units	CCT-18-Composite		CCT-18	LA2	NOAA Screening	
		a	b	C1-b	Reference	Salt ERL ¹	Salt ERM ¹
PCB CONGENERS							
PCB018	µg/kg dry	3.3	5.9	4.3	<0.11		
PCB028	µg/kg dry	4.5	4.7	4.4	<0.12		
PCB037	µg/kg dry	1.1	1.5	1.2	<0.11		
PCB044	µg/kg dry	6.5	6.8	7	<0.27		
PCB049	µg/kg dry	2.5	3.8	3.3	<0.087		
PCB052	µg/kg dry	6.5	7.1	6.3	<0.34		
PCB066	µg/kg dry	5.5	6.7	6	<0.22		
PCB070	µg/kg dry	5.3	7	6	<0.13		
PCB074	µg/kg dry	2.9	3.4	2.9	<0.16		
PCB077	µg/kg dry	1.4	1.3	1.1	<0.2		
PCB081	µg/kg dry	<0.18	<0.16	<0.16	<0.16		
PCB087	µg/kg dry	2.1	3.3	3.1	<0.2		
PCB099	µg/kg dry	3	2.8	2.9	<0.084		
PCB101	µg/kg dry	6.5	7	6.9	<0.078		
PCB105	µg/kg dry	9	4.3	6.8	<0.094		
PCB110	µg/kg dry	5.3	5.9	6.3	<0.06		
PCB114	µg/kg dry	<0.14	<0.13	<0.13	<0.13		
PCB118	µg/kg dry	6	5.2	5.3	<0.061		
PCB119	µg/kg dry	<0.12	<0.11	<0.11	<0.11		
PCB123	µg/kg dry	<0.14	<0.13	<0.13	<0.13		
PCB126	µg/kg dry	<0.11	<0.095	<0.098	<0.097		
PCB128	µg/kg dry	1.8	1.2	1.5	<0.21		
PCB132/153	µg/kg dry	7.9	7.2	8	<0.29		
PCB138/158	µg/kg dry	6.2	5.4	6.8	<0.62		
PCB149	µg/kg dry	4.5	4.3	5	<0.21		
PCB151	µg/kg dry	1.5	1.5	1.7	<0.15		
PCB156	µg/kg dry	0.81	<0.13	0.85	<0.14		
PCB157	µg/kg dry	<0.17	<0.15	<0.15	<0.15		
PCB167	µg/kg dry	<0.26	<0.23	<0.24	<0.23		
PCB168	µg/kg dry	6.2	<0.25	<0.25	<0.25		
PCB169	µg/kg dry	<0.13	<0.11	<0.12	<0.11		
PCB170	µg/kg dry	2.9	2	3	<0.2		
PCB177	µg/kg dry	1.1	<0.2	1.3	<0.21		
PCB180	µg/kg dry	4	4.1	5	<0.16		
PCB183	µg/kg dry	1.1	0.97	1	<0.16		
PCB187	µg/kg dry	2	1.8	2.4	<0.18		
PCB189	µg/kg dry	<0.12	<0.11	<0.11	<0.11		
PCB194	µg/kg dry	1.8	1.3	2.2	<0.13		
PCB201	µg/kg dry	<0.066	<0.059	<0.06	<0.06		
PCB206	µg/kg dry	1.9	<0.2	1.4	<0.2		
Total PCB Congeners	µg/kg dry	115	107	114	ND	22.7	180
CHLORINATED PESTICIDES							
2,4'-DDD	µg/kg dry	<0.15	5.1	<0.14	<0.13		
2,4'-DDE	µg/kg dry	4.4	6.9	3.9	<0.062		
2,4'-DDT	µg/kg dry	<0.12	<0.11	<0.11	<0.11		
4,4'-DDD	µg/kg dry	15	18	16	<0.07	2	20
4,4'-DDE	µg/kg dry	21	23	24	5.6	2.2	27
4,4'-DDT	µg/kg dry	<0.1	<0.091	<0.094	<0.093	1	7
Total DDT	µg/kg dry	40.4	53	43.9	5.6	1.58	46.1

Table 9 (Cont.). 2018 Long Beach Cruise Terminal Bulk Sediment Chemistry Results.

Valid Analyte Name	Units	CCT-18-Composite		CCT-18	LA2	NOAA Screening	
		a	b	C1-b	Reference	Salt ERL ¹	Salt ERM ¹
Aldrin	µg/kg dry	<0.074	<0.065	<0.067	<0.067		
BHC-alpha	µg/kg dry	<0.11	<0.099	<0.1	<0.1		
BHC-beta	µg/kg dry	<0.13	<0.12	<0.12	<0.12		
Chlordane (Technical)	µg/kg dry	<10	<9	<9.3	<9.2		
BHC-delta	µg/kg dry	<0.18	<0.16	<0.16	<0.16		
Dieldrin	µg/kg dry	<0.21	<0.18	<0.19	<0.19	0.02	8
Endosulfan I	µg/kg dry	<0.11	<0.1	<0.1	<0.1		
Endosulfan II	µg/kg dry	<0.18	<0.16	<0.16	<0.16		
Endosulfan Sulfate	µg/kg dry	<0.2	<0.18	<0.19	<0.18		
Endrin	µg/kg dry	6.1	<0.098	<0.1	<0.1		
Endrin Aldehyde	µg/kg dry	<0.19	<0.17	<0.18	<0.18		
Endrin Ketone	µg/kg dry	<0.11	<0.096	<0.099	<0.098		
BHC-gamma (Lindane)	µg/kg dry	<0.067	<0.059	<0.061	<0.061		
Heptachlor	µg/kg dry	<0.1	<0.089	<0.091	<0.091		
Heptachlor Epoxide	µg/kg dry	<0.086	<0.077	<0.079	<0.078		
Methoxychlor	µg/kg dry	<0.13	<0.12	<0.12	<0.12		
Toxaphene	ug/kg dry	<17	<15	<16	<16		
PHENOLS							
2,4,5-Trichlorophenol	µg/kg dry	<2.4	<2.1	<2.2	<2.1		
2,4,6-Trichlorophenol	µg/kg dry	<2.6	<2.2	<2.3	<2.3		
2,4-Dichlorophenol	µg/kg dry	<3.3	<2.9	<3	<3		
2,4-Dimethylphenol	µg/kg dry	<5.1	<4.4	<4.6	<4.6		
2,4-Dinitrophenol	µg/kg dry	<120	<100	<110	<110		
2-Chlorophenol	µg/kg dry	<3.6	<3.2	<3.3	<3.3		
2-Methylphenol	µg/kg dry	<3.8	<3.3	<3.5	<3.4		
2-Nitrophenol	µg/kg dry	<3.3	<2.8	<3	<2.9		
3/4-Methylphenol	µg/kg dry	24	6.8J	8.1J	<6.4		
4,6-Dinitro-2-Methylphenol	µg/kg dry	<130	<110	<120	<120		
4-Chloro-3-Methylphenol	µg/kg dry	<4	<3.5	<3.7	<3.6		
Bisphenol A	µg/kg dry	20U	17U	18U	<3.6		
Pentachlorophenol	µg/kg dry	270J	220J	240J	<2.3		
Phenol	µg/kg dry	<4.5	<3.9	<4.1	<4.1		
PHTHALATES							
bis-(2-Ethylhexyl) Phthalate	µg/kg dry	830	510	720	88U		
Benzyl Butyl Phthalate	µg/kg dry	98U	85U	89U	88U		
Diethyl Phthalate	µg/kg dry	5.7J	<2.7	4.5J	<2.8		
Dimethyl Phthalate	µg/kg dry	9J	<3.4	7.1J	<3.5		
Di-n-Butyl Phthalate	µg/kg dry	98U	85U	89U	88U		
Di-n-Octyl Phthalate	µg/kg dry	<3.7	<3.2	<3.4	<3.3		
PYRETHROIDS							
Allethrin	µg/kg dry	<0.49	<0.43	<0.44	<0.44		
Bifenthrin	µg/kg dry	11	3.9	4.3	<0.53		
Cyfluthrin	µg/kg dry	2	0.51J	<0.44	<0.44		
Cyhalothrin-lambda	µg/kg dry	<0.49	<0.43	<0.44	<0.44		
Cypermethrin	µg/kg dry	1.4	<0.43	0.56J	<0.44		
Deltamethrin:Tralomethrin	µg/kg dry	<0.49	<0.43	<0.44	<0.44		
Esfenvalerate:Fenvalerate	µg/kg dry	<0.49	<0.43	<0.44	<0.44		
Fenpropathrin	µg/kg dry	<0.49	<0.43	<0.44	<0.44		
Fluvalinate	µg/kg dry	<0.49	<0.43	<0.44	<0.44		
Phenothrin (Sumithrin)	µg/kg dry	<0.49	<0.43	<0.44	<0.44		

Table 9 (Cont.). 2018 Long Beach Cruise Terminal Bulk Sediment Chemistry Results.

Valid Analyte Name	Units	CCT-18-Composite		CCT-18	LA2 Reference	NOAA Screening	
		a	b	C1-b		Salt ERL ¹	Salt ERM ¹
Permethrin (cis/trans)	µg/kg dry	7.8	2.3	2.7	<0.88		
Resmethrin:Bioresmethrin	µg/kg dry	<0.83	<0.73	<0.76	<0.75		
Tetramethrin	µg/kg dry	<0.58	<0.52	<0.53	<0.53		
ERM Quotient		0.178	0.179	0.178	0.028		

Effects Range Low (ERL) and Effects Range Median (ERM) sediment quality objectives from Buchman (2008) and Long *et al.* (1995).

Red values exceed ERL values.

Red underlined values exceed ERM values.

ND = Not Detected

< = Not detected at the corresponding Method Detection Limit.

J = Estimated between the Reporting Limit and the Method Detection Limit.

U = Sample is ND at the RL due to a method blank detection.

Table 10. Survival Results for the 10-day *Ampelisca abdita* Bioassays.

Sample ID	Rep	# Alive Out of 20	% Survival	Mean % Survival
Lab Control	A	20	100	97
	B	20	100	
	C	20	100	
	D	19	95	
	E	18	90	
Composite-a	A	19	95	94
	B	20	100	
	C	18	90	
	D	18	90	
	E	19	95	
Composite-b	A	18	90	91
	B	17	85	
	C	19	95	
	D	18	90	
	E	19	95	
LA-2	A	20	100	96
	B	19	95	
	C	20	100	
	D	19	95	
	E	18	90	

Table 11. Survival Results for the 10-day *Neanthes arenaceodentata* Bioassays.

Sample ID	Rep	# Alive Out of 10	% Survival	Mean % Survival
Lab Control	A	10	100	100
	B	10	100	
	C	10	100	
	D	10	100	
	E	10	100	
Composite- <i>a</i>	A	10	100	98
	B	10	100	
	C	10	100	
	D	9	90	
	E	10	100	
Composite- <i>b</i>	A	10	100	100
	B	10	100	
	C	10	100	
	D	10	100	
	E	10	100	
LA-2	A	10	100	100
	B	10	100	
	C	10	100	
	D	10	100	
	E	10	100	

Table 12. Replicate and Mean Survival and Normal Development Results and Median Effective and Lethal Concentrations for the Suspended Particulate-Phase 48-Hour Toxicity Tests Using *Mytilus galloprovincialis* Larvae.

Elutriate Concentrations	Percent Survival at 48 Hours						LC ₅₀ (%)	Percent Normal Development at 48 Hours						EC ₅₀ (%)
	Rep A	Rep B	Rep C	Rep D	Rep E	Mean		Rep A	Rep B	Rep C	Rep D	Rep E	Mean	
<i>Composite-a</i>														
Lab Control	100	89.0	86.4	100	93.7	93.8	>100 ¹	95.5	97.7	92.2	93.2	95.2	94.7	>100 ¹
Salt Control	79.6	90.6	80.6	100.0	97.4	89.6		96.8	93.0	93.9	94.0	94.5	94.3	
Site Water	99.5	98.4	100.0	87.4	79.6	93.0		96.9	92.6	97.5	93.3	95.6	95.2	
1%	91.6	100	93.7	93.2	93.2	94.3		94.1	93.9	92.7	91.3	95.7	93.5	
10%	97.9	90.6	99.0	81.2	95.8	92.9		95.4	91.1	94.0	93.9	95.3	94.9	
50%	74.9	99.5	90.1	100	92.1	91.3		87.7	96.0	93.6	93.2	91.2	92.0	
100%	74.3	94.8	97.9	90.6	89.5	89.4		91.6	90.0	94.0	88.7	91.0	91.1	
<i>Composite-b</i>														
Lab Control	89.5	88.5	89.0	100	94.2	92.3	>100 ¹	94.5	91.8	92.4	95.7	93.3	93.5	>100 ¹
Salt Control	79.6	90.6	80.6	100.0	97.4	89.6		96.8	93.0	93.9	94.0	94.5	94.3	
Site Water	99.5	98.4	100.0	87.4	79.6	93.0		96.9	92.6	97.5	93.3	95.6	95.2	
1%	92.7	92.1	84.3	91.6	86.4	89.4		91.7	95.1	93.1	91.6	93.8	93.1	
10%	90.1	100	89.0	82.7	84.8	89.3		92.5	96.5	92.4	96.3	93.6	94.3	
50%	100	89.0	89.0	88.0	92.7	91.7		89.7	93.9	89.0	91.8	94.7	91.8	
100%	82.2	79.6	90.6	89.5	89.5	86.3		89.7	89.4	87.8	88.1	88.6	88.7	

¹ Due to the absence of significant impairment, the LC₅₀ and EC₅₀ could not be calculated but can be determined by inspection to be >100% elutriate.

Table 13. Replicate and Mean Survival Results and Median Lethal Concentrations for the 96-Hour Acute Suspended Particulate-Phase Toxicity Tests Using *Americamysis bahia*.

Elutriate Concentrations	Percent Survival at 96 Hours						LC ₅₀ (%)
	Rep A	Rep B	Rep C	Rep D	Rep E	Mean	
<i>Composite-a</i>							
Lab Control	90	100	90	100	100	96	>100 ¹
Site Water	100	100	100	100	100	100	
1%	100	100	100	90	100	98	
10%	100	100	100	100	100	100	
50%	100	100	100	100	90	98	
100%	90	100	100	100	100	98	
<i>Composite-b</i>							
Lab Control	100	100	100	100	100	100	>100 ¹
Site Water	100	100	100	100	100	100	
1%	80	100	100	100	100	96	
10%	90	90	90	100	100	94	
50%	100	100	100	90	100	98	
100%	100	100	100	100	100	100	

¹ Due to the absence of significant impairment, the LC₅₀ could not be calculated but can be determined by inspection to be >100% elutriate.

Table 14. Replicate and Mean Survival Results and Median Lethal Concentrations for the 96-Hour Acute Suspended Particulate-Phase Toxicity Tests Using *Menidia beryllina*.

Elutriate Concentrations	Percent Survival at 96 Hours						LC ₅₀ (%)
	Rep A	Rep B	Rep C	Rep D	Rep E	Mean	
<i>Composite-a</i>							
Lab Control	100	100	90	100	100	98	>100 ¹
Site Water	100	100	100	100	100	100	
1%	100	100	90	80	100	94	
10%	100	100	100	100	100	100	
50%	100	100	100	90	90	96	
100%	80	80	100	100	100	92	
<i>Composite-b</i>							
Lab Control	90	100	100	100	100	98	>100 ¹
Site Water	100	100	100	100	100	100	
1%	100	100	90	90	100	96	
10%	100	90	100	90	100	96	
50%	100	100	100	100	100	100	
100%	100	90	100	100	100	98	

¹ Due to the absence of significant impairment, the LC₅₀ could not be calculated but can be determined by inspection to be >100% elutriate.

Table 15. *Macoma nasuta* Bioaccumulation Test Survival Data.

Sample ID	Rep	# Alive Out of 20	% Survival	Mean % Survival
Lab Control	A	17	85	86
	B	17	85	
	C	17	85	
	D	16	80	
	E	19	95	
Composite-a	A	18	90	91
	B	18	90	
	C	18	90	
	D	19	95	
	E	18	90	
Composite-b	A	18	90	94
	B	19	95	
	C	19	95	
	D	19	95	
	E	19	95	
LA-2	A	19	95	94
	B	20	100	
	C	17	85	
	D	19	95	
	E	19	95	

Table 16. *Neris virens* Bioaccumulation Test Survival Data.

Sample ID	Rep	# Alive Out of 10	% Survival	Mean % Survival
Lab Control	A	10	100	100
	B	10	100	
	C	10	100	
	D	10	100	
	E	10	100	
Composite-a	A	10	100	100
	B	10	100	
	C	10	100	
	D	10	100	
	E	10	100	
Composite-b	A	10	100	96
	B	10	100	
	C	9	90	
	D	9	90	
	E	10	100	
LA-2	A	10	100	100
	B	10	100	
	C	10	100	
	D	10	100	
	E	10	100	

Table 17. Bioaccumulation Potential Replicate and Mean Tissue Results for *Macoma nasuta* Exposed to Carnival Cruise, LA-2 Reference and Control Sediments.

Analytes	Units	Comp-a-						Comp-b-						Control-						LA2-REF-						T0-Mean	
		A	B	C	D	E	Mean	A	B	C	D	E	Mean	A	B	C	D	E	Mean	A	B	C	D	E	Mean		
Conventionals																											
% Lipids	%	0.31	0.15	0.28	0.34	0.33	0.28	0.36	0.29	0.58	0.44	0.52	0.44	0.3	0.43	0.26	0.3	0.24	0.31	0.34	0.28	0.15	0.17	0.37	0.262	0.636	
Metals																											
Arsenic	mg/kg	2.87	2.67	2.76	2.81	3.03	2.83	2.87	2.66	3.19	2.65	3.08	2.89	3.13	3.06	2.32	2.89	2.9	2.86	2.48	2.41	2.92	2.64	2.51	2.592	3.31	
Copper	mg/kg	1.15	1.07	1.07	1.2	1.37	1.17	0.892	0.901	1.12	1.11	1.02	1.01	1.05	1.09	1.01	1.17	0.942	1.05	0.889	0.953	0.858	0.853	0.883	0.887	1.09	
Lead	mg/kg	0.492	0.453	0.438	0.438	0.576	0.479	0.492	0.431	0.523	0.517	0.372	0.467	0.154	0.148	0.152	0.172	0.14	0.153	0.100J	0.117	0.104	0.089J	0.100	0.102	0.081	
Zinc	mg/kg	11.9	11.4	10.1	10.9	14.1	11.7	9.7	12.0	11.7	12.5	11.9	11.6	11.4	12.1	10.7	12.8	12.6	11.9	9.04	12.0	9.05	9.87	12.7	10.5	13.0	
OC Pesticides																											
2,4'-DDD	ug/kg	<0.075	<0.076	<0.076	0.17J	0.18J	0.115	0.4	0.39	0.51	0.33	0.29	0.384	<0.076	<0.076	<0.075	<0.075	<0.076	ND	<0.076	<0.076	<0.076	<0.076	<0.076	ND	ND	
2,4'-DDE	ug/kg	0.72	0.7	0.8	0.59	0.77	0.716	1.4	1.2	1.3	0.84	1.3	1.2	0.33	0.34	0.39	0.35	0.4	0.362	0.6	0.5	0.35	0.33	0.48	0.452	0.134	
2,4'-DDT	ug/kg	<0.062	<0.062	<0.062	<0.062	<0.062	ND	<0.062	<0.062	<0.061	<0.062	0.19J	0.087	<0.062	<0.062	<0.061	<0.061	<0.062	ND	<0.062	<0.062	<0.062	<0.062	<0.062	ND	ND	
4,4'-DDD	ug/kg	1.4	1.1	0.87	0.84	1.2	1.082	2.4	2.7	2.6	2.1UJ-	2.8UJ-	2.45	0.75	0.73	0.94	0.92	0.6	0.788	1.1	0.67	0.91	0.59	0.8	0.814	0.716	
4,4'-DDE	ug/kg	4.2	6.3	3.7	3.2	4.9	4.46	5.8	6.4	5.9	4.2	4.1	5.28	0.38	0.48	0.66	0.41	0.99	0.584	3.5	4.6	1.7	2.3	3.3	3.08	0.334	
4,4'-DDT	ug/kg	0.052UJ-	0.052UJ-	0.052UJ-	0.052UJ-	0.053UJ-	ND	<0.052	<0.052	<0.052	0.44J	0.2J		0.053UJ-	0.052UJ-	0.052UJ-	0.052UJ-	0.053UJ-	ND	0.052UJ-	0.052UJ-	0.052UJ-	0.053UJ-	0.052UJ-	ND	ND	
Total DDTs		6.32	8.10	5.37	4.80	7.05	6.33	10.0	10.7	10.3	7.91	8.88	9.56	1.46	1.55	1.99	1.68	1.99	1.73	5.20	5.77	2.96	3.22	4.58	4.35	1.20	
PCB Congeners																											
PCB018	ug/kg	<0.07	<0.071	0.35	0.33	0.4		1.2	1.2	1.2	0.87	<0.071		<0.071	<0.071	<0.07	<0.07	<0.071		<0.071	<0.071	<0.071	<0.071	<0.071			
PCB028	ug/kg	0.46	<0.033	0.49	0.39	0.71		1.1	0.94	1.2	0.91	0.89		<0.034	<0.033	<0.033	<0.033	<0.034		<0.033	<0.033	<0.033	<0.034	<0.033			
PCB037	ug/kg	<0.06	<0.06	<0.06	<0.06	<0.06		0.23	<0.06	<0.06	<0.06	<0.06		0.26	<0.06	<0.06	<0.06	<0.06		<0.06	<0.06	<0.06	<0.06	<0.06			
PCB044	ug/kg	<0.086	<0.086	0.5	0.34	0.56		0.86	0.84	1.0	0.62	<0.087		<0.087	<0.086	<0.086	<0.086	<0.087		<0.086	<0.086	<0.086	<0.087	<0.086			
PCB049	ug/kg	0.58	<0.11	0.47	0.79	0.66		1.2	1.0	1.3	1.2	0.7		<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11			
PCB052	ug/kg	0.98	<0.062	0.79	0.66	1.2		2.0	1.8	2.4	1.5	1.5		<0.063	<0.062	<0.062	<0.062	<0.063		<0.062	<0.062	<0.062	<0.063	<0.062			
PCB066	ug/kg	0.7	0.62	0.75	0.6	0.89		1.7	1.7	1.6	1.3	1.2		<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
PCB070	ug/kg	0.85	0.71	0.92	0.71	1.1		1.9	2.1	2.2	1.5	1.4		<0.06	<0.059	<0.059	<0.059	<0.06		<0.059	<0.059	<0.059	<0.06	<0.059			
PCB074	ug/kg	0.55	0.48	0.54	0.43	0.49		1.1	1.2	1.2	0.82	0.72		<0.087	<0.086	<0.086	<0.086	<0.087		<0.086	<0.086	<0.086	<0.087	<0.086			
PCB077	ug/kg	<0.077	<0.077	<0.077	<0.077	<0.078		<0.077	<0.077	<0.076	<0.077	<0.078		<0.078	<0.077	<0.076	<0.076	<0.078		<0.077	<0.077	<0.077	<0.078	<0.077			
PCB081	ug/kg	<0.12	<0.12	<0.12	<0.12	<0.12		<0.12	<0.12	<0.12	<0.12	<0.12		<0.12	<0.12	<0.12	<0.12	<0.12		<0.12	<0.12	<0.12	<0.12	<0.12			
PCB087	ug/kg	0.58	0.39	0.46	0.43	0.63		0.55	0.94	0.87	0.42	0.59		<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11			
PCB099	ug/kg	0.58	0.49	0.5	0.44	0.57		0.67	1.0	0.97	0.67	0.68		<0.061	<0.06	<0.06	<0.06	<0.061		<0.06	<0.06	<0.06	<0.061	<0.06			
PCB101	ug/kg	1.1	0.95	0.93	0.93	1.2		1.4	2.0	2.1	1.5	1.4		<0.098	<0.097	<0.096	<0.096	<0.098		<0.097	<0.097	<0.097	<0.098	<0.097			
PCB105	ug/kg	<0.054	<0.054	0.4	0.4	0.64		0.53	0.66	0.55	0.39	0.35		<0.055	<0.054	<0.054	<0.054	<0.055		<0.054	<0.054	<0.054	<0.055	<0.054			
PCB110	ug/kg	1.2	1.1	1.0	0.93	1.4		1.4	1.9	1.9	1.1	1.5		<0.046	<0.046	<0.045	<0.045	<0.046		<0.046	<0.046	<0.046	<0.046	<0.046			
PCB114	ug/kg	<0.081	<0.082	<0.082	<0.082	<0.082		<0.082	<0.082	<0.081	<0.081	<0.082		<0.082	<0.082	<0.081	<0.081	<0.082		<0.082	<0.082	<0.082	<0.082	<0.082			
PCB118	ug/kg	0.82	0.73	0.8	0.72	1.2		0.9	1.4	1.5	0.89	1.1		<0.084	<0.084	<0.083	<0.083	<0.084		<0.084	<0.084	<0.084	<0.084	<0.084			
PCB119	ug/kg	<0.094	<0.094	<0.094	<0.094	<0.094		<0.094	<0.094	<0.093	<0.094	<0.094		<0.094	<0.094	<0.093	<0.093	<0.094		<0.094	<0.094	<0.094	<0.094	<0.094			
PCB123	ug/kg	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
PCB126	ug/kg	<0.079	<0.08	<0.08	<0.08	<0.08		<0.08	<0.08	<0.079	<0.079	<0.08		<0.08	<0.08	<0.079	<0.079	<0.08		<0.08	<0.08	<0.08	<0.08	<0.08			
PCB128	ug/kg	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
PCB132/153	ug/kg	1.2	0.98	0.95	0.83	1.4		1.1	1.5	1.6	0.99	1.3		<0.17	<0.17	<0.17	<0.17	<0.17		0.2J	<0.17	0.2J	<0.17	0.35J			
PCB138/158	ug/kg	1.0	0.88	0.83	0.8	1.4		0.84	1.4	1.3	<0.093	<0.094		<0.094	<0.094	<0.093	<0.093	<0.094		<0.094	<0.094	<0.094	<0.094	<0.094			
PCB149	ug/kg	0.67	0.64	0.67	0.71	0.94		0.91	1.1	0.97	0.75	0.71		<0.098	<0.097	<0.096	<0.096	<0.098		<0.097	<0.097	<0.097	<0.098	<0.097			
PCB151	ug/kg	<0.067	<0.067	0.28	<0.067	0.3		0.2	0.31	0.3	<0.067	<0.067		<0.067	<0.067	<0.066	<0.066	<0.067		<0.067	<0.067	<0.067	<0.067	<0.067			
PCB156	ug/kg	<0.057	<0.057	<0.057	<0.057	<0.058		<0.057	<0.057	<0.057	<0.057	<0.058		<0.058	<0.057	<0.057	<0.057	<0.058		<0.057	<0.057	<0.057	<0.058	<0.057			
PCB157	ug/kg	<0.052	<0.052	<0.052	<0.052	<0.052		<0.052	<0.052	<0.051	<0.052	<0.052		<0.052	<0.052	<0.051	<0.051	<0.052		<0.052	<0.052	<0.052	<0.052	<0.052			
PCB167	ug/kg	<0.061	<0.061	<0.061	<0.061	<0.062		<0.061	<0.061	<0.061	<0.061	<0.062		<0.062	<0.061	<0.061	<0.061	<0.062		<0.061	<0.061	<0.061	<0.062	<0.061			
PCB168	ug/kg	<0.048	<0.048	<0.048	<0.048	<0.049		<0.048	<0.048	<0.048	<0.048	<0.049		<0.049	<0.048	<0.048	<0.048	<0.049		<0.048	<0.048	<0.048	<0.049	<0.048			
PCB169	ug/kg	<0.06	<0.061	<0.061	<0.061	<0.061		<0.061	<0.061	<0.06	<0.06	<0.061		<0.061	<0.061	<0.06	<0.06	<0.061		<0.061	<0.061	<0.061	<0.061	<0.061			
PCB170	ug/kg	<0.063	<0.063	<0.063	<0.063	<0.063		<0.063	0.29	<0.062	<0.063	<0.063		<0.063	<0.063	<0.062	<0.062	<0.063		<0.063	<0.063	<0.063	<0.063	<0.063			
PCB177	ug/kg	<0.086	<0.087	<0.087	<0.087	<0.087		<0.087	<0.087	<0.086	<0.086	<0.087		<0.087	<0.087	<0.086	<0.086	<0.087									

Table 17 (Continued). Bioaccumulation Potential Replicate and Mean Tissue Results for *Macoma nasuta* Exposed to Carnival Cruise, LA-2 Reference and Control Sediments.

Analytes	Units	Comp-a-						Comp-b-						Control-						LA2-REF-						T0-Mean
		A	B	C	D	E	Mean	A	B	C	D	E	Mean	A	B	C	D	E	Mean	A	B	C	D	E	Mean	
PCB183	ug/kg	<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11		
PCB187	ug/kg	<0.083	<0.084	0.24	<0.084	0.35		0.23	0.26	0.32	<0.083	<0.084		<0.084	<0.084	<0.083	<0.083	<0.084		<0.084	<0.084	<0.084	<0.084	<0.084		
PCB189	ug/kg	<0.06	<0.061	<0.061	<0.061	<0.061		<0.061	<0.061	<0.06	<0.06	<0.061		<0.061	<0.061	<0.06	<0.06	<0.061		<0.061	<0.061	<0.061	<0.061	<0.061		
PCB194	ug/kg	<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11		
PCB201	ug/kg	<0.096	<0.096	<0.096	<0.096	<0.097		<0.096	<0.096	<0.095	<0.096	<0.097		<0.097	<0.096	<0.095	<0.095	<0.097		<0.096	<0.096	<0.096	<0.097	<0.096		
PCB206	ug/kg	<0.19	<0.19	<0.19	<0.19	<0.19		<0.19	<0.19	<0.19	<0.19	<0.19		<0.19	<0.19	<0.19	<0.19	<0.19		<0.19	<0.19	<0.19	<0.19	<0.19		
Total PCBs		11.3	7.97	12.3	10.8	16.5	11.8	20.4	24.1	25.0	15.8	14.0	19.9	0.26	ND	ND	ND	ND	0.204	0.2	ND	0.2	ND	0.35	0.226	

Notes:

Bolded Values and Blue shaded cells indicate statistically significant differences in mean concentrations between test and LA-5 reference tissues.

J = Estimated value between the method detection limit and reporting limit. A "J" value may also indicate an estimated value due to that value not meeting certain QC objectives.

J+ = A high-biased estimate.

< = Not detected at the method detection limit. ND = not detected.

"U" = not detected at the reporting limit.

"UJ-" = not detected estimated low value.

Table 18. Bioaccumulation Potential Replicate and Mean Tissue Results for *Nereis virens* Exposed to Carnival Cruise, LA-2 Reference and Control Sediments.

Analytes	Units	Comp-a-						Comp-b-						Control-						LA2-REF-						T0-
		A	B	C	D	E	Mean	A	B	C	D	E	Mean	A	B	C	D	E	Mean	A	B	C	D	E	Mean	Mean
Conventionals																										
% Lipids	%	0.75	0.59	0.61	0.89	1.5	0.87	1.2	1.2	1.2	0.9	0.58	1.0	1	1.1	0.93	0.92	1.2	1.0	0.63	0.9	0.89	0.82	0.76	0.80	1.1
Metals																										
Arsenic	mg/kg	2.14	2.11	2.19	1.95	2.12	2.10	2.05	2.0	1.79	2.0	2.0	1.97	2.03	1.85	1.83	1.94	1.76	1.88	2.04	2.1	2.36	2.13	2.15	2.16	2.91
Copper	mg/kg	1.1	1.25	1.47	1.21	1.34	1.27	1.02	0.957	1.29	1.07	1.03	1.073	1.49	1.44	1.33	1.27	1.26	1.36	1.17	1.23	1.91	0.955	1.11	1.27	1.18
Lead	mg/kg	0.434	0.577	0.436	0.358	0.838	0.529	0.387	0.259	0.482	0.342	0.341	0.362	0.434	0.279	0.29	0.294	0.275	0.314	0.361	0.44	1.38	0.319	0.283	0.557	0.265
Zinc	mg/kg	41.2	31.9	14.6	20.1	12.7	24.1	22.8	33.2	7.27	7.72	21.1	18.4	30.3	19.2	25.0	15.9	27.5	23.6	15.1	8.39	9.73	7.32	20.0	12.1	11.2
OC Pesticides																										
2,4'-DDD	ug/kg	0.39	<0.076	<0.076	<0.075	1.1	0.343	1.0	1.3	0.68	0.24	<0.075	0.659	0.4	0.76	0.32	<0.075	<0.076	0.326	0.37	0.53	0.44	<0.076	0.46	0.375	0.142
2,4'-DDE	ug/kg	0.68	0.61	0.78	0.68	3.5	1.25	2.3	4.8	2.3	0.69	0.53	2.12	1.2	1.4	0.96	0.76	0.63	0.99	0.31	0.82	0.49	0.34	0.27	0.446	0.398
2,4'-DDT	ug/kg	<0.062	<0.062	<0.062	<0.061	<0.062	ND	<0.061	<0.062	<0.062	<0.062	<0.062	ND	<0.061	<0.062	<0.062	<0.061	<0.062	ND	<0.062	<0.062	<0.061	<0.062	<0.062	ND	ND
4,4'-DDD	ug/kg	1.4	0.91	0.82UJ-	0.84UJ-	4.1UJ-	0.988	3.9UJ-	4.0UJ-	3.1UJ-	2.0UJ-	2.0UJ-	ND	1.4	1.6	1.2	1.3	0.91	1.28	1.4	1.9	1.8	0.94	1.9	1.59	0.794
4,4'-DDE	ug/kg	0.57	0.79	0.47	0.64	1.3	0.754	1.3	0.83	0.98	0.48	0.84	0.886	0.4	0.62	0.54	0.86	0.34	0.552	0.52	0.58	1.0	0.56	0.52	0.636	0.546
4,4'-DDT	ug/kg	0.16J	<0.052	0.052UJ-	0.052UJ-	0.052UJ-	ND	0.052UJ-	0.052UJ-	0.052UJ-	0.052UJ-	0.052UJ-	ND	0.62	<0.052	<0.052	<0.052	0.24	0.203	<0.053	<0.052	<0.052	<0.053	<0.053	ND	0.337
Total DDTs		3.20	2.31	2.07	2.16	10.0	3.95	8.50	10.9	7.06	3.41	3.37	6.65	4.02	4.38	3.02	2.92	2.12	3.29	2.60	3.83	3.73	1.84	3.15	3.03	2.16
PCB Congeners																										
PCB018	ug/kg	0.21	<0.071	<0.071	<0.07	0.25		0.75	0.73	0.62	0.25	0.42		<0.07	<0.07	<0.07	<0.07	<0.071		<0.071	<0.071	<0.07	<0.071	<0.071		
PCB028	ug/kg	<0.033	<0.033	<0.033	<0.033	<0.033		0.41	<0.033	0.36	<0.033	<0.033		<0.033	<0.033	<0.033	<0.033	<0.033		<0.034	<0.033	<0.033	<0.034	<0.034		
PCB037	ug/kg	<0.06	<0.06	<0.06	<0.059	<0.06		<0.059	<0.06	<0.06	<0.06	<0.06		<0.06	<0.06	<0.06	<0.06	<0.06		<0.06	<0.06	<0.06	<0.06	<0.06		
PCB044	ug/kg	<0.086	<0.086	<0.086	<0.085	<0.086		<0.085	<0.086	0.78	<0.086	<0.086		<0.086	<0.086	<0.086	<0.086	<0.086		<0.087	<0.086	<0.086	<0.087	<0.087		
PCB049	ug/kg	<0.11	<0.11	<0.11	<0.11	<0.11		0.39	0.33	0.39	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11		
PCB052	ug/kg	0.47	0.53	0.53	<0.061	0.9		1.9	1.6	1.9	0.7	0.93		0.36	<0.062	<0.062	<0.062	<0.062		<0.063	<0.062	<0.062	<0.063	<0.063		
PCB066	ug/kg	0.26	0.38	<0.1	<0.1	<0.1		0.55	0.64	0.5	0.39	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1		
PCB070	ug/kg	<0.059	<0.059	<0.059	<0.058	<0.059		<0.058	<0.059	<0.059	<0.059	<0.059		<0.059	<0.059	<0.059	<0.059	<0.059		<0.06	<0.059	<0.059	<0.06	<0.06		
PCB074	ug/kg	<0.086	<0.086	<0.086	<0.085	<0.086		<0.085	<0.086	<0.086	<0.086	<0.086		<0.086	<0.086	<0.086	<0.086	<0.086		<0.087	<0.086	<0.086	<0.087	<0.087		
PCB077	ug/kg	<0.077	<0.077	<0.077	<0.076	<0.077		<0.076	<0.077	<0.077	<0.077	<0.077		<0.076	<0.077	<0.077	<0.076	<0.077		<0.078	<0.077	<0.076	<0.078	<0.078		
PCB081	ug/kg	<0.12	<0.12	<0.12	<0.12	<0.12		<0.12	<0.12	<0.12	<0.12	<0.12		<0.12	<0.12	<0.12	<0.12	<0.12		<0.12	<0.12	<0.12	<0.12	<0.12		
PCB087	ug/kg	<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11		
PCB099	ug/kg	0.39	0.34	0.26	0.28	0.51		0.67	0.51	0.58	0.23	0.3		0.25	0.25	<0.06	0.22	<0.06		0.41	0.34	0.4	0.29	0.38		
PCB101	ug/kg	0.63	0.68	0.64	0.55	0.97		1.4	1.3	1.4	0.6	0.73		0.57	0.43	0.36	0.48	<0.097		0.41	0.62	0.48	0.45	0.76		
PCB105	ug/kg	0.23	<0.054	<0.054	<0.054	0.71		<0.054	<0.054	<0.054	<0.054	0.32		<0.054	<0.054	<0.054	<0.054	<0.054		<0.055	0.39	<0.054	<0.055	0.36		
PCB110	ug/kg	0.39	0.43	0.36	0.32	0.67		0.98	0.72	0.83	0.48	0.54		<0.045	<0.045	<0.045	0.28	<0.046		<0.046	<0.046	<0.045	<0.046	0.43		
PCB114	ug/kg	<0.082	<0.082	<0.082	<0.08	<0.082		<0.08	<0.081	<0.082	<0.082	<0.081		<0.081	<0.081	<0.081	<0.081	<0.082		<0.082	<0.082	<0.081	<0.082	<0.082		
PCB118	ug/kg	0.39	0.58	0.27	0.37	0.7		0.65	0.7	0.79	<0.084	0.35		<0.083	0.31	0.26	0.36	<0.084		0.32	0.47	<0.083	0.43	0.36		
PCB119	ug/kg	<0.094	<0.094	<0.094	<0.093	<0.094		<0.093	<0.094	<0.094	<0.094	<0.094		<0.093	<0.094	<0.094	<0.093	<0.094		<0.094	<0.094	<0.093	<0.094	<0.094		
PCB123	ug/kg	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1		
PCB126	ug/kg	<0.08	<0.08	<0.08	<0.078	<0.08		<0.078	<0.079	<0.08	<0.08	<0.079		<0.079	<0.079	<0.079	<0.079	<0.08		<0.08	<0.08	<0.079	<0.08	<0.08		
PCB128	ug/kg	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1		
PCB132/153	ug/kg	1.6	1.8	1.4	1.5	2.4		2.2	2.3	2.4	2.0	1.4		1.7	2.0	1.9	1.8	1.7		1.3	1.9	2.3	1.6	2.1		
PCB138/158	ug/kg	1.1	1.4	<0.094	<0.093	1.7		<0.093	<0.093	<0.094	1.1	1.2		1.3	1.4	1.1	1.4	1.3		1.2	1.3	1.7	1.1	1.6		
PCB149	ug/kg	0.71	0.73	0.64	0.62	0.91		1.0	0.91	1.0	0.84	0.59		0.75	0.86	0.58	0.74	0.84		0.48	0.72	0.79	0.63	0.81		
PCB151	ug/kg	0.27	<0.067	<0.067	<0.066	<0.067		<0.066	<0.067	<0.067	<0.067	<0.067		<0.066	<0.067	<0.067	<0.066	<0.067		<0.067	<0.067	<0.066	<0.067	<0.067		
PCB156	ug/kg	<0.057	<0.057	<0.057	<0.056	<0.057		<0.056	<0.057	<0.057	<0.057	<0.057		<0.057	<0.057	<0.057	<0.057	<0.057		<0.058	<0.057	<0.057	<0.058	<0.058		
PCB157	ug/kg	<0.052	<0.052	<0.052	<0.051	<0.052		<0.051	<0.052	<0.052	<0.052	<0.052		<0.051	<0.052	<0.052	<0.051	<0.052		<0.052	<0.052	<0.051	<0.052	<0.052		

Table 18 (Continued). Bioaccumulation Potential Replicate and Mean Tissue Results for *Nereis virens* Exposed to Carnival Cruise, LA-2 Reference and Control Sediments.

Analytes	Units	Comp-a-						Comp-b-						Control-						LA2-REF-						T0-Mean
		A	B	C	D	E	Mean	A	B	C	D	E	Mean	A	B	C	D	E	Mean	A	B	C	D	E	Mean	
PCB167	ug/kg	<0.061	<0.061	<0.061	<0.06	<0.061		<0.06	<0.061	<0.061	<0.061	<0.061		<0.061	<0.061	<0.061	<0.061	<0.061		<0.062	<0.061	<0.061	<0.062	<0.062		
PCB168	ug/kg	<0.048	<0.048	<0.048	<0.048	<0.048		<0.048	<0.048	<0.048	<0.048	<0.048		<0.048	<0.048	<0.048	<0.048	<0.048		<0.049	<0.048	<0.048	<0.049	<0.049		
PCB169	ug/kg	<0.061	<0.061	<0.061	<0.06	<0.061		<0.06	<0.06	<0.061	<0.061	<0.06		<0.06	<0.06	<0.06	<0.06	<0.061		<0.061	<0.061	<0.06	<0.061	<0.061		
PCB170	ug/kg	<0.063	<0.063	<0.063	<0.062	<0.063		<0.062	<0.063	<0.063	0.32	<0.063		<0.062	<0.063	<0.063	0.35	<0.063		<0.063	<0.063	<0.062	<0.063	0.3		
PCB177	ug/kg	<0.087	<0.087	<0.087	<0.085	<0.087		<0.085	<0.086	<0.087	<0.087	<0.086		<0.086	<0.086	<0.086	<0.086	<0.087		<0.087	<0.087	<0.086	<0.087	<0.087		
PCB180	ug/kg	0.63	0.8	<0.042	0.56	0.58		0.92	0.77	1.1	0.65	0.49		0.52	0.91	0.62	0.64	1.1		<0.042	<0.042	0.81	0.74	0.73		
PCB183	ug/kg	0.26	0.27	0.26	<0.11	0.29		0.3	<0.11	0.29	0.25	<0.11		<0.11	0.31	0.25	0.44	0.36		<0.11	0.28	0.45	0.26	0.31		
PCB187	ug/kg	0.66	0.5	0.45	0.59	0.51		0.55	0.69	0.65	0.62	0.39		0.64	0.71	0.58	1.2	0.83		0.5	0.71	0.85	0.7	0.59		
PCB189	ug/kg	<0.061	<0.061	<0.061	<0.06	<0.061		<0.06	<0.06	<0.061	<0.061	<0.06		<0.06	<0.06	<0.06	<0.06	<0.061		<0.061	<0.061	<0.06	<0.061	<0.061		
PCB194	ug/kg	<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11		<0.11	<0.11	<0.11	<0.11	<0.11		
PCB201	ug/kg	<0.096	<0.096	<0.096	<0.095	<0.096		<0.095	<0.096	<0.096	<0.096	<0.096		<0.095	<0.096	<0.096	<0.095	<0.096		<0.097	<0.096	<0.095	<0.097	<0.097		
PCB206	ug/kg	<0.19	<0.19	<0.19	<0.19	<0.19		<0.19	<0.19	<0.19	<0.19	<0.19		<0.19	<0.19	<0.19	<0.19	<0.19		<0.19	<0.19	<0.19	<0.19	<0.19		
Total PCBs	ug/kg	8.20	8.44	4.81	4.79	11.1	7.47	12.7	11.2	13.6	8.43	7.66	10.7	6.09	7.18	5.65	7.91	6.13	6.59	4.62	6.73	7.78	6.2	8.73	6.81	4.61

Notes:
Bolded Values and Blue shaded cells indicate statistically significant differences in mean concentrations between test and LA-2 reference tissues.
 J = Estimated value between the method detection limit and reporting limit. A "J" value may also indicate an estimated value due to that value not meeting certain QC objectives.
 J+ = A high-biased estimate.
 "UJ-" = not detected estimated low value.

Table 19. Statistical Results for the Carnival Cruise Terminal Composite Samples *Macoma nasuta* Detected Tissue Concentrations Compared to Reference and Control Tissue Concentrations.

Analyte	Sample	n	% ND	Mean	Standard Deviation (n-1)	Lower Bound on Mean (95%)	Upper Bound on Mean (95%)	FDA Action Level
% Lipids	Composite-a	5	0	0.28	0.077	0.21	0.356	--
	Composite-b	5	0	0.44	0.117	0.326	0.55	
	Control	5	0	0.31	0.074	0.235	0.377	
	LA-2 Ref	5	0	0.26	0.099	0.168	0.356	
	T0	5	0	0.64	0.156	0.487	0.785	
Arsenic (mg/kg)	Composite-a	5	0	2.83	0.135	2.70	2.96	--
	Composite-b	5	0	2.89	0.243	2.63	3.12	
	Control	5	0	2.86	0.319	2.56	3.16	
	LA-2 Ref	5	0	2.59	0.201	2.40	2.78	
	T0	5	0	3.31	0.195	3.12	3.50	
Copper (mg/kg)	Composite-a	5	0	1.17	0.124	1.05	1.29	--
	Composite-b	5	0	1.01	0.11	0.905	1.11	
	Control	5	0	1.05	0.0855	0.970	1.13	
	LA-2 Ref	5	0	0.887	0.0399	0.849	0.925	
	T0	5	0	1.09	0.116	0.980	1.20	
Lead (mg/kg)	Composite-a	5	0	0.479	0.0583	0.423	0.535	--
	Composite-b	5	0	0.467	0.0644	0.406	0.528	
	Control	5	0	0.153	0.0118	0.142	0.164	
	LA-2 Ref	5	0	0.102	0.0101	0.092	0.112	
	T0	5	0	0.081	0.00929	0.072	0.09	
Zinc (mg/kg)	Composite-a	5	0	11.7	1.507	10.2	13.1	--
	Composite-b	5	0	11.6	1.094	10.5	12.6	
	Control	5	0	11.9	0.87	11.1	12.8	
	LA-2 Ref	5	0	10.5	1.711	8.9	12.1	
	T0	5	0	13.0	1.064	12.0	14.0	
2,4'-DDD (µg/kg)	Composite-a	5	3	0.115	0.0491	N/A	N/A	5,000 (Fish)
	Composite-b	5	0	0.384	0.0835	0.304	0.464	
	Control	5	5	ND	NA	NA	NA	
	LA-2 Ref	5	5	ND	NA	NA	NA	
	T0	5	5	ND	NA	NA	NA	
2,4'-DDE (µg/kg)	Composite-a	5	0	0.716	0.0808	0.64	0.793	5,000 (Fish)
	Composite-b	5	0	1.21	0.218	1.00	1.41	
	Control	5	0	0.362	0.0311	0.332	0.392	
	LA-2 Ref	5	0	0.452	0.112	0.345	0.559	
	T0	5	4	0.134	0.198	NA	NA	
4,4'-DDD (µg/kg)	Composite-a	5	0	1.08	0.234	0.859	1.30	5,000 (Fish)
	Composite-b	5	2	2.45	0.229	2.15	2.749	
	Control	5	0	0.788	0.142	0.653	0.923	
	LA-2 Ref	5	0	0.814	0.201	0.622	1.01	
	T0	5	0	0.716	0.248	0.479	0.953	

Table 19. Statistical Results for the Long Beach Carnival Cruise Terminal *Macoma nasuta* Detected Tissue Concentrations Compared to Reference and Control Tissue Concentrations (Continued).

Analyte	Sample	n	% ND	Mean	Standard Deviation (n-1)	Lower Bound on Mean (95%)	Upper Bound on Mean (95%)	FDA Action Level
4,4'-DDE (µg/kg)	Composite-a	5	0	4.46	1.205	3.31	5.61	5,000 (Fish)
	Composite-b	5	0	5.28	1.057	4.27	6.29	
	Control	5	0	0.584	0.252	0.344	0.824	
	LA-2 Ref	5	0	3.08	1.123	2.009	4.15	
	T0	5	0	0.334	0.073	0.264	0.404	
Total DDT's (µg/kg)	Composite-a	5	0	6.33	1.315	5.075	7.58	5,000 (Fish)
	Composite-b	5	0	9.56	1.143	8.47	10.6	
	Control	5	0	1.73	0.246	1.50	1.97	
	LA-2 Ref	5	0	4.35	1.225	3.18	5.51	
	T0	5	0	1.20	0.327	0.886	1.51	
Total PCB's (µg/kg)	Composite-a	5	0	11.8	3.092	8.82	14.7	3,000 (Red Meat)
	Composite-b	5	0	19.9	4.858	15.2	24.5	
	Control	5	4	0.204	0.028	N/A	N/A	
	LA-2 Ref	5	2	0.226	0.0622	0.153	0.299	
	T0	5	5	NA	NA	NA	NA	

Bolded values are higher than reference values.

Mean tissue concentrations shaded in blue are statistically elevated ($p \leq 0.05$) over mean reference and control tissue concentrations.

Mean tissue concentrations shaded in orange are statistically elevated ($p \leq 0.05$) over mean reference tissue concentrations only.

NA = value unable to be calculated due to high percentage of non-detect samples.

Italicized values were not statistically evaluated due to the number of NDs or the test results were not higher than the reference or control results.

Table 20. Statistical Results for the Carnival Cruise Terminal *Nereis virens* Detected Tissue Concentrations Compared to Reference and Control Tissue Concentrations.

Analyte	Sample	n	% ND	Mean	Standard Deviation (n-1)	Lower Bound on Mean (95%)	Upper Bound on Mean (95%)	FDA Action Level
% Lipids	Composite-a	5	0	0.87	0.373	0.512	1.22	--
	Composite-b	5	0	1.0	0.276	0.753	1.28	
	Control	5	0	1.0	0.119	0.916	1.144	
	LA-2 Ref	5	0	0.80	0.111	0.694	0.906	
	T0	5	0	0.76	0.207	0.563	0.957	
Arsenic (mg/kg)	Composite-a	5	0	2.10	0.0904	2.016	2.188	--
	Composite-b	5	0	1.97	0.102	1.878	2.058	
	Control	5	0	1.88	0.105	1.782	1.982	
	LA-2 Ref	5	0	2.16	0.121	2.04	2.272	
	T0	5	0	2.91	0.371	2.555	3.261	
Copper (mg/kg)	Composite-a	5	0	1.27	0.139	1.141	1.407	--
	Composite-b	5	0	1.07	0.128	0.951	1.195	
	Control	5	0	1.36	0.103	1.26	1.456	
	LA-2 Ref	5	0	1.28	0.369	0.923	1.627	
	T0	5	0	1.18	0.196	0.992	1.366	
Lead (mg/kg)	Composite-a	5	0	0.529	0.19	0.348	0.71	--
	Composite-b	5	0	0.362	0.0814	0.284	0.44	
	Control	5	0	0.314	0.0673	0.245	0.383	
	LA-2 Ref	5	0	0.557	0.464	-0.565	1.679	
	T0	5	0	0.265	0.0409	0.226	0.304	
Zinc (mg/kg)	Composite-a	5	0	24.1	12.14	12.53	35.67	--
	Composite-b	5	0	18.4	11	7.94	28.9	
	Control	5	0	23.6	5.931	17.93	29.23	
	LA-2 Ref	5	0	12.1	5.33	7.03	17.19	
	T0	5	0	11.2	3.186	8.17	14.25	
2,4'-DDD (µg/kg-lipid)	Composite-a	5	3	0.301	0.398	NA	NA	5,000 (Fish)
	Composite-b	5	1	0.576	0.457	0.189	0.963	
	Control	5	2	0.312	0.253	0.037	0.587	
	LA-2 Ref	5	1	0.474	0.158	0.26	0.688	
	T0	5	2	0.18	0.0556	0.132	0.228	
2,4'-DDE (µg/kg-lipid)	Composite-a	5	0	1.26	0.627	0.665	1.86	5,000 (Fish)
	Composite-b	5	0	1.90	1.291	0.672	3.13	
	Control	5	0	0.971	0.303	0.682	1.26	
	LA-2 Ref	5	0	0.545	0.218	0.338	0.75	
	T0	5	0	0.566	0.49	0.099	1.03	
4,4'-DDD (µg/kg)	Composite-a	5	3	0.988	0.241	NA	NA	5,000 (Fish)
	Composite-b	5	5	ND	N/A	NA	NA	
	Control	5	0	1.28	0.255	1.039	1.52	
	LA-2 Ref	5	0	1.59	0.417	1.191	1.99	
	T0	5	0	0.794	0.362	0.449	1.14	

Table 20. Statistical Results for the Long Beach Carnival Cruise Terminal *Nereis virens* Detected Tissue Concentrations Compared to Reference and Control Tissue Concentrations (Continued).

Analyte	Sample	n	% ND	Mean	Standard Deviation (n-1)	Lower Bound on Mean (95%)	Upper Bound on Mean (95%)	FDA Action Level
4,4'-DDE (µg/kg-lipid)	Composite-a	5	0	0.891	0.256	0.647	1.14	5,000 (Fish)
	Composite-b	5	0	0.915	0.36	0.572	1.26	
	Control	5	0	0.552	0.246	0.317	0.787	
	LA-2 Ref	5	0	0.792	0.198	0.603	0.981	
	T0	5	0	0.795	0.45	0.366	1.22	
4,4'-DDT (µg/kg)	Composite-a	5	4	<i>0.0736</i>	0.0432	NA	NA	5,000 (Fish)
	Composite-b	5	5	<i>ND</i>	NA	NA	NA	
	Control	5	3	0.203	0.221	NA	NA	
	LA-2 Ref	5	5	<i>ND</i>	NA	NA	NA	
	T0	5	3	0.337	0.486	NA	NA	
Total DDT's (µg/kg-lipid)	Composite-a	5	0	4.13	1.577	2.63	5.64	5,000 (Fish)
	Composite-b	5	0	6.33	1.941	4.48	8.18	
	Control	5	0	3.24	0.913	2.37	4.11	
	LA-2 Ref	5	0	3.79	0.867	3.03	4.56	
	T0	5	0	2.94	0.86	2.12	3.76	
Total PCB's (µg/kg-lipid)	Composite-a	5	0	9.18	2.688	4.91	10.0	3,000 (Red Meat)
	Composite-b	5	0	10.8	2.601	8.24	13.2	
	Control	5	0	6.48	0.927	5.71	7.48	
	LA-2 Ref	5	0	8.52	1.565	5.32	8.30	
	T0	5	0	6.11	1.118	3.54	5.67	

Bolded values are higher than reference values.

Mean tissue concentrations shaded in blue are statistically elevated ($p \leq 0.05$) over mean reference and control tissue concentrations.

Mean tissue concentrations shaded in orange are statistically elevated ($p \leq 0.05$) over mean reference tissue concentrations only.

NA = value unable to be calculated due to high percentage of non-detect samples.

Italicized values were not statistically evaluated due to the number of NDs or the test results were not higher than the reference or control results.

5.0 DISCUSSION

Subsections that follow describe the physical, chemical, and biological testing results, as summarized in Tables 8 through 20, in terms of sediment screening levels and objectives for ODMDS placement.

5.1 Grain Size Distribution

All three Carnival samples (Composite-*a*, Composite-*b* and C1-*b*) were described as primarily silt (ML). The fines content in the Composite-*a* sample was 84%, and the fines content in the Composite-*b* and C1-*b* samples was 95%. In comparison, the fines content in the LA-2 reference sample was 53%.

5.2 Bulk Sediment Chemistry

Most sediment conventional analyses were elevated in all three Long Beach Cruise Terminal samples compared to the LA-2 reference sample. Notably elevated concentrations above LA-2 reference concentrations are as follows:

- TRPH and oil and grease concentrations in all samples were roughly a magnitude higher.
- Total sulfide concentrations in all samples were roughly 500 times higher.
- The concentration of Total Organic Carbon, at 1.4% to 2.2% between all samples, was roughly four to six times higher.
- Total volatile solids concentrations were roughly two times higher.

Concentrations of total solids, ammonia and dissolved sulfides in the Long Beach Cruise Terminal sediment samples were similar to those in the LA-2 reference sample.

Compared to NOAA effects based screening levels (Long et. al., 1995) and LA-2 reference data, contaminant concentrations were elevated for some metals in the Long Beach Cruise Terminal sediments. Arsenic, copper, lead, nickel, and zinc exceeded corresponding ERL values in both composite samples and the C1-*b* sample. In addition, cadmium exceeded its corresponding ERL value in the C1-*b* sample, and mercury exceeded its corresponding ERL value in the Composite-*b* sample and the C1-*b* sample. There were no metal ERM exceedances in any sample, and there were no metal ERL exceedances in the LA-2 reference sample. As a result, most metal concentrations in the test sediments were elevated over concentrations in the LA-2 reference sediments.

A few organic compounds exceeded NOAA effects based screening levels and LA-2 reference values in the Long Beach Cruise Terminal sediment samples. Total PCB congener concentrations for Composite-*a*, Composite-*b*, and the C1-*b* samples were elevated above the corresponding ERL value, and PCB congeners were not present in the LA-2 reference sediments. Total DDT, 4,4'-DDD, 4,4'-DDE concentrations were between corresponding ERL and ERM values in both composite samples as well as the C1-*b* core sample. Total DDT and 4,4'-DDE were also elevated above ERL values in the LA-2 reference sediments. Most PAH compounds were detected in the Long Beach Cruise Terminal sediment samples, but none were detected in the LA-2 reference sample. However, there were no PAH compounds that exceeded an ERL value.

The following are other organic compounds detected in the Long Beach Cruise Terminal samples above method detection limits (MDLs):

- Endrin was detected in the Composite-*a* sample (6.1 µg/kg) but not in the LA-2 reference sample (MDL=0.1).
- Pentachlorophenol concentrations in all three Long Beach Cruise Terminal samples were between the MDL and reporting limit (RL) but below the MDL in the LA-2 reference sample.
- Bis-(2ethylhexyl) phthalate concentrations in all three Long Beach Cruise Terminal samples (510 to 830 µg/kg) were a magnitude higher than the MDL but below the MDL in the LA-2 reference sample.
- Two other phthalate compound concentrations in the Composite-*a* and C1-*b* samples were estimated values between the MDL and RL.
- Bifenthrin concentrations in the all three Long Beach Cruise Terminal samples (4.3 to 11 µg/kg) were roughly four to 11 times higher than the RL (1.0 µg/kg). Bifenthrin was not detected in the LA-2 reference sample.
- Cyfluthrin and cypermethrin were detected in the Composite-*a* sample at concentrations of 2.0 and 1.4 µg/kg, respectively, but not in the LA-2 reference sample. Cyfluthrin was also detected in the Composite-*b* sample but at an estimated concentration slightly above the MDL.
- Permethrin concentrations in the all three Long Beach Cruise Terminal samples (2.3 to 7.8 µg/kg) were roughly two to eight times higher than the RL (1.0 µg/kg). Permethrin was not detected in the LA-2 reference sample.

The mean ERM quotient (ERM_q) among all chemical constituents with ERM values was 0.18 for all three Carnival samples. With an ERM_q of 0.1, there is less than a 12% probability of a toxic response to marine amphipods (Long and MacDonald, 1998b). Therefore, the chemistry results predict a moderate chance that the Carnival sediments would cause significant toxicity to marine amphipods.

5.3 Benthic (Solid Phase) Bioassays

Mean survival of *Ampelisca abdita* in the control sediments after the 10-day exposures was acceptable at 97%. Mean *Ampelisca* survival results (Table 10) were 94% for Composite-*a* and 91% for Composite-*b* compared to 96% for the LA-2 reference sample. Since the composite sample survival rates were not statistically reduced relative to the survival in the LA-2 reference sediments, neither Long Beach Cruise Terminal composite sample was toxic to *Ampelisca abdita*.

Mean *Neanthes arenaceodentata* survival was 98% for Composite-*a* and 100% for Composite-*b* compared to 100% for the LA-2 reference sample (Table 11). Since both composite sample survival rates were almost equivalent to the survival rate in the LA-2 reference sediments, neither Long Beach Cruise Terminal composite samples were toxic to *Neanthes arenaceodentata*.

5.4 SPP (Suspended Particulate Phase) Water Column Bioassays

Table 21 summarizes the outcomes of the SPP bioassays and the 100% elutriate survival data presented in Tables 12 through 14. These bioassays are discussed separately below for each of the three species.

Table 21. 100% Elutriate SPP Water Column Bioassays Results.

Composite	Species	Mean Percent Survival (Normal Development) in 100% Elutriate	LC ₅₀ (EC ₅₀)	Exceed the LPC?
Composite-a	<i>Mytilus</i>	89.4 (91.1)	>100% (>100%)	No
	<i>Americamysis</i>	98	>100%	No
	<i>Menidia</i>	92	>100%	No
Composite-b	<i>Mytilus</i>	86.3 (88.7)	>100% (>100%)	No
	<i>Americamysis</i>	100	>100%	No
	<i>Menidia</i>	98	>100%	No

5.4.1 48-Hour Mussel Larvae Survival and Normal Embryonic Development Test

Mean survival of *Mytilus galloprovincialis* (mussel) embryos was greater than 92% in the laboratory controls, indicating an acceptable survival response to the test organisms (Table 12). Mean survival in the 100% test elutriates was 89.4% for Composite-a and 86.3% for Composite-b and were not statistically reduced relative to the dilution water (laboratory control) nor site water control (93.0% mean survival). Resulting LC₅₀ values were both greater than 100% elutriate. Therefore, no acute water column toxicity is expected based on elutriate exposures to *Mytilus*.

Mean normally developed mussel embryos were greater than 93% in the laboratory control samples and was 95.2% in the site water (Table 12). Mean normally developed embryos in the 100% test elutriates was 91.1% for Composite-a and 88.7% for Composite-b and were not statistically reduced relative to the laboratory control and site water. Resulting EC₅₀ values were both greater than 100% elutriate. Therefore, no chronic water column toxicity is expected based on elutriate exposures to *Mytilus*.

5.4.2 96-Hour Mysid Survival Test

Mean survival of *Americamysis bahia* exposed for 96 hours to the undiluted elutriate SET extracts formed from the Long Beach Cruise Terminal composite samples was 98% for Composite-a and 100% for Composite-b compared to mean control survivals of 96% and 100% (Table 13). None of the composite samples were statistically reduced relative to the dilution water (laboratory controls) nor site water control (100% mean survival). Resulting LC₅₀ values were all greater than 100% elutriate, indicating no toxicity to mysids after 96 hours of exposure.

5.4.3 96-Hour Juvenile Fish Survival Test

Mean survival of juvenile *Menidia berylinna* exposed for 96 hours to the undiluted elutriate SET extracts formed from the Long Beach Cruise Terminal composite samples was 92% for Composite-*a* and 98% for Composite-*b*, compared to mean control survivals of 98% (Table 14). Test sample mean survivals were not statistically reduced relative to the dilution water (laboratory control) nor site water control (100% mean survival), indicating no toxicity to fish after 96 hours of exposure.

5.4.4 SPP Testing Conclusion

Since there was no observed toxicity in the water column tests with any of the composite samples, the limiting permissible concentrations (LPCs) for discharging the Long Beach Cruise Terminal sediments through the water column were met.

5.5 Bioaccumulation Testing for Ocean Placement

Bioaccumulation potential testing is discussed in terms of meeting the LPC for ocean placement. Each chemical evaluated is discussed separately.

5.5.1 Bioaccumulation Survival

Though the main purpose of the bioaccumulation tests is to determine whether contaminants of concern will bioaccumulate up to marine invertebrates from sediment, survival of the clams and worms during the exposure period was also measured. After 28-day bioaccumulation exposures, mean *Macoma* survival was 91% and 94% for Composite-*a* and Composite-*b*, respectively, and mean *Nereis* survival was 100% and 96% for Composite-*a* and Composite-*b*, respectively (Tables 13 and 14) compared to 94% and 86% for the reference and control exposures to *Macoma*, respectively, and 100% for the reference and control exposures to *Nereis*. Therefore, the 28-day survival data for the clams and worms further supports the results of the toxicity tests described above that indicate that the test sediments are not toxic to benthic organisms.

5.5.2 Assessment of Bioaccumulation Potential

Tissues of the clams and worms resulting from the bioaccumulation exposures were analyzed for contaminants of concern. Based on sediment chemistry data and consultation with the USEPA Region IX, tissues derived from the bioaccumulation exposures were analyzed for arsenic, copper, lead, zinc, DDT compounds, and PCB congeners.

As indicated in the OTM, the statistical comparison of tissue residues in the treatments to the reference tissue residues provides a starting point to the tiered evaluation. Because variability between replicates in the reference tissues is typically low, a statistical significance may be observed without biological relevance. In this case, other points of comparison and interpretation are used, including an evaluation of the magnitude of difference, a comparison of observed tissue residues with critical body residue levels. These points of evaluation will be discussed in the following sections.

The null hypotheses tested were that residue concentrations in the the test tissues were not statistically different than residue concentrations in the reference tissues and that residue concentrations in the the test tissues were not statistically different than residue concentrations in the control tissues. Statistical conclusions for *Macoma* are provided in Table 19 and statistical conclusions for *Nereis* are provided in Table 20. Mean concentrations in blue shaded cells indicate statistically significant differences with mean reference and control tissue concentrations. Mean concentrations in green shaded cells indicate statistically significant differences with mean reference tissue concentrations only.

Statistical hypothesis testing was not or could not be conducted for all analytes in all samples for the following reasons:

- 2,4'-DDD was not statistically evaluated in the Composite-*a* and Composite-*b* *Macoma* tissues because this isomer was not detected in the reference and control tissues.
- 2,4'-DDD was not statistically evaluated in the Composite-*a* *Nereis* tissues because the isomer was not detected in more than half the replicates.
- 4,4'-DDD was not statistically evaluated in the Composite-*a* and Composite-*b* *Nereis* tissues because the isomer was not detected or was less than mean tissue concentrations for the reference and control.
- 4,4'-DDT was not statistically evaluated in the Composite-*a* *Nereis* tissues because the isomer was not detected in more than half the test, reference and control replicates. 4,4'-DDT was not detected in the Composite-*b* *Nereis* tissues.

Since mean arsenic and copper concentrations in both *Macoma* and *Nereis* baseline (T0) tissues were similar to or higher than mean test tissue concentrations for either of the composite samples being evaluated, bioaccumulation of arsenic and copper is not predicted, and therefore, ecological and human health effects associated with arsenic and copper uptake from the test sediments are not predicted. In addition, since 4,4'-DDT was not detected in the *Macoma* tissues and was higher in the T0 *Nereis* tissues, ecological and human health effects associated with 4,4'-DDT uptake from the test sediments are not predicted. Therefore, only the statistically significant bioaccumulation of lead, zinc, PCBs, and the remaining DDT isomers as well as total DDT will be discussed further.

Nereis tissue results for 2,4'-DDD, 2,4'-DDE, 4,4'-DDE, total DDT, and PCBs were normalized to lipids since positive relationships were found between those concentrations and lipid concentrations. Figures 6 and 7 show the relationship between lipids and total DDT and lipids and total PCBs, respectively.

For mean tissue concentrations that were detected in the test tissues and were determined to be statistically higher than mean reference concentrations, the upper 95% confidence limits (95% UCL) were compared to FDA action levels and the lowest relevant ecological effects data among invertebrates unless, in the case of DDT, there are no relevant ecological effects data for marine invertebrates. As previously mentioned, ecological effects data used were Toxicity Reference Values (TRVs) in USACE's online Environmental Residue Effects Database (ERED) (<https://ered.el.erdc.dren.mil/>). Only no effects concentration (NOEC) and lowest effects concentration (LOEC) end points were queried with the preference being the use of a LOEC

endpoint. TRVs chosen were only for measurable biological effects such as mortality, reproduction and growth.

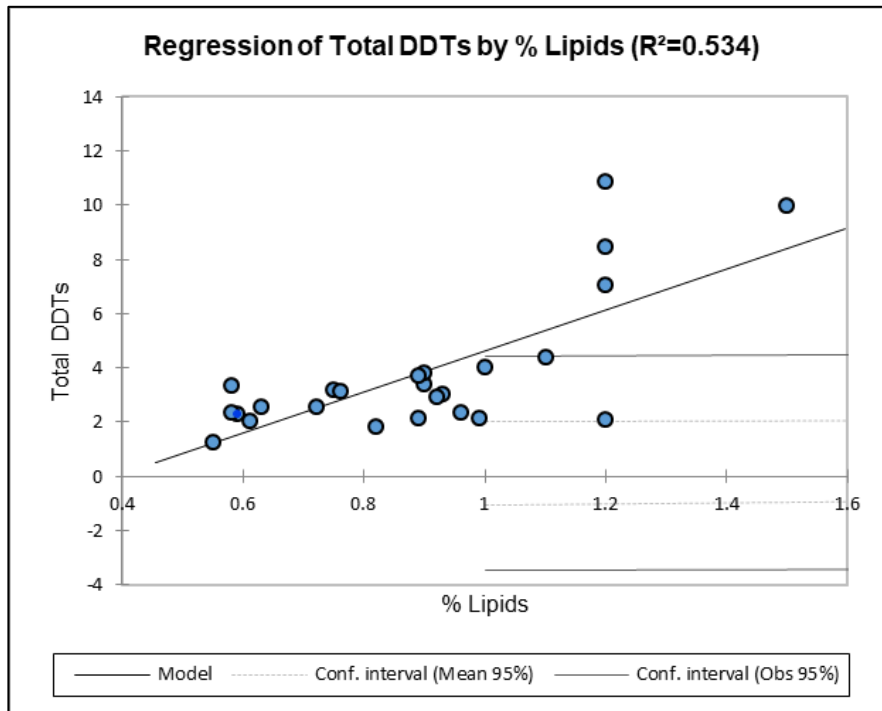


Figure 6. Relationship between Total DDT and Lipid Concentrations in *Nereis* Tissues.

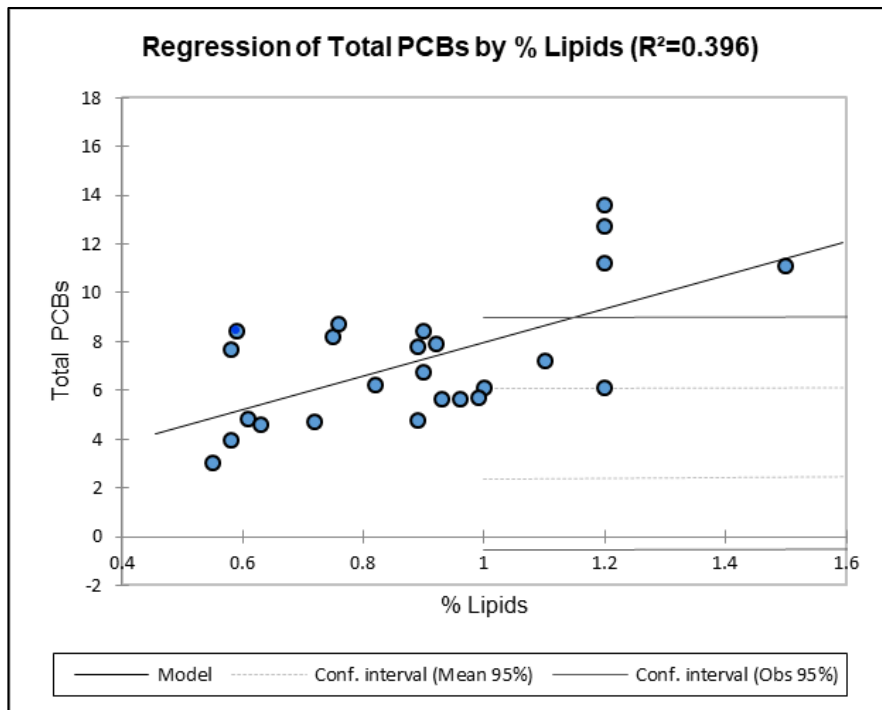


Figure 7. Relationship between Total PCBs and Lipid Concentrations in *Nereis* Tissues.

5.5.3 Uptake of Lead

The distribution of lead uptake among *Macoma* and *Nereis* test, control, and reference tissues are shown on Figures 8 and 9, respectively. Mean concentrations of lead in the Composite-*a* and Composite-*b* *Macoma* tissue samples after 28 days of exposures were statistically higher than mean concentrations of lead in the *Macoma* tissues from the 28 days of reference sediment exposures (Table 19). Lead was not statistically elevated in the *Nereis* test tissues compared to the *Nereis* reference tissues.

Statistically significant mean uptakes of lead in the Composite-*a* and Composite-*b* *Macoma* test tissues (0.479 and 0.467 mg/kg, respectively) were about five times higher than the mean uptake in the *Macoma* reference tissues (0.102 mg/kg) and three times higher than the mean uptake in the *Macoma* control tissues (0.153 mg/kg). Mean uptakes of lead in the *Macoma* test tissues were also about six times higher than the concentration of lead in the T0 tissue sample (0.081mg/kg). The distribution of lead in the *Nereis* test, reference, Control and T0 tissues were roughly similar (Figure 9).

There is no FDA Action Level for lead and there are no known fish advisories based on lead. Therefore, mean and 95% UCL lead tissue burdens are only discussed in terms of ecological effects based on TRVs. The lowest, most relevant lead value in the ERED for a marine invertebrate was a survival and development LOEC of 31.4 mg/kg for the Purple Sea Urchin *Paracentrotus lividus*, which is a couple magnitudes higher than the Long Beach Cruise Terminal 95% UCL *Macoma* tissue concentrations. There was also a survival NOEC of 0.58 mg/kg for the Purple Sea Urchin that was slightly higher than the Composite-*a* and Composite-*b* mean *Macoma* tissue concentrations. Since there is little evidence showing that lead biomagnifies (Suedel et al., 1994), it seems unlikely that lead bioaccumulation from the Long Beach Cruise Terminal sediments will have any ecological impacts. Therefore, the statistically significant bioaccumulation of lead observed with the *Macoma* assays is considered minor and ecological effects associated with lead uptake from these sediments are not predicted to be observed at LA-2 ODMDS.

5.5.4 Uptake of Zinc

The distribution of zinc uptake among *Macoma* and *Nereis* test, control, and reference tissues is shown on Figures 10 and 11, respectively. The mean concentration of zinc in the Composite-*a* *Nereis* tissues after 28 days of exposures was statistically higher by a factor of two than the mean concentration of zinc in the *Nereis* tissues from the 28 days of reference exposures (Table 20). Note that the mean *Nereis* T0 tissue concentration for Zinc (11.2 µg/kg) was about half the mean *Nereis* Composite-*a* zinc concentration (24.1 µg/kg), and the mean *Nereis* control concentration (23.6 µg/kg) was also statistically elevated over LA-2 *Nereis* reference concentration (12.1 µg/kg). Therefore, zinc concentrations in the *Nereis* Composite-*a* test tissues are biased high. Zinc was not statistically elevated in any of the *Macoma* test tissues compared to the *Macoma* reference tissues.

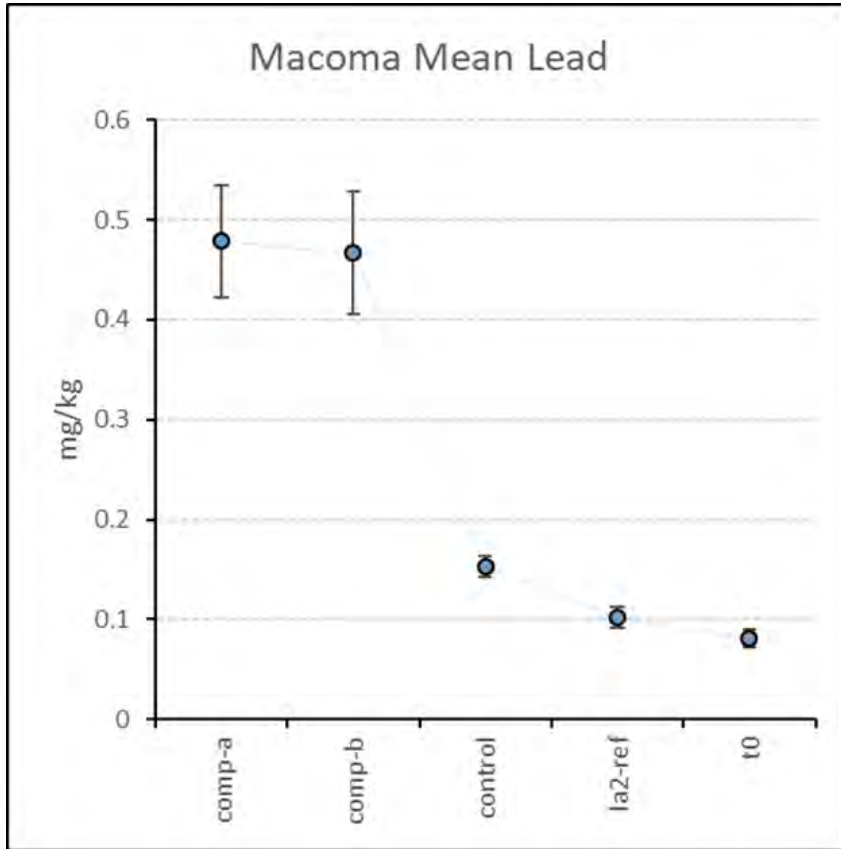


Figure 8. Distribution of *Macoma nasuta* Lead Uptake.

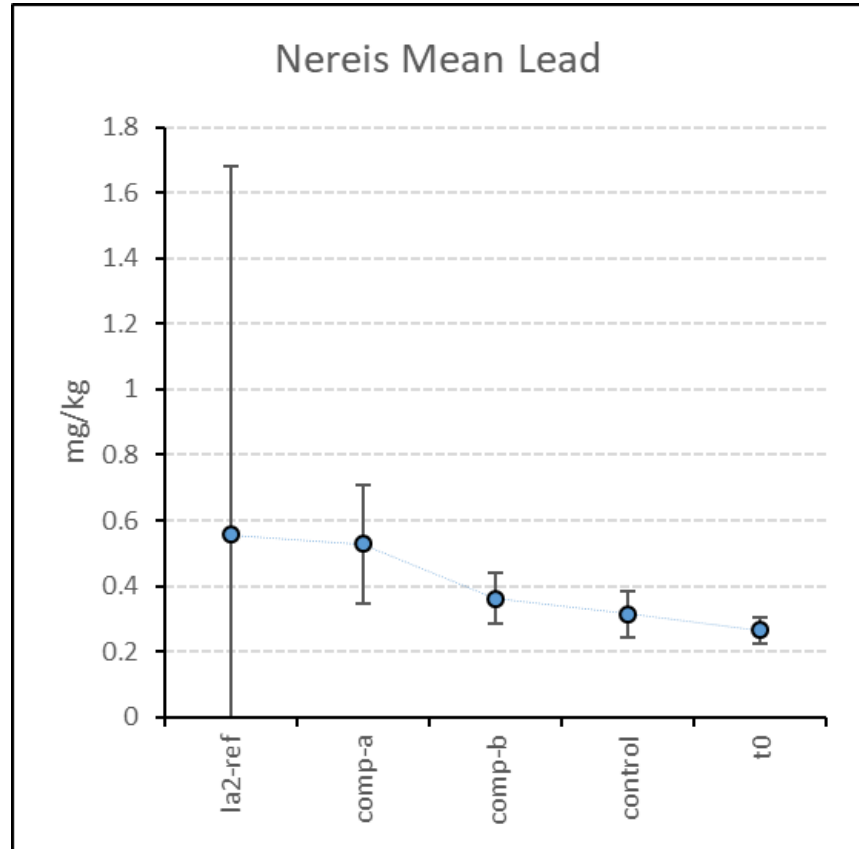


Figure 9. Distribution of *Nereis virens* Lead Uptake.

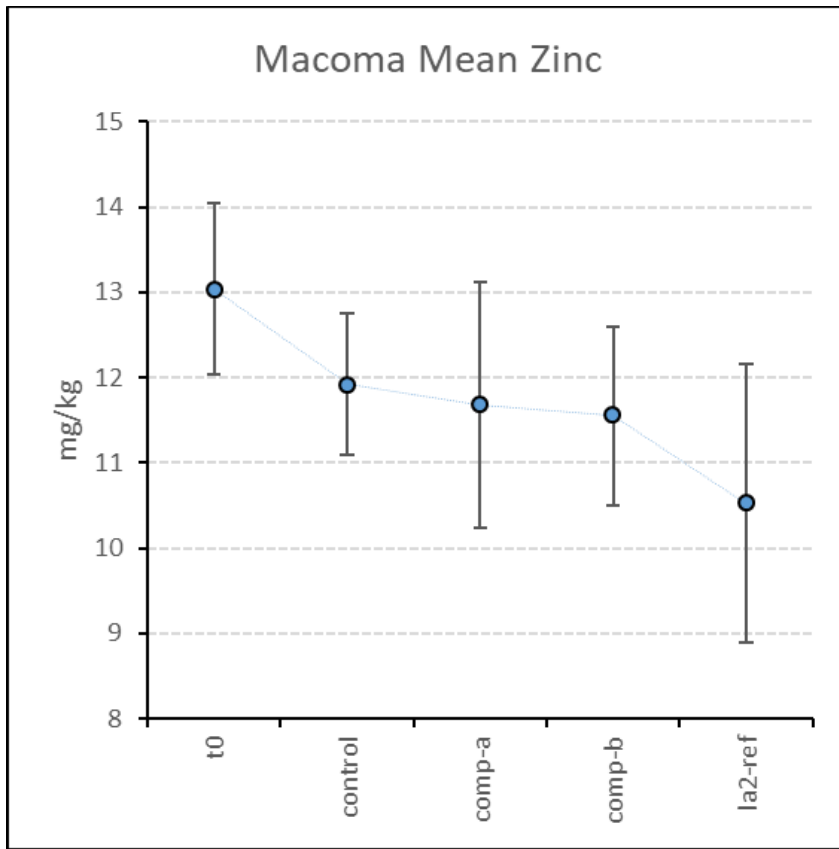


Figure 10. Distribution of *Macoma nasuta* Zinc Uptake.

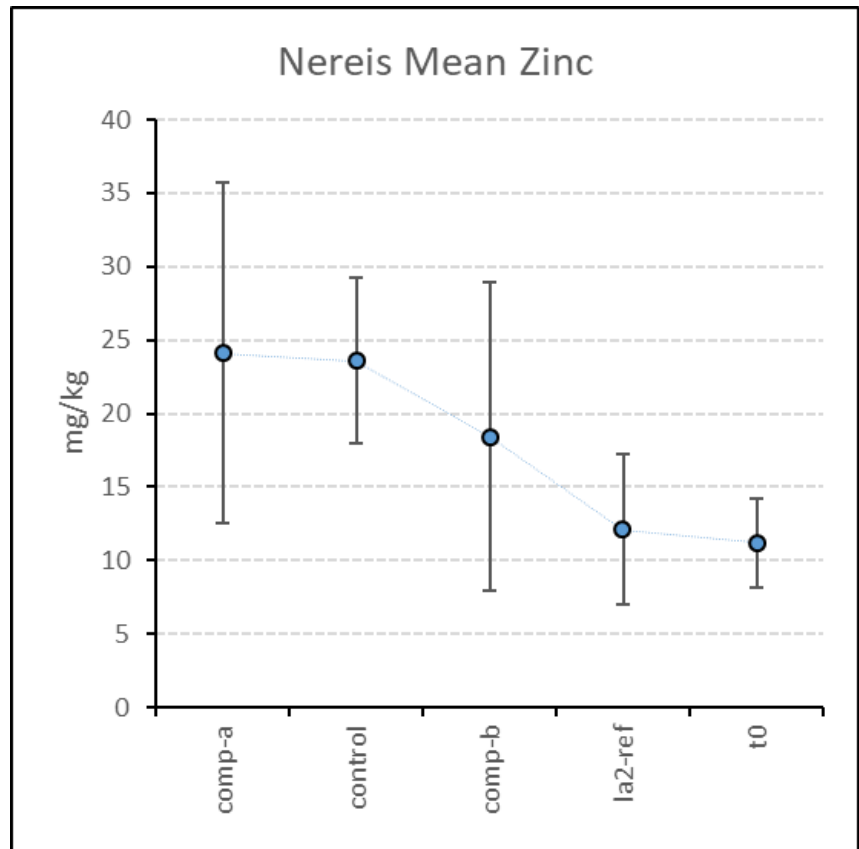


Figure 11. Distribution of *Nereis virens* Zinc Uptake.

There is no FDA Action Level for zinc and there are no known fish advisories based on zinc. Therefore, zinc tissue burdens are only discussed in terms of ecological effects based on TRVs. There are several low and relevant zinc TRVs in the ERED for marine invertebrates. These TRVs, which were similar to or slightly less than the 95% UCL concentration (35.7 µg/kg) in Composite-*a Nereis* test tissues, are summarized in Table 22. If you subtract off the 14.3 µg/kg T0 95% UCL concentration from the Composite-*a* 95% UCL concentration, the result (20.7 µg/kg) is mostly less than the Table 22 TRVs.

Table 22. Lowest Relevant TRVs for Zinc in the ERED Database.

Species	Classification	TRV (mg/kg)	Toxicity End Point	Exposure Route	Effect
<i>Allorchestetes</i>	Amphipod	28	LOEC	Water	Growth and
<i>Mytilus edulis</i>	Mollusk	25	LOEC	Water	Growth
<i>Mytilus edulis</i>	Mollusk	26	LOEC	Water	Mortality
<i>Paracentrotus lividus</i>	Echinoderm	40.6	LOEC	Water	Development
<i>Australonereis ehlersi</i>	Polychaete	20	NOEC	Combined	Mortality

Since there is little evidence showing that zinc biomagnifies (Suedel et al., 1994) plus the lowest, most relevant TRV in Table 21 (Mollusk LOEC) is higher than the Composite-*a Nereis* tissue concentration, it seems unlikely that zinc bioaccumulation from the Long Beach Cruise Terminal sediments will have any ecological impacts. This coupled with the fact that there was also statistically significant Control uptake of lead, the statistically significant bioaccumulation of zinc observed with the *Nereis* assays is considered minor and ecological effects associated with zinc uptake from these sediments are not predicted to be observed at the LA-2 ODMDS.

5.5.5 Uptake of DDTs

The distribution of *Macoma* total DDT uptake along with the distributions of four of the DDT isomers detected among test, Control, and reference tissues are shown on Figures 12 through 16. There was statistically significant ($p \leq 0.05$) mean uptake of total DDT in the Composite-*a* and Composite-*b Macoma* tissues compared to the LA-2 reference tissues (Table 19). Mean *Macoma* tissue concentrations were 6.33 and 9.56 µg/kg for these composite samples, respectively, compared to 4.35 µg/kg in the LA-2 reference tissue samples (roughly two times higher). The five detected isomers were also statistically elevated in the test tissues from one or both of the composite samples. DDT concentrations in the test, reference and Control tissue were biased high with a mean T0 total DDT concentration of 1.2 µg/kg.

The distribution of *Nereis* total DDT uptake along with the distributions of the five DDT isomers detected among test, control, and reference tissues are shown on Figures 17 through 22. There was statistically significant ($p \leq 0.05$) mean uptake of total DDT in the Composite-*b Nereis* tissues compared to the LA-2 reference tissues (Table 20). The mean *Nereis* tissue concentration for this composite was 6.22 µg/kg-lipid compared to 3.79 µg/kg-lipid for the LA-2 reference tissues (less than two times higher). 2,4'-DDE was the only isomer that was also statistically elevated in the Composite-*b* test tissues as well as in the Composite-*a* test tissues. DDT concentrations in the test, reference and control tissues were biased high with a mean T0 total DDT concentration of 2.94 µg/kg-lipid.

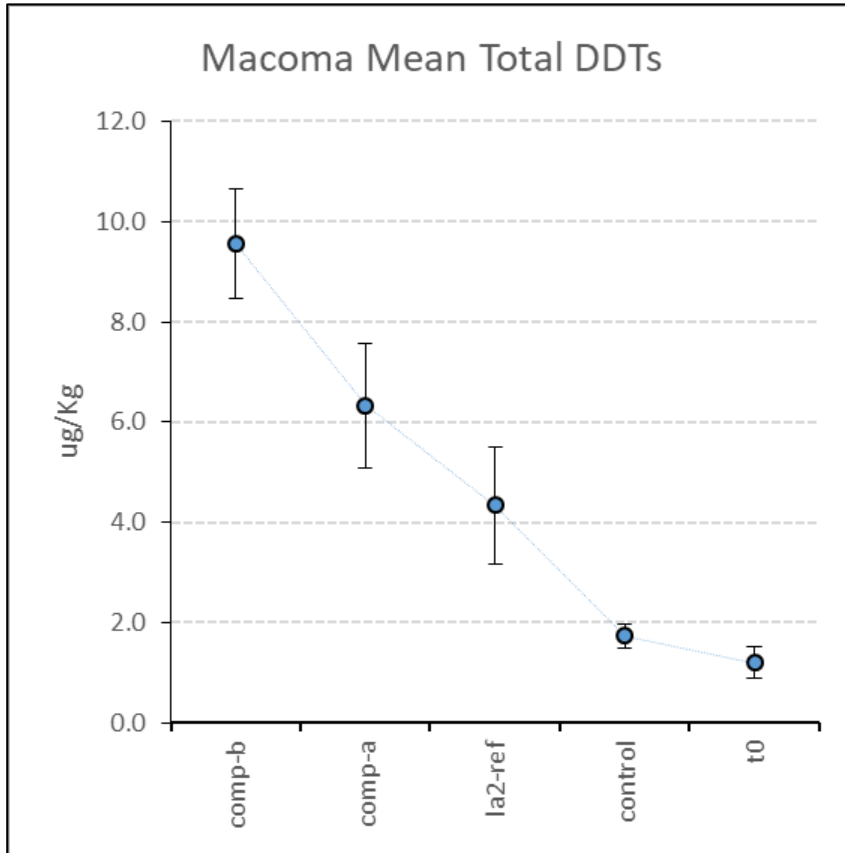


Figure 12. Distribution of *Macoma nasuta* Total DDT Uptake.

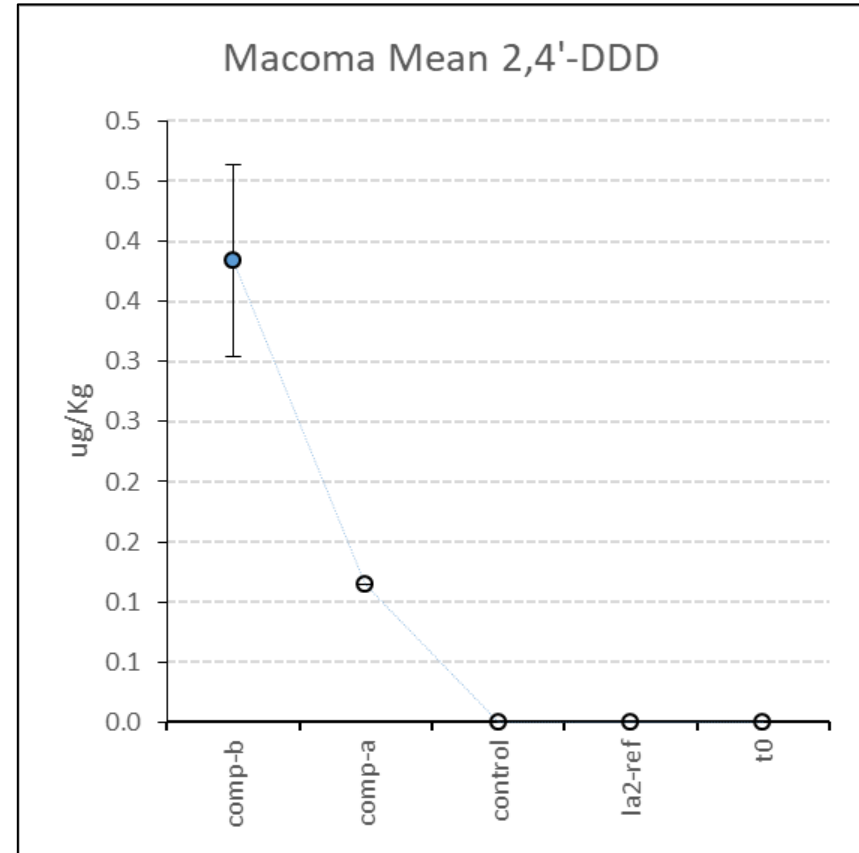


Figure 13. Distribution of *Macoma nasuta* 2,4' DDD Uptake.

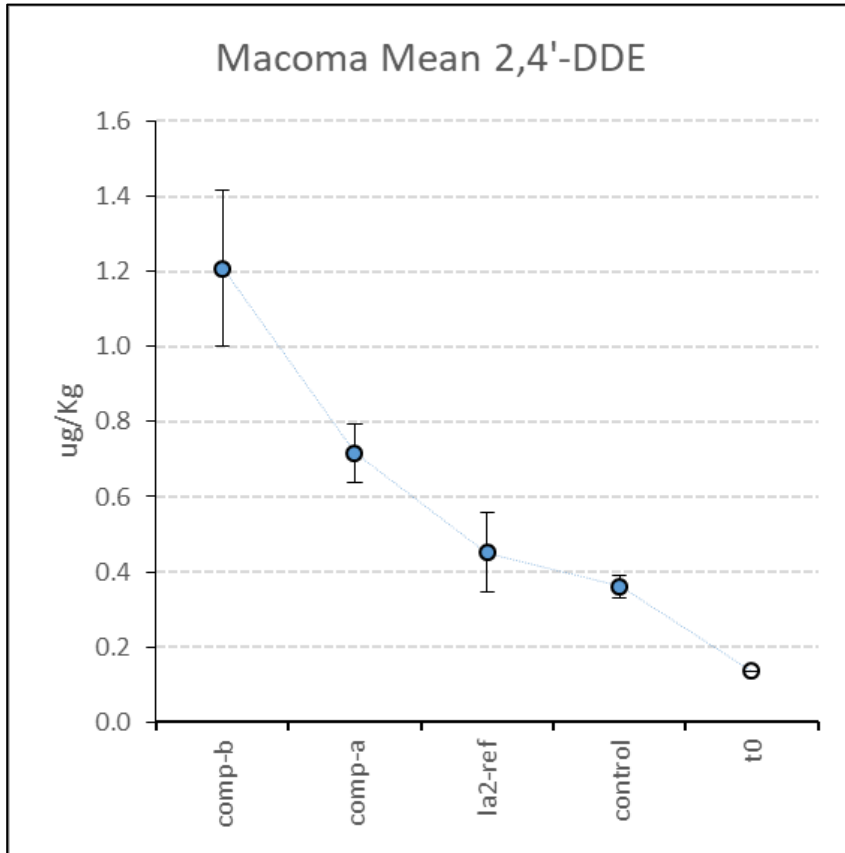


Figure 14. Distribution of *Macoma nasuta* 2,4' DDE Uptake.

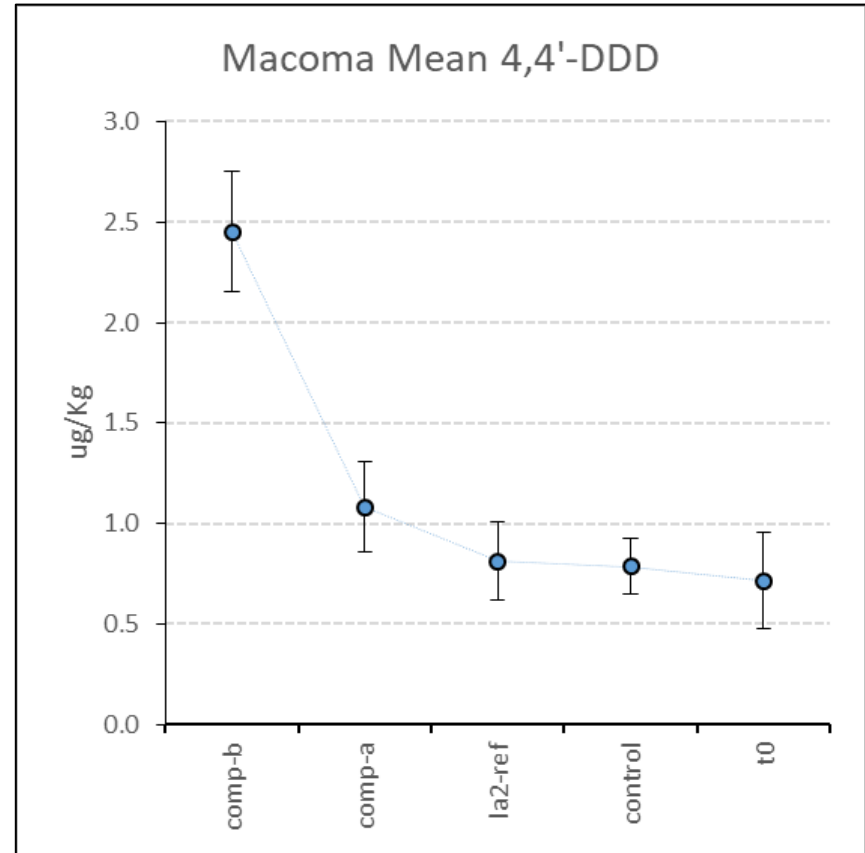


Figure 15. Distribution of *Macoma nasuta* 4,4' DDD Uptake.

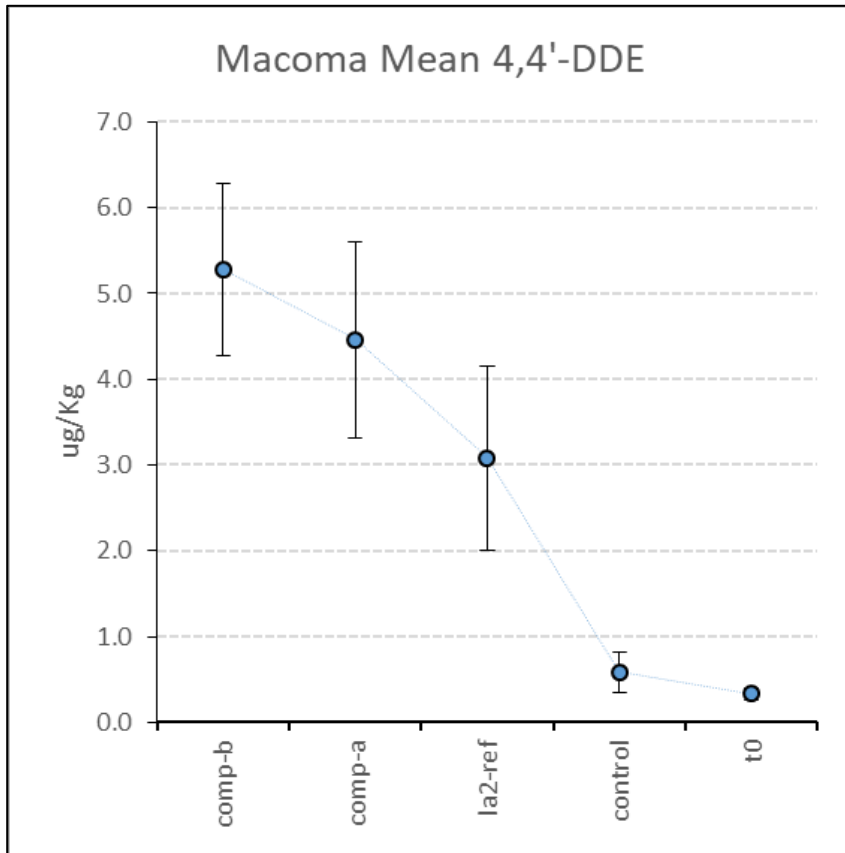


Figure 16. Distribution of *Macoma nasuta* 4,4' DDE Uptake.

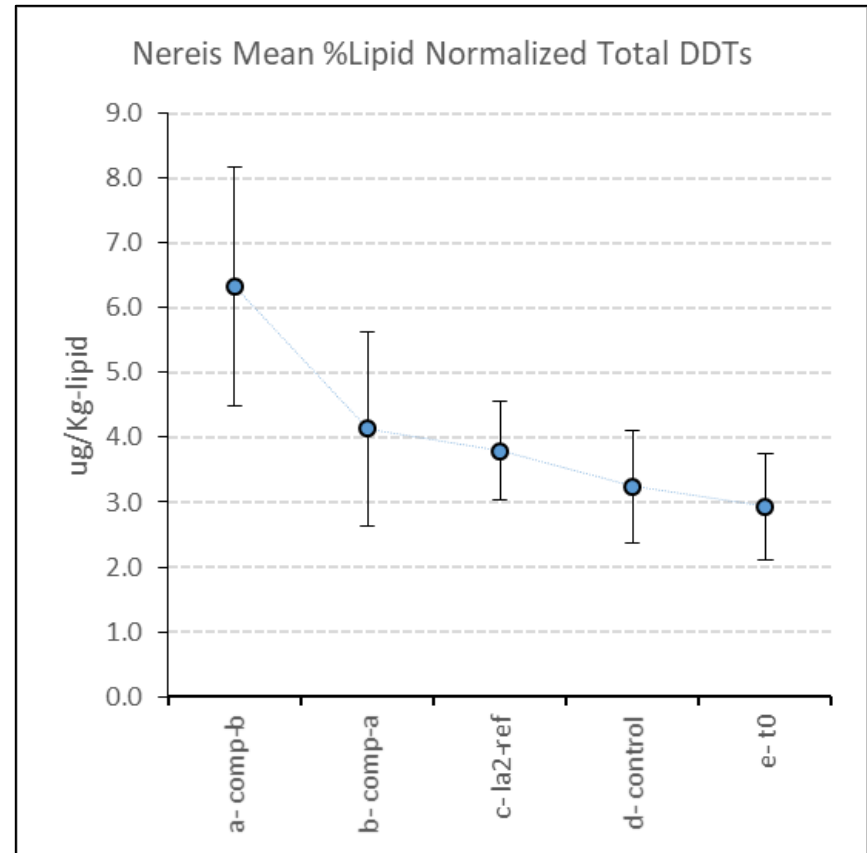


Figure 17. Distribution of *Nereis virens* Total DDT Uptake.

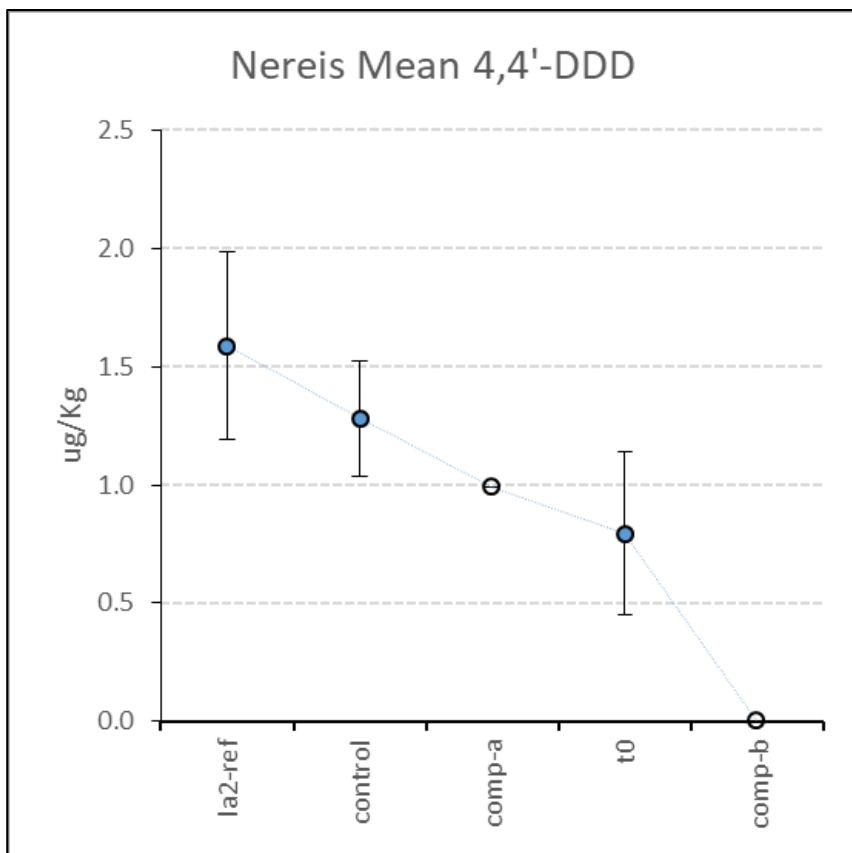


Figure 18. Distribution of *Nereis virens* 2,4' DDD Uptake.

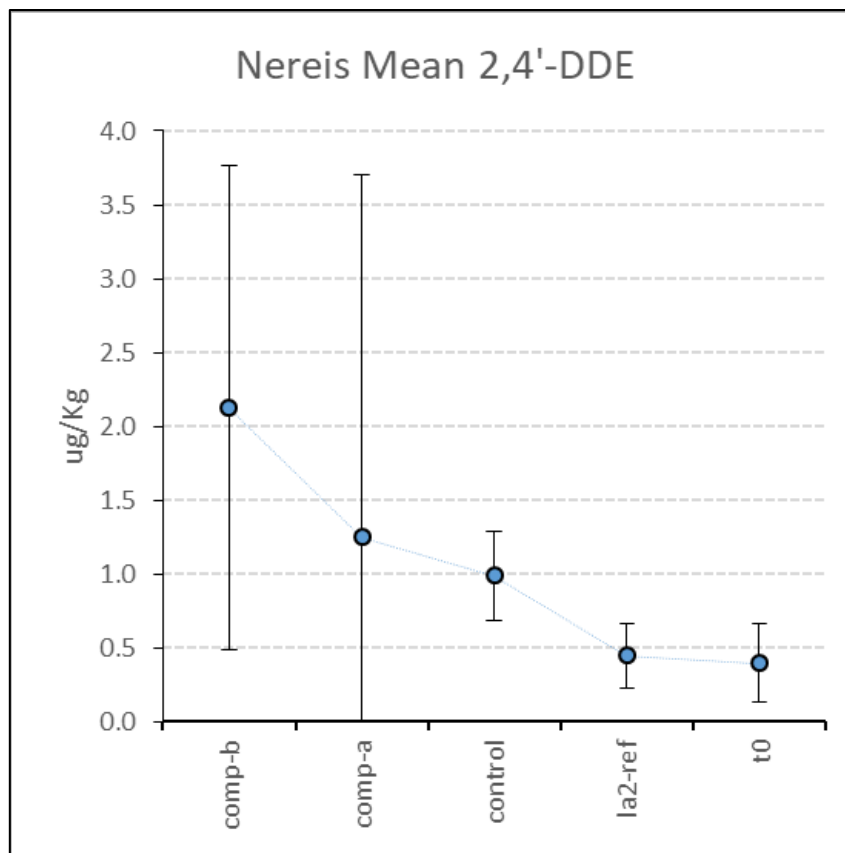


Figure 19. Distribution of *Nereis virens* 2,4' DDE Uptake.

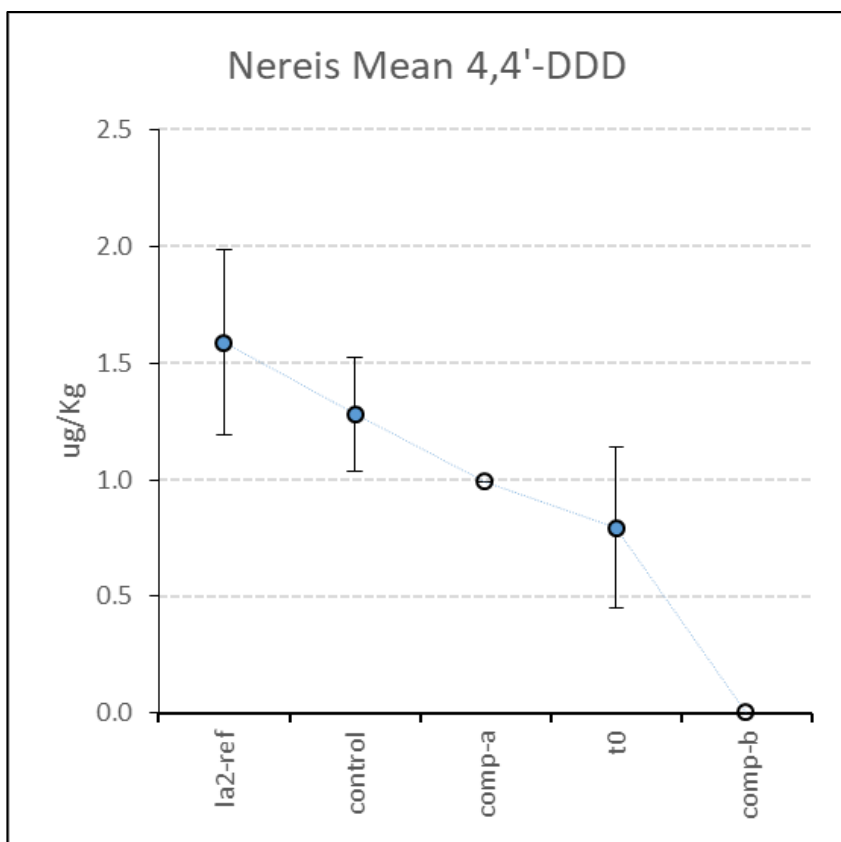


Figure 20. Distribution of *Nereis virens* 4,4' DDD Uptake.

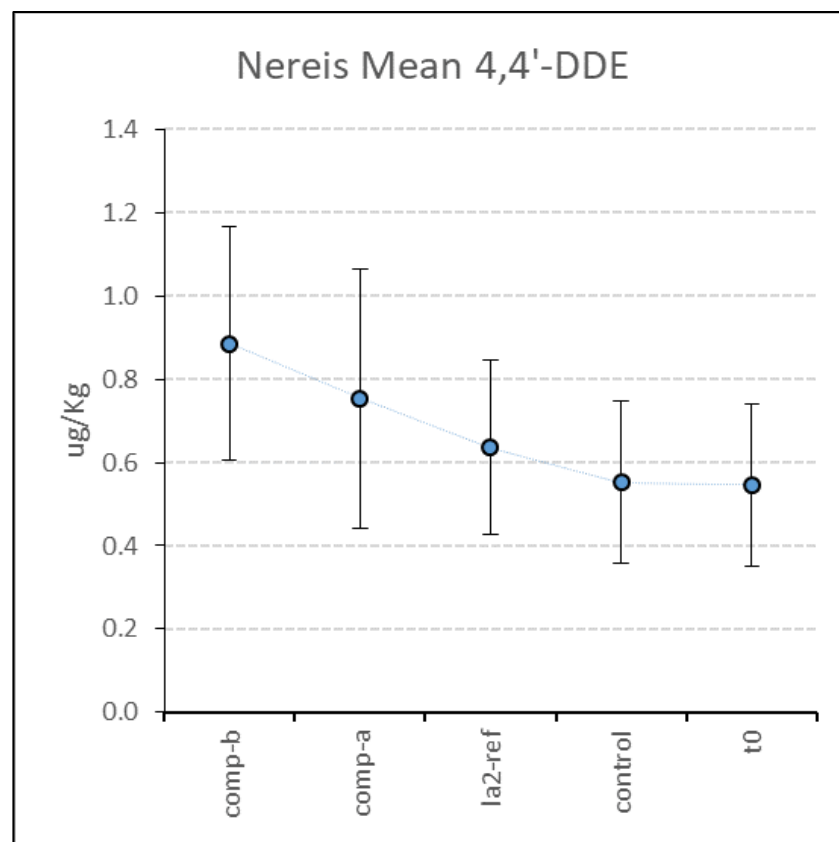


Figure 21. Distribution of *Nereis virens* 4,4' DDE Uptake.

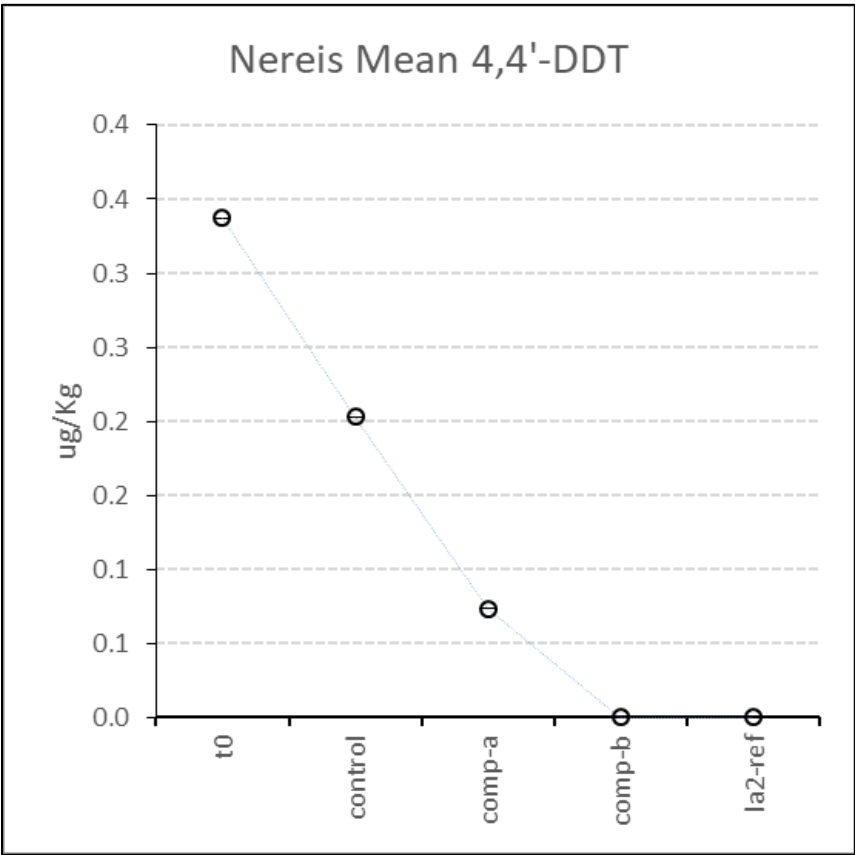


Figure 22. Distribution of *Nereis virens* 4,4' DDT Uptake.

Bioaccumulation protocols assume tissue concentrations are in at least 80% of steady state with surrounding sediments when comparing tissue values to Action Levels and effects data. According to the ITM, at least 80% of steady state is not usually reached for DDT compounds after 28 days of exposures. According to USACE guidance (Kennedy et. al., 2010), 63% of total DDT and 56% to 77% of the DDT isomers reach steady state in *Macoma* after 28 days of exposure. For *Nereis*, 56% of total DDT and 50% to 63% of the DDT isomers reach steady state after 28 days of exposure. Therefore, the measured tissue DDT values from the 28-day exposures to *Macoma* and *Nereis* were multiplied by corresponding correction factors. Mean and 95% UCL steady state adjusted 2,4'-DDD, 2,4'-DDE, 4,4'-DDD, 4,4'-DDE and total DDT concentrations are provided in Table 23 for *Macoma* and Table 24 for *Nereis*. The 2,4-DDT, 4,4'-DDT were not included since they were either not detected or detected at non-significant levels.

The mean and 95% UCL steady state adjusted tissue concentrations were further evaluated against the FDA Action Level for DDD, DDE and DDT and to relevant TRVs in the ERED for certain DDT analogues. Since 2,4'-DDD, 2,4'-DDE, 2,4'-DDD and 4,4'-DDE were the primary DDT analogs in the Carnival Cruise Terminal tissues, mean and 95% UCL steady-state adjusted concentrations of these analogs were used for comparisons to the ERED effects concentrations. The adjusted mean and 95% UCL total DDT concentrations for the test tissues show that they are magnitudes lower than the FDA Action level of 5,000 µg/kg. Most of the ERED data are associated with organisms belonging to freshwater food webs. There are no relevant marine invertebrate effects data for the DDD and DDE analogues. The lowest somewhat relevant TRVs found in the database for the DDD and DDE analogues are provided in Table 25. There were no TRVs found for 2,4'-DDD.

The lowest somewhat relevant TRV found for 2,4'-DDE was a reproductive NOEC of 510 µg/kg for Chinook Salmon. This value is 247 times higher than the highest steady-state adjusted 95% UCL concentration for the *Macoma* test tissues, and 125 times higher than the highest steady state adjusted 95% UCL concentration for the *Nereis* test tissues. The lowest somewhat relevant TRV found for 4,4'-DDD was a reproductive NOEC of 180 µg/kg for an Osprey. The highest steady state adjusted 95% UCL concentration for the *Macoma* and *Nereis* tissues was 55 times less than this value. The lowest LOEC value for 4,4'-DDD was a reproductive LOEC of 1,484 µg/kg for a Bottlenose Dolphin. The lowest somewhat relevant TRV found for 4,4'-DDE was a reproductive NOEC of 2.5 µg/kg for an Osprey. The steady state adjusted 95% UCL concentrations for the *Macoma* and *Nereis* tissues are higher than this value. However, Ospreys tend to forage bottom dwelling fish in more shallow coastal waters and would not be expected to forage at LA-2. The lowest, most relevant 4,4'-DDE TRV found was for Brown Pelicans, and it consisted of a reproductive NOEC of 1,770 µg/kg. This value is about 167 times or more higher than the steady state adjusted 95% UCL concentrations for *Macoma* and *Nereis*.

Table 23. Mean and 95% UCL Steady State Adjusted *Macoma Nasuta* Tissue Concentrations for DDTs.

Sample	Steady-State Corrected Mean Values (µg/kg)					Steady-State Corrected 95% UCL Values (µg/kg)				
	2,4'-DDD	2,4'-DDE	4,4'-DDD	4,4'-DDE	Total DDT	2,4'-DDD	2,4'-DDE	4,4'-DDD	4,4'-DDE	Total DDT
	1.6x	1.7x	1.6x	2.0x	1.7x	1.6x	1.7x	1.6x	2.0x	1.7x
Composite-a	0.184	1.22	1.73	8.92	10.8	NA	1.22	1.95	8.92	10.8
Composite-b	0.614	2.06	3.92	10.6	16.2	0.742	2.06	3.29	10.6	16.2
LA-2 Reference	ND	0.615	1.26	1.17	2.94	NA	0.615	0.985	1.17	2.94
Control	ND	0.768	1.30	6.16	7.39	NA	0.768	1.23	6.16	7.39
T0	ND	0.228	1.12	0.668	2.04	NA	0.228	0.364	0.668	2.04

ND = Not Detected

NA= Not enough replicate detections to calculate a 95% confidence limit.

Table 24. Mean and 95% UCL Steady State Adjusted *Nereis Virens* Tissue Concentrations for DDTs.

Sample	Steady-State Corrected Mean Values (µg/kg)					Steady-State Corrected 95% UCL Values (µg/kg)				
	2,4'-DDD*	2,4'-DDE*	4,4'-DDD	4,4'-DDE*	Total DDT*	2,4'-DDD*	2,4'-DDE*	4,4'-DDD	4,4'-DDE*	Total DDT*
	1.4x	1.3x	1.6x	1.1x	1.6x	1.4x	1.3x	1.6x	1.1x	1.6x
Composite-	0.421	1.64	1.58	0.980	6.61	NA	2.42	NA	1.25	16.0
Composite-	0.806	2.47	NA	1.01	10.1	1.348	4.07	NA	1.39	21.1
LA-2	0.437	1.26	2.05	0.607	5.18	0.822	1.64	2.43	0.866	12.0
Control	0.664	0.708	2.54	0.871	6.06	0.963	0.975	3.18	1.08	13.3
T0	0.252	0.736	1.270	0.874	4.70	0.319	1.34	1.82	1.34	9.07

*Normalized to Lipids.

ND = Not Detected

NA= Not enough replicate detections to calculate a 95% confidence limit.

Table 25. Selected Relevant TRVs from the ERED database for 2,4'-DDE and 4,4'-DDE.

Analyte	Species	ERED Effects Concentration (µg/kg)	Effect Class	Toxicity Measure	Exposure Route
2,4'-DDE	<i>Tursiops truncatus</i> (Bottle Nose Dolphin)	857	Reproduction	LOEC	Combined Routes
2,4'-DDE	<i>Oncorhynchus tshawytscha</i> (Chinook Salmon)	510	Reproduction (Egg)	NOEC	Water
2,4'-DDE	<i>Poecilia latipinna</i> (Sailfin Molly)	4,300	Growth and Mortality (Injection)	NOEC	Absorption
4,4'-DDD	<i>Pandion haliaetus</i> (Osprey)	180	Reproduction (Egg)	NOEC	Not Specified
4,4'-DDD	<i>Tursiops truncatus</i> (Bottlenose Dolphin)	1,484	Reproduction	LOEC	Combined Routes
4,4'-DDE	<i>Pandion haliaetus</i> (Osprey)	2.5	Reproduction (Plasma)	NOEC	Combined Routes
4,4'-DDE	<i>Pelecanus occidentalis</i> (Brown Pelican)	1,770	Reproduction (Egg)	NOEC	Combined Routes
4,4'-DDE	<i>Nycticorax nycticorax</i> (Blact-Crowned Night Heron)	460	Reproduction (Egg)	NOEC	Combined Routes

The trophic transfer and biomagnification of DDT and its derivatives in aquatic food chains have been well documented. AMEC Foster Wheeler (2016) conducted a comprehensive aquatic food web study in San Diego Bay. They generally found an increase in total DDT with increasing trophic levels. Mean concentrations in foraging fish (11.3 µg/kg) and predatory fish (12.3 µg/kg) were generally twice as high as mean concentrations among benthic invertebrate classes (6.0 to 7.1 µg/kg). Other studies summarized in a paper by Suedel et al. (1994), though, indicates that trophic transfer of DDD and DDE does not occur sufficiently to result in marine food-chain biomagnification. Regardless, all pertinent DDT analog residue effects data are many times higher than the steady-state adjusted mean and 95% UCL tissue concentrations and biomagnification factors would need to be quite high for predators eating invertebrates to obtain tissue burdens that would be high enough to cause toxicity in the predator. They would also need to be high for concentrations to reach levels in fish that would exceed screening levels for the protection of humans (OHHEA Advisory Tissue Levels of no more than three servings per week at concentrations of 390 to 520 µg/kg wet weight). Therefore, ecological and human effects associated with DDT analog uptake from the Long Beach Cruise Terminal sediments are not predicted to be observed at the LA-2 ODMDS.

5.5.6 Uptake of PCB Congeners

The distribution of *Macoma* total PCB congener uptake among test, reference and control tissues is shown on Figure 23. There was statistically significant ($p \leq 0.05$) mean uptake of total PCBs in *Macoma* exposed to the Long Beach Cruise Terminal composite samples compared to the average uptake of total PCBs in the tissues of *Macoma* exposed to the LA-2 reference sediments (Table 19). Average uptake of total PCBs in *Macoma* exposed to the Composite-*a* and Composite-*b* sediments was 11.8 and 19.9 $\mu\text{g}/\text{kg}$, respectively, compared to 0.226 $\mu\text{g}/\text{kg}$ for *Macoma* exposed to the LA-2 reference sediments and 0.204 $\mu\text{g}/\text{kg}$ for *Macoma* exposed to the control sediments. As such, the mean concentrations of total PCBs in the Long Beach Cruise Terminal *Macoma* tissues were almost two magnitudes higher than the mean reference and control concentrations.

The distribution of total PCB uptake among test, control and reference *Nereis* tissues is shown on Figure 24. There was statistically significant ($p \leq 0.05$) mean uptake of total PCBs in *Nereis* exposed to the Composite-*b* sample compared to the average uptake of total PCBs in the tissues of *Nereis* exposed to the LA-2 reference sediments and control sediments (Table 20). Mean uptake of total PCBs in the Composite-*a* tissues was not statistically higher than mean uptake in the LA-2 reference tissues. Average uptake of total PCBs in *Nereis* exposed to the Composite-*b* sediments was 10.8 $\mu\text{g}/\text{kg}$ -lipid compared to 8.52 and 6.48 $\mu\text{g}/\text{kg}$ -lipid for *Nereis* exposed to the LA-2 reference and control sediments, respectively. Note that the mean concentration of total PCBs in the T0 *Nereis* tissues was 6.11 $\mu\text{g}/\text{kg}$ -lipid, indicating mean concentrations in the test, reference and control tissues were biased high. After subtracting off the T0 concentration, the mean concentrations of total PCBs in the *Nereis* test tissues were roughly two times higher than mean reference concentrations and roughly 13 times higher than the mean control concentration.

The mean and 95% UCL total PCB concentrations were further evaluated against the FDA Action Level and to relevant TRVs for total PCBs in the ERED. The mean and 95% UCL total PCBs were not steady state adjusted since all PCB congeners reach at least 80% steady-state after 28 days of exposure (Kennedy et. al., 2010). The 95% UCL tissue concentrations were magnitudes less than the FDA Action Level (2,000 $\mu\text{g}/\text{kg}$). The ERED queries were limited to LOEC endpoints with measurable biological effects to marine invertebrates. Although there are numerous endpoints in the ERED that are relevant to invertebrates, one value, recommended by USEPA for other Southern California dredge projects, was selected as being most relevant. Specifically, USEPA identified a LOEC of 146 $\mu\text{g}/\text{kg}$ (Total PCBs) associated with growth impairment of the sea star *Asterias rubens*, as the most appropriate TRV from the ERED. Consequently, the 95% UCL total PCB concentrations for both *Macoma* and *Nereis* were compared to USEPA's selected TRV and were found to be statistically lower than this value by 7 to 12 times for *Macoma* and 13 to 16 times for *Nereis*. Therefore, ecological effects associated with PCB uptake from the test sediments are not predicted to be observed at the LA-2 ODMDS.

5.5.7 Bioaccumulation Potential Conclusions

Based on the data presented, the dredged material meets the LPC for bioaccumulation and complies with the benthic criteria of paragraph 227.13(c)(3) in Title 40, Code of Federal Regulations, Parts 220-228 (40 CFR 220-228) (USACE and USEPA, 1991, Appendix A). As a result, no further information is necessary to determine compliance with bioaccumulation regulations

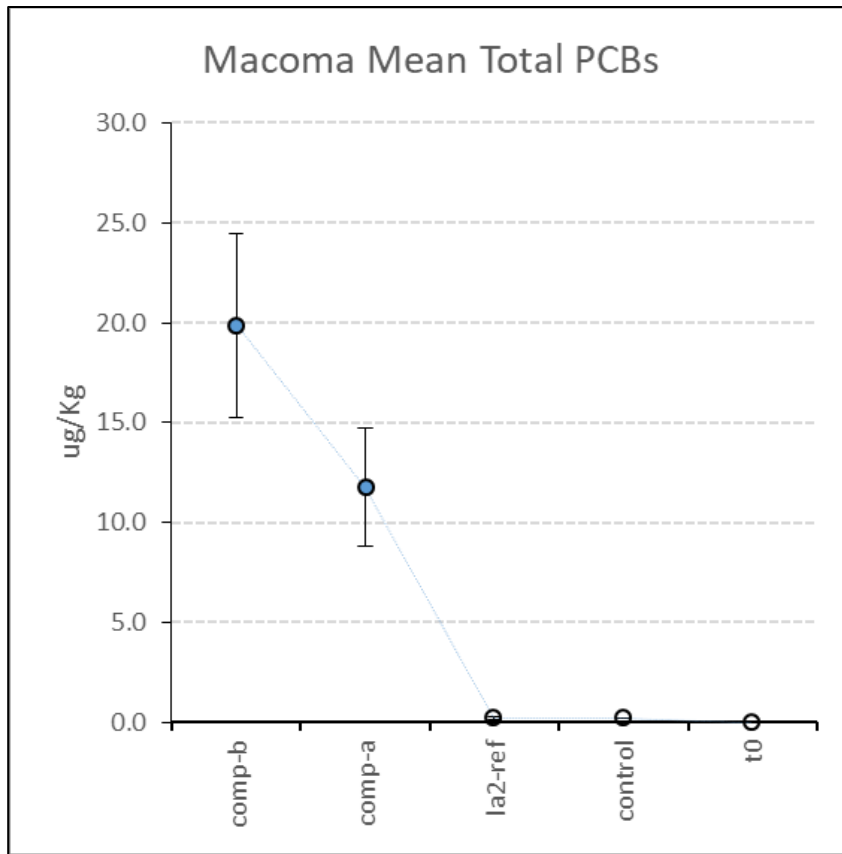


Figure 23. Distribution of *Macoma nasuta* Total PCB Uptake.

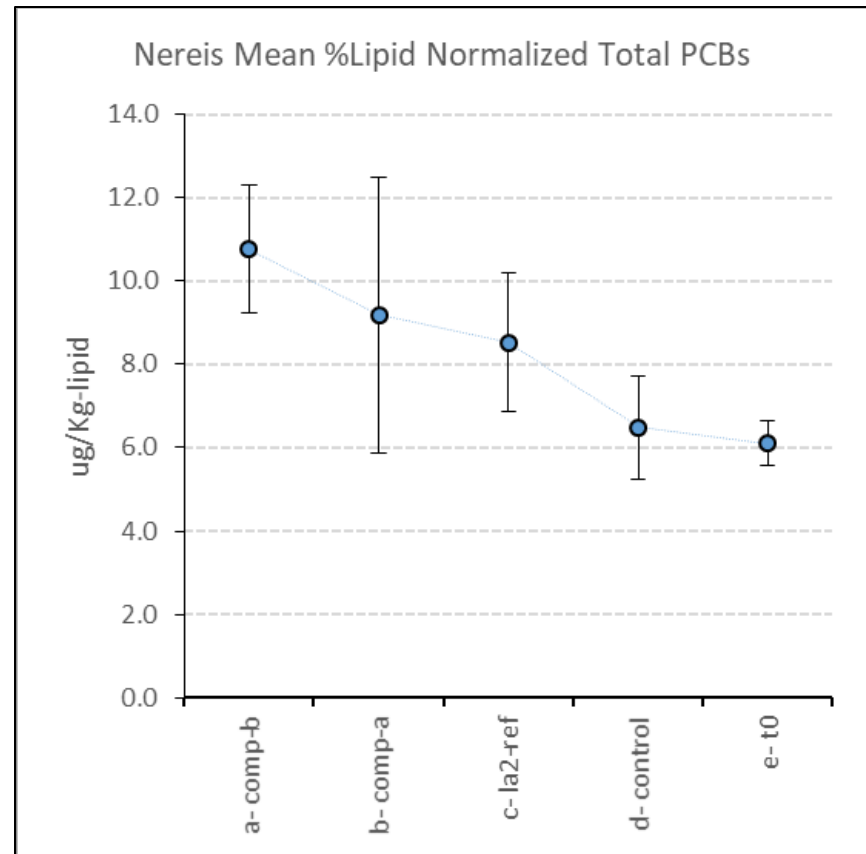


Figure 24. Distribution of *Nereis virens* Total PCB Uptake.

5.6 Summary and Conclusions

The Long Beach Cruise Terminal sediments showed moderate chemical contamination. Chemical data for several constituents were above NOAA effects levels. In terms of ecological effects, several metals, 4,4' DDD, 4,4' DDE, total DDTs, and total PCBs were the major contaminants of concern in the composite and individual core samples. Other constituent concentrations were elevated in the Long Beach Cruise Terminal samples compared to the LA-2 reference sample.

Despite the observed sediment concentrations, none of the sediments from any of the composite areas were toxic to *Ampelisca* and *Neanthes*. There was also no observed water column toxicity.

Critical body residues in the clam and worm tissues compared to FDA action levels, TRVs, and fish advisory levels, in the case of DDTs, indicate that all contaminant concentrations in tissues of organisms exposed to the Long Beach Cruise Terminal sediments were below corresponding published levels. As such, the LPC for bioaccumulation was not exceeded. Due to this and the fact that there was a lack of benthic and water column toxicity, it is recommended that sediments from the Long Beach Cruise Terminal be environmentally suitable for placement at the LA-2 ODMDS.

6.0 QUALITY CONTROL REQUIREMENTS

Formal QA/QC procedures were followed for this project. The objectives of the QA/QC Program were to fully document the field and laboratory data collected, to maintain data integrity from the time of field collection through storage and archiving, and to produce the highest quality data possible. Quality assurance involves all of the planned and systematic actions necessary to provide confidence that work performed by the project team conforms to contract requirements, laboratory methodologies, state and federal regulation requirements, and corporate Standard Operating Procedures (SOPs). The program is designed to allow the data to be assessed by the following parameters: Precision, Accuracy, Comparability, Representativeness, and Completeness. These parameters are controlled by adhering to documented methods and procedures (SOPs), and by the analysis of quality control (QC) samples on a routine basis.

6.1 Field Sampling Quality Management

Field quality control procedures were followed and included adherence to SOPs, field documentation, formal sample documentation and tracking, use of certified clean laboratory containers, protocol cleaning, and sample preservation.

6.2 Chemical Analysis Quality Management

Analytical chemistry QC is formalized by EPA and State Certification agencies and involves internal quality control checks for precision and accuracy. Any issues associated with the analytical laboratory quality control checks are summarized in Appendix F.

QA/QC findings presented are based on the validation of the data according to the quality assurance objectives detailed in the project SAP and in Appendix F. Guidance was used from EPA National Functional Guidelines for inorganic and organic data review (USEPA, 2017a and 2017b).

As the first step in the validation process, all results were carefully reviewed to check that the laboratories met project reporting limits and that chemical analyses were completed within holding times. All wet weight detection limits and reporting limits for this project, as specified in the SC-DMMT SAP guidance document, were met. All analyses were completed within EPA specified holding times.

QA/QC records (1,231 total) for the water, sediment and tissue analyses included method blanks, laboratory duplicates, laboratory control samples and their duplicates (LCS/LCSDs), matrix spikes and matrix spike duplicates (MS/MSDs), post digestion spikes (PDS) and surrogates. Total numbers of QC records by type are summarized in Table 26. Twelve sediment sample results and forty tissue results (1.5% of the results) were qualified as a result of the QC review. Data qualifiers are summarized in Table 27. All qualifications were a result of MS/MSD data that were outside QC objectives and from method blank detections. The reasoning behind these qualifications is explained in Appendix F. Despite these minor QC issues, overall evaluation of the analytical QA/QC data indicates that the chemical data are for the most part within established performance criteria and can be used for characterization of sediments in the Long Beach Cruise Terminal project area.

Table 26. Counts of QC records per Chemical Category.

Analyte Group	BLK	DUP	LCS / LCSD	MS / MSD	PDS	SURR	Total
<i>Water</i>							
TSS	1	1	2				4
TDS	1	1	2				4
Water Totals	2	2	4				8
<i>Sediment</i>							
Percent Solids	1	1					2
Ammonia	1		2	2			5
Total Organic Carbon	1		2	2			5
Total Volatile Solids		2					2
O&G	1		2	2			5
TRPH	1		2	2			5
Dissolved Sulfides	1	1	2				4
Total Sulfides	1	1	2				4
Total Metals	10		20	20	9		59
PAH's, Phthalates & Phenols	38		17	34		30	119
Chlorinated Pesticides	23		20	40		26	109
PCB Congeners	40		15	30		10	95
Butyltins	4		4	4		5	17
Pyrethroids	13		26	26		5	70
Sediment Totals	135	5	114	162	9	76	501
<i>Tissues</i>							
Percent Lipids	3	3					6
Total Metals	30		60	60			150
DDTs	18		18	18		106	160
PCB Congeners	120		90	90		106	406
Tissue Totals	171	3	168	168		212	722

Table 27. Final QC Qualification Applied to Sample Results.

Analyte	# Samples Qualified	Final Qualifier	BLK	DUP	LCS	MS	PDS	SURR
<i>Phenols – Sediment</i>								
Bisphenol A	3	U	U					
<i>Phthalates –2017 Sediment</i>								
Bis(2-Ethylhexyl) Phthalate	1	U	U					
Butyl Benzyl Phthalate	4	U	U					
Di-n-Butyl Phthalate	4	U	U					
<i>OC Pesticides – Tissues</i>								
4,4'-DDD	10	UJ-				UJ-		
4,4'-DDT	30	J/UJ-	J			J/UJ-		
Total number of affected samples	52							
Percentage of all samples	1.5%							

6.3 Biological Testing

Quality assurance procedures employed for this project were consistent with the procedures detailed in the ITM and OTM. Sediments used for biological testing were stored at $\leq 4^{\circ}$ C and were used within the eight week holding time period.

Summary bioassay and bioaccumulation testing and quality assurance information is provided in the bioassay report (Appendix F). This report includes documentation of: 1) test animal collection, shipping and holding/acclimation, 2) water quality parameters monitored during the test, and 3) the positive (reference toxicant) control. Negative control performance is also included in the bioassay report.

Data quality objectives and the associated quality control measures for aquatic toxicity testing are stipulated in the specified bioassay protocols. Measures included test temperatures and acceptable limits of variation, minimum acceptable dissolved oxygen levels with aeration procedures used, and acceptable pH range. These parameters were measured at test initiation and daily thereafter. Salinity ranges are specified for marine tests and the samples were adjusted accordingly. Salinity was measured daily for the bioassays. Measurements of porewater ammonia and sulfides were conducted upon receipt and prior to SP test initiation and at test completion. Overlying water ammonia measurements were made at SP test initiation and termination. Ammonia measurements for the bioaccumulation exposures were made at test initiation and weekly thereafter. Laboratory instruments were calibrated daily. All water quality parameters measured at the beginning and during biological testing were within appropriate limits.

Protocols also provide guidance on test organisms procurement, care and acclimation. Pacific EcoRisk maintains laboratory logbooks documenting these factors. Organism assignment to test tanks and test tank positioning in the laboratory are randomized.

Two other important bioassay QA measures are the inclusion of a negative experimental control, where organisms are simultaneously exposed to laboratory test conditions in the absence of a toxicant stress, and the inclusion of reference toxicant bioassays, in which the organisms are exposed to standard toxicants. Reference toxicant bioassays using potassium chloride (KCL) were run concurrently with and under the same conditions as the bioassays of the test material. Control charts are maintained in the laboratory for each species/toxicant combination. A minimum of five bioassays is required for a valid control chart, and upper and lower limits are developed which are two standard deviations on either side of the mean. Precision is quantified in the control charts by calculation of the coefficient of variation (CV). The application of a maximum acceptable value for the CV or the minimum significant difference (MSD) increases data reliability, and many newer protocols specify such maximum acceptable values. With the exception of the *L. plumulosus* reference toxicant test, bioassays met both negative and positive control test acceptability criteria (TAC) for this project. Although the *L. plumulosus* reference toxicant test survival response in that test's Lab Water Control treatment was slightly below test acceptability goal of 90% survival, the LC₅₀ for this test was consistent with the "typical response" range established by the reference toxicant test database for this species. Therefore, the concentration-response relationships for the sediment elutriate tests and reference toxicant tests were determined to be acceptable.

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Appendix A
Summary Results from the January 2009 Dredge
Study
(Weston, 2009)

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Summary Results from the January 2009 Dredge
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Figure 2. Cruise Terminal Project Area with Sampling Locations

3.0 PRELIMINARY RESULTS

3.1 Field Results

The number of cores, core locations, core lengths, water depths, and sampling depths at each station are provided in Table 2.

Table 2. Actual Core Locations, Core Lengths, and Sample Depths for Sediment Core Samples Collected from Carnival Cruise Terminal, POLB

Date	Time	Station Identification (ID)	Attempt	Tide (ft)	Water Depth (ft)	MLLW (ft) Water Depth - Tide	Latitude (WGS 84)	Longitude (WGS 84)	Penetration (ft)	Core Length Submitted for Analysis	Composite ID	Composite Analyses**	Comments
11/4/2008	11:50	CT1	1	4.3	33.0	-28.7	33.751439	-118.186862	5.5	4.0	CT	Chemical & Physical	None
11/4/2008	12:00	CT1	2	4.4	33.0	-28.6	33.751439	-118.186862	5.5	4.0			None
11/4/2008	12:20	CT1	3	4.5	33.0	-28.5	33.751439	-118.186862	5.5	4.0			None
11/4/2008	10:30	CT2	1	4.0	31.8	-27.8	33.749339	-118.186911	5.5	4.5			None
11/4/2008	10:45	CT2	2	4.0	31.8	-27.8	33.749339	-118.186911	6.0	4.0			None
11/4/2008	10:55	CT2	3	4.1	31.8	-27.7	33.749339	-118.186911	5.0	3.5			None
11/4/2008	11:05	CT2	4	4.2	31.8	-27.6	33.749339	-118.186911	5.0	0			No recovery; bag liner folded inside tube
11/4/2008	11:18	CT2	5	4.2	31.8	-27.6	33.749339	-118.186911	6.0	4.0			None
11/4/2008	9:10	CT3	1	3.8	33.6	-29.8	33.748451	-118.186921	5.5	4.5			None
11/4/2008	9:40	CT3	2	3.9	33.6	-29.7	33.748451	-118.186921	5.5	4.0			None
11/4/2008	10:02	CT3	3	3.9	33.6	-29.7	33.748451	-118.186921	5.5	4.0			None

3.2 Results of Physical and Chemical Analyses

3.2.1 Grain Size Distribution

The grain size distributions of the three individual samples were similar among stations, demonstrating elevated concentrations of silt (Table 3). The sample from station CT1 consisted of 85.8% fine-grained materials (61.7% silt, and 24.1% clay), and 14.22% coarse-grained materials (0.02% gravel and 14.2% sand). The sample from station CT2 consisted of 77.0% fine-grained materials (61.5% silt, and 15.5% clay), and 23.0% coarse-grained materials (0.00% gravel and 23.0% sand). The sample from station CT3 consisted of 98.4% fine-grained materials (64.6% silt, and 33.8% clay), and 1.6% coarse-grained materials (0.00% gravel and 1.6% sand).

Table 3. Grain Size Distribution of Sediment Samples from Three Locations

Parameter	CT1	CT2	CT3
Grain Size Distribution			
% gravel	0.02	0.00	0.00
% sand	14.2	23.0	1.6
% silt	61.7	61.5	64.6
% clay	24.1	15.5	33.8

3.2.2 Sediment Chemistry Results

Results of physical and chemical analyses are shown in Table 4. TTLCs are not shown because no analytes exceeded their respective TTLC value.

In the CT composite sample, total organic carbon (TOC) was measured at 0.69%. Heavy metals were detected at low levels in the composite sample. Five metals (cadmium, chromium, mercury, silver, and zinc) were below their respective ER-L values. Four metals (arsenic, copper, lead, nickel) exceeded their respective ER-L value but were below the corresponding ER-M value. Eighteen individual polycyclic aromatic hydrocarbons (PAHs) were detected in the composite sample. All PAHs were below ER-L values, with the exception of dibenz[a,h]anthracene, which was slightly above its ER-L value, but below the ER-M value. The concentration of total detectable PAHs were also well below their respective ER-L value. Four individual polychlorinated biphenyl (PCB) congeners were detected at low levels in the composite sample. Total detectable PCBs were below their respective ER-L value. The only chlorinated pesticides detected in the composite sample were dichlorodiphenyltrichloroethane (DDT) derivatives. Concentrations of 4,4'-DDD, 4,4'-DDE, and total detectable DDTs exceeded their respective ER-M values.

To confirm this finding (i.e., elevated DDTs) and to further assess individual station locations (if possible) for pesticides and PCBs within the revised dredge footprint, the individual core from station CT1 was submitted for additional chemistry analyses. Results of this analysis demonstrated similar concentrations of DDTs and PCBs in CT1, relative to the initially analyzed composite sample. In addition to DDT, chlordane and some of its constituents (alpha- and gamma-chlordane, and cis- and trans-nonachlor) were also detected in CT1 and total chlordane exceeded the ER-M value. A review of quality assurance (QA)/quality control (QC) results for chlorinated pesticides and the chromatograms confirmed the findings.

Analyses have also been performed to evaluate the concentration of other analytes including phthalates, phenols, and organotins. Results will be presented in the final report.

Table 4. Results of Physical and Chemical Analyses

Parameter	Units	ERL value	ERM value	CT_Comp	CT1
General Chemistry					
Ammonia-N	mg/dry kg			8.75	
Dissolved Sulfides	mg/dry kg			<0.2	
Percent Solids	Percent			61.8	
Total Organic Carbon	Percent			0.69	
Total Sulfides	mg/dry kg			130.4	
Specific Gravity				2.63	
Trace Metals					
Arsenic (As)	µg/dry g	8.2	70	10.66	
Cadmium (Cd)	µg/dry g	1.2	9.6	0.777	
Chromium (Cr)	µg/dry g	81	370	51.68	
Copper (Cu)	µg/dry g	34	270	47.77	
Lead (Pb)	µg/dry g	46.7	218	59.52	
Mercury (Hg)	µg/dry g	0.15	0.71	0.12	
Nickel (Ni)	µg/dry g	20.9	51.6	33.72	
Selenium (Se)	µg/dry g			0.278	
Silver (Ag)	µg/dry g	1	3.7	0.353	
Zinc (Zn)	µg/dry g	150	410	132.9	
PCBs					
Aroclor 1016	ng/dry g			<10	
Aroclor 1221	ng/dry g			<10	
Aroclor 1232	ng/dry g			<10	
Aroclor 1242	ng/dry g			<10	
Aroclor 1248	ng/dry g			<10	
Aroclor 1254	ng/dry g			<10	
Aroclor 1260	ng/dry g			<10	
PCB003	ng/dry g			<1	
PCB008	ng/dry g			<1	
PCB018	ng/dry g			<1	
PCB028	ng/dry g			<1	
PCB031	ng/dry g			<1	
PCB033	ng/dry g			<1	
PCB037	ng/dry g			<1	
PCB044	ng/dry g			<1	
PCB049	ng/dry g			<1	
PCB052	ng/dry g			7.7	
PCB056/060	ng/dry g			<1	
PCB066	ng/dry g			6.6	
PCB070	ng/dry g			2.1	
PCB074	ng/dry g			1.9	
PCB077	ng/dry g			<1	
PCB081	ng/dry g			<1	
PCB087	ng/dry g			<1	
PCB095	ng/dry g			<1	
PCB097	ng/dry g			<1	
PCB099	ng/dry g			<1	
PCB101	ng/dry g			<1	
PCB105	ng/dry g			<1	
PCB110	ng/dry g			<1	
PCB114	ng/dry g			<1	
PCB118	ng/dry g			<1	
PCB119	ng/dry g			<1	
PCB123	ng/dry g			<1	
PCB126	ng/dry g			<1	
PCB128	ng/dry g			<1	

Parameter	Units	ERL value	ERM value	CT_Comp	CT1
PCB138	ng/dry g			<1	
PCB141	ng/dry g			<1	
PCB149	ng/dry g			<1	
PCB151	ng/dry g			<1	
PCB153	ng/dry g			<1	
PCB156	ng/dry g			<1	
PCB157	ng/dry g			<1	
PCB158	ng/dry g			<1	
PCB167	ng/dry g			<1	
PCB168+132	ng/dry g			<1	
PCB169	ng/dry g			<1	
PCB170	ng/dry g			<1	
PCB174	ng/dry g			<1	
PCB177	ng/dry g			<1	
PCB180	ng/dry g			<1	
PCB183	ng/dry g			<1	
PCB187	ng/dry g			<1	
PCB189	ng/dry g			<1	
PCB194	ng/dry g			<1	
PCB195	ng/dry g			<1	
PCB200	ng/dry g			<1	
PCB201	ng/dry g			<1	
PCB203	ng/dry g			<1	
PCB206	ng/dry g			<1	
PCB209	ng/dry g			<1	
Total PCBs	ng/dry g	22.7	180	18.3	
Pesticides					
2,4'-DDD	ng/dry g			<1	3.2
2,4'-DDE	ng/dry g			<1	4.6
2,4'-DDT	ng/dry g			<1	<1
4,4'-DDD	ng/dry g	2	20	25.5	15.3
4,4'-DDE	ng/dry g	2.2	27	37.3	27.8
4,4'-DDT	ng/dry g	1	7	<1	<1
Total DDTs	ng/dry g	1.58	46.1	62.8	50.9
Aldrin	ng/dry g			<1	<1
BHC-alpha	ng/dry g			<1	<1
BHC-beta	ng/dry g			<1	<1
BHC-delta	ng/dry g			<1	<1
BHC-gamma	ng/dry g			<1	<1
Chlordane-alpha	ng/dry g			<1	6.7
Chlordane-gamma	ng/dry g			<1	7.9
Total Detectable Chlordane	ng/dry g	0.5	6	0	14.6
DCPA (Dacthal)	ng/dry g			<5	<5
Dicofol	ng/dry g			<1	3
Dieldrin	ng/dry g			<1	<1
Endosulfan Sulfate	ng/dry g			<1	<1
Endosulfan-I	ng/dry g			<1	<1
Endosulfan-II	ng/dry g			<1	<1
Endrin	ng/dry g			<1	<1
Endrin Aldehyde	ng/dry g			<1	<1
Endrin Ketone	ng/dry g			<1	<1
Heptachlor	ng/dry g			<1	<1
Heptachlor Epoxide	ng/dry g			<1	<1
Methoxychlor	ng/dry g			<1	<1
Mirex	ng/dry g			<1	<1
Oxychlordane	ng/dry g			<1	<1
Perthane	ng/dry g			<5	<5

Parameter	Units	ERL value	ERM value	CT_Comp	CT1
Toxaphene	ng/dry g			<10	<10
cis-Nonachlor	ng/dry g			<1	2.3
trans-Nonachlor	ng/dry g			<1	4
Phenols					
2,4,6-Trichlorophenol	ng/dry g			<50	
2,4-Dichlorophenol	ng/dry g			<50	
2,4-Dimethylphenol	ng/dry g			<100	
2,4-Dinitrophenol	ng/dry g			<100	
2-Chlorophenol	ng/dry g			<50	
2-Methyl-4,6-dinitrophenol	ng/dry g			<100	
2-Nitrophenol	ng/dry g			<100	
4-Chloro-3-methylphenol	ng/dry g			<100	
4-Nitrophenol	ng/dry g			<100	
Pentachlorophenol	ng/dry g			<50	
Phenol	ng/dry g			<100	
Phthalates					
Butylbenzyl Phthalate	ng/dry g			50	
Di-n-butyl Phthalate	ng/dry g			<75	
Di-n-octyl Phthalate	ng/dry g			<10	
Diethyl Phthalate	ng/dry g			<100	
Dimethyl Phthalate	ng/dry g			<50	
bis(2-Ethylhexyl) Phthalate	ng/dry g			546	
Organotins					
Dibutyltin	ng/dry g			<1	
Monobutyltin	ng/dry g			<1	
Tetrabutyltin	ng/dry g			<1	
Tributyltin	ng/dry g			<1	
Polynuclear Aromatic Hydrocarbons					
1-Methylnaphthalene	ng/dry g			<1	
1-Methylphenanthrene	ng/dry g			<1	
2,3,5-Trimethylnaphthalene	ng/dry g			<1	
2,6-Dimethylnaphthalene	ng/dry g			6.2	
2-Methylnaphthalene	ng/dry g			1.6	
Acenaphthene	ng/dry g			<1	
Acenaphthylene	ng/dry g			4.2	
Anthracene	ng/dry g			14.4	
Benzo[a]anthracene	ng/dry g			36.2	
Benzo[a]pyrene	ng/dry g			84.6	
Benzo[b]fluoranthene	ng/dry g			64.4	
Benzo[e]pyrene	ng/dry g			62	
Benzo[g,h,i]perylene	ng/dry g			103.3	
Benzo[k]fluoranthene	ng/dry g			47.7	
Biphenyl	ng/dry g			<1	
Chrysene	ng/dry g			55.5	
Dibenz[a,h]anthracene	ng/dry g			73.6	
Dibenzothiophene	ng/dry g			<1	
Fluoranthene	ng/dry g			45.1	
Fluorene	ng/dry g			<1	
Indeno[1,2,3-c,d]pyrene	ng/dry g			122.5	
Naphthalene	ng/dry g			1.8	
Perylene	ng/dry g			39.5	
Phenanthrene	ng/dry g			17	
Pyrene	ng/dry g			54.2	
Total PAHs	ng/dry g	4022	44792	833.8	

Appendix B
Summary Results from MEC for Carnival
Corporation
(MEC, 2000)

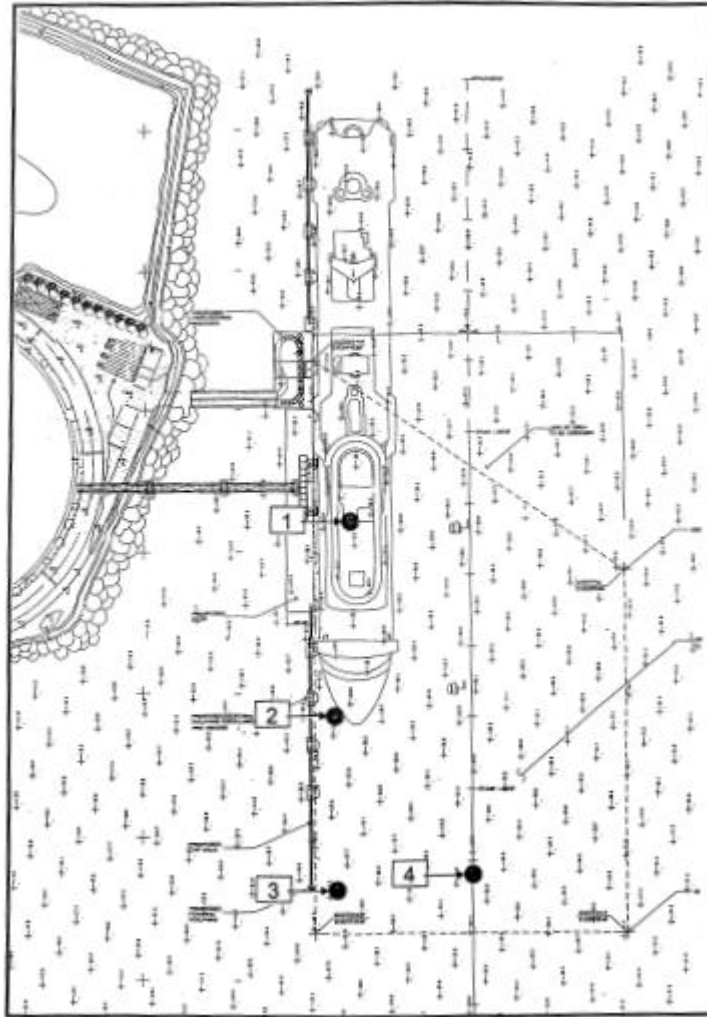


Figure 2. Sampling locations.

Table 2. Chemical Analytes Detected in Sediment Station Samples						
Analyte	Station 1	Station 2	Station 3	Station 4	ER-L	ER-M
Pesticides (ug/kg dry weight)						
4,4 -DDD	14(8)*	4	7	4	2	20
4,4-DDE	8(9)*	5	7	7	2.2	27
4,4-DDT	51(4)*	ND	ND	10	1	7
PAHs (ug/kg dry weight)						
Fluoranthene	37	ND	ND	ND	600	5100
Pyrene	40	36	ND	36	665	2600
Benzo(b)fluoranthene	50	ND	ND	ND	NA	NA
Benzo(a)pyrene	36	ND	ND	ND	430	1600
Benzo(ghi)perylene	50	ND	ND	ND	NA	NA
Total PAHs	213	36(ND)*	ND	36	4022	44792
Phthalates (ug/kg dry weight)						
Bis(2-ethylhexyl)phthalate	582	357(299)*	292	626	NA	NA
Butylbenzylphthalate	36	29(19)*	23	35	NA	NA
Di-n-butylphthalate	40	39(32)*	36	36	NA	NA
Diethylphthalate	ND	373(ND)*	ND	ND	NA	NA
Metals (mg/kg dry weight)						
Arsenic	9.7	7.7	5.9	7.2	8.2	70
Cadmium	0.9	0.6	0.4	0.7	1.2	9.6
Chromium	33	29	27	33	81	370
Copper	38	31	25	33	34	270
Lead	62	40	35	50	46.7	218
Mercury	0.08	0.17	0.13	0.14	0.15	0.71
Nickel	23	22	19	23	20.9	51.6
Silver	0.3	0.2	0.4	0.2	1	3.7
Zinc	121	91	86	112	150	410
Selenium	0.6	0.6	0.4	0.5	NA	NA
TRPH (mg/kg dry weight)	150	85	76(74)*	139	NA	NA
Total Sulfides (mg/kg dry weight)	54	65	49	98	NA	NA

ND = not detected in sample above sample detection limit concentrations.

* Sample run in duplicate. Differences in duplicate values are due to variations in sample homogeneity.

ER-L and ER-M values are from Long, E.R., D.D. MacDonald, S.L. Smith, and F.D. Calder, 1995.

Incidence of adverse biological effects within ranges of chemical concentrations in marine and estuarine sediments.*

Appendix C
Field Data Logs and Photographs

Carnival Cruise Terminal Expansion

A1 - 1 CORE LOG SHEET

Date: 10/30/2018	Time: 8:25 AM
Client: Atkins	Vessel: D.W. Hood
Crew: T. Barnes , C. Davidson , R. Marquez , S. Stringer	
Navigation Equipment: Garmin GPSMAP 840xs	Sampling Equipment: KLI Vibracore
Sampled Latitude: 33° 45' 05.7"	Sampled Longitude: -118° 11' 12.9"
If moved, why:	
Water Depth (ft.): 32.00	Tidal Stage (+/- ft.): 2.00
Actual Mudline Elevation (ft. MLLW): -30.00	Target Sampling Depth (ft.): -38.50
Penetration (ft.): 11.50	Recovery (ft.): 11.00
Percent Recovery: 96%	Core Interval Sampled (ft.): 8.50
Fines/Suspect Layer? (Y/N): N	If Y, layer interval (ft.):

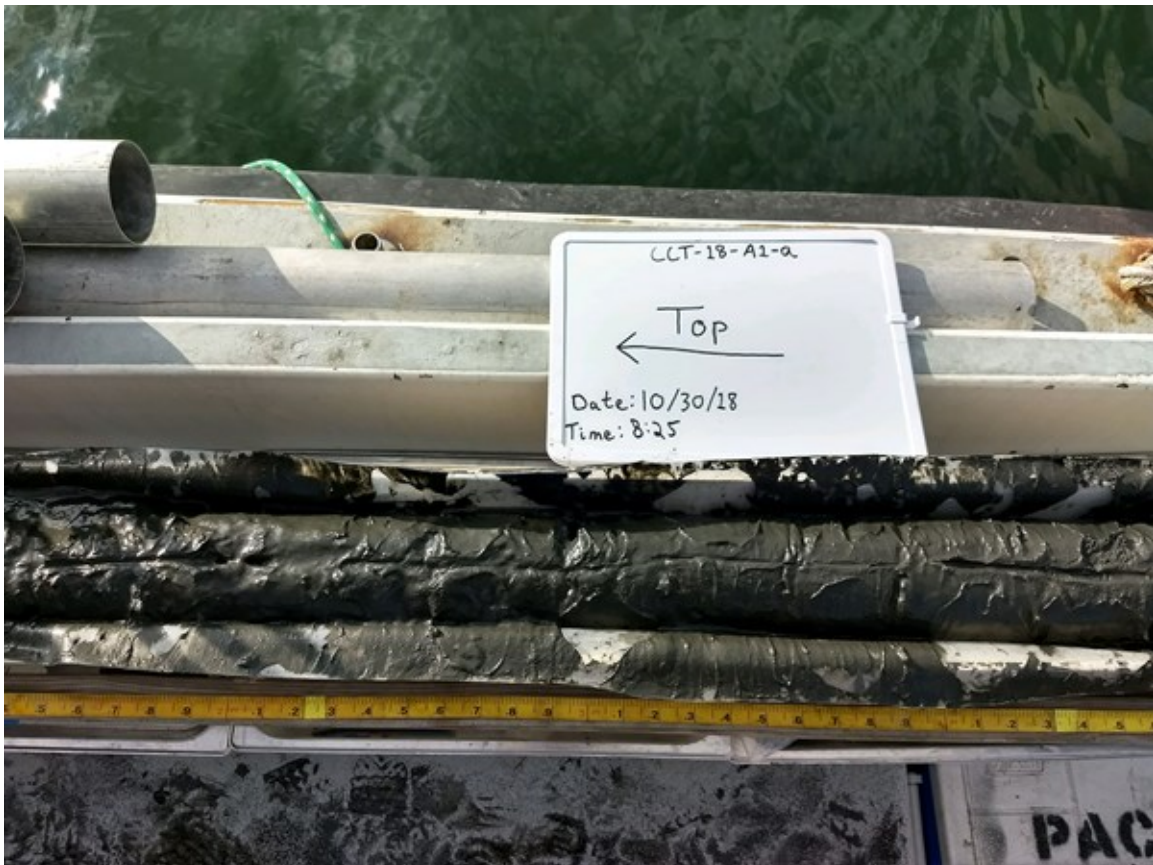
Notes: A total of ten cores were taken for sampling at this location. Interval sampled is loose silt (ML), with no visible sand content. The core becomes more compact toward the last few feet of the sampling interval (less saturated), but the dark-grey color is homogeneous throughout. No odor is detected, and no additional debris is observed.

Field Log Photo

A1 0 - 2ft 10/30/2018, 8:25 AM



A1 2 - 4ft 10/30/2018, 8:25 AM



A1 4 - 6ft 10/30/2018, 8:25 AM



A1 6 - 8ft 10/30/2018, 8:25 AM



A1 8 - 10ft 10/30/2018, 8:25 AM



A1 10 - 12ft 10/30/2018, 8:25 AM



Carnival Cruise Terminal Expansion

A2 - 1 CORE LOG SHEET

Date: 10/30/2018	Time: 1:25 PM
Client: Atkins	Vessel: D.W. Hood
Crew: T. Barnes , C. Davidson , R. Marquez , S. Stringer	
Navigation Equipment: Garmin GPSMAP 840xs	Sampling Equipment: KLI Vibracore
Sampled Latitude: 33° 45' 04.1"	Sampled Longitude: -118° 11' 13.0"
If moved, why:	
Water Depth (ft.): 34.50	Tidal Stage (+/- ft.): 4.00
Actual Mudline Elevation (ft. MLLW): -30.50	Target Sampling Depth (ft.): -38.50
Penetration (ft.):	Recovery (ft.): 8.00
Percent Recovery: 0%	Core Interval Sampled (ft.): 8.00
Fines/Suspect Layer? (Y/N): N	If Y, layer interval (ft.):

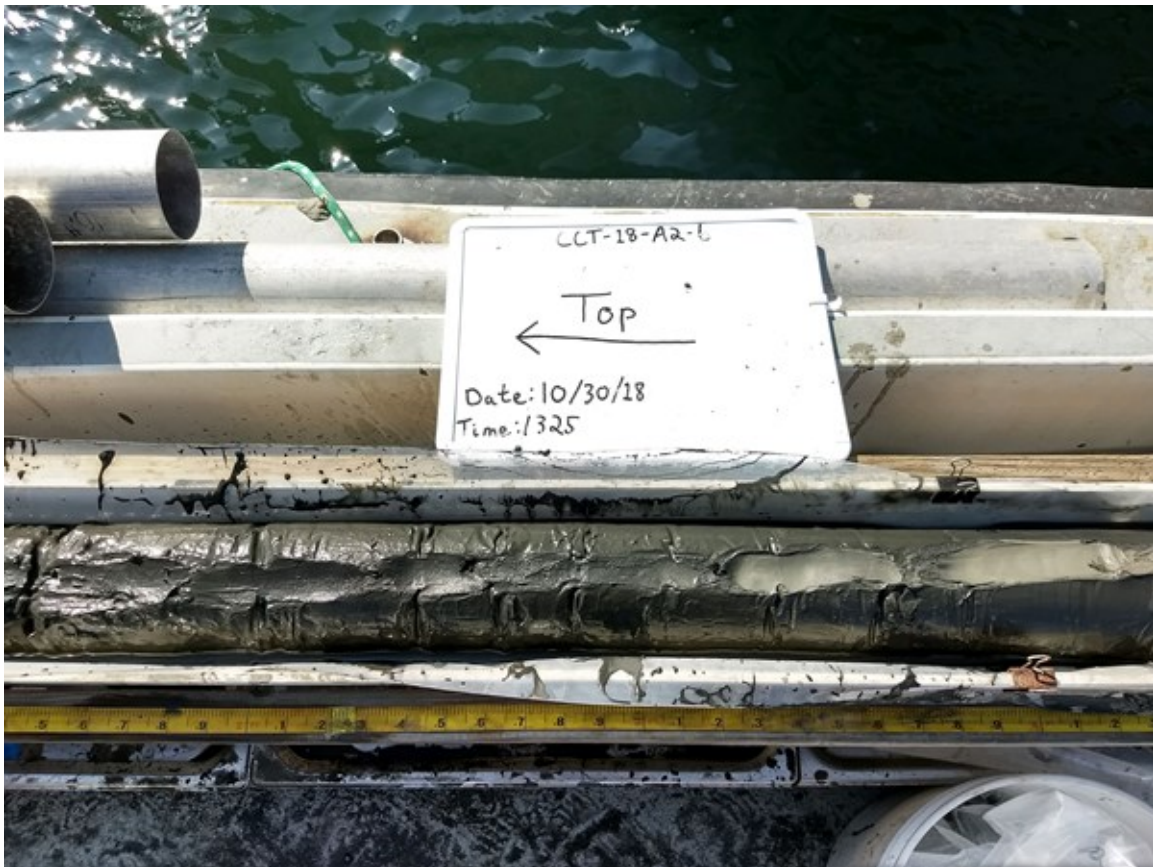
Notes: A total of six cores were taken for sampling at this location. Sediment is silty (ML) with no visible sand content; sediment is fairly compact throughout sampling interval, but still soft and slightly water saturated particularly towards the top of the core. There is a dark-brown/dark-grey color which is homogeneous throughout. No odor is detected and no natural or human-made debris.

Field Log Photo

A2 0 - 2ft 10/30/2018, 1:25 PM



A2 2 - 4ft 10/30/2018, 1:25 PM



A2 4 - 6ft 10/30/2018, 1:25 PM



A2 6 - 8ft 10/30/2018, 1:25 PM



Carnival Cruise Terminal Expansion

B1 - 1 CORE LOG SHEET

Date: 10/30/2018	Time: 5:00 PM
Client: Atkins	Vessel: D.W. Hood
Crew: T. Barnes , C. Davidson , R. Marquez , S. Stringer	
Navigation Equipment: Garmin GPSMAP 840xs	Sampling Equipment: KLI Vibracore
Sampled Latitude: 33° 45' 01.7"	Sampled Longitude: -118° 11' 12.8"
If moved, why:	
Water Depth (ft.): 35.50	Tidal Stage (+/- ft.): 3.50
Actual Mudline Elevation (ft. MLLW): -32.00	Target Sampling Depth (ft.): -38.50
Penetration (ft.): 11.00	Recovery (ft.): 10.80
Percent Recovery: 98%	Core Interval Sampled (ft.): 6.50
Fines/Suspect Layer? (Y/N): N	If Y, layer interval (ft.):

Notes: First try not enough recovery so second attempt made. Sediment in sampling interval is silty (ML) with no visible sand. Core is fairly well saturated throughout making it soft, except for last foot or so which is more compact but still loose. The core has a dark-grey color throughout with a slight dark-green tint toward the top foot. No odor detected and no debris found.

Field Log Photo

B1 0 - 2ft 10/30/2018, 5:00 PM



B1 2 - 4ft 10/30/2018, 5:00 PM



B1 4 - 6ft 10/30/2018, 5:00 PM



B1 6 - 8ft 10/30/2018, 5:00 PM



Carnival Cruise Terminal Expansion

C1 - 1 CORE LOG SHEET

Date: 10/31/2018	Time: 7:51 AM
Client: Atkins	Vessel: D.W. Hood
Crew: T. Barnes , C. Davidson , R. Marquez , S. Stringer	
Navigation Equipment: Garmin GPSMAP 840xs	Sampling Equipment: KLI Vibracore
Sampled Latitude: 33° 44' 58.5"	Sampled Longitude: -118° 11' 12.6"
If moved, why:	
Water Depth (ft.): 32.50	Tidal Stage (+/- ft.): 3.00
Actual Mudline Elevation (ft. MLLW): -29.50	Target Sampling Depth (ft.): -38.50
Penetration (ft.): 12.00	Recovery (ft.): 12.00
Percent Recovery: 100%	Core Interval Sampled (ft.): 9.00
Fines/Suspect Layer? (Y/N): N	If Y, layer interval (ft.):

Notes: Sediment in the sampling interval is mostly loose silt (ML) that is generally fairly water saturated until the final two feet of the core (still soft). Core is dark-grey throughout the entirety of the core, and no odor is detected. No debris is found, and there is no visible sand.

Field Log Photo

C1 0 - 2ft 10/31/2018, 7:51 AM



C1 2 - 4ft 10/31/2018, 7:51 AM



C1 4 - 6ft 10/31/2018, 7:51 AM



C1 6 - 8ft 10/31/2018, 7:51 AM



C1 8 - 10ft 10/31/2018, 7:51 AM



Carnival Cruise Terminal Expansion

C2 - 1 CORE LOG SHEET

Date: 10/31/2018	Time: 8:40 AM
Client: Atkins	Vessel: D.W. Hood
Crew: T. Barnes , C. Davidson , R. Marquez , S. Stringer	
Navigation Equipment: Garmin GPSMAP 840xs	Sampling Equipment: KLI Vibracore
Sampled Latitude: 33° 44' 59.6"	Sampled Longitude: -118° 11' 10.8"
If moved, why:	
Water Depth (ft.): 35.50	Tidal Stage (+/- ft.): 2.50
Actual Mudline Elevation (ft. MLLW): -33.00	Target Sampling Depth (ft.): -38.50
Penetration (ft.): 9.00	Recovery (ft.): 8.50
Percent Recovery: 94%	Core Interval Sampled (ft.): 5.50
Fines/Suspect Layer? (Y/N): N	If Y, layer interval (ft.):

Notes: Sediment was dark-grey/dark-brown throughout most of the core, with the color getting slightly darker towards the last two feet. The entire core is silt (ML) with no visible sand, is generally fairly soft and loose throughout, and has no observable debris. No odor is detected.

Field Log Photo

C2 0 - 2ft 10/31/2018, 8:40 AM



C2 2 - 4ft 10/31/2018, 8:40 AM



C2 4 - 6ft 10/31/2018, 8:40 AM



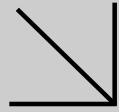
C2 6 - 8ft 10/31/2018, 8:40 AM



Appendix D
Analytical Laboratory Reports



Calscience



WORK ORDER NUMBER: 18-10-2389

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Kinnetic Laboratories, Inc.

Client Project Name: POLB Carnival Cruise Terminal 2018

Attention: Danielle Gonsman
307 Washington Street
Santa Cruz, CA 95060-4928

Approved for release on 11/14/2018 by:
Carla Hollowell
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience (Calscience) certifies that the test results provided in this report meet all NELAC Institute requirements for parameters for which accreditation is required or available. Any exceptions to NELAC Institute requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: POLB Carnival Cruise Terminal 2018
 Work Order Number: 18-10-2389

1	Work Order Narrative.	3
2	Sample Summary.	5
3	Client Sample Data.	6
	3.1 EPA 1664A (M) HEM: Oil and Grease (Solid).	6
	3.2 EPA 1664A (M) HEM-SGT: Oil and Grease (Solid).	7
	3.3 EPA 376.2 (M) Total Sulfide (Solid).	8
	3.4 EPA 376.2 (M) Dissolved Sulfide (Solid).	9
	3.5 EPA 9060A Total Organic Carbon (Solid).	10
	3.6 SM 2540 B (M) Total Solids (Solid).	11
	3.7 SM 4500-NH3 B/C (M) Ammonia (Solid).	12
	3.8 Pyrethroids by EPA 8270D (M)/TQ/EI (Solid).	13
	3.9 EPA 6020 ICP/MS Metals (Solid).	18
	3.10 EPA 7471A Mercury (Solid).	21
	3.11 EPA 8081A Organochlorine Pesticides (Solid).	22
	3.12 EPA 8270C Bisphenol (Solid).	24
	3.13 EPA 8270C SIM OC Pesticides (Solid).	25
	3.14 EPA 8270C SIM (Solid).	33
	3.15 EPA 8270C SIM PCB Congeners (Solid).	43
	3.16 Krone et al. Organotins (Solid).	53
4	Quality Control Sample Data.	55
	4.1 MS/MSD.	55
	4.2 PDS/PDSD.	68
	4.3 Sample Duplicate.	69
	4.4 LCS/LCSD.	72
5	Glossary of Terms and Qualifiers.	87
6	Chain-of-Custody/Sample Receipt Form.	88
7	Subcontract Narrative.	100
8	Subcontract Report, Volatile Solids (WECK), 18-10-2389.	101

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 10/31/18. They were assigned to Work Order 18-10-2389.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

DoD Projects:

The test results contained in this report are accredited under the laboratory's ISO/IEC 17025:2005 and DoD-ELAP accreditation issued by the ANSI-ASQ National Accreditation Board. Refer to certificate and scope of accreditation ADE-1864.

Surrogate recovery for EPA 8270D pyrethroids exceeded established control limits for one sample due to matrix interference, but the sample was non-detect (ND) for all analytes. The results have been flagged with the appropriate qualifiers and are released with no further action.

Surrogate recovery for EPA 8081A pesticides exceeded established control limits for one sample due to matrix interference, but the sample was non-detect (ND) for all analytes. The results have been flagged with the appropriate qualifiers and are released with no further action.

Work Order Narrative

Work Order: 18-10-2389

Page 2 of 2

In the Method Blanks for EPA 8270C SVOCs, bisphenol-A and three phthalates were detected at concentrations below their respective Reporting Limits. The results have been flagged with the appropriate qualifier and are released with no further action.

For EPA 1664A, the concentration of Oil and Grease detected in the parent sample was four times or greater than that of the matrix spike concentration; therefore the control limits do not apply. The results have been flagged with the appropriate qualifier and are released with no further action.

For EPA 8270D pyrethroids, the MS and/or MSD recoveries and/or the MS/MSD RPD were outside of established control limits for two constituents due to matrix interference. The results have been flagged with the appropriate qualifier and are released with no further action.

For EPA 6020 the concentration of zinc detected in the parent sample was four times or greater than that of the matrix spike concentrations; therefore the control limits do not apply. The results have been flagged with the appropriate qualifier and are released with no further action.

For EPA 6020, the MS/MSD recoveries for copper were outside established control limits due to matrix interference. The results have been flagged with the appropriate qualifiers and are released with no further action.

For EPA 7471A, the MS and MSD recoveries for mercury were outside of established control limits due to matrix interference. The results have been flagged with the appropriate qualifiers and are released with no further action.

For EPA 8081A, the MS and MSD recoveries for toxaphene were outside of established control limits due to matrix interference. The results have been flagged with the appropriate qualifiers and are released with no further action.

For EPA 8270C pesticides, the MS/MSD recoveries and/or the MS/MSD RPD for several constituents were outside of established control limits due to matrix interference. The results have been flagged with the appropriate qualifier and are released with no further action.



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Sample Summary

Client: Kinnetic Laboratories, Inc.	Work Order: 18-10-2389
307 Washington Street	Project Name: POLB Carnival Cruise Terminal 2018
Santa Cruz, CA 95060-4928	PO Number:
	Date/Time Received: 10/31/18 17:15
	Number of Containers: 4

Attn: Danielle Gonsman

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
CCT-18-Composite-a	18-10-2389-1	10/30/18 13:25	1	Sediment
CCT-18-Composite-b	18-10-2389-2	10/31/18 08:40	1	Sediment
CCT-18-C1-b	18-10-2389-3	10/31/18 08:00	1	Sediment
LA2-Ref	18-10-2389-4	10/31/18 13:30	1	Sediment

Return to Contents



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 1664A (M)
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	N/A	11/09/18	11/09/18 17:00	I1109HEML1

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM: Oil and Grease	700	20	15	1.00	

CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	N/A	11/09/18	11/09/18 17:00	I1109HEML1
---------------------------	------------------------	---------------------------	-----------------	------------	-----------------	---------------------------	-------------------

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM: Oil and Grease	560	17	14	1.00	

CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	N/A	11/09/18	11/09/18 17:00	I1109HEML1
--------------------	------------------------	---------------------------	-----------------	------------	-----------------	---------------------------	-------------------

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM: Oil and Grease	800	18	14	1.00	

LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	N/A	11/09/18	11/09/18 17:00	I1109HEML1
----------------	------------------------	---------------------------	-----------------	------------	-----------------	---------------------------	-------------------

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM: Oil and Grease	83	18	14	1.00	

Method Blank	099-16-929-40	N/A	Solid	N/A	11/09/18	11/09/18 17:00	I1109HEML1
---------------------	----------------------	------------	--------------	------------	-----------------	---------------------------	-------------------

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM: Oil and Grease	ND	10	7.9	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 1664A (M)
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	N/A	11/09/18	11/09/18 19:00	I1109HEML2

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	330	20	16	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	N/A	11/09/18	11/09/18 19:00	I1109HEML2

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	410	17	14	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	N/A	11/09/18	11/09/18 19:00	I1109HEML2

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	590	18	15	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	N/A	11/09/18	11/09/18 19:00	I1109HEML2

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	24	18	14	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-931-23	N/A	Solid	N/A	11/09/18	11/09/18 19:00	I1109HEML2

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	10	8.1	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 376.2M
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	N/A	11/01/18	11/01/18 16:00	I1101SL1

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Sulfide, Total	300	9.8	8.2	50.0	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	N/A	11/01/18	11/01/18 16:00	I1101SL1

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Sulfide, Total	190	8.6	7.2	50.0	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	N/A	11/01/18	11/01/18 16:00	I1101SL1

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Sulfide, Total	220	9.0	7.5	50.0	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	N/A	11/01/18	11/01/18 16:00	I1101SL1

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Sulfide, Total	0.53	0.18	0.15	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-352-172	N/A	Solid	N/A	11/01/18	11/01/18 16:00	I1101SL1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Sulfide, Total	ND	0.10	0.084	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 10/31/18
 Work Order: 18-10-2389
 Preparation: N/A
 Method: EPA 376.2M
 Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	N/A	11/06/18	11/06/18 11:50	11106DSL1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Sulfide, Dissolved	ND	0.10	0.017	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	N/A	11/06/18	11/06/18 11:50	11106DSL1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Sulfide, Dissolved	ND	0.10	0.017	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	N/A	11/06/18	11/06/18 11:50	11106DSL1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Sulfide, Dissolved	ND	0.10	0.017	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	N/A	11/06/18	11/06/18 11:50	11106DSL1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Sulfide, Dissolved	ND	0.10	0.017	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-354-92	N/A	Solid	N/A	11/06/18	11/06/18 11:50	11106DSL1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Sulfide, Dissolved	ND	0.10	0.017	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 9060A
Units: %

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	TOC 10	11/07/18	11/08/18 16:57	I1107TOCL1

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Carbon, Total Organic	2.2	0.098	0.034	1.00	

CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	TOC 10	11/07/18	11/08/18 16:57	I1107TOCL1
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Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Carbon, Total Organic	1.5	0.086	0.030	1.00	

CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	TOC 10	11/07/18	11/08/18 16:57	I1107TOCL1
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Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Carbon, Total Organic	1.4	0.090	0.031	1.00	

LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	TOC 10	11/07/18	11/08/18 16:57	I1107TOCL1
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Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Carbon, Total Organic	0.36	0.088	0.031	1.00	

Method Blank	099-06-013-1918	N/A	Solid	TOC 10	11/07/18	11/08/18 16:57	I1107TOCL1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Carbon, Total Organic	ND	0.050	0.017	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: SM 2540 B (M)
Units: %

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	N/A	11/05/18	11/05/18 14:00	11105TSB1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total	51.1	0.100	0.100	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	N/A	11/05/18	11/05/18 14:00	11105TSB1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total	58.0	0.100	0.100	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	N/A	11/05/18	11/05/18 14:00	11105TSB1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total	55.7	0.100	0.100	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	N/A	11/05/18	11/05/18 14:00	11105TSB1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total	56.5	0.100	0.100	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-05-019-4290	N/A	Solid	N/A	11/05/18	11/05/18 14:00	11105TSB1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total	ND	0.100	0.100	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: SM 4500-NH3 B/C (M)
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	BUR12	11/01/18	11/01/18 17:00	I1101NH3L1

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Ammonia (as N)	1.4	0.39	0.22	1.00	

CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	BUR12	11/01/18	11/01/18 17:00	I1101NH3L1
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Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Ammonia (as N)	2.4	0.34	0.19	1.00	

CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	BUR12	11/01/18	11/01/18 17:00	I1101NH3L1
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Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Ammonia (as N)	1.3	0.36	0.20	1.00	

LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	BUR12	11/01/18	11/01/18 17:00	I1101NH3L1
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Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Ammonia (as N)	2.5	0.35	0.20	1.00	

Method Blank	099-12-816-192	N/A	Solid	BUR12	11/01/18	11/01/18 17:00	I1101NH3L1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Ammonia (as N)	ND	0.20	0.11	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 10/31/18
 Work Order: 18-10-2389
 Preparation: EPA 3541
 Method: EPA 8270D (M)/TQ/EI
 Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	GCTQ 1	11/07/18	11/11/18 22:39	181107L12

Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Allethrin	ND	0.97	0.49	1.00	
Bifenthrin	11	0.97	0.58	1.00	
Cyfluthrin	2.0	0.97	0.49	1.00	
Cypermethrin	1.4	0.97	0.49	1.00	
Deltamethrin/Tralomethrin	ND	0.97	0.49	1.00	
Fenpropathrin	ND	0.97	0.49	1.00	
Fenvalerate/Esfenvalerate	ND	0.97	0.49	1.00	
Fluvalinate	ND	0.97	0.49	1.00	
Permethrin (cis/trans)	7.8	1.9	0.97	1.00	
Phenothrin	ND	0.97	0.49	1.00	
Resmethrin/Bioresmethrin	ND	0.97	0.83	1.00	
Tetramethrin	ND	0.97	0.58	1.00	
lambda-Cyhalothrin	ND	0.97	0.49	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
Dibutylchloroendate	112	14-116			

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270D (M)/TQ/EI
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	GCTQ 1	11/07/18	11/11/18 23:31	181107L12

Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Allethrin	ND	0.86	0.43	1.00	
Bifenthrin	3.9	0.86	0.52	1.00	
Cyfluthrin	0.51	0.86	0.43	1.00	J
Cypermethrin	ND	0.86	0.43	1.00	
Deltamethrin/Tralomethrin	ND	0.86	0.43	1.00	
Fenpropathrin	ND	0.86	0.43	1.00	
Fenvalerate/Esfenvalerate	ND	0.86	0.43	1.00	
Fluvalinate	ND	0.86	0.43	1.00	
Permethrin (cis/trans)	2.3	1.7	0.86	1.00	
Phenothrin	ND	0.86	0.43	1.00	
Resmethrin/Bioresmethrin	ND	0.86	0.73	1.00	
Tetramethrin	ND	0.86	0.52	1.00	
lambda-Cyhalothrin	ND	0.86	0.43	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
Dibutylchloroendate	109	14-116			

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 10/31/18
 Work Order: 18-10-2389
 Preparation: EPA 3541
 Method: EPA 8270D (M)/TQ/EI
 Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	GCTQ 1	11/07/18	11/12/18 00:22	181107L12

Comment(s): - Results are reported on a dry weight basis.
 - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Allethrin	ND	0.89	0.44	1.00	
Bifenthrin	4.3	0.89	0.53	1.00	
Cyfluthrin	ND	0.89	0.44	1.00	
Cypermethrin	0.56	0.89	0.44	1.00	J
Deltamethrin/Tralomethrin	ND	0.89	0.44	1.00	
Fenpropathrin	ND	0.89	0.44	1.00	
Fenvalerate/Esfenvalerate	ND	0.89	0.44	1.00	
Fluvalinate	ND	0.89	0.44	1.00	
Permethrin (cis/trans)	2.7	1.8	0.89	1.00	
Phenothrin	ND	0.89	0.44	1.00	
Resmethrin/Bioresmethrin	ND	0.89	0.76	1.00	
Tetramethrin	ND	0.89	0.53	1.00	
lambda-Cyhalothrin	ND	0.89	0.44	1.00	
Surrogate	Rec. (%)	Control Limits	Qualifiers		
Dibutylchloroendate	111	14-116			



 Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270D (M)/TQ/EI
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 4 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	GCTQ 1	11/07/18	11/12/18 01:14	181107L12

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Allethrin	ND	0.88	0.44	1.00	
Bifenthrin	ND	0.88	0.53	1.00	
Cyfluthrin	ND	0.88	0.44	1.00	
Cypermethrin	ND	0.88	0.44	1.00	
Deltamethrin/Tralomethrin	ND	0.88	0.44	1.00	
Fenpropathrin	ND	0.88	0.44	1.00	
Fenvalerate/Esfenvalerate	ND	0.88	0.44	1.00	
Fluvalinate	ND	0.88	0.44	1.00	
Permethrin (cis/trans)	ND	1.8	0.88	1.00	
Phenothrin	ND	0.88	0.44	1.00	
Resmethrin/Bioresmethrin	ND	0.88	0.75	1.00	
Tetramethrin	ND	0.88	0.53	1.00	
lambda-Cyhalothrin	ND	0.88	0.44	1.00	
Surrogate	Rec. (%)	Control Limits	Qualifiers		
Dibutylchloroendate	124	14-116	1,2,7		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 10/31/18
 Work Order: 18-10-2389
 Preparation: EPA 3541
 Method: EPA 8270D (M)/TQ/EI
 Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 5 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-403-184	N/A	Solid	GCTQ 1	11/08/18	11/11/18 21:48	181107L12

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Allethrin	ND	0.50	0.25	1.00	
Bifenthrin	ND	0.50	0.30	1.00	
Cyfluthrin	ND	0.50	0.25	1.00	
Cypermethrin	ND	0.50	0.25	1.00	
Deltamethrin/Tralomethrin	ND	0.50	0.25	1.00	
Fenpropathrin	ND	0.50	0.25	1.00	
Fenvalerate/Esfenvalerate	ND	0.50	0.25	1.00	
Fluvalinate	ND	0.50	0.25	1.00	
Permethrin (cis/trans)	ND	1.0	0.50	1.00	
Phenothrin	ND	0.50	0.25	1.00	
Resmethrin/Bioresmethrin	ND	0.50	0.42	1.00	
Tetramethrin	ND	0.50	0.30	1.00	
lambda-Cyhalothrin	ND	0.50	0.25	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibutylchloroendate	78	14-116	


 Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	ICP/MS 05	11/09/18	11/10/18 03:05	181109L01E

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	9.51	0.196	0.171	1.00	
Cadmium	1.17	0.196	0.112	1.00	
Chromium	34.1	0.196	0.121	1.00	
Copper	85.4	0.196	0.0820	1.00	
Lead	80.4	0.196	0.129	1.00	
Nickel	23.8	0.196	0.0991	1.00	
Selenium	4.30	0.196	0.143	1.00	
Silver	0.561	0.196	0.0613	1.00	
Zinc	211	1.96	1.56	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	ICP/MS 05	11/09/18	11/10/18 03:09	181109L01E

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	12.1	0.172	0.151	1.00	
Cadmium	1.15	0.172	0.0987	1.00	
Chromium	38.6	0.172	0.107	1.00	
Copper	61.5	0.172	0.0723	1.00	
Lead	72.3	0.172	0.114	1.00	
Nickel	30.0	0.172	0.0873	1.00	
Selenium	2.80	0.172	0.126	1.00	
Silver	0.566	0.172	0.0540	1.00	
Zinc	174	1.72	1.37	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	ICP/MS 05	11/09/18	11/10/18 03:44	181109L01E

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	9.26	0.180	0.157	1.00	
Cadmium	1.24	0.180	0.103	1.00	
Chromium	39.3	0.180	0.111	1.00	
Copper	57.0	0.180	0.0752	1.00	
Lead	75.7	0.180	0.118	1.00	
Nickel	25.5	0.180	0.0909	1.00	
Selenium	3.06	0.180	0.131	1.00	
Silver	0.631	0.180	0.0562	1.00	
Zinc	189	1.80	1.43	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	ICP/MS 05	11/09/18	11/10/18 03:48	181109L01E

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.30	0.177	0.155	1.00	
Cadmium	0.112	0.177	0.101	1.00	J
Chromium	20.3	0.177	0.110	1.00	
Copper	9.16	0.177	0.0742	1.00	
Lead	5.16	0.177	0.117	1.00	
Nickel	10.6	0.177	0.0896	1.00	
Selenium	0.744	0.177	0.129	1.00	
Silver	0.0855	0.177	0.0554	1.00	J
Zinc	44.4	1.77	1.41	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 10/31/18
 Work Order: 18-10-2389
 Preparation: EPA 3050B
 Method: EPA 6020
 Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-15-254-689	N/A	Solid	ICP/MS 05	11/09/18	11/10/18 02:41	181109L01E

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	ND	0.100	0.0873	1.00	
Cadmium	ND	0.100	0.0572	1.00	
Chromium	ND	0.100	0.0621	1.00	
Copper	ND	0.100	0.0419	1.00	
Lead	ND	0.100	0.0659	1.00	
Nickel	ND	0.100	0.0506	1.00	
Selenium	ND	0.100	0.0731	1.00	
Silver	ND	0.100	0.0313	1.00	
Zinc	ND	1.00	0.795	1.00	



 Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	Mercury 08	11/12/18	11/12/18 16:52	181112L02E

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	0.140	0.0379	0.0111	1.00	

CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	Mercury 08	11/12/18	11/12/18 16:54	181112L02E
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Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	0.168	0.0328	0.00964	1.00	

CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	Mercury 08	11/12/18	11/12/18 16:56	181112L02E
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Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	0.168	0.0378	0.0111	1.00	

LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	Mercury 08	11/12/18	11/12/18 16:59	181112L02E
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Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	0.0159	0.0348	0.0102	1.00	J

Method Blank	099-16-278-493	N/A	Solid	Mercury 08	11/12/18	11/12/18 16:04	181112L02E
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.0200	0.00587	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8081A
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	GC 44	11/06/18	11/12/18 13:52	181106L07A

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Chlordane	ND	19	10	1.00	
Toxaphene	ND	39	17	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	77	25-145	
Decachlorobiphenyl	236	24-168	2,7

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	GC 44	11/06/18	11/12/18 14:06	181106L07A

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Chlordane	ND	17	9.0	1.00	
Toxaphene	ND	34	15	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	78	25-145	
Decachlorobiphenyl	82	24-168	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	GC 44	11/06/18	11/12/18 14:21	181106L07A

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Chlordane	ND	18	9.3	1.00	
Toxaphene	ND	35	16	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	80	25-145	
Decachlorobiphenyl	85	24-168	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8081A
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	GC 44	11/06/18	11/12/18 14:35	181106L07A

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Chlordane	ND	17	9.2	1.00	
Toxaphene	ND	35	16	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	68	25-145	
Decachlorobiphenyl	67	24-168	

Method Blank	099-16-824-34	N/A	Solid	GC 44	11/06/18	11/12/18 12:27	181106L07A
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Chlordane	ND	10	5.3	1.00	
Toxaphene	ND	20	9.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2,4,5,6-Tetrachloro-m-Xylene	65	25-145	
Decachlorobiphenyl	82	24-168	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3545
Method: EPA 8270C Bisphenol
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	GC/MS JJJ	11/09/18	11/13/18 13:48	181109L13

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Bisphenol A	14	20	4.1	1.00	B,J

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	GC/MS JJJ	11/09/18	11/13/18 14:05	181109L13

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Bisphenol A	8.6	17	3.6	1.00	B,J

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	GC/MS JJJ	11/09/18	11/13/18 14:23	181109L13

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Bisphenol A	5.4	18	3.7	1.00	B,J

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	GC/MS JJJ	11/09/18	11/13/18 14:41	181109L13

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Bisphenol A	ND	18	3.6	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-401-28	N/A	Solid	GC/MS JJJ	11/09/18	11/13/18 13:12	181109L13

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Bisphenol A	2.9	10	2.1	1.00	J

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	GC/MS BBB	11/07/18	11/13/18 17:29	181107L12

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Aldrin	ND	0.39	0.074	1.00	
Alpha-BHC	ND	0.39	0.11	1.00	
Beta-BHC	ND	0.39	0.13	1.00	
2,4'-DDD	ND	0.39	0.15	1.00	
2,4'-DDE	4.4	0.39	0.068	1.00	
2,4'-DDT	ND	0.39	0.12	1.00	
4,4'-DDD	15	0.39	0.078	1.00	
4,4'-DDT	ND	0.39	0.10	1.00	
Delta-BHC	ND	0.39	0.18	1.00	
Dieldrin	ND	0.39	0.21	1.00	
Endosulfan I	ND	0.39	0.11	1.00	
Endosulfan II	ND	0.39	0.18	1.00	
Endosulfan Sulfate	ND	0.39	0.20	1.00	
Endrin	6.1	0.39	0.11	1.00	
Endrin Aldehyde	ND	0.39	0.19	1.00	
Endrin Ketone	ND	0.39	0.11	1.00	
Gamma-BHC	ND	0.39	0.067	1.00	
Heptachlor	ND	0.39	0.10	1.00	
Heptachlor Epoxide	ND	0.39	0.086	1.00	
Methoxychlor	ND	0.39	0.13	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	65	25-200	
2,4,5,6-Tetrachloro-m-Xylene	40	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	GC/MS BBB	11/07/18	11/13/18 18:58	181107L12

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
4,4'-DDE	21	3.9	0.79	10.0	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
Dibutylchlorodate	57	25-200			
2,4,5,6-Tetrachloro-m-Xylene	39	25-200			



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	GC/MS BBB	11/07/18	11/13/18 17:44	181107L12

Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Aldrin	ND	0.34	0.065	1.00	
Alpha-BHC	ND	0.34	0.099	1.00	
Beta-BHC	ND	0.34	0.12	1.00	
2,4'-DDD	5.1	0.34	0.13	1.00	
2,4'-DDE	6.9	0.34	0.061	1.00	
2,4'-DDT	ND	0.34	0.11	1.00	
4,4'-DDT	ND	0.34	0.091	1.00	
Delta-BHC	ND	0.34	0.16	1.00	
Dieldrin	ND	0.34	0.18	1.00	
Endosulfan I	ND	0.34	0.10	1.00	
Endosulfan II	ND	0.34	0.16	1.00	
Endosulfan Sulfate	ND	0.34	0.18	1.00	
Endrin	ND	0.34	0.098	1.00	
Endrin Aldehyde	ND	0.34	0.17	1.00	
Endrin Ketone	ND	0.34	0.096	1.00	
Gamma-BHC	ND	0.34	0.059	1.00	
Heptachlor	ND	0.34	0.089	1.00	
Heptachlor Epoxide	ND	0.34	0.077	1.00	
Methoxychlor	ND	0.34	0.12	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	61	25-200	
2,4,5,6-Tetrachloro-m-Xylene	43	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 10/31/18
 Work Order: 18-10-2389
 Preparation: EPA 3541
 Method: EPA 8270C PEST-SIM
 Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 4 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	GC/MS BBB	11/07/18	11/13/18 19:13	181107L12

Comment(s): - Results are reported on a dry weight basis.
 - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
4,4'-DDD	18	3.4	0.69	10.0	
4,4'-DDE	23	3.4	0.70	10.0	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
Dibutylchlorodate	59	25-200			
2,4,5,6-Tetrachloro-m-Xylene	44	25-200			

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 5 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	GC/MS BBB	11/07/18	11/13/18 17:58	181107L12

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Aldrin	ND	0.36	0.067	1.00	
Alpha-BHC	ND	0.36	0.10	1.00	
Beta-BHC	ND	0.36	0.12	1.00	
2,4'-DDD	ND	0.36	0.14	1.00	
2,4'-DDE	3.9	0.36	0.062	1.00	
2,4'-DDT	ND	0.36	0.11	1.00	
4,4'-DDT	ND	0.36	0.094	1.00	
Delta-BHC	ND	0.36	0.16	1.00	
Dieldrin	ND	0.36	0.19	1.00	
Endosulfan I	ND	0.36	0.10	1.00	
Endosulfan II	ND	0.36	0.16	1.00	
Endosulfan Sulfate	ND	0.36	0.19	1.00	
Endrin	ND	0.36	0.10	1.00	
Endrin Aldehyde	ND	0.36	0.18	1.00	
Endrin Ketone	ND	0.36	0.099	1.00	
Gamma-BHC	ND	0.36	0.061	1.00	
Heptachlor	ND	0.36	0.091	1.00	
Heptachlor Epoxide	ND	0.36	0.079	1.00	
Methoxychlor	ND	0.36	0.12	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	67	25-200	
2,4,5,6-Tetrachloro-m-Xylene	43	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 6 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	GC/MS BBB	11/07/18	11/13/18 19:28	181107L12

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
4,4'-DDD	16	3.6	0.71	10.0	
4,4'-DDE	24	3.6	0.72	10.0	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibutylchloroendate	120	25-200	
2,4,5,6-Tetrachloro-m-Xylene	44	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 7 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	GC/MS BBB	11/07/18	11/13/18 18:13	181107L12

Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Aldrin	ND	0.35	0.067	1.00	
Alpha-BHC	ND	0.35	0.10	1.00	
Beta-BHC	ND	0.35	0.12	1.00	
2,4'-DDD	ND	0.35	0.13	1.00	
2,4'-DDE	ND	0.35	0.062	1.00	
2,4'-DDT	ND	0.35	0.11	1.00	
4,4'-DDD	ND	0.35	0.070	1.00	
4,4'-DDE	5.6	0.35	0.071	1.00	
4,4'-DDT	ND	0.35	0.093	1.00	
Delta-BHC	ND	0.35	0.16	1.00	
Dieldrin	ND	0.35	0.19	1.00	
Endosulfan I	ND	0.35	0.10	1.00	
Endosulfan II	ND	0.35	0.16	1.00	
Endosulfan Sulfate	ND	0.35	0.18	1.00	
Endrin	ND	0.35	0.10	1.00	
Endrin Aldehyde	ND	0.35	0.18	1.00	
Endrin Ketone	ND	0.35	0.098	1.00	
Gamma-BHC	ND	0.35	0.061	1.00	
Heptachlor	ND	0.35	0.091	1.00	
Heptachlor Epoxide	ND	0.35	0.078	1.00	
Methoxychlor	ND	0.35	0.12	1.00	
Surrogate	Rec. (%)	Control Limits	Qualifiers		
Dibutylchloroendate	37	25-200			
2,4,5,6-Tetrachloro-m-Xylene	34	25-200			

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 10/31/18
 Work Order: 18-10-2389
 Preparation: EPA 3541
 Method: EPA 8270C PEST-SIM
 Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 8 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-154-115	N/A	Solid	GC/MS BBB	11/07/18	11/13/18 14:30	181107L12

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Aldrin	ND	0.20	0.038	1.00	
Alpha-BHC	ND	0.20	0.058	1.00	
Beta-BHC	ND	0.20	0.067	1.00	
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	ND	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	ND	0.20	0.040	1.00	
4,4'-DDE	ND	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.053	1.00	
Delta-BHC	ND	0.20	0.093	1.00	
Dieldrin	ND	0.20	0.11	1.00	
Endosulfan I	ND	0.20	0.058	1.00	
Endosulfan II	ND	0.20	0.091	1.00	
Endosulfan Sulfate	ND	0.20	0.10	1.00	
Endrin	ND	0.20	0.057	1.00	
Endrin Aldehyde	ND	0.20	0.099	1.00	
Endrin Ketone	ND	0.20	0.055	1.00	
Gamma-BHC	ND	0.20	0.034	1.00	
Heptachlor	ND	0.20	0.051	1.00	
Heptachlor Epoxide	ND	0.20	0.044	1.00	
Methoxychlor	ND	0.20	0.067	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	73	25-200	
2,4,5,6-Tetrachloro-m-Xylene	89	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	GC/MS MM	11/06/18	11/09/18 16:09	181106L06

Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
1-Methylnaphthalene	5.7	20	2.1	1.00	J
2,4,5-Trichlorophenol	ND	20	2.4	1.00	
2,4,6-Trichlorophenol	ND	20	2.6	1.00	
2,4-Dichlorophenol	ND	20	3.3	1.00	
2,4-Dimethylphenol	ND	980	5.1	1.00	
2,4-Dinitrophenol	ND	980	120	1.00	
2-Chlorophenol	ND	20	3.6	1.00	
2-Methylnaphthalene	8.6	20	3.2	1.00	J
2-Methylphenol	ND	20	3.8	1.00	
2-Nitrophenol	ND	980	3.3	1.00	
3/4-Methylphenol	24	20	7.1	1.00	
4,6-Dinitro-2-Methylphenol	ND	980	130	1.00	
4-Chloro-3-Methylphenol	ND	20	4.0	1.00	
Acenaphthene	3.7	20	3.0	1.00	J
Acenaphthylene	6.3	20	3.3	1.00	J
Anthracene	10	20	3.8	1.00	J
Benzo (a) Anthracene	37	20	2.8	1.00	
Benzo (a) Pyrene	53	20	2.7	1.00	
Benzo (b) Fluoranthene	56	20	2.8	1.00	
Benzo (g,h,i) Perylene	42	20	3.0	1.00	
Benzo (k) Fluoranthene	60	20	2.9	1.00	
Bis(2-Ethylhexyl) Phthalate	830	98	3.0	1.00	B
Butyl Benzyl Phthalate	71	98	3.9	1.00	B,J
Chrysene	65	20	2.7	1.00	
Di-n-Butyl Phthalate	83	98	3.7	1.00	B,J
Di-n-Octyl Phthalate	ND	98	3.7	1.00	
Dibenz (a,h) Anthracene	20	20	2.8	1.00	
Diethyl Phthalate	5.7	98	3.2	1.00	J
Dimethyl Phthalate	9.0	98	3.9	1.00	J
Fluoranthene	99	20	3.4	1.00	
Fluorene	7.5	20	3.2	1.00	J
Indeno (1,2,3-c,d) Pyrene	43	20	2.6	1.00	
Naphthalene	10	20	3.0	1.00	J

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Pentachlorophenol	270	980	2.6	1.00	J
Phenanthrene	40	20	3.4	1.00	
Phenol	ND	20	4.5	1.00	
Pyrene	96	20	3.2	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2,4,6-Tribromophenol	63	32-143	
2-Fluorobiphenyl	36	14-146	
2-Fluorophenol	27	15-138	
Nitrobenzene-d5	26	18-162	
p-Terphenyl-d14	84	34-148	
Phenol-d6	43	17-141	

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	GC/MS MM	11/06/18	11/09/18 16:34	181106L06

Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
1-Methylnaphthalene	2.3	17	1.8	1.00	J
2,4,5-Trichlorophenol	ND	17	2.1	1.00	
2,4,6-Trichlorophenol	ND	17	2.2	1.00	
2,4-Dichlorophenol	ND	17	2.9	1.00	
2,4-Dimethylphenol	ND	850	4.4	1.00	
2,4-Dinitrophenol	ND	850	100	1.00	
2-Chlorophenol	ND	17	3.2	1.00	
2-Methylnaphthalene	4.2	17	2.8	1.00	J
2-Methylphenol	ND	17	3.3	1.00	
2-Nitrophenol	ND	850	2.8	1.00	
3/4-Methylphenol	6.8	17	6.2	1.00	J
4,6-Dinitro-2-Methylphenol	ND	850	110	1.00	
4-Chloro-3-Methylphenol	ND	17	3.5	1.00	
Acenaphthene	ND	17	2.6	1.00	
Acenaphthylene	4.3	17	2.8	1.00	J
Anthracene	7.7	17	3.3	1.00	J
Benzo (a) Anthracene	24	17	2.4	1.00	
Benzo (a) Pyrene	36	17	2.4	1.00	
Benzo (b) Fluoranthene	36	17	2.4	1.00	
Benzo (g,h,i) Perylene	17	17	2.6	1.00	
Benzo (k) Fluoranthene	34	17	2.5	1.00	
Bis(2-Ethylhexyl) Phthalate	510	85	2.6	1.00	B
Butyl Benzyl Phthalate	48	85	3.3	1.00	B,J
Chrysene	36	17	2.3	1.00	
Di-n-Butyl Phthalate	36	85	3.2	1.00	B,J
Di-n-Octyl Phthalate	ND	85	3.2	1.00	
Dibenz (a,h) Anthracene	4.4	17	2.5	1.00	J
Diethyl Phthalate	ND	85	2.7	1.00	
Dimethyl Phthalate	ND	85	3.4	1.00	
Fluoranthene	49	17	3.0	1.00	
Fluorene	ND	17	2.8	1.00	
Indeno (1,2,3-c,d) Pyrene	15	17	2.2	1.00	J
Naphthalene	4.2	17	2.6	1.00	J

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 4 of 10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Pentachlorophenol	220	850	2.2	1.00	J
Phenanthrene	19	17	2.9	1.00	
Phenol	ND	17	3.9	1.00	
Pyrene	58	17	2.8	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2,4,6-Tribromophenol	53	32-143	
2-Fluorobiphenyl	36	14-146	
2-Fluorophenol	27	15-138	
Nitrobenzene-d5	22	18-162	
p-Terphenyl-d14	82	34-148	
Phenol-d6	43	17-141	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 5 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	GC/MS MM	11/06/18	11/09/18 17:00	181106L06

Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
1-Methylnaphthalene	2.4	18	1.9	1.00	J
2,4,5-Trichlorophenol	ND	18	2.2	1.00	
2,4,6-Trichlorophenol	ND	18	2.3	1.00	
2,4-Dichlorophenol	ND	18	3.0	1.00	
2,4-Dimethylphenol	ND	890	4.6	1.00	
2,4-Dinitrophenol	ND	890	110	1.00	
2-Chlorophenol	ND	18	3.3	1.00	
2-Methylnaphthalene	4.7	18	2.9	1.00	J
2-Methylphenol	ND	18	3.5	1.00	
2-Nitrophenol	ND	890	3.0	1.00	
3/4-Methylphenol	8.1	18	6.5	1.00	J
4,6-Dinitro-2-Methylphenol	ND	890	120	1.00	
4-Chloro-3-Methylphenol	ND	18	3.7	1.00	
Acenaphthene	ND	18	2.7	1.00	
Acenaphthylene	4.2	18	3.0	1.00	J
Anthracene	9.7	18	3.5	1.00	J
Benzo (a) Anthracene	32	18	2.5	1.00	
Benzo (a) Pyrene	49	18	2.5	1.00	
Benzo (b) Fluoranthene	52	18	2.5	1.00	
Benzo (g,h,i) Perylene	25	18	2.7	1.00	
Benzo (k) Fluoranthene	49	18	2.6	1.00	
Bis(2-Ethylhexyl) Phthalate	720	89	2.7	1.00	B
Butyl Benzyl Phthalate	78	89	3.5	1.00	B,J
Chrysene	50	18	2.4	1.00	
Di-n-Butyl Phthalate	52	89	3.4	1.00	B,J
Di-n-Octyl Phthalate	ND	89	3.4	1.00	
Dibenz (a,h) Anthracene	12	18	2.6	1.00	J
Diethyl Phthalate	4.5	89	2.9	1.00	J
Dimethyl Phthalate	7.1	89	3.6	1.00	J
Fluoranthene	70	18	3.1	1.00	
Fluorene	ND	18	2.9	1.00	
Indeno (1,2,3-c,d) Pyrene	28	18	2.3	1.00	
Naphthalene	5.1	18	2.7	1.00	J

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 6 of 10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Pentachlorophenol	240	890	2.3	1.00	J
Phenanthrene	28	18	3.1	1.00	
Phenol	ND	18	4.1	1.00	
Pyrene	70	18	2.9	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2,4,6-Tribromophenol	68	32-143	
2-Fluorobiphenyl	36	14-146	
2-Fluorophenol	28	15-138	
Nitrobenzene-d5	24	18-162	
p-Terphenyl-d14	83	34-148	
Phenol-d6	46	17-141	

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 7 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	GC/MS MM	11/06/18	11/09/18 17:25	181106L06

Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
1-Methylnaphthalene	ND	18	1.9	1.00	
2,4,5-Trichlorophenol	ND	18	2.1	1.00	
2,4,6-Trichlorophenol	ND	18	2.3	1.00	
2,4-Dichlorophenol	ND	18	3.0	1.00	
2,4-Dimethylphenol	ND	880	4.6	1.00	
2,4-Dinitrophenol	ND	880	110	1.00	
2-Chlorophenol	ND	18	3.3	1.00	
2-Methylnaphthalene	ND	18	2.9	1.00	
2-Methylphenol	ND	18	3.4	1.00	
2-Nitrophenol	ND	880	2.9	1.00	
3/4-Methylphenol	ND	18	6.4	1.00	
4,6-Dinitro-2-Methylphenol	ND	880	120	1.00	
4-Chloro-3-Methylphenol	ND	18	3.6	1.00	
Acenaphthene	ND	18	2.7	1.00	
Acenaphthylene	ND	18	2.9	1.00	
Anthracene	ND	18	3.4	1.00	
Benzo (a) Anthracene	ND	18	2.5	1.00	
Benzo (a) Pyrene	ND	18	2.4	1.00	
Benzo (b) Fluoranthene	ND	18	2.5	1.00	
Benzo (g,h,i) Perylene	ND	18	2.7	1.00	
Benzo (k) Fluoranthene	ND	18	2.6	1.00	
Bis(2-Ethylhexyl) Phthalate	15	88	2.7	1.00	B,J
Butyl Benzyl Phthalate	9.2	88	3.5	1.00	B,J
Chrysene	ND	18	2.4	1.00	
Di-n-Butyl Phthalate	16	88	3.3	1.00	B,J
Di-n-Octyl Phthalate	ND	88	3.3	1.00	
Dibenz (a,h) Anthracene	ND	18	2.5	1.00	
Diethyl Phthalate	ND	88	2.8	1.00	
Dimethyl Phthalate	ND	88	3.5	1.00	
Fluoranthene	ND	18	3.1	1.00	
Fluorene	ND	18	2.9	1.00	
Indeno (1,2,3-c,d) Pyrene	ND	18	2.3	1.00	
Naphthalene	ND	18	2.7	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 10/31/18
 Work Order: 18-10-2389
 Preparation: EPA 3541
 Method: EPA 8270C SIM
 Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 8 of 10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Pentachlorophenol	ND	880	2.3	1.00	
Phenanthrene	ND	18	3.0	1.00	
Phenol	ND	18	4.1	1.00	
Pyrene	ND	18	2.9	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2,4,6-Tribromophenol	83	32-143			
2-Fluorobiphenyl	48	14-146			
2-Fluorophenol	35	15-138			
Nitrobenzene-d5	31	18-162			
p-Terphenyl-d14	94	34-148			
Phenol-d6	55	17-141			

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 9 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-256-239	N/A	Solid	GC/MS MM	11/06/18	11/09/18 15:43	181106L06

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
1-Methylnaphthalene	ND	10	1.1	1.00	
2,4,5-Trichlorophenol	ND	10	1.2	1.00	
2,4,6-Trichlorophenol	ND	10	1.3	1.00	
2,4-Dichlorophenol	ND	10	1.7	1.00	
2,4-Dimethylphenol	ND	500	2.6	1.00	
2,4-Dinitrophenol	ND	500	60	1.00	
2-Chlorophenol	ND	10	1.9	1.00	
2-Methylnaphthalene	ND	10	1.6	1.00	
2-Methylphenol	ND	10	2.0	1.00	
2-Nitrophenol	ND	500	1.7	1.00	
3/4-Methylphenol	ND	10	3.6	1.00	
4,6-Dinitro-2-Methylphenol	ND	500	66	1.00	
4-Chloro-3-Methylphenol	ND	10	2.1	1.00	
Acenaphthene	ND	10	1.5	1.00	
Acenaphthylene	ND	10	1.7	1.00	
Anthracene	ND	10	1.9	1.00	
Benzo (a) Anthracene	ND	10	1.4	1.00	
Benzo (a) Pyrene	ND	10	1.4	1.00	
Benzo (b) Fluoranthene	ND	10	1.4	1.00	
Benzo (g,h,i) Perylene	ND	10	1.5	1.00	
Benzo (k) Fluoranthene	ND	10	1.5	1.00	
Bis(2-Ethylhexyl) Phthalate	8.0	50	1.5	1.00	J
Butyl Benzyl Phthalate	5.4	50	2.0	1.00	J
Chrysene	ND	10	1.4	1.00	
Di-n-Butyl Phthalate	11	50	1.9	1.00	J
Di-n-Octyl Phthalate	ND	50	1.9	1.00	
Dibenz (a,h) Anthracene	ND	10	1.4	1.00	
Diethyl Phthalate	ND	50	1.6	1.00	
Dimethyl Phthalate	ND	50	2.0	1.00	
Fluoranthene	ND	10	1.8	1.00	
Fluorene	ND	10	1.6	1.00	
Indeno (1,2,3-c,d) Pyrene	ND	10	1.3	1.00	
Naphthalene	ND	10	1.5	1.00	
Pentachlorophenol	ND	500	1.3	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 10 of 10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Phenanthrene	ND	10	1.7	1.00	
Phenol	ND	10	2.3	1.00	
Pyrene	ND	10	1.6	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2,4,6-Tribromophenol	75	32-143			
2-Fluorobiphenyl	39	14-146			
2-Fluorophenol	30	15-138			
Nitrobenzene-d5	22	18-162			
p-Terphenyl-d14	99	34-148			
Phenol-d6	57	17-141			



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	GC/MS HHH	11/07/18	11/09/18 20:45	181107L13

Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	3.3	0.39	0.13	1.00	
PCB028	4.5	0.39	0.14	1.00	
PCB037	1.1	0.39	0.12	1.00	
PCB044	6.5	0.39	0.30	1.00	
PCB049	2.5	0.39	0.097	1.00	
PCB052	6.5	0.39	0.37	1.00	
PCB066	5.5	0.39	0.24	1.00	
PCB070	5.3	0.39	0.14	1.00	
PCB074	2.9	0.39	0.18	1.00	
PCB077	1.4	0.39	0.23	1.00	
PCB081	ND	0.39	0.18	1.00	
PCB087	2.1	0.39	0.22	1.00	
PCB099	3.0	0.39	0.092	1.00	
PCB101	6.5	0.39	0.086	1.00	
PCB105	9.0	0.39	0.10	1.00	
PCB110	5.3	0.39	0.066	1.00	
PCB114	ND	0.39	0.14	1.00	
PCB118	6.0	0.39	0.067	1.00	
PCB119	ND	0.39	0.12	1.00	
PCB123	ND	0.39	0.14	1.00	
PCB126	ND	0.39	0.11	1.00	
PCB128	1.8	0.39	0.23	1.00	
PCB132/153	7.9	0.78	0.32	1.00	
PCB138/158	6.2	0.78	0.69	1.00	
PCB149	4.5	0.39	0.23	1.00	
PCB151	1.5	0.39	0.17	1.00	
PCB156	0.81	0.39	0.15	1.00	
PCB157	ND	0.39	0.17	1.00	
PCB167	ND	0.39	0.26	1.00	
PCB168	6.2	0.39	0.28	1.00	
PCB169	ND	0.39	0.13	1.00	
PCB170	2.9	0.39	0.22	1.00	
PCB177	1.1	0.39	0.23	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB180	4.0	0.39	0.18	1.00	
PCB183	1.1	0.39	0.18	1.00	
PCB187	2.0	0.39	0.20	1.00	
PCB189	ND	0.39	0.12	1.00	
PCB194	1.8	0.39	0.14	1.00	
PCB201	ND	0.39	0.066	1.00	
PCB206	1.9	0.39	0.23	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	102	14-146			
p-Terphenyl-d14	99	34-148			



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	GC/MS HHH	11/07/18	11/09/18 21:08	181107L13

Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	5.9	0.34	0.11	1.00	
PCB028	4.7	0.34	0.12	1.00	
PCB037	1.5	0.34	0.10	1.00	
PCB044	6.8	0.34	0.26	1.00	
PCB049	3.8	0.34	0.085	1.00	
PCB052	7.1	0.34	0.33	1.00	
PCB066	6.7	0.34	0.21	1.00	
PCB070	7.0	0.34	0.12	1.00	
PCB074	3.4	0.34	0.16	1.00	
PCB077	1.3	0.34	0.20	1.00	
PCB081	ND	0.34	0.16	1.00	
PCB087	3.3	0.34	0.19	1.00	
PCB099	2.8	0.34	0.082	1.00	
PCB101	7.0	0.34	0.076	1.00	
PCB105	4.3	0.34	0.092	1.00	
PCB110	5.9	0.34	0.058	1.00	
PCB114	ND	0.34	0.13	1.00	
PCB118	5.2	0.34	0.060	1.00	
PCB119	ND	0.34	0.11	1.00	
PCB123	ND	0.34	0.13	1.00	
PCB126	ND	0.34	0.095	1.00	
PCB128	1.2	0.34	0.21	1.00	
PCB132/153	7.2	0.69	0.28	1.00	
PCB138/158	5.4	0.69	0.61	1.00	
PCB149	4.3	0.34	0.20	1.00	
PCB151	1.5	0.34	0.15	1.00	
PCB156	ND	0.34	0.13	1.00	
PCB157	ND	0.34	0.15	1.00	
PCB167	ND	0.34	0.23	1.00	
PCB168	ND	0.34	0.25	1.00	
PCB169	ND	0.34	0.11	1.00	
PCB170	2.0	0.34	0.19	1.00	
PCB177	ND	0.34	0.20	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 4 of 10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB180	4.1	0.34	0.16	1.00	
PCB183	0.97	0.34	0.16	1.00	
PCB187	1.8	0.34	0.18	1.00	
PCB189	ND	0.34	0.11	1.00	
PCB194	1.3	0.34	0.13	1.00	
PCB201	ND	0.34	0.059	1.00	
PCB206	ND	0.34	0.20	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	97	14-146			
p-Terphenyl-d14	95	34-148			



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 5 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	GC/MS HHH	11/07/18	11/09/18 21:32	181107L13

Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	4.3	0.36	0.12	1.00	
PCB028	4.4	0.36	0.12	1.00	
PCB037	1.2	0.36	0.11	1.00	
PCB044	7.0	0.36	0.27	1.00	
PCB049	3.3	0.36	0.088	1.00	
PCB052	6.3	0.36	0.34	1.00	
PCB066	6.0	0.36	0.22	1.00	
PCB070	6.0	0.36	0.13	1.00	
PCB074	2.9	0.36	0.16	1.00	
PCB077	1.1	0.36	0.21	1.00	
PCB081	ND	0.36	0.16	1.00	
PCB087	3.1	0.36	0.20	1.00	
PCB099	2.9	0.36	0.084	1.00	
PCB101	6.9	0.36	0.079	1.00	
PCB105	6.8	0.36	0.095	1.00	
PCB110	6.3	0.36	0.060	1.00	
PCB114	ND	0.36	0.13	1.00	
PCB118	5.3	0.36	0.061	1.00	
PCB119	ND	0.36	0.11	1.00	
PCB123	ND	0.36	0.13	1.00	
PCB126	ND	0.36	0.098	1.00	
PCB128	1.5	0.36	0.21	1.00	
PCB132/153	8.0	0.71	0.29	1.00	
PCB138/158	6.8	0.71	0.63	1.00	
PCB149	5.0	0.36	0.21	1.00	
PCB151	1.7	0.36	0.16	1.00	
PCB156	0.85	0.36	0.14	1.00	
PCB157	ND	0.36	0.15	1.00	
PCB167	ND	0.36	0.24	1.00	
PCB168	ND	0.36	0.25	1.00	
PCB169	ND	0.36	0.12	1.00	
PCB170	3.0	0.36	0.20	1.00	
PCB177	1.3	0.36	0.21	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 6 of 10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB180	5.0	0.36	0.16	1.00	
PCB183	1.0	0.36	0.17	1.00	
PCB187	2.4	0.36	0.18	1.00	
PCB189	ND	0.36	0.11	1.00	
PCB194	2.2	0.36	0.13	1.00	
PCB201	ND	0.36	0.060	1.00	
PCB206	1.4	0.36	0.21	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	91	14-146			
p-Terphenyl-d14	93	34-148			



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 7 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	GC/MS HHH	11/07/18	11/09/18 21:56	181107L13

Comment(s): - Results are reported on a dry weight basis.

- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.35	0.11	1.00	
PCB028	ND	0.35	0.12	1.00	
PCB037	ND	0.35	0.11	1.00	
PCB044	ND	0.35	0.27	1.00	
PCB049	ND	0.35	0.087	1.00	
PCB052	ND	0.35	0.34	1.00	
PCB066	ND	0.35	0.22	1.00	
PCB070	ND	0.35	0.13	1.00	
PCB074	ND	0.35	0.16	1.00	
PCB077	ND	0.35	0.20	1.00	
PCB081	ND	0.35	0.16	1.00	
PCB087	ND	0.35	0.20	1.00	
PCB099	ND	0.35	0.084	1.00	
PCB101	ND	0.35	0.078	1.00	
PCB105	ND	0.35	0.094	1.00	
PCB110	ND	0.35	0.060	1.00	
PCB114	ND	0.35	0.13	1.00	
PCB118	ND	0.35	0.061	1.00	
PCB119	ND	0.35	0.11	1.00	
PCB123	ND	0.35	0.13	1.00	
PCB126	ND	0.35	0.097	1.00	
PCB128	ND	0.35	0.21	1.00	
PCB132/153	ND	0.70	0.29	1.00	
PCB138/158	ND	0.70	0.62	1.00	
PCB149	ND	0.35	0.21	1.00	
PCB151	ND	0.35	0.15	1.00	
PCB156	ND	0.35	0.14	1.00	
PCB157	ND	0.35	0.15	1.00	
PCB167	ND	0.35	0.23	1.00	
PCB168	ND	0.35	0.25	1.00	
PCB169	ND	0.35	0.11	1.00	
PCB170	ND	0.35	0.20	1.00	
PCB177	ND	0.35	0.21	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 8 of 10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB180	ND	0.35	0.16	1.00	
PCB183	ND	0.35	0.16	1.00	
PCB187	ND	0.35	0.18	1.00	
PCB189	ND	0.35	0.11	1.00	
PCB194	ND	0.35	0.13	1.00	
PCB201	ND	0.35	0.060	1.00	
PCB206	ND	0.35	0.20	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	83	14-146			
p-Terphenyl-d14	99	34-148			


 Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 9 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-418-343	N/A	Solid	GC/MS HHH	11/07/18	11/09/18 18:46	181107L13

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.065	1.00	
PCB028	ND	0.20	0.069	1.00	
PCB037	ND	0.20	0.061	1.00	
PCB044	ND	0.20	0.15	1.00	
PCB049	ND	0.20	0.050	1.00	
PCB052	ND	0.20	0.19	1.00	
PCB066	ND	0.20	0.12	1.00	
PCB070	ND	0.20	0.072	1.00	
PCB074	ND	0.20	0.090	1.00	
PCB077	ND	0.20	0.12	1.00	
PCB081	ND	0.20	0.090	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.047	1.00	
PCB101	ND	0.20	0.044	1.00	
PCB105	ND	0.20	0.053	1.00	
PCB110	ND	0.20	0.034	1.00	
PCB114	ND	0.20	0.074	1.00	
PCB118	ND	0.20	0.035	1.00	
PCB119	ND	0.20	0.062	1.00	
PCB123	ND	0.20	0.073	1.00	
PCB126	ND	0.20	0.055	1.00	
PCB128	ND	0.20	0.12	1.00	
PCB132/153	ND	0.40	0.16	1.00	
PCB138/158	ND	0.40	0.35	1.00	
PCB149	ND	0.20	0.12	1.00	
PCB151	ND	0.20	0.088	1.00	
PCB156	ND	0.20	0.077	1.00	
PCB157	ND	0.20	0.085	1.00	
PCB167	ND	0.20	0.13	1.00	
PCB168	ND	0.20	0.14	1.00	
PCB169	ND	0.20	0.065	1.00	
PCB170	ND	0.20	0.11	1.00	
PCB177	ND	0.20	0.12	1.00	
PCB180	ND	0.20	0.092	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 10/31/18
 Work Order: 18-10-2389
 Preparation: EPA 3541
 Method: EPA 8270C SIM PCB Congeners
 Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 10 of 10

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.093	1.00	
PCB187	ND	0.20	0.10	1.00	
PCB189	ND	0.20	0.064	1.00	
PCB194	ND	0.20	0.074	1.00	
PCB201	ND	0.20	0.034	1.00	
PCB206	ND	0.20	0.12	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	66	14-146			
p-Terphenyl-d14	84	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3550B (M)
Method: Organotins by Krone et al.
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-a	18-10-2389-1-AA	10/30/18 13:25	Sediment	GC/MS Y	11/02/18	11/06/18 21:56	181102L13

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	5.2	5.8	1.4	1.00	J
Monobutyltin	ND	5.8	2.7	1.00	
Tetrabutyltin	ND	5.8	1.4	1.00	
Tributyltin	ND	5.8	2.9	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	78	27-135	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Composite-b	18-10-2389-2-AA	10/31/18 08:40	Sediment	GC/MS Y	11/02/18	11/06/18 22:13	181102L13

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	3.3	5.1	1.2	1.00	J
Monobutyltin	ND	5.1	2.4	1.00	
Tetrabutyltin	ND	5.1	1.3	1.00	
Tributyltin	ND	5.1	2.5	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	76	27-135	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-C1-b	18-10-2389-3-AA	10/31/18 08:00	Sediment	GC/MS Y	11/02/18	11/06/18 22:30	181102L13

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	6.8	5.2	1.3	1.00	
Monobutyltin	ND	5.2	2.4	1.00	
Tetrabutyltin	ND	5.2	1.3	1.00	
Tributyltin	ND	5.2	2.6	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	90	27-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3550B (M)
Method: Organotins by Krone et al.
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-Ref	18-10-2389-4-AA	10/31/18 13:30	Sediment	GC/MS Y	11/02/18	11/06/18 22:47	181102L13

Comment(s): - Results are reported on a dry weight basis.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	ND	5.2	1.3	1.00	
Monobutyltin	ND	5.2	2.4	1.00	
Tetrabutyltin	ND	5.2	1.3	1.00	
Tributyltin	2.7	5.2	2.6	1.00	J

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	60	27-135	

Method Blank	099-07-016-1656	N/A	Solid	GC/MS Y	11/02/18	11/06/18 17:36	181102L13
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	ND	3.0	0.73	1.00	
Monobutyltin	ND	3.0	1.4	1.00	
Tetrabutyltin	ND	3.0	0.74	1.00	
Tributyltin	ND	3.0	1.5	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	60	27-135	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 1664A (M)

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 13

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Composite-b	Sample	Sediment	N/A	11/09/18	11/09/18 17:00	I1109HEMS1
CCT-18-Composite-b	Matrix Spike	Sediment	N/A	11/09/18	11/09/18 17:00	I1109HEMS1
CCT-18-Composite-b	Matrix Spike Duplicate	Sediment	N/A	11/09/18	11/09/18 17:00	I1109HEMS1

<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
HEM: Oil and Grease	326.4	40.00	360.0	4X	363.3	4X	78-114	4X	0-18	Q

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 1664A (M)

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 13

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Composite-b	Sample	Sediment	N/A	11/09/18	11/09/18 19:00	I1109HEMS2
CCT-18-Composite-b	Matrix Spike	Sediment	N/A	11/09/18	11/09/18 19:00	I1109HEMS2
CCT-18-Composite-b	Matrix Spike Duplicate	Sediment	N/A	11/09/18	11/09/18 19:00	I1109HEMS2

<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
HEM - SGT: Oil and Grease	239.8	20.00	256.7	4X	253.3	4X	64-132	4X	0-34	Q

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 9060A

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 13

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Composite-a	Sample	Sediment	TOC 10	11/07/18	11/08/18 16:57	I1107TOCS1
CCT-18-Composite-a	Matrix Spike	Sediment	TOC 10	11/07/18	11/08/18 16:57	I1107TOCS1
CCT-18-Composite-a	Matrix Spike Duplicate	Sediment	TOC 10	11/07/18	11/08/18 16:57	I1107TOCS1

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Carbon, Total Organic	1.113	3.000	3.451	78	3.570	82	75-125	3	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: SM 4500-NH3 B/C (M)

Project: POLB Carnival Cruise Terminal 2018

Page 4 of 13

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
18-10-1992-1	Sample	Sediment	BUR12	11/01/18	11/01/18 17:00	I1101NH3S1
18-10-1992-1	Matrix Spike	Sediment	BUR12	11/01/18	11/01/18 17:00	I1101NH3S1
18-10-1992-1	Matrix Spike Duplicate	Sediment	BUR12	11/01/18	11/01/18 17:00	I1101NH3S1

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Ammonia (as N)	0.5600	10.00	10.36	98	10.50	99	70-130	1	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270D (M)/TQ/EI

Project: POLB Carnival Cruise Terminal 2018

Page 5 of 13

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
CCT-18-Composite-b	Sample	Sediment	GCTQ 1	11/07/18	11/11/18 23:31	181107S12				
CCT-18-Composite-b	Matrix Spike	Sediment	GCTQ 1	11/08/18	11/12/18 02:05	181107S12				
CCT-18-Composite-b	Matrix Spike Duplicate	Sediment	GCTQ 1	11/08/18	11/12/18 02:57	181107S12				
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Allethrin	ND	5.000	2.488	50	2.851	57	10-148	14	0-30	
Bifenthrin	2.277	5.000	3.476	24	3.679	28	26-128	6	0-30	3
Cyfluthrin	ND	5.000	5.092	102	5.808	116	10-131	13	0-30	
Cypermethrin	ND	5.000	4.561	91	5.188	104	10-136	13	0-30	
Deltamethrin/Tralomethrin	ND	5.000	5.869	117	6.324	126	13-190	7	0-30	
Fenpropathrin	ND	5.000	5.482	110	5.949	119	10-148	8	0-30	
Fenvalerate/Esfenvalerate	ND	5.000	6.080	122	6.774	135	10-149	11	0-30	
Fluvalinate	ND	5.000	4.330	87	4.800	96	10-121	10	0-30	
Permethrin (cis/trans)	1.351	5.000	4.676	66	5.739	88	45-123	20	0-30	
Phenothrin	ND	5.000	6.606	132	6.753	135	45-165	2	0-30	
Resmethrin/Bioresmethrin	ND	5.000	4.885	98	5.694	114	38-164	15	0-30	
Tetramethrin	ND	5.000	5.318	106	5.939	119	15-153	11	0-30	
lambda-Cyhalothrin	ND	5.000	5.636	113	6.631	133	10-123	16	0-30	3

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3050B
Method: EPA 6020

Project: POLB Carnival Cruise Terminal 2018

Page 6 of 13

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Composite-a	Sample	Sediment	ICP/MS 05	11/09/18	11/10/18 03:05	181109S01E
CCT-18-Composite-a	Matrix Spike	Sediment	ICP/MS 05	11/09/18	11/10/18 02:51	181109S01E
CCT-18-Composite-a	Matrix Spike Duplicate	Sediment	ICP/MS 05	11/09/18	11/10/18 02:55	181109S01E

<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Arsenic	4.858	25.00	28.18	93	31.12	105	80-120	10	0-20	
Cadmium	0.5986	25.00	25.44	99	27.56	108	80-120	8	0-20	
Chromium	17.44	25.00	40.93	94	42.57	100	80-120	4	0-20	
Copper	43.65	25.00	53.24	38	57.98	57	80-120	9	0-20	3
Lead	41.07	25.00	63.90	91	66.42	101	80-120	4	0-20	
Nickel	12.16	25.00	35.34	93	37.60	102	80-120	6	0-20	
Selenium	2.195	25.00	24.30	88	26.75	98	80-120	10	0-20	
Silver	0.2867	12.50	11.58	90	12.23	96	80-120	5	0-20	
Zinc	107.7	25.00	132.5	4X	136.4	4X	80-120	4X	0-20	Q

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: POLB Carnival Cruise Terminal 2018

Page 7 of 13

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
CCT-18-Composite-a	Sample	Sediment	Mercury 08	11/12/18	11/12/18 16:52	181112S02E				
CCT-18-Composite-a	Matrix Spike	Sediment	Mercury 08	11/12/18	11/13/18 16:20	181112S02E				
CCT-18-Composite-a	Matrix Spike Duplicate	Sediment	Mercury 08	11/12/18	11/13/18 16:26	181112S02E				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	0.07150	0.8350	0.5925	62	0.5825	61	76-136	2	0-16	3

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8081A

Project: POLB Carnival Cruise Terminal 2018

Page 8 of 13

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
CCT-18-Composite-b	Sample	Sediment	GC 44	11/06/18	11/12/18 14:06	181106S07A				
CCT-18-Composite-b	Matrix Spike	Sediment	GC 44	11/06/18	11/12/18 13:24	181106S07A				
CCT-18-Composite-b	Matrix Spike Duplicate	Sediment	GC 44	11/06/18	11/12/18 13:38	181106S07A				
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Chlordane	ND	50.00	48.78	98	47.05	94	50-135	4	0-25	
Toxaphene	ND	100.0	40.59	41	43.94	44	50-135	8	0-25	3


 Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3545
Method: EPA 8270C Bisphenol

Project: POLB Carnival Cruise Terminal 2018

Page 9 of 13

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Composite-b	Sample	Sediment	GC/MS JJJ	11/09/18	11/13/18 14:05	181109S13
CCT-18-Composite-b	Matrix Spike	Sediment	GC/MS JJJ	11/09/18	11/13/18 14:59	181109S13
CCT-18-Composite-b	Matrix Spike Duplicate	Sediment	GC/MS JJJ	11/09/18	11/13/18 15:17	181109S13

<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Bisphenol A	ND	100.0	74.05	74	83.55	84	50-150	12	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM

Project: POLB Carnival Cruise Terminal 2018

Page 10 of 13

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Composite-b	Sample	Sediment	GC/MS BBB	11/07/18	11/13/18 19:13	181107S12
CCT-18-Composite-b	Matrix Spike	Sediment	GC/MS BBB	11/07/18	11/13/18 16:20	181107S12
CCT-18-Composite-b	Matrix Spike Duplicate	Sediment	GC/MS BBB	11/07/18	11/13/18 16:35	181107S12

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Aldrin	ND	5.000	5.200	104	4.519	90	25-200	14	0-25	
Alpha-BHC	ND	5.000	7.059	141	5.972	119	25-200	17	0-25	
Beta-BHC	ND	5.000	4.385	88	3.590	72	25-200	20	0-25	
4,4'-DDD	10.32	5.000	20.43	202	19.49	183	25-200	5	0-25	3
4,4'-DDE	13.26	5.000	24.11	217	23.16	198	25-200	4	0-25	3
4,4'-DDT	ND	5.000	2.262	45	1.859	37	25-200	20	0-25	
Delta-BHC	ND	5.000	6.513	130	5.789	116	25-200	12	0-25	
Dieldrin	ND	5.000	12.93	259	17.07	341	25-200	28	0-25	3,4
Endosulfan I	ND	5.000	6.234	125	6.338	127	25-200	2	0-25	
Endosulfan II	ND	5.000	4.257	85	3.523	70	25-200	19	0-25	
Endosulfan Sulfate	ND	5.000	6.201	124	6.511	130	25-200	5	0-25	
Endrin	ND	5.000	6.665	133	6.700	134	25-200	1	0-25	
Endrin Aldehyde	ND	5.000	2.579	52	3.116	62	25-200	19	0-25	
Endrin Ketone	ND	5.000	8.617	172	7.492	150	25-200	14	0-25	
Gamma-BHC	ND	5.000	7.414	148	7.309	146	25-200	1	0-25	
Heptachlor	ND	5.000	5.497	110	4.275	85	25-200	25	0-25	
Heptachlor Epoxide	ND	5.000	6.638	133	5.658	113	25-200	16	0-25	
Methoxychlor	ND	5.000	2.822	56	2.212	44	25-200	24	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM

Project: POLB Carnival Cruise Terminal 2018

Page 11 of 13

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
CCT-18-Composite-b	Sample	Sediment	GC/MS MM	11/06/18	11/09/18 16:34	181106S06				
CCT-18-Composite-b	Matrix Spike	Sediment	GC/MS MM	11/06/18	11/09/18 17:50	181106S06				
CCT-18-Composite-b	Matrix Spike Duplicate	Sediment	GC/MS MM	11/06/18	11/09/18 18:16	181106S06				
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
2,4,6-Trichlorophenol	ND	1000	919.2	92	932.5	93	40-160	1	0-20	
2,4-Dichlorophenol	ND	1000	830.9	83	846.2	85	40-160	2	0-20	
2-Methylphenol	ND	1000	728.4	73	753.2	75	40-160	3	0-20	
2-Nitrophenol	ND	1000	633.7	63	654.6	65	40-160	3	0-20	
4-Chloro-3-Methylphenol	ND	1000	896.1	90	904.7	90	40-160	1	0-20	
Acenaphthene	ND	1000	806.8	81	827.6	83	40-160	3	0-20	
Benzo (a) Pyrene	20.88	1000	997.1	98	1009	99	17-163	1	0-20	
Chrysene	21.14	1000	970.1	95	994.4	97	17-168	2	0-20	
Di-n-Butyl Phthalate	ND	1000	892.0	89	878.9	88	40-160	1	0-20	
Dimethyl Phthalate	ND	1000	837.0	84	860.2	86	40-160	3	0-20	
Fluoranthene	28.23	1000	1004	98	1025	100	26-137	2	0-20	
Fluorene	ND	1000	886.6	89	899.0	90	59-121	1	0-20	
Naphthalene	ND	1000	592.3	59	601.9	60	21-133	2	0-20	
Phenanthrene	10.75	1000	920.6	91	924.6	91	54-120	0	0-20	
Phenol	ND	1000	624.9	62	649.8	65	40-160	4	0-20	
Pyrene	33.57	1000	968.4	93	990.0	96	6-156	2	0-46	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners

Project: POLB Carnival Cruise Terminal 2018

Page 12 of 13

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Composite-a	Sample	Sediment	GC/MS HHH	11/07/18	11/09/18 20:45	181107S13
CCT-18-Composite-a	Matrix Spike	Sediment	GC/MS HHH	11/07/18	11/09/18 19:58	181107S13
CCT-18-Composite-a	Matrix Spike Duplicate	Sediment	GC/MS HHH	11/07/18	11/09/18 20:21	181107S13

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
PCB018	1.668	50.00	48.28	93	47.03	91	50-150	3	0-25	
PCB028	2.279	50.00	53.85	103	55.06	106	50-150	2	0-25	
PCB044	3.301	50.00	48.72	91	48.38	90	50-150	1	0-25	
PCB052	3.325	50.00	49.52	92	47.84	89	50-150	3	0-25	
PCB066	2.824	50.00	51.53	97	50.64	96	50-150	2	0-25	
PCB077	0.6951	50.00	43.06	85	41.93	82	50-150	3	0-25	
PCB101	3.329	50.00	48.58	91	50.40	94	50-150	4	0-25	
PCB105	4.594	50.00	45.99	83	48.87	89	50-150	6	0-25	
PCB118	3.055	50.00	46.87	88	45.85	86	50-150	2	0-25	
PCB126	ND	50.00	44.49	89	42.91	86	50-150	4	0-25	
PCB128	0.9360	50.00	44.26	87	42.52	83	50-150	4	0-25	
PCB170	1.470	50.00	50.43	98	50.95	99	50-150	1	0-25	
PCB180	2.042	50.00	48.37	93	47.64	91	50-150	2	0-25	
PCB187	1.040	50.00	44.53	87	43.16	84	50-150	3	0-25	
PCB206	0.9661	50.00	42.17	82	41.71	81	50-150	1	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3550B (M)
Method: Organotins by Krone et al.

Project: POLB Carnival Cruise Terminal 2018

Page 13 of 13

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
CCT-18-Composite-b	Sample	Sediment	GC/MS Y	11/02/18	11/06/18 22:13	181102S13A				
CCT-18-Composite-b	Matrix Spike	Sediment	GC/MS Y	11/02/18	11/06/18 18:45	181102S13A				
CCT-18-Composite-b	Matrix Spike Duplicate	Sediment	GC/MS Y	11/02/18	11/06/18 19:03	181102S13A				
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Tetrabutyltin	ND	100.0	67.39	67	75.47	75	33-129	11	0-36	
Tributyltin	ND	100.0	65.61	66	74.80	75	34-142	13	0-50	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - PDS

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3050B
Method: EPA 6020

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number	
CCT-18-Composite-a	Sample	Sediment	ICP/MS 05	11/09/18 00:00	11/10/18 03:05	181109S01E	
CCT-18-Composite-a	PDS	Sediment	ICP/MS 05	11/09/18 00:00	11/10/18 02:58	181109S01E	
<u>Parameter</u>		<u>Sample Conc.</u>	<u>Spike Added</u>	<u>PDS Conc.</u>	<u>PDS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic		4.858	25.00	30.63	103	75-125	
Cadmium		0.5986	25.00	27.20	106	75-125	
Chromium		17.44	25.00	43.08	103	75-125	
Copper		43.65	25.00	68.96	101	75-125	
Lead		41.07	25.00	67.90	107	75-125	
Nickel		12.16	25.00	37.55	102	75-125	
Selenium		2.195	25.00	28.60	106	75-125	
Silver		0.2867	12.50	12.70	99	75-125	
Zinc		107.7	25.00	135.1	4X	75-125	Q

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Sample Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 376.2M

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
CCT-18-Composite-a	Sample	Sediment	N/A	11/01/18 00:00	11/01/18 16:00	I1101SD1
CCT-18-Composite-a	Sample Duplicate	Sediment	N/A	11/01/18 00:00	11/01/18 16:00	I1101SD1

<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Sulfide, Total	152.5	150.0	2	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Sample Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 376.2M

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
LA2-Ref	Sample	Sediment	N/A	11/06/18 00:00	11/06/18 11:50	I1106DSS1
LA2-Ref	Sample Duplicate	Sediment	N/A	11/06/18 00:00	11/06/18 11:50	I1106DSS1

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Sulfide, Dissolved	ND	ND	N/A	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Sample Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: SM 2540 B (M)

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
CCT-18-Composite-a	Sample	Sediment	N/A	11/05/18 00:00	11/05/18 14:00	I1105TSD1
CCT-18-Composite-a	Sample Duplicate	Sediment	N/A	11/05/18 00:00	11/05/18 14:00	I1105TSD1

<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Solids, Total	51.10	51.00	0	0-10	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 1664A (M)

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-16-929-40	LCS	Solid	N/A	11/09/18	11/09/18 17:00	I1109HEML1
099-16-929-40	LCSD	Solid	N/A	11/09/18	11/09/18 17:00	I1109HEML1

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
HEM: Oil and Grease	40.00	36.62	92	36.64	92	78-114	0	0-18	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 1664A (M)

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-16-931-23	LCS	Solid	N/A	11/09/18	11/09/18 19:00	I1109HEML2
099-16-931-23	LCSD	Solid	N/A	11/09/18	11/09/18 19:00	I1109HEML2

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
HEM - SGT: Oil and Grease	20.00	16.64	83	16.66	83	64-132	0	0-34	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 376.2M

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-16-352-172	LCS	Solid	N/A	11/01/18	11/01/18 16:00	I1101SL1
099-16-352-172	LCSD	Solid	N/A	11/01/18	11/01/18 16:00	I1101SL1

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Sulfide, Total	1.000	0.8000	80	0.8500	85	80-120	6	0-20	



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 376.2M

Project: POLB Carnival Cruise Terminal 2018

Page 4 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-16-354-92	LCS	Solid	N/A	11/06/18	11/06/18 11:50	I1106DSL1			
099-16-354-92	LCSD	Solid	N/A	11/06/18	11/06/18 11:50	I1106DSL1			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Sulfide, Dissolved	1.000	0.9000	90	0.9000	90	80-120	0	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: EPA 9060A

Project: POLB Carnival Cruise Terminal 2018

Page 5 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-06-013-1918	LCS	Solid	TOC 10	11/07/18	11/08/18 16:57	I1107TOCL1
099-06-013-1918	LCSD	Solid	TOC 10	11/07/18	11/08/18 16:57	I1107TOCL1

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Carbon, Total Organic	0.6000	0.4814	80	0.5554	93	80-120	14	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



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Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: N/A
Method: SM 4500-NH3 B/C (M)

Project: POLB Carnival Cruise Terminal 2018

Page 6 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-12-816-192	LCS	Solid	BUR12	11/01/18	11/01/18 17:00	I1101NH3L1			
099-12-816-192	LCSD	Solid	BUR12	11/01/18	11/01/18 17:00	I1101NH3L1			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Ammonia (as N)	10.00	9.660	97	9.800	98	80-120	1	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270D (M)/TQ/EI

Project: POLB Carnival Cruise Terminal 2018

Page 7 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number				
099-14-403-184	LCS	Solid	GCTQ 1	11/08/18	11/11/18 20:05	181107L12				
099-14-403-184	LCSD	Solid	GCTQ 1	11/08/18	11/11/18 20:56	181107L12				
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Allethrin	5.000	4.170	83	4.309	86	10-148	0-171	3	0-25	
Bifenthrin	5.000	4.256	85	4.330	87	26-128	9-145	2	0-25	
Cyfluthrin	5.000	4.704	94	5.007	100	10-131	0-151	6	0-25	
Cypermethrin	5.000	4.195	84	4.617	92	10-136	0-157	10	0-25	
Deltamethrin/Tralomethrin	5.000	5.061	101	5.438	109	13-190	0-220	7	0-25	
Fenpropathrin	5.000	4.190	84	4.528	91	10-148	0-171	8	0-25	
Fenvalerate/Esfenvalerate	5.000	4.486	90	4.847	97	10-149	0-172	8	0-25	
Fluvalinate	5.000	4.142	83	4.421	88	10-121	0-140	7	0-25	
Permethrin (cis/trans)	5.000	5.320	106	5.658	113	45-123	32-136	6	0-25	
Phenothrin	5.000	4.767	95	4.996	100	45-165	25-185	5	0-25	
Resmethrin/Bioresmethrin	5.000	5.239	105	5.701	114	38-164	17-185	8	0-25	
Tetramethrin	5.000	4.652	93	5.073	101	15-153	0-176	9	0-25	
lambda-Cyhalothrin	5.000	4.386	88	4.872	97	10-123	0-142	11	0-25	

Total number of LCS compounds: 13

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3050B
Method: EPA 6020

Project: POLB Carnival Cruise Terminal 2018

Page 8 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-15-254-689	LCS	Solid	ICP/MS 05	11/09/18	11/10/18 02:44	181109L01E			
099-15-254-689	LCSD	Solid	ICP/MS 05	11/09/18	11/10/18 02:48	181109L01E			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	25.00	25.49	102	25.40	102	80-120	0	0-20	
Cadmium	25.00	26.53	106	25.87	103	80-120	3	0-20	
Chromium	25.00	25.54	102	25.01	100	80-120	2	0-20	
Copper	25.00	25.33	101	24.48	98	80-120	3	0-20	
Lead	25.00	26.41	106	25.92	104	80-120	2	0-20	
Nickel	25.00	25.73	103	25.73	103	80-120	0	0-20	
Selenium	25.00	23.56	94	23.26	93	80-120	1	0-20	
Silver	12.50	12.80	102	12.39	99	80-120	3	0-20	
Zinc	25.00	26.65	107	27.22	109	80-120	2	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: POLB Carnival Cruise Terminal 2018

Page 9 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-16-278-493	LCS	Solid	Mercury 08	11/12/18	11/12/18 16:06	181112L02E
099-16-278-493	LCSD	Solid	Mercury 08	11/12/18	11/12/18 17:01	181112L02E

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	0.8350	0.7459	89	0.7390	88	82-124	1	0-16	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 10/31/18
 Work Order: 18-10-2389
 Preparation: EPA 3541
 Method: EPA 8081A

Project: POLB Carnival Cruise Terminal 2018

Page 10 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-16-824-34	LCS	Solid	GC 44	11/06/18	11/12/18 16:24	181106L07A

<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Chlordane	50.00	46.55	93	50-135	
Toxaphene	100.0	73.28	73	50-135	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



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Quality Control - LCS

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 10/31/18
 Work Order: 18-10-2389
 Preparation: EPA 3545
 Method: EPA 8270C Bisphenol

Project: POLB Carnival Cruise Terminal 2018

Page 11 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-14-401-28	LCS	Solid	GC/MS JJJ	11/09/18	11/13/18 12:54	181109L13

<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Bisphenol A	100.0	96.52	97	50-150	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



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Quality Control - LCS

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM

Project: POLB Carnival Cruise Terminal 2018

Page 12 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number	
099-16-154-115	LCS	Solid	GC/MS BBB	11/07/18	11/13/18 14:45	181107L12	
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>ME CL</u>	<u>Qualifiers</u>
Aldrin		5.000	3.915	78	25-200	0-229	
Alpha-BHC		5.000	5.149	103	25-200	0-229	
Beta-BHC		5.000	5.224	104	25-200	0-229	
4,4'-DDD		5.000	3.894	78	25-200	0-229	
4,4'-DDE		5.000	4.296	86	25-200	0-229	
4,4'-DDT		5.000	4.389	88	25-200	0-229	
Delta-BHC		5.000	5.274	105	25-200	0-229	
Dieldrin		5.000	4.261	85	25-200	0-229	
Endosulfan I		5.000	4.435	89	25-200	0-229	
Endosulfan II		5.000	4.556	91	25-200	0-229	
Endosulfan Sulfate		5.000	3.478	70	25-200	0-229	
Endrin		5.000	3.751	75	25-200	0-229	
Endrin Aldehyde		5.000	3.237	65	25-200	0-229	
Endrin Ketone		5.000	4.492	90	25-200	0-229	
Gamma-BHC		5.000	4.962	99	25-200	0-229	
Heptachlor		5.000	4.765	95	25-200	0-229	
Heptachlor Epoxide		5.000	5.098	102	25-200	0-229	
Methoxychlor		5.000	4.096	82	25-200	0-229	

Total number of LCS compounds: 18

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Quality Control - LCS

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3541
Method: EPA 8270C SIM

Project: POLB Carnival Cruise Terminal 2018

Page 13 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number	
099-14-256-239	LCS	Solid	GC/MS MM	11/06/18	11/09/18 15:18	181106L06	
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>ME CL</u>	<u>Qualifiers</u>
2,4,6-Trichlorophenol		1000	870.9	87	40-160	20-180	
2,4-Dichlorophenol		1000	808.8	81	40-160	20-180	
2-Methylphenol		1000	745.5	75	40-160	20-180	
2-Nitrophenol		1000	587.2	59	40-160	20-180	
4-Chloro-3-Methylphenol		1000	827.4	83	40-160	20-180	
Acenaphthene		1000	749.9	75	48-108	38-118	
Benzo (a) Pyrene		1000	1039	104	17-163	0-187	
Chrysene		1000	932.7	93	17-168	0-193	
Di-n-Butyl Phthalate		1000	796.7	80	40-160	20-180	
Dimethyl Phthalate		1000	842.0	84	40-160	20-180	
Fluoranthene		1000	948.1	95	26-137	8-156	
Fluorene		1000	848.4	85	59-121	49-131	
Naphthalene		1000	427.5	43	21-133	2-152	
Phenanthrene		1000	855.9	86	54-120	43-131	
Phenol		1000	664.1	66	40-160	20-180	
Pyrene		1000	859.7	86	28-106	15-119	

Total number of LCS compounds: 16

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

 Return to Contents

Quality Control - LCS

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 10/31/18
 Work Order: 18-10-2389
 Preparation: EPA 3541
 Method: EPA 8270C SIM PCB Congeners

Project: POLB Carnival Cruise Terminal 2018

Page 14 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number	
099-16-418-343	LCS	Solid	GC/MS HHH	11/07/18	11/09/18 19:10	181107L13	
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>ME CL</u>	<u>Qualifiers</u>
PCB018		50.00	42.15	84	24-132	6-150	
PCB028		50.00	46.37	93	31-133	14-150	
PCB044		50.00	45.21	90	36-120	22-134	
PCB052		50.00	44.04	88	31-121	16-136	
PCB066		50.00	52.94	106	43-139	27-155	
PCB077		50.00	47.97	96	41-131	26-146	
PCB101		50.00	48.83	98	37-121	23-135	
PCB105		50.00	49.81	100	48-132	34-146	
PCB118		50.00	48.48	97	46-136	31-151	
PCB126		50.00	49.98	100	38-134	22-150	
PCB128		50.00	48.39	97	40-130	25-145	
PCB170		50.00	47.42	95	40-124	26-138	
PCB180		50.00	50.82	102	41-143	24-160	
PCB187		50.00	46.73	93	39-129	24-144	
PCB206		50.00	43.48	87	33-135	16-152	

Total number of LCS compounds: 15

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 10/31/18
Work Order: 18-10-2389
Preparation: EPA 3550B (M)
Method: Organotins by Krone et al.

Project: POLB Carnival Cruise Terminal 2018

Page 15 of 15

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-07-016-1656	LCS	Solid	GC/MS Y	11/02/18	11/06/18 17:53	181102L13			
099-07-016-1656	LCSD	Solid	GC/MS Y	11/02/18	11/06/18 18:28	181102L13			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Tetrabutyltin	100.0	55.21	55	55.69	56	40-142	1	0-20	
Tributyltin	100.0	43.61	44	47.08	47	33-147	8	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Glossary of Terms and Qualifiers

Work Order: 18-10-2389

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

TABLE 2. VESSELS, HOLDING TIMES, AND PRESERVATION METHODS

PARAMETER	SAMPLE SIZE	CONTAINER	MAX. HOLDING TIME	PRESERVATION
BULK SEDIMENT SAMPLES				
Grain Size	100 g	8-oz glass (Teflon or polyethylene for mercury)	6 months	4°C
Total Solids	10 g		14 days	4°C
			6 months	-18°C
TOC	50 g		14 days	4°C
			6 months	-18°C
Ammonia, Sulfides			7 days	4°C
Metals			6 months (28 days for Mercury)	4°C
	2 years (excl. Mercury)		-18°C	
PAHs, Pesticides, PCBs, Pyrethroids	30 g	16-oz glass	14 days	4°C
			1 year	-18°C
			40 days after extraction	4°C
Tier III Biological Tests	60 L	3.5-gal polyethylene bucket liners	8 weeks	4°C
ELUTRIATE SAMPLES				
Metals	100 ml	500-ml high-density polyethylene (HDPE)	6 months (28 days for Mercury)	Nitric acid to pH<2
PAHs, Pesticides, PCBs, Pyrethroids	1 L	1-L amber glass	7 days	4°C

4.2. Testing

The samples collected will be tested at a laboratory accredited by National Environmental Laboratory Accreditation Program (NELAP). Sediment physical, chemical, and biological tests will be performed according to the framework presented below to provide a basis for management option determination.

4.2.1. Bulk Sediment Physical and Chemical Testing

Physical and chemical analyses will be conducted on two (2) areal composite samples Composite-*a* (maintenance) and Composite-*b* (new-work), one (1) individual sample C1-*b* (new-work), and the grab samples from LA-2 as needed (Section 4.2.3). The archived samples will provide for any additional test needs within appropriate holding times as shown in Table 2. Since the new-work material is of unknown nature, the tests on C1-*b* will help determine whether the berth-wide new-work composite Composite-*b* reasonably represents the new-work material overall or, in case of significant difference between the two samples, additional tests are needed. Standard procedures as outlined in applicable testing manuals including Ocean Testing Manual (OTM) (USEPA/USACE, 1991), Inland Testing Manual (ITM) (USEPA/USACE, 1998), and Upland Testing Manual (UTM) (USACE, 2003) will be followed throughout the testing program.

Table 3 summarizes the proposed tests parameters, methods, and reporting limits for the bulk physical and chemical tests to be conducted for the project. The results from the bulk sediment physical and chemical tests will be used as the basis for all ensuing testing decisions as discussed in the following sections.

TABLE 3. PHYSICAL AND CHEMICAL TESTS

PARAMETER	METHOD	MDL	RL	UNIT	ERL	ERM
PHYSICAL/CONVENTIONALS						
Grain Size	Plumb (1981)		0.1	%		
Specific Gravity			0.01			
Total Solids	SM 2540		0.1	%		
Atterberg Limits	ASTM D4318		1	%		
Ammonia	EPA 350.1M		0.5	mg/kg		
Oil & Grease	EPA 1664		25			
TRPH			25			
Sulfides, Dissolved		Plumb (1981)			0.1	
Sulfides, Total			0.1			
TOC	EPA 9060A		0.1	%		
TDS	SM 2540		2.5	mg/L		
TSS			5			
TVS			0.1			
METALS						
Arsenic	EPA 6020	0.051	0.2	mg/kg	8.2	70
Cadmium		0.005			1.2	9.6
Chromium		0.017			81	370
Copper		0.018			34	270
Lead		0.009			46.7	218
Mercury	EPA 7471A	0.001	0.04		0.15	0.71
Nickel	EPA 6020	0.016	0.2		20.9	51.6
Selenium		0.035				
Silver		0.004			1	3.7
Zink		0.26			150	410
ORGANOTINS						
Dibutyltin	Krone et al. (1989)	0.6	6	µg/kg		
Monobutyltin		0.97				
Tetrabutyltin		0.36				
Tributyltin		0.33				
PAHS						
1-Methylnapthalene	EPA 8270C SIM	1.04	20	µg/kg		
2-Methylnapthalene		1.04				
2,4,5-Trichlorophenol		1.5	10			
2,4,6-Trichlorophenol		3.6	20			
2,4-Dichlorophenol		2.7				
2,4-Dimethylphenol		3.1				
2,4-Dinitrophenol		63	1000			
2-Chlorophenol		3.4	20			
2-Methylnapthalene		0.92				



PARAMETER	METHOD	MDL	RL	UNIT	ERL	ERM
Acenaphthene		0.76				
Acenaphthylene		0.73				
Anthracene		0.66				
Benzo(a)anthracene		1.01				
Benzo(a)pyrene		0.64				
Benzo (b) Fluoranthene		0.77				
Benzo (g,h,i) Perylene		1.14				
Benzo (k) Fluoranthene		0.96				
Chrysene		0.76				
Dibenz (a,h) Anthracene		0.53				
Fluoranthene		0.78				
Fluorene		0.7				
Indeno (1,2,3-c,d) Pyrene		0.66				
Naphthalene		0.83				
N-Nitrosodimethylamine		0.251	2			
Pentachlorophenol		88	1000			
Phenanthrene		1.08	20			
Phenols		3.7	30			
Pyrene		0.82	20			
Total PAHs					4022	44792
PCBS						
PCB 018		0.086				
PCB 028		0.53				
PCB 037		0.12				
PCB 044		0.25				
PCB 049		0.095				
PCB 052		0.15				
PCB 066		0.1				
PCB 070		0.15				
PCB 074		0.1				
PCB 077		0.082				
PCB 081	EPA 8082A ECD	0.07	0.5	µg/kg		
PCB 087		0.15				
PCB 099		0.079				
PCB 101		0.078				
PCB 105		0.053				
PCB 110		0.082				
PCB 114		0.068				
PCB 118		0.078				
PCB 119		0.072				
PCB 123		0.092				

Return to Contents



PARAMETER	METHOD	MDL	RL	UNIT	ERL	ERM	
PCB 126		0.072					
PCB 128		0.08					
PCB 138		0.075					
PCB 149		0.07					
PCB 151		0.069					
PCB 153		0.097					
PCB 156		0.073					
PCB 157		0.076					
PCB 158		0.07					
PCB 167		0.088					
PCB 168		0.069					
PCB 169		0.093					
PCB 170		0.066					
PCB 177		0.089					
PCB 180		0.083					
PCB 183		0.064					
PCB 187		0.087					
PCB 189		0.068					
PCB 194		0.082					
PCB 201		0.13					
PCB 206		0.078					
Total PCBs					22.7	180	
PESTICIDES							
2,4'-DDD	EPA 8081A	0.2	2	µg/kg			
2,4'-DDE		0.18					
2,4'-DDT		0.14					
4,4'-DDD		0.26				2	20
4,4'-DDE		0.3				2.2	27
4,4'-DDT		0.33				1	7
Total DDTs						1.58	46.1
Aldrin		0.31	2				
Alpha-BHC		0.29					
Beta-BHC		0.26					
Chlordane		1.9	10		0.5	6	
Delta-BHC		0.32	2				
Dieldrin		0.23					
Endosulfan I		0.36					
Endosulfan II		0.18					
Endosulfan Sulfate		0.26					
Endrin		0.2					
Endrin Aldehyde		0.2					

Return to Contents

PARAMETER	METHOD	MDL	RL	UNIT	ERL	ERM
Endrin Ketone		0.3	40			
Gamma-BHC		0.23				
Heptachlor		0.22				
Heptachlor Epoxide		0.18				
Methoxychlor		0.17				
Toxaphene		8.5				
PHENOLS						
2-Methylphenol	EPA 8270C SIM	5.3	20	µg/kg		
2-Nitrophenol		2.4				
3,4-Methylphenol						
4,6-Dinitro-2-Methylphenol						
4-Chloro-3-Methylphenol		3.5	20			
Bisphenol A						
PHTHALATES						
Bis(2-Ethylhexyl) Phthalate	EPA 8270C SIM	4.1	20	µg/kg		
Butylbenzyl Phthalate		4.4				
Diethyl Phthalate		5				
Dimethyl Phthalate		5.4				
Di-n-butyl Phthalate		5.1				
Di-n-octyl Phthalate		4.7				
PYRETHROIDS						
Allethrin (Bioallethrin)	GC/MS/MS	0.09	1	µg/kg		
Bifenthrin		0.085				
Cyfluthrin-beta (Baythroid)		0.1				
Cyhalothrin-Lamba		0.078				
Cypermethrin		0.15				
Deltamethrin (Decamethrin)		0.093				
Esfenvalerate		0.087				
Fenpropathrin (Danitol)		0.091				
Fenvalerate (sanmarton)		0.094				
Fluvalinate		0.12				
Permethrin (cis and trans)		0.088				
Resmethrin (Bioresmethrin)		0.079				
Resmethrin		0.013				
Sumithrin (Phenothrin)		0.09				
Tetramethrin		0.085				
Tralomethrin		0.1				



In addition to sediment testing, water samples from LA-2 and harbor area will be analyzed for the background levels of contaminants of concern at the disposal sites for use in the initial mixing zone and water column compliance analyses.

4.2.2. Effluent Elutriate Testing

Effluent Elutriate Test (EET) will be performed based on the contamination levels and characteristics identified in the bulk tests as outlined above and in Table 3. The objective of the EET is to evaluate the quality of potential effluents from confined site(s) during or after placement if contaminants of concern are present in significant levels in the dredged material. Although POLB has Best Management Practices (BMPs) in place across the harbor, additional project-specific mitigation measures will need to be implemented to address any potential impact of effluents from transitional and/or final placement sites.

The EET will be conducted once all bulk chemistry tests have been completed, results analyzed, and constituent(s) of concern (if any) identified. If the bulk chemistry tests indicate minimal contamination in the sediments, consultation with the DMMT agencies will be made to determine the need for further testing by EET. Once decided to proceed, EET will be conducted on the composite sample with the highest levels of constituents of concern. Standard procedure and protocol for EET as specified in the UTM (USACE, 2003) will be followed.

The EET will use surface water samples collected from the berth dredging area as dilution water. In each test, the sediment and water samples will be combined to produce a slurry mixture at a concentration of 150 g/L. The slurry will then undergo vigorous mixing via aeration for 1 hour at room temperature before being allowed to settle for 24 hours. After settlement, the overlying liquid with remaining suspended phase will be siphoned out and centrifuged to remove the solids phase to produce the test elutriate. Table 4 presents the proposed parameters, methods, and reporting limits for the EET. The original water samples will also be tested for the same parameters as reference.

The test results will be compared with applicable water quality objectives for the receiving water of Los Angeles Region as outlined in the Basin Plan (LARWQCB, 1995) to support management option assessment for the dredged material. In cases where water quality objectives are not available for the contaminants of concern, bioassays may be considered to determine compliance.

TABLE 4. EFFLUENT ELUTRIATE TESTS

PARAMETER	METHOD	RL	UNIT
METALS			µg/L
Arsenic	EPA 1640/6020	0.03	
Cadmium		0.03	
Chromium		0.2	
Copper		0.03	
Lead		0.03	
Mercury		EPA 7470A	
Nickel	EPA 1640/6020	0.2	
Selenium		0.05	
Silver		0.05	
Zink		1.0	
PAHs			
1-Methylnaphthalene	EPA 8270C SIM	0.2	
2-Methylnaphthalene			
1,6,7-Trimethylnaphthalene			
2,6-Dimethylnaphthalene			
1-Methylphenanthrene			
Acenaphthene			
Acenaphthylene			
Anthracene			
Benzo(a) Anthracene			
Benzo(a) Pyrene			
Benzo (b) Fluoranthene			
Benzo (g,h,i) Perylene			
Benzo (k) Fluoranthene			
Biphenyl			
Chrysene			
Dibenz (a,h) Anthracene			
Fluoranthene			
Fluorene			
Indeno (1,2,3-c,d) Pyrene			
Naphthalene			
Perylene			
Phenanthrene			
Pyrene			
Total HPAHs			



PARAMETER	METHOD	RL	UNIT
<i>PCB Congeners</i>			
PCB 003	USEPA 8270C SIM	0.02	
PCB 008			
PCB 018			
PCB 028			
PCB 031			
PCB 033			
PCB 037			
PCB 044			
PCB 049			
PCB 052			
PCB 056			
PCB 060			
PCB 066			
PCB 070			
PCB 074			
PCB 077			
PCB 081			
PCB 087			
PCB 095			
PCB 097			
PCB 099			
PCB 101			
PCB 105			
PCB 110			
PCB 114			
PCB 118			
PCB 119			
PCB 123			
PCB 126			
PCB 128			
PCB 132			
PCB 138/158			
PCB 141	0.02		
PCB 149			
PCB 151			
PCB 153			
PCB 156			

Return to Contents



PARAMETER	METHOD	RL	UNIT		
PCB 157					
PCB 167					
PCB 168					
PCB 169					
PCB 170					
PCB 174					
PCB 177					
PCB 180					
PCB 183					
PCB 184					
PCB 187					
PCB 189					
PCB 194					
PCB 195					
PCB 200					
PCB 201					
PCB 203					
PCB 206					
PCB 209					
PESTICIDES					
2,4'-DDD	US EPA 8081A	0.05	µg/L		
2,4'-DDE					
2,4'-DDT					
4,4'-DDD					
4,4'-DDE					
4,4'-DDT					
Aldrin					
Alpha-Chlordane					
Alpha-BHC					
Beta-BHC					
Chlordane					
Cis-Nonachlor					
Delta-BHC					
Dieldrin					
Endosulfan I					
Endosulfan II					
Endrin Ketone					
Gamma-Chlordane					
					0.5

Return to Contents



PARAMETER	METHOD	RL	UNIT	
Gamma-BHC			µg/L	
Heptachlor				
Heptachlor Epoxide				
Methoxychlor				
Toxaphene				2.0
Trans-Nonachlor				0.05
Total DDTs				
PYRETHROIDS				
Bifenthrin	EPA 8270D modified TQ/EI	0.002		
Cyfluthrin, Total				
Cypermethrin, Total				
Deltamethrin				
Esfenvalerate/Fenvalerate, Total				
Fenpropathrin				
Permethrin (cis and trans)			0.004	
Warrior (Lambda Cyhalothrin), Total			0.002	

Return to Contents

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: Kinnetic

DATE: 10/3/2018

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC6 (CF: 0.0°C); Temperature (w/o CF): 1.7 °C (w/ CF): 1.7 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter
 Checked by: H4MW

CUSTODY SEAL:
 Cooler Present and Intact Present but Not Intact Not Present N/A Checked by: H4MW
 Sample(s) Present and Intact Present but Not Intact Not Present N/A Checked by: WFSO

SAMPLE CONDITION:

	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers			
<input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time			
Sampler's name indicated on COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and in good condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper containers for analyses requested	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sufficient volume/mass for analyses requested	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within holding time	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aqueous samples for certain analyses received within 15-minute holding time			
<input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Proper preservation chemical(s) noted on COC and/or sample container	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Unpreserved aqueous sample(s) received for certain analyses			
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals			
Acid/base preserved samples - pH within acceptable range	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Container(s) for certain analysis free of headspace.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500)			
<input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CONTAINER TYPE: (Trip Blank Lot Number: _____)
Aqueous: VOA VOAh VOAn₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB 125PBz_{na} (pH__9)
 250AGB 250CGB 250CGBs (pH__2) 250PB 250PBn (pH__2) 500AGB 500AGJ 500AGJs (pH__2) 500PB
 1AGB 1AGBna₂ 1AGBs (pH__2) 1AGBs (O&G) 1PB 1PBna (pH__12) _____ _____ _____
Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (____) EnCores® (____) TerraCores® (____) _____ _____
Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (Sediment): ICGJ _____ _____
 Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag
 Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO₃, **na** = NaOH, **na₂** = Na₂S₂O₃, **p** = H₃PO₄, Labeled/Checked by: WFSO
s = H₂SO₄, **u** = ultra-pure, **x** = Na₂SO₃+NaHSO₄.H₂O, **z_{na}** = Zn (CH₃CO₂)₂ + NaOH Reviewed by: WWE



Calscience

Subcontractor Analysis Report

Work Order: 18-10-2389

Page 1 of 1

One or more samples in this work order have tests that were subcontracted. The subcontract report(s) follows.

For subcontracted tests, please reference the laboratory information noted below.

1. Weck Laboratories, Inc. - City of Industry,CA NELAP 04229CA
Various


Return to Contents

Work Orders: 8K02022

Report Date: 11/12/2018

Project: 18-10-2389/POLB Carnival Cruise

Received Date: 11/2/2018

Turnaround Time: Normal

Phones: (714) 895-5494

Fax: (714) 894-7501

Attn: Carla Lee Hollowell

P.O. #:

Client: Eurofins Calscience, Inc.
 7440 Lincoln Way
 Garden Grove, CA 92841-1432

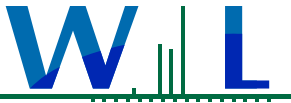
Billing Code:

Dear Carla Lee Hollowell,

Enclosed are the results of analyses for samples received 11/02/18 with the Chain-of-Custody document. The samples were received in good condition, at 2.4 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Sample Results

Sample:	CCT-18-Composite-a 8K02022-01 (Solid)						Sampled: 10/30/18 13:25 by Client
Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 160.4M	Batch ID: W8K0115	Instr: Inst	Prepared: 11/02/18 16:33			Analyst: sar	
Total Volatile Solids	3.7	0.18	0.18	% by Weight	1	11/02/18 18:00	
Sample:	CCT-18-Composite-b 8K02022-02 (Solid)						Sampled: 10/30/18 8:40 by Client
Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 160.4M	Batch ID: W8K0115	Instr: Inst	Prepared: 11/02/18 16:33			Analyst: sar	
Total Volatile Solids	3.4	0.18	0.18	% by Weight	1	11/02/18 18:00	
Sample:	CCT-18-C1-b 8K02022-03 (Solid)						Sampled: 10/30/18 8:00 by Client
Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 160.4M	Batch ID: W8K0115	Instr: Inst	Prepared: 11/02/18 16:33			Analyst: sar	
Total Volatile Solids	3.8	0.19	0.19	% by Weight	1	11/02/18 18:00	
Sample:	LA2-Ref 8K02022-04 (Solid)						Sampled: 10/30/18 13:30 by Client
Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 160.4M	Batch ID: W8K0115	Instr: Inst	Prepared: 11/02/18 16:33			Analyst: sar	
Total Volatile Solids	1.7	0.18	0.18	% by Weight	1	11/02/18 18:00	



WECK LABORATORIES, INC.

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Duplicate (W8K0115-DUP1)		Source: 8K02022-04			Prepared & Analyzed: 11/02/18						
Total Volatile Solids	1.45	0.18	0.18	% by Weight		1.67			14	30	
Duplicate (W8K0115-DUP2)		Source: 8J25073-01			Prepared & Analyzed: 11/02/18						
Total Volatile Solids	4.81	0.18	0.18	% by Weight		4.09			16	30	

Return to Contents

Notes and Definitions

Item	Definition
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
Dil	Dilution
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
% Rec	Percent Recovery
Source	Sample that was matrix spiked or duplicated.
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ) and Detection Limit for Reporting (DLR)
MDA	Minimum Detectable Activity
NR	Not Reportable
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.
 An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)
 All results are expressed on wet weight basis unless otherwise specified.
 All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS 002.

Certified Analyses Summary

Analyte	CAS #	Not Accredited By	Accredited By
EPA 160.4M in Solid Total Volatile Solids		DoD-ISO	

Reviewed by:



Regina Giancola
 Project Manager



Return to Contents

ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO 17025 #L2457.01 • LACSD #10143 •
 NELAP-CA #04229CA • NELAP-OR #4047 • NJ-DEP #CA015 • NV-DEP #NAC 445A • SCAQMD #93LA1006

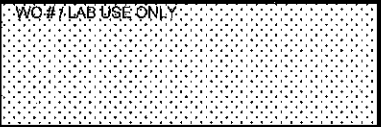
This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.



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WECK

OK02022



CHAIN OF CUSTODY RECORD

DATE: 11/02/18
PAGE: 1 OF 1

7440 Lincoln Way, Garden Grove, CA 92841-1427 • (714) 895-5494
For courier service / sample drop off information, contact us26_sales@eurofinsus.com or call us.

LABORATORY CLIENT: Eurofins
ADDRESS:
CITY: GARDEN GROVE STATE: ZIP:
TEL: E-MAIL: carlahollowell@eurofinsus.com
CLIENT PROJECT NAME / NUMBER: 18-10-2389 / POLB Carnival Cruise
PROJECT CONTACT: CARLA LEE HOLLOWELL
P.O. NO.:
SAMPLER(S): (PRINT)

REQUESTED ANALYSES

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):
[] SAME DAY [] 24 HR [] 48 HR [] 72 HR [] 5 DAYS [] STANDARD
[] COELT EDF GLOBAL ID: LOG CODE:
SPECIAL INSTRUCTIONS:
NTAT
J Flag
Please provide results in EDD format + PDF Format

Table with columns: LAB USE ONLY, SAMPLE ID, SAMPLING (DATE, TIME), MATRIX, NO. OF CONT., Unpreserved, Preserved, Field Filtered, EPA 160.4 Volatile Solids, ECI SAMPLE ID #. Rows include CCT-18-Composite-a, CCT-18-Composite-b, CCT-18-C1-b, LA2-Ref.

Relinquished by: (Signature) [Signature]
Received by: (Signature/Affiliation) [Signature] 2.4°C
Date: 11/2/18 Time: 10:11

Return to Contents



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WORK ORDER NUMBER: 18-12-1618

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Kinnetic Laboratories, Inc.

Client Project Name: POLB Carnival Cruise Terminal 2018

Attention: Amy Howk
307 Washington Street
Santa Cruz, CA 95060-4928

Approved for release on 01/11/2019 by:
Carla Hollowell
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience (Calscience) certifies that the test results provided in this report meet all NELAC Institute requirements for parameters for which accreditation is required or available. Any exceptions to NELAC Institute requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.



Contents

Client Project Name: POLB Carnival Cruise Terminal 2018
Work Order Number: 18-12-1618

1	Work Order Narrative.	3
2	Sample Summary.	5
3	Client Sample Data.	7
	3.1 % Lipids via MeCl2 Ext. (NOAA 1993a) (Tissue).	7
	3.2 EPA 6020 ICP/MS Metals (Tissue).	16
	3.3 EPA 7471A Mercury (Tissue).	43
	3.4 EPA 8270C SIM OC Pesticides (Tissue).	52
	3.5 EPA 8270C SIM PCB Congeners (Tissue).	79
4	Quality Control Sample Data.	185
	4.1 MS/MSD.	185
	4.2 PDS/PDSD.	197
	4.3 Sample Duplicate.	200
	4.4 LCS/LCSD.	203
5	Glossary of Terms and Qualifiers.	215
6	Chain-of-Custody/Sample Receipt Form.	216

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 12/18/18. They were assigned to Work Order 18-12-1618.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

DoD Projects:

The test results contained in this report are accredited under the laboratory's ISO/IEC 17025:2005 and DoD-ELAP accreditation issued by the ANSI-ASQ National Accreditation Board. Refer to certificate and scope of accreditation ADE-1864.

Work Order Comments:

For EPA 6020, the MS recovery for zinc was outside of established control limits due to matrix interference. The results have been flagged with the appropriate qualifiers and are released with no further action.

For EPA 7471A, the MS and MSD recoveries and/or the MS/MSD RPD for mercury were outside of established control limits due to matrix interference. The results have been flagged with the appropriate qualifiers and are released with no further

action.

For EPA 8270C SIM PCB Congeners, a surrogate failed for Sample 46, and was re-run for confirmation. The MS recovery for PCB 126 was outside of established control limits due to matrix interference. The results have been flagged with the appropriate qualifiers and are released with no further action.

For EPA 8270 PEST-SIM, 4,4'-DDT was detected in the Method Blank at a concentration below the Reporting Limit. The MS and MSD recoveries and/or the MS/MSD RPD were outside of established control limits for 4,4'-DDT and 4,4'-DDD due to matrix interference. The MS/MSDs were rerun for confirmation, with similar results. For all the above, the results have been flagged with the appropriate qualifiers and are released with no further action.

Most samples were analyzed or extracted outside the EPA Method recommended solid sample holding times for certain analyses. However, the samples were frozen after collection (prior to holding time expiration) at -18°C, and remained frozen until the laboratory was ready to prepare the samples for analysis. Eurofins Calscience, Inc. follows SWAMP criteria and the Puget Sound Protocol (USEPA/PSWQAT, 1997, Table 2) for holding times in tissue samples, which states holding times may be extended up to six months to one year (two years for metals) if stored frozen at -18°C after collection. Therefore, the sample results have not been flagged as exceeding the EPA Method recommended holding time.



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Sample Summary

Client: Kinnetic Laboratories, Inc.	Work Order:	18-12-1618
307 Washington Street	Project Name:	POLB Carnival Cruise Terminal 2018
Santa Cruz, CA 95060-4928	PO Number:	
	Date/Time Received:	12/18/18 14:00
	Number of Containers:	50

Attn: Amy Howk

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
Macoma-T0-A	18-12-1618-1	11/15/18 12:00	1	Tissue
Macoma-T0-B	18-12-1618-2	11/15/18 12:01	1	Tissue
Macoma-T0-C	18-12-1618-3	11/15/18 12:02	1	Tissue
Macoma-T0-D	18-12-1618-4	11/15/18 12:03	1	Tissue
Macoma-T0-E	18-12-1618-5	11/15/18 12:04	1	Tissue
Control-Macoma-A	18-12-1618-6	12/13/18 12:00	1	Tissue
Control-Macoma-B	18-12-1618-7	12/13/18 12:01	1	Tissue
Control-Macoma-C	18-12-1618-8	12/13/18 12:02	1	Tissue
Control-Macoma-D	18-12-1618-9	12/13/18 12:03	1	Tissue
Control-Macoma-E	18-12-1618-10	12/13/18 12:04	1	Tissue
LA2-REF-Macoma-A	18-12-1618-11	12/13/18 12:05	1	Tissue
LA2-REF-Macoma-B	18-12-1618-12	12/13/18 12:06	1	Tissue
LA2-REF-Macoma-C	18-12-1618-13	12/13/18 12:07	1	Tissue
LA2-REF-Macoma-D	18-12-1618-14	12/13/18 12:08	1	Tissue
LA2-REF-Macoma-E	18-12-1618-15	12/13/18 12:09	1	Tissue
CCT-18-Comp-a-Macoma-A	18-12-1618-16	12/13/18 12:10	1	Tissue
CCT-18-Comp-a-Macoma-B	18-12-1618-17	12/13/18 12:11	1	Tissue
CCT-18-Comp-a-Macoma-C	18-12-1618-18	12/13/18 12:12	1	Tissue
CCT-18-Comp-a-Macoma-D	18-12-1618-19	12/13/18 12:13	1	Tissue
CCT-18-Comp-a-Macoma-E	18-12-1618-20	12/13/18 12:14	1	Tissue
CCT-18-Comp-b-Macoma-A	18-12-1618-21	12/13/18 12:15	1	Tissue
CCT-18-Comp-b-Macoma-B	18-12-1618-22	12/13/18 12:16	1	Tissue
CCT-18-Comp-b-Macoma-C	18-12-1618-23	12/13/18 12:17	1	Tissue
CCT-18-Comp-b-Macoma-D	18-12-1618-24	12/13/18 12:18	1	Tissue
CCT-18-Comp-b-Macoma-E	18-12-1618-25	12/13/18 12:19	1	Tissue
Nereis-T0-A	18-12-1618-26	11/14/18 12:00	1	Tissue
Nereis-T0-B	18-12-1618-27	11/14/18 12:01	1	Tissue
Nereis-T0-C	18-12-1618-28	11/14/18 12:02	1	Tissue
Nereis-T0-D	18-12-1618-29	11/14/18 12:03	1	Tissue
Nereis-T0-E	18-12-1618-30	11/14/18 12:04	1	Tissue
Control-Nereis-A	18-12-1618-31	12/12/18 12:00	1	Tissue
Control-Nereis-B	18-12-1618-32	12/12/18 12:01	1	Tissue
Control-Nereis-C	18-12-1618-33	12/12/18 12:02	1	Tissue
Control-Nereis-D	18-12-1618-34	12/12/18 12:03	1	Tissue
Control-Nereis-E	18-12-1618-35	12/12/18 12:04	1	Tissue
LA2-REF-Nereis-A	18-12-1618-36	12/12/18 12:05	1	Tissue
LA2-REF-Nereis-B	18-12-1618-37	12/12/18 12:06	1	Tissue
LA2-REF-Nereis-C	18-12-1618-38	12/12/18 12:07	1	Tissue
LA2-REF-Nereis-D	18-12-1618-39	12/12/18 12:08	1	Tissue
LA2-REF-Nereis-E	18-12-1618-40	12/12/18 12:09	1	Tissue
CCT-18-Comp-a-Nereis-A	18-12-1618-41	12/12/18 12:10	1	Tissue
CCT-18-Comp-a-Nereis-B	18-12-1618-42	12/12/18 12:11	1	Tissue

Return to Contents



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Sample Summary

Client: Kinnetic Laboratories, Inc.	Work Order: 18-12-1618
307 Washington Street	Project Name: POLB Carnival Cruise Terminal 2018
Santa Cruz, CA 95060-4928	PO Number:
	Date/Time Received: 12/18/18 14:00
	Number of Containers: 50

Attn: Amy Howk

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
CCT-18-Comp-a-Nereis-C	18-12-1618-43	12/12/18 12:12	1	Tissue
CCT-18-Comp-a-Nereis-D	18-12-1618-44	12/12/18 12:13	1	Tissue
CCT-18-Comp-a-Nereis-E	18-12-1618-45	12/12/18 12:14	1	Tissue
CCT-18-Comp-b-Nereis-A	18-12-1618-46	12/12/18 12:15	1	Tissue
CCT-18-Comp-b-Nereis-B	18-12-1618-47	12/12/18 12:16	1	Tissue
CCT-18-Comp-b-Nereis-C	18-12-1618-48	12/12/18 12:17	1	Tissue
CCT-18-Comp-b-Nereis-D	18-12-1618-49	12/12/18 12:18	1	Tissue
CCT-18-Comp-b-Nereis-E	18-12-1618-50	12/12/18 12:19	1	Tissue



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)
Units: %

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-A	18-12-1618-1-AA	11/15/18 12:00	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
% Lipids	0.52	0.10	0.10	1.00	

Macoma-T0-B	18-12-1618-2-AA	11/15/18 12:01	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
% Lipids	0.53	0.10	0.10	1.00	

Macoma-T0-C	18-12-1618-3-AA	11/15/18 12:02	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
% Lipids	0.65	0.10	0.10	1.00	

Macoma-T0-D	18-12-1618-4-AA	11/15/18 12:03	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
% Lipids	0.90	0.10	0.10	1.00	

Macoma-T0-E	18-12-1618-5-AA	11/15/18 12:04	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
% Lipids	0.58	0.10	0.10	1.00	

Control-Macoma-A	18-12-1618-6-AA	12/13/18 12:00	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
% Lipids	0.30	0.10	0.10	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)
Units: %

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-B	18-12-1618-7-AA	12/13/18 12:01	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.43	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-C	18-12-1618-8-AA	12/13/18 12:02	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.26	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-D	18-12-1618-9-AA	12/13/18 12:03	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.30	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-E	18-12-1618-10-AA	12/13/18 12:04	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.24	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-A	18-12-1618-11-AA	12/13/18 12:05	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.34	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-B	18-12-1618-12-AA	12/13/18 12:06	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.28	0.10	0.10	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)
Units: %

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-C	18-12-1618-13-AA	12/13/18 12:07	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.15	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-D	18-12-1618-14-AA	12/13/18 12:08	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.17	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-E	18-12-1618-15-AA	12/13/18 12:09	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.37	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-A	18-12-1618-16-AA	12/13/18 12:10	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.31	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-B	18-12-1618-17-AA	12/13/18 12:11	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.15	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-C	18-12-1618-18-AA	12/13/18 12:12	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.28	0.10	0.10	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)
Units: %

Project: POLB Carnival Cruise Terminal 2018

Page 4 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-D	18-12-1618-19-AA	12/13/18 12:13	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.34	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-E	18-12-1618-20-AA	12/13/18 12:14	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.33	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-A	18-12-1618-21-AA	12/13/18 12:15	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.36	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-B	18-12-1618-22-AA	12/13/18 12:16	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.29	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-C	18-12-1618-23-AA	12/13/18 12:17	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.58	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-D	18-12-1618-24-AA	12/13/18 12:18	Tissue	N/A	12/28/18	01/02/19 00:00	181228B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.44	0.10	0.10	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)
Units: %

Project: POLB Carnival Cruise Terminal 2018

Page 5 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-E	18-12-1618-25-AA	12/13/18 12:19	Tissue	N/A	12/28/18	01/02/19 00:00	181228B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.52	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-A	18-12-1618-26-AA	11/14/18 12:00	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.99	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-B	18-12-1618-27-AA	11/14/18 12:01	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.96	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-C	18-12-1618-28-AA	11/14/18 12:02	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.58	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-D	18-12-1618-29-AA	11/14/18 12:03	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.72	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-E	18-12-1618-30-AA	11/14/18 12:04	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.55	0.10	0.10	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)
Units: %

Project: POLB Carnival Cruise Terminal 2018

Page 6 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-A	18-12-1618-31-AA	12/12/18 12:00	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	1.0	0.10	0.10	1.00	

Control-Nereis-B	18-12-1618-32-AA	12/12/18 12:01	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	1.1	0.10	0.10	1.00	

Control-Nereis-C	18-12-1618-33-AA	12/12/18 12:02	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.93	0.10	0.10	1.00	

Control-Nereis-D	18-12-1618-34-AA	12/12/18 12:03	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.92	0.10	0.10	1.00	

Control-Nereis-E	18-12-1618-35-AA	12/12/18 12:04	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	1.2	0.10	0.10	1.00	

LA2-REF-Nereis-A	18-12-1618-36-AA	12/12/18 12:05	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.63	0.10	0.10	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)
Units: %

Project: POLB Carnival Cruise Terminal 2018

Page 7 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-B	18-12-1618-37-AA	12/12/18 12:06	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.90	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-C	18-12-1618-38-AA	12/12/18 12:07	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.89	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-D	18-12-1618-39-AA	12/12/18 12:08	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.82	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-E	18-12-1618-40-AA	12/12/18 12:09	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.76	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-A	18-12-1618-41-AA	12/12/18 12:10	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.75	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-B	18-12-1618-42-AA	12/12/18 12:11	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.59	0.10	0.10	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)
Units: %

Project: POLB Carnival Cruise Terminal 2018

Page 8 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-C	18-12-1618-43-AA	12/12/18 12:12	Tissue	N/A	12/28/18	01/02/19 00:00	181228B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.61	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-D	18-12-1618-44-AA	12/12/18 12:13	Tissue	N/A	12/28/18	01/02/19 00:00	181228B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.89	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-E	18-12-1618-45-AA	12/12/18 12:14	Tissue	N/A	12/28/18	01/02/19 00:00	181228B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	1.5	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-A	18-12-1618-46-AA	12/12/18 12:15	Tissue	N/A	12/28/18	01/02/19 00:00	181228B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	1.2	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-B	18-12-1618-47-AA	12/12/18 12:16	Tissue	N/A	12/28/18	01/02/19 00:00	181228B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	1.2	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-C	18-12-1618-48-AA	12/12/18 12:17	Tissue	N/A	12/28/18	01/02/19 00:00	181228B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	1.2	0.10	0.10	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)
Units: %

Project: POLB Carnival Cruise Terminal 2018

Page 9 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-D	18-12-1618-49-AA	12/12/18 12:18	Tissue	N/A	12/28/18	01/02/19 00:00	181228B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.90	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-E	18-12-1618-50-AA	12/12/18 12:19	Tissue	N/A	12/28/18	01/02/19 00:00	181228B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	0.58	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-104-254	N/A	Tissue	N/A	12/27/18	12/28/18 00:00	181227B15

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	ND	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-104-255	N/A	Tissue	N/A	12/27/18	01/02/19 00:00	181227B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	ND	0.10	0.10	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-104-256	N/A	Tissue	N/A	12/28/18	01/02/19 00:00	181228B16

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
% Lipids	ND	0.10	0.10	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-A	18-12-1618-1-AA	11/15/18 12:00	Tissue	ICP/MS 05	12/20/18	12/20/18 15:45	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	3.21	0.100	0.0470	1.00	
Cadmium	0.0392	0.100	0.0286	1.00	J
Chromium	0.102	0.100	0.0193	1.00	
Copper	0.957	0.100	0.0210	1.00	
Lead	0.0734	0.100	0.0330	1.00	J
Nickel	0.317	0.100	0.0253	1.00	
Selenium	0.247	0.100	0.0834	1.00	
Silver	0.0361	0.100	0.0156	1.00	J
Zinc	11.2	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-B	18-12-1618-2-AA	11/15/18 12:01	Tissue	ICP/MS 05	12/20/18	12/20/18 17:23	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	3.22	0.100	0.0470	1.00	
Cadmium	0.0361	0.100	0.0286	1.00	J
Chromium	0.0869	0.100	0.0193	1.00	J
Copper	1.24	0.100	0.0210	1.00	
Lead	0.0783	0.100	0.0330	1.00	J
Nickel	0.355	0.100	0.0253	1.00	
Selenium	0.296	0.100	0.0834	1.00	
Silver	0.0534	0.100	0.0156	1.00	J
Zinc	13.8	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-C	18-12-1618-3-AA	11/15/18 12:02	Tissue	ICP/MS 05	12/20/18	12/20/18 17:27	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	3.38	0.100	0.0470	1.00	
Cadmium	0.0520	0.100	0.0286	1.00	J
Chromium	0.144	0.100	0.0193	1.00	
Copper	1.06	0.100	0.0210	1.00	
Lead	0.0826	0.100	0.0330	1.00	J
Nickel	0.378	0.100	0.0253	1.00	
Selenium	0.272	0.100	0.0834	1.00	
Silver	0.0462	0.100	0.0156	1.00	J
Zinc	13.4	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-D	18-12-1618-4-AA	11/15/18 12:03	Tissue	ICP/MS 05	12/20/18	12/20/18 17:30	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	3.62	0.100	0.0470	1.00	
Cadmium	0.0440	0.100	0.0286	1.00	J
Chromium	0.0703	0.100	0.0193	1.00	J
Copper	1.02	0.100	0.0210	1.00	
Lead	0.0749	0.100	0.0330	1.00	J
Nickel	0.293	0.100	0.0253	1.00	
Selenium	0.322	0.100	0.0834	1.00	
Silver	0.0790	0.100	0.0156	1.00	J
Zinc	13.1	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 12/18/18
 Work Order: 18-12-1618
 Preparation: EPA 3050B
 Method: EPA 6020
 Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-E	18-12-1618-5-AA	11/15/18 12:04	Tissue	ICP/MS 05	12/20/18	12/20/18 17:34	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	3.13	0.100	0.0470	1.00	
Cadmium	0.0437	0.100	0.0286	1.00	J
Chromium	0.0942	0.100	0.0193	1.00	J
Copper	1.18	0.100	0.0210	1.00	
Lead	0.0965	0.100	0.0330	1.00	J
Nickel	0.359	0.100	0.0253	1.00	
Selenium	0.252	0.100	0.0834	1.00	
Silver	0.0589	0.100	0.0156	1.00	J
Zinc	13.7	1.00	0.397	1.00	

Control-Macoma-A	18-12-1618-6-AA	12/13/18 12:00	Tissue	ICP/MS 05	12/20/18	12/20/18 17:37	181220L01
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	3.13	0.100	0.0470	1.00	
Cadmium	ND	0.100	0.0286	1.00	
Chromium	0.274	0.100	0.0193	1.00	
Copper	1.05	0.100	0.0210	1.00	
Lead	0.154	0.100	0.0330	1.00	
Nickel	0.546	0.100	0.0253	1.00	
Selenium	0.287	0.100	0.0834	1.00	
Silver	0.0236	0.100	0.0156	1.00	J
Zinc	11.4	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 4 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-B	18-12-1618-7-AA	12/13/18 12:01	Tissue	ICP/MS 05	12/20/18	12/20/18 17:41	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	3.06	0.100	0.0470	1.00	
Cadmium	ND	0.100	0.0286	1.00	
Chromium	0.240	0.100	0.0193	1.00	
Copper	1.09	0.100	0.0210	1.00	
Lead	0.148	0.100	0.0330	1.00	
Nickel	0.533	0.100	0.0253	1.00	
Selenium	0.235	0.100	0.0834	1.00	
Silver	0.0283	0.100	0.0156	1.00	J
Zinc	12.1	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-C	18-12-1618-8-AA	12/13/18 12:02	Tissue	ICP/MS 05	12/20/18	12/20/18 17:44	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.32	0.100	0.0470	1.00	
Cadmium	ND	0.100	0.0286	1.00	
Chromium	0.363	0.100	0.0193	1.00	
Copper	1.01	0.100	0.0210	1.00	
Lead	0.152	0.100	0.0330	1.00	
Nickel	0.631	0.100	0.0253	1.00	
Selenium	0.230	0.100	0.0834	1.00	
Silver	0.0173	0.100	0.0156	1.00	J
Zinc	10.7	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 12/18/18
 Work Order: 18-12-1618
 Preparation: EPA 3050B
 Method: EPA 6020
 Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 5 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-D	18-12-1618-9-AA	12/13/18 12:03	Tissue	ICP/MS 05	12/20/18	12/20/18 17:48	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.89	0.100	0.0470	1.00	
Cadmium	ND	0.100	0.0286	1.00	
Chromium	0.330	0.100	0.0193	1.00	
Copper	1.17	0.100	0.0210	1.00	
Lead	0.172	0.100	0.0330	1.00	
Nickel	0.637	0.100	0.0253	1.00	
Selenium	0.263	0.100	0.0834	1.00	
Silver	0.0609	0.100	0.0156	1.00	J
Zinc	12.8	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-E	18-12-1618-10-AA	12/13/18 12:04	Tissue	ICP/MS 05	12/20/18	12/20/18 17:51	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.90	0.100	0.0470	1.00	
Cadmium	0.0501	0.100	0.0286	1.00	J
Chromium	0.249	0.100	0.0193	1.00	
Copper	0.942	0.100	0.0210	1.00	
Lead	0.140	0.100	0.0330	1.00	
Nickel	0.527	0.100	0.0253	1.00	
Selenium	0.262	0.100	0.0834	1.00	
Silver	0.0224	0.100	0.0156	1.00	J
Zinc	12.6	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 6 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-A	18-12-1618-11-AA	12/13/18 12:05	Tissue	ICP/MS 05	12/20/18	12/20/18 18:05	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.48	0.100	0.0470	1.00	
Cadmium	ND	0.100	0.0286	1.00	
Chromium	0.163	0.100	0.0193	1.00	
Copper	0.889	0.100	0.0210	1.00	
Lead	0.0999	0.100	0.0330	1.00	J
Nickel	0.293	0.100	0.0253	1.00	
Selenium	0.276	0.100	0.0834	1.00	
Silver	0.0215	0.100	0.0156	1.00	J
Zinc	9.04	1.00	0.397	1.00	

LA2-REF-Macoma-B	18-12-1618-12-AA	12/13/18 12:06	Tissue	ICP/MS 05	12/20/18	12/20/18 18:09	181220L01
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.41	0.100	0.0470	1.00	
Cadmium	0.0350	0.100	0.0286	1.00	J
Chromium	0.229	0.100	0.0193	1.00	
Copper	0.953	0.100	0.0210	1.00	
Lead	0.117	0.100	0.0330	1.00	
Nickel	0.375	0.100	0.0253	1.00	
Selenium	0.207	0.100	0.0834	1.00	
Silver	0.0319	0.100	0.0156	1.00	J
Zinc	12.0	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 7 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-C	18-12-1618-13-AA	12/13/18 12:07	Tissue	ICP/MS 05	12/20/18	12/20/18 18:12	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.92	0.100	0.0470	1.00	
Cadmium	ND	0.100	0.0286	1.00	
Chromium	0.174	0.100	0.0193	1.00	
Copper	0.858	0.100	0.0210	1.00	
Lead	0.104	0.100	0.0330	1.00	
Nickel	0.315	0.100	0.0253	1.00	
Selenium	0.212	0.100	0.0834	1.00	
Silver	0.0448	0.100	0.0156	1.00	J
Zinc	9.05	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-D	18-12-1618-14-AA	12/13/18 12:08	Tissue	ICP/MS 05	12/20/18	12/20/18 18:16	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.64	0.100	0.0470	1.00	
Cadmium	0.0319	0.100	0.0286	1.00	J
Chromium	0.140	0.100	0.0193	1.00	
Copper	0.853	0.100	0.0210	1.00	
Lead	0.0888	0.100	0.0330	1.00	J
Nickel	0.349	0.100	0.0253	1.00	
Selenium	0.249	0.100	0.0834	1.00	
Silver	0.0258	0.100	0.0156	1.00	J
Zinc	9.87	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 8 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-E	18-12-1618-15-AA	12/13/18 12:09	Tissue	ICP/MS 05	12/20/18	12/20/18 18:19	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.51	0.100	0.0470	1.00	
Cadmium	0.0373	0.100	0.0286	1.00	J
Chromium	0.177	0.100	0.0193	1.00	
Copper	0.883	0.100	0.0210	1.00	
Lead	0.100	0.100	0.0330	1.00	
Nickel	0.327	0.100	0.0253	1.00	
Selenium	0.222	0.100	0.0834	1.00	
Silver	0.0201	0.100	0.0156	1.00	J
Zinc	12.7	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-A	18-12-1618-16-AA	12/13/18 12:10	Tissue	ICP/MS 05	12/20/18	12/20/18 18:23	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.87	0.100	0.0470	1.00	
Cadmium	0.0319	0.100	0.0286	1.00	J
Chromium	0.169	0.100	0.0193	1.00	
Copper	1.15	0.100	0.0210	1.00	
Lead	0.492	0.100	0.0330	1.00	
Nickel	0.396	0.100	0.0253	1.00	
Selenium	0.269	0.100	0.0834	1.00	
Silver	0.0418	0.100	0.0156	1.00	J
Zinc	11.9	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 9 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-B	18-12-1618-17-AA	12/13/18 12:11	Tissue	ICP/MS 05	12/20/18	12/20/18 18:26	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	2.67	0.100	0.0470	1.00	
Cadmium	0.0315	0.100	0.0286	1.00	J
Chromium	0.157	0.100	0.0193	1.00	
Copper	1.07	0.100	0.0210	1.00	
Lead	0.453	0.100	0.0330	1.00	
Nickel	0.378	0.100	0.0253	1.00	
Selenium	0.254	0.100	0.0834	1.00	
Silver	0.0414	0.100	0.0156	1.00	J
Zinc	11.4	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-C	18-12-1618-18-AA	12/13/18 12:12	Tissue	ICP/MS 05	12/20/18	12/20/18 18:30	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	2.76	0.100	0.0470	1.00	
Cadmium	0.0389	0.100	0.0286	1.00	J
Chromium	0.149	0.100	0.0193	1.00	
Copper	1.07	0.100	0.0210	1.00	
Lead	0.438	0.100	0.0330	1.00	
Nickel	0.375	0.100	0.0253	1.00	
Selenium	0.258	0.100	0.0834	1.00	
Silver	0.0446	0.100	0.0156	1.00	J
Zinc	10.1	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 10 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-D	18-12-1618-19-AA	12/13/18 12:13	Tissue	ICP/MS 05	12/20/18	12/20/18 18:52	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.81	0.100	0.0470	1.00	
Cadmium	ND	0.100	0.0286	1.00	
Chromium	0.185	0.100	0.0193	1.00	
Copper	1.20	0.100	0.0210	1.00	
Lead	0.438	0.100	0.0330	1.00	
Nickel	0.329	0.100	0.0253	1.00	
Selenium	0.243	0.100	0.0834	1.00	
Silver	0.0250	0.100	0.0156	1.00	J
Zinc	10.9	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-E	18-12-1618-20-AA	12/13/18 12:14	Tissue	ICP/MS 05	12/20/18	12/20/18 18:56	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	3.03	0.100	0.0470	1.00	
Cadmium	0.0396	0.100	0.0286	1.00	J
Chromium	0.300	0.100	0.0193	1.00	
Copper	1.37	0.100	0.0210	1.00	
Lead	0.576	0.100	0.0330	1.00	
Nickel	0.646	0.100	0.0253	1.00	
Selenium	0.291	0.100	0.0834	1.00	
Silver	0.0449	0.100	0.0156	1.00	J
Zinc	14.1	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 11 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-A	18-12-1618-21-AA	12/13/18 12:15	Tissue	ICP/MS 05	12/20/18	12/20/18 16:03	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	2.87	0.100	0.0470	1.00	
Cadmium	0.0306	0.100	0.0286	1.00	J
Chromium	0.192	0.100	0.0193	1.00	
Copper	0.892	0.100	0.0210	1.00	
Lead	0.492	0.100	0.0330	1.00	
Nickel	0.373	0.100	0.0253	1.00	
Selenium	0.196	0.100	0.0834	1.00	
Silver	0.0791	0.100	0.0156	1.00	J
Zinc	9.67	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-B	18-12-1618-22-AA	12/13/18 12:16	Tissue	ICP/MS 05	12/20/18	12/20/18 18:59	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	2.66	0.100	0.0470	1.00	
Cadmium	0.0369	0.100	0.0286	1.00	J
Chromium	0.191	0.100	0.0193	1.00	
Copper	0.901	0.100	0.0210	1.00	
Lead	0.431	0.100	0.0330	1.00	
Nickel	0.359	0.100	0.0253	1.00	
Selenium	0.236	0.100	0.0834	1.00	
Silver	0.0222	0.100	0.0156	1.00	J
Zinc	12.0	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 12 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-C	18-12-1618-23-AA	12/13/18 12:17	Tissue	ICP/MS 05	12/20/18	12/20/18 19:03	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	3.19	0.100	0.0470	1.00	
Cadmium	0.0373	0.100	0.0286	1.00	J
Chromium	0.206	0.100	0.0193	1.00	
Copper	1.12	0.100	0.0210	1.00	
Lead	0.523	0.100	0.0330	1.00	
Nickel	0.429	0.100	0.0253	1.00	
Selenium	0.263	0.100	0.0834	1.00	
Silver	0.0407	0.100	0.0156	1.00	J
Zinc	11.7	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-D	18-12-1618-24-AA	12/13/18 12:18	Tissue	ICP/MS 05	12/20/18	12/20/18 19:06	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.65	0.100	0.0470	1.00	
Cadmium	0.0405	0.100	0.0286	1.00	J
Chromium	0.217	0.100	0.0193	1.00	
Copper	1.11	0.100	0.0210	1.00	
Lead	0.517	0.100	0.0330	1.00	
Nickel	0.378	0.100	0.0253	1.00	
Selenium	0.227	0.100	0.0834	1.00	
Silver	0.0193	0.100	0.0156	1.00	J
Zinc	12.5	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 13 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-E	18-12-1618-25-AA	12/13/18 12:19	Tissue	ICP/MS 05	12/20/18	12/20/18 19:10	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	3.08	0.100	0.0470	1.00	
Cadmium	0.0327	0.100	0.0286	1.00	J
Chromium	0.144	0.100	0.0193	1.00	
Copper	1.02	0.100	0.0210	1.00	
Lead	0.372	0.100	0.0330	1.00	
Nickel	0.352	0.100	0.0253	1.00	
Selenium	0.245	0.100	0.0834	1.00	
Silver	0.0639	0.100	0.0156	1.00	J
Zinc	11.9	1.00	0.397	1.00	

Nereis-T0-A	18-12-1618-26-AA	11/14/18 12:00	Tissue	ICP/MS 05	12/20/18	12/20/18 19:13	181220L02
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	3.07	0.100	0.0470	1.00	
Cadmium	0.0471	0.100	0.0286	1.00	J
Chromium	0.0866	0.100	0.0193	1.00	J
Copper	1.24	0.100	0.0210	1.00	
Lead	0.323	0.100	0.0330	1.00	
Nickel	0.165	0.100	0.0253	1.00	
Selenium	0.235	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	9.12	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 14 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-B	18-12-1618-27-AA	11/14/18 12:01	Tissue	ICP/MS 05	12/20/18	12/20/18 19:17	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.74	0.100	0.0470	1.00	
Cadmium	0.0432	0.100	0.0286	1.00	J
Chromium	0.0726	0.100	0.0193	1.00	J
Copper	1.44	0.100	0.0210	1.00	
Lead	0.294	0.100	0.0330	1.00	
Nickel	0.140	0.100	0.0253	1.00	
Selenium	0.300	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	12.7	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-C	18-12-1618-28-AA	11/14/18 12:02	Tissue	ICP/MS 05	12/20/18	12/20/18 20:00	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.81	0.100	0.0470	1.00	
Cadmium	0.0434	0.100	0.0286	1.00	J
Chromium	0.0785	0.100	0.0193	1.00	J
Copper	1.16	0.100	0.0210	1.00	
Lead	0.239	0.100	0.0330	1.00	
Nickel	0.139	0.100	0.0253	1.00	
Selenium	0.248	0.100	0.0834	1.00	
Silver	0.0184	0.100	0.0156	1.00	J
Zinc	12.6	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 12/18/18
 Work Order: 18-12-1618
 Preparation: EPA 3050B
 Method: EPA 6020
 Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 15 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-D	18-12-1618-29-AA	11/14/18 12:03	Tissue	ICP/MS 05	12/20/18	12/20/18 20:03	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	3.45	0.100	0.0470	1.00	
Cadmium	0.0367	0.100	0.0286	1.00	J
Chromium	0.103	0.100	0.0193	1.00	
Copper	1.16	0.100	0.0210	1.00	
Lead	0.235	0.100	0.0330	1.00	
Nickel	0.173	0.100	0.0253	1.00	
Selenium	0.259	0.100	0.0834	1.00	
Silver	0.0187	0.100	0.0156	1.00	J
Zinc	14.8	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-E	18-12-1618-30-AA	11/14/18 12:04	Tissue	ICP/MS 05	12/20/18	12/20/18 20:07	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.47	0.100	0.0470	1.00	
Cadmium	0.0355	0.100	0.0286	1.00	J
Chromium	0.0800	0.100	0.0193	1.00	J
Copper	0.893	0.100	0.0210	1.00	
Lead	0.235	0.100	0.0330	1.00	
Nickel	0.135	0.100	0.0253	1.00	
Selenium	0.192	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	6.83	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 12/18/18
 Work Order: 18-12-1618
 Preparation: EPA 3050B
 Method: EPA 6020
 Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 16 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-A	18-12-1618-31-AA	12/12/18 12:00	Tissue	ICP/MS 05	12/20/18	12/20/18 20:10	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	2.03	0.100	0.0470	1.00	
Cadmium	0.0820	0.100	0.0286	1.00	J
Chromium	0.315	0.100	0.0193	1.00	
Copper	1.49	0.100	0.0210	1.00	
Lead	0.434	0.100	0.0330	1.00	
Nickel	0.492	0.100	0.0253	1.00	
Selenium	0.252	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	30.3	1.00	0.397	1.00	

Control-Nereis-B	18-12-1618-32-AA	12/12/18 12:01	Tissue	ICP/MS 05	12/20/18	12/20/18 20:14	181220L02
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	1.85	0.100	0.0470	1.00	
Cadmium	0.0544	0.100	0.0286	1.00	J
Chromium	0.0370	0.100	0.0193	1.00	J
Copper	1.44	0.100	0.0210	1.00	
Lead	0.279	0.100	0.0330	1.00	
Nickel	0.162	0.100	0.0253	1.00	
Selenium	0.208	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	19.2	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 17 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-C	18-12-1618-33-AA	12/12/18 12:02	Tissue	ICP/MS 05	12/20/18	12/20/18 20:17	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	1.83	0.100	0.0470	1.00	
Cadmium	0.0510	0.100	0.0286	1.00	J
Chromium	0.0713	0.100	0.0193	1.00	J
Copper	1.33	0.100	0.0210	1.00	
Lead	0.290	0.100	0.0330	1.00	
Nickel	0.183	0.100	0.0253	1.00	
Selenium	0.207	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	25.0	1.00	0.397	1.00	

Control-Nereis-D	18-12-1618-34-AA	12/12/18 12:03	Tissue	ICP/MS 05	12/20/18	12/20/18 20:21	181220L02
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	1.94	0.100	0.0470	1.00	
Cadmium	0.0530	0.100	0.0286	1.00	J
Chromium	0.0291	0.100	0.0193	1.00	J
Copper	1.27	0.100	0.0210	1.00	
Lead	0.294	0.100	0.0330	1.00	
Nickel	0.161	0.100	0.0253	1.00	
Selenium	0.255	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	15.9	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 18 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-E	18-12-1618-35-AA	12/12/18 12:04	Tissue	ICP/MS 05	12/20/18	12/20/18 20:24	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	1.76	0.100	0.0470	1.00	
Cadmium	0.0507	0.100	0.0286	1.00	J
Chromium	0.147	0.100	0.0193	1.00	
Copper	1.26	0.100	0.0210	1.00	
Lead	0.275	0.100	0.0330	1.00	
Nickel	0.273	0.100	0.0253	1.00	
Selenium	0.231	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	27.5	1.00	0.397	1.00	

LA2-REF-Nereis-A	18-12-1618-36-AA	12/12/18 12:05	Tissue	ICP/MS 05	12/20/18	12/20/18 20:28	181220L02
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.04	0.100	0.0470	1.00	
Cadmium	0.0648	0.100	0.0286	1.00	J
Chromium	0.0434	0.100	0.0193	1.00	J
Copper	1.17	0.100	0.0210	1.00	
Lead	0.361	0.100	0.0330	1.00	
Nickel	0.141	0.100	0.0253	1.00	
Selenium	0.208	0.100	0.0834	1.00	
Silver	0.0237	0.100	0.0156	1.00	J
Zinc	15.1	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 19 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-B	18-12-1618-37-AA	12/12/18 12:06	Tissue	ICP/MS 05	12/20/18	12/20/18 20:42	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.10	0.100	0.0470	1.00	
Cadmium	0.0665	0.100	0.0286	1.00	J
Chromium	0.0476	0.100	0.0193	1.00	J
Copper	1.23	0.100	0.0210	1.00	
Lead	0.440	0.100	0.0330	1.00	
Nickel	0.146	0.100	0.0253	1.00	
Selenium	0.241	0.100	0.0834	1.00	
Silver	0.0220	0.100	0.0156	1.00	J
Zinc	8.39	1.00	0.397	1.00	

LA2-REF-Nereis-C	18-12-1618-38-AA	12/12/18 12:07	Tissue	ICP/MS 05	12/20/18	12/20/18 20:46	181220L02
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.36	0.100	0.0470	1.00	
Cadmium	0.0538	0.100	0.0286	1.00	J
Chromium	0.304	0.100	0.0193	1.00	
Copper	1.91	0.100	0.0210	1.00	
Lead	1.38	0.100	0.0330	1.00	
Nickel	2.21	0.100	0.0253	1.00	
Selenium	0.311	0.100	0.0834	1.00	
Silver	0.0257	0.100	0.0156	1.00	J
Zinc	9.73	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 20 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-D	18-12-1618-39-AA	12/12/18 12:08	Tissue	ICP/MS 05	12/20/18	12/20/18 20:49	181220L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.13	0.100	0.0470	1.00	
Cadmium	0.0619	0.100	0.0286	1.00	J
Chromium	0.0503	0.100	0.0193	1.00	J
Copper	0.955	0.100	0.0210	1.00	
Lead	0.319	0.100	0.0330	1.00	
Nickel	0.127	0.100	0.0253	1.00	
Selenium	0.206	0.100	0.0834	1.00	
Silver	0.0210	0.100	0.0156	1.00	J
Zinc	7.32	1.00	0.397	1.00	

LA2-REF-Nereis-E	18-12-1618-40-AA	12/12/18 12:09	Tissue	ICP/MS 05	12/20/18	12/20/18 20:53	181220L02
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.15	0.100	0.0470	1.00	
Cadmium	0.0711	0.100	0.0286	1.00	J
Chromium	0.0468	0.100	0.0193	1.00	J
Copper	1.11	0.100	0.0210	1.00	
Lead	0.283	0.100	0.0330	1.00	
Nickel	0.110	0.100	0.0253	1.00	
Selenium	0.257	0.100	0.0834	1.00	
Silver	0.0296	0.100	0.0156	1.00	J
Zinc	20.0	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 12/18/18
 Work Order: 18-12-1618
 Preparation: EPA 3050B
 Method: EPA 6020
 Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 21 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-A	18-12-1618-41-AA	12/12/18 12:10	Tissue	ICP/MS 05	12/20/18	12/20/18 20:56	181220L03

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.14	0.100	0.0470	1.00	
Cadmium	0.0647	0.100	0.0286	1.00	J
Chromium	0.0444	0.100	0.0193	1.00	J
Copper	1.10	0.100	0.0210	1.00	
Lead	0.434	0.100	0.0330	1.00	
Nickel	0.203	0.100	0.0253	1.00	
Selenium	0.195	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	41.2	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-B	18-12-1618-42-AA	12/12/18 12:11	Tissue	ICP/MS 05	12/20/18	12/20/18 21:00	181220L03

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.11	0.100	0.0470	1.00	
Cadmium	0.0633	0.100	0.0286	1.00	J
Chromium	0.169	0.100	0.0193	1.00	
Copper	1.25	0.100	0.0210	1.00	
Lead	0.577	0.100	0.0330	1.00	
Nickel	0.265	0.100	0.0253	1.00	
Selenium	0.187	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	31.9	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 22 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-C	18-12-1618-43-AA	12/12/18 12:12	Tissue	ICP/MS 05	12/20/18	12/20/18 17:04	181220L03

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.19	0.100	0.0470	1.00	
Cadmium	0.0672	0.100	0.0286	1.00	J
Chromium	0.0431	0.100	0.0193	1.00	J
Copper	1.47	0.100	0.0210	1.00	
Lead	0.436	0.100	0.0330	1.00	
Nickel	0.161	0.100	0.0253	1.00	
Selenium	0.235	0.100	0.0834	1.00	
Silver	0.0158	0.100	0.0156	1.00	J
Zinc	14.6	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-D	18-12-1618-44-AA	12/12/18 12:13	Tissue	ICP/MS 05	12/20/18	12/20/18 21:03	181220L03

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	1.95	0.100	0.0470	1.00	
Cadmium	0.0566	0.100	0.0286	1.00	J
Chromium	0.0738	0.100	0.0193	1.00	J
Copper	1.21	0.100	0.0210	1.00	
Lead	0.358	0.100	0.0330	1.00	
Nickel	0.155	0.100	0.0253	1.00	
Selenium	0.205	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	20.1	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 23 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-E	18-12-1618-45-AA	12/12/18 12:14	Tissue	ICP/MS 05	12/20/18	12/20/18 21:07	181220L03

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.12	0.100	0.0470	1.00	
Cadmium	0.0883	0.100	0.0286	1.00	J
Chromium	0.191	0.100	0.0193	1.00	
Copper	1.34	0.100	0.0210	1.00	
Lead	0.838	0.100	0.0330	1.00	
Nickel	0.259	0.100	0.0253	1.00	
Selenium	0.271	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	12.7	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-A	18-12-1618-46-AA	12/12/18 12:15	Tissue	ICP/MS 05	12/20/18	12/20/18 21:10	181220L03

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.05	0.100	0.0470	1.00	
Cadmium	0.0687	0.100	0.0286	1.00	J
Chromium	0.0472	0.100	0.0193	1.00	J
Copper	1.02	0.100	0.0210	1.00	
Lead	0.387	0.100	0.0330	1.00	
Nickel	0.143	0.100	0.0253	1.00	
Selenium	0.209	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	22.8	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 24 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-B	18-12-1618-47-AA	12/12/18 12:16	Tissue	ICP/MS 05	12/20/18	12/20/18 21:14	181220L03

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.00	0.100	0.0470	1.00	
Cadmium	0.0539	0.100	0.0286	1.00	J
Chromium	0.103	0.100	0.0193	1.00	
Copper	0.957	0.100	0.0210	1.00	
Lead	0.259	0.100	0.0330	1.00	
Nickel	0.169	0.100	0.0253	1.00	
Selenium	0.180	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	33.2	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-C	18-12-1618-48-AA	12/12/18 12:17	Tissue	ICP/MS 05	12/20/18	12/20/18 21:28	181220L03

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	1.79	0.100	0.0470	1.00	
Cadmium	0.0785	0.100	0.0286	1.00	J
Chromium	0.0642	0.100	0.0193	1.00	J
Copper	1.29	0.100	0.0210	1.00	
Lead	0.482	0.100	0.0330	1.00	
Nickel	0.155	0.100	0.0253	1.00	
Selenium	0.244	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	7.27	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 25 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-D	18-12-1618-49-AA	12/12/18 12:18	Tissue	ICP/MS 05	12/20/18	12/20/18 21:31	181220L03

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.00	0.100	0.0470	1.00	
Cadmium	0.0445	0.100	0.0286	1.00	J
Chromium	0.156	0.100	0.0193	1.00	
Copper	1.07	0.100	0.0210	1.00	
Lead	0.342	0.100	0.0330	1.00	
Nickel	0.223	0.100	0.0253	1.00	
Selenium	0.269	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	7.72	1.00	0.397	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-E	18-12-1618-50-AA	12/12/18 12:19	Tissue	ICP/MS 05	12/20/18	12/20/18 21:35	181220L03

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	2.00	0.100	0.0470	1.00	
Cadmium	0.0630	0.100	0.0286	1.00	J
Chromium	0.0324	0.100	0.0193	1.00	J
Copper	1.03	0.100	0.0210	1.00	
Lead	0.341	0.100	0.0330	1.00	
Nickel	0.161	0.100	0.0253	1.00	
Selenium	0.214	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	21.1	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 12/18/18
 Work Order: 18-12-1618
 Preparation: EPA 3050B
 Method: EPA 6020
 Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 26 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-15-258-122	N/A	Tissue	ICP/MS 05	12/20/18	12/20/18 14:49	181220L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	ND	0.100	0.0470	1.00	
Cadmium	ND	0.100	0.0286	1.00	
Chromium	ND	0.100	0.0193	1.00	
Copper	ND	0.100	0.0210	1.00	
Lead	ND	0.100	0.0330	1.00	
Nickel	ND	0.100	0.0253	1.00	
Selenium	ND	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	ND	1.00	0.397	1.00	

Method Blank	099-15-258-123	N/A	Tissue	ICP/MS 05	12/20/18	12/20/18 14:52	181220L02
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Arsenic	ND	0.100	0.0470	1.00	
Cadmium	ND	0.100	0.0286	1.00	
Chromium	ND	0.100	0.0193	1.00	
Copper	ND	0.100	0.0210	1.00	
Lead	ND	0.100	0.0330	1.00	
Nickel	ND	0.100	0.0253	1.00	
Selenium	ND	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	ND	1.00	0.397	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 12/18/18
 Work Order: 18-12-1618
 Preparation: EPA 3050B
 Method: EPA 6020
 Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 27 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-15-258-124	N/A	Tissue	ICP/MS 05	12/20/18	12/20/18 14:56	181220L03

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	ND	0.100	0.0470	1.00	
Cadmium	ND	0.100	0.0286	1.00	
Chromium	ND	0.100	0.0193	1.00	
Copper	ND	0.100	0.0210	1.00	
Lead	ND	0.100	0.0330	1.00	
Nickel	ND	0.100	0.0253	1.00	
Selenium	ND	0.100	0.0834	1.00	
Silver	ND	0.100	0.0156	1.00	
Zinc	ND	1.00	0.397	1.00	



 Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-A	18-12-1618-1-AA	11/15/18 12:00	Tissue	Mercury 07	01/02/19	01/02/19 15:16	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.00949	0.00349	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-B	18-12-1618-2-AA	11/15/18 12:01	Tissue	Mercury 07	01/02/19	01/02/19 15:23	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.00949	0.00349	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-C	18-12-1618-3-AA	11/15/18 12:02	Tissue	Mercury 07	01/02/19	01/02/19 15:25	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.00949	0.00349	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-D	18-12-1618-4-AA	11/15/18 12:03	Tissue	Mercury 07	01/02/19	01/02/19 15:27	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.00988	0.00363	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-E	18-12-1618-5-AA	11/15/18 12:04	Tissue	Mercury 07	01/02/19	01/02/19 15:30	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.00968	0.00356	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-A	18-12-1618-6-AA	12/13/18 12:00	Tissue	Mercury 07	01/02/19	01/02/19 15:36	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.00988	0.00363	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-B	18-12-1618-7-AA	12/13/18 12:01	Tissue	Mercury 07	01/02/19	01/02/19 15:39	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00998	0.00367	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-C	18-12-1618-8-AA	12/13/18 12:02	Tissue	Mercury 07	01/02/19	01/02/19 15:41	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00912	0.00336	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-D	18-12-1618-9-AA	12/13/18 12:03	Tissue	Mercury 07	01/02/19	01/02/19 15:43	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00939	0.00345	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-E	18-12-1618-10-AA	12/13/18 12:04	Tissue	Mercury 07	01/02/19	01/02/19 15:45	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00930	0.00342	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-A	18-12-1618-11-AA	12/13/18 12:05	Tissue	Mercury 07	01/02/19	01/02/19 15:48	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00949	0.00349	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-B	18-12-1618-12-AA	12/13/18 12:06	Tissue	Mercury 07	01/02/19	01/02/19 15:50	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00930	0.00342	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-C	18-12-1618-13-AA	12/13/18 12:07	Tissue	Mercury 07	01/02/19	01/02/19 15:52	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00930	0.00342	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-D	18-12-1618-14-AA	12/13/18 12:08	Tissue	Mercury 07	01/02/19	01/02/19 15:55	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00930	0.00342	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-E	18-12-1618-15-AA	12/13/18 12:09	Tissue	Mercury 07	01/02/19	01/02/19 15:57	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00978	0.00359	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-A	18-12-1618-16-AA	12/13/18 12:10	Tissue	Mercury 07	01/02/19	01/02/19 16:04	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00939	0.00345	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-B	18-12-1618-17-AA	12/13/18 12:11	Tissue	Mercury 07	01/02/19	01/02/19 16:06	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00930	0.00342	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-C	18-12-1618-18-AA	12/13/18 12:12	Tissue	Mercury 07	01/02/19	01/02/19 16:08	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00978	0.00359	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 4 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-D	18-12-1618-19-AA	12/13/18 12:13	Tissue	Mercury 07	01/02/19	01/02/19 16:11	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00930	0.00342	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-E	18-12-1618-20-AA	12/13/18 12:14	Tissue	Mercury 07	01/02/19	01/02/19 16:13	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00988	0.00363	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-A	18-12-1618-21-AA	12/13/18 12:15	Tissue	Mercury 08	01/02/19	01/02/19 15:25	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00939	0.00345	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-B	18-12-1618-22-AA	12/13/18 12:16	Tissue	Mercury 08	01/02/19	01/02/19 15:32	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00968	0.00356	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-C	18-12-1618-23-AA	12/13/18 12:17	Tissue	Mercury 08	01/02/19	01/02/19 15:34	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00988	0.00363	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-D	18-12-1618-24-AA	12/13/18 12:18	Tissue	Mercury 08	01/02/19	01/02/19 15:37	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00958	0.00352	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 5 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-E	18-12-1618-25-AA	12/13/18 12:19	Tissue	Mercury 08	01/02/19	01/02/19 15:39	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00978	0.00359	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-A	18-12-1618-26-AA	11/14/18 12:00	Tissue	Mercury 08	01/02/19	01/02/19 15:46	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00949	0.00349	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-B	18-12-1618-27-AA	11/14/18 12:01	Tissue	Mercury 08	01/02/19	01/02/19 15:48	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00958	0.00352	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-C	18-12-1618-28-AA	11/14/18 12:02	Tissue	Mercury 08	01/02/19	01/02/19 15:50	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00939	0.00345	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-D	18-12-1618-29-AA	11/14/18 12:03	Tissue	Mercury 08	01/02/19	01/02/19 15:52	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00930	0.00342	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-E	18-12-1618-30-AA	11/14/18 12:04	Tissue	Mercury 08	01/02/19	01/02/19 15:55	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00968	0.00356	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 6 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-A	18-12-1618-31-AA	12/12/18 12:00	Tissue	Mercury 08	01/02/19	01/02/19 15:57	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00978	0.00359	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-B	18-12-1618-32-AA	12/12/18 12:01	Tissue	Mercury 08	01/02/19	01/02/19 15:59	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00958	0.00352	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-C	18-12-1618-33-AA	12/12/18 12:02	Tissue	Mercury 08	01/02/19	01/02/19 16:02	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00949	0.00349	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-D	18-12-1618-34-AA	12/12/18 12:03	Tissue	Mercury 08	01/02/19	01/02/19 16:04	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00988	0.00363	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-E	18-12-1618-35-AA	12/12/18 12:04	Tissue	Mercury 08	01/02/19	01/02/19 16:06	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00895	0.00329	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-A	18-12-1618-36-AA	12/12/18 12:05	Tissue	Mercury 07	01/02/19	01/02/19 17:41	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	0.00601	0.00930	0.00342	1.00	J

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 7 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-B	18-12-1618-37-AA	12/12/18 12:06	Tissue	Mercury 07	01/02/19	01/02/19 17:43	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	0.00521	0.00930	0.00342	1.00	J

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-C	18-12-1618-38-AA	12/12/18 12:07	Tissue	Mercury 07	01/02/19	01/02/19 17:46	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	0.00490	0.0101	0.00371	1.00	J

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-D	18-12-1618-39-AA	12/12/18 12:08	Tissue	Mercury 07	01/02/19	01/02/19 17:48	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	0.00680	0.00949	0.00349	1.00	J

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-E	18-12-1618-40-AA	12/12/18 12:09	Tissue	Mercury 07	01/02/19	01/02/19 17:50	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00978	0.00359	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-A	18-12-1618-41-AA	12/12/18 12:10	Tissue	Mercury 07	01/02/19	01/02/19 16:33	190102L04T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	0.00560	0.00930	0.00342	1.00	J

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-B	18-12-1618-42-AA	12/12/18 12:11	Tissue	Mercury 07	01/02/19	01/03/19 14:19	190102L04T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00958	0.00352	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 8 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-C	18-12-1618-43-AA	12/12/18 12:12	Tissue	Mercury 07	01/02/19	01/02/19 16:22	190102L04T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	0.00666	0.00939	0.00345	1.00	J

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-D	18-12-1618-44-AA	12/12/18 12:13	Tissue	Mercury 07	01/02/19	01/02/19 16:38	190102L04T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	0.00477	0.00939	0.00345	1.00	J

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-E	18-12-1618-45-AA	12/12/18 12:14	Tissue	Mercury 07	01/02/19	01/02/19 16:40	190102L04T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00988	0.00363	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-A	18-12-1618-46-AA	12/12/18 12:15	Tissue	Mercury 07	01/02/19	01/02/19 16:43	190102L04T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00978	0.00359	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-B	18-12-1618-47-AA	12/12/18 12:16	Tissue	Mercury 07	01/02/19	01/02/19 16:45	190102L04T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00949	0.00349	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-C	18-12-1618-48-AA	12/12/18 12:17	Tissue	Mercury 07	01/02/19	01/02/19 16:47	190102L04T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00968	0.00356	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: POLB Carnival Cruise Terminal 2018

Page 9 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-D	18-12-1618-49-AA	12/12/18 12:18	Tissue	Mercury 07	01/02/19	01/02/19 16:49	190102L04T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00958	0.00352	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-E	18-12-1618-50-AA	12/12/18 12:19	Tissue	Mercury 07	01/02/19	01/02/19 16:52	190102L04T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	0.00470	0.00958	0.00352	1.00	J

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-276-69	N/A	Tissue	Mercury 07	01/02/19	01/02/19 15:09	190102L02T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00958	0.00352	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-276-71	N/A	Tissue	Mercury 08	01/02/19	01/02/19 15:18	190102L03T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00958	0.00352	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-276-70	N/A	Tissue	Mercury 07	01/02/19	01/02/19 16:15	190102L04T

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Mercury	ND	0.00958	0.00352	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-A	18-12-1618-1-AA	11/15/18 12:00	Tissue	GC/MS BBB	12/27/18	01/04/19 18:40	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
2,4'-DDD	ND	0.20	0.075	1.00	
2,4'-DDE	ND	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.91	0.20	0.039	1.00	
4,4'-DDE	0.24	0.20	0.040	1.00	
4,4'-DDT	0.21	0.20	0.052	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibutylchloroendate	68	25-200	
2,4,5,6-Tetrachloro-m-Xylene	64	25-200	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-B	18-12-1618-2-AA	11/15/18 12:01	Tissue	GC/MS BBB	12/27/18	01/04/19 18:55	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	ND	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.29	0.20	0.040	1.00	
4,4'-DDE	0.38	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibutylchloroendate	52	25-200	
2,4,5,6-Tetrachloro-m-Xylene	56	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-C	18-12-1618-3-AA	11/15/18 12:02	Tissue	GC/MS BBB	12/27/18	01/05/19 17:02	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	ND	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.87	0.20	0.040	1.00	
4,4'-DDE	0.39	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.053	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibutylchloroendate	84	25-200	
2,4,5,6-Tetrachloro-m-Xylene	65	25-200	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-D	18-12-1618-4-AA	11/15/18 12:03	Tissue	GC/MS BBB	12/27/18	01/05/19 17:17	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	ND	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.77	0.20	0.040	1.00	
4,4'-DDE	0.39	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibutylchloroendate	77	25-200	
2,4,5,6-Tetrachloro-m-Xylene	66	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-E	18-12-1618-5-AA	11/15/18 12:04	Tissue	GC/MS BBB	12/27/18	01/05/19 17:32	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.53	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.74	0.20	0.040	1.00	
4,4'-DDE	0.27	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	67	25-200	
2,4,5,6-Tetrachloro-m-Xylene	66	25-200	

Control-Macoma-A	18-12-1618-6-AA	12/13/18 12:00	Tissue	GC/MS BBB	12/27/18	01/05/19 17:47	181227L19
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.33	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.75	0.20	0.040	1.00	
4,4'-DDE	0.38	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.053	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	57	25-200	
2,4,5,6-Tetrachloro-m-Xylene	67	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 4 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-B	18-12-1618-7-AA	12/13/18 12:01	Tissue	GC/MS BBB	12/27/18	01/05/19 18:02	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.34	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.73	0.20	0.040	1.00	
4,4'-DDE	0.48	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	53	25-200	
2,4,5,6-Tetrachloro-m-Xylene	62	25-200	

Control-Macoma-C	18-12-1618-8-AA	12/13/18 12:02	Tissue	GC/MS BBB	12/27/18	01/05/19 18:17	181227L19
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.075	1.00	
2,4'-DDE	0.39	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.061	1.00	
4,4'-DDD	0.94	0.20	0.039	1.00	
4,4'-DDE	0.66	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	53	25-200	
2,4,5,6-Tetrachloro-m-Xylene	57	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 5 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-D	18-12-1618-9-AA	12/13/18 12:03	Tissue	GC/MS BBB	12/27/18	01/05/19 18:32	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.075	1.00	
2,4'-DDE	0.35	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.061	1.00	
4,4'-DDD	0.92	0.20	0.039	1.00	
4,4'-DDE	0.41	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	58	25-200	
2,4,5,6-Tetrachloro-m-Xylene	63	25-200	

Control-Macoma-E	18-12-1618-10-AA	12/13/18 12:04	Tissue	GC/MS BBB	12/27/18	01/05/19 18:47	181227L19
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.40	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.60	0.20	0.040	1.00	
4,4'-DDE	0.99	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.053	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	53	25-200	
2,4,5,6-Tetrachloro-m-Xylene	58	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 6 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-A	18-12-1618-11-AA	12/13/18 12:05	Tissue	GC/MS BBB	12/27/18	01/05/19 19:02	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.60	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	1.1	0.20	0.040	1.00	
4,4'-DDE	3.5	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	58	25-200	
2,4,5,6-Tetrachloro-m-Xylene	62	25-200	

LA2-REF-Macoma-B	18-12-1618-12-AA	12/13/18 12:06	Tissue	GC/MS BBB	12/27/18	01/05/19 19:17	181227L19
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.50	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.67	0.20	0.040	1.00	
4,4'-DDE	4.6	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	64	25-200	
2,4,5,6-Tetrachloro-m-Xylene	65	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 7 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-C	18-12-1618-13-AA	12/13/18 12:07	Tissue	GC/MS BBB	12/27/18	01/05/19 19:32	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.35	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.91	0.20	0.040	1.00	
4,4'-DDE	1.7	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	64	25-200	
2,4,5,6-Tetrachloro-m-Xylene	58	25-200	

LA2-REF-Macoma-D	18-12-1618-14-AA	12/13/18 12:08	Tissue	GC/MS BBB	12/27/18	01/05/19 19:47	181227L19
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.33	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.59	0.20	0.040	1.00	
4,4'-DDE	2.3	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.053	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	62	25-200	
2,4,5,6-Tetrachloro-m-Xylene	57	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 8 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-E	18-12-1618-15-AA	12/13/18 12:09	Tissue	GC/MS BBB	12/27/18	01/05/19 20:02	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.48	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.80	0.20	0.040	1.00	
4,4'-DDE	3.3	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	65	25-200	
2,4,5,6-Tetrachloro-m-Xylene	61	25-200	

CCT-18-Comp-a-Macoma-A	18-12-1618-16-AA	12/13/18 12:10	Tissue	GC/MS BBB	12/27/18	01/05/19 20:17	181227L19
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.075	1.00	
2,4'-DDE	0.72	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	1.4	0.20	0.039	1.00	
4,4'-DDE	4.2	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	78	25-200	
2,4,5,6-Tetrachloro-m-Xylene	73	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 9 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-B	18-12-1618-17-AA	12/13/18 12:11	Tissue	GC/MS BBB	12/27/18	01/05/19 20:32	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.70	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	1.1	0.20	0.040	1.00	
4,4'-DDE	6.3	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	86	25-200	
2,4,5,6-Tetrachloro-m-Xylene	64	25-200	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-C	18-12-1618-18-AA	12/13/18 12:12	Tissue	GC/MS BBB	12/27/18	01/05/19 20:47	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.80	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.87	0.20	0.040	1.00	
4,4'-DDE	3.7	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	66	25-200	
2,4,5,6-Tetrachloro-m-Xylene	64	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 10 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-D	18-12-1618-19-AA	12/13/18 12:13	Tissue	GC/MS BBB	12/27/18	01/05/19 21:02	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.17	0.20	0.076	1.00	J
2,4'-DDE	0.59	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.84	0.20	0.040	1.00	
4,4'-DDE	3.2	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	66	25-200	
2,4,5,6-Tetrachloro-m-Xylene	64	25-200	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-E	18-12-1618-20-AA	12/13/18 12:14	Tissue	GC/MS BBB	12/27/18	01/05/19 21:17	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.18	0.20	0.076	1.00	J
2,4'-DDE	0.77	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	1.2	0.20	0.040	1.00	
4,4'-DDE	4.9	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.053	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	61	25-200	
2,4,5,6-Tetrachloro-m-Xylene	60	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 11 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-A	18-12-1618-21-AA	12/13/18 12:15	Tissue	GC/MS BBB	12/27/18	01/05/19 21:32	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.40	0.20	0.076	1.00	
2,4'-DDE	1.4	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	2.4	0.20	0.040	1.00	
4,4'-DDE	5.8	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	80	25-200	
2,4,5,6-Tetrachloro-m-Xylene	74	25-200	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-B	18-12-1618-22-AA	12/13/18 12:16	Tissue	GC/MS BBB	12/27/18	01/05/19 21:47	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.39	0.20	0.076	1.00	
2,4'-DDE	1.2	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	2.7	0.20	0.040	1.00	
4,4'-DDE	6.4	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	76	25-200	
2,4,5,6-Tetrachloro-m-Xylene	68	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 12 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-C	18-12-1618-23-AA	12/13/18 12:17	Tissue	GC/MS BBB	12/27/18	01/05/19 22:02	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.51	0.20	0.075	1.00	
2,4'-DDE	1.3	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.061	1.00	
4,4'-DDD	2.6	0.20	0.039	1.00	
4,4'-DDE	5.9	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	68	25-200	
2,4,5,6-Tetrachloro-m-Xylene	62	25-200	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-D	18-12-1618-24-AA	12/13/18 12:18	Tissue	GC/MS BBB	12/28/18	01/09/19 11:20	181228L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.33	0.20	0.075	1.00	
2,4'-DDE	0.84	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	2.1	0.20	0.039	1.00	
4,4'-DDE	4.2	0.20	0.040	1.00	
4,4'-DDT	0.44	0.20	0.052	1.00	B

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	88	25-200	
2,4,5,6-Tetrachloro-m-Xylene	76	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 13 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-E	18-12-1618-25-AA	12/13/18 12:19	Tissue	GC/MS BBB	12/28/18	01/09/19 11:35	181228L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.29	0.20	0.076	1.00	
2,4'-DDE	1.3	0.20	0.035	1.00	
2,4'-DDT	0.19	0.20	0.062	1.00	J
4,4'-DDD	2.8	0.20	0.040	1.00	
4,4'-DDE	4.1	0.20	0.040	1.00	
4,4'-DDT	0.20	0.20	0.053	1.00	B

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	95	25-200	
2,4,5,6-Tetrachloro-m-Xylene	80	25-200	

Nereis-T0-A	18-12-1618-26-AA	11/14/18 12:00	Tissue	GC/MS BBB	12/27/18	01/05/19 22:17	181227L20
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.20	0.20	0.075	1.00	
2,4'-DDE	0.55	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.82	0.20	0.039	1.00	
4,4'-DDE	0.58	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	26	25-200	
2,4,5,6-Tetrachloro-m-Xylene	65	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 14 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-B	18-12-1618-27-AA	11/14/18 12:01	Tissue	GC/MS BBB	12/27/18	01/07/19 17:52	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.19	0.20	0.076	1.00	J
2,4'-DDE	0.25	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	1.4	0.20	0.040	1.00	
4,4'-DDE	0.32	0.20	0.040	1.00	
4,4'-DDT	0.23	0.20	0.053	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	33	25-200	
2,4,5,6-Tetrachloro-m-Xylene	54	25-200	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-C	18-12-1618-28-AA	11/14/18 12:02	Tissue	GC/MS BBB	12/27/18	01/08/19 13:02	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.82	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.70	0.20	0.040	1.00	
4,4'-DDE	0.87	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.053	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	26	25-200	
2,4,5,6-Tetrachloro-m-Xylene	82	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 15 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-D	18-12-1618-29-AA	11/14/18 12:03	Tissue	GC/MS BBB	12/27/18	01/08/19 20:49	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.17	0.20	0.075	1.00	J
2,4'-DDE	0.17	0.20	0.035	1.00	J
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.49	0.20	0.039	1.00	
4,4'-DDE	0.44	0.20	0.040	1.00	
4,4'-DDT	1.3	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	31	25-200	
2,4,5,6-Tetrachloro-m-Xylene	98	25-200	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-E	18-12-1618-30-AA	11/14/18 12:04	Tissue	GC/MS BBB	12/27/18	01/09/19 12:20	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.075	1.00	
2,4'-DDE	0.20	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.56	0.20	0.039	1.00	
4,4'-DDE	0.52	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	30	25-200	
2,4,5,6-Tetrachloro-m-Xylene	149	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 16 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-A	18-12-1618-31-AA	12/12/18 12:00	Tissue	GC/MS BBB	12/27/18	01/09/19 12:35	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.40	0.20	0.075	1.00	
2,4'-DDE	1.2	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.061	1.00	
4,4'-DDD	1.4	0.20	0.039	1.00	
4,4'-DDE	0.40	0.20	0.040	1.00	
4,4'-DDT	0.62	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	31	25-200	
2,4,5,6-Tetrachloro-m-Xylene	123	25-200	

Control-Nereis-B	18-12-1618-32-AA	12/12/18 12:01	Tissue	GC/MS BBB	12/27/18	01/08/19 21:34	181227L20
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.76	0.20	0.075	1.00	
2,4'-DDE	1.4	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	1.6	0.20	0.039	1.00	
4,4'-DDE	0.62	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	27	25-200	
2,4,5,6-Tetrachloro-m-Xylene	108	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 17 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-C	18-12-1618-33-AA	12/12/18 12:02	Tissue	GC/MS BBB	12/27/18	01/09/19 12:50	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.32	0.20	0.075	1.00	
2,4'-DDE	0.96	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	1.2	0.20	0.039	1.00	
4,4'-DDE	0.54	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	25	25-200	
2,4,5,6-Tetrachloro-m-Xylene	129	25-200	

Control-Nereis-D	18-12-1618-34-AA	12/12/18 12:03	Tissue	GC/MS BBB	12/27/18	01/08/19 20:34	181227L20
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.075	1.00	
2,4'-DDE	0.76	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.061	1.00	
4,4'-DDD	1.3	0.20	0.039	1.00	
4,4'-DDE	0.86	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	111	25-200	
2,4,5,6-Tetrachloro-m-Xylene	103	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 18 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-E	18-12-1618-35-AA	12/12/18 12:04	Tissue	GC/MS BBB	12/27/18	01/08/19 14:48	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.63	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.91	0.20	0.040	1.00	
4,4'-DDE	0.34	0.20	0.040	1.00	
4,4'-DDT	0.24	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	28	25-200	
2,4,5,6-Tetrachloro-m-Xylene	96	25-200	

LA2-REF-Nereis-A	18-12-1618-36-AA	12/12/18 12:05	Tissue	GC/MS BBB	12/27/18	01/08/19 15:05	181227L20
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.37	0.20	0.076	1.00	
2,4'-DDE	0.31	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	1.4	0.20	0.040	1.00	
4,4'-DDE	0.52	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.053	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	105	25-200	
2,4,5,6-Tetrachloro-m-Xylene	87	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 19 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-B	18-12-1618-37-AA	12/12/18 12:06	Tissue	GC/MS BBB	12/27/18	01/08/19 15:20	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.53	0.20	0.076	1.00	
2,4'-DDE	0.82	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	1.9	0.20	0.040	1.00	
4,4'-DDE	0.58	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	83	25-200	
2,4,5,6-Tetrachloro-m-Xylene	79	25-200	

LA2-REF-Nereis-C	18-12-1618-38-AA	12/12/18 12:07	Tissue	GC/MS BBB	12/27/18	01/08/19 15:35	181227L20
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.44	0.20	0.075	1.00	
2,4'-DDE	0.49	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.061	1.00	
4,4'-DDD	1.8	0.20	0.039	1.00	
4,4'-DDE	1.0	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	126	25-200	
2,4,5,6-Tetrachloro-m-Xylene	100	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 20 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-D	18-12-1618-39-AA	12/12/18 12:08	Tissue	GC/MS BBB	12/27/18	01/08/19 15:50	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.34	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.94	0.20	0.040	1.00	
4,4'-DDE	0.56	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.053	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	90	25-200	
2,4,5,6-Tetrachloro-m-Xylene	93	25-200	

LA2-REF-Nereis-E	18-12-1618-40-AA	12/12/18 12:09	Tissue	GC/MS BBB	12/27/18	01/08/19 16:05	181227L20
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.46	0.20	0.076	1.00	
2,4'-DDE	0.27	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	1.9	0.20	0.040	1.00	
4,4'-DDE	0.52	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.053	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	127	25-200	
2,4,5,6-Tetrachloro-m-Xylene	150	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 21 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-A	18-12-1618-41-AA	12/12/18 12:10	Tissue	GC/MS BBB	12/27/18	01/08/19 16:20	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.39	0.20	0.076	1.00	
2,4'-DDE	0.68	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	1.4	0.20	0.040	1.00	
4,4'-DDE	0.57	0.20	0.040	1.00	
4,4'-DDT	0.16	0.20	0.052	1.00	J

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	65	25-200	
2,4,5,6-Tetrachloro-m-Xylene	86	25-200	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-B	18-12-1618-42-AA	12/12/18 12:11	Tissue	GC/MS BBB	12/27/18	01/08/19 16:35	181227L20

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.61	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.91	0.20	0.040	1.00	
4,4'-DDE	0.79	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	63	25-200	
2,4,5,6-Tetrachloro-m-Xylene	82	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 12/18/18
 Work Order: 18-12-1618
 Preparation: EPA 3541
 Method: EPA 8270C PEST-SIM
 Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 22 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-C	18-12-1618-43-AA	12/12/18 12:12	Tissue	GC/MS BBB	12/28/18	01/08/19 16:55	181228L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	0.78	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	0.82	0.20	0.040	1.00	
4,4'-DDE	0.47	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	64	25-200	
2,4,5,6-Tetrachloro-m-Xylene	81	25-200	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-D	18-12-1618-44-AA	12/12/18 12:13	Tissue	GC/MS BBB	12/28/18	01/08/19 17:10	181228L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.075	1.00	
2,4'-DDE	0.68	0.20	0.034	1.00	
2,4'-DDT	ND	0.20	0.061	1.00	
4,4'-DDD	0.84	0.20	0.039	1.00	
4,4'-DDE	0.64	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	66	25-200	
2,4,5,6-Tetrachloro-m-Xylene	87	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 23 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-E	18-12-1618-45-AA	12/12/18 12:14	Tissue	GC/MS BBB	12/28/18	01/08/19 17:25	181228L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	1.1	0.20	0.076	1.00	
2,4'-DDE	3.5	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	4.1	0.20	0.040	1.00	
4,4'-DDE	1.3	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	66	25-200	
2,4,5,6-Tetrachloro-m-Xylene	92	25-200	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-A	18-12-1618-46-AA	12/12/18 12:15	Tissue	GC/MS BBB	12/28/18	01/08/19 17:40	181228L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	1.0	0.20	0.075	1.00	
2,4'-DDE	2.3	0.20	0.034	1.00	
2,4'-DDT	ND	0.20	0.061	1.00	
4,4'-DDD	3.9	0.20	0.039	1.00	
4,4'-DDE	1.3	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	72	25-200	
2,4,5,6-Tetrachloro-m-Xylene	75	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 24 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-B	18-12-1618-47-AA	12/12/18 12:16	Tissue	GC/MS BBB	12/28/18	01/08/19 17:55	181228L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	1.3	0.20	0.075	1.00	
2,4'-DDE	4.8	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	4.0	0.20	0.039	1.00	
4,4'-DDE	0.83	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	60	25-200	
2,4,5,6-Tetrachloro-m-Xylene	83	25-200	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-C	18-12-1618-48-AA	12/12/18 12:17	Tissue	GC/MS BBB	12/28/18	01/08/19 18:10	181228L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.68	0.20	0.076	1.00	
2,4'-DDE	2.3	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	3.1	0.20	0.040	1.00	
4,4'-DDE	0.98	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	49	25-200	
2,4,5,6-Tetrachloro-m-Xylene	82	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 25 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-D	18-12-1618-49-AA	12/12/18 12:18	Tissue	GC/MS BBB	12/28/18	01/08/19 18:33	181228L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	0.24	0.20	0.076	1.00	
2,4'-DDE	0.69	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	2.0	0.20	0.040	1.00	
4,4'-DDE	0.48	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	78	25-200	
2,4,5,6-Tetrachloro-m-Xylene	84	25-200	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-E	18-12-1618-50-AA	12/12/18 12:19	Tissue	GC/MS BBB	12/28/18	01/09/19 17:13	181228L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.075	1.00	
2,4'-DDE	0.53	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	2.0	0.20	0.039	1.00	
4,4'-DDE	0.84	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.052	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	69	25-200	
2,4,5,6-Tetrachloro-m-Xylene	72	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 26 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-790-42	N/A	Tissue	GC/MS BBB	12/28/18	01/04/19 18:25	181227L19

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	ND	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	ND	0.20	0.040	1.00	
4,4'-DDE	ND	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.053	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	56	25-200	
2,4,5,6-Tetrachloro-m-Xylene	63	25-200	

Method Blank	099-16-790-43	N/A	Tissue	GC/MS BBB	12/28/18	01/05/19 13:49	181227L20
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	ND	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	ND	0.20	0.040	1.00	
4,4'-DDE	ND	0.20	0.040	1.00	
4,4'-DDT	ND	0.20	0.053	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Dibutylchloroendate	94	25-200	
2,4,5,6-Tetrachloro-m-Xylene	80	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 12/18/18
 Work Order: 18-12-1618
 Preparation: EPA 3541
 Method: EPA 8270C PEST-SIM
 Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 27 of 27

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-790-44	N/A	Tissue	GC/MS BBB	12/28/18	01/08/19 11:19	181228L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
2,4'-DDD	ND	0.20	0.076	1.00	
2,4'-DDE	ND	0.20	0.035	1.00	
2,4'-DDT	ND	0.20	0.062	1.00	
4,4'-DDD	ND	0.20	0.040	1.00	
4,4'-DDE	ND	0.20	0.040	1.00	
4,4'-DDT	0.18	0.20	0.053	1.00	J

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Dibutylchloroendate	112	25-200	
2,4,5,6-Tetrachloro-m-Xylene	93	25-200	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-A	18-12-1618-1-AA	11/15/18 12:00	Tissue	GC/MS HHH	12/27/18	01/04/19 15:30	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	ND	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	ND	0.20	0.083	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.093	1.00	
PCB149	ND	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	61	14-146			
p-Terphenyl-d14	115	34-148			



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-B	18-12-1618-2-AA	11/15/18 12:01	Tissue	GC/MS HHH	12/27/18	01/04/19 16:16	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	ND	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 12/18/18
 Work Order: 18-12-1618
 Preparation: EPA 3541
 Method: EPA 8270C SIM PCB Congeners
 Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 4 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	52	14-146			
p-Terphenyl-d14	108	34-148			



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 5 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-C	18-12-1618-3-AA	11/15/18 12:02	Tissue	GC/MS HHH	12/27/18	01/04/19 16:39	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.034	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.087	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.063	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.060	1.00	
PCB074	ND	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.061	1.00	
PCB101	ND	0.20	0.098	1.00	
PCB105	ND	0.20	0.055	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.098	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 6 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	90	14-146			
p-Terphenyl-d14	120	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 7 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-D	18-12-1618-4-AA	11/15/18 12:03	Tissue	GC/MS HHH	12/27/18	01/04/19 17:02	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	ND	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 8 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	92	14-146			
p-Terphenyl-d14	124	34-148			



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 9 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Macoma-T0-E	18-12-1618-5-AA	11/15/18 12:04	Tissue	GC/MS HHH	12/27/18	01/04/19 17:25	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	ND	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 10 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	85	14-146			
p-Terphenyl-d14	115	34-148			



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 11 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-A	18-12-1618-6-AA	12/13/18 12:00	Tissue	GC/MS HHH	12/27/18	01/04/19 17:49	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.034	1.00	
PCB037	0.26	0.20	0.060	1.00	
PCB044	ND	0.20	0.087	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.063	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.060	1.00	
PCB074	ND	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.061	1.00	
PCB101	ND	0.20	0.098	1.00	
PCB105	ND	0.20	0.055	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.098	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 12/18/18
 Work Order: 18-12-1618
 Preparation: EPA 3541
 Method: EPA 8270C SIM PCB Congeners
 Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 12 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2-Fluorobiphenyl	57	14-146	
p-Terphenyl-d14	115	34-148	

Return to Contents 

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 13 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-B	18-12-1618-7-AA	12/13/18 12:01	Tissue	GC/MS HHH	12/27/18	01/08/19 18:04	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	ND	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 14 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	74	14-146			
p-Terphenyl-d14	119	34-148			



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 15 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-C	18-12-1618-8-AA	12/13/18 12:02	Tissue	GC/MS HHH	12/27/18	01/04/19 18:35	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.076	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	ND	0.20	0.096	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	ND	0.20	0.083	1.00	
PCB119	ND	0.20	0.093	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.39	0.17	1.00	
PCB138/158	ND	0.39	0.093	1.00	
PCB149	ND	0.20	0.096	1.00	
PCB151	ND	0.20	0.066	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.051	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.062	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	ND	0.20	0.041	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 16 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.095	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	52	14-146			
p-Terphenyl-d14	94	34-148			



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 17 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-D	18-12-1618-9-AA	12/13/18 12:03	Tissue	GC/MS HHH	12/27/18	01/04/19 18:58	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.076	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	ND	0.20	0.096	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	ND	0.20	0.083	1.00	
PCB119	ND	0.20	0.093	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.39	0.093	1.00	
PCB149	ND	0.20	0.096	1.00	
PCB151	ND	0.20	0.066	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.051	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.062	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	ND	0.20	0.041	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 12/18/18
 Work Order: 18-12-1618
 Preparation: EPA 3541
 Method: EPA 8270C SIM PCB Congeners
 Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 18 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.095	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	71	14-146			
p-Terphenyl-d14	110	34-148			



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 19 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Macoma-E	18-12-1618-10-AA	12/13/18 12:04	Tissue	GC/MS HHH	12/27/18	01/08/19 18:28	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.034	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.087	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.063	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.060	1.00	
PCB074	ND	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.061	1.00	
PCB101	ND	0.20	0.098	1.00	
PCB105	ND	0.20	0.055	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.098	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 20 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	71	14-146			
p-Terphenyl-d14	116	34-148			



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Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 21 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-A	18-12-1618-11-AA	12/13/18 12:05	Tissue	GC/MS HHH	12/27/18	01/04/19 19:45	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	ND	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	0.20	0.40	0.17	1.00	J
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 22 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	65	14-146			
p-Terphenyl-d14	102	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 23 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-B	18-12-1618-12-AA	12/13/18 12:06	Tissue	GC/MS HHH	12/27/18	01/08/19 18:52	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	ND	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 24 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	68	14-146			
p-Terphenyl-d14	119	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 25 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-C	18-12-1618-13-AA	12/13/18 12:07	Tissue	GC/MS HHH	12/27/18	01/05/19 12:12	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	ND	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	0.20	0.40	0.17	1.00	J
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 26 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	63	14-146			
p-Terphenyl-d14	106	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 27 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-D	18-12-1618-14-AA	12/13/18 12:08	Tissue	GC/MS HHH	12/27/18	01/05/19 12:35	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.034	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.087	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.063	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.060	1.00	
PCB074	ND	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.061	1.00	
PCB101	ND	0.20	0.098	1.00	
PCB105	ND	0.20	0.055	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.098	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 28 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	66	14-146			
p-Terphenyl-d14	114	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 29 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Macoma-E	18-12-1618-15-AA	12/13/18 12:09	Tissue	GC/MS HHH	12/27/18	01/05/19 12:58	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	ND	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	0.35	0.40	0.17	1.00	J
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 30 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	76	14-146			
p-Terphenyl-d14	113	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 31 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-A	18-12-1618-16-AA	12/13/18 12:10	Tissue	GC/MS HHH	12/27/18	01/08/19 19:15	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.070	1.00	
PCB028	0.46	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	0.58	0.20	0.11	1.00	
PCB052	0.98	0.20	0.062	1.00	
PCB066	0.70	0.20	0.10	1.00	
PCB070	0.85	0.20	0.059	1.00	
PCB074	0.55	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	0.58	0.20	0.11	1.00	
PCB099	0.58	0.20	0.060	1.00	
PCB101	1.1	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	1.2	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	0.82	0.20	0.083	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.2	0.40	0.17	1.00	
PCB138/158	1.0	0.40	0.093	1.00	
PCB149	0.67	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 32 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	72	14-146			
p-Terphenyl-d14	121	34-148			



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 33 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-B	18-12-1618-17-AA	12/13/18 12:11	Tissue	GC/MS HHH	12/27/18	01/08/19 19:40	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	0.62	0.20	0.10	1.00	
PCB070	0.71	0.20	0.059	1.00	
PCB074	0.48	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	0.39	0.20	0.11	1.00	
PCB099	0.49	0.20	0.060	1.00	
PCB101	0.95	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	1.1	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.73	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	0.98	0.40	0.17	1.00	
PCB138/158	0.88	0.40	0.094	1.00	
PCB149	0.64	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 34 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	62	14-146			
p-Terphenyl-d14	107	34-148			



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 35 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-C	18-12-1618-18-AA	12/13/18 12:12	Tissue	GC/MS HHH	12/27/18	01/05/19 14:07	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	0.35	0.20	0.071	1.00	
PCB028	0.49	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	0.50	0.20	0.086	1.00	
PCB049	0.47	0.20	0.11	1.00	
PCB052	0.79	0.20	0.062	1.00	
PCB066	0.75	0.20	0.10	1.00	
PCB070	0.92	0.20	0.059	1.00	
PCB074	0.54	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	0.46	0.20	0.11	1.00	
PCB099	0.50	0.20	0.060	1.00	
PCB101	0.93	0.20	0.097	1.00	
PCB105	0.40	0.20	0.054	1.00	
PCB110	1.0	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.80	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	0.95	0.40	0.17	1.00	
PCB138/158	0.83	0.40	0.094	1.00	
PCB149	0.67	0.20	0.097	1.00	
PCB151	0.28	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	0.38	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 36 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	0.24	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	53	14-146			
p-Terphenyl-d14	108	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 37 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-D	18-12-1618-19-AA	12/13/18 12:13	Tissue	GC/MS HHH	12/27/18	01/05/19 14:30	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB018	0.33	0.20	0.071	1.00	
PCB028	0.39	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	0.34	0.20	0.086	1.00	
PCB049	0.79	0.20	0.11	1.00	
PCB052	0.66	0.20	0.062	1.00	
PCB066	0.60	0.20	0.10	1.00	
PCB070	0.71	0.20	0.059	1.00	
PCB074	0.43	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	0.43	0.20	0.11	1.00	
PCB099	0.44	0.20	0.060	1.00	
PCB101	0.93	0.20	0.097	1.00	
PCB105	0.40	0.20	0.054	1.00	
PCB110	0.93	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.72	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	0.83	0.40	0.17	1.00	
PCB138/158	0.80	0.40	0.094	1.00	
PCB149	0.71	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	0.35	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 38 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	64	14-146			
p-Terphenyl-d14	110	34-148			

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 39 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Macoma-E	18-12-1618-20-AA	12/13/18 12:14	Tissue	GC/MS HHH	12/27/18	01/05/19 14:53	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	0.40	0.20	0.071	1.00	
PCB028	0.71	0.20	0.034	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	0.56	0.20	0.087	1.00	
PCB049	0.66	0.20	0.11	1.00	
PCB052	1.2	0.20	0.063	1.00	
PCB066	0.89	0.20	0.10	1.00	
PCB070	1.1	0.20	0.060	1.00	
PCB074	0.49	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	0.63	0.20	0.11	1.00	
PCB099	0.57	0.20	0.061	1.00	
PCB101	1.2	0.20	0.098	1.00	
PCB105	0.64	0.20	0.055	1.00	
PCB110	1.4	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	1.2	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.4	0.40	0.17	1.00	
PCB138/158	1.4	0.40	0.094	1.00	
PCB149	0.94	0.20	0.098	1.00	
PCB151	0.30	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	0.46	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 40 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	0.35	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	59	14-146			
p-Terphenyl-d14	108	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 41 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-A	18-12-1618-21-AA	12/13/18 12:15	Tissue	GC/MS HHH	12/27/18	01/05/19 18:51	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	1.2	0.20	0.071	1.00	
PCB028	1.1	0.20	0.033	1.00	
PCB037	0.23	0.20	0.060	1.00	
PCB044	0.86	0.20	0.086	1.00	
PCB049	1.2	0.20	0.11	1.00	
PCB052	2.0	0.20	0.062	1.00	
PCB066	1.7	0.20	0.10	1.00	
PCB070	1.9	0.20	0.059	1.00	
PCB074	1.1	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	0.55	0.20	0.11	1.00	
PCB099	0.67	0.20	0.060	1.00	
PCB101	1.4	0.20	0.097	1.00	
PCB105	0.53	0.20	0.054	1.00	
PCB110	1.4	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.90	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.1	0.40	0.17	1.00	
PCB138/158	0.84	0.40	0.094	1.00	
PCB149	0.91	0.20	0.097	1.00	
PCB151	0.20	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	0.36	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 42 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	0.23	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	64	14-146			
p-Terphenyl-d14	81	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 43 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-B	18-12-1618-22-AA	12/13/18 12:16	Tissue	GC/MS HHH	12/27/18	01/05/19 19:14	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	1.2	0.20	0.071	1.00	
PCB028	0.94	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	0.84	0.20	0.086	1.00	
PCB049	1.0	0.20	0.11	1.00	
PCB052	1.8	0.20	0.062	1.00	
PCB066	1.7	0.20	0.10	1.00	
PCB070	2.1	0.20	0.059	1.00	
PCB074	1.2	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	0.94	0.20	0.11	1.00	
PCB099	1.0	0.20	0.060	1.00	
PCB101	2.0	0.20	0.097	1.00	
PCB105	0.66	0.20	0.054	1.00	
PCB110	1.9	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	1.4	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.5	0.40	0.17	1.00	
PCB138/158	1.4	0.40	0.094	1.00	
PCB149	1.1	0.20	0.097	1.00	
PCB151	0.31	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	0.29	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	0.54	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 44 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	0.26	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	62	14-146			
p-Terphenyl-d14	115	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 45 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-C	18-12-1618-23-AA	12/13/18 12:17	Tissue	GC/MS HHH	12/27/18	01/05/19 19:38	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	1.2	0.20	0.070	1.00	
PCB028	1.2	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	1.0	0.20	0.086	1.00	
PCB049	1.3	0.20	0.11	1.00	
PCB052	2.4	0.20	0.062	1.00	
PCB066	1.6	0.20	0.10	1.00	
PCB070	2.2	0.20	0.059	1.00	
PCB074	1.2	0.20	0.086	1.00	
PCB077	ND	0.20	0.076	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	0.87	0.20	0.11	1.00	
PCB099	0.97	0.20	0.060	1.00	
PCB101	2.1	0.20	0.096	1.00	
PCB105	0.55	0.20	0.054	1.00	
PCB110	1.9	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	1.5	0.20	0.083	1.00	
PCB119	ND	0.20	0.093	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.6	0.39	0.17	1.00	
PCB138/158	1.3	0.39	0.093	1.00	
PCB149	0.97	0.20	0.096	1.00	
PCB151	0.30	0.20	0.066	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.051	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.062	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	0.50	0.20	0.041	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 46 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	0.32	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.095	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	60	14-146			
p-Terphenyl-d14	106	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 47 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-D	18-12-1618-24-AA	12/13/18 12:18	Tissue	GC/MS HHH	12/28/18	01/07/19 18:24	181228L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB018	0.87	0.20	0.070	1.00	
PCB028	0.91	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	0.62	0.20	0.086	1.00	
PCB049	1.2	0.20	0.11	1.00	
PCB052	1.5	0.20	0.062	1.00	
PCB066	1.3	0.20	0.10	1.00	
PCB070	1.5	0.20	0.059	1.00	
PCB074	0.82	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	0.42	0.20	0.11	1.00	
PCB099	0.67	0.20	0.060	1.00	
PCB101	1.5	0.20	0.097	1.00	
PCB105	0.39	0.20	0.054	1.00	
PCB110	1.1	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	0.89	0.20	0.083	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	0.99	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.093	1.00	
PCB149	0.75	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	0.40	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 12/18/18
 Work Order: 18-12-1618
 Preparation: EPA 3541
 Method: EPA 8270C SIM PCB Congeners
 Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 48 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	66	14-146			
p-Terphenyl-d14	70	34-148			



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 49 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Macoma-E	18-12-1618-25-AA	12/13/18 12:19	Tissue	GC/MS HHH	12/28/18	01/07/19 18:48	181228L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	0.89	0.20	0.034	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.087	1.00	
PCB049	0.70	0.20	0.11	1.00	
PCB052	1.5	0.20	0.063	1.00	
PCB066	1.2	0.20	0.10	1.00	
PCB070	1.4	0.20	0.060	1.00	
PCB074	0.72	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	0.59	0.20	0.11	1.00	
PCB099	0.68	0.20	0.061	1.00	
PCB101	1.4	0.20	0.098	1.00	
PCB105	0.35	0.20	0.055	1.00	
PCB110	1.5	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	1.1	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.3	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	0.71	0.20	0.098	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 50 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	72	14-146			
p-Terphenyl-d14	107	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 51 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-A	18-12-1618-26-AA	11/14/18 12:00	Tissue	GC/MS HHH	12/27/18	01/05/19 20:01	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.29	0.20	0.060	1.00	
PCB101	0.47	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	0.27	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	0.47	0.20	0.083	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.4	0.40	0.17	1.00	
PCB138/158	1.2	0.40	0.093	1.00	
PCB149	0.56	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	0.53	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
 307 Washington Street
 Santa Cruz, CA 95060-4928

Date Received: 12/18/18
 Work Order: 18-12-1618
 Preparation: EPA 3541
 Method: EPA 8270C SIM PCB Congeners
 Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 52 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	0.49	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	75	14-146			
p-Terphenyl-d14	139	34-148			



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 53 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-B	18-12-1618-27-AA	11/14/18 12:01	Tissue	GC/MS HHH	12/27/18	01/05/19 20:24	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.034	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.087	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.063	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.060	1.00	
PCB074	ND	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.34	0.20	0.061	1.00	
PCB101	0.40	0.20	0.098	1.00	
PCB105	ND	0.20	0.055	1.00	
PCB110	0.26	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.39	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.4	0.40	0.17	1.00	
PCB138/158	1.0	0.40	0.094	1.00	
PCB149	0.57	0.20	0.098	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	0.57	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 54 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.25	0.20	0.11	1.00	
PCB187	0.44	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	30	14-146			
p-Terphenyl-d14	103	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 55 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-C	18-12-1618-28-AA	11/14/18 12:02	Tissue	GC/MS HHH	12/27/18	01/05/19 20:47	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.034	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.087	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.063	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.060	1.00	
PCB074	ND	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.22	0.20	0.061	1.00	
PCB101	0.43	0.20	0.098	1.00	
PCB105	ND	0.20	0.055	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.37	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	0.90	0.40	0.17	1.00	
PCB138/158	0.80	0.40	0.094	1.00	
PCB149	0.41	0.20	0.098	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	0.36	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 56 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	0.49	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	54	14-146			
p-Terphenyl-d14	108	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 57 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-D	18-12-1618-29-AA	11/14/18 12:03	Tissue	GC/MS HHH	12/27/18	01/05/19 21:11	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.31	0.20	0.060	1.00	
PCB101	0.45	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	ND	0.20	0.083	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.5	0.40	0.17	1.00	
PCB138/158	1.2	0.40	0.093	1.00	
PCB149	0.71	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 58 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	0.53	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	97	14-146			
p-Terphenyl-d14	128	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 59 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Nereis-T0-E	18-12-1618-30-AA	11/14/18 12:04	Tissue	GC/MS HHH	12/27/18	01/08/19 20:04	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	0.29	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	0.32	0.20	0.083	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	0.95	0.40	0.17	1.00	
PCB138/158	0.71	0.40	0.093	1.00	
PCB149	0.37	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	0.41	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 60 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	59	14-146			
p-Terphenyl-d14	113	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 61 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-A	18-12-1618-31-AA	12/12/18 12:00	Tissue	GC/MS HHH	12/27/18	01/05/19 21:58	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	0.36	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.076	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.25	0.20	0.060	1.00	
PCB101	0.57	0.20	0.096	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	ND	0.20	0.083	1.00	
PCB119	ND	0.20	0.093	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.7	0.39	0.17	1.00	
PCB138/158	1.3	0.39	0.093	1.00	
PCB149	0.75	0.20	0.096	1.00	
PCB151	ND	0.20	0.066	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.051	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.062	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	0.52	0.20	0.041	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 62 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	0.64	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.095	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	61	14-146			
p-Terphenyl-d14	103	34-148			


 Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 63 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-B	18-12-1618-32-AA	12/12/18 12:01	Tissue	GC/MS HHH	12/27/18	01/05/19 22:22	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.25	0.20	0.060	1.00	
PCB101	0.43	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	0.31	0.20	0.083	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	2.0	0.40	0.17	1.00	
PCB138/158	1.4	0.40	0.093	1.00	
PCB149	0.86	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	0.91	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 64 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.31	0.20	0.11	1.00	
PCB187	0.71	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	75	14-146			
p-Terphenyl-d14	128	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 65 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-C	18-12-1618-33-AA	12/12/18 12:02	Tissue	GC/MS HHH	12/27/18	01/07/19 12:11	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	0.36	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	0.26	0.20	0.083	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.9	0.40	0.17	1.00	
PCB138/158	1.1	0.40	0.093	1.00	
PCB149	0.58	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	0.62	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 66 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.25	0.20	0.11	1.00	
PCB187	0.58	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	74	14-146			
p-Terphenyl-d14	101	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 67 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-D	18-12-1618-34-AA	12/12/18 12:03	Tissue	GC/MS HHH	12/27/18	01/07/19 14:45	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.076	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.22	0.20	0.060	1.00	
PCB101	0.48	0.20	0.096	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	0.28	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	0.36	0.20	0.083	1.00	
PCB119	ND	0.20	0.093	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.8	0.39	0.17	1.00	
PCB138/158	1.4	0.39	0.093	1.00	
PCB149	0.74	0.20	0.096	1.00	
PCB151	ND	0.20	0.066	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.051	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	0.35	0.20	0.062	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	0.64	0.20	0.041	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 68 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.44	0.20	0.11	1.00	
PCB187	1.2	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.095	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	82	14-146			
p-Terphenyl-d14	127	34-148			


 Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 69 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Control-Nereis-E	18-12-1618-35-AA	12/12/18 12:04	Tissue	GC/MS HHH	12/27/18	01/07/19 15:08	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.060	1.00	
PCB101	ND	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.7	0.40	0.17	1.00	
PCB138/158	1.3	0.40	0.094	1.00	
PCB149	0.84	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	1.1	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 70 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.36	0.20	0.11	1.00	
PCB187	0.83	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	67	14-146			
p-Terphenyl-d14	109	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 71 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-A	18-12-1618-36-AA	12/12/18 12:05	Tissue	GC/MS HHH	12/27/18	01/07/19 15:31	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.034	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.087	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.063	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.060	1.00	
PCB074	ND	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.41	0.20	0.061	1.00	
PCB101	0.41	0.20	0.098	1.00	
PCB105	ND	0.20	0.055	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.32	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.3	0.40	0.17	1.00	
PCB138/158	1.2	0.40	0.094	1.00	
PCB149	0.48	0.20	0.098	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 72 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	0.50	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	61	14-146			
p-Terphenyl-d14	101	34-148			


 Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 73 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-B	18-12-1618-37-AA	12/12/18 12:06	Tissue	GC/MS HHH	12/27/18	01/07/19 15:55	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.34	0.20	0.060	1.00	
PCB101	0.62	0.20	0.097	1.00	
PCB105	0.39	0.20	0.054	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.47	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.9	0.40	0.17	1.00	
PCB138/158	1.3	0.40	0.094	1.00	
PCB149	0.72	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 74 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.28	0.20	0.11	1.00	
PCB187	0.71	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	59	14-146			
p-Terphenyl-d14	93	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 75 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-C	18-12-1618-38-AA	12/12/18 12:07	Tissue	GC/MS HHH	12/27/18	01/07/19 16:18	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.076	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.40	0.20	0.060	1.00	
PCB101	0.48	0.20	0.096	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	ND	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	ND	0.20	0.083	1.00	
PCB119	ND	0.20	0.093	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	2.3	0.39	0.17	1.00	
PCB138/158	1.7	0.39	0.093	1.00	
PCB149	0.79	0.20	0.096	1.00	
PCB151	ND	0.20	0.066	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.051	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.062	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	0.81	0.20	0.041	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 76 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.45	0.20	0.11	1.00	
PCB187	0.85	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.095	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	62	14-146			
p-Terphenyl-d14	127	34-148			



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 77 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-D	18-12-1618-39-AA	12/12/18 12:08	Tissue	GC/MS HHH	12/27/18	01/07/19 16:44	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.034	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.087	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.063	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.060	1.00	
PCB074	ND	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.29	0.20	0.061	1.00	
PCB101	0.45	0.20	0.098	1.00	
PCB105	ND	0.20	0.055	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.43	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.6	0.40	0.17	1.00	
PCB138/158	1.1	0.40	0.094	1.00	
PCB149	0.63	0.20	0.098	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	0.74	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 78 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.26	0.20	0.11	1.00	
PCB187	0.70	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	75	14-146			
p-Terphenyl-d14	119	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 79 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LA2-REF-Nereis-E	18-12-1618-40-AA	12/12/18 12:09	Tissue	GC/MS HHH	12/27/18	01/07/19 17:09	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.034	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.087	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.063	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.060	1.00	
PCB074	ND	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.38	0.20	0.061	1.00	
PCB101	0.76	0.20	0.098	1.00	
PCB105	0.36	0.20	0.055	1.00	
PCB110	0.43	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.36	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	2.1	0.40	0.17	1.00	
PCB138/158	1.6	0.40	0.094	1.00	
PCB149	0.81	0.20	0.098	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	0.30	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	0.73	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 80 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.31	0.20	0.11	1.00	
PCB187	0.59	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	81	14-146			
p-Terphenyl-d14	117	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 81 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-A	18-12-1618-41-AA	12/12/18 12:10	Tissue	GC/MS HHH	12/27/18	01/07/19 17:32	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	0.21	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	0.47	0.20	0.062	1.00	
PCB066	0.26	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.39	0.20	0.060	1.00	
PCB101	0.63	0.20	0.097	1.00	
PCB105	0.23	0.20	0.054	1.00	
PCB110	0.39	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.39	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.6	0.40	0.17	1.00	
PCB138/158	1.1	0.40	0.094	1.00	
PCB149	0.71	0.20	0.097	1.00	
PCB151	0.27	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	0.63	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 82 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.26	0.20	0.11	1.00	
PCB187	0.66	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	66	14-146			
p-Terphenyl-d14	76	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 83 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-B	18-12-1618-42-AA	12/12/18 12:11	Tissue	GC/MS HHH	12/27/18	01/07/19 17:56	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	0.53	0.20	0.062	1.00	
PCB066	0.38	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.34	0.20	0.060	1.00	
PCB101	0.68	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	0.43	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.58	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.8	0.40	0.17	1.00	
PCB138/158	1.4	0.40	0.094	1.00	
PCB149	0.73	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	0.80	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 84 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.27	0.20	0.11	1.00	
PCB187	0.50	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	66	14-146			
p-Terphenyl-d14	105	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 85 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-C	18-12-1618-43-AA	12/12/18 12:12	Tissue	GC/MS HHH	12/28/18	01/07/19 19:11	181228L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	0.53	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.26	0.20	0.060	1.00	
PCB101	0.64	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	0.36	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.27	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.4	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	0.64	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 86 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.26	0.20	0.11	1.00	
PCB187	0.45	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	58	14-146			
p-Terphenyl-d14	96	34-148			



Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 87 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-D	18-12-1618-44-AA	12/12/18 12:13	Tissue	GC/MS HHH	12/28/18	01/07/19 19:34	181228L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.059	1.00	
PCB044	ND	0.20	0.085	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.061	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.058	1.00	
PCB074	ND	0.20	0.085	1.00	
PCB077	ND	0.20	0.076	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.28	0.20	0.059	1.00	
PCB101	0.55	0.20	0.096	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	0.32	0.20	0.045	1.00	
PCB114	ND	0.20	0.080	1.00	
PCB118	0.37	0.20	0.082	1.00	
PCB119	ND	0.20	0.093	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.078	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.5	0.39	0.17	1.00	
PCB138/158	ND	0.39	0.093	1.00	
PCB149	0.62	0.20	0.096	1.00	
PCB151	ND	0.20	0.066	1.00	
PCB156	ND	0.20	0.056	1.00	
PCB157	ND	0.20	0.051	1.00	
PCB167	ND	0.20	0.060	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.062	1.00	
PCB177	ND	0.20	0.085	1.00	
PCB180	0.56	0.20	0.041	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 88 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	0.59	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.095	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	56	14-146			
p-Terphenyl-d14	106	34-148			


 Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 89 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-a-Nereis-E	18-12-1618-45-AA	12/12/18 12:14	Tissue	GC/MS HHH	12/28/18	01/07/19 19:58	181228L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	0.25	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	0.90	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.51	0.20	0.060	1.00	
PCB101	0.97	0.20	0.097	1.00	
PCB105	0.71	0.20	0.054	1.00	
PCB110	0.67	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.70	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	2.4	0.40	0.17	1.00	
PCB138/158	1.7	0.40	0.094	1.00	
PCB149	0.91	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	0.58	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 90 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.29	0.20	0.11	1.00	
PCB187	0.51	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	51	14-146			
p-Terphenyl-d14	84	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 91 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-A	18-12-1618-46-AA	12/12/18 12:15	Tissue	GC/MS HHH	12/28/18	01/07/19 20:22	181228L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	0.75	0.20	0.070	1.00	
PCB028	0.41	0.20	0.033	1.00	
PCB037	ND	0.20	0.059	1.00	
PCB044	ND	0.20	0.085	1.00	
PCB049	0.39	0.20	0.11	1.00	
PCB052	1.9	0.20	0.061	1.00	
PCB066	0.55	0.20	0.10	1.00	
PCB070	ND	0.20	0.058	1.00	
PCB074	ND	0.20	0.085	1.00	
PCB077	ND	0.20	0.076	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.67	0.20	0.059	1.00	
PCB101	1.4	0.20	0.096	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	0.98	0.20	0.045	1.00	
PCB114	ND	0.20	0.080	1.00	
PCB118	0.65	0.20	0.082	1.00	
PCB119	ND	0.20	0.093	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.078	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	2.2	0.39	0.17	1.00	
PCB138/158	ND	0.39	0.093	1.00	
PCB149	1.0	0.20	0.096	1.00	
PCB151	ND	0.20	0.066	1.00	
PCB156	ND	0.20	0.056	1.00	
PCB157	ND	0.20	0.051	1.00	
PCB167	ND	0.20	0.060	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.062	1.00	
PCB177	ND	0.20	0.085	1.00	
PCB180	0.92	0.20	0.041	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 92 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.30	0.20	0.11	1.00	
PCB187	0.55	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.095	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	12	14-146	2,6		
p-Terphenyl-d14	96	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 93 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-B	18-12-1618-47-AA	12/12/18 12:16	Tissue	GC/MS HHH	12/28/18	01/07/19 20:47	181228L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	0.73	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	0.33	0.20	0.11	1.00	
PCB052	1.6	0.20	0.062	1.00	
PCB066	0.64	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.51	0.20	0.060	1.00	
PCB101	1.3	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	0.72	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	0.70	0.20	0.083	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	2.3	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.093	1.00	
PCB149	0.91	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	0.77	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 94 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	0.69	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	51	14-146			
p-Terphenyl-d14	96	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 95 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-C	18-12-1618-48-AA	12/12/18 12:17	Tissue	GC/MS HHH	12/28/18	01/07/19 21:11	181228L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	0.62	0.20	0.071	1.00	
PCB028	0.36	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	0.78	0.20	0.086	1.00	
PCB049	0.39	0.20	0.11	1.00	
PCB052	1.9	0.20	0.062	1.00	
PCB066	0.50	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.58	0.20	0.060	1.00	
PCB101	1.4	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	0.83	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	0.79	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	2.4	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	1.0	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	1.1	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 96 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.29	0.20	0.11	1.00	
PCB187	0.65	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	57	14-146			
p-Terphenyl-d14	100	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 97 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-D	18-12-1618-49-AA	12/12/18 12:18	Tissue	GC/MS HHH	12/28/18	01/08/19 11:19	181228L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	0.25	0.20	0.071	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	0.70	0.20	0.062	1.00	
PCB066	0.39	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.23	0.20	0.060	1.00	
PCB101	0.60	0.20	0.097	1.00	
PCB105	ND	0.20	0.054	1.00	
PCB110	0.48	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	2.0	0.40	0.17	1.00	
PCB138/158	1.1	0.40	0.094	1.00	
PCB149	0.84	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	0.32	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	0.65	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 98 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	0.25	0.20	0.11	1.00	
PCB187	0.62	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	51	14-146			
p-Terphenyl-d14	94	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 99 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
CCT-18-Comp-b-Nereis-E	18-12-1618-50-AA	12/12/18 12:19	Tissue	GC/MS HHH	12/28/18	01/08/19 13:23	181228L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	0.42	0.20	0.070	1.00	
PCB028	ND	0.20	0.033	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.086	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	0.93	0.20	0.062	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.059	1.00	
PCB074	ND	0.20	0.086	1.00	
PCB077	ND	0.20	0.077	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	0.30	0.20	0.060	1.00	
PCB101	0.73	0.20	0.097	1.00	
PCB105	0.32	0.20	0.054	1.00	
PCB110	0.54	0.20	0.045	1.00	
PCB114	ND	0.20	0.081	1.00	
PCB118	0.35	0.20	0.083	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.079	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	1.4	0.40	0.17	1.00	
PCB138/158	1.2	0.40	0.093	1.00	
PCB149	0.59	0.20	0.097	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.057	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.061	1.00	
PCB168	ND	0.20	0.048	1.00	
PCB169	ND	0.20	0.060	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.086	1.00	
PCB180	0.49	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 100 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	0.39	0.20	0.083	1.00	
PCB189	ND	0.20	0.060	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.096	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	56	14-146			
p-Terphenyl-d14	92	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 101 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-780-96	N/A	Tissue	GC/MS HHH	12/27/18	01/04/19 10:44	181227L17

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.034	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.087	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.063	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.060	1.00	
PCB074	ND	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.061	1.00	
PCB101	ND	0.20	0.098	1.00	
PCB105	ND	0.20	0.055	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.098	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 102 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	131	14-146			
p-Terphenyl-d14	101	34-148			

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 103 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-780-97	N/A	Tissue	GC/MS HHH	12/27/18	01/05/19 16:22	181227L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.034	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.087	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.063	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.060	1.00	
PCB074	ND	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.061	1.00	
PCB101	ND	0.20	0.098	1.00	
PCB105	ND	0.20	0.055	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.098	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 104 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	74	14-146			
p-Terphenyl-d14	107	34-148			


 Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 105 of 106

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-780-98	N/A	Tissue	GC/MS HHH	12/28/18	01/07/19 12:34	181228L18

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
PCB018	ND	0.20	0.071	1.00	
PCB028	ND	0.20	0.034	1.00	
PCB037	ND	0.20	0.060	1.00	
PCB044	ND	0.20	0.087	1.00	
PCB049	ND	0.20	0.11	1.00	
PCB052	ND	0.20	0.063	1.00	
PCB066	ND	0.20	0.10	1.00	
PCB070	ND	0.20	0.060	1.00	
PCB074	ND	0.20	0.087	1.00	
PCB077	ND	0.20	0.078	1.00	
PCB081	ND	0.20	0.12	1.00	
PCB087	ND	0.20	0.11	1.00	
PCB099	ND	0.20	0.061	1.00	
PCB101	ND	0.20	0.098	1.00	
PCB105	ND	0.20	0.055	1.00	
PCB110	ND	0.20	0.046	1.00	
PCB114	ND	0.20	0.082	1.00	
PCB118	ND	0.20	0.084	1.00	
PCB119	ND	0.20	0.094	1.00	
PCB123	ND	0.20	0.10	1.00	
PCB126	ND	0.20	0.080	1.00	
PCB128	ND	0.20	0.10	1.00	
PCB132/153	ND	0.40	0.17	1.00	
PCB138/158	ND	0.40	0.094	1.00	
PCB149	ND	0.20	0.098	1.00	
PCB151	ND	0.20	0.067	1.00	
PCB156	ND	0.20	0.058	1.00	
PCB157	ND	0.20	0.052	1.00	
PCB167	ND	0.20	0.062	1.00	
PCB168	ND	0.20	0.049	1.00	
PCB169	ND	0.20	0.061	1.00	
PCB170	ND	0.20	0.063	1.00	
PCB177	ND	0.20	0.087	1.00	
PCB180	ND	0.20	0.042	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners
Units: ug/kg

Project: POLB Carnival Cruise Terminal 2018

Page 106 of 106

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
PCB183	ND	0.20	0.11	1.00	
PCB187	ND	0.20	0.084	1.00	
PCB189	ND	0.20	0.061	1.00	
PCB194	ND	0.20	0.11	1.00	
PCB201	ND	0.20	0.097	1.00	
PCB206	ND	0.20	0.19	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>		
2-Fluorobiphenyl	69	14-146			
p-Terphenyl-d14	90	34-148			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Macoma-T0-A	Sample	Tissue	ICP/MS 05	12/20/18	12/20/18 15:45	181220S01
Macoma-T0-A	Matrix Spike	Tissue	ICP/MS 05	12/20/18	12/20/18 15:31	181220S01
Macoma-T0-A	Matrix Spike Duplicate	Tissue	ICP/MS 05	12/20/18	12/20/18 15:35	181220S01

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	3.207	12.50	16.08	103	16.13	103	80-120	0	0-20	
Cadmium	ND	12.50	13.16	105	13.19	106	80-120	0	0-20	
Chromium	0.1024	12.50	13.75	109	12.94	103	80-120	6	0-20	
Copper	0.9569	12.50	13.33	99	12.79	95	80-120	4	0-20	
Lead	ND	12.50	12.39	99	12.05	96	80-120	3	0-20	
Nickel	0.3172	12.50	12.78	100	12.71	99	80-120	1	0-20	
Selenium	0.2471	12.50	11.95	94	12.13	95	80-120	1	0-20	
Silver	ND	6.250	5.932	95	5.957	95	80-120	0	0-20	
Zinc	11.19	12.50	24.23	104	23.25	96	80-120	4	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Comp-b-Macoma-A	Sample	Tissue	ICP/MS 05	12/20/18	12/20/18 16:03	181220S02
CCT-18-Comp-b-Macoma-A	Matrix Spike	Tissue	ICP/MS 05	12/20/18	12/20/18 15:49	181220S02
CCT-18-Comp-b-Macoma-A	Matrix Spike Duplicate	Tissue	ICP/MS 05	12/20/18	12/20/18 15:52	181220S02

<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Arsenic	2.870	12.50	15.50	101	15.66	102	80-120	1	0-20	
Cadmium	ND	12.50	13.02	104	13.19	106	80-120	1	0-20	
Chromium	0.1922	12.50	12.84	101	12.86	101	80-120	0	0-20	
Copper	0.8920	12.50	12.80	95	12.73	95	80-120	1	0-20	
Lead	0.4916	12.50	12.57	97	12.85	99	80-120	2	0-20	
Nickel	0.3729	12.50	12.31	95	12.80	99	80-120	4	0-20	
Selenium	0.1956	12.50	12.28	97	12.32	97	80-120	0	0-20	
Silver	ND	6.250	5.769	92	5.864	94	80-120	2	0-20	
Zinc	9.665	12.50	22.36	102	23.37	110	80-120	4	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Comp-a-Nereis-C	Sample	Tissue	ICP/MS 05	12/20/18	12/20/18 17:04	181220S03
CCT-18-Comp-a-Nereis-C	Matrix Spike	Tissue	ICP/MS 05	12/20/18	12/20/18 16:47	181220S03
CCT-18-Comp-a-Nereis-C	Matrix Spike Duplicate	Tissue	ICP/MS 05	12/20/18	12/20/18 16:54	181220S03

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	2.190	12.50	14.85	101	15.03	103	80-120	1	0-20	
Cadmium	ND	12.50	13.28	106	13.21	106	80-120	0	0-20	
Chromium	ND	12.50	13.32	107	13.16	105	80-120	1	0-20	
Copper	1.470	12.50	13.42	96	12.89	91	80-120	4	0-20	
Lead	0.4361	12.50	12.77	99	12.87	99	80-120	1	0-20	
Nickel	0.1613	12.50	12.79	101	12.73	101	80-120	0	0-20	
Selenium	0.2349	12.50	12.14	95	12.16	95	80-120	0	0-20	
Silver	ND	6.250	5.912	95	5.820	93	80-120	2	0-20	
Zinc	14.57	12.50	29.86	122	24.86	82	80-120	18	0-20	3

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: POLB Carnival Cruise Terminal 2018

Page 4 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
Macoma-T0-A	Sample	Tissue	Mercury 07	01/02/19	01/02/19 15:16	190102S02				
Macoma-T0-A	Matrix Spike	Tissue	Mercury 07	01/02/19	01/02/19 15:18	190102S02				
Macoma-T0-A	Matrix Spike Duplicate	Tissue	Mercury 07	01/02/19	01/03/19 14:16	190102S02				
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Mercury	ND	0.5000	0.3246	65	0.3373	67	76-136	4	0-16	3

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: POLB Carnival Cruise Terminal 2018

Page 5 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Comp-a-Nereis-C	Sample	Tissue	Mercury 07	01/02/19	01/02/19 16:22	190102S04
CCT-18-Comp-a-Nereis-C	Matrix Spike	Tissue	Mercury 07	01/02/19	01/02/19 16:24	190102S04
CCT-18-Comp-a-Nereis-C	Matrix Spike Duplicate	Tissue	Mercury 07	01/02/19	01/02/19 16:31	190102S04

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	ND	0.5000	0.3683	74	0.2882	58	76-136	24	0-16	3,4

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: POLB Carnival Cruise Terminal 2018

Page 6 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Comp-b-Macoma-A	Sample	Tissue	Mercury 08	01/02/19	01/02/19 15:25	190102S03
CCT-18-Comp-b-Macoma-A	Matrix Spike	Tissue	Mercury 08	01/02/19	01/02/19 15:28	190102S03
CCT-18-Comp-b-Macoma-A	Matrix Spike Duplicate	Tissue	Mercury 08	01/02/19	01/02/19 15:30	190102S03

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	ND	0.8350	0.4222	51	0.4616	55	76-136	9	0-16	3

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM

Project: POLB Carnival Cruise Terminal 2018

Page 7 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Macoma-T0-E	Sample	Tissue	GC/MS BBB	12/27/18	01/05/19 17:32	181227S19
Macoma-T0-E	Matrix Spike	Tissue	GC/MS BBB	12/27/18	01/08/19 12:32	181227S19
Macoma-T0-E	Matrix Spike Duplicate	Tissue	GC/MS BBB	12/27/18	01/08/19 12:47	181227S19

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
4,4'-DDD	0.7379	5.000	4.954	84	4.256	70	25-200	15	0-25	
4,4'-DDE	0.2679	5.000	4.307	81	5.194	99	25-200	19	0-25	
4,4'-DDT	ND	5.000	0.3984	8	0.4134	8	25-200	4	0-25	3

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM

Project: POLB Carnival Cruise Terminal 2018

Page 8 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Comp-b-Macoma-C	Sample	Tissue	GC/MS BBB	12/27/18	01/05/19 22:02	181227S20
CCT-18-Comp-b-Macoma-C	Matrix Spike	Tissue	GC/MS BBB	12/27/18	01/05/19 14:34	181227S20
CCT-18-Comp-b-Macoma-C	Matrix Spike Duplicate	Tissue	GC/MS BBB	12/28/18	01/05/19 14:49	181227S20

<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
4,4'-DDD	2.565	5.000	7.468	98	8.271	114	25-200	10	0-25	
4,4'-DDE	5.910	5.000	10.30	88	12.11	124	25-200	16	0-25	
4,4'-DDT	ND	5.000	1.946	39	1.319	26	25-200	38	0-25	4

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



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Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM

Project: POLB Carnival Cruise Terminal 2018

Page 9 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Comp-b-Macoma-E	Sample	Tissue	GC/MS BBB	12/28/18	01/09/19 11:35	181228S17
CCT-18-Comp-b-Macoma-E	Matrix Spike	Tissue	GC/MS BBB	12/28/18	01/08/19 20:03	181228S17
CCT-18-Comp-b-Macoma-E	Matrix Spike Duplicate	Tissue	GC/MS BBB	12/28/18	01/08/19 20:19	181228S17

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
4,4'-DDD	2.762	5.000	3.062	6	2.862	2	25-200	7	0-25	3
4,4'-DDE	4.127	5.000	6.342	44	5.648	30	25-200	12	0-25	
4,4'-DDT	0.2018	5.000	0.7531	11	0.3690	3	25-200	68	0-25	3,4

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



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Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners

Project: POLB Carnival Cruise Terminal 2018

Page 10 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Macoma-T0-A	Sample	Tissue	GC/MS HHH	12/27/18	01/04/19 15:30	181227S17
Macoma-T0-A	Matrix Spike	Tissue	GC/MS HHH	12/27/18	01/08/19 20:52	181227S17
Macoma-T0-A	Matrix Spike Duplicate	Tissue	GC/MS HHH	12/27/18	01/08/19 21:15	181227S17

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
PCB018	ND	50.00	48.04	96	40.26	81	50-150	18	0-25	
PCB028	ND	50.00	63.28	127	53.07	106	50-150	18	0-25	
PCB044	ND	50.00	60.14	120	50.66	101	50-150	17	0-25	
PCB052	ND	50.00	57.39	115	47.95	96	50-150	18	0-25	
PCB066	ND	50.00	72.08	144	59.61	119	50-150	19	0-25	
PCB077	ND	50.00	62.39	125	53.29	107	50-150	16	0-25	
PCB101	ND	50.00	63.59	127	53.25	107	50-150	18	0-25	
PCB105	ND	50.00	64.90	130	56.35	113	50-150	14	0-25	
PCB118	ND	50.00	70.40	141	61.04	122	50-150	14	0-25	
PCB126	ND	50.00	70.61	141	62.33	125	50-150	12	0-25	
PCB128	ND	50.00	65.93	132	56.24	112	50-150	16	0-25	
PCB170	ND	50.00	58.72	117	48.84	98	50-150	18	0-25	
PCB180	ND	50.00	73.46	147	61.74	123	50-150	17	0-25	
PCB187	ND	50.00	69.70	139	60.66	121	50-150	14	0-25	
PCB206	ND	50.00	61.21	122	48.44	97	50-150	23	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners

Project: POLB Carnival Cruise Terminal 2018

Page 11 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Comp-b-Macoma-B	Sample	Tissue	GC/MS HHH	12/27/18	01/05/19 19:14	181227S18
CCT-18-Comp-b-Macoma-B	Matrix Spike	Tissue	GC/MS HHH	12/27/18	01/05/19 18:04	181227S18
CCT-18-Comp-b-Macoma-B	Matrix Spike Duplicate	Tissue	GC/MS HHH	12/27/18	01/05/19 18:27	181227S18

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
PCB018	1.231	50.00	38.88	75	47.20	92	50-150	19	0-25	
PCB028	0.9450	50.00	51.92	102	65.88	130	50-150	24	0-25	
PCB044	0.8423	50.00	48.32	95	62.16	123	50-150	25	0-25	
PCB052	1.771	50.00	48.12	93	61.30	119	50-150	24	0-25	
PCB066	1.724	50.00	59.74	116	75.68	148	50-150	24	0-25	
PCB077	ND	50.00	54.50	109	61.26	123	50-150	12	0-25	
PCB101	2.025	50.00	54.00	104	64.65	125	50-150	18	0-25	
PCB105	0.6588	50.00	69.59	138	66.31	131	50-150	5	0-25	
PCB118	1.392	50.00	72.75	143	73.49	144	50-150	1	0-25	
PCB126	ND	50.00	75.47	151	72.23	144	50-150	4	0-25	3
PCB128	ND	50.00	71.32	143	68.33	137	50-150	4	0-25	
PCB170	0.2909	50.00	45.79	91	58.30	116	50-150	24	0-25	
PCB180	0.5423	50.00	73.41	146	73.43	146	50-150	0	0-25	
PCB187	0.2604	50.00	74.70	149	72.16	144	50-150	3	0-25	
PCB206	ND	50.00	51.63	103	59.97	120	50-150	15	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners

Project: POLB Carnival Cruise Terminal 2018

Page 12 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
CCT-18-Comp-b-Macoma-D	Sample	Tissue	GC/MS HHH	12/28/18	01/07/19 18:24	181228S18
CCT-18-Comp-b-Macoma-D	Matrix Spike	Tissue	GC/MS HHH	12/28/18	01/07/19 13:44	181228S18
CCT-18-Comp-b-Macoma-D	Matrix Spike Duplicate	Tissue	GC/MS HHH	12/28/18	01/07/19 14:07	181228S18

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
PCB018	0.8730	50.00	32.09	62	30.71	60	50-150	4	0-25	
PCB028	0.9148	50.00	39.89	78	39.20	77	50-150	2	0-25	
PCB044	0.6158	50.00	37.79	74	35.41	70	50-150	6	0-25	
PCB052	1.466	50.00	36.50	70	35.31	68	50-150	3	0-25	
PCB066	1.259	50.00	43.42	84	40.85	79	50-150	6	0-25	
PCB077	ND	50.00	37.13	74	36.13	72	50-150	3	0-25	
PCB101	1.451	50.00	39.30	76	37.45	72	50-150	5	0-25	
PCB105	0.3904	50.00	39.63	78	37.83	75	50-150	5	0-25	
PCB118	0.8918	50.00	42.30	83	39.67	78	50-150	6	0-25	
PCB126	ND	50.00	43.03	86	40.60	81	50-150	6	0-25	
PCB128	ND	50.00	40.32	81	37.22	74	50-150	8	0-25	
PCB170	ND	50.00	38.71	77	36.67	73	50-150	5	0-25	
PCB180	0.4022	50.00	42.82	85	41.07	81	50-150	4	0-25	
PCB187	ND	50.00	43.83	88	39.99	80	50-150	9	0-25	
PCB206	ND	50.00	42.44	85	35.08	70	50-150	19	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - PDS

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
Macoma-T0-A	Sample	Tissue	ICP/MS 05	12/20/18 00:00	12/20/18 15:45	181220S01
Macoma-T0-A	PDS	Tissue	ICP/MS 05	12/20/18 00:00	12/20/18 15:38	181220S01

<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>PDS Conc.</u>	<u>PDS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic	3.207	12.50	16.51	106	75-125	
Cadmium	ND	12.50	13.92	111	75-125	
Chromium	0.1024	12.50	13.43	107	75-125	
Copper	0.9569	12.50	13.31	99	75-125	
Lead	ND	12.50	13.26	106	75-125	
Nickel	0.3172	12.50	13.40	105	75-125	
Selenium	0.2471	12.50	12.78	100	75-125	
Silver	ND	6.250	6.371	102	75-125	
Zinc	11.19	12.50	24.22	104	75-125	


 Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - PDS

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
CCT-18-Comp-b-Macoma-A	Sample	Tissue	ICP/MS 05	12/20/18 00:00	12/20/18 16:03	181220S02
CCT-18-Comp-b-Macoma-A	PDS	Tissue	ICP/MS 05	12/20/18 00:00	12/20/18 15:56	181220S02

Parameter	Sample Conc.	Spike Added	PDS Conc.	PDS %Rec.	%Rec. CL	Qualifiers
Arsenic	2.870	12.50	16.38	108	75-125	
Cadmium	ND	12.50	13.78	110	75-125	
Chromium	0.1922	12.50	13.85	109	75-125	
Copper	0.8920	12.50	13.76	103	75-125	
Lead	0.4916	12.50	13.65	105	75-125	
Nickel	0.3729	12.50	13.76	107	75-125	
Selenium	0.1956	12.50	12.85	101	75-125	
Silver	ND	6.250	6.505	104	75-125	
Zinc	9.665	12.50	23.26	109	75-125	


 Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - PDS

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
CCT-18-Comp-a-Nereis-C	Sample	Tissue	ICP/MS 05	12/20/18 00:00	12/20/18 17:04	181220S03
CCT-18-Comp-a-Nereis-C	PDS	Tissue	ICP/MS 05	12/20/18 00:00	12/20/18 16:57	181220S03

Parameter	Sample Conc.	Spike Added	PDS Conc.	PDS %Rec.	%Rec. CL	Qualifiers
Arsenic	2.190	12.50	16.07	111	75-125	
Cadmium	ND	12.50	14.29	114	75-125	
Chromium	ND	12.50	13.87	111	75-125	
Copper	1.470	12.50	14.41	104	75-125	
Lead	0.4361	12.50	13.64	106	75-125	
Nickel	0.1613	12.50	13.86	110	75-125	
Selenium	0.2349	12.50	13.11	103	75-125	
Silver	ND	6.250	6.328	101	75-125	
Zinc	14.57	12.50	28.63	112	75-125	


 Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Sample Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
Macoma-T0-A	Sample	Tissue	N/A	12/27/18 00:00	12/28/18 00:00	181227D15
Macoma-T0-A	Sample Duplicate	Tissue	N/A	12/27/18 00:00	12/28/18 00:00	181227D15

<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
% Lipids	0.5250	0.5100	3	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Sample Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
CCT-18-Comp-b-Macoma-B	Sample	Tissue	N/A	12/27/18 00:00	01/02/19 00:00	181227D16
CCT-18-Comp-b-Macoma-B	Sample Duplicate	Tissue	N/A	12/27/18 00:00	01/02/19 00:00	181227D16

<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
% Lipids	0.2890	0.2600	11	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Sample Duplicate

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: N/A
Method: MeCl2 Ext. (NOAA 1993a)

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
CCT-18-Comp-b-Macoma-E	Sample	Tissue	N/A	12/28/18 00:00	01/02/19 00:00	181228D16
CCT-18-Comp-b-Macoma-E	Sample Duplicate	Tissue	N/A	12/28/18 00:00	01/02/19 00:00	181228D16

<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
% Lipids	0.5200	0.4880	6	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020

Project: POLB Carnival Cruise Terminal 2018

Page 1 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-15-258-122	LCS	Tissue	ICP/MS 05	12/20/18	12/20/18 14:59	181220L01			
099-15-258-122	LCSD	Tissue	ICP/MS 05	12/20/18	12/20/18 15:10	181220L01			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	12.50	12.37	99	12.09	97	80-120	2	0-20	
Cadmium	12.50	12.70	102	12.80	102	80-120	1	0-20	
Chromium	12.50	12.83	103	12.65	101	80-120	1	0-20	
Copper	12.50	11.82	95	11.93	95	80-120	1	0-20	
Lead	12.50	12.37	99	12.22	98	80-120	1	0-20	
Nickel	12.50	12.34	99	12.05	96	80-120	2	0-20	
Selenium	12.50	11.07	89	10.83	87	80-120	2	0-20	
Silver	6.250	6.129	98	6.365	102	80-120	4	0-20	
Zinc	12.50	12.23	98	12.56	100	80-120	3	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020

Project: POLB Carnival Cruise Terminal 2018

Page 2 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-15-258-123	LCS	Tissue	ICP/MS 05	12/20/18	12/20/18 15:03	181220L02			
099-15-258-123	LCSD	Tissue	ICP/MS 05	12/20/18	12/20/18 15:13	181220L02			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	12.50	12.16	97	12.12	97	80-120	0	0-20	
Cadmium	12.50	12.80	102	12.65	101	80-120	1	0-20	
Chromium	12.50	12.79	102	12.57	101	80-120	2	0-20	
Copper	12.50	11.94	96	11.71	94	80-120	2	0-20	
Lead	12.50	12.32	99	12.30	98	80-120	0	0-20	
Nickel	12.50	12.06	96	12.00	96	80-120	1	0-20	
Selenium	12.50	10.57	85	10.52	84	80-120	0	0-20	
Silver	6.250	5.917	95	5.959	95	80-120	1	0-20	
Zinc	12.50	12.23	98	12.25	98	80-120	0	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3050B
Method: EPA 6020

Project: POLB Carnival Cruise Terminal 2018

Page 3 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-15-258-124	LCS	Tissue	ICP/MS 05	12/20/18	12/20/18 15:06	181220L03			
099-15-258-124	LCSD	Tissue	ICP/MS 05	12/20/18	12/20/18 15:17	181220L03			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	12.50	12.27	98	12.22	98	80-120	0	0-20	
Cadmium	12.50	12.80	102	12.57	101	80-120	2	0-20	
Chromium	12.50	12.71	102	12.73	102	80-120	0	0-20	
Copper	12.50	12.08	97	11.77	94	80-120	3	0-20	
Lead	12.50	12.36	99	12.21	98	80-120	1	0-20	
Nickel	12.50	12.23	98	12.22	98	80-120	0	0-20	
Selenium	12.50	10.89	87	10.61	85	80-120	3	0-20	
Silver	6.250	6.083	97	5.925	95	80-120	3	0-20	
Zinc	12.50	12.36	99	12.21	98	80-120	1	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: POLB Carnival Cruise Terminal 2018

Page 4 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-16-276-69	LCS	Tissue	Mercury 07	01/02/19	01/02/19 15:11	190102L02T			
099-16-276-69	LCSD	Tissue	Mercury 07	01/02/19	01/02/19 15:14	190102L02T			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	0.8350	0.7727	93	0.7826	94	82-124	1	0-16	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: POLB Carnival Cruise Terminal 2018

Page 5 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-16-276-70	LCS	Tissue	Mercury 07	01/02/19	01/02/19 16:17	190102L04T			
099-16-276-70	LCSD	Tissue	Mercury 07	01/02/19	01/02/19 16:20	190102L04T			
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS Conc.</u>	<u>LCS %Rec.</u>	<u>LCSD Conc.</u>	<u>LCSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Mercury	0.8350	0.7588	91	0.7551	90	82-124	0	0-16	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: POLB Carnival Cruise Terminal 2018

Page 6 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-16-276-71	LCS	Tissue	Mercury 08	01/02/19	01/02/19 15:21	190102L03T			
099-16-276-71	LCSD	Tissue	Mercury 08	01/02/19	01/02/19 15:23	190102L03T			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	0.8350	0.7798	93	0.7807	94	82-124	0	0-16	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM

Project: POLB Carnival Cruise Terminal 2018

Page 7 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-16-790-42	LCS	Tissue	GC/MS BBB	12/28/18	01/05/19 13:19	181227L19			
099-16-790-42	LCSD	Tissue	GC/MS BBB	12/28/18	01/05/19 13:34	181227L19			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
4,4'-DDD	5.000	2.699	54	3.019	60	25-200	11	0-25	
4,4'-DDE	5.000	3.471	69	3.909	78	25-200	12	0-25	
4,4'-DDT	5.000	3.323	66	3.776	76	25-200	13	0-25	

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM

Project: POLB Carnival Cruise Terminal 2018

Page 8 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-16-790-43	LCS	Tissue	GC/MS BBB	12/28/18	01/05/19 14:04	181227L20			
099-16-790-43	LCSD	Tissue	GC/MS BBB	12/28/18	01/05/19 14:19	181227L20			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
4,4'-DDD	5.000	2.975	59	3.454	69	25-200	15	0-25	
4,4'-DDE	5.000	3.732	75	4.341	87	25-200	15	0-25	
4,4'-DDT	5.000	3.762	75	4.363	87	25-200	15	0-25	

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C PEST-SIM

Project: POLB Carnival Cruise Terminal 2018

Page 9 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-16-790-44	LCS	Tissue	GC/MS BBB	12/28/18	01/08/19 12:05	181228L17			
099-16-790-44	LCSD	Tissue	GC/MS BBB	12/28/18	01/08/19 11:49	181228L17			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
4,4'-DDD	5.000	3.576	72	3.444	69	25-200	4	0-25	
4,4'-DDE	5.000	3.944	79	4.096	82	25-200	4	0-25	
4,4'-DDT	5.000	3.398	68	3.656	73	25-200	7	0-25	


 Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners

Project: POLB Carnival Cruise Terminal 2018

Page 10 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number				
099-16-780-96	LCS	Tissue	GC/MS HHH	12/27/18	01/04/19 11:08	181227L17				
099-16-780-96	LCSD	Tissue	GC/MS HHH	12/27/18	01/04/19 11:31	181227L17				
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
PCB018	50.00	48.71	97	48.10	96	50-150	33-167	1	0-25	
PCB028	50.00	57.58	115	56.56	113	50-150	33-167	2	0-25	
PCB044	50.00	55.26	111	54.46	109	50-150	33-167	1	0-25	
PCB052	50.00	54.84	110	54.13	108	50-150	33-167	1	0-25	
PCB066	50.00	63.16	126	62.77	126	50-150	33-167	1	0-25	
PCB077	50.00	57.28	115	55.58	111	50-150	33-167	3	0-25	
PCB101	50.00	61.52	123	59.59	119	50-150	33-167	3	0-25	
PCB105	50.00	60.72	121	59.05	118	50-150	33-167	3	0-25	
PCB118	50.00	61.88	124	60.08	120	50-150	33-167	3	0-25	
PCB126	50.00	64.93	130	64.72	129	50-150	33-167	0	0-25	
PCB128	50.00	60.13	120	58.42	117	50-150	33-167	3	0-25	
PCB170	50.00	59.31	119	59.72	119	50-150	33-167	1	0-25	
PCB180	50.00	63.36	127	62.24	124	50-150	33-167	2	0-25	
PCB187	50.00	66.21	132	63.52	127	50-150	33-167	4	0-25	
PCB206	50.00	70.57	141	73.19	146	50-150	33-167	4	0-25	

Total number of LCS compounds: 15

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners

Project: POLB Carnival Cruise Terminal 2018

Page 11 of 12

Quality Control Sample ID	Type	Matrix		Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-16-780-97	LCS	Tissue		GC/MS HHH	12/27/18	01/05/19 17:16	181227L18			
099-16-780-97	LCSD	Tissue		GC/MS HHH	12/27/18	01/05/19 17:40	181227L18			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
PCB018	50.00	48.18	96	46.90	94	50-150	33-167	3	0-25	
PCB028	50.00	57.23	114	53.92	108	50-150	33-167	6	0-25	
PCB044	50.00	52.23	104	50.31	101	50-150	33-167	4	0-25	
PCB052	50.00	48.95	98	49.45	99	50-150	33-167	1	0-25	
PCB066	50.00	58.85	118	59.63	119	50-150	33-167	1	0-25	
PCB077	50.00	45.11	90	42.67	85	50-150	33-167	6	0-25	
PCB101	50.00	40.48	81	50.60	101	50-150	33-167	22	0-25	
PCB105	50.00	44.75	89	44.84	90	50-150	33-167	0	0-25	
PCB118	50.00	51.08	102	46.91	94	50-150	33-167	9	0-25	
PCB126	50.00	53.56	107	50.85	102	50-150	33-167	5	0-25	
PCB128	50.00	51.52	103	46.45	93	50-150	33-167	10	0-25	
PCB170	50.00	52.39	105	59.55	119	50-150	33-167	13	0-25	
PCB180	50.00	55.67	111	50.47	101	50-150	33-167	10	0-25	
PCB187	50.00	56.56	113	50.21	100	50-150	33-167	12	0-25	
PCB206	50.00	63.49	127	74.08	148	50-150	33-167	15	0-25	

Total number of LCS compounds: 15

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Kinnetic Laboratories, Inc.
307 Washington Street
Santa Cruz, CA 95060-4928

Date Received: 12/18/18
Work Order: 18-12-1618
Preparation: EPA 3541
Method: EPA 8270C SIM PCB Congeners

Project: POLB Carnival Cruise Terminal 2018

Page 12 of 12

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number				
099-16-780-98	LCS	Tissue	GC/MS HHH	12/28/18	01/07/19 12:57	181228L18				
099-16-780-98	LCSD	Tissue	GC/MS HHH	12/28/18	01/07/19 13:21	181228L18				
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
PCB018	50.00	50.05	100	52.52	105	50-150	33-167	5	0-25	
PCB028	50.00	57.82	116	61.09	122	50-150	33-167	5	0-25	
PCB044	50.00	53.76	108	58.27	117	50-150	33-167	8	0-25	
PCB052	50.00	53.18	106	56.23	112	50-150	33-167	6	0-25	
PCB066	50.00	61.28	123	64.87	130	50-150	33-167	6	0-25	
PCB077	50.00	53.08	106	57.81	116	50-150	33-167	9	0-25	
PCB101	50.00	56.51	113	61.15	122	50-150	33-167	8	0-25	
PCB105	50.00	55.11	110	59.27	119	50-150	33-167	7	0-25	
PCB118	50.00	55.63	111	61.85	124	50-150	33-167	11	0-25	
PCB126	50.00	56.95	114	64.14	128	50-150	33-167	12	0-25	
PCB128	50.00	52.05	104	55.73	111	50-150	33-167	7	0-25	
PCB170	50.00	56.29	113	59.06	118	50-150	33-167	5	0-25	
PCB180	50.00	56.79	114	60.83	122	50-150	33-167	7	0-25	
PCB187	50.00	56.12	112	63.95	128	50-150	33-167	13	0-25	
PCB206	50.00	55.06	110	60.48	121	50-150	33-167	9	0-25	

Total number of LCS compounds: 15

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Glossary of Terms and Qualifiers

Work Order: 18-12-1618

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

Chain of Custody Record

To: Eurofins Calscience
7440 Lincoln Way
Garden Grove, CA 92841
Phone: (714) 895-5494

From: Kinnetic Laboratories, Inc
307 Washington St.
Santa Cruz, CA 95060
(562)595-8700

Contact: Kathy Burney/Carla Hollowell

Date Received: 11/15/18

Lab #: 18-12-1618

Project: POLB Carnival Cruise Terminal 2018

Matrix: Tissue

Project #: 5816.05

Sample ID	Station ID	Sample Date	Sample Time	Sample Type	Analysis	Container	Temp	No. of Containers	LabID	Condition Upon Receipt
Macoma-T0-A	T0 Macoma	11/15/18	1200	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
Macoma-T0-B	T0 Macoma	11/15/18	1201	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
Macoma-T0-C	T0 Macoma	11/15/18	1202	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
Macoma-T0-D	T0 Macoma	11/15/18	1203	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
Macoma-T0-E	T0 Macoma	11/15/18	1204	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
Control-Macoma-A	Control Macoma	12/13/18	1200	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
Control-Macoma-B	Control Macoma	12/13/18	1201	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
Control-Macoma-C	Control Macoma	12/13/18	1202	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
Control-Macoma-D	Control Macoma	12/13/18	1203	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
Control-Macoma-E	Control Macoma	12/13/18	1204	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		

Data Report MUST include the following: Sample ID, Analytical Method, Detection Limit, Date of Extraction if applicable, Analytical Results and Signature of QA Reviewer. All times on this sheet are military time. Email PDF reports/KLI Excel EDDS/Invoices to edd@kinneticlabs.net.

Please refer to the project SAP for specific QA/QC requirements.

Special Instructions/Comments: Homogenize and analyze EACH discrete replicate. Limited sample volume. Reference SAP for target reporting limits and list of required PCB Congeners. *Metals include: As, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn, plus Hg. **DDTs include: 2,4-DDT, 2,4-DDE, 2,4-DDD, 4,4-DDT, 4,4-DDE and 4,4-DDD. T0 samples have been stored frozen. TAT MUST BE MET!

Sampled and Relinquished By	Date/Time	Transporter	Received By	Date/Time
Kelly	12/17/18 1245	PER	[Signature]	12/18/18 1245
[Signature]	12/17/18 1730	(650)	[Signature]	12/18/18 14:00



Chain of Custody Record

To: Eurofins Calscience
7440 Lincoln Way
Garden Grove, CA 92841
Phone: (714) 895-5494

From: Kinnetic Laboratories, Inc
307 Washington St.
Santa Cruz, CA 95060
(562)595-8700

Date Received:

Lab #:

Contact: Kathy Burney/Caria Hollowell

Contact: Amy Howk/Danielle Gonsman

Project: POLB Carnival Cruise Terminal 2018

Matrix: Tissue

Project #: 5816.05

Sample ID	Station ID	Sample Date	Sample Time	Sample Type	Analysis	Container	Pres.	No. of Containers	Lab ID	Condition Upon Receipt
LA2-REF-Macoma-A	LA-2 Reference	12/13/18	1205	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
LA2-REF-Macoma-B	LA-2 Reference	12/13/18	1206	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
LA2-REF-Macoma-C	LA-2 Reference	12/13/18	1207	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
LA2-REF-Macoma-D	LA-2 Reference	12/13/18	1208	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
LA2-REF-Macoma-E	LA-2 Reference	12/13/18	1209	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-a-Macoma-A	Comp Area-a	12/13/18	1210	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-a-Macoma-B	Comp Area-a	12/13/18	1211	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-a-Macoma-C	Comp Area-a	12/13/18	1212	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-a-Macoma-D	Comp Area-a	12/13/18	1213	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-a-Macoma-E	Comp Area-a	12/13/18	1214	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		

Data Report MUST include the following: Sample ID, Analytical Method, Detection Limit, Date of Extraction if applicable, Date of Analysis, Analytical Results and Signature of QA Reviewer. All times on this sheet are military time. Email PDF reports/KLI Excel EDDs/Invoices to edd@kinneticlabs.net.

Please refer to the project SAP for specific QA/QC requirements.

Special Instructions/Comments: Homogenize and analyze EACH discrete replicate. Limited sample volume. Reference SAP for target reporting limits and list of required PCB Congeners. *Metals include: As, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn, plus Hg. **DDTs include: 2,4-DDT, 2,4-DDE, 2,4-DDD, 4,4-DDT, 4,4-DDE and 4,4-DDD.

Sample and Relinquished By	Date/Time	Transferor	Date/Time	Received By	Date/Time
Trevor Kelly	12/17/18 1245	PER	12/17/18 1245		12/18/18 0445
	12/18/18 1730	650	12/18/18 1730		12/18/18 14:00



Chain of Custody Record

To: Eurofins Calscience
7440 Lincoln Way
Garden Grove, CA 92841
Phone: (714) 895-5494

Date Received:
Lab #:
1618

From: Kinnetic Laboratories, Inc
307 Washington St.
Santa Cruz, CA 95060
(562)595-8700

Contact: Kathy Burney/Carla Hollowell

Contact: Amy Howk/Danielle Gonsman

Project: POLB Carnival Cruise Terminal 2018

Matrix: Tissue

Project #: 5816.05

Sample ID	Station ID	Sample Date	Sample Time	Sample Type	Analysis	Temp	No. of Containers	Label ID	Condition Upon Receipt
CCT-18-Comp-b-Miacoma-A	Comp Area-b	12/13/18	1215	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	4 °C	1		
CCT-18-Comp-b-Miacoma-B	Comp Area-b	12/13/18	1216	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	4 °C	1		
CCT-18-Comp-b-Miacoma-C	Comp Area-b	12/13/18	1217	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	4 °C	1		
CCT-18-Comp-b-Miacoma-D	Comp Area-b	12/13/18	1218	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	4 °C	1		
CCT-18-Comp-b-Miacoma-E	Comp Area-b	12/13/18	1219	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	4 °C	1		
Nereis-T0-A	T0 Nereis	11/14/18	1200	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	4 °C	1		
Nereis-T0-B	T0 Nereis	11/14/18	1201	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	4 °C	1		
Nereis-T0-C	T0 Nereis	11/14/18	1202	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	4 °C	1		
Nereis-T0-D	T0 Nereis	11/14/18	1203	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	4 °C	1		
Nereis-T0-E	T0 Nereis	11/14/18	1204	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	4 °C	1		

Data Report MUST include the following: Sample ID, Analytical Method, Detection Limit, Date of Extraction if applicable, Date of Analysis, Analytical Results and Signature of QA Reviewer. All times on this sheet are military time. Email PDF reports/KLI Excel EDDs/Invoices to edd@kinneticlabs.net. Please refer to the project SAP for specific QA/QC requirements.

Special Instructions/Comments: Homogenize and analyze EACH discrete replicate. Limited sample volume. Reference SAP for target reporting limits and list of required PCB Congeners. *Metals include: As, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn, plus Hg. **DDTs include: 2,4-DDT, 2,4-DDE, 2,4-DDD, 4,4-DDT, 4,4-DDE and 4,4-DDD. T0 samples have been stored frozen.

Sample and Relinquished By:	Date/Time	Transporter	Received By:	Date/Time
Trevor Kelly - Eddy PER	12/17/18 1245		ECI	12/18/18 0445
Carla Hollowell to GSD	12/18/18 1730		ECI	12/18/18 14:00



Chain of Custody Record

To: Eurofins Calscience
7440 Lincoln Way
Garden Grove, CA 92841
Phone: (714) 895-5494

Date Received: 12/18
Lab #: 1018

From: Kinnetic Laboratories, Inc
307 Washington St.
Santa Cruz, CA 95060
(562)695-9700

Contact: Kathy Burney/Caria Hollowell

Contact: Amy Howk/Danielle Gonsman

Project: POLB Carnival Cruise Terminal 2018

Project #: 5816.05

Matrix: Tissue

Sample ID	Station ID	Sample Date	Sample Time	Sample Type	Analysis	Container	Pres	No. of Containers	Lab ID	Condition Upon Receipt
Control-Nereis-A	Control Nereis	12/12/18	1200	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
Control-Nereis-B	Control Nereis	12/12/18	1201	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
Control-Nereis-C	Control Nereis	12/12/18	1202	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
Control-Nereis-D	Control Nereis	12/12/18	1203	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
Control-Nereis-E	Control Nereis	12/12/19	1204	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
LA2-REF-Nereis-A	LA-2 Reference	12/12/18	1205	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
LA2-REF-Nereis-B	LA-2 Reference	12/12/18	1206	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
LA2-REF-Nereis-C	LA-2 Reference	12/12/18	1207	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
LA2-REF-Nereis-D	LA-2 Reference	12/12/18	1208	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		
LA2-REF-Nereis-E	LA-2 Reference	12/12/18	1209	Grab	Percent Lipids, Metals*, DDT's**, PCB Congeners	Poly bag	4 °C	1		

Data Report MUST include the following: Sample ID, Analytical Method, Detection Limit, Date of Extraction if applicable, Date of Analysis, Analytical Results and Signature of QA Reviewer. All times on this sheet are military time. Email PDF reports/KLI Excel EDDs/Invoices to edd@kinneticlabs.net.

Please refer to the project SAP for specific QA/QC requirements.

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Sampled and Relinquished By	Date/Time	Transporter	Date/Time	Received By	Date/Time
Trevor Kelly	12/17/18 1245	PER	12/17/18 1245	ECI	12/18/18 1245
ECI	12/17/18 1730	TO GSD	12/17/18 1730	AMM	12/18/18 14:00



Chain of Custody Record

To: Eurofins Calscience
7440 Lincoln Way
Garden Grove, CA 92841
Phone: (714) 895-5494

Date Received: 12/18/18

Lab #: 1419

From: Kinnetic Laboratories, Inc
307 Washington St.
Santa Cruz, CA 95060
(562)595-8700



Contact: Kathy Burney/Carla Hollowell

Project: POLB Carnival Cruise Terminal 2018

Matrix: Tissue

Project #: 5816.05

Sample ID	Station ID	Sample Date	Sample Time	Sample Type	Analysis	Container	Pres	No. of Containers	Lab ID	Condition Upon Receipt
CCT-18-Comp-a-Nereis-A	Comp Area-a	12/12/18	12:10	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-a-Nereis-B	Comp Area-a	12/12/18	12:11	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-a-Nereis-C	Comp Area-a	12/12/18	12:12	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-a-Nereis-D	Comp Area-a	12/12/18	12:13	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-a-Nereis-E	Comp Area-a	12/12/18	12:14	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-b-Nereis-A	Comp Area-b	12/12/18	12:15	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-b-Nereis-B	Comp Area-b	12/12/18	12:16	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-b-Nereis-C	Comp Area-b	12/12/18	12:17	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-b-Nereis-D	Comp Area-b	12/12/18	12:18	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		
CCT-18-Comp-b-Nereis-E	Comp Area-b	12/12/18	12:19	Grab	Percent Lipids, Metals*, DDT's** PCB Congeners	Poly bag	4 °C	1		

Data Report MUST include the following: Sample ID, Analytical Method, Detection Limit, Date of Extraction if applicable, Date of Analysis, Analytical Results and Signature of QA Reviewer. All times on this sheet are military time. Email PDF reports/KLI Excel EDDs/Invoices to edd@kinneticlabs.net.

Please refer to the project SAP for specific QA/QC requirements.

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Sampled and Relinquished By:	Date/Time	Transporter	Received By:	Date/Time
Trevor Kelly ELM	PER 12/17/18 1245			EC 12/17/18 1245
	to G80 12/17/18 1730	(GSO)	double ec	12/18/18 14:00





a GLS company
GLS

800-322-5555
www.gso.com

1/18

Ship From
CAL SCIENCE- CONCORD
ALAN KEMP
5063 COMMERCIAL CIRCLE
#H
CONCORD, CA 94520

Tracking #: 543150970

NPS



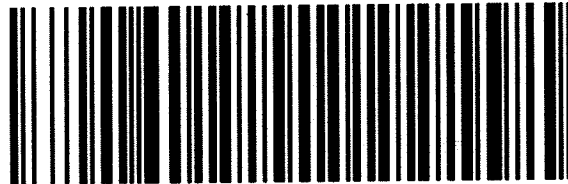
Ship To
CEL
SAMPLE RECEIVING
7440 LINCOLN WAY
GARDEN GROVE, CA 92841

ORC
GARDEN GROVE

C

COD: \$0.00
Weight: 0 lb(s)
Reference:
PER
Delivery Instructions:

S92841A



95419556

Signature Type: STANDARD

Print Date: 12/17/2018 2:09 PM

LABEL INSTRUCTIONS:

- Do not copy or reprint this label for additional shipments - each package must have a unique barcode.**
- Step 1: Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer.
- Step 2: Fold this page in half.
- Step 3: Securely attach this label to your package and do not cover the barcode.

TERMS AND CONDITIONS:

By giving us your shipment to deliver, you agree to all of the GSO service terms & conditions including, but not limited to; limits of liability, declared value conditions, and claim procedures which are available on our website at www.gso.com.

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: Kinnetic Laboratories

DATE: 12/18/2018

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)
 Thermometer ID: SC6 (CF: 0.0°C); Temperature (w/o CF): -0.7 °C (w/ CF): -0.7 °C; Blank Sample
 Sample(s) outside temperature criteria (PM/APM contacted by: _____)
 Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling
 Sample(s) received at ambient temperature; placed on ice for transport by courier
 Ambient Temperature: Air Filter
 Checked by: TLS

CUSTODY SEAL:
 Cooler Present and Intact Present but Not Intact Not Present N/A
 Sample(s) Present and Intact Present but Not Intact Not Present N/A
 Checked by: TLS
 Checked by: mm

SAMPLE CONDITION:

	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers			
<input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time			
Sampler's name indicated on COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and in good condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper containers for analyses requested	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sufficient volume/mass for analyses requested	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within holding time	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aqueous samples for certain analyses received within 15-minute holding time			
<input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Proper preservation chemical(s) noted on COC and/or sample container	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Unpreserved aqueous sample(s) received for certain analyses			
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals			
Acid/base preserved samples - pH within acceptable range	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Container(s) for certain analysis free of headspace.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500)			
<input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: VOA VOAh VOAn₂ 100PJ 100PJa₂ 125AGB 125AGBh 125AGBp 125PB 125PBz_{na} (pH__9)
 250AGB 250CGB 250CGBs (pH__2) 250PB 250PBn (pH__2) 500AGB 500AGJ 500AGJs (pH__2) 500PB
 1AGB 1AGBna₂ 1AGBs (pH__2) 1AGBs (O&G) 1PB 1PBna (pH__12) _____ _____ _____

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (____) EnCores® (____) TerraCores® (____) _____ _____ _____

Air: Tedlar™ Canister Sorbent Tube PUF _____ **Other Matrix** (TISSUE): Z _____ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag
 Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO₃, **na** = NaOH, **na₂** = Na₂S₂O₃, **p** = H₃PO₄, Labeled/Checked by: UPZ
s = H₂SO₄, **u** = ultra-pure, **x** = Na₂SO₃+NaHSO₄.H₂O, **z_{na}** = Zn (CH₃CO₂)₂ + NaOH Reviewed by: UPZ

Appendix B
Sediment Collection and Testing Performed by MEC
for Carnival Corporation
(MEC, 2000)

The sediment porewater ammonia concentrations for the CCT-18-Composite-b sample (Table 2-1) exceeded the USACE guidelines-recommended threshold of 15 mg/L. Accordingly, the test replicates for the CCT-18-Composite-b sediment was prepared early so that they could be purged of ammonia by daily replacement of the overlying water with fresh 28 ppt seawater, coupled with aeration, until the porewater total ammonia levels were below 15 mg/L. The replicates for the remaining sediments were prepared on November 14, approximately 24 hours prior to test initiation.

There were five replicates for each test treatment, each replicate consisting of a 1-L glass beaker to which approximately 2-cm depth of homogenized sediment was added; additional “porewater” test replicates were similarly set up for the determination of sediment porewater water quality characteristics at test initiation and test termination. The overlying water consisted of 28 ppt seawater; approximately 800 mL of the 28 ppt seawater was carefully poured into each test replicate so as to minimize disturbance of the sediment. Test replicates were similarly established for the Lab Control (Paradise Cove sediment) treatment. All test replicates were maintained in a temperature-controlled room at 20°C under continuous illumination from fluorescent lighting. Each test replicate was gently aerated.

This testing was initiated on November 15, 2018. Immediately prior to test initiation, routine water quality characteristics (temperature, pH, dissolved oxygen [D.O.], and salinity) were determined for the overlying water in each test replicate; in addition, a small sample of the overlying water was collected from each replicate and composited for each treatment for determination of the total ammonia in the overlying water at that treatment. At this time, one of the “porewater” test replicates at each test treatment was sacrificed for the determination of “initial” porewater water quality characteristics (Appendix B). The tests were then initiated with the random allocation of 20 randomly-selected *A. abdita* into each replicate container (aeration was shut off until the amphipods re-buried themselves, approximately 1 hr after their introduction). Each day, for the next nine days, the temperature, pH, D.O., and salinity of the overlying water were measured in one test replicate for each treatment.

After 10 days of exposure, the tests were terminated. Routine water quality characteristics (temperature, pH, D.O., and salinity) were again determined for each test replicate; in addition, a small sample of the overlying water was collected from each replicate and composited for each treatment for determination of the “final” total ammonia in the overlying water at that treatment. At this time, the remaining “porewater” test replicate was sacrificed for the determination of “final” porewater water quality characteristics (Appendix B). Then, the contents of each replicate beaker were sieved and examined, and the surviving amphipods were collected and counted. The resulting survival data were statistically analyzed using CETIS® (TidePool Scientific Software, McKinleyville, CA). The results of these tests are summarized in Section 3.1.

2.5.1 Reference Toxicant Testing of the *Ampelisca abdita*

In order to assess the sensitivity of the organisms used in this testing to chemical stress, concurrent reference toxicant testing was performed. The reference toxicant testing was



performed as a 96-hr static waterborne exposure using test solutions consisting of 28 ppt seawater spiked with potassium chloride (KCl) at test concentrations of 0.125, 0.25, 0.5, 1, 2, and/or 4 g/L. A thin layer of clean Lab Control sediment was added to each test replicate to reduce stress to the organisms.

There were two replicates at each treatment, each replicate consisting of 400-mL of test solution in a 600-mL HDPE beaker. The test was initiated by randomly allocating 10 amphipods into each replicate beaker. The beakers were placed in a temperature-controlled room at 20°C under continual darkness. Routine water quality characteristics (D.O., pH, and temperature) of the test solution at each test treatment were measured and recorded for one randomly selected replicate per treatment each day.

After ~96 hrs, the test was terminated and the number of live amphipods in each replicate beaker was determined. The resulting test response data were statistically analyzed to determine key concentration-response point estimates (e.g., EC50); all statistical analyses were made using CETIS®. These response endpoints were then compared to the typical response range established by the mean ± 2 SD of the point estimates generated by the 20 most recent previous reference toxicant tests performed by this lab. The results of this testing are summarized in Section 3.1.1.

2.6 Solid-Phase Sediment Toxicity Testing with *Neanthes arenaceodentata*

The *N. arenaceodentata* used in this testing were obtained from a commercial supplier (Aquatic Toxicology Support [ATS], Bremerton, WA), and were maintained at a salinity of 30 ppt prior to shipment to the testing lab; upon receipt, the test organisms were held in 30 ppt seawater at 20°C.

The sediment porewater ammonia concentrations for the CCT-18-Composite-b sample (Table 2-1) exceeded the USACE guidelines-recommended threshold of 15 mg/L. Accordingly, the test replicates for the CCT-18-Composite-b sediment was prepared early so that they could be purged of ammonia by daily replacement of the overlying water with fresh 28 ppt seawater, coupled with aeration, until the porewater total ammonia levels were below 15 mg/L. The replicates for the remaining sediments were prepared on November 15, approximately 24 hours prior to test initiation.

Five replicates were established for each of the site samples, each replicate consisting of a 1-L glass beaker to which approximately 200 mL (approximately 2.5 cm depth) of homogenized sediment was added; additional test replicates were set up for the determination of sediment porewater water quality characteristics at test initiation and at test termination. The overlying water consisted of 30 ppt seawater; approximately 800 mL of this water was carefully poured into each test replicate so as to minimize disturbance of the sediment. Test replicates were similarly established for the Lab Control (Paradise Cove sediment) treatment. The test replicates were then placed in a temperature-controlled room at 20°C, under cool white fluorescent lighting on a 12L:12D photoperiod. Each test replicate was gently aerated.



This testing of all sediments was initiated on November 16, 2018. Immediately prior to test initiation, routine water quality characteristics (temperature, pH, D.O., and salinity) were determined for the overlying water in each test replicate; in addition, a small sample of the overlying water was collected from each replicate and composited for each treatment for determination of the total ammonia in the overlying water at that treatment. At this time, one of the “porewater” test replicates was sacrificed for the determination of “initial” porewater water quality characteristics (Appendix B). The testing was then initiated with the allocation of 10 randomly selected polychaetes into each replicate container (aeration was shut off until the polychaetes re-buried themselves, approximately 1 hr after their introduction). Each day, for the next nine days, the temperature, pH, D.O., and salinity of the overlying water were measured in one test replicate for each treatment.

After 10 days exposure, the testing was terminated and routine water quality characteristics (temperature, pH, D.O., and salinity) were again determined for each test replicate; in addition, a small sample of the overlying water was collected from each replicate and composited for each treatment for determination of the total ammonia in the overlying water at that treatment. At this time, the remaining “porewater” test replicate was sacrificed for the determination of “final” porewater water quality characteristics (Appendix B). The contents of each replicate beaker were then sieved and examined, and the surviving polychaetes were collected and counted. The resulting survival data were analyzed using the CETIS[®] statistical software. The results of this testing are summarized in Section 3.2.

2.6.1 Reference Toxicant Testing of the *Neanthes arenaceodentata*

In order to assess the sensitivity of the organisms used in these tests to chemical stress, concurrent reference toxicant testing was performed. The reference toxicant test consists of a static acute 96-hr survival toxicity test of waterborne KCl, at test treatment concentrations of 0.5, 1, 2, 3 and 4 g/L.

There were two replicates at each treatment, each replicate consisting of 400 mL of test solution in a 600-mL HDPE beaker. The test was initiated by randomly allocating five polychaetes into each replicate beaker. The beakers were placed in a temperature-controlled room at 20°C under continual darkness. Each replicate container was examined daily, and the number of live polychaetes in each was recorded at this time. Routine water quality characteristics (temperature, pH, D.O., and salinity) of each treatment test solution was measured and recorded for one randomly-selected replicate per treatment each day.

After ~96 hrs, the testing was terminated and the number of live organisms in each replicate beaker was determined. The resulting test response data were analyzed to determine key concentration-response point estimates (e.g., EC₅₀); all statistical analyses were made using CETIS[®]. These response endpoints were then compared to the typical response range established by the mean ± 2 SD of the point estimates generated by the 20 most recent previous reference toxicant tests performed by this lab. The results of this test are summarized in Section 3.2.1.



2.7 Water Column (Sediment Elutriate) Toxicity Test Procedures

2.7.1 Preparation of Sediment Elutriate

A sediment elutriate was prepared for each of the POLB Carnival Cruise sediments by mixing each sediment with 'site water' at a 1:4 ratio for 30 minutes. After mixing, the sediment-site water slurries were allowed to settle for 1 hour. The resulting supernatants comprised the 100% elutriate test solutions.

2.7.2 Sediment Elutriate Toxicity Testing with *Mytilus galloprovincialis*

The sediment elutriate toxicity test with *M. galloprovincialis* embryos consists of exposing the mussel embryos to the elutriate for ~48-hrs, after which the effects on embryo survival and development are determined. This testing was initiated on November 15, 2018. The specific procedures used in this testing are described below.

2.7.2.1 Preparation of Bivalve Embryos - The adult bivalves used to provide the embryos for these sediment elutriate tests were obtained from a commercial supplier (M-Rep, Carlsbad, CA); upon receipt in the laboratory, the adult bivalves were placed in small tanks of 30 ppt seawater at 12°C where they were held until used to produce embryos later that same day.

The adult bivalves were rinsed thoroughly with 30 ppt seawater and then placed into holding tanks containing 30 ppt seawater at 20°C in order to induce spawning; spawning individuals were subsequently transferred into separate beakers containing 30 ppt seawater in order to isolate and collect gametes.

Samples of the gametes from spawning males and females were collected and evaluated for quality by visual inspection. For males exhibiting good sperm viability, overlying waters (containing the sperm) from the beakers containing spawning males were decanted off and pooled. The overlying waters (containing eggs) from the females exhibiting the best egg quality were also pooled, and then concentrated (or diluted) to provide an egg suspension of ~50 eggs/mL.

Fertilization of the eggs was accomplished by addition of sperm at a density of 10^5 to 10^7 sperm/mL. The resulting embryos were then placed in a temperature-controlled room at 15°C until being used for inoculation of test solutions (inoculation was initiated within 4 hrs of fertilization).

2.7.2.2 Embryo Development Toxicity Test Procedures - The Lab Water Control medium for this testing consisted of 30 ppt seawater. The Lab Water Control medium and the 100% sediment elutriate solution were used to prepare test solutions at additional interim test treatment concentrations of 1, 10, 50, and 100% elutriate. As the sediment porewater concentration of ammonia exceeded 25 mg/L for the CCT-18-Composite-b site sediment (Table 2-1), an additional test treatment of 25% elutriate was also prepared and tested for this sample. As an additional QA measure, the 'site water' was tested at the 100% concentration. As an additional QA measure, the 'site water' was tested at the 100% concentration. Routine water quality



characteristics (pH, D.O., salinity, and total ammonia) were measured for each treatment test solution prior to distribution into the test vials.

There were five replicates at each treatment level, each replicate consisting of 10-mL of test solution in a 20-mL glass scintillation vial. An extra replicate vial was established at each treatment for determination of final water quality characteristics; additional Lab Control treatment “observation” vials were established for confirmation of appropriate embryo development prior to test termination. The tests were initiated by randomly inoculating approximately 150-300 fertilized bivalve embryos into each vial. The vials were randomly positioned in a temperature-controlled room at 16°C under a 16L:8D photoperiod. After 48 (±2) hrs, the Lab Control treatment “observation” vials were examined to confirm that the test organisms had achieved an acceptable degree of embryo development, after which the tests were terminated. Routine water quality characteristics were determined for the ‘water quality’ replicates at test termination. The embryos in the remaining test vials were immediately preserved with the addition of 1 mL of a 5% glutaraldehyde solution in filtered seawater.

The contents of each vial were later examined microscopically and the number of embryos that survived and developed normally or abnormally were determined. The resulting survival and development data were then analyzed to determine key concentration-response EC point estimates using CETIS[®]. The results of these tests are summarized in Section 3.3.

2.7.2.3 Reference Toxicant Testing of the *Mytilus galloprovincialis* Embryos - In order to assess the sensitivity of the mussel embryos to toxic stress, a reference toxicant test was performed. This reference toxicant test was performed similarly to the elutriate test, except that test solutions consisted of Lab Water Control medium (30 ppt seawater) spiked with KCl at concentrations of 0.5, 1, 2, 3, and 4 g/L. The resulting test response data were analyzed to determine key concentration-response point estimates (e.g., EC₅₀); all statistical analyses were made using the CETIS[®] software. These response endpoints were then compared to the typical response range established by the mean ± 2 SD of the point estimates generated by the 20 most recent previous reference toxicant tests performed by this lab. The results of this test are summarized in Section 3.3.1.

2.7.3 Sediment Elutriate Toxicity Testing with *Americamysis bahia*

The sediment elutriate toxicity test with *A. bahia* consists of exposing the mysids to the sediment elutriate for ~96 hrs, after which effects on survival are determined. This testing was initiated on November 15, 2018. The specific procedures used in this test are described below.

The *A. bahia* used in the sediment elutriate tests were obtained from a commercial supplier (Aquatic Indicators [AI], St. Augustine, FL); upon receipt in the laboratory, the mysids were maintained in aerated tanks of 25 ppt seawater at 20°C, and were fed brine shrimp nauplii *ad libitum*. The culture was adjusted by increasing the culture salinity by 3 ppt per day until the culture water was 33 ppt.



The Lab Water Control medium for these tests consisted of 33 ppt seawater. The Lab Water Control medium and the 100% sediment elutriates were used to prepare test solutions at additional interim test treatment concentrations of 1%, 10%, and 50% elutriate. As an additional QA measure, the 'site water' was tested at the 100% concentration. As the sediment porewater concentration of ammonia exceeded 25 mg/L for the CCT-18-Composite-b site sediment (Table 2-1), an additional test treatment of 25% elutriate was also prepared and tested for this sample. Initial routine water quality characteristics (temperature, pH, D.O., and salinity) were measured for each treatment test solution prior to use in this testing.

There were five test replicates at each treatment, each replicate consisting of a 400-mL glass beaker containing 200 mL of appropriate test solution. The tests were initiated with the allocation of 10 randomly selected 5-day old mysids into each test replicate. The test replicates were then placed into a temperature-controlled room at 20°C under a 16L:8D photoperiod. Each day, water quality conditions were determined for one randomly selected replicate per treatment, and the test replicates were examined to determine the number of surviving organisms, with any dead organisms being removed via pipette. Each replicate was fed brine shrimp nauplii daily.

After 96 (± 2) hrs exposure, the tests were terminated. The final water quality conditions were determined for one randomly selected replicate per treatment, after which each of the test replicates was examined to determine the number of surviving mysids. The resulting survival data were then analyzed to determine key concentration-response EC point estimates using the CETIS[®] statistical software. The results of this testing are summarized in Section 3.4.

2.7.3.1 Reference Toxicant Testing of the *Americamysis bahia*- In order to assess the sensitivity of these test organisms to chemical stress, a reference toxicant test was performed concurrently with the elutriate test. The reference toxicant testing was performed similarly to the sediment elutriate test, but used test solutions consisting of Lab Water Control medium spiked with KCl at test concentrations of 0.125, 0.25, 0.5, 1, and 2 g/L, instead of elutriate dilutions. The resulting test response data were statistically analyzed to determine key concentration-response point estimates (e.g., EC₅₀); all statistical analyses were made using the CETIS[®] software. These response endpoints were then compared to the typical response range established by the mean ± 2 SD of the point estimates generated by the 20 most-recent previous reference toxicant tests performed by this lab. The results of this test are summarized in Section 3.4.1.

2.7.4 Sediment Elutriate Toxicity Testing with *Menidia beryllina*

The sediment elutriate toxicity test with *M. beryllina* consists of exposing the larval fish to the sediment elutriates for ~96-hrs, after the effects on survival are determined. The specific procedures used in this test are described below. The sediment elutriate toxicity tests with *M. beryllina* were initiated on November 14, 2018.

The *M. beryllina* used in these tests were obtained from commercial suppliers (AI); upon receipt in the laboratory, the larval fish were maintained in small tanks of 25 ppt seawater at 20°C, and



were fed brine shrimp nauplii *ad libitum*. The culture was adjusted by increasing the culture salinity by 3 ppt per day until the culture water was 33 ppt.

The Lab Water Control medium for these tests consisted of 33 ppt seawater. The Lab Water Control medium and the 100% sediment elutriates were used to prepare test solutions at additional interim test treatment concentrations of 1%, 10%, and 50% elutriate for each site sediment. As an additional QA measure, the 'site water' was tested at the 100% concentration. As the sediment porewater concentration of ammonia exceeded 25 mg/L for the CCT-18-Composite-b site sediment (Table 2-1), an additional test treatment of 25% elutriate was also prepared and tested for this sample. Initial routine water quality characteristics (temperature, pH, D.O., and salinity) were measured for each treatment test solution prior to use in these tests.

There were five test replicates at each treatment, each replicate consisting of a 600-mL glass beaker containing 200 mL of appropriate test solution. These tests were initiated with the allocation of 10 randomly selected 13-day old (depending on test start date) fish into each test replicate. The test replicates were then placed into a temperature-controlled room at 20°C under a 16L:8D photoperiod.

Each day, the water quality conditions were determined for one randomly selected replicate per treatment, and the test replicates were examined to determine the number of surviving organisms, with any dead organisms being removed via pipette. Each replicate was fed brine shrimp nauplii daily.

After 96 (± 2) hrs exposure, the tests were terminated. At test termination, the final water quality conditions were determined for one randomly selected replicate per treatment, after which each of the test replicates was examined to determine the number of surviving fish. The resulting survival data were then statistically analyzed and key concentration-response EC point estimates determined for each site sediment elutriate using the CETIS[®] statistical software. The results of these tests are summarized in Section 3.5.

2.7.4.1 Reference Toxicant Testing of the *Menidia beryllina* - In order to assess the sensitivity of these test organisms to chemical stress, a reference toxicant test was performed concurrently with the elutriate tests. The reference toxicant test was performed similarly to the sediment elutriate tests, but used test solutions consisting of Lab Water Control medium spiked with waterborne KCl at test concentrations of 0.125, 0.25, 0.5, 1, and 2 g/L, instead of elutriate dilutions. The resulting test response data were analyzed to determine key concentration-response point estimates (e.g., EC₅₀); all statistical analyses were made using the CETIS[®] software. These response endpoints were then compared to the typical response range established by the mean \pm 2 SD of the point estimates generated by the 20 most-recent previous reference toxicant tests performed by this lab. The results of this test are summarized in Section 3.5.1.



2.8 Sediment Bioaccumulation Testing with *Macoma nasuta* and *Nereis virens*

Sediment bioaccumulation testing was conducted using the bivalve *M. nasuta* and the polychaete *N. virens*. Negative Lab Control treatments were tested concurrently with the bioassays and consisted of the Paradise Cove sediment.

The adult *M. nasuta* used in this testing were provided by a commercial supplier (J&G Gunstone Clams Inc., Port Townsend, WA), and were obtained from Sequim Bay, WA. The *N. virens* used in this testing were provided by a commercial supplier (ARO, Hampton, NH). Upon receipt in the laboratory, these organisms were maintained in separate aerated tanks of full-strength seawater at 13°C.

The *N. virens* and *M. nasuta* tests were initiated on November 14 and 15, 2018, respectively. For each of the two test species, there were five replicates for the site sediment and for the Control (Paradise Cove) sediment, each replicate consisting of a 10-L HDPE tank containing approximately 4 L of homogenized sediment. Approximately 5-L of full-strength seawater was carefully poured into each tank so as to minimize disturbance of the sediment. The replicate tanks were then placed into a temperature-controlled room at 15°C. Each of the test replicates was gently aerated.

After ~24 hrs equilibration, routine water quality characteristics (temperature, pH, D.O., and salinity) were determined for each test replicate at each treatment. Then 20 randomly-selected adult clams were loaded into each of the *M. nasuta* test replicates, and 10 randomly-selected adult polychaetes were placed into each *N. virens* test replicates. Additional bivalves and polychaetes were depurated for 24 hrs and collected for determination of T₀ tissue concentrations (the T₀ organisms were placed inside HDPE bags which were sealed and labeled for identification, and then frozen for later analyses). Each day, for the next 28 days, the water quality characteristics of the overlying water were measured in one test replicate for each treatment; when observed, dead organisms or empty shells were removed from the test replicates. Approximately 80% of the overlying water in each replicate was carefully replaced 3-times per week.

After 28 days exposure, the sediment from each replicate was sieved and the surviving bivalves and polychaetes were collected and enumerated. The organisms were rinsed with clean seawater and then placed back into their original plastic tubs (now emptied of sediment and rinsed out) containing only 1 µm-filtered seawater to allow for depuration of the gastro-intestinal tracts. Approximately 24 hrs later, the organisms were collected and placed inside Ziploc bags that were sealed and labeled for identification. These organisms were then frozen and stored in a sample freezer. The frozen test organisms were subsequently shipped, on dry ice and under chain-of-custody, to Eurofins Calscience for remaining tissue processing and chemical analyses.

The test organism survival results of the bioaccumulation test exposures are presented in Sections 3.6 and 3.7 for *M. nasuta* and *N. virens*, respectively. Summary tables of the total



ammonia concentrations measured in the test overlying waters during the performance of the testing are presented in Appendix B.



3. BIOLOGICAL TESTING RESULTS

There were up to seven different biological tests performed for each site composite sample:

1. a 10-day sediment amphipod survival test with *Ampelisca abdita*;
2. a 10-day sediment juvenile polychaete survival test with *Neanthes arenaceodentata*;
3. a 48-hr standard elutriate bivalve embryo survival and development test with *Mytilus galloprovincialis*;
4. a 96-hr standard elutriate mysid survival test with *Americamysis bahia*;
5. a 96-hr standard elutriate larval fish survival test with *Menidia beryllina*;
6. a 28-day bioaccumulation test with the clam *Macoma nasuta*; and
7. a 28-day bioaccumulation test with the polychaete *Nereis virens*.

A summary table of the whole-sediment tests' water quality characteristics and sediment porewater water quality characteristics at test initiation and test termination are presented in Appendix B. Summaries of test conditions and test acceptability criteria are provided in Appendix O.

3.1 Effects of POLB Carnival Cruise Sediments on *Ampelisca abdita*.

The results of these tests are summarized in Table 3-1. There was 97% survival in the Lab Control sediment, indicating an acceptable survival response by the test organisms. The difference in survival in the site sediments relative to the Lab Control sediment response was <20%; additionally the difference in survival in the site sediments relative to the reference sediments responses were <20%.

The test data and summary of statistical analyses for these tests are attached as Appendix C.

Table 3-1. *Ampelisca abdita* Survival in the POLB Carnival Cruise Sediments.

Sediment Site	% Survival in Test Replicates					Mean % Survival
	Rep A	Rep B	Rep C	Rep D	Rep E	
Lab Control	100	100	100	95	90	97
LA2-Ref	100	95	100	95	90	96
CCT-18-Composite-a	100	95	100	95	90	96
CCT-18-Composite-b	95	100	90	90	95	94



3.1.1 Reference Toxicant Toxicity to *Ampelisca abdita*

The results of this test are presented in Table 3-2. The LC50 for this test was consistent with the “typical response” range established by the reference toxicant test database for this species, indicating that these test organisms were responding to toxic stress in a typical fashion. The test data and summary of statistical analyses for this test are attached as Appendix D.

Table 3-2. Reference Toxicant Testing: Effects of KCl on *Ampelisca abdita*.

KCl Treatment (g/L)	Mean % Survival
Lab Control	95
0.25	100
0.5	95
1	80
2	0*
4	0*
LC50 =	1.23 g/L KCl
Typical Response Range (mean \pm 2SD) =	0.80 – 1.69 g/L KCl

* The survival response at this treatment was significantly less than the Lab Control response at $p < 0.05$.

3.2 Effects of POLB Carnival Cruise Sediments on *Neanthes arenaceodentata*

The results of these tests are summarized in Table 3-3. There was 100% survival in the Lab Control sediment, indicating an acceptable survival response by the test organisms. The difference in survival in the site sediments relative to the Lab Control sediment response was <10%; additionally the difference in survival in the site sediments relative to the reference sediments responses were <10%.

The test data and summary of statistical analyses for these tests are attached as Appendix E.

Table 3-3. *Neanthes arenaceodentata* Survival in the POLB Carnival Cruise Sediments.

Sediment Site	% Survival in Test Replicates					Mean % Survival
	Rep A	Rep B	Rep C	Rep D	Rep E	
Lab Control	100	100	100	100	100	100
LA2-Ref	100	100	100	100	100	100
CCT-18-Composite-a	100	100	100	100	100	100
CCT-18-Composite-b	100	100	100	90	100	98



3.2.1 Reference Toxicant Toxicity to *Neanthes arenaceodentata*

The results of this test are presented in Table 3-4. The LC₅₀ for this test was consistent with the “typical response” range established by the reference toxicant test database for this species, indicating that these test organisms were responding to toxic stress in a typical fashion. The test data and summary of statistical analyses for this test are attached as Appendix F.

Table 3-4. Reference Toxicant Testing: Effects of KCl on *Neanthes arenaceodentata*.

KCl Treatment (g/L)	Mean % Survival
Lab Control	100
0.5	100
1	100
2	20*
3	0*
4	0*
LC ₅₀ =	1.58 g/L KCl
Typical Response Range (mean ± 2SD) =	1.07 – 2.45 g/L KCl

* The survival response at this treatment was significantly less than the Lab Control response at $p < 0.05$.

3.3 Effects of POLB Carnival Cruise Sediment Elutriates to *Mytilus galloprovincialis*

The results of these tests are summarized below in Tables 3-5 and 3-12. There was $\geq 92.3\%$ embryo survival and $\geq 93.5\%$ normal development, respectively, in the Lab Control treatments, indicating acceptable responses by the test organisms. There was 93% embryo survival and 95.2% normal development, in the Site Water treatment, indicating acceptable responses by the test organisms. The survival LC₅₀ values and normal development EC₅₀ values were $>100\%$ elutriate for the sediment elutriates.

The test data and the summary of statistical analyses for these tests are presented in Appendix G.

Table 3-5. Effects of CCT-18-Composite-a Sediment Elutriate on *Mytilus galloprovincialis*.

Elutriate Treatment	Mean % Survival	Mean % Normal Development
Lab Control	93.8	94.7
1%	94.3	93.5
10%	92.9	93.9
50%	91.3	92.0
100%	89.4	91.1*
Site Water	93.0	95.2
Salinity Control	89.6	94.3
Survival LC ₅₀ or Development EC ₅₀ =	$>100\%$ Elutriate	$>100\%$ Elutriate

* The response at this treatment was significantly less than the Lab Control response at $p < 0.05$.



Table 3-6. Effects of CCT-18-Composite-b Sediment Elutriate on *Mytilus galloprovincialis*.

Elutriate Treatment	Mean % Survival	Mean % Normal Development
Lab Control	92.3	93.5
1%	89.4	93.1
10%	89.3	94.3
25%	92.0	92.2
50%	91.7	91.8
100%	86.3	88.7*
Site Water	93.0	95.2
Salinity Control	89.6	94.3
Survival LC50 or Development EC50 =	>100% Elutriate	>100% Elutriate

* The response at this treatment was significantly less than the Lab Control response at $p < 0.05$.

3.3.1 Reference Toxicant Toxicity to *Mytilus galloprovincialis* Embryos

The results of these tests are presented in Table 3-7. The EC50 for this test is consistent with the “typical response” range established by the reference toxicant test database for this species, indicating that these test organisms were responding to toxic stress in a typical fashion. The test data and summary of statistical analyses for these tests are attached as Appendix H.

Table 3-7. Reference Toxicant Testing: Effects of KCl on *Mytilus galloprovincialis*.

KCl Treatment (g/L)	Mean % Normal Embryo Development
Lab Control	95.0
0.5	94.9
1	95.9
2	88.7*
3	0*
4	0*
EC50 =	2.46 g/L KCl
Typical Response Range (mean \pm 2 SD)	1.3 – 2.89 g/L KCl

* The response at this treatment was significantly less than the Lab Control response at $p < 0.05$.



3.4 Effects of POLB Carnival Cruise Sediment Elutriates to *Americamysis bahia*

The results of these tests are summarized below in Tables 3-8 and 3-9. There was $\geq 96\%$ survival in the Lab Control treatments, indicating acceptable survival responses by the test organisms; there was 100% survival in the Site Water Control treatment. The LC50 values were $>100\%$ elutriate for the sediment elutriates.

The test data and summaries of statistical analyses for these tests are presented in Appendix I.

Table 3-8. Effects of CCT-18-Composite-a Sediment Elutriate on *Americamysis bahia*.

Elutriate Treatment	Mean % Survival
Lab Control	96
1%	98
10%	100
50%	98
100%	98
Site Water	100
Survival LC50 =	$>100\%$ Elutriate ^a

a - Due to the absence of significant impairment, the LC50 could not be calculated but can be determined by inspection to be $>100\%$ elutriate.

Table 3-9. Effects of CCT-18-Composite-b Sediment Elutriate on *Americamysis bahia*.

Elutriate Treatment	Mean % Survival
Lab Control	100
1%	96
10%	94
25%	96
50%	98
100%	100
Site Water	100
Survival LC50 =	$>100\%$ Elutriate ^a

a - Due to the absence of significant impairment, the LC50 could not be calculated but can be determined by inspection to be $>100\%$ elutriate.

3.4.1 Reference Toxicant Toxicity to *Americamysis bahia*

The results of this test are summarized in Table 3-10. The LC₅₀ for this test is consistent with the “typical response” range established by the reference toxicant test database for this species, indicating that these test organisms were responding to toxic stress in a typical fashion. The test data and summary of statistical analyses for this test are attached as Appendix J.

Table 3-10. Reference Toxicant Testing: Effects of KCl on *Americamysis bahia*.

KCl Treatment (g/L)	Mean % Survival
Lab Control	100
0.125	95
0.25	100
0.5	92.5*
1	0*
2	0*
LC ₅₀ =	0.68 g/L KCl
Typical Response Range (mean ± 2SD) =	0.36 – 0.76 g/L KCl

* The survival response at this treatment was significantly less than the Lab Control response at $p < 0.05$.

3.5 Effects of POLB Carnival Cruise Sediment Elutriates to *Menidia beryllina*

The results of these tests are summarized below in Tables 3-11 and 3-12. There was 98% survival in the Lab Control treatments, indicating acceptable survival responses by the test organisms; there was 100% survival in the Site Water Control treatment. The LC₅₀ values were >100% elutriate for the sediment elutriates.

The test data and summary of statistical analyses for these tests are attached as Appendix K.

Table 3-11. Effects of CCT-18-Composite-a Sediment Elutriate on *Menidia beryllina*

Elutriate Treatment	Mean % Survival
Lab Control	98
1%	94
10%	100
50%	96
100%	92
Site Water	100
Survival LC ₅₀ =	>100% Elutriate ^a

a - Due to the absence of significant impairment, the LC₅₀ could not be calculated but can be determined by inspection to be >100% elutriate.

Table 3-12. Effects of CCT-18-Composite-b Sediment Elutriate on *Menidia beryllina*.

Elutriate Treatment	Mean % Survival
Lab Control	98
1%	96
10%	96
25%	98
50%	100
100%	98
Site Water	100
Survival LC50 =	>100% Elutriate ^a

a - Due to the absence of significant impairment, the LC50 could not be calculated but can be determined by inspection to be >100% elutriate.

3.5.1 Reference Toxicant Toxicity to *Menidia beryllina*

The results of this test are presented in Table 3-13. The LC50 for this test is consistent with the “typical response” range established by the reference toxicant test database for this species, indicating that these test organisms were responding to toxic stress in a typical fashion. The test data and summary of statistical analyses for this test are attached as Appendix L.

Table 3-13. Reference Toxicant Testing: Effects of KCl on *Menidia beryllina*.

KCl Treatment (g/L)	Mean % Survival
Lab Control	100
0.125	100
0.25	100
0.5	100
1	95
2	0*
LC50 =	1.37 g/L KCl
Typical Response Range (mean ± 2SD) =	0.98 – 1.55 g/L KCl

* The survival response at this treatment was significantly less than the Lab Control response at $p < 0.05$.



3.6 Sediment Bioaccumulation Test Data for *Macoma nasuta*

The survival responses for the bivalves in each of the sediments test treatments are summarized below in Table 3-14.

The test data for these tests are attached as Appendix M.

Table 3-14. Sediment Bioaccumulation Test with *Macoma nasuta*.

Sample I.D.	Percent of Bivalves that Survived					Mean % Survival
	Rep A	Rep B	Rep C	Rep D	Rep E	
Lab Control	85	85	85	80	95	86
LA2-Ref	95	100	85	95	95	94
CCT-18-Composite-a	90	90	90	95	90	91
CCT-18-Composite-b	90	95	95	95	95	95

Note –All treatments were initiated with 20 clams per replicate.

3.7 Sediment Bioaccumulation Test Data for *Nereis virens*

The survival responses for the polychaetes in each of the sediments test treatments are summarized below in Table 3-15.

The test data for these tests are attached as Appendix N.

Table 3-15. Sediment Bioaccumulation Test with *Nereis virens*.

Sample I.D.	Percent of Polychaetes that Survived					Mean % Survival
	Rep A	Rep B	Rep C	Rep D	Rep E	
Lab Control	100	100	100	100	100	100
LA2-Ref	100	100	100	100	100	100
CCT-18-Composite-a	100	100	100	100	100	100
CCT-18-Composite-b	100	100	90	90	100	96

Note – All treatments were initiated with 10 worms per replicate.

3.8 Biological Testing QA/QC Summary

The biological testing of Port of Long Beach Carnival Cruise Terminal sediments incorporated standard QA/QC procedures to ensure that the test results were valid, including the use of negative Lab Controls, positive Lab Controls, test replicates, and measurements of water quality during testing.

Quality assurance procedures that were used for sediment testing are consistent with methods described in the U.S.EPA/USACE (1998). Sediments for the bioassay testing were stored appropriately at $\leq 4^{\circ}\text{C}$ and were used within the eight-week holding time period. Sediment



interstitial water characteristics were within test acceptability limits at the start of the tests. Sediment elutriates were prepared using site water. The toxicity test overlying waters consisted of high-quality natural seawater.

All measurements of routine water quality characteristics were performed as described in the PER Lab Standard Operating Procedures (SOPs). All biological testing water quality conditions were within the appropriate limits. Laboratory instruments were calibrated daily according to Lab SOPs, and calibration data were logged and initiated.

Negative Lab Control – The biological responses for all the test organisms at the negative Lab Control treatments were within acceptable limits for the sediment and sediment elutriate tests.

Positive Lab Control – The results of the reference toxicant tests were consistent with the “typical response” ranges established by the reference toxicant test database for these species, indicating that these test organisms were responding to toxic stress in a typical and consistent fashion.

Concentration Response Relationships – The concentration-response relationships for the sediment elutriate tests and reference toxicant tests were evaluated as per EPA guidelines (EPA-821-B-00-004), and were determined to be acceptable.

4. REFERENCES

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ASTM (2013) Standard Guide for Conducting Sediment Toxicity Tests with Polychaetous Annelids. Method E1611-00. In: Annual Book of ASTM Standards, Volume 11.06. American Society for Testing and Materials, Philadelphia, PA.

ASTM (2014) Standard Test Method for Measuring the Toxicity of Sediment-Associated Contaminants with Estuarine and Marine Invertebrates. Method E1367-03. In: Annual Book of ASTM Standards, Volume 11.06. American Society for Testing and Materials, Philadelphia, PA.

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USEPA (1994) 'Methods for Assessing the Toxicity of Sediment-Associated Contaminants with Estuarine and Marine Amphipods', EPA-600/R-94/025. U.S. EPA, Env. Research Laboratory, Narragansett, RI.

USEPA (2002) 'Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms', fifth edition, EPA/821/R-02/012. U.S. EPA, Environmental Office of Research and Development, Washington DC.

US EPA/ACOE (1991) Evaluation of Dredged Material Proposed for Ocean Disposal – Testing Manual (Ocean Testing Manual). U.S. Environmental Protection Agency/U.S. Army Corps of Engineers. EPA/503/8-91/001. Office of Water. Washington, DC 20460.

USEPA/USACE (1998) Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. – Testing Manual (Inland Testing Manual). U.S. Environmental Protection Agency/U.S. Army Corps of Engineers. EPA/823/B-94/002. Office of Water. Washington, DC 20460.



Appendix A

Chain-of-Custody Records for the Collection and Delivery of the Port of Long Beach Carnival Cruise Terminal Sediments

Chain of Custody Record

To: Pacific Ecorisk 2250 Cordelia Rd. Fairfield, CA 94534 (707) 207-7760 Contact: Mike McElroy	Date Received: Lab #:	From: Kinnetic Laboratories, Inc 10377 Los Alamitos Blvd. Los Alamitos, CA 90720 (562) 357-4685 Contact: Danielle Gonsman	
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Project: POLB Carnival Cruise Terminal 2018 TAT: Standard	Matrix: Sediment	Project #: 5816.05
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SampleID	StationID	Sample Date	Sample Time	Sample Type	Analysis	Container	Pres	No. of Containers	Comments	Condition Upon Receipt
CCT-18-Composite-a	Comp Area- a	10-30-18	1325	Comp	Benthic Bioassay, Water Column Bioassay (SET Prep*), Bioaccumulation	3.5gal Liner	4° C	5	Need 57L~ 15gal	
CCT-18-Composite-b	Comp Area- b	10-31-18	0840	Comp	Benthic Bioassay, Water Column Bioassay (SET Prep*), Bioaccumulation	3.5gal Liner	4° C	5	Need 57L~ 15gal	
LA2-Ref	LA-2 Reference	10-31-18	1330	Grab	Benthic Bioassay and Bioaccumulation	3.5gal Liner	4° C	54	Need 52L~ 14gal	

Data Report MUST include the following: Sample ID, Analytical Method, Detection Limit, Date of Extraction if applicable, Date of Analysis, Analytical Results and Signature of QA Reviewer. All times on this sheet are military time. Submit all PDF/EDD reports to edd@kinneticlabs.net. Reference project SAP for methods, QA/QC criteria, etc.

Special Instructions/Comments: Species from Table 5 of the SAP: Benthic Bioassay (SP)= *Ampelisca abdita* and *Neathes arenaceodentata*; Water Column Bioassay (SPP)= *Americamysis bahia*, *Menidia beryllina* and *Mytilus galloprovincialis*; Benthic Bioaccumulation= *Macoma nasuta* and *Neris virens*.
 *Collect and send extra two liters of SET water (from the SPP prep) to ECI for TSS/TDS analysis

Sampled and Relinquished By:	Date/Time:	Transporter	Received By:	Date/Time:
<i>M. Kay</i>	11-6-18 1125	KLI	<i>Dannd Marock</i>	11-6-18 1125
Relinquished By:	Date/Time:	Transporter	Received By:	Date/Time:

Appendix B

Water Quality Characteristics of the Whole Sediment Test Porewaters and Overlying Waters

Table B-1. Sediment Porewater Test Initiation Water Quality Characteristics for *Ampelisca abdita* Benthic Toxicity Test.

Sample ID	pH	Salinity (ppt)	Total Ammonia (mg/L N)	Total Sulfide (mg/L)
Lab Control	7.57	29.6	2.61	0.122
LA2-Ref	NM	NM	9.45	NM
CCT-18-Composite-a	8.18	31.6	7.27	0.134
CCT-18-Composite-b	8.21	28.9	4.19	0.089

NM – not measured due to insufficient sample volume.

Table B-2. Sediment Porewater Test Termination Water Quality Characteristics for *Ampelisca abdita* Benthic Toxicity Test.

Sample ID	pH	Salinity (ppt)	Total Ammonia (mg/L N)	Total Sulfide (mg/L)
Lab Control	7.24	31.5	<1.00	0.028
LA2-Ref	7.67	29.5	1.11	0.151
CCT-18-Composite-a	7.16	31.1	2.23	0.055
CCT-18-Composite-b	7.76	30.8	2.27	0.055

Table B-3. Sediment Overlying Water Total Ammonia Concentrations for *Ampelisca abdita* Benthic Toxicity Test.

Sample ID	Total Ammonia (mg/L N)	
	Test Initiation	Test Termination
Lab Control	<1.00	<1.00
LA2-Ref	<1.00	<1.00
CCT-18-Composite-a	<1.00	<1.00
CCT-18-Composite-b	<1.00	<1.00

Table B-4. Sediment Porewater Test Initiation Water Quality Characteristics for *Neanthes arenaceodentata* Benthic Toxicity Test.

Sample ID	pH	Salinity (ppt)	Total Ammonia (mg/L N)	Total Sulfide (mg/L)
Lab Control	7.13	30.0	2.44	0.095
LA2-Ref	7.88	29.4	4.88	0.657
CCT-18-Composite-a	7.50	28.0	7.32	0.174
CCT-18-Composite-b	7.70	29.5	7.45	0.184



Table B-5. Sediment Porewater Test Termination Water Quality Characteristics for *Neanthes arenaceodentata* Benthic Toxicity Test.

Sample ID	pH	Salinity (ppt)	Total Ammonia (mg/L N)	Total Sulfide (mg/L)
Lab Control	7.25	29.3	<1.00	0.059
LA2-Ref	7.65	30.6	1.38	0.066
CCT-18-Composite-a	6.93	31.8	1.34	0.068
CCT-18-Composite-b	7.88	29.4	1.87	0.085

Table B-6. Sediment Overlying Water Total Ammonia Concentrations for *Neanthes arenaceodentata* Test.

Sample ID	Total Ammonia (mg/L N)	
	Test Initiation	Test Termination
Lab Control	<1.00	<1.00
LA2-Ref	<1.00	<1.00
CCT-18-Composite-a	1.26	<1.00
CCT-18-Composite-b	<1.00	<1.00

Table B-7. Total Ammonia Levels for Standard Elutriate Test (SET).

Sample ID	Total Ammonia (mg/L N)
CCT-18-Composite-a	2.85
CCT-18-Composite-b	2.19

Table B-8. Sediment Overlying Water Total Ammonia Levels for *Macoma nasuta* Bioaccumulation Tests.

Sample ID	Total Ammonia (mg/L N)				
	Day 0	Day 7	Day 14	Day 21	Day 28
Lab Control	<1.00	1.14	<1.00	<1.00	<1.00
LA2-Ref	<1.00	1.62	<1.00	<1.00	<1.00
CCT-18-Composite-a	<1.00	1.96	1.37	<1.00	<1.00
CCT-18-Composite-b	1.33	1.99	<1.00	<1.00	<1.00



Table B-9. Sediment Overlying Water Total Ammonia Levels for *Nereis virens* Bioaccumulation Tests.

Sample ID	Total Ammonia (mg/L N)				
	Day 0	Day 7	Day 14	Day 21	Day 28
Lab Control	<1.00	<1.00	<1.00	<1.00	<1.00
LA2-Ref	<1.00	1.45	<1.00	<1.00	<1.00
CCT-18-Composite-a	<1.00	1.56	<1.00	<1.00	<1.00
CCT-18-Composite-b	1.53	2.93	1.98	<1.00	<1.00



Appendix C

Test Data and Summary of Statistics for the Toxicity Evaluation of the Port of Long Beach Carnival Cruise Terminal Sediments with the Amphipod, *Ampelisca abdita*

CETIS Summary Report

Report Date: 27 Nov-18 16:36 (p 1 of 1)
 Test Code: LBCC_1118AA_C1 | 11-3778-0086

10 Day Marine/Estuarine Sediment Test **Pacific EcoRisk**

Batch ID: 18-1014-9730	Test Type: Survival	Analyst: Jessica Okutsu
Start Date: 15 Nov-18 09:08	Protocol: ASTM E1367-99 (Amphipod)	Diluent: Not Applicable
Ending Date: 25 Nov-18 09:04	Species: Ampelisca abdita	Brine: Not Applicable
Duration: 10d	Source: In-House Culture	Age: N/A

Sample Code	Sample ID	Sample Date	Receipt Date	Sample Age	Client Name	Project
LBCC_1118AA_C1	13-5253-1647	15 Nov-18 09:08	15 Nov-18 09:08	n/a (19.9 °C)	Kinnetic Laboratories, In	29525
Comp Area- a	10-1004-9364	30 Oct-18 13:25	06 Nov-18 11:25	15d 20h (0 °C)		
Comp Area- b	14-3989-3659	31 Oct-18 08:40	06 Nov-18 11:25	15d 0h (0 °C)		
LA-2 Reference	05-8211-5539	31 Oct-18 13:30	06 Nov-18 11:25	14d 20h (0 °C)		

Sample Code	Material Type	Sample Source	Station Location	Lat/Long
LBCC_1118AA_C1	Control Sediment	Long Beach Carnival Cruise	LABQA	
Comp Area- a	Sediment	Long Beach Carnival Cruise	CCT-18-Composite-a	
Comp Area- b	Sediment	Long Beach Carnival Cruise	CCT-18-Composite-b	
LA-2 Reference	Reference Sediment	Long Beach Carnival Cruise	LA2-Ref	

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result
12-4423-5537	Survival Rate	Equal Variance t Two-Sample Test	0.1468	Comp Area- a passed survival rate
07-5696-7603	Survival Rate	Equal Variance t Two-Sample Test	0.0264	Comp Area- b failed survival rate
09-2611-9698	Survival Rate	Equal Variance t Two-Sample Test	0.3532	LA-2 Reference passed survival rate

Survival Rate Summary

Sample	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
LBCC_1118AA_C1	CS	5	0.970	0.914	1.000	0.900	1.000	0.020	0.045	4.61%	0.00%
Comp Area- a		5	0.940	0.888	0.992	0.900	1.000	0.019	0.042	4.45%	3.09%
Comp Area- b		5	0.910	0.858	0.962	0.850	0.950	0.019	0.042	4.60%	6.19%
LA-2 Reference	RS	5	0.960	0.908	1.000	0.900	1.000	0.019	0.042	4.36%	1.03%

Survival Rate Detail

Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
LBCC_1118AA_C1	CS	1.000	1.000	1.000	0.950	0.900
Comp Area- a		0.950	1.000	0.900	0.900	0.950
Comp Area- b		0.900	0.850	0.950	0.900	0.950
LA-2 Reference	RS	1.000	0.950	1.000	0.950	0.900

Survival Rate Binomials

Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
LBCC_1118AA_C1	CS	20/20	20/20	20/20	19/20	18/20
Comp Area- a		19/20	20/20	18/20	18/20	19/20
Comp Area- b		18/20	17/20	19/20	18/20	19/20
LA-2 Reference	RS	20/20	19/20	20/20	19/20	18/20

10-Day Estuarine/Marine Sediment Toxicity Test Data

Client: KLI: Carnival Cruise

Test ID#: 80601-80603

Date (Day 0): 11/15/18

Species: Ampelisca abdita

Project #: 29525

Organism Supplier: PCC 20 11/15/18

Organism Log #: 1127 11288 20 11/15/18

Day of Test	Test Replicate	Sample ID: Lab Control (Paradise Cove)					Sign-Off
		Temp (°C)	pH	D.O. (mg/L)	Salinity (ppt)	# Alive	
Day 0	Rep A	19.9	7.77	7.6	29.0	20	Date: 11/15/18
	Rep B	19.6	7.77	7.7	28.9	20	Time: 0908
	Rep C	19.5	7.78	7.7	29.0	20	WQ: JR
	Rep D	19.7	7.78	7.7	28.9	20	Scientist Initiation: BJ
	Rep E	20.1	7.75	7.6	28.9	20	Scientist Confirmation: WJ
Day 1	Rep A	19.8	7.92	7.6	29.6		Date: 11/16/18 Time: 0904
Day 2	Rep B	20.1	7.81	7.6	30.28.5		Date: 11/17/18 Time: 1417
Day 3	Rep C	19.8	7.84	7.5	28.5		Date: 11/18/18 Time: 0854
Day 4	Rep D	19.2	7.93	7.9	29.2		Date: 11/19/18 Time: 0914
Day 5	Rep E	19.9	7.92	7.7	28.6		Date: 11/20/18 Time: 0844
Day 6	Rep A	19.7	7.94	7.6	28.9		Date: 11/21/18 Time: 0857
Day 7	Rep B	19.4	7.93	7.9	29.3		Date: 11/22/18 Time: 0830
Day 8	Rep C	19.7	7.92	7.7	28.5		Date: 11/23/18 Time: 0910
Day 9	Rep D	20.2	7.84	7.8	28.7		Date: 11/24/18 Time: 0939
Day 10	Rep A	20.2	7.93	7.6	29.8	20	Date: 11/25/18
	Rep B	20.0	7.99	7.7	29.4	20	Time: 0904
	Rep C	20.0	7.99	7.7	29.2	20	WQ: DH
	Rep D	19.9	8.02	7.7	28.8	19	Scientist Counts: J
	Rep E	20.2	8.01	7.7	28.1	18	

Day of Test	Matrix	pH	D.O. (mg/L)	Salinity (ppt)	Total Sulfide (mg/L)	Total Ammonia (mg/L)	Sign-Off
Day 0	Porewater	7.57	5.6	29.6	0.122	2.61	Date: 11/15/18 Time: 1008
	Overlying Water					<1.00	Date: 11/15/18 Time: 0950
	Meter ID	PH24	RD12	EL12	DR3900	DR3800	
Day 10	Porewater	7.24	5.5	31.5	0.028	<1.00	Date: 11/25/18 Time: 0930
	Overlying Water					<1.00	Date: 11/25/18 Time: 0900
	Meter ID	PH24	RD13	EL13	DR3900	DR3800	

CETIS Analytical Report

Report Date: 27 Nov-18 14:46 (p 1 of 3)

Test Code: LBCC_1118AA_C1 | 11-3778-0086

10 Day Marine/Estuarine Sediment Test			Pacific EcoRisk		
Analysis ID: 12-4423-5537	Endpoint: Survival Rate	CETIS Version: CETISv1.9.2		Official Results: Yes	
Analyzed: 27 Nov-18 14:38	Analysis: Parametric-Two Sample				
Data Transform	Alt Hyp	Comparison Result		PMSD	
Angular (Corrected)	C > T	Comp Area- a passed survival rate		4.98%	

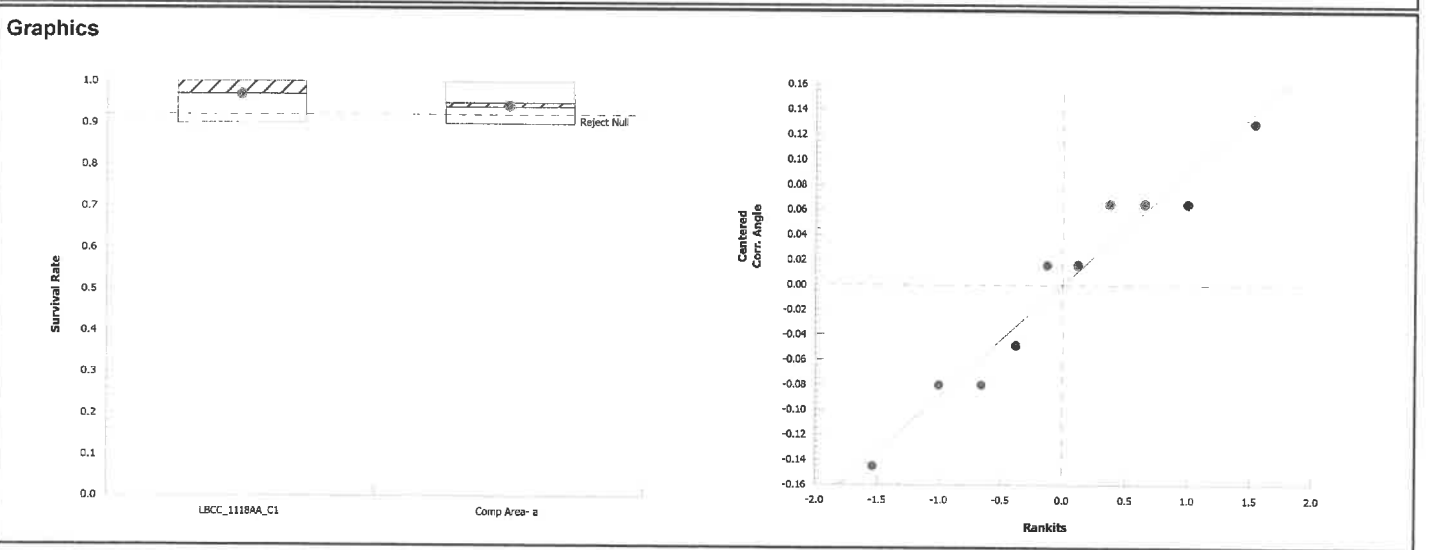
Equal Variance t Two-Sample Test										
Sample I	vs	Sample II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)	
Control Sed		Comp Area- a	1.12	1.86	0.107	8	CDF	0.1468	Non-Significant Effect	

ANOVA Table						
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0104451	0.0104451	1	1.26	0.2935	Non-Significant Effect
Error	0.0661178	0.0082647	8			
Total	0.0765629		9			

Distributional Tests						
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)	
Variances	Variance Ratio F Test	1.19	23.2	0.8684	Equal Variances	
Distribution	Shapiro-Wilk W Normality Test	0.946	0.741	0.6268	Normal Distribution	

Survival Rate Summary												
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect	
LBCC_1118AA_C1	CS	5	0.970	0.914	1.000	1.000	0.900	1.000	0.020	4.61%	0.00%	
Comp Area- a		5	0.940	0.888	0.992	0.950	0.900	1.000	0.019	4.45%	3.09%	

Angular (Corrected) Transformed Summary												
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect	
LBCC_1118AA_C1	CS	5	1.39	1.28	1.51	1.46	1.25	1.46	0.0424	6.80%	0.00%	
Comp Area- a		5	1.33	1.22	1.44	1.35	1.25	1.46	0.0388	6.53%	4.64%	



10-Day Estuarine/Marine Sediment Toxicity Test Data

Client: KLI: Carnival Cruise Test ID#: 80602 Date (Day 0): 11/15/18
 Species: Ampelisca abdita Project #: 29525 Organism Supplier: PER
 Organism Log #: 11288

Day of Test	Test Replicate	Sample ID: Composite-a					Sign-Off
		Temp (°C)	pH	D.O. (mg/L)	Salinity (ppt)	# Alive	
Day 0	Rep A	19.9	7.79	7.6	29.0	20	Date: 11/15/18
	Rep B	19.7	7.81	7.7	28.9	20	Time: 0916
	Rep C	19.7	7.81	7.7	28.9	20	WQ: JK
	Rep D	19.7	7.81	7.7	29.0	20	Scientist Initiation: NL
	Rep E	20.0	7.82	7.7	29.1	20	Scientist Confirmation: BV
Day 1	Rep A	19.6	7.97	7.7	29.7		Date: 11/16/18 Time: 0908 WQ: JR
Day 2	Rep B	20.2	7.91	7.4	29.3		Date: 11/17/18 Time: 1419 WQ: JR
Day 3	Rep C	19.8	7.94	7.6	28.4		Date: 11/18/18 Time: 0859 WQ: AR
Day 4	Rep D	19.4	8.10	7.7	28.6		Date: 11/19/18 Time: 0923 WQ: DH
Day 5	Rep E	19.9	8.27	7.6	28.6		Date: 11/20/18 Time: 0844 WQ: DH
Day 6	Rep A	19.9	8.47	7.7	29.8		Date: 11/21/18 Time: 0900 WQ: JK
Day 7	Rep B	20.1	8.40	7.4	29.6		Date: 11/22/18 Time: 0830 WQ: JR
Day 8	Rep C	19.8	8.49	7.4	29.9		Date: 11/23/18 Time: 0912 WQ: JR
Day 9	Rep D	19.9	8.52	7.4	29.7		Date: 11/24/18 Time: 0942 WQ: JR
Day 10	Rep A	20.3	8.56	7.5	29.0	19	Date: 11/25/18
	Rep B	20.2	8.60	7.4	28.8	20	Time: 0916
	Rep C	20.3	8.59	7.5	28.4	18	WQ: DH
	Rep D	20.5	8.55	7.5	28.2	18	Scientist Counts: JL
	Rep E	20.5	8.55	7.5	29.8	19	

Day of Test	Matrix	pH	D.O. (mg/L)	Salinity (ppt)	Total Sulfide (mg/L)	Total Ammonia (mg/L)	Sign-Off
Day 0	Porewater	8.18	6.2	31.6	0.134	7.27	Date: 11/15/18 Time: 1018 WQ: JK
	Overlying Water					<1.00	Date: 11/15/18 Time: 0950 WQ: JK
	Meter ID	pH24	RD12	EC12	DR3900	DR3800	
Day 10	Porewater	7.16	5.9	31.1	0.055	223	Date: 11/25/18 Time: 0930 WQ: JL
	Overlying Water					<1.00	Date: 11/25/18 Time: 0900 WQ: DH
	Meter ID	pH24	PP13	EC13	DR3900	DR3800	

CETIS Analytical Report

Report Date: 27 Nov-18 14:46 (p 2 of 3)

Test Code: LBCC_1118AA_C1 | 11-3778-0086

10 Day Marine/Estuarine Sediment Test			Pacific EcoRisk		
Analysis ID: 07-5696-7603	Endpoint: Survival Rate	CETIS Version: CETISv1.9.2			
Analyzed: 27 Nov-18 14:38	Analysis: Parametric-Two Sample	Official Results: Yes			

Data Transform	Alt Hyp	Comparison Result	PMSD
Angular (Corrected)	C > T	Comp Area- b failed survival rate	4.59%

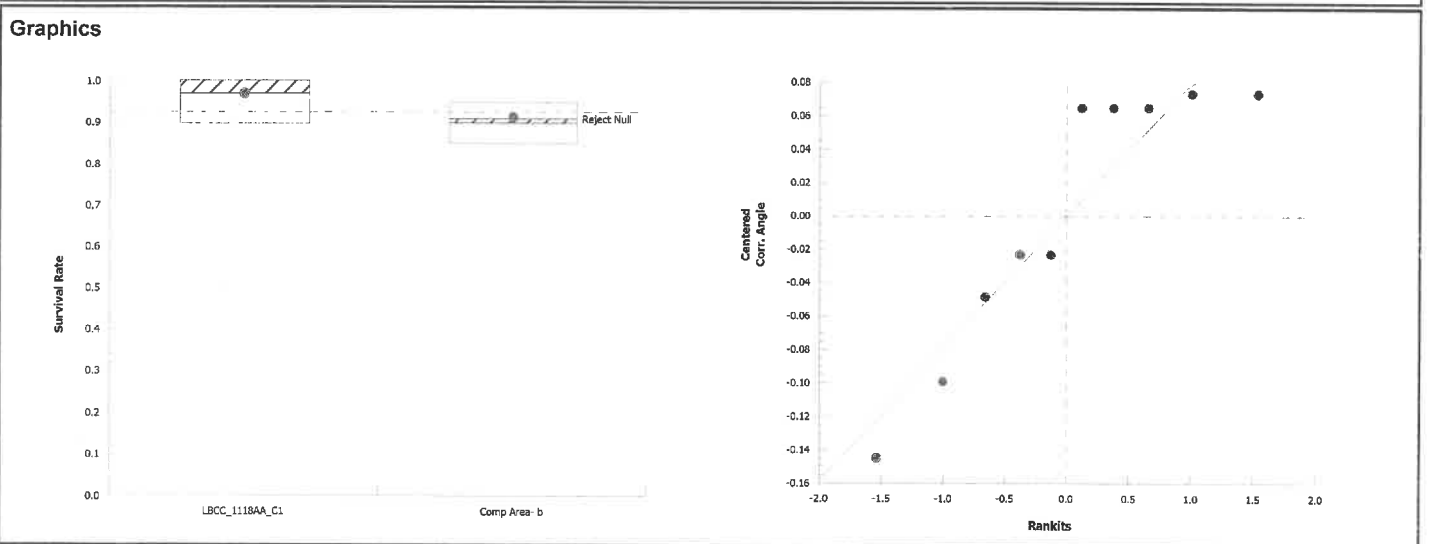
Equal Variance t Two-Sample Test									
Sample I	vs	Sample II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Control Sed		Comp Area- b*	2.27	1.86	0.1	8	CDF	0.0264	Significant Effect

ANOVA Table						
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0370699	0.0370699	1	5.15	0.0529	Non-Significant Effect
Error	0.0575418	0.0071927	8			
Total	0.0946117		9			

Distributional Tests						
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)	
Variances	Variance Ratio F Test	1.67	23.2	0.6327	Equal Variances	
Distribution	Shapiro-Wilk W Normality Test	0.844	0.741	0.0492	Normal Distribution	

Survival Rate Summary												
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect	
LBCC_1118AA_C1	CS	5	0.970	0.914	1.000	1.000	0.900	1.000	0.020	4.61%	0.00%	
Comp Area- b		5	0.910	0.858	0.962	0.900	0.850	0.950	0.019	4.60%	6.19%	

Angular (Corrected) Transformed Summary												
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect	
LBCC_1118AA_C1	CS	5	1.39	1.28	1.51	1.46	1.25	1.46	0.0424	6.80%	0.00%	
Comp Area- b		5	1.27	1.18	1.36	1.25	1.17	1.35	0.0328	5.77%	8.73%	



10-Day Estuarine/Marine Sediment Toxicity Test Data

Client: KLI: Carnival Cruise Test ID#: 80603 Date (Day 0): 11/15/18
 Species: Ampelisca abdita Project #: 29525 Organism Supplier: PER
 Organism Log #: 11288

Day of Test	Test Replicate	Sample ID: Composite-b					Sign-Off
		Temp (°C)	pH	D.O. (mg/L)	Salinity (ppt)	# Alive	
Day 0	Rep A	19.7	7.79	7.7	29.0	20	Date: 11/15/18
	Rep B	19.4	7.79	7.8	28.3	20	Time: 0920
	Rep C	19.2	7.79	7.9	29.0	20	WQ: <u>HR</u>
	Rep D	19.5	7.80	7.8	28.9	20	Scientist Initiation: <u>WV</u>
	Rep E	19.7	7.80	7.8	29.1	20	Scientist Confirmation: <u>WV</u>
Day 1	Rep A	19.6	7.91	7.6	29.7		Date: 11/16/18 Time: 0910
Day 2	Rep B	20.2	7.87	7.4	29.4		Date: 11/17/18 Time: 1420
Day 3	Rep C	19.9	7.86	7.7	29.1		Date: 11/18/18 Time: 0901
Day 4	Rep D	19.7	7.95	7.8	29.3		Date: 11/19/18 Time: 0925
Day 5	Rep E	20.2	8.00	7.6	29.3		Date: 11/20/18 Time: 0851
Day 6	Rep A	20.2	8.08	7.7	29.3		Date: 11/21/18 Time: 0901
Day 7	Rep B	20.3	8.06	7.6	29.6		Date: 11/22/18 Time: 0830
Day 8	Rep C	20.1	8.08	7.5	29.4		Date: 11/23/18 Time: 0913
Day 9	Rep D	20.3	8.08	7.6	27.8		Date: 11/24/18 Time: 0942
Day 10	Rep A	20.4	8.12	7.6	29.1	18	Date: 11/25/18
	Rep B	20.3	8.11	7.7	29.4	17	Time: 0924 Count: 10.15
	Rep C	20.5	8.09	7.6	29.5	19	WQ: <u>DH</u>
	Rep D	20.8	8.07	7.6	28.8	18	Scientist Counts: <u>NL</u>
	Rep E	20.7	8.09	7.6	28.9	19	

Day of Test	Matrix	pH	D.O. (mg/L)	Salinity (ppt)	Total Sulfide (mg/L)	Total Ammonia (mg/L)	Sign-Off
Day 0	Porewater	8.21	7.3	28.9	0.089	4.19	Date: 11/15/18 Time: 1018
	Overlying Water					<1.00	Date: 11/15/18 Time: 0950
	Meter ID	pH24	RD12	EC12	DR3900	DR3800	
Day 10	Porewater	7.76	6.2	30.2	0.055	2.27	Date: 11/25/18 Time: 0930
	Overlying Water					1.00	Date: 11/25/18 Time: 0900
	Meter ID	pH24	RD13	EC13	DR3900	DR3800	

CETIS Analytical Report

Report Date: 27 Nov-18 14:46 (p 3 of 3)
 Test Code: LBCC_1118AA_C1 | 11-3778-0086

10 Day Marine/Estuarine Sediment Test			Pacific EcoRisk		
Analysis ID: 09-2611-9698	Endpoint: Survival Rate	CETIS Version: CETISv1.9.2			
Analyzed: 27 Nov-18 14:38	Analysis: Parametric-Two Sample	Official Results: Yes			
Data Transform	Alt Hyp	Comparison Result			PMSD
Angular (Corrected)	C > T	LA-2 Reference passed survival rate			5.04%

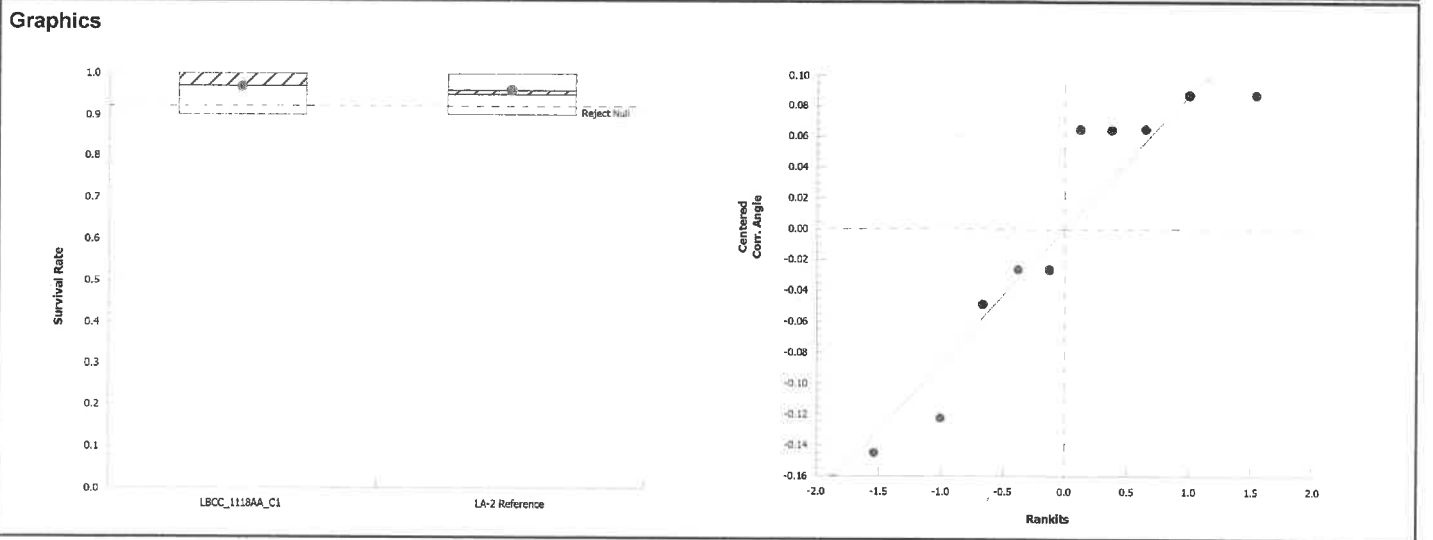
Equal Variance t Two-Sample Test									
Sample I	vs	Sample II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Control Sed		Reference Sed	0.39	1.86	0.108	8	CDF	0.3532	Non-Significant Effect

ANOVA Table						
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0012877	0.0012877	1	0.152	0.7064	Non-Significant Effect
Error	0.0675639	0.0084455	8			
Total	0.0688516		9			

Distributional Tests						
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)	
Variances	Variance Ratio F Test	1.14	23.2	0.9032	Equal Variances	
Distribution	Shapiro-Wilk W Normality Test	0.863	0.741	0.0822	Normal Distribution	

Survival Rate Summary												
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect	
LBCC_1118AA_C1	CS	5	0.970	0.914	1.000	1.000	0.900	1.000	0.020	4.61%	0.00%	
LA-2 Reference	RS	5	0.960	0.908	1.000	0.950	0.900	1.000	0.019	4.36%	1.03%	

Angular (Corrected) Transformed Summary												
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect	
LBCC_1118AA_C1	CS	5	1.39	1.28	1.51	1.46	1.25	1.46	0.0424	6.80%	0.00%	
LA-2 Reference	RS	5	1.37	1.26	1.48	1.35	1.25	1.46	0.0397	6.48%	1.63%	



10-Day Estuarine/Marine Sediment Toxicity Test Data

Client: KLI: Carnival Cruise Test ID#: 80601 Date (Day 0): 11/15/18
 Species: Ampelisca abdita Project #: 29525 Organism Supplier: PER
 Organism Log #: 11288

Day of Test	Test Replicate	Sample ID: LA-2					Sign-Off
		Temp (°C)	pH	D.O. (mg/L)	Salinity (ppt)	# Alive	
Day 0	Rep A	20.1	7.76	7.7	28.9	20	Date: 11/15/18 Time: 0913 WQ: MK Scientist Initiation: AJ Scientist Confirmation: W
	Rep B	19.7	7.81	7.7	29.0	20	
	Rep C	19.6	7.81	7.8	29.0	20	
	Rep D	19.7	7.81	7.8	28.9	20	
	Rep E	20.1	7.81	7.7	29.0	20	
Day 1	Rep A	19.7	7.96	7.6	29.6		Date: 11/16/18 Time: 0906 WQ: JR
Day 2	Rep B	20.1	7.88	7.5	30.3		Date: 11/17/18 Time: 1418 WQ: JR
Day 3	Rep C	19.8	7.88	7.7	28.9		Date: 11/18/18 Time: 0857 WQ: AR
Day 4	Rep D	19.4	7.94	7.7	28.1		Date: 11/19/18 Time: 0919 WQ: DH
Day 5	Rep E	20.0	7.92	7.6	28.5		Date: 11/20/18 Time: 0847 WQ: DH
Day 6	Rep A	19.7	8.01	7.6	28.9		Date: 11/21/18 Time: 0858 WQ: JR
Day 7	Rep B	19.7	7.98	7.7	26.2		Date: 11/22/18 Time: 0858 WQ: JR
Day 8	Rep C	19.6	7.98	7.6	28.2		Date: 11/23/18 Time: 0911 WQ: JR
Day 9	Rep D	19.9	7.94	7.6	28.4		Date: 11/24/18 Time: 0939 WQ: JR
Day 10	Rep A	20.2	8.00	7.7	28.5	20	Date: 11/25/18
	Rep B	20.0	8.04	7.7	28.5	19	Time: 0909
	Rep C	20.1	8.05	7.7	28.9	20	WQ: DH
	Rep D	20.2	8.05	7.6	28.6	19	Scientist Counts: JL
	Rep E	20.4	8.04	7.6	28.1	18	

Day of Test	Matrix	pH	D.O. (mg/L)	Salinity (ppt)	Total Sulfide (mg/L)	Total Ammonia (mg/L)	Sign-Off
Day 0	Porewater	NM	NM	NM	NM	9.45	Date: 11/15/18 Time: 1018 WQ: MK
	Overlying Water					<1.00	Date: 11/15/18 Time: 0950 WQ: MK
	Meter ID	—	—	—	—	DR3800	
Day 10	Porewater	7.67	7.1	29.5	0.151	1.11	Date: 11/25/18 Time: 0930 WQ: Z
	Overlying Water					<1.00	Date: 11/25/18 Time: 0900 WQ: DH
	Meter ID	PH24	RD13	EL13	DR3900	DR3800	

Appendix D

Test Data and Summary of Statistics for the Reference Toxicant Evaluation of the Amphipod, *Ampelisca abdita*

CETIS Summary Report

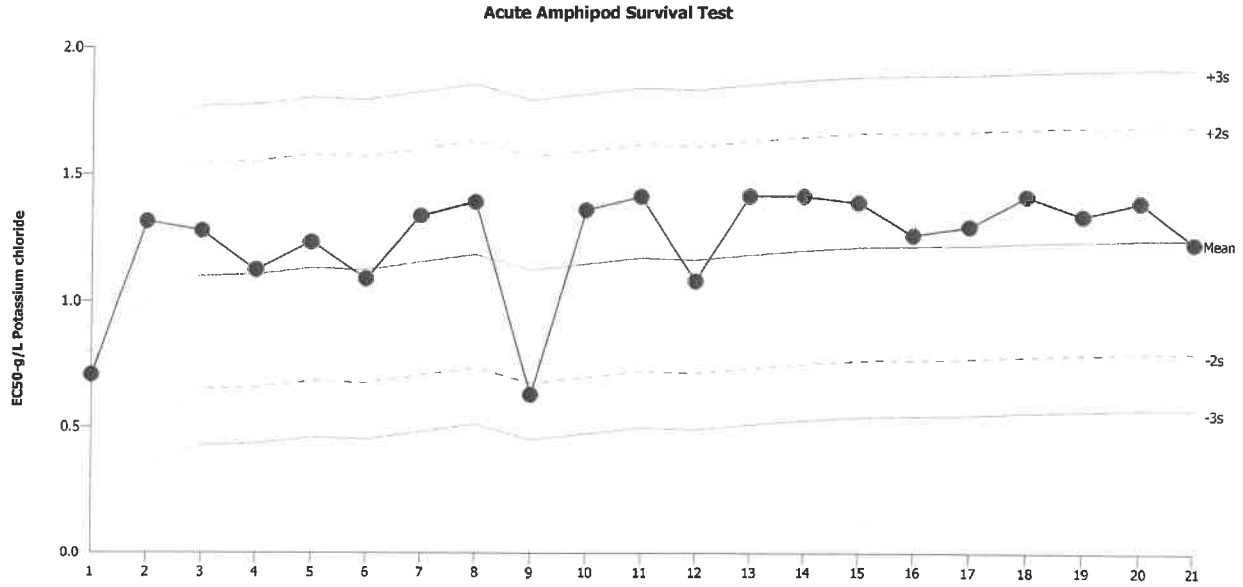
Report Date: 20 Nov-18 09:51 (p 1 of 1)
 Test Code: 80620 | 11-7949-7159

Acute Amphipod Survival Test										Pacific EcoRisk	
Batch ID:	19-6206-4923	Test Type:	Survival	Analyst:	Jessica Okutsu	Start Date:	15 Nov-18 14:00	Protocol:	ASTM E1367-99 (Amphipod)	Diluent:	Diluted Seawater
Ending Date:	19 Nov-18 12:30	Species:	Ampelisca abdita	Brine:	Not Applicable	Duration:	94h	Source:	Brezina and Associates	Age:	N/A
Sample ID:	07-4277-1291	Code:	KCl	Client:	Reference Toxicant	Sample Date:	15 Nov-18 14:00	Material:	Potassium chloride	Project:	29583
Receipt Date:	15 Nov-18 14:00	Source:	Reference Toxicant	Sample Age:	n/a (19.8 °C)	Station:	In House				
Multiple Comparison Summary											
Analysis ID	Endpoint	Comparison Method		NOEL	LOEL	TOEL	TU	PMSD		✓	
15-8190-7480	Survival Rate	Dunnett Multiple Comparison Test		0.5	1	0.7071		12.9%			
Point Estimate Summary											
Analysis ID	Endpoint	Point Estimate Method		Level	g/L	95% LCL	95% UCL	TU	✓		
17-9797-9251	Survival Rate	Spearman-Kärber		EC50	1.23	1.08	1.4				
Survival Rate Summary											
Conc-g/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	LW	2	0.950	0.315	1.000	0.900	1.000	0.050	0.071	7.44%	0.00%
0.25		2	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	-5.26%
0.5		2	0.950	0.315	1.000	0.900	1.000	0.050	0.071	7.44%	0.00%
1		2	0.800	0.800	0.800	0.800	0.800	0.000	0.000	0.00%	15.79%
2		2	0.000	0.000	0.000	0.000	0.000	0.000	0.000		100.00%
4		2	0.000	0.000	0.000	0.000	0.000	0.000	0.000		100.00%
Survival Rate Detail											
Conc-g/L	Code	Rep 1	Rep 2								
0	LW	0.900	1.000								
0.25		1.000	1.000								
0.5		1.000	0.900								
1		0.800	0.800								
2		0.000	0.000								
4		0.000	0.000								
Survival Rate Binomials											
Conc-g/L	Code	Rep 1	Rep 2								
0	LW	9/10	10/10								
0.25		10/10	10/10								
0.5		10/10	9/10								
1		8/10	8/10								
2		0/10	0/10								
4		0/10	0/10								

Acute Amphipod Survival Test

Pacific EcoRisk

Test Type: Survival Organism: Ampelisca abdita (Amphipod) Material: Potassium chloride
 Protocol: ASTM E1367-99 (Amphipod) Endpoint: Survival Rate Source: Reference Toxicant-REF



Mean: 1.243 Count: 20 -2s Warning Limit: 0.7957 -3s Action Limit: 0.5719
 Sigma: 0.2238 CV: 18.00% +2s Warning Limit: 1.691 +3s Action Limit: 1.915

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2016	Aug	6	17:00	0.7071	-0.5359	-2.395	(-)		14-0436-9139	07-8490-8361
2			14	17:10	1.315	0.0717	0.3204			03-5542-9163	00-2486-8236
3		Sep	17	18:15	1.278	0.03543	0.1583			09-6646-3148	05-9045-2789
4			24	16:30	1.122	-0.1205	-0.5386			06-9870-6684	09-3760-5344
5		Dec	19	17:15	1.232	-0.01052	-0.04702			00-4190-9946	13-4333-7469
6	2017	Sep	11	16:30	1.088	-0.155	-0.6928			05-7656-8074	00-8802-2040
7		Nov	5	14:26	1.336	0.09323	0.4166			04-5060-9632	12-3320-9910
8	2018	Jan	20	16:20	1.391	0.1479	0.6608			15-7437-3563	19-4618-0136
9		Apr	16	15:30	0.6292	-0.6138	-2.743	(-)		03-4262-5437	00-7897-2795
10			17	14:00	1.361	0.1178	0.5263			04-2718-6243	04-9879-2702
11			17	14:05	1.414	0.1712	0.765			08-1340-5721	05-1904-7725
12		May	1	17:10	1.079	-0.1636	-0.7309			06-5134-9601	00-1834-4708
13		Jun	27	15:20	1.414	0.1712	0.765			12-7977-1165	12-3242-3821
14		Aug	1	16:54	1.414	0.1712	0.765			10-4206-4505	18-7391-2081
15			2	15:45	1.389	0.1457	0.6508			05-0072-3620	20-2861-2319
16			9	16:30	1.26	0.01692	0.07561			10-7426-4591	01-3376-8932
17		Sep	26	15:10	1.294	0.05073	0.2267			17-9956-6652	06-8113-1873
18			28	17:18	1.414	0.1712	0.765			07-7502-8487	03-9440-2090
19		Oct	15	16:40	1.336	0.09338	0.4172			15-2276-0837	15-6443-4316
20			18	13:22	1.39	0.1473	0.6583			20-4410-2128	02-7539-0693
21		Nov	15	14:00	1.227	-0.01622	-0.07249			11-7949-7159	17-9797-9251

96 Hour *Ampelisca abdita* Marine Reference Toxicant Test Data

Client: Reference Toxicant Organism Log #: 11288
 Test Material: Potassium Chloride Control/Diluent: 28 ppt Seawater (+/- 1 ppt)
 Test ID#: 80620 Project #: 29583 Test Date: 11/15/18
 T0 Feeding: WC T48 Feeding: TK Randomization: 2.6.9

Treatment (g KCl / L)	Temp (°C)	pH		D.O. (mg/L)		Salinity (ppt)		# Live Organisms		SIGN-OFF
		new	old	new	old	new	old	A	B	
Control	19.8	8.02		7.6		27.8		10	10	Date: 11/15/18
0.25	19.5	8.03		7.7		28.3		10	10	Test Solution Prep: WC
0.5	19.9	8.03		7.7		28.6		10	10	New WQ: MYL
1	19.7	8.03		7.9		29.1		10	10	Initiation Time: 1400
2	19.5	8.02		8.2		29.9		10	10	Initiation Signoff: WC
4	19.9	8.10		7.9		32.3		10	10	RT Stock Batch #: 63/64
Meter ID:	109A	PH24		RD12		EC12				+1hr Inspection: WC
Control	20.2		7.67	6.8		28.7				Date: 11/16/18
0.25	20.3		7.64	6.5		29.1				Count Time: 1110
0.5	20.3		7.64	6.0		29.3				Count Signoff: JK
1	20.3		7.62	6.1		29.9				Old WQ: SJB
2	20.2		7.61	6.3		31.0				PM Inspection: JK
4	20.2		7.61	6.4		32.9				
Meter ID:	100A		PH25		RD13		EC13			
Control	20.4		7.76	7.0		28.7				Date: 11/17/18
0.25	20.3		7.77	6.8		29.2				Count Time: 1015
0.5	20.3		7.77	6.7		29.5				Count Signoff: TK
1	20.2		7.76	6.8		30.1				Old WQ: SMC
2	20.4		7.75	7.1		31.2				PM Inspection: JK
4	20.2		7.75	6.6		33.1				
Meter ID:	109A		PH24		RD13		EC13			
Control	20.9		7.62	6.2		28.9				Date: 11/18/18
0.25	21.1		7.67	6.1		29.3				Count Time: 1005
0.5	21.1		7.64	5.7		29.5				Count Signoff: WC
1	21.1		7.64	5.7		30.1				Old WQ: JK
2	21.0		7.63	5.8		31.1				PM Inspection: BJ
4	21.0		7.63	5.9		33.2				
Meter ID:	81A		PH19		RD13		EC13			
Control	21.4		7.55	7.3		29.8	9	10		Date: 11/19/18
0.25	21.4		7.56	7.3		29.1	10	10		Termination Time: 1230
0.5	21.4		7.55	6.8		30.4	10	9		Termination Signoff: WC
1	21.5		7.56	7.0		30.1	8	8		Old WQ: AR
2	21.4		7.56	7.0		31.1	0	0		
4	21.4		7.55	7.1		33.9	0	0		
Meter ID:	81A		PH24		RD13		EC13			

Appendix E

Test Data and Summary of Statistics for the Toxicity Evaluation of the Port of Long Beach Carnival Cruise Terminal Sediment with the Polychaete, *Neanthes arenaceodentata*

CETIS Summary Report

Report Date: 27 Nov-18 16:32 (p 1 of 1)

Test Code: LBCC_1118NA_C1 | 06-5075-1254

Acute Polychaete Survival Test Pacific EcoRisk

Batch ID: 20-9580-6610	Test Type: Survival	Analyst: Jessica Okutsu
Start Date: 16 Nov-18 08:40	Protocol: ASTM E1611-00 (2007)	Diluent: Not Applicable
Ending Date: 26 Nov-18 11:35	Species: Neanthes arenaceodentata	Brine: Not Applicable
Duration: 10d 3h	Source: Aquatic Tox. Sup.	Age: N/A

Sample Code	Sample ID	Sample Date	Receipt Date	Sample Age	Client Name	Project
LBCC_1118NA_C1	15-3268-6514	16 Nov-18 08:40	16 Nov-18 08:40	n/a (19.5 °C)	Kinnetic Laboratories, In	29525
Comp Area- a	10-1004-9364	30 Oct-18 13:25	06 Nov-18 11:25	16d 19h (0 °C)		
Comp Area- b	14-3989-3659	31 Oct-18 08:40	06 Nov-18 11:25	16d 0h (0 °C)		
LA-2 Reference	05-8211-5539	31 Oct-18 13:30	06 Nov-18 11:25	15d 19h (0 °C)		

Sample Code	Material Type	Sample Source	Station Location	Lat/Long
LBCC_1118NA_C1	Control Sediment	Long Beach Carnival Cruise	LABQA	
Comp Area- a	Sediment	Long Beach Carnival Cruise	CCT-18-Composite-a	
Comp Area- b	Sediment	Long Beach Carnival Cruise	CCT-18-Composite-b	
LA-2 Reference	Reference Sediment	Long Beach Carnival Cruise	LA2-Ref	

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result
06-3971-7514	Survival Rate	Wilcoxon Rank Sum Two-Sample Test	0.5000	Comp Area- a passed survival rate
20-2144-6315	Survival Rate	Wilcoxon Rank Sum Two-Sample Test	1.0000	Comp Area- b passed survival rate
13-8640-7777	Survival Rate	Wilcoxon Rank Sum Two-Sample Test	1.0000	LA-2 Reference passed survival rate

Survival Rate Summary

Sample	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
LBCC_1118NA_C1	CS	5	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
Comp Area- a		5	0.980	0.924	1.000	0.900	1.000	0.020	0.045	4.56%	2.00%
Comp Area- b		5	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
LA-2 Reference	RS	5	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%

Survival Rate Detail

Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
LBCC_1118NA_C1	CS	1.000	1.000	1.000	1.000	1.000
Comp Area- a		1.000	1.000	1.000	0.900	1.000
Comp Area- b		1.000	1.000	1.000	1.000	1.000
LA-2 Reference	RS	1.000	1.000	1.000	1.000	1.000

Survival Rate Binomials

Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
LBCC_1118NA_C1	CS	10/10	10/10	10/10	10/10	10/10
Comp Area- a		10/10	10/10	10/10	9/10	10/10
Comp Area- b		10/10	10/10	10/10	10/10	10/10
LA-2 Reference	RS	10/10	10/10	10/10	10/10	10/10

10-Day Estuarine/Marine Sediment Toxicity Test Data

Client: KLI: Carnival Cruise

Test ID #: 80604-80606

Date (Day 0): 11/16/18

Species: Neanthes arenaceodentata

Project #: 29525

Organism Supplier: ATS

Organism Log #: 11294

Day of Test	Test Replicate	Sample ID: Lab Control (Paradise Cove)					Sign-Off
		Temp (°C)	pH	D.O. (mg/L)	Salinity (ppt)	# Alive	
Day 0	Rep A	19.5	8.00	7.6	29.8	10	Date: 11/16/18
	Rep B	19.5	8.00	7.6	29.6	10	Time: 0840
	Rep C	19.4	8.00	7.6	29.5	10	WQ: JR
	Rep D	19.1	8.01	7.7	29.6	10	Scientist Initiation: NR NB
	Rep E	19.2	8.01	7.7	29.7	10	Scientist Confirmation: NR NB
Day 1	Rep A	20.5	7.80	7.4	30.3		Date: 11/17/18 Time: 1424 WQ: JR
Day 2	Rep B	20.0	7.85	7.5	28.7		Date: 11/18/18 Time: 0844 WQ: AR
Day 3	Rep C	19.9	7.83	7.5	30.4		Date: 11/19/18 Time: 0904 WQ: DH
Day 4	Rep D	19.7	7.84	7.5	31.0		Date: 11/20/18 Time: 0954 WQ: DH
Day 5	Rep E	19.9	7.94	7.9	29.0		Date: 11/21/18 Time: 0906 WQ: JR
Day 6	Rep A	20.2	7.88	7.5	30.5		Date: 11/22/18 Time: 0855 WQ: FD
Day 7	Rep B	20.0	7.90	7.4	30.4		Date: 11/23/18 Time: 0900 WQ: JR
Day 8	Rep C	20.1	7.77	7.5	30.8		Date: 11/24/18 Time: 0930 WQ: JR
Day 9	Rep D	20.0	7.96	7.7	30.3		Date: 11/25/18 Time: 0928 WQ: DH
Day 10	Rep A	20.1	7.95	7.6	30.9	10	Date: 11/26/18
	Rep B	19.9	7.96	7.6	30.4	10	Time: 0839 <small>count 1135</small>
	Rep C	20.0	7.92	7.5	30.3	10	WQ: AR
	Rep D	19.9	7.98	7.5	30.6	10	Scientist: NL
	Rep E	20.1	7.97	7.5	29.9	10	

Day of Test	Matrix	pH	D.O. (mg/L)	Salinity (ppt)	Total Sulfide (mg/L)	Total Ammonia (mg/L)	Sign-Off
Day 0	Porewater	7.13	6.1	30.0	0.095	2.44	Date: 11/16/18 Time: 1113 WQ: JR
	Overlying Water					21.00	Date: 11/16/18 Time: 1113 WQ: JR
	Meter ID	PH19	RD10	EC10	DR3900	DR3800	
Day 10	Porewater	7.25	5.8	29.3	0.059	<1.00	Date: 11/26/18 Time: 0926 WQ: AR <small>0955</small>
	Overlying Water					<1.00	Date: 11/26/18 Time: 0926 WQ: AR
	Meter ID	PH24	RD11	EC11	DR3900	DR3800	

CETIS Analytical Report

Report Date: 27 Nov-18 14:55 (p 1 of 3)
 Test Code: LBCC_1118NA_C1 | 06-5075-1254

Acute Polychaete Survival Test			Pacific EcoRisk		
Analysis ID: 06-3971-7514	Endpoint: Survival Rate	CETIS Version: CETISv1.9.2		Official Results: Yes	
Analyzed: 27 Nov-18 14:55	Analysis: Nonparametric-Two Sample				
Data Transform	Alt Hyp	Comparison Result		PMSD	
Angular (Corrected)	C > T	Comp Area- a passed survival rate		4.74%	

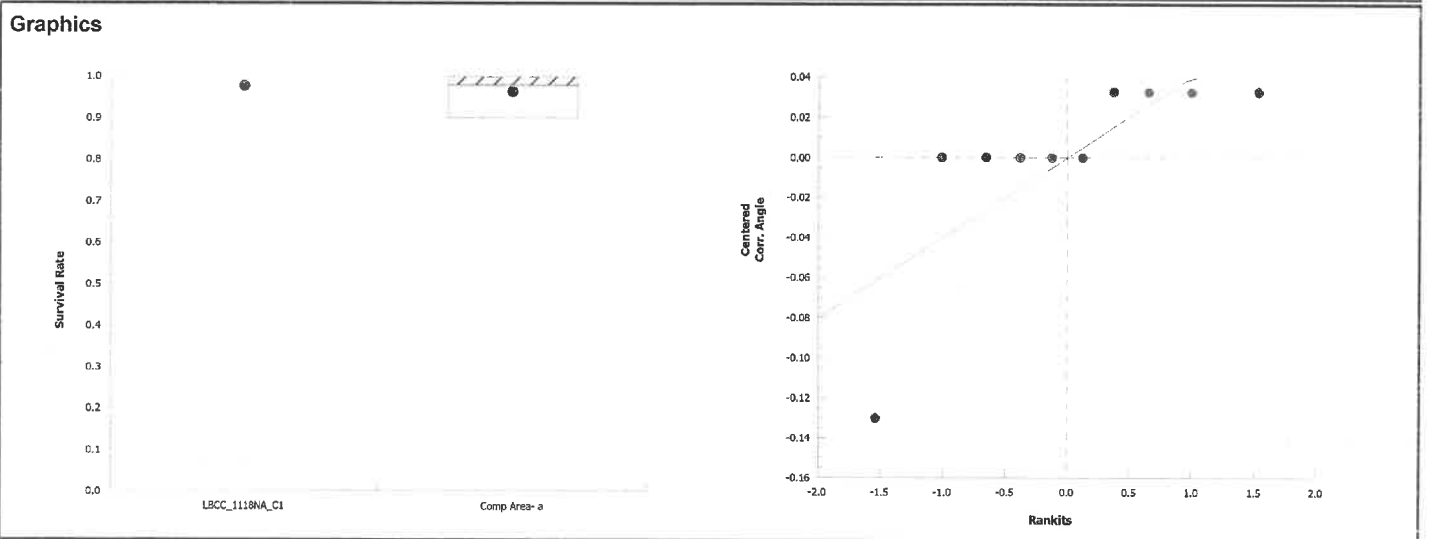
Wilcoxon Rank Sum Two-Sample Test									
Sample I	vs	Sample II	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Control Sed		Comp Area- a	25	n/a	1	8	Exact	0.5000	Non-Significant Effect

ANOVA Table						
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0026559	0.0026559	1	1	0.3466	Non-Significant Effect
Error	0.0212475	0.0026559	8			
Total	0.0239034		9			

Distributional Tests						
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)	
Variances	Levene Equality of Variance Test	7.11	11.3	0.0285	Equal Variances	
Variances	Mod Levene Equality of Variance Test	1	13.7	0.3559	Equal Variances	
Distribution	Shapiro-Wilk W Normality Test	0.625	0.741	1.1E-04	Non-Normal Distribution	

Survival Rate Summary											
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
LBCC_1118NA_C1	CS	5	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	0.00%
Comp Area- a		5	0.980	0.924	1.000	1.000	0.900	1.000	0.020	4.56%	2.00%

Angular (Corrected) Transformed Summary											
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
LBCC_1118NA_C1	CS	5	1.41	1.41	1.41	1.41	1.41	1.41	0	0.00%	0.00%
Comp Area- a		5	1.38	1.29	1.47	1.41	1.25	1.41	0.0326	5.28%	2.31%



CETIS Analytical Report

Report Date: 27 Nov-18 14:55 (p 2 of 3)

Test Code: LBCC_1118NA_C1 | 06-5075-1254

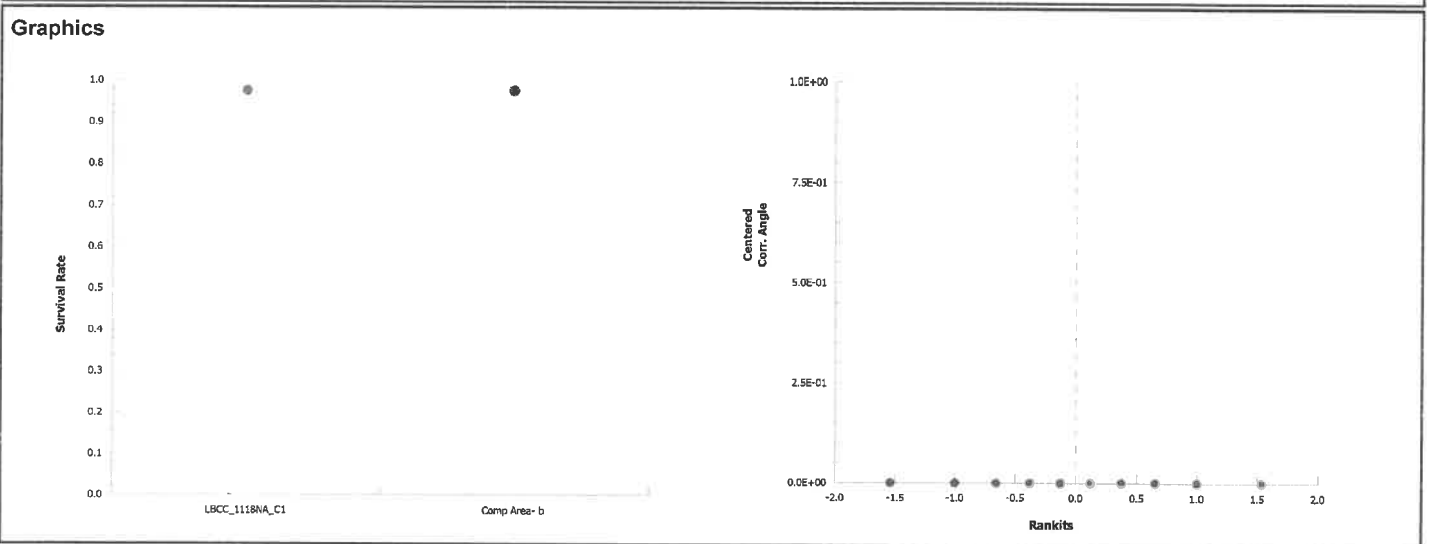
Acute Polychaete Survival Test			Pacific EcoRisk		
Analysis ID: 20-2144-6315	Endpoint: Survival Rate	CETIS Version: CETISv1.9.2			
Analyzed: 27 Nov-18 14:55	Analysis: Nonparametric-Two Sample	Official Results: Yes			

Wilcoxon Rank Sum Two-Sample Test									
Sample I	vs	Sample II	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Control Sed		Comp Area- b	27.5	n/a	1	8	Exact	1.0000	Non-Significant Effect

ANOVA Table						
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0	0	1	65500	<1.0E-37	Significant Effect
Error	0	0	8			
Total	0		9			

Survival Rate Summary											
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
LBCC_1118NA_C1	CS	5	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	0.00%
Comp Area- b		5	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	0.00%

Angular (Corrected) Transformed Summary											
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
LBCC_1118NA_C1	CS	5	1.41	1.41	1.41	1.41	1.41	1.41	0	0.00%	0.00%
Comp Area- b		5	1.41	1.41	1.41	1.41	1.41	1.41	0	0.00%	0.00%



10-Day Estuarine/Marine Sediment Toxicity Test Data

Client: KLI: Carnival Cruise Test ID #: 80606 Date (Day 0): 11/14/18
 Species: Neanthes arenaceodentata Project #: 29525 Organism Supplier: ATS
 Organism Log #: 11294

Day of Test	Test Replicate	Sample ID: Composite-b					Sign-Off
		Temp (°C)	pH	D.O. (mg/L)	Salinity (ppt)	# Alive	
Day 0	Rep A	19.5	7.97	7.6	29.8	10	Date: 11/16/18
	Rep B	19.2	7.99	7.7	29.8	10	Time: 0857
	Rep C	19.2	8.00	7.7	29.6	10	WQ: SR SR
	Rep D	19.0	8.00	7.7	29.7	10	Scientist Initiation: NL
	Rep E	19.4	8.00	7.7	29.9	10	Scientist Confirmation: NL
Day 1	Rep A	20.7	7.85	7.2	30.3		Date: 11/17/18 Time: 1426 WQ: SR
Day 2	Rep B	20.0	7.88	7.6	30.4		Date: 11/18/18 Time: 0849 WQ: AR
Day 3	Rep C	20.0	7.93	7.5	30.5		Date: 11/19/18 Time: 0910 WQ: DH
Day 4	Rep D	20.0	7.90	7.4	30.7		Date: 11/20/18 Time: 0957 WQ: DH
Day 5	Rep E	20.0	7.98	7.7	30.9		Date: 11/21/18 Time: 0910 WQ: XG
Day 6	Rep A	20.2	7.97	7.4	31.3		Date: 11/22/18 Time: 0855 WQ: FD
Day 7	Rep B	19.9	8.04	7.5	29.6		Date: 11/23/18 Time: 0906 WQ: SR
Day 8	Rep C	20.0	8.02	7.3	29.7		Date: 11/24/18 Time: 0937 WQ: SR
Day 9	Rep D	20.1	8.10	7.5	29.2		Date: 11/25/18 Time: 0934 WQ: DH
Day 10	Rep A	19.9	8.01	7.4	31.5	10	Date: 11/26/18
	Rep B	19.7	8.08	7.5	30.5	10	Time: 0858 count 1214
	Rep C	19.9	8.05	7.5	30.1	10	WQ: AR
	Rep D	19.9	8.07	7.5	29.4	10	Scientist: NL
	Rep E	20.1	8.06	7.4	31.0	10	

Day of Test	Matrix	pH	D.O. (mg/L)	Salinity (ppt)	Total Sulfide (mg/L)	Total Ammonia (mg/L)	Sign-Off
Day 0	Porewater	7.70	7.4	29.5	0.184	7.45	Date: 11/16/18 Time: 1118 WQ: SR
	Overlying Water					<1.00	Date: 11/16/18 Time: 1118 WQ: SR
	Meter ID	PH19	RD10	EC10	DR3900	DR3800	
Day 10	Porewater	7.88	6.7	29.4	0.085	1.87	Date: 11/26/18 Time: 1004 WQ: AR
	Overlying Water					<1.00	Date: 11/26/18 Time: 0928 WQ: AR
	Meter ID	PH24	RD11	EC11	DR3900	DR3800	

CETIS Analytical Report

Report Date: 27 Nov-18 14:55 (p 3 of 3)

Test Code: LBCC_1118NA_C1 | 06-5075-1254

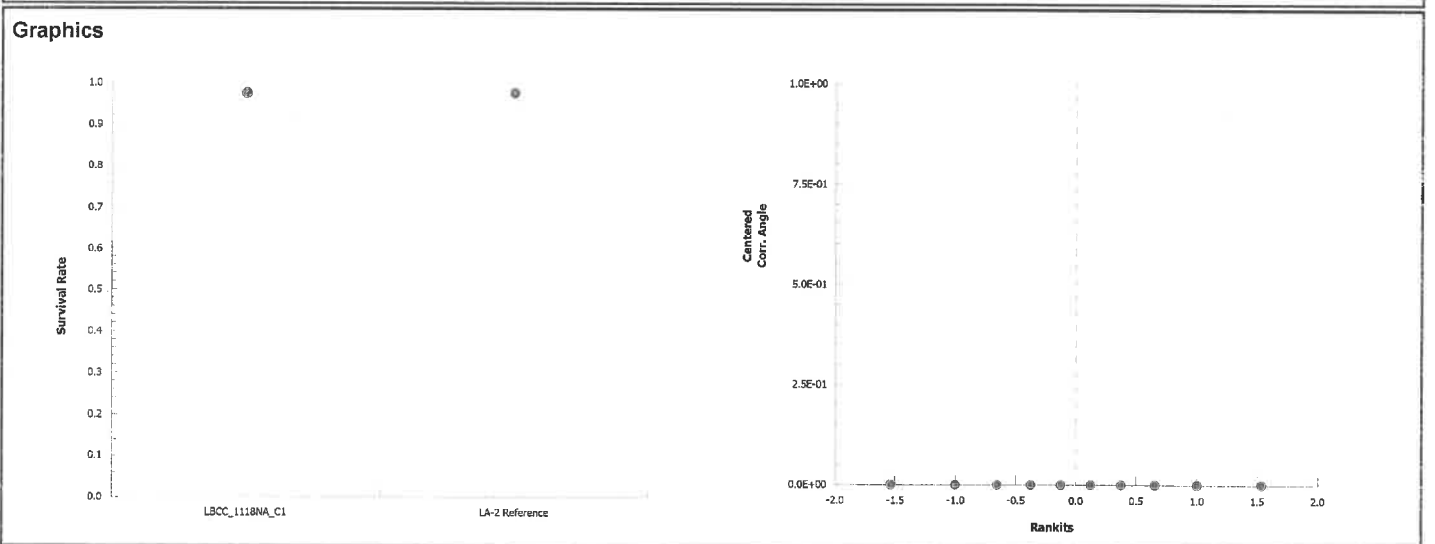
Acute Polychaete Survival Test			Pacific EcoRisk		
Analysis ID: 13-8640-7777	Endpoint: Survival Rate	CETIS Version: CETISv1.9.2			
Analyzed: 27 Nov-18 14:55	Analysis: Nonparametric-Two Sample	Official Results: Yes			

Wilcoxon Rank Sum Two-Sample Test									
Sample I	vs	Sample II	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Control Sed		Reference Sed	27.5	n/a	1	8	Exact	1.0000	Non-Significant Effect

ANOVA Table						
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0	0	1	65500	<1.0E-37	Significant Effect
Error	0	0	8			
Total	0		9			

Survival Rate Summary											
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
LBCC_1118NA_C1	CS	5	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	0.00%
LA-2 Reference	RS	5	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	0.00%

Angular (Corrected) Transformed Summary											
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
LBCC_1118NA_C1	CS	5	1.41	1.41	1.41	1.41	1.41	1.41	0	0.00%	0.00%
LA-2 Reference	RS	5	1.41	1.41	1.41	1.41	1.41	1.41	0	0.00%	0.00%



10-Day Estuarine/Marine Sediment Toxicity Test Data

Client: KLI: Carnival Cruise Test ID #: 80604 Date (Day 0): 11/16/18
 Species: Neanthes arenaceodentata Project #: 29525 Organism Supplier: ATS
 Organism Log #: 11294

Day of Test	Test Replicate	Sample ID: LA-2					Sign-Off
		Temp (°C)	pH	D.O. (mg/L)	Salinity (ppt)	# Alive	
Day 0	Rep A	19.5	8.01	7.7	29.8	10	Date: 11/16/18
	Rep B	19.3	8.01	7.6	29.7	10	Time: 0845
	Rep C	19.0	8.03	7.7	29.8	10	WQ: JR
	Rep D	19.0	8.03	7.7	29.7	10	Scientist Initiation: AR NB
	Rep E	19.3	8.03	7.7	29.8	10	Scientist Confirmation: AR NB
Day 1	Rep A	20.6	7.81	7.2	30.4		Date: 11/17/18 Time: 1425 WQ: JR
Day 2	Rep B	19.8	7.93	7.6	30.4		Date: 11/18/18 Time: 0847 WQ: AR
Day 3	Rep C	19.8	7.98	7.6	30.8		Date: 11/19/18 Time: 0906 WQ: DH
Day 4	Rep D	19.7	7.94	7.6	31.2		Date: 11/20/18 Time: 0955 WQ: DH
Day 5	Rep E	19.8	7.96	7.8	30.6		Date: 11/21/18 Time: 0908 WQ: JR
Day 6	Rep A	20.1	7.88	7.4	31.4		Date: 11/22/18 Time: 0855 WQ: ID
Day 7	Rep B	19.7	8.02	7.5	29.3		Date: 11/23/18 Time: 0902 WQ: JR
Day 8	Rep C	19.9	8.01	7.5	30.0		Date: 11/24/18 Time: 0932 WQ: JR
Day 9	Rep D	19.8	8.06	7.7	30.9		Date: 11/25/18 Time: 0930 WQ: DH
Day 10	Rep A	19.8	8.05	7.5	29.6	10	Date: 11/26/18
	Rep B	19.6	8.08	7.6	29.3	10	Time: 0846 Count 1145
	Rep C	19.7	8.07	7.6	30.1	10	WQ: AR
	Rep D	19.7	8.09	7.6	31.5	10	Scientist: NL
	Rep E	20.0	8.02	7.5	30.8	10	

Day of Test	Matrix	pH	D.O. (mg/L)	Salinity (ppt)	Total Sulfide (mg/L)	Total Ammonia (mg/L)	Sign-Off
Day 0	Porewater	7.88	7.5	29.4	0.657	4.88	Date: 11/16/18 Time: 1140 WQ: JR
	Overlying Water					21.00	Date: 11/16/18 Time: 1114 WQ: JR
	Meter ID	PH19	RD10	EC10	DR3900	DR3800	
Day 10	Porewater	7.65	7.6	30.6	0.066	1.38	Date: 11/26/18 Time: 1000 WQ: AR
	Overlying Water					<1.00	Date: 11/26/18 Time: 0927 WQ: AR
	Meter ID	PH24	RD11	EC11	DR3900	DR3800	

Appendix F

Test Data and Summary of Statistics for the Reference Toxicant Evaluation of the Polychaete, *Neanthes arenaceodentata*

CETIS Summary Report

Report Date: 23 Nov-18 09:14 (p 1 of 1)
Test Code: 80619 | 11-3069-5363

Acute Polychaete Survival Test **Pacific EcoRisk**

Batch ID: 21-0063-3082	Test Type: Survival	Analyst: Ashleigh Findley
Start Date: 16 Nov-18 14:21	Protocol: ASTM E1611-00 (2007)	Diluent: Diluted Seawater
Ending Date: 20 Nov-18 12:41	Species: Neanthes arenaceodentata	Brine: Not Applicable
Duration: 94h	Source: Aquatic Tox. Sup.	Age: N/A

Sample ID: 14-0722-0681	Code: KCI	Client: Reference Toxicant
Sample Date: 16 Nov-18 14:21	Material: Potassium chloride	Project: 29582
Receipt Date: 16 Nov-18 14:21	Source: Reference Toxicant	
Sample Age: n/a (20 °C)	Station: In House	

Multiple Comparison Summary							
Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
12-0206-5984	Survival Rate	Fisher Exact Test	1	2	1.414		n/a

Point Estimate Summary							
Analysis ID	Endpoint	Point Estimate Method	Level	g/L	95% LCL	95% UCL	TU ✓
10-4810-9685	Survival Rate	Spearman-Kärber	EC50	1.58	1.37	1.81	

Survival Rate Summary											
Conc-g/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	LW	2	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
0.5		2	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
1		2	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
2		2	0.200	0.200	0.200	0.200	0.200	0.000	0.000	0.00%	80.00%
3		2	0.000	0.000	0.000	0.000	0.000	0.000	0.000		100.00%
4		2	0.000	0.000	0.000	0.000	0.000	0.000	0.000		100.00%

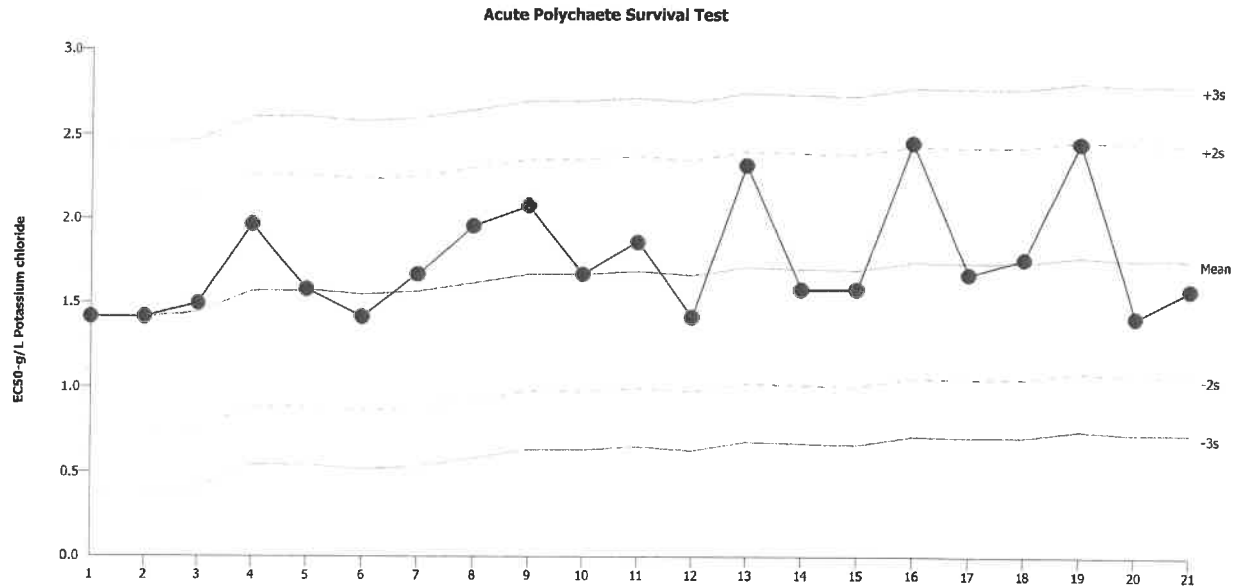
Survival Rate Detail			
Conc-g/L	Code	Rep 1	Rep 2
0	LW	1.000	1.000
0.5		1.000	1.000
1		1.000	1.000
2		0.200	0.200
3		0.000	0.000
4		0.000	0.000

Survival Rate Binomials			
Conc-g/L	Code	Rep 1	Rep 2
0	LW	5/5	5/5
0.5		5/5	5/5
1		5/5	5/5
2		1/5	1/5
3		0/5	0/5
4		0/5	0/5

Acute Polychaete Survival Test

Pacific EcoRisk

Test Type: Survival Organism: Neanthes arenaceodentata (Polycha) Material: Potassium chloride
 Protocol: ASTM E1611-00 (2007) Endpoint: Survival Rate Source: Reference Toxicant-REF



Mean: 1.757 Count: 20 -2s Warning Limit: 1.069 -3s Action Limit: 0.7253
 Sigma: 0.344 CV: 19.60% +2s Warning Limit: 2.445 +3s Action Limit: 2.789

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2018	Jan	22	13:31	1.414	-0.3428	-0.9965			16-8358-9988	19-6612-0527
2		Feb	22	14:30	1.414	-0.3428	-0.9965			16-7469-4240	17-7683-8955
3		Mar	5	16:33	1.494	-0.2629	-0.7643			09-9409-5410	03-3515-5372
4			11	16:00	1.966	0.2093	0.6085			16-3781-7875	07-0270-3147
5		Apr	2	14:00	1.578	-0.1786	-0.5191			02-9144-8870	05-3060-4479
6			8	14:20	1.414	-0.3428	-0.9965			16-6276-2572	16-8247-3969
7			13	15:53	1.668	-0.08943	-0.26			12-8278-5353	06-8040-8827
8			16	15:50	1.958	0.201	0.5844			05-0271-4251	13-8059-3791
9			21	16:00	2.077	0.3203	0.9312			20-1755-8965	02-1406-5573
10		May	2	11:43	1.668	-0.08943	-0.26			18-4228-3270	07-9729-4997
11			8	16:35	1.861	0.1042	0.3029			06-7144-1297	18-2454-8442
12			27	14:37	1.414	-0.3428	-0.9965			03-2221-2842	10-4964-3340
13		Jun	5	17:26	2.319	0.5616	1.632			12-6089-1903	19-1529-6042
14			13	16:57	1.578	-0.1786	-0.5191			18-9289-1862	07-7074-6545
15			28	15:29	1.578	-0.1786	-0.5191			12-3939-3004	20-0274-6118
16		Aug	3	16:00	2.449	0.6925	2.013	(+)		08-0001-5112	12-3521-5875
17			4	15:07	1.668	-0.08943	-0.26			04-7941-7360	12-7441-5185
18		Sep	27	16:35	1.762	0.00473	0.01375			04-1484-9253	02-6684-0598
19		Oct	14	16:15	2.449	0.6925	2.013	(+)		18-9147-5842	04-0238-1064
20			27	12:20	1.414	-0.3428	-0.9965			15-7463-3083	07-3469-0849
21		Nov	16	14:21	1.578	-0.1786	-0.5191			11-3069-5363	10-4810-9685

96 Hour *Neanthes arenaceodentata* Marine Reference Toxicant Test Data

Client: Reference Toxicant Organism Log #: 11294
 Test Material: Potassium Chloride Control/Diluent: 30 ppt Seawater (+/-2 ppt)
 Test ID#: 80619 Project #: 29582 Test Date: 11/16/18
 Randomization: 2.6.1

Treatment (g KCl /L)	Temp (°C)	pH		D.O. (mg/L)		Salinity (ppt)		# Live Organisms		SIGN-OFF
		new	old	new	old	new	old	A	B	
Control	20.0	7.94		8.8		29.4		5	5	Date: 11/16/18
0.5	19.5	7.94		9.2		30.2		5	5	Test Solution Prep: NB
1	19.5	7.93		9.4		30.6		5	5	New WQ: SB
2	19.5	7.91		9.5		31.7		5	5	Initiation Time: 1421
3	19.5	7.88		9.7		32.7		5	5	Initiation Signoff: NB
4	19.5	7.85		9.9		33.9		5	5	RT Stock Batch #: 59
Meter ID:	105A	PH25		RD13		EC13				
Control	20.6		7.76		7.8		30.0	5	5	Date: 11/17/18
0.5	20.7		7.82		7.7		30.8	5	5	Count Time: 0946
1	20.7		7.80		7.6		31.2	5	5	Count Signoff: LZ
2	20.7		7.79		7.5		32.3	5	5	Old WQ: TA
3	20.9		7.77		7.5		33.3	0	0	
4	20.9		7.77		7.5		34.4	0	0	
Meter ID:	107A		PH25		RD10		EC10			
Control	20.6		7.71		7.3		29.8	5	5	Date: 11/18/18
0.5	20.7		7.74		7.2		30.8	5	5	Count Time: 1010
1	20.6		7.73		7.2		31.3	5	5	Count Signoff: WC
2	20.6		7.70		7.0		32.3	5	5	Old WQ: 74
3	—		—		—		—	—	—	
4	—		—		—		—	—	—	
Meter ID:	91A		PH19		RD13		EC13			
Control	20.0		7.60		7.5		29.6	5	5	Date: 11/19/18
0.5	20.1		7.60		7.5		30.7	5	5	Count Time: 1145
1	20.2		7.56		7.5		31.2	5	5	Count Signoff: TK
2	20.3		7.52		7.4		32.2	5	5	Old WQ: Lu
3	—		—		—		—	—	—	
4	—		—		—		—	—	—	
Meter ID:	108A		PH24		RD13		EC13			
Control	20.6		7.74		7.3		29.4	5	5	Date: 11/20/18
0.5	20.7		7.76		7.1		30.4	5	5	Termination Time: 1241
1	20.7		7.74		7.0		30.9	5	5	Termination Signoff: SD
2	20.7		7.66		6.6		32.2	1	1	Old WQ: TF
3	—		—		—		—	—	—	
4	—		—		—		—	—	—	
Meter ID:	99A		PH24		RD11		EC11			

Appendix G

Test Data and Summary of Statistics for the Evaluation of the Toxicity of the Port of Long Beach Carnival Cruise Terminal Sediment Elutriates with Bivalve (*Mytilus galloprovincialis*) Embryos

CETIS Summary Report

Report Date: 28 Nov-18 12:35 (p 1 of 2)
 Test Code: 80607 | 04-3222-9842

Bivalve Larval Survival and Development Test Pacific EcoRisk

Batch ID: 13-7901-7319	Test Type: Development-Survival	Analyst: Ashleigh Findley
Start Date: 15 Nov-18 16:20	Protocol: ASTM E724-98 (Bivalve)	Diluent: Diluted Seawater
Ending Date: 17 Nov-18 15:22	Species: Mytilus galloprovincialis	Brine: Not Applicable
Duration: 47h	Source: M-REP	Age: N/A

Sample ID: 06-6726-1506	Code: DMMO	Client: Kinnetic Laboratories, Inc
Sample Date: 30 Oct-18 13:25	Material: Elutriate	Project: 29525
Receipt Date: 06 Nov-18 11:25	Source: Long Beach Carnival Cruise (LBCARCRUZ)	
Sample Age: 16d 3h (0 °C)	Station: CCT-18-Composite A	

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result
03-4687-4546	Development Rate	Equal Variance t Two-Sample Test	0.6665	Site Water passed development rate
20-2257-5121	Development Rate	Equal Variance t Two-Sample Test	0.3547	Salinity Control passed development rate
01-5076-5022	Survival Rate	Equal Variance t Two-Sample Test	0.2495	Salinity Control passed survival rate
02-8523-4860	Survival Rate	Equal Variance t Two-Sample Test	0.4836	Site Water passed survival rate

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
13-9290-3052	Development Rate	Dunnett Multiple Comparison Test	50	100	70.71	2	3.07%
20-4527-7168	Survival Rate	Dunnett Multiple Comparison Test	100	> 100	n/a	1	12.1%

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	Level	%	95% LCL	95% UCL	TU	✓
14-5182-1631	Development Rate	Linear Interpolation (ICPIN)	EC5	>100	n/a	n/a	<1	
			EC10	>100	n/a	n/a	<1	
			EC15	>100	n/a	n/a	<1	
			EC20	>100	n/a	n/a	<1	
			EC25	>100	n/a	n/a	<1	
			EC40	>100	n/a	n/a	<1	
			EC50	>100	n/a	n/a	<1	
05-4913-0350	Survival Rate	Linear Interpolation (ICPIN)	EC5	>100	n/a	n/a	<1	
			EC10	>100	n/a	n/a	<1	
			EC15	>100	n/a	n/a	<1	
			EC20	>100	n/a	n/a	<1	
			EC25	>100	n/a	n/a	<1	
			EC40	>100	n/a	n/a	<1	
			EC50	>100	n/a	n/a	<1	

Development Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	LW	5	0.947	0.922	0.971	0.922	0.971	0.009	0.020	2.08%	0.00%
0	SL	5	0.943	0.924	0.961	0.930	0.968	0.007	0.015	1.58%	0.41%
0	SW	5	0.952	0.925	0.979	0.926	0.975	0.010	0.022	2.29%	-0.57%
1		5	0.935	0.915	0.956	0.913	0.957	0.007	0.016	1.76%	1.18%
10		5	0.939	0.918	0.961	0.911	0.954	0.008	0.018	1.87%	0.75%
50		5	0.920	0.883	0.957	0.877	0.960	0.013	0.030	3.26%	2.79%
100		5	0.911	0.886	0.935	0.887	0.940	0.009	0.020	2.15%	3.80%

Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	LW	5	0.938	0.861	1.000	0.864	1.000	0.028	0.062	6.63%	0.00%
0	SL	5	0.896	0.780	1.000	0.796	1.000	0.042	0.094	10.44%	4.46%
0	SW	5	0.930	0.817	1.000	0.796	1.000	0.041	0.091	9.79%	0.89%
1		5	0.943	0.903	0.984	0.916	1.000	0.015	0.033	3.45%	-0.56%
10		5	0.929	0.838	1.000	0.812	0.990	0.033	0.073	7.87%	1.00%
50		5	0.913	0.787	1.000	0.749	1.000	0.046	0.102	11.15%	2.68%
100		5	0.894	0.782	1.000	0.743	0.979	0.041	0.091	10.14%	4.69%

CETIS Summary Report

Report Date: 28 Nov-18 12:35 (p 2 of 2)
 Test Code: 80607 | 04-3222-9842

Bivalve Larval Survival and Development Test							Pacific EcoRisk
Development Rate Detail							
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	LW	0.955	0.971	0.922	0.932	0.952	
0	SL	0.968	0.930	0.939	0.941	0.935	
0	SW	0.969	0.926	0.975	0.933	0.956	
1		0.941	0.939	0.927	0.913	0.957	
10		0.954	0.911	0.940	0.939	0.953	
50		0.877	0.960	0.920	0.932	0.912	
100		0.916	0.900	0.940	0.887	0.910	
Survival Rate Detail							
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	LW	1.000	0.890	0.864	1.000	0.937	
0	SL	0.796	0.906	0.806	1.000	0.974	
0	SW	0.995	0.984	1.000	0.874	0.796	
1		0.916	1.000	0.937	0.932	0.932	
10		0.979	0.906	0.990	0.812	0.958	
50		0.749	0.995	0.901	1.000	0.921	
100		0.743	0.948	0.979	0.906	0.895	
Development Rate Binomials							
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	LW	193/202	170/175	165/179	192/206	179/188	
0	SL	152/157	173/186	154/164	193/205	186/199	
0	SW	190/196	188/203	198/203	167/179	152/159	
1		175/186	199/212	179/193	178/195	178/186	
10		187/196	173/190	189/201	155/165	183/192	
50		143/163	190/198	172/187	193/207	176/193	
100		142/155	181/201	187/199	173/195	171/188	
Survival Rate Binomials							
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	LW	191/191	170/191	165/191	191/191	179/191	
0	SL	152/191	173/191	154/191	191/191	186/191	
0	SW	190/191	188/191	191/191	167/191	152/191	
1		175/191	191/191	179/191	178/191	178/191	
10		187/191	173/191	189/191	155/191	183/191	
50		143/191	190/191	172/191	191/191	176/191	
100		142/191	181/191	187/191	173/191	171/191	

CETIS Analytical Report

Report Date: 28 Nov-18 12:36 (p 1 of 2)
 Test Code: 80607 | 04-3222-9842

Bivalve Larval Survival and Development Test Pacific EcoRisk

Analysis ID: 13-9290-3052 Endpoint: Development Rate CETIS Version: CETISv1.9.2
 Analyzed: 28 Nov-18 12:33 Analysis: Parametric-Control vs Treatments Official Results: Yes

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	C > T	50	100	70.71	2	3.07%

Dunnett Multiple Comparison Test

Control	vs	Conc-%	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Lab Water Contr		1	0.954	2.3	0.061	8	CDF	0.4005	Non-Significant Effect
		10	0.626	2.3	0.061	8	CDF	0.5472	Non-Significant Effect
		50	1.97	2.3	0.061	8	CDF	0.0935	Non-Significant Effect
		100*	2.71	2.3	0.061	8	CDF	0.0221	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0165792	0.0041448	4	2.34	0.0900	Non-Significant Effect
Error	0.0354045	0.0017702	20			
Total	0.0519837		24			

Distributional Tests

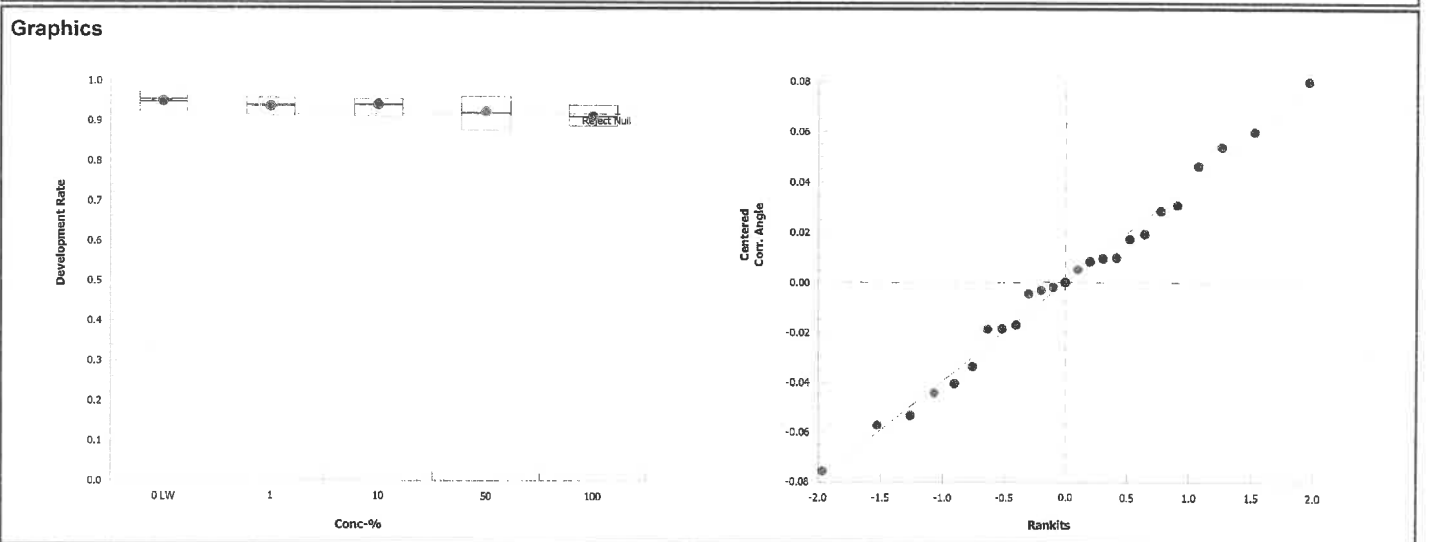
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance Test	1.53	13.3	0.8219	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.988	0.888	0.9868	Normal Distribution

Development Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LW	5	0.947	0.922	0.971	0.952	0.922	0.971	0.009	2.08%	0.00%
1		5	0.935	0.915	0.956	0.939	0.913	0.957	0.007	1.76%	1.18%
10		5	0.939	0.918	0.961	0.940	0.911	0.954	0.008	1.87%	0.75%
50		5	0.920	0.883	0.957	0.920	0.877	0.960	0.013	3.26%	2.79%
100		5	0.911	0.886	0.935	0.910	0.887	0.940	0.009	2.15%	3.80%

Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LW	5	1.34	1.29	1.4	1.35	1.29	1.4	0.02	3.34%	0.00%
1		5	1.32	1.27	1.36	1.32	1.27	1.36	0.0151	2.56%	1.89%
10		5	1.32	1.28	1.37	1.32	1.27	1.35	0.0158	2.67%	1.24%
50		5	1.29	1.22	1.36	1.28	1.21	1.37	0.0254	4.40%	3.90%
100		5	1.27	1.22	1.31	1.27	1.23	1.32	0.0158	2.78%	5.38%



CETIS Analytical Report

Report Date: 28 Nov-18 12:36 (p 1 of 2)
 Test Code: 80607 | 04-3222-9842

Bivalve Larval Survival and Development Test Pacific EcoRisk

Analysis ID: 14-5182-1631 Endpoint: Development Rate CETIS Version: CETISv1.9.2
 Analyzed: 28 Nov-18 12:34 Analysis: Linear Interpolation (ICPIN) Official Results: Yes

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1335182	200	Yes	Two-Point Interpolation

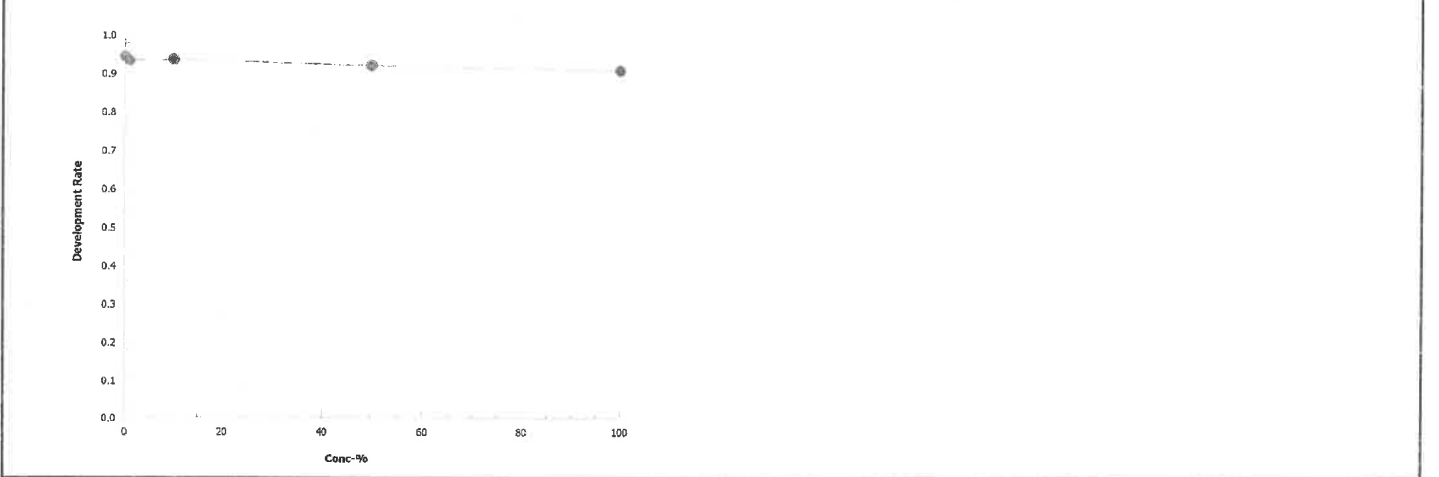
Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC5	>100	n/a	n/a	<1	n/a	n/a
EC10	>100	n/a	n/a	<1	n/a	n/a
EC15	>100	n/a	n/a	<1	n/a	n/a
EC20	>100	n/a	n/a	<1	n/a	n/a
EC25	>100	n/a	n/a	<1	n/a	n/a
EC40	>100	n/a	n/a	<1	n/a	n/a
EC50	>100	n/a	n/a	<1	n/a	n/a

Development Rate Summary Calculated Variate(A/B)

Conc-%	Code	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	LW	5	0.947	0.922	0.971	0.009	0.020	2.08%	0.0%	899	950
1		5	0.935	0.913	0.957	0.007	0.016	1.76%	1.18%	909	972
10		5	0.939	0.911	0.954	0.008	0.018	1.87%	0.75%	887	944
50		5	0.920	0.877	0.960	0.013	0.030	3.26%	2.79%	874	948
100		5	0.911	0.887	0.940	0.009	0.020	2.15%	3.8%	854	938

Graphics



CETIS Analytical Report

Report Date: 28 Nov-18 12:36 (p 2 of 2)
 Test Code: 80607 | 04-3222-9842

Bivalve Larval Survival and Development Test					Pacific EcoRisk					
Analysis ID: 20-4527-7168		Endpoint: Survival Rate			CETIS Version: CETISv1.9.2					
Analyzed: 28 Nov-18 12:33		Analysis: Parametric-Control vs Treatments			Official Results: Yes					
Data Transform		Alt Hyp			NOEL	LOEL	TOEL	TU	PMSD	
Angular (Corrected)		C > T			100	> 100	n/a	1	12.09%	

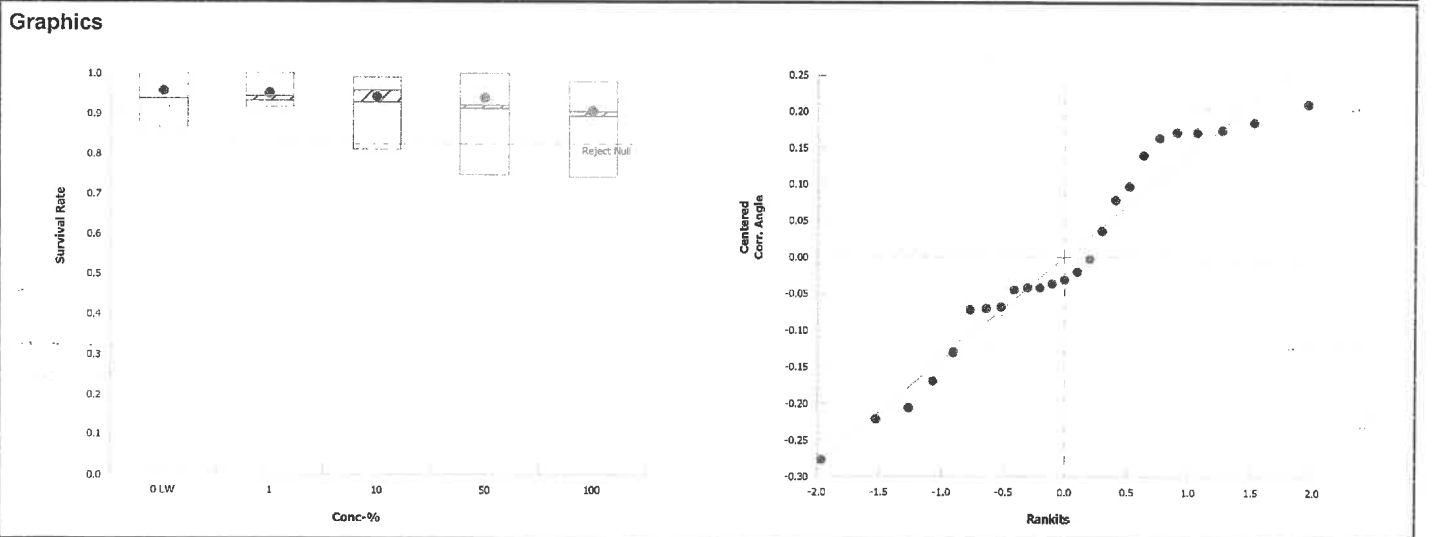
Dunnett Multiple Comparison Test										
Control	vs	Conc-%	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)	
Lab Water Contr		1	0.143	2.3	0.224	8	CDF	0.7503	Non-Significant Effect	
		10	0.357	2.3	0.224	8	CDF	0.6654	Non-Significant Effect	
		50	0.406	2.3	0.224	8	CDF	0.6446	Non-Significant Effect	
		100	1.05	2.3	0.224	8	CDF	0.3617	Non-Significant Effect	

ANOVA Table						
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0303093	0.0075773	4	0.322	0.8599	Non-Significant Effect
Error	0.470692	0.0235346	20			
Total	0.501001		24			

Distributional Tests						
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)	
Variances	Bartlett Equality of Variance Test	1.54	13.3	0.8188	Equal Variances	
Distribution	Shapiro-Wilk W Normality Test	0.944	0.888	0.1834	Normal Distribution	

Survival Rate Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LW	5	0.938	0.861	1.000	0.937	0.864	1.000	0.028	6.63%	0.00%
1		5	0.943	0.903	0.984	0.932	0.916	1.000	0.015	3.45%	-0.56%
10		5	0.929	0.838	1.000	0.958	0.812	0.990	0.033	7.87%	1.00%
50		5	0.913	0.787	1.000	0.921	0.749	1.000	0.046	11.15%	2.68%
100		5	0.894	0.782	1.000	0.906	0.743	0.979	0.041	10.14%	4.69%

Angular (Corrected) Transformed Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LW	5	1.36	1.16	1.57	1.32	1.19	1.53	0.0731	12.00%	0.00%
1		5	1.35	1.22	1.48	1.31	1.28	1.53	0.047	7.79%	1.02%
10		5	1.33	1.15	1.5	1.36	1.12	1.47	0.0624	10.51%	2.54%
50		5	1.32	1.08	1.57	1.29	1.05	1.53	0.0892	15.07%	2.89%
100		5	1.26	1.08	1.44	1.26	1.04	1.43	0.0643	11.40%	7.44%



CETIS Analytical Report

Report Date: 28 Nov-18 12:36 (p 2 of 2)
 Test Code: 80607 | 04-3222-9842

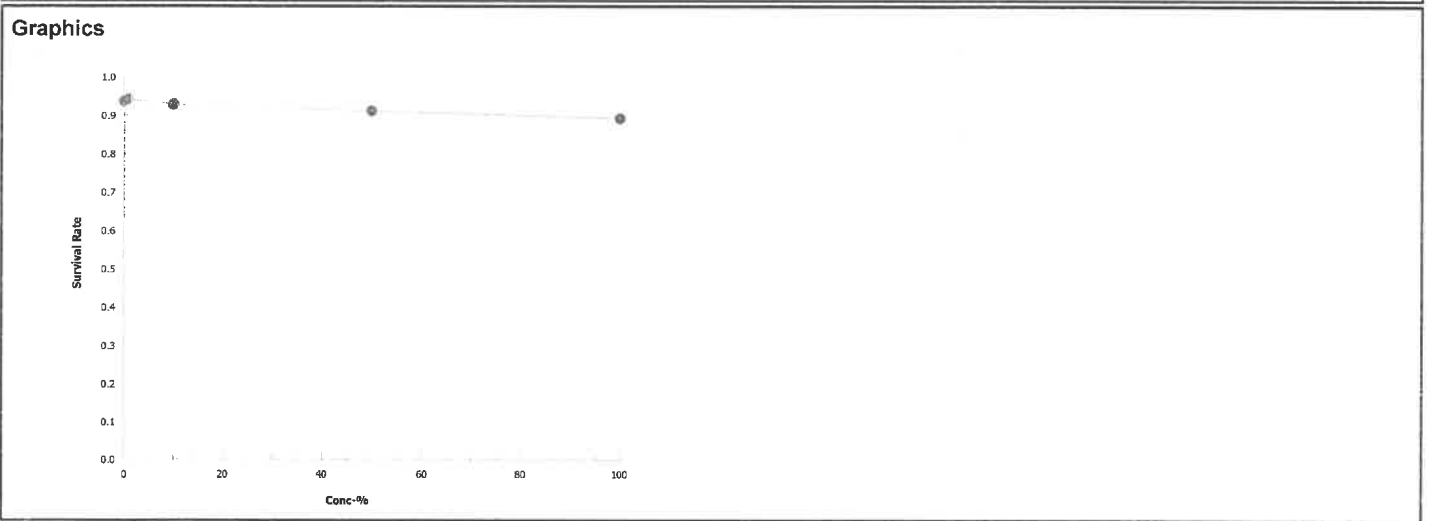
Bivalve Larval Survival and Development Test Pacific EcoRisk

Analysis ID: 05-4913-0350 Endpoint: Survival Rate CETIS Version: CETISv1.9.2
 Analyzed: 28 Nov-18 12:34 Analysis: Linear Interpolation (ICPIN) Official Results: Yes

Linear Interpolation Options					
X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1139023	200	Yes	Two-Point Interpolation

Point Estimates						
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC5	>100	n/a	n/a	<1	n/a	n/a
EC10	>100	n/a	n/a	<1	n/a	n/a
EC15	>100	n/a	n/a	<1	n/a	n/a
EC20	>100	n/a	n/a	<1	n/a	n/a
EC25	>100	n/a	n/a	<1	n/a	n/a
EC40	>100	n/a	n/a	<1	n/a	n/a
EC50	>100	n/a	n/a	<1	n/a	n/a

Survival Rate Summary			Calculated Variate(A/B)								
Conc-%	Code	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	LW	5	0.938	0.864	1.000	0.028	0.062	6.63%	0.0%	896	955
1		5	0.943	0.916	1.000	0.015	0.033	3.45%	-0.56%	901	955
10		5	0.929	0.812	0.990	0.033	0.073	7.87%	1.0%	887	955
50		5	0.913	0.749	1.000	0.046	0.102	11.20%	2.68%	872	955
100		5	0.894	0.743	0.979	0.041	0.091	10.10%	4.69%	854	955



Mytilus sp. Development Toxicity Test Count Data

Client: KLI: Carnival Cruise
 Test Material: Composite-a SET
 Test ID #: 80607
 Project #: 29525
 Sample Salinity adjusted with: -

Test Start Date: 11/15/18
 Test End Date: 11/17/18
 Enumeration Date: 11/20/18
 Investigator: YR
 Inoculation Count: 191

Concentration	Replicate	Number of Normal Larvae	Number of Abnormal Larvae	Total Number Larvae	Percent Normal Development	Percent Survival
Control	A	193	9	202	95.5	100
	B	170	5	175	97.7	89.0
	C	165	14	179	92.2	86.4
	D	192	14	206	93.2	100
	E	179	9	188	95.2	93.7
1.0%	A	175	11	186	94.1	91.6
	B	199	13	212	93.9	100
	C	179	14	193	92.7	93.7
	D	178	17	195	91.3	93.2
	E	178	8	186	95.7	93.2
10%	A	187	9	196	95.4	97.9
	B	173	17	190	91.1	90.6
	C	189	12	201 ²⁰¹ 191 ²⁰¹	94.0 94.0	99.0
	D	155	10	165	93.9 ^{93.9} 93.9	81.2
	E	183	9	192	95.3	95.8
50%	A	143	20	163	87.7	74.9
	B	190	8	198	96.0	99.5
	C	172	15	187	93.6	90.1
	D	193	14	207	93.2	100
	E	176	17	193	91.2	92.1
100%	A	142	13	155	91.6	74.3
	B	181	20	201	90.0	94.8
	C	187	12	199	94.0	97.9
	D	173	22	195	88.7	90.6
	E	171	17	188	91.0	89.5

Mytilus sp. Development Toxicity Test Water Chemistry Data

Client: KLI: Carnival Cruise
 Test Material: Composite-a SET
 Test ID#: 80607 Project #: 29525
 Test Date: 11/15/18 Randomization: -
 Sample Salinity adjusted with: -

Organism Log#: 11192 Age: N/A
 Organism Supplier: M-REP
 Control/Diluent: 30 ppt FSW

Day 0						
Treatment	Temperature (°C)	pH	D.O. (mg/L)	Salinity (ppt)	NH ₃	Signoff
Control	15.3	7.85	8.6	29.5		Test Solution Prep: JO
1.0%	15.3	7.82	8.4	29.5		New WQ: TA
10%	15.2	7.83	8.4	30.1		Innoculation Date: 11/15/18
50%	15.3	7.87	8.2	31.8		Innoculation Time: 1620
100%	15.6	7.91	7.6	33.8	2.85	Innoculation Signoff: JO
Meter ID	113A	PH19	RD10	EC10	DA3800	

Day 1						
Treatment	Temperature (°C)	pH	D.O. (mg/L)	Salinity (ppt)		Signoff
Control	15.9					Date: 11/16/18
1.0%	15.9					Signoff: JO
10%	16.0					
50%	16.0					
100%	16.0					
Meter ID	108A					

Day 2						
Treatment	Temperature (°C)	pH	D.O. (mg/L)	Salinity (ppt)		Signoff
Control	15.7	7.72	7.7	29.8		Termination Signoff: ML
1.0%	15.8	7.74	7.8	30.0		Termination Date: 11/17/18
10%	15.8	7.76	7.8	30.5		Termination Time: 1522
50%	15.9	7.83	7.8	32.2		Old WQ: NB
100%	15.8	7.92	7.9	34.3		Termination Spot Signoff: CD
Meter ID	108A	PH25	RD10	EC10		

CETIS Analytical Report

Report Date: 23 Nov-18 10:52 (p 2 of 6)
 Test Code: 80607 | 04-3222-9842

Bivalve Larval Survival and Development Test Pacific EcoRisk

Analysis ID: 20-2257-5121 Endpoint: Development Rate CETIS Version: CETISv1.9.2
 Analyzed: 23 Nov-18 10:50 Analysis: Parametric-Two Sample Official Results: Yes

Data Transform	Alt Hyp	Comparison Result	PMSD
Angular (Corrected)	C > T	Salinity Control passed development rate	2.27%

Equal Variance t Two-Sample Test

Control	vs	Control II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Lab Water Contr		Salinity Control	0.386	1.86	0.047	8	CDF	0.3547	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0002403	0.0002403	1	0.149	0.7093	Non-Significant Effect
Error	0.0128814	0.0016102	8			
Total	0.0131217		9			

Distributional Tests

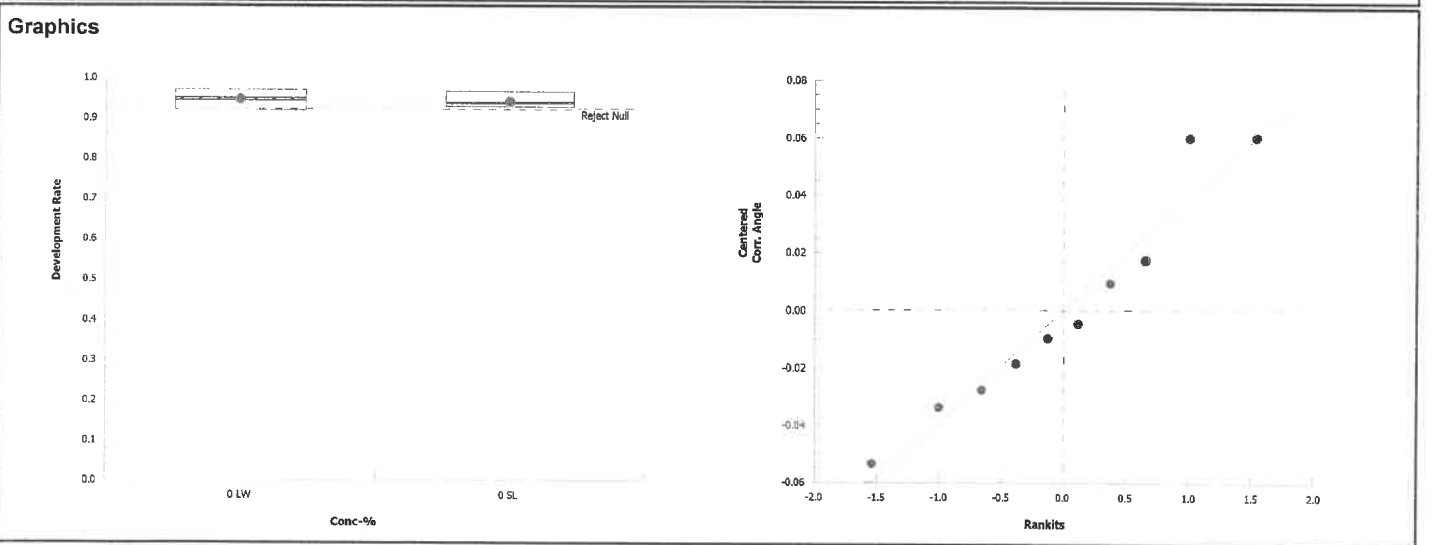
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F Test	1.64	23.2	0.6435	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.931	0.741	0.4574	Normal Distribution

Development Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LW	5	0.947	0.922	0.971	0.952	0.922	0.971	0.009	2.08%	0.00%
0	SL	5	0.943	0.924	0.961	0.939	0.930	0.968	0.007	1.58%	0.41%

Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LW	5	1.34	1.29	1.4	1.35	1.29	1.4	0.02	3.34%	0.00%
0	SL	5	1.33	1.29	1.37	1.32	1.3	1.39	0.0156	2.62%	0.73%



CETIS Analytical Report

Report Date: 23 Nov-18 10:52 (p 5 of 6)
 Test Code: 80607 | 04-3222-9842

Bivalve Larval Survival and Development Test **Pacific EcoRisk**

Analysis ID: 01-5076-5022 Endpoint: Survival Rate CETIS Version: CETISv1.9.2
 Analyzed: 23 Nov-18 10:51 Analysis: Parametric-Two Sample Official Results: Yes

Data Transform	Alt Hyp	Comparison Result	PMSD
Angular (Corrected)	C > T	Salinity Control passed survival rate	10.75%

Equal Variance t Two-Sample Test

Control	vs	Control II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Lab Water Contr		Salinity Control	0.708	1.86	0.207	8	CDF	0.2495	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0155032	0.0155032	1	0.501	0.4991	Non-Significant Effect
Error	0.247432	0.030929	8			
Total	0.262935		9			

Distributional Tests

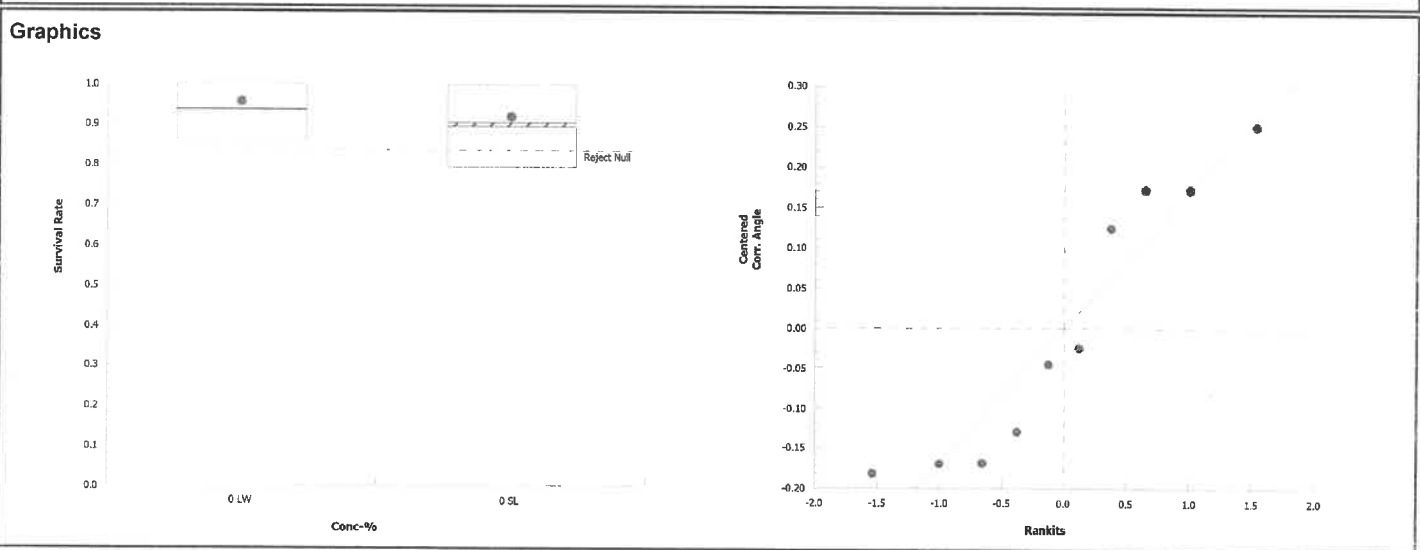
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F Test	1.32	23.2	0.7968	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.877	0.741	0.1191	Normal Distribution

Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LW	5	0.938	0.861	1.000	0.937	0.864	1.000	0.028	6.63%	0.00%
0	SL	5	0.896	0.780	1.000	0.906	0.796	1.000	0.042	10.44%	4.46%

Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LW	5	1.36	1.16	1.57	1.32	1.19	1.53	0.0731	12.00%	0.00%
0	SL	5	1.28	1.05	1.52	1.26	1.1	1.53	0.0838	14.60%	5.78%



Mytilus sp. Development Toxicity Test Count Data

Client: KLI: Carnival Cruise
 Test Material: Salinity Control
 Test ID #: 80607-80608
 Project #: 29525
 Sample Salinity adjusted with: -

Test Start Date: 11/15/18
 Test End Date: 11/17/18
 Enumeration Date: 11/20/18
 Investigator: JK
 Inoculation Counts: 191

Concentration	Replicate	Number of Normal Larvae	Number of Abnormal Larvae	Total Number Larvae	Percent Normal Development	Percent Survival
Lab Control	A	193	9	202	95.5	100
	B	170	5	175	97.7	89.0
	C	165	14	179	92.2	86.4
	D	192	14	206	93.2	100
	E	179	9	188	95.2	93.7
Salinity Control	A	152	5	157	96.8	79.6
	B	173	13	186	93.0	90.6
	C	154	10	164	93.9	80.6
	D	193	12	205	94.0	100
	E	186	13	199	94.5	97.4

Mytilus sp. Development Toxicity Test Water Chemistry Data

Client: KLI: Carnival Cruise
 Test Material: Salinity Control
 Test ID#: 80607-80608 Project #: 29525
 Test Date: 11/15/18 Randomization: -
 Sample Salinity adjusted with: -

Organism Log#: 11192 Age: N/A
 Organism Supplier: M-REP
 Control/Diluent: 30 ppt FSW

Day 0					
Treatment	Temperature (°C)	pH	D.O. (mg/L)	Salinity (ppt)	Signoff
Lab Control	15.3	7.85	8.6	29.5	Date & Inoculation Time: 11/15/18 1020
Salinity Control	15.4	7.83	10.0	33.3	Test Solution Prep: JO
					Innoculation Signoff: JO
Meter ID	113A	PH19	RD10	EC10	New WQ: TA

Site Water					
Treatment	Temperature (°C)	pH	D.O. (mg/L)	Salinity (ppt)	Signoff
Lab Control	15.9				Date: 11/16/18
Salinity Control	16.0				Old WQ: JO
Meter ID	108A				

Day 2					
Treatment	Temperature (°C)	pH	D.O. (mg/L)	Salinity (ppt)	Signoff
Lab Control	15.7	7.72	7.7	29.8	Date: 11/17/18 1522
Salinity Control	15.7	7.77	7.9	33.7	Termination: NL
					Old WQ: JO
Meter ID	108A	PH20	RD10	EC10	Termination Spot Signoff: CO

CETIS Analytical Report

Report Date: 23 Nov-18 10:52 (p 3 of 6)
 Test Code: 80607 | 04-3222-9842

Bivalve Larval Survival and Development Test Pacific EcoRisk

Analysis ID: 03-4687-4546 Endpoint: Development Rate CETIS Version: CETISv1.9.2
 Analyzed: 23 Nov-18 10:51 Analysis: Parametric-Two Sample Official Results: Yes

Data Transform Alt Hyp Comparison Result PMSD
 Angular (Corrected) C > T Site Water passed development rate 2.81%

Equal Variance t Two-Sample Test

Control	vs	Control II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Lab Water Contr		Site Water	-0.447	1.86	0.057	8	CDF	0.6665	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0004657	0.0004657	1	0.2	0.6669	Non-Significant Effect
Error	0.0186672	0.0023334	8			
Total	0.0191328		9			

Distributional Tests

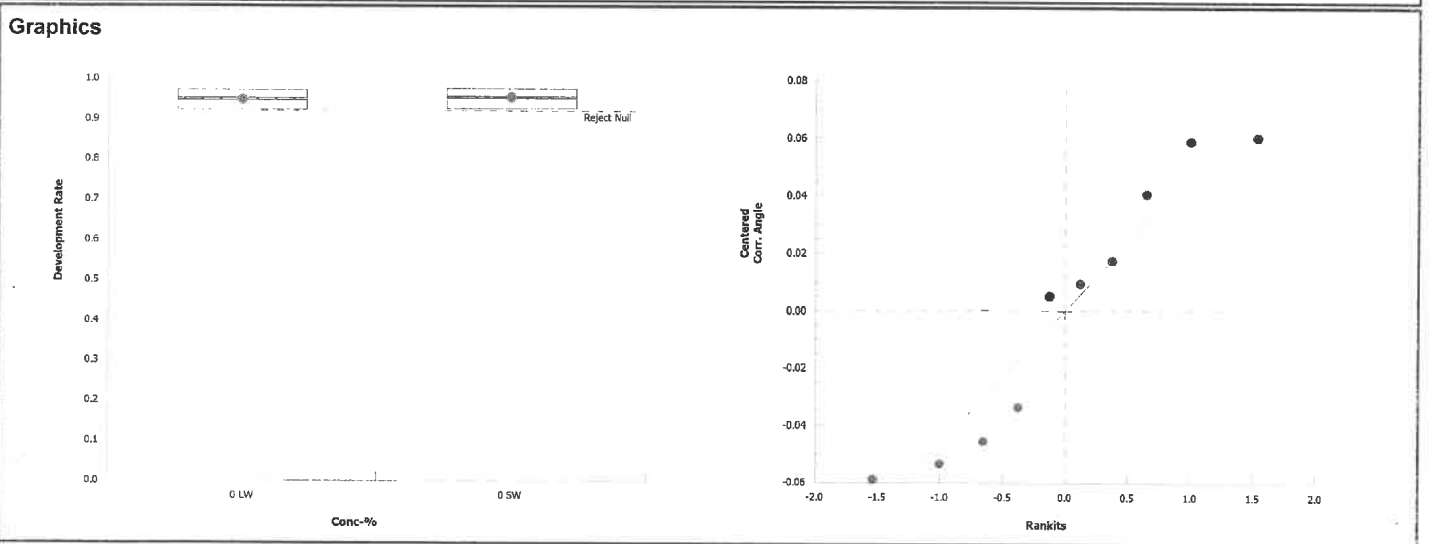
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F Test	1.33	23.2	0.7874	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.907	0.741	0.2619	Normal Distribution

Development Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LW	5	0.947	0.922	0.971	0.952	0.922	0.971	0.009	2.08%	0.00%
0	SW	5	0.952	0.925	0.979	0.956	0.926	0.975	0.010	2.29%	-0.57%

Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LW	5	1.34	1.29	1.4	1.35	1.29	1.4	0.02	3.34%	0.00%
0	SW	5	1.35	1.29	1.42	1.36	1.3	1.41	0.0231	3.81%	-1.02%



CETIS Analytical Report

Report Date: 23 Nov-18 10:52 (p 6 of 6)
 Test Code: 80607 | 04-3222-9842

Bivalve Larval Survival and Development Test			Pacific EcoRisk		
Analysis ID: 02-8523-4860	Endpoint: Survival Rate	CETIS Version: CETISv1.9.2			
Analyzed: 23 Nov-18 10:51	Analysis: Parametric-Two Sample	Official Results: Yes			
Data Transform	Alt Hyp	Comparison Result	PMSD		
Angular (Corrected)	C > T	Site Water passed survival rate	10.95%		

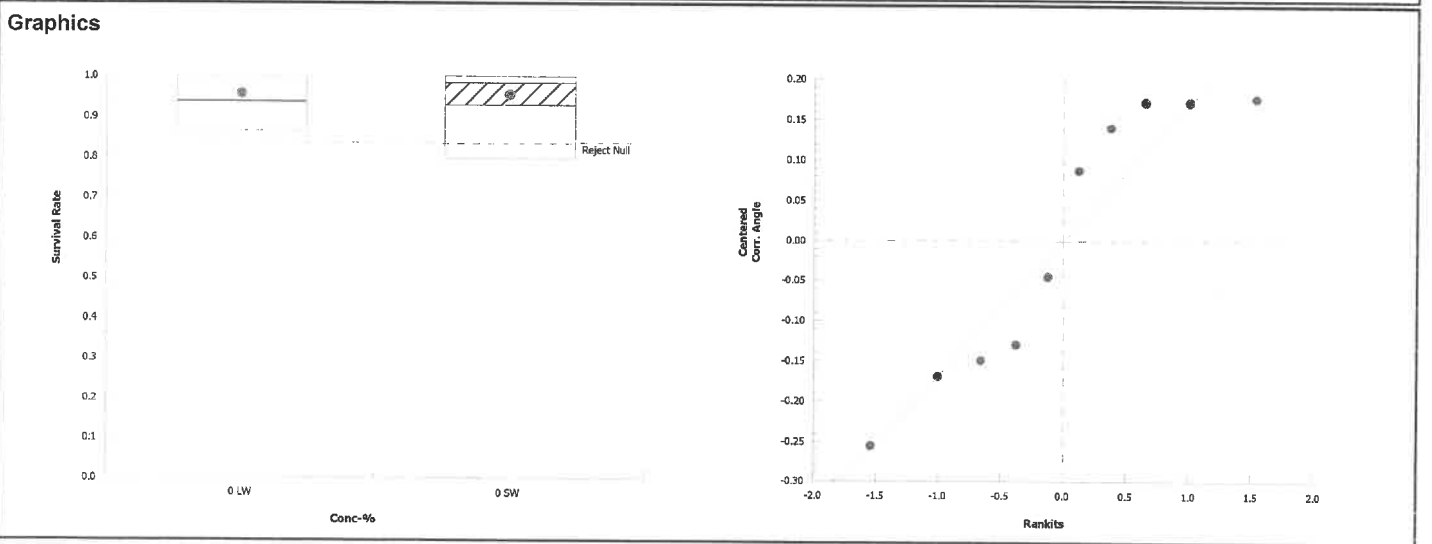
Equal Variance t Two-Sample Test									
Control	vs	Control II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Lab Water Contr		Site Water	0.0425	1.86	0.209	8	CDF	0.4836	Non-Significant Effect

ANOVA Table						
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	5.708E-05	5.708E-05	1	0.0018	0.9672	Non-Significant Effect
Error	0.253278	0.0316598	8			
Total	0.253335		9			

Distributional Tests						
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)	
Variances	Variance Ratio F Test	1.37	23.2	0.7675	Equal Variances	
Distribution	Shapiro-Wilk W Normality Test	0.865	0.741	0.0871	Normal Distribution	

Survival Rate Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LW	5	0.938	0.861	1.000	0.937	0.864	1.000	0.028	6.63%	0.00%
0	SW	5	0.930	0.817	1.000	0.984	0.796	1.000	0.041	9.79%	0.89%

Angular (Corrected) Transformed Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LW	5	1.36	1.16	1.57	1.32	1.19	1.53	0.0731	12.00%	0.00%
0	SW	5	1.36	1.12	1.6	1.45	1.1	1.53	0.0856	14.09%	0.35%



Mytilus sp. Development Toxicity Test Count Data

Client: KLI: Carnival Cruise
 Test Material: Site Water
 Test ID #: 80607-80608
 Project #: 29525
 Sample Salinity adjusted with: -

Test Start Date: 11/15/18
 Test End Date: 11/17/18
 Enumeration Date: 11/20/18
 Investigator: JK
 Inoculation Counts: 191

Concentration	Replicate	Number of Normal Larvae	Number of Abnormal Larvae	Total Number Larvae	Percent Normal Development	Percent Survival
Lab Control	A	193	9	202	95.5	100
	B	170	5	175	97.7	89.0
	C	165	14	179	92.2	86.4
	D	192	14	206	93.2	100
	E	179	9	188	95.2	93.7
Site Water	A	190	6	196	96.9	99.5
	B	188	15	203	92.6	98.4
	C	198	5	203	97.5	100
	D	167	12	179	93.3	87.4
	E	152	7	159	95.6	79.6

Mytilus sp. Development Toxicity Test Water Chemistry Data

Client: KLI: Carnival Cruise
 Test Material: Site Water
 Test ID#: 80607-80608 Project #: 29525
 Test Date: 11/15/18 Randomization: -
 Sample Salinity adjusted with: -

Organism Log#: ~~M-REP-11192~~ Age: N/A
^{JO 11/15/18}
 Organism Supplier: M-REP
 Control/Diluent: 30 ppt FSW

Day 0					
Treatment	Temperature (°C)	pH	D.O. (mg/L)	Salinity (ppt)	Signoff
Lab Control	15.3	7.85	8.6	29.5	Date & Inoculation Time: 11/15/18 1620
Site Water	15.3	8.03	8.9	32.5	Test Solution Prep: JO
					Innoculation Signoff: JO 11/15/18
Meter ID	113A	PH19	RD10	EC10	New WQ: JO 11/15/18 TA

Day 1					
Treatment	Temperature (°C)	pH	D.O. (mg/L)	Salinity (ppt)	Signoff
Lab Control	15.9				Date: 11/16/18
Site Water	16.0				Old WQ: JO
Meter ID	108A				

Day 2					
Treatment	Temperature (°C)	pH	D.O. (mg/L)	Salinity (ppt)	Signoff
Lab Control	15.7	7.72	7.7	29.8	Date: 11/17/18 1522
Site Water	15.7	7.76	7.9	33.3	Termination: NL
					Old WQ: NB
Meter ID	108A	PH25	RD10	EC10	Termination Spot Signoff: (1)

CETIS Summary Report

Report Date: 28 Nov-18 12:54 (p 1 of 2)
 Test Code: 80608 | 15-4321-8064

Bivalve Larval Survival and Development Test	Pacific EcoRisk
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Batch ID: 08-0975-6107	Test Type: Development-Survival	Analyst: Ashleigh Findley
Start Date: 15 Nov-18 16:26	Protocol: ASTM E724-98 (Bivalve)	Diluent: Diluted Seawater
Ending Date: 17 Nov-18 15:44	Species: Mytilus galloprovincialis	Brine: Not Applicable
Duration: 47h	Source: M-REP	Age: N/A

Sample ID: 09-7528-1685	Code: DMMO	Client: Kinetic Laboratories, Inc
Sample Date: 31 Oct-18 08:40	Material: Elutriate	Project: 29525
Receipt Date: 06 Nov-18 11:25	Source: Long Beach Carnival Cruise (LBCARCRUZ)	
Sample Age: 15d 8h (0 °C)	Station: CCT-18-Composite B	

Multiple Comparison Summary							
Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
17-7641-2227	Development Rate	Dunnett Multiple Comparison Test	50	100	70.71	2	2.74%
04-9280-5232	Survival Rate	Steel Many-One Rank Sum Test	100	> 100	n/a	1	9.69%

Point Estimate Summary							
Analysis ID	Endpoint	Point Estimate Method	Level	%	95% LCL	95% UCL	TU ✓
01-6717-6603	Development Rate	Linear Interpolation (ICPIN)	EC5	96	51.3	n/a	1.042
			EC10	>100	n/a	n/a	<1
			EC15	>100	n/a	n/a	<1
			EC20	>100	n/a	n/a	<1
			EC25	>100	n/a	n/a	<1
			EC40	>100	n/a	n/a	<1
			EC50	>100	n/a	n/a	<1
07-0106-6025	Survival Rate	Linear Interpolation (ICPIN)	EC5	84.4	n/a	n/a	1.185
			EC10	>100	n/a	n/a	<1
			EC15	>100	n/a	n/a	<1
			EC20	>100	n/a	n/a	<1
			EC25	>100	n/a	n/a	<1
			EC40	>100	n/a	n/a	<1
			EC50	>100	n/a	n/a	<1

Development Rate Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	LW	5	0.935	0.916	0.955	0.918	0.957	0.007	0.016	1.66%	0.00%
1		5	0.931	0.912	0.949	0.916	0.951	0.007	0.015	1.58%	0.51%
10		5	0.943	0.918	0.968	0.924	0.965	0.009	0.020	2.14%	-0.78%
25		5	0.922	0.909	0.934	0.907	0.935	0.005	0.010	1.13%	1.47%
50		5	0.918	0.887	0.949	0.890	0.947	0.011	0.025	2.72%	1.84%
100		5	0.887	0.877	0.897	0.878	0.897	0.004	0.008	0.91%	5.12%

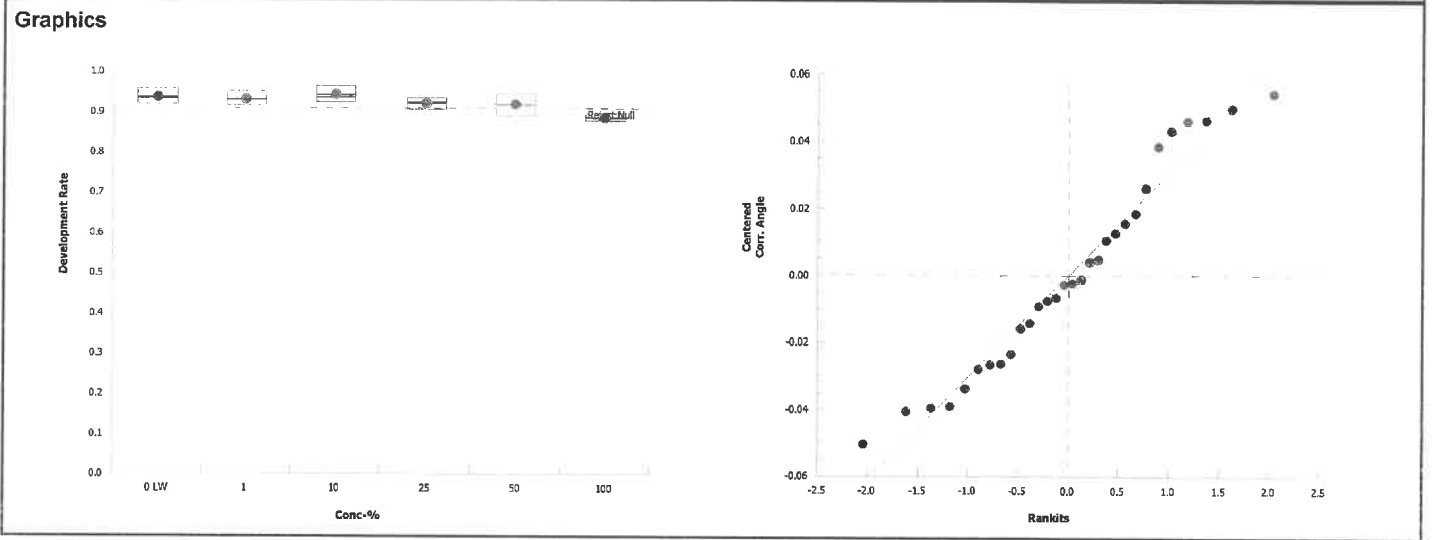
Survival Rate Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	LW	5	0.923	0.862	0.983	0.885	1.000	0.022	0.049	5.31%	0.00%
1		5	0.894	0.847	0.942	0.843	0.927	0.017	0.038	4.27%	3.06%
10		5	0.893	0.810	0.976	0.827	1.000	0.030	0.067	7.48%	3.18%
25		5	0.920	0.888	0.953	0.890	0.958	0.012	0.026	2.83%	0.23%
50		5	0.917	0.856	0.979	0.880	1.000	0.022	0.050	5.41%	0.57%
100		5	0.863	0.800	0.925	0.796	0.906	0.023	0.050	5.83%	6.47%

CETIS Summary Report

Report Date: 28 Nov-18 12:54 (p 2 of 2)
 Test Code: 80608 | 15-4321-8064

Bivalve Larval Survival and Development Test							Pacific EcoRisk
Development Rate Detail							
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	LW	0.945	0.918	0.924	0.957	0.933	
1		0.917	0.951	0.931	0.916	0.938	
10		0.925	0.965	0.924	0.963	0.936	
25		0.907	0.924	0.935	0.918	0.924	
50		0.897	0.939	0.890	0.918	0.947	
100		0.897	0.894	0.878	0.881	0.886	
Survival Rate Detail							
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	LW	0.895	0.885	0.890	1.000	0.942	
1		0.927	0.921	0.843	0.916	0.864	
10		0.901	1.000	0.890	0.827	0.848	
25		0.916	0.958	0.906	0.932	0.890	
50		1.000	0.890	0.890	0.880	0.927	
100		0.822	0.796	0.906	0.895	0.895	
Development Rate Binomials							
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	LW	171/181	169/184	170/184	199/208	180/193	
1		177/193	176/185	161/173	175/191	165/176	
10		172/186	191/198	170/184	158/164	162/173	
25		175/193	183/198	173/185	178/194	170/184	
50		191/213	170/181	170/191	168/183	177/187	
100		157/175	152/170	173/197	171/194	171/193	
Survival Rate Binomials							
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	LW	171/191	169/191	170/191	191/191	180/191	
1		177/191	176/191	161/191	175/191	165/191	
10		172/191	191/191	170/191	158/191	162/191	
25		175/191	183/191	173/191	178/191	170/191	
50		191/191	170/191	170/191	168/191	177/191	
100		157/191	152/191	173/191	171/191	171/191	

Bivalve Larval Survival and Development Test		Pacific EcoRisk
Analysis ID: 17-7641-2227	Endpoint: Development Rate	CETIS Version: CETISv1.9.2
Analyzed: 23 Nov-18 11:03	Analysis: Parametric-Control vs Treatments	Official Results: Yes



CETIS Analytical Report

Report Date: 23 Nov-18 11:03 (p 1 of 2)
 Test Code: 80608 | 15-4321-8064

Bivalve Larval Survival and Development Test Pacific EcoRisk

Analysis ID: 01-6717-6603 Endpoint: Development Rate CETIS Version: CETISv1.9.2
 Analyzed: 23 Nov-18 11:03 Analysis: Linear Interpolation (ICPIN) Official Results: Yes

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	270745	200	Yes	Two-Point Interpolation

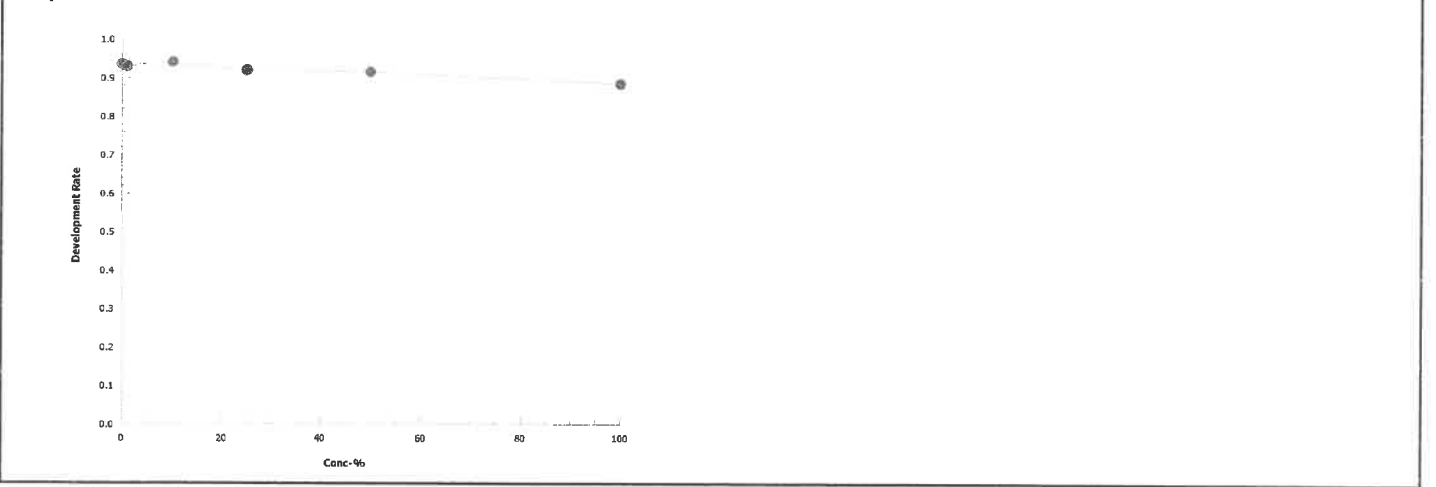
Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC5	96	51.3	n/a	1.042	n/a	1.949
EC10	>100	n/a	n/a	<1	n/a	n/a
EC15	>100	n/a	n/a	<1	n/a	n/a
EC20	>100	n/a	n/a	<1	n/a	n/a
EC25	>100	n/a	n/a	<1	n/a	n/a
EC40	>100	n/a	n/a	<1	n/a	n/a
EC50	>100	n/a	n/a	<1	n/a	n/a

Development Rate Summary Calculated Variate(A/B)

Conc-%	Code	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	LW	5	0.935	0.918	0.957	0.007	0.016	1.66%	0.0%	889	950
1		5	0.931	0.916	0.951	0.007	0.015	1.58%	0.51%	854	918
10		5	0.943	0.924	0.965	0.009	0.020	2.14%	-0.78%	853	905
25		5	0.922	0.907	0.935	0.005	0.010	1.13%	1.47%	879	954
50		5	0.918	0.890	0.947	0.011	0.025	2.72%	1.84%	876	955
100		5	0.887	0.878	0.897	0.004	0.008	0.91%	5.12%	824	929

Graphics



CETIS Analytical Report

Report Date: 23 Nov-18 11:03 (p 3 of 4)
 Test Code: 80608 | 15-4321-8064

Bivalve Larval Survival and Development Test **Pacific EcoRisk**

Analysis ID: 04-9280-5232 Endpoint: Survival Rate CETIS Version: CETISv1.9.2
 Analyzed: 23 Nov-18 11:03 Analysis: Nonparametric-Control vs Treatments Official Results: Yes

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	C > T	100	> 100	n/a	1	9.69%

Steel Many-One Rank Sum Test

Control	vs	Conc-%	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Lab Water Contr		1	24	16	0	8	Asymp	0.5394	Non-Significant Effect
		10	24	16	2	8	Asymp	0.5394	Non-Significant Effect
		25	29.5	16	1	8	Asymp	0.9290	Non-Significant Effect
		50	25.5	16	2	8	Asymp	0.6807	Non-Significant Effect
		100	23	16	1	8	Asymp	0.4416	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0470404	0.0094081	5	0.797	0.5628	Non-Significant Effect
Error	0.283401	0.0118084	24			
Total	0.330442		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance Test	7.31	15.1	0.1987	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.853	0.903	7.0E-04	Non-Normal Distribution

Survival Rate Summary

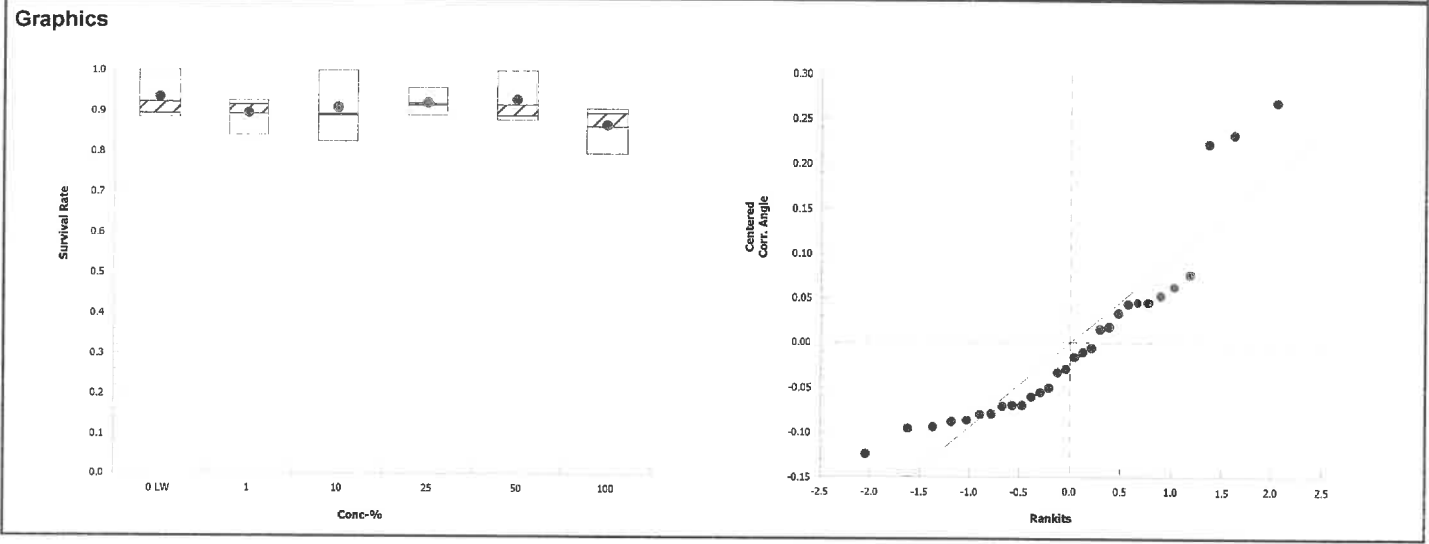
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LW	5	0.923	0.862	0.983	0.895	0.885	1.000	0.022	5.31%	0.00%
1		5	0.894	0.847	0.942	0.916	0.843	0.927	0.017	4.27%	3.06%
10		5	0.893	0.810	0.976	0.890	0.827	1.000	0.030	7.48%	3.18%
25		5	0.920	0.888	0.953	0.916	0.890	0.958	0.012	2.83%	0.23%
50		5	0.917	0.856	0.979	0.890	0.880	1.000	0.022	5.41%	0.57%
100		5	0.863	0.800	0.925	0.895	0.796	0.906	0.023	5.83%	6.47%

Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LW	5	1.31	1.15	1.48	1.24	1.22	1.53	0.0586	9.99%	0.00%
1		5	1.24	1.17	1.32	1.28	1.16	1.3	0.0272	4.90%	5.26%
10		5	1.27	1.07	1.46	1.23	1.14	1.53	0.07	12.36%	3.53%
25		5	1.29	1.23	1.35	1.28	1.23	1.36	0.0226	3.93%	1.85%
50		5	1.3	1.14	1.47	1.23	1.22	1.53	0.0596	10.23%	0.74%
100		5	1.2	1.11	1.28	1.24	1.1	1.26	0.0321	6.00%	8.89%

Bivalve Larval Survival and Development Test Pacific EcoRisk

Analysis ID: 04-9280-5232 Endpoint: Survival Rate CETIS Version: CETISv1.9.2
Analyzed: 23 Nov-18 11:03 Analysis: Nonparametric-Control vs Treatments Official Results: Yes



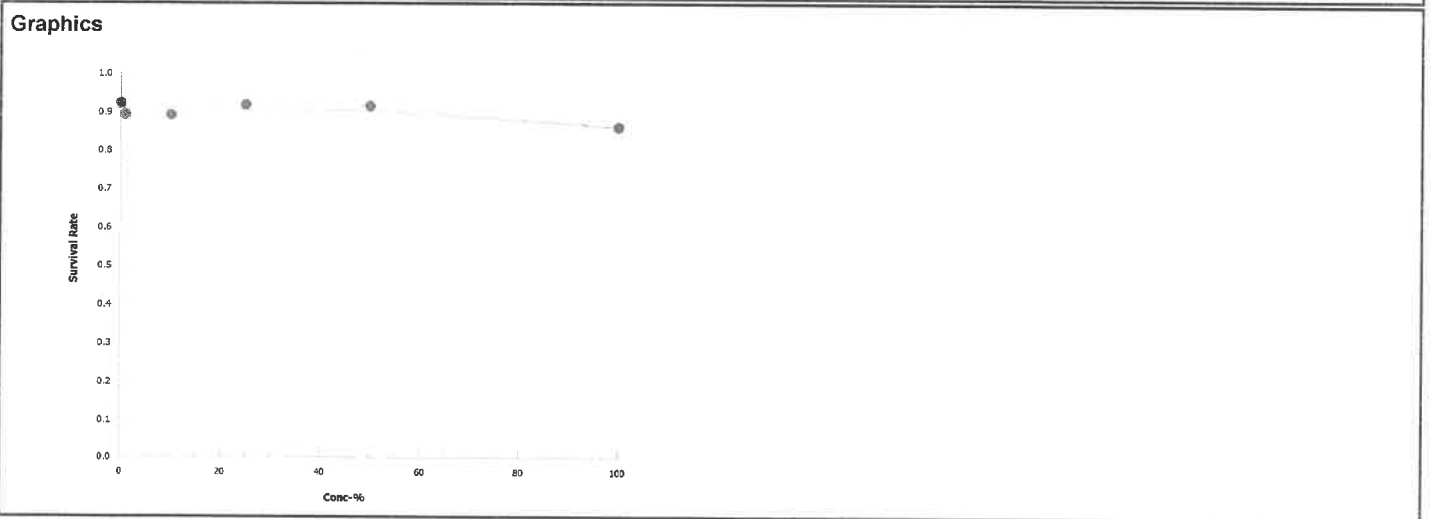
CETIS Analytical Report

Report Date: 23 Nov-18 11:03 (p 2 of 2)
 Test Code: 80608 | 15-4321-8064

Bivalve Larval Survival and Development Test						Pacific EcoRisk
Analysis ID: 07-0106-6025	Endpoint: Survival Rate	CETIS Version: CETISv1.9.2			Official Results: Yes	
Analyzed: 23 Nov-18 11:03	Analysis: Linear Interpolation (ICPIN)					
Linear Interpolation Options						
X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method	
Linear	Linear	1182754	200	Yes	Two-Point Interpolation	

Point Estimates						
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC5	84.4	n/a	n/a	1.185	n/a	n/a
EC10	>100	n/a	n/a	<1	n/a	n/a
EC15	>100	n/a	n/a	<1	n/a	n/a
EC20	>100	n/a	n/a	<1	n/a	n/a
EC25	>100	n/a	n/a	<1	n/a	n/a
EC40	>100	n/a	n/a	<1	n/a	n/a
EC50	>100	n/a	n/a	<1	n/a	n/a

Survival Rate Summary			Calculated Variate(A/B)								
Conc-%	Code	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	LW	5	0.923	0.885	1.000	0.022	0.049	5.31%	0.0%	881	955
1		5	0.894	0.843	0.927	0.017	0.038	4.27%	3.06%	854	955
10		5	0.893	0.827	1.000	0.030	0.067	7.48%	3.18%	853	955
25		5	0.920	0.890	0.958	0.012	0.026	2.83%	0.23%	879	955
50		5	0.917	0.880	1.000	0.022	0.050	5.41%	0.57%	876	955
100		5	0.863	0.796	0.906	0.023	0.050	5.83%	6.47%	824	955



CETIS Analytical Report

Report Date: 23 Nov-18 11:03 (p 1 of 4)
 Test Code: 80608 | 15-4321-8064

Bivalve Larval Survival and Development Test							Pacific EcoRisk				
Analysis ID: 17-7641-2227		Endpoint: Development Rate			CETIS Version: CETISv1.9.2						
Analyzed: 23 Nov-18 11:03		Analysis: Parametric-Control vs Treatments			Official Results: Yes						
Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD					
Angular (Corrected)	C > T	50	100	70.71	2	2.74%					
Dunnett Multiple Comparison Test											
Control	vs	Conc-%	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)		
Lab Water Contr		1	0.466	2.36	0.05	8	CDF	0.6619	Non-Significant Effect		
		10	-0.804	2.36	0.05	8	CDF	0.9717	Non-Significant Effect		
		25	1.32	2.36	0.05	8	CDF	0.2858	Non-Significant Effect		
		50	1.52	2.36	0.05	8	CDF	0.2178	Non-Significant Effect		
		100*	4.11	2.36	0.05	8	CDF	8.9E-04	Significant Effect		
ANOVA Table											
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)					
Between	0.0320869	0.0064174	5	5.81	0.0012	Significant Effect					
Error	0.0264958	0.001104	24								
Total	0.0585828		29								
Distributional Tests											
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)						
Variances	Bartlett Equality of Variance Test	7.27	15.1	0.2014	Equal Variances						
Distribution	Shapiro-Wilk W Normality Test	0.954	0.903	0.2184	Normal Distribution						
Development Rate Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LW	5	0.935	0.916	0.955	0.933	0.918	0.957	0.007	1.66%	0.00%
1		5	0.931	0.912	0.949	0.931	0.916	0.951	0.007	1.58%	0.51%
10		5	0.943	0.918	0.968	0.936	0.924	0.965	0.009	2.14%	-0.78%
25		5	0.922	0.909	0.934	0.924	0.907	0.935	0.005	1.13%	1.47%
50		5	0.918	0.887	0.949	0.918	0.890	0.947	0.011	2.72%	1.84%
100		5	0.887	0.877	0.897	0.886	0.878	0.897	0.004	0.91%	5.12%
Angular (Corrected) Transformed Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LW	5	1.32	1.27	1.36	1.31	1.28	1.36	0.0145	2.47%	0.00%
1		5	1.31	1.27	1.34	1.3	1.28	1.35	0.0133	2.27%	0.74%
10		5	1.33	1.28	1.39	1.32	1.29	1.38	0.0201	3.37%	-1.28%
25		5	1.29	1.26	1.31	1.29	1.26	1.31	0.00864	1.50%	2.12%
50		5	1.28	1.23	1.34	1.28	1.23	1.34	0.0207	3.60%	2.43%
100		5	1.23	1.21	1.24	1.23	1.21	1.24	0.00575	1.05%	6.57%

Mytilus sp. Development Toxicity Test Water Chemistry Data

Client: KLI: Carnival Cruise
 Test Material: Composite-b SET
 Test ID #: 80608
 Project #: 29525
 Sample Salinity adjusted with: —

Test Start Date: 11/15/18
 Test End Date: 11/17/18
 Enumeration Date: 11/21/18
 Investigator: HR
 Inoculation Count: 191

Concentration	Replicate	Number of Normal Larvae	Number of Abnormal Larvae	Total Number Larvae	Percent Normal Development	Percent Survival
Lab Control	A	171	10	181	94.5	89.5
	B	169	15	184	91.8	88.5
	C	170	14	184	92.4	89.0
	D	199	9	208	95.7	100
	E	180	13	193	93.3	94.2
1%	A	177	16	193	91.7	92.7
	B	176	9	185	95.1	92.1
	C	161	12	173	93.1	84.3
	D	175	16	191	91.6	91.6
	E	165	11	176	93.8	86.4
10%	A	172	14	186	92.5	90.1
	B	191	7	198	96.5	100
	C	170	14	184	92.4	89.0
	D	158	6	164	96.3	82.7
	E	162	11	173	93.6	84.8
25%	A	175	18	193	90.7	91.6
	B	183	15	198	92.4	95.8
	C	173	12	185	93.5	90.6
	D	178	16	194	91.8	93.2
	E	170	14	184	92.4	89.0
50%	A	191	22	213	89.7	100
	B	170	11	181	93.9	89.0
	C	170	21	191	89.0	89.0
	D	168	15	183	91.8	88.0
	E	177	10	187	94.7 92.7 11/21/18	92.7
100%	A	157	18	175	89.7	82.2
	B	152	18	170	89.4	79.6
	C	173	24	197	87.8	90.6
	D	171	23	194	88.1	89.5
	E	171	22	193	88.6	89.5

Mytilus sp. Development Toxicity Test Water Chemistry Data

Client: KLI: Carnival Cruise
 Test Material: Composite-b SET
 Test ID#: 80608 Project #: 29525
 Test Date: 11/15/18 Randomization:
 Sample Salinity adjusted with :

Organism Log#: 11192 Age: N/A
 Organism Supplier: M-REP
 Control/Diluent: 30 ppt FSW

Day 0						
Treatment	Temperature (°C)	pH	D.O. (mg/L)	Salinity (ppt)	NH3	Signoff
Lab Control	15.3	7.78	8.4	29.3		Sample ID: <u> </u>
1%	15.5	7.80	8.4	29.8		Test Solution Prep: <u>JO</u>
10%	15.5	7.80	8.4	30.1		New WQ: <u>TA</u>
25%	15.6	7.81	8.3	30.7		Innoculation Date: <u>11/15/18</u>
50%	15.5	7.82	8.1	31.8		Innoculation Time: <u>1020</u>
100%	15.6	7.84	7.6	33.8	2.19	Innoculation Signoff: <u>NL</u>
Meter ID	113A	PH19	RD10	EC10	DR3100	

Day 1						
Treatment	Temperature (°C)	pH	D.O. (mg/L)	Salinity (ppt)		Signoff
Lab Control	15.8					Date: <u>11/16/18</u>
1%	15.6					Signoff: <u>JO</u>
10%	15.6					
25%	15.5					
50%	15.5					
100%	15.5					
Meter ID	108A					

Day 2						
Treatment	Temperature (°C)	pH	D.O. (mg/L)	Salinity (ppt)		Signoff
Lab Control	15.6 15.6	7.78	7.9	30.0		Termination Signoff: <u>RB</u>
1%	15.4	7.76	7.9	30.2		Termination Date: <u>11/17/18</u>
10%	15.3	7.76	7.9	30.5		Termination Time: <u>1544</u>
25%	15.3	7.80	7.9	31.2		Old WQ: <u>MB</u>
50%	15.2	7.84	7.9	32.2		Termination Spot Signoff: <u>OD</u>
100%	15.2	7.89	8.0	34.1		
Meter ID	108A	PH23	RD10	EC10		

Appendix H

Test Data and Summary of Statistics for the Reference Toxicant Evaluation of the *Mytilus galloprovincialis* Embryos

CETIS Summary Report

Report Date: 23 Nov-18 09:32 (p 1 of 1)
 Test Code: 80657 | 11-5301-4074

Bivalve Larval Survival and Development Test Pacific EcoRisk

Batch ID: 13-2194-2648	Test Type: Development-Survival	Analyst: Ashleigh Findley
Start Date: 15 Nov-18 16:23	Protocol: EPA/600/R-95/136 (1995)	Diluent: Diluted Seawater
Ending Date: 17 Nov-18 15:44	Species: Mytilus galloprovincialis	Brine: Not Applicable
Duration: 47h	Source: M-REP	Age: N/A

Sample ID: 19-4368-7394	Code: KCI	Client: Reference Toxicant
Sample Date: 15 Nov-18 16:23	Material: Potassium chloride	Project: 29600
Receipt Date: 15 Nov-18 16:23	Source: Reference Toxicant	
Sample Age: n/a (17.5 °C)	Station: In House	

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
00-6102-7775	Development Rate	Dunnett Multiple Comparison Test	1	2	1.414		3.73%

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	Level	g/L	95% LCL	95% UCL	TU	✓
06-7238-4229	Development Rate	Linear Interpolation (ICPIN)	EC5	1.7	1.27	2.18		
			EC10	2.03	1.99	2.07		
			EC15	2.08	2.04	2.12		
			EC20	2.14	2.1	2.17		
			EC25	2.19	2.16	2.23		
			EC40	2.35	2.33	2.38		
			EC50	2.46	2.44	2.48		

Development Rate Summary

Conc-g/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	LW	4	0.950	0.915	0.985	0.926	0.979	0.011	0.022	2.33%	0.00%
0.5		4	0.949	0.916	0.982	0.926	0.969	0.010	0.021	2.17%	0.13%
1		4	0.959	0.930	0.989	0.935	0.981	0.009	0.019	1.93%	-0.98%
2		4	0.887	0.851	0.923	0.862	0.906	0.011	0.023	2.55%	6.65%
3		4	0.000	0.000	0.000	0.000	0.000	0.000	0.000		100.00%
4		4	0.000	0.000	0.000	0.000	0.000	0.000	0.000		100.00%

Development Rate Detail

Conc-g/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	LW	0.979	0.926	0.942	0.953
0.5		0.937	0.969	0.926	0.964
1		0.981	0.960	0.935	0.962
2		0.906	0.862	0.906	0.874
3		0.000	0.000	0.000	0.000
4		0.000	0.000	0.000	0.000

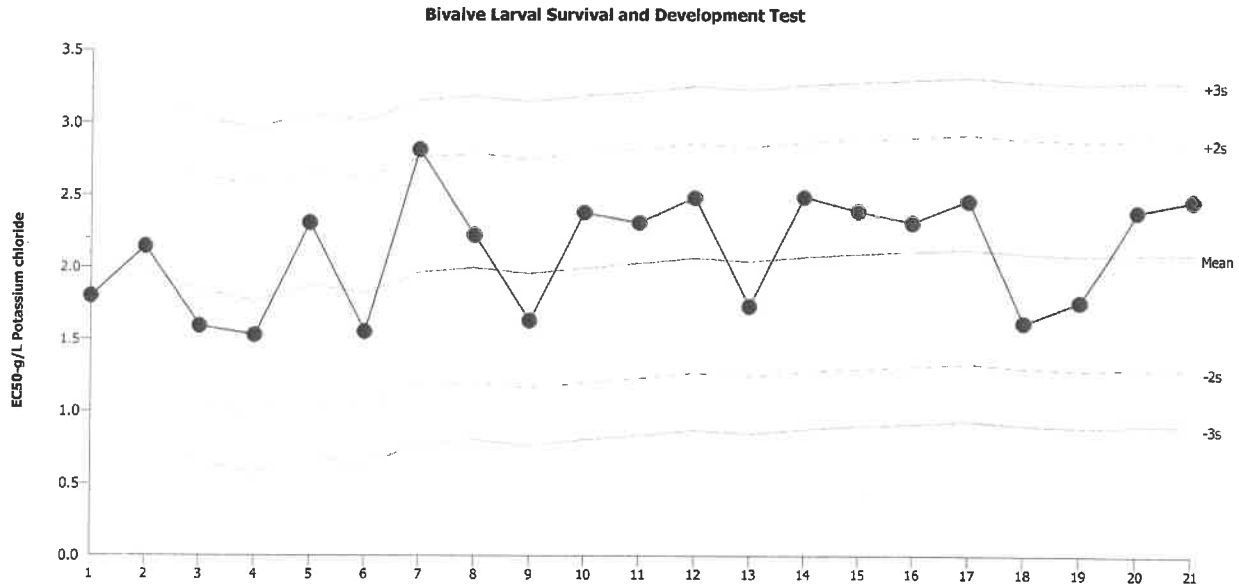
Development Rate Binomials

Conc-g/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	LW	186/190	151/163	179/190	184/193
0.5		178/190	156/161	176/190	186/193
1		203/207	169/176	145/155	175/182
2		144/159	168/195	155/171	167/191
3		0/119	0/139	0/132	0/113
4		0/1	0/1	0/1	0/1

Bivalve Larval Survival and Development Test

Pacific EcoRisk

Test Type: Development-Survival Organism: Mytilus galloprovincialis (Bay Mussel) Material: Potassium chloride
 Protocol: EPA/600/R-95/136 (1995) Endpoint: Development Rate Source: Reference Toxicant-REF



Mean: 2.094 Count: 20 -2s Warning Limit: 1.3 -3s Action Limit: 0.9029
 Sigma: 0.3969 CV: 19.00% +2s Warning Limit: 2.887 +3s Action Limit: 3.284

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2018	Mar	5	15:00	1.799	-0.2949	-0.7429			11-2314-9342	14-1826-6679
2			7	14:07	2.143	0.04872	0.1228			14-6978-7863	05-9076-8317
3		Apr	5	15:29	1.592	-0.5022	-1.265			12-7393-6726	00-6976-2024
4			18	15:00	1.529	-0.5646	-1.422			13-6261-7084	05-1244-1117
5			25	15:46	2.306	0.2122	0.5347			18-7257-5547	20-1211-7777
6		May	2	15:56	1.552	-0.5416	-1.365			08-4125-5024	06-2663-0568
7			16	16:40	2.813	0.7191	1.812			15-2515-4723	20-6846-4512
8			23	15:38	2.219	0.1249	0.3146			10-1261-6531	12-8596-9748
9		Jun	7	16:19	1.63	-0.4638	-1.169			06-6549-8204	20-7846-3992
10			27	15:58	2.378	0.284	0.7157			06-1844-4998	02-6782-3087
11		Jul	12	15:32	2.307	0.2134	0.5376			03-6225-7954	13-0525-1661
12			19	17:00	2.48	0.3857	0.9718			04-4288-8209	00-4791-6682
13			25	15:25	1.73	-0.3636	-0.9162			16-8742-7894	15-2330-8130
14		Aug	2	17:31	2.484	0.3903	0.9833			04-8722-5093	04-5487-9957
15			15	14:33	2.383	0.2886	0.727			20-7887-2086	01-2281-8562
16			30	14:58	2.304	0.2104	0.5302			03-7992-9919	09-0666-4903
17		Sep	11	16:14	2.459	0.3652	0.9201			07-9140-1440	17-2568-1628
18			26	18:20	1.617	-0.4774	-1.203			10-6141-1540	07-9607-9477
19		Oct	10	16:10	1.759	-0.3348	-0.8436			09-0080-9329	01-4776-6162
20		Nov	8	15:06	2.387	0.293	0.7381			05-5435-6829	21-3959-6702
21			15	16:23	2.462	0.3676	0.9262			11-5301-4074	06-7238-4229

Mytilus sp. Development Toxicity Test Count Data

Client: Reference Toxicant
 Test Material: Potassium Chloride
 Test ID #: 80657
 Project #: 29600

Test Start Date: 11/15/18
 Test End Date: 11/17/18
 Enumeration Date: 11/21/18
 Investigator: KR

Concentration	Replicate	Number of Normal Larvae	Number of Abnormal Larvae	Total Number Larvae	Percent Normal Development
Lab Water Control	A	186	4	190	97.9
	B	151	12	163	92.6
	C	179	11	190	94.2
	D	184	9	193	95.3
0.5	A	178	12	190	93.7
	B	156	5	161	96.9
	C	176	14	190	92.6
	D	186	7	193	96.4
1	A	203	4	207	98.1
	B	169	7	176	96.0
	C	145	10	155	93.5
	D	175	7	182	96.2
2	A	144	15	159	90.6
	B	168	27	195	86.2
	C	155	16	171	90.6
	D	167	24	191	87.4
3	A	0	119	119	0
	B	0	139	139	0
	C	0	132	132	0
	D	0	113	113	0
4	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Mytilus sp. Development Toxicity Test Water Chemistry Data

Client: Reference Toxicant
 Test Material: Potassium Chloride
 Test ID#: 80657 Project #: 29600
 Test Date: 11/15/18

Organism Log#: 11192 Age: N/A
 Organism Supplier: MREP
 Control/Diluent: FSW @ 30±2 ppt

Day 0					
Treatment (g/L)	Temperature (°C)	pH	D.O. (mg/L)	Salinity (ppt)	Signoff
Lab Water Control	17.5	7.85	8.7	29.6	Ref Tox Stock # -
0.5	17.9	7.85	8.7	30.3	Test Solution Prep: SF
1	17.4	7.85	8.7	30.8	New WQ: LZ
2	17.3	7.84	8.6	31.9	Innoculation Date: 11/15/18
3	17.8	7.81	8.6	32.9	Innoculation Time: 1623
4	17.2	7.80	8.5	34.0	Innoculation Signoff: NL
Meter ID	100A	PH19	RD10	EC10	

Day 1					
Treatment	Temperature (°C)	pH	D.O. (mg/L)	Salinity (ppt)	Signoff
Lab Water Control	18.6				Date: 11/16/18
0.5	18.7 18.1				Old WQ: JO
1	18.3				
2	18.4				
3	18.5				
4	18.7				
Meter ID	108A				

Day 2					
Treatment	Temperature (°C)	pH	D.O. (mg/L)	Salinity (ppt)	Signoff
Lab Water Control	18.2	7.83	7.5	30.3	Termination Date: 11/17/18
0.5	18.1	7.81	7.4	31.0	Termination Time: 1544
1	17.9	7.81	7.4	31.6	Termination Signoff: JL
2	17.9	7.79	7.4	32.4	Old WQ: WB
3	18.0	7.79	7.4	33.6	Termination Spot Signoff: AD
4	18.2	7.78	7.3	34.7	
Meter ID	108A	PH25	RD10	EC10	

Appendix I

Test Data and Summary of Statistics for the Evaluation of the Toxicity of the Port of Long Beach Carnival Cruise Terminal Sediment Elutriates to Mysids (*Americamysis bahia*)

CETIS Summary Report

Report Date: 20 Nov-18 13:01 (p 1 of 1)
Test Code: 80609 | 18-2873-2171

Acute Mysid Survival Test **Pacific EcoRisk**

Batch ID: 09-0278-5214	Test Type: Survival (96h)	Analyst: Bella Volpatti
Start Date: 14 Nov-18 15:29	Protocol: EPA-821-R-02-012 (2002)	Diluent: Diluted Seawater
Ending Date: 18 Nov-18 13:35	Species: Americamysis bahia	Brine: Not Applicable
Duration: 94h	Source: Aquatic Indicators, FL	Age: 5

Sample ID: 05-5145-2664	Code: DMMO	Client: Kinnetic Laboratories, Inc
Sample Date: 30 Oct-18 13:25	Material: Elutriate	Project: 29525
Receipt Date: 06 Nov-18 11:25	Source: Long Beach Carnival Cruise (LBCARCRUZ)	
Sample Age: 15d 2h (0 °C)	Station: CCT-18-Composite-a	

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result
03-9195-4456	96h Survival Rate	Equal Variance t Two-Sample Test	0.9294	Site Water passed 96h survival rate

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
07-6041-1323	96h Survival Rate	Steel Many-One Rank Sum Test	100	> 100	n/a	1	6.44%

96h Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	LW	5	0.960	0.892	1.000	0.900	1.000	0.025	0.055	5.71%	0.00%
0	SW	5	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	-4.17%
1		5	0.980	0.924	1.000	0.900	1.000	0.020	0.045	4.56%	-2.08%
10		5	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	-4.17%
50		5	0.980	0.924	1.000	0.900	1.000	0.020	0.045	4.56%	-2.08%
100		5	0.980	0.924	1.000	0.900	1.000	0.020	0.045	4.56%	-2.08%

96h Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	LW	0.900	1.000	0.900	1.000	1.000
0	SW	1.000	1.000	1.000	1.000	1.000
1		1.000	1.000	1.000	0.900	1.000
10		1.000	1.000	1.000	1.000	1.000
50		1.000	1.000	1.000	1.000	0.900
100		0.900	1.000	1.000	1.000	1.000

96h Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	LW	9/10	10/10	9/10	10/10	10/10
0	SW	10/10	10/10	10/10	10/10	10/10
1		10/10	10/10	10/10	9/10	10/10
10		10/10	10/10	10/10	10/10	10/10
50		10/10	10/10	10/10	10/10	9/10
100		9/10	10/10	10/10	10/10	10/10

CETIS Analytical Report

Report Date: 19 Nov-18 11:26 (p 2 of 2)
 Test Code: 80609 | 18-2873-2171

Acute Mysid Survival Test Pacific EcoRisk

Analysis ID: 07-6041-1323 Endpoint: 96h Survival Rate CETIS Version: CETISv1.9.2
 Analyzed: 19 Nov-18 11:25 Analysis: Nonparametric-Control vs Treatments Official Results: Yes

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	C > T	100	> 100	n/a	1	6.44%

Steel Many-One Rank Sum Test

Control	vs	Conc-%	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Lab Water Contr		1	30	17	2	8	Asymp	0.9275	Non-Significant Effect
		10	32.5	17	1	8	Asymp	0.9812	Non-Significant Effect
		50	30	17	2	8	Asymp	0.9275	Non-Significant Effect
		100	30	17	2	8	Asymp	0.9275	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0106237	0.0026559	4	0.556	0.6974	Non-Significant Effect
Error	0.0956136	0.0047807	20			
Total	0.106237		24			

Distributional Tests

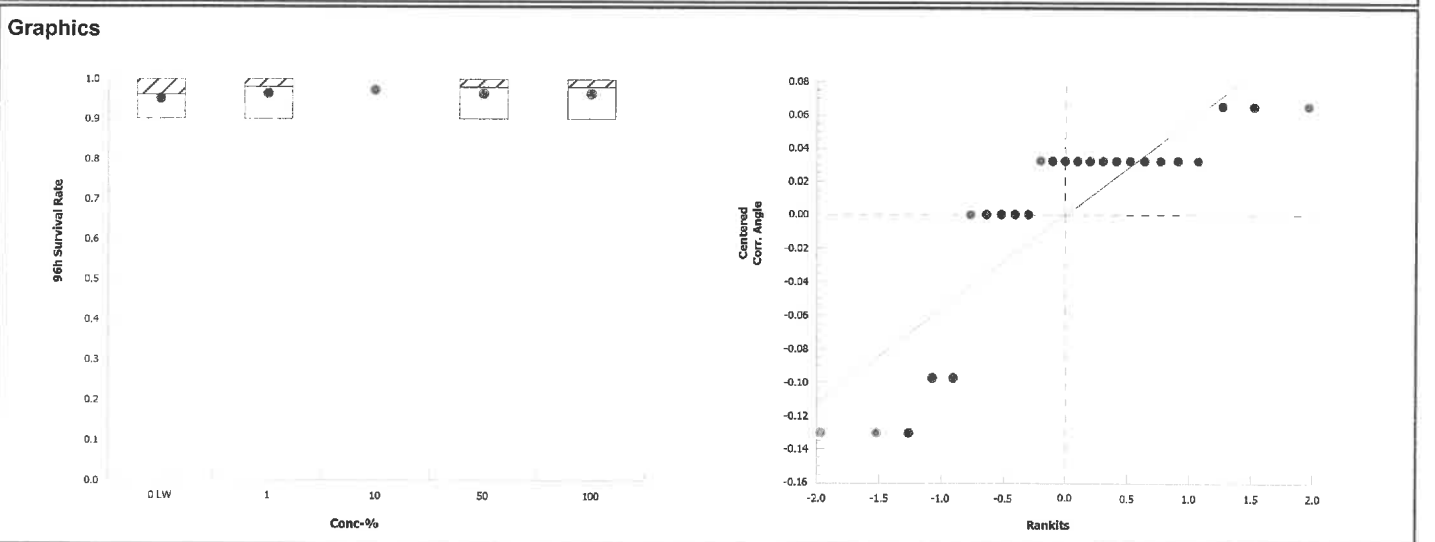
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Levene Equality of Variance Test	3.37	4.43	0.0291	Equal Variances
Variances	Mod Levene Equality of Variance Test	0.577	4.89	0.6838	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.741	0.888	2.7E-05	Non-Normal Distribution

96h Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LW	5	0.960	0.892	1.000	1.000	0.900	1.000	0.025	5.71%	0.00%
1		5	0.980	0.924	1.000	1.000	0.900	1.000	0.020	4.56%	-2.08%
10		5	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	-4.17%
50		5	0.980	0.924	1.000	1.000	0.900	1.000	0.020	4.56%	-2.08%
100		5	0.980	0.924	1.000	1.000	0.900	1.000	0.020	4.56%	-2.08%

Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LW	5	1.35	1.24	1.46	1.41	1.25	1.41	0.0399	6.63%	0.00%
1		5	1.38	1.29	1.47	1.41	1.25	1.41	0.0326	5.28%	-2.42%
10		5	1.41	1.41	1.41	1.41	1.41	1.41	0	0.00%	-4.84%
50		5	1.38	1.29	1.47	1.41	1.25	1.41	0.0326	5.28%	-2.42%
100		5	1.38	1.29	1.47	1.41	1.25	1.41	0.0326	5.28%	-2.42%



96 Hour Acute *Americamysis bahia* Water Column Toxicity Test

Client: KLI: Carnival Cruise
 Test Material: Composite-a SET
 Test ID#: 80609 Project # 29525
 Test Date: 11/14/18 Randomization: 5-6-3

Organism Log #: 11286 B Age: 5 days
 Organism Supplier: Aquatic Indicators
 Control/Diluent: DI + FSW at 33 ppt
 Sample Salinity adjusted with: ---

Treatment (% Elutriate)	Temp (°C)	pH		D.O. (mg/L)		Salinity (ppt)		NH ₃ (mg/L)	# Live Organisms					SIGN-OFF
		new	old	new	old	new	old		new	Rep A	Rep B	Rep C	Rep D	
Control	19.5	7.52		9.1		33.6			10	10	10	10	10	Test Solution Prep: <u>JK</u>
1	19.5	7.61		8.7		33.7			10	10	10	10	10	New WQ: <u>TA</u>
10	19.5	7.64		8.7		34.0			10	10	10	10	10	Initiation Date: <u>11/14/18</u>
50	19.5	7.78		8.2		33.8			10	10	10	10	10	Initiation Time: <u>1529</u>
100	19.5	7.91		7.0		33.7	2.68		10	10	10	10	10	Initiation Signoff: <u>SAC</u>
Meter ID	59A	PH19		RD11		EC11	DR3800							a.m. Feeding: <u>ER</u>
														p.m. Feeding: <u>KL</u>
Control	20.1		8.13		7.4	34.0			9	10	10	10	10	Count Date: <u>11/15/18</u>
1	19.8		8.19		7.3	34.5			10	10	10	10	10	Count Time: <u>0905</u>
10	19.8		8.19		7.4	34.5			10	10	10	10	10	Count Signoff: <u>TF</u>
50	19.8		8.21		7.2	34.3			10	10	10	10	10	Old WQ: <u>KG</u>
100	20.0		8.29		7.1	34.3			9	10	10	10	10	a.m. Feeding: <u>KG</u>
Meter ID	93A		PH24		RD12	EC12								p.m. Feeding: <u>TF</u>
Control	19.9		7.97		7.4	35.7			9	10	9	10	10	Count Date: <u>11/16/18</u>
1	19.7		7.96		7.2	35.2			10	10	10	10	10	Count Time: <u>1241</u>
10	19.5		8.01		7.2	36.3			10	10	10	10	10	Count Signoff: <u>NB</u>
50	19.5		8.07		7.3	35.8			10	10	10	10	10	Old WQ: <u>JR</u>
100	19.6		8.17		7.3	35.4			9	10	10	10	10	a.m. Feeding: <u>TK</u>
Meter ID	105A		PH24		RD11	EC11								p.m. Feeding: <u>NB</u>
Control	19.9		7.79		7.4	36.9			9	10	9	10	10	Count Date: <u>11/17/18</u>
1	19.4		7.79		7.3	37.8			10	10	10	10	10	Count Time: <u>0942</u>
10	19.4		7.80		7.3	38.0			10	10	10	10	10	Count Signoff: <u>RB</u>
50	19.4		7.83		7.1	37.2			10	10	10	10	10	Old WQ: <u>TA</u>
100	19.3		7.87		6.8	37.5			9	10	10	10	10	a.m. Feeding: <u>JL</u>
Meter ID	99A		PH25		RD10	EC10								p.m. Feeding: <u>NB</u>
Control	20.0		7.60		6.9	39.8			9	10	9	10	10	Termination Date: <u>11/19/18</u>
1	19.9		7.58		6.7	39.2			10	10	10	9	10	Termination Time: <u>1335</u>
10	19.8		7.64		6.7	40.0			10	10	10	10	10	Termination Signoff: <u>WC</u>
50	19.8		7.64		6.5	40.8			10	10	10	10	9	Old WQ: <u>TP</u>
100	19.8		7.69		6.3	38.9			9	10	10	10	10	a.m. Feeding: <u>KG</u>
Meter ID	81A		PH19		RD13	EC13								

CETIS Analytical Report

Report Date: 19 Nov-18 11:25 (p 1 of 2)
 Test Code: 80609 | 18-2873-2171

Acute Mysid Survival Test			Pacific EcoRisk		
Analysis ID: 03-9195-4456	Endpoint: 96h Survival Rate	CETIS Version: CETISv1.9.2			
Analyzed: 19 Nov-18 11:25	Analysis: Parametric-Two Sample	Official Results: Yes			
Data Transform	Alt Hyp	Comparison Result		PMSD	
Angular (Corrected)	C > T	Site Water passed 96h survival rate		4.82%	

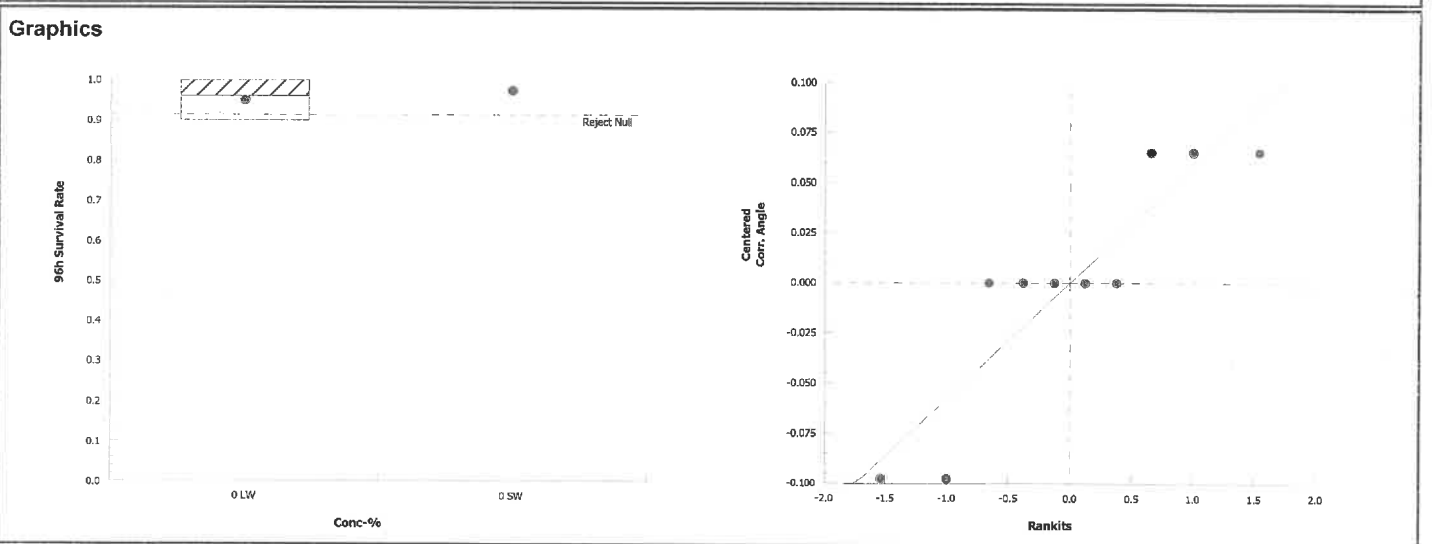
Equal Variance t Two-Sample Test										
Control	vs	Control II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)	
Lab Water Contr		Site Water	-1.63	1.86	0.074	8	CDF	0.9294	Non-Significant Effect	

ANOVA Table						
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0106237	0.0106237	1	2.67	0.1411	Non-Significant Effect
Error	0.0318712	0.0039839	8			
Total	0.0424949		9			

Distributional Tests						
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)	
Variances	Levene Equality of Variance Test	96	11.3	9.9E-06	Unequal Variances	
Variances	Mod Levene Equality of Variance Test	3	13.7	0.1340	Equal Variances	
Distribution	Shapiro-Wilk W Normality Test	0.814	0.741	0.0215	Normal Distribution	

96h Survival Rate Summary												
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect	
0	LW	5	0.960	0.892	1.000	1.000	0.900	1.000	0.025	5.71%	0.00%	
0	SW	5	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	-4.17%	

Angular (Corrected) Transformed Summary												
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect	
0	LW	5	1.35	1.24	1.46	1.41	1.25	1.41	0.0399	6.63%	0.00%	
0	SW	5	1.41	1.41	1.41	1.41	1.41	1.41	0	0.00%	-4.84%	



CETIS Summary Report

Report Date: 20 Nov-18 13:05 (p 1 of 1)
 Test Code: 80610 | 09-8507-5155

Acute Mysid Survival Test	Pacific EcoRisk
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Batch ID: 12-4264-6757	Test Type: Survival (96h)	Analyst: Bella Volpatti
Start Date: 14 Nov-18 14:09	Protocol: EPA-821-R-02-012 (2002)	Diluent: Diluted Seawater
Ending Date: 18 Nov-18 13:15	Species: Americamysis bahia	Brine: Not Applicable
Duration: 95h	Source: Aquatic Indicators, FL	Age: 5

Sample ID: 03-0046-5662	Code: DMMO	Client: Kinnetic Laboratories, Inc
Sample Date: 31 Oct-18 08:40	Material: Elutriate	Project: 29525
Receipt Date: 06 Nov-18 11:25	Source: Long Beach Carnival Cruise (LBCARCRUZ)	
Sample Age: 14d 5h (0 °C)	Station: CCT-18-Composite-b	

Multiple Comparison Summary							
Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
01-6251-9640	96h Survival Rate	Steel Many-One Rank Sum Test	100	> 100	n/a	1	8.5%

96h Survival Rate Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	LW	5	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
1		5	0.960	0.849	1.000	0.800	1.000	0.040	0.089	9.32%	4.00%
10		5	0.940	0.872	1.000	0.900	1.000	0.025	0.055	5.83%	6.00%
25		5	0.960	0.849	1.000	0.800	1.000	0.040	0.089	9.32%	4.00%
50		5	0.980	0.924	1.000	0.900	1.000	0.020	0.045	4.56%	2.00%
100		5	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%

96h Survival Rate Detail						
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	LW	1.000	1.000	1.000	1.000	1.000
1		0.800	1.000	1.000	1.000	1.000
10		0.900	0.900	0.900	1.000	1.000
25		1.000	0.800	1.000	1.000	1.000
50		1.000	1.000	1.000	0.900	1.000
100		1.000	1.000	1.000	1.000	1.000

96h Survival Rate Binomials						
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	LW	10/10	10/10	10/10	10/10	10/10
1		8/10	10/10	10/10	10/10	10/10
10		9/10	9/10	9/10	10/10	10/10
25		10/10	8/10	10/10	10/10	10/10
50		10/10	10/10	10/10	9/10	10/10
100		10/10	10/10	10/10	10/10	10/10

CETIS Analytical Report

Report Date: 19 Nov-18 11:07 (p 1 of 2)

Test Code: 80610 | 09-8507-5155

Acute Mysid Survival Test							Pacific EcoRisk				
Analysis ID: 01-6251-9640		Endpoint: 96h Survival Rate			CETIS Version: CETISv1.9.2						
Analyzed: 19 Nov-18 11:07		Analysis: Nonparametric-Control vs Treatments			Official Results: Yes						
Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD					
Angular (Corrected)	C > T	100	> 100	n/a	1	8.50%					
Steel Many-One Rank Sum Test											
Control	vs	Conc-%	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)		
Lab Water Contr		1	25	16	1	8	Asymp	0.6353	Non-Significant Effect		
		10	20	16	1	8	Asymp	0.1899	Non-Significant Effect		
		25	25	16	1	8	Asymp	0.6353	Non-Significant Effect		
		50	25	16	1	8	Asymp	0.6353	Non-Significant Effect		
		100	27.5	16	1	8	Asymp	0.8333	Non-Significant Effect		
ANOVA Table											
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)					
Between	0.0372405	0.0074481	5	0.886	0.5059	Non-Significant Effect					
Error	0.201829	0.0084096	24								
Total	0.23907		29								
Distributional Tests											
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)						
Variances	Levene Equality of Variance Test	3.93	3.9	0.0096	Unequal Variances						
Variances	Mod Levene Equality of Variance Test	0.569	4.25	0.7228	Equal Variances						
Distribution	Shapiro-Wilk W Normality Test	0.788	0.903	3.9E-05	Non-Normal Distribution						
96h Survival Rate Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LW	5	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	0.00%
1		5	0.960	0.849	1.000	1.000	0.800	1.000	0.040	9.32%	4.00%
10		5	0.940	0.872	1.000	0.900	0.900	1.000	0.025	5.83%	6.00%
25		5	0.960	0.849	1.000	1.000	0.800	1.000	0.040	9.32%	4.00%
50		5	0.980	0.924	1.000	1.000	0.900	1.000	0.020	4.56%	2.00%
100		5	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	0.00%
Angular (Corrected) Transformed Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LW	5	1.41	1.41	1.41	1.41	1.41	1.41	0	0.00%	0.00%
1		5	1.35	1.18	1.52	1.41	1.11	1.41	0.061	10.09%	4.32%
10		5	1.31	1.2	1.43	1.25	1.25	1.41	0.0399	6.79%	6.93%
25		5	1.35	1.18	1.52	1.41	1.11	1.41	0.061	10.09%	4.32%
50		5	1.38	1.29	1.47	1.41	1.25	1.41	0.0326	5.28%	2.31%
100		5	1.41	1.41	1.41	1.41	1.41	1.41	0	0.00%	0.00%

Acute Mysid Survival Test

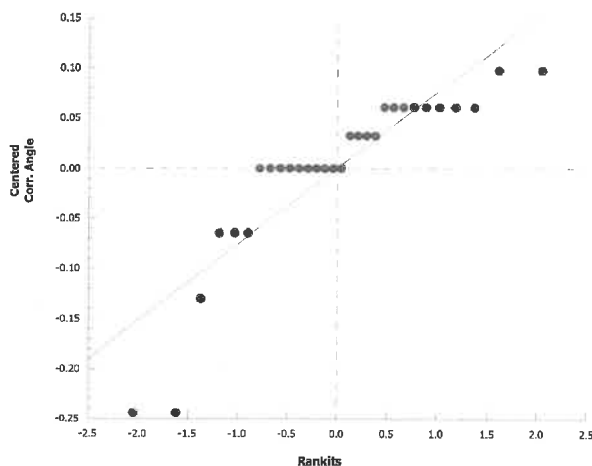
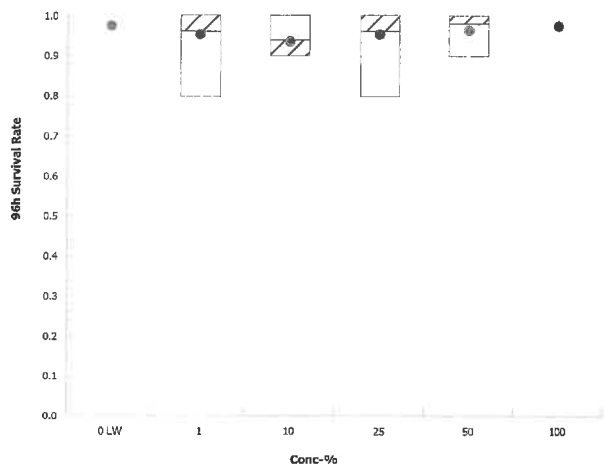
Pacific EcoRisk

Analysis ID: 01-6251-9640
Analyzed: 19 Nov-18 11:07

Endpoint: 96h Survival Rate
Analysis: Nonparametric-Control vs Treatments

CETIS Version: CETISv1.9.2
Official Results: Yes

Graphics



Appendix J

Test Data and Summary of Statistics for the Reference Toxicant Evaluation of the Mysid, *Americamysis bahia*

CETIS Summary Report

Report Date: 19 Nov-18 08:46 (p 1 of 1)
 Test Code: 80700 | 08-9266-3168

Acute Mysid Survival Test **Pacific EcoRisk**

Batch ID: 16-5120-6743	Test Type: Survival (96h)	Analyst: James Lem
Start Date: 14 Nov-18 14:47	Protocol: EPA-821-R-02-012 (2002)	Diluent: Laboratory Water
Ending Date: 18 Nov-18 13:10	Species: Americamysis bahia	Brine: Crystal Sea
Duration: 94h	Source: Aquatic Indicators, FL	Age: 5

Sample ID: 06-1631-9226	Code: KCl	Client: Reference Toxicant
Sample Date: 14 Nov-18 14:47	Material: Potassium chloride	Project: 29624
Receipt Date: 14 Nov-18 14:47	Source: Reference Toxicant	
Sample Age: n/a (19.4 °C)	Station: In House	

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
09-2468-3015	96h Survival Rate	Dunnett Multiple Comparison Test	0.25	0.5	0.3536		6.58%

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	Level	g/L	95% LCL	95% UCL	TU	✓
10-7839-8379	96h Survival Rate	Trimmed Spearman-Kärber	EC50	0.676	0.634	0.72		

96h Survival Rate Summary

Conc-g/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	LW	4	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
0.125		4	0.950	0.858	1.000	0.900	1.000	0.029	0.058	6.08%	5.00%
0.25		4	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
0.5		4	0.925	0.845	1.000	0.900	1.000	0.025	0.050	5.41%	7.50%
1		4	0.000	0.000	0.000	0.000	0.000	0.000	0.000		100.00%
2		4	0.000	0.000	0.000	0.000	0.000	0.000	0.000		100.00%

96h Survival Rate Detail

Conc-g/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	LW	1.000	1.000	1.000	1.000
0.125		0.900	0.900	1.000	1.000
0.25		1.000	1.000	1.000	1.000
0.5		0.900	0.900	1.000	0.900
1		0.000	0.000	0.000	0.000
2		0.000	0.000	0.000	0.000

96h Survival Rate Binomials

Conc-g/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	LW	10/10	10/10	10/10	10/10
0.125		9/10	9/10	10/10	10/10
0.25		10/10	10/10	10/10	10/10
0.5		9/10	9/10	10/10	9/10
1		0/10	0/10	0/10	0/10
2		0/10	0/10	0/10	0/10

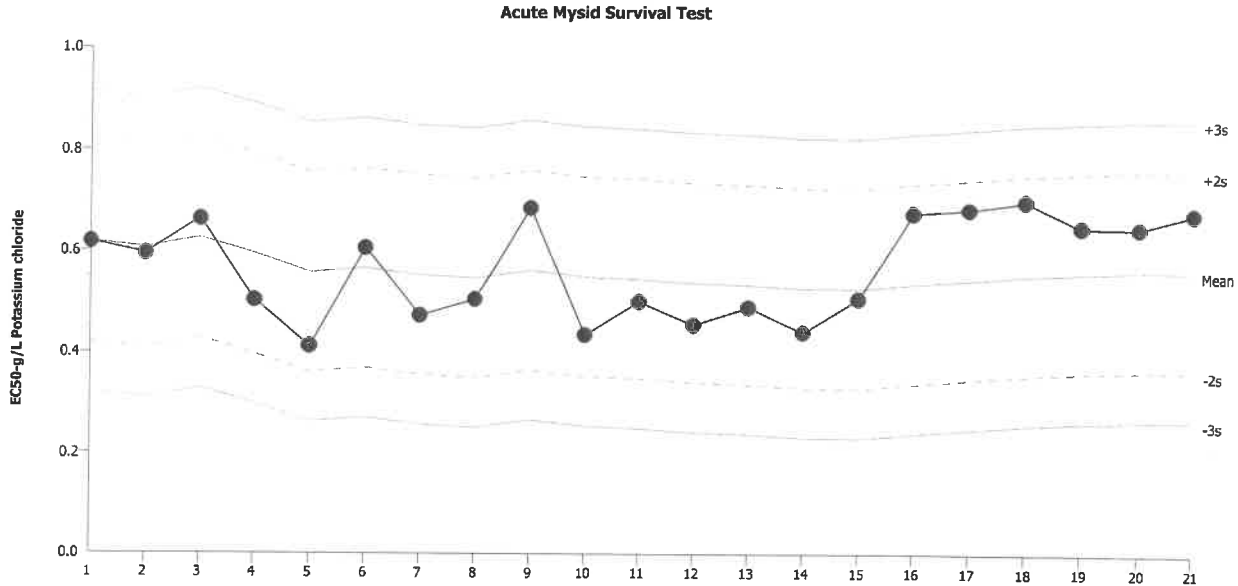
Acute Mysid Survival Test

Pacific EcoRisk

Test Type: Survival (96h)
Protocol: EPA-821-R-02-012 (2002)

Organism: Americamysis bahia (Mysid)
Endpoint: 96h Survival Rate

Material: Potassium chloride
Source: Reference Toxicant-REF



Mean: 0.5617 Count: 20 -2s Warning Limit: 0.3645 -3s Action Limit: 0.2659
Sigma: 0.09861 CV: 17.60% +2s Warning Limit: 0.7589 +3s Action Limit: 0.8575

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2018	Mar	21	15:45	0.6184	0.05675	0.5755			12-0462-6609	19-4494-0616
2		Apr	12	15:52	0.5946	0.0329	0.3337			12-4726-1936	21-1246-6632
3			19	14:20	0.6632	0.1015	1.03			01-9971-6489	10-1673-4051
4			26	16:36	0.5029	-0.05875	-0.5958			04-0425-3250	07-5752-7102
5		May	3	15:58	0.4118	-0.1499	-1.52			15-1458-0870	17-3212-9907
6			10	16:28	0.6057	0.04403	0.4465			18-5396-7288	05-1953-8969
7			11	17:00	0.4723	-0.08942	-0.9068			04-7555-4867	04-8996-7786
8			17	17:10	0.5045	-0.05724	-0.5804			15-7276-5712	19-5831-7847
9		Jun	7	16:10	0.6852	0.1235	1.252			15-6360-9527	07-5918-4208
10			14	15:49	0.4344	-0.1273	-1.291			11-3799-9499	00-1229-9201
11			21	14:15	0.5	-0.0617	-0.6257			17-0121-0040	10-7020-7683
12			28	15:43	0.4545	-0.1072	-1.087			20-7509-4266	21-3077-9710
13		Jul	19	15:50	0.4892	-0.07255	-0.7357			19-5821-7617	08-8249-4611
14			26	14:30	0.4396	-0.1221	-1.238			09-7942-2191	00-6565-0616
15		Aug	2	16:20	0.506	-0.05569	-0.5647			12-9522-7258	02-5099-1901
16			23	15:30	0.6741	0.1124	1.14			07-6556-8425	13-6413-7538
17		Sep	27	16:15	0.683	0.1213	1.23			03-7544-6042	18-5737-3846
18		Oct	11	16:30	0.6989	0.1372	1.392			16-5205-7884	09-9908-9747
19		Nov	1	14:03	0.6484	0.08672	0.8794			07-2563-8011	09-6674-1373
20			9	15:39	0.647	0.08528	0.8648			07-1945-7433	13-1140-8532
21			14	14:47	0.6758	0.1141	1.157			08-9266-3168	10-7839-8379

96 Hour Acute *Americamysis bahia* Reference Toxicant Test

Client: Reference Toxicant
 Test Material: Potassium Chloride
 Test ID#: 80700 Project # 29624
 Test Date: 11/14/18 Randomization: 4.10.3

Organism Log #: 112810-A Age: 5 DAYS
 Organism Supplier: Aquatic Indicators
 Control/Diluent: DI + Crystal Sea @ 25 ppt
 Control Water Batch: 1324

Treatment (g/L KCl)	Temp (°C)	pH		D.O. (mg/L)		Salinity (ppt)		# Live Organisms				SIGN-OFF
		new	old	new	old	new	old	Rep A	Rep B	Rep C	Rep D	
Control	19.4	7.90		7.9		24.4		10	10	10	10	Test Solution Prep: <u>KG</u>
0.125	19.4	7.92		7.9		24.7		10	10	10	10	New WQ: <u>TA</u>
0.25	19.4	7.92		8.0		24.9		10	10	10	10	Initiation Date: <u>11/14/18</u>
0.5	19.4	7.91		8.1		25.2		10	10	10	10	Initiation Time: <u>1447</u>
1	19.4	7.89		8.4		25.8		10	10	10	10	Initiation Signoff: <u>KG</u>
2	19.4	7.83		8.6		27.0		10	10	10	10	RT Batch #: <u>202</u>
Meter ID	81A	PH19		RD11		EC11						a.m. Feeding Signoff: <u>KG</u>
												p.m. Feeding Signoff: <u>KG</u>
Control	19.7		7.67		7.5		24.9	10	10	10	10	Count Date: <u>11/15/18</u>
0.125	19.6		7.73		7.4		25.6	10	10	10	10	Count Time: <u>0945</u>
0.25	19.6		7.77		7.5		25.6	10	10	10	10	Count Signoff: <u>KL</u>
0.5	19.7		7.81		7.7		26.0	10	10	10	10	Old WQ: <u>TA</u>
1	19.7		7.82		7.8		26.6	0	0	0	0	a.m. Feeding Signoff: <u>KG</u>
2	19.8		7.85		7.7		27.6	0	0	0	0	p.m. Feeding Signoff: <u>TF</u>
Meter ID	59A		PH19		RD10		EC10					
Control	19.6	8.02	8.11	8.0	7.5	24.9	26.3	10	10	10	10	Test Solution Prep: <u>11/16/18</u>
0.125	19.4	8.03	8.00	8.0	7.0	25.1	26.6	10	9	10	10	New WQ: <u>TF 5015</u>
0.25	19.7	8.03	8.14	8.0	7.2	25.2	27.0	10	10	10	10	Renewal Date: <u>11/16/18</u>
0.5	19.7	8.02	8.16	8.0	7.3	25.5	27.8	10	9	10	9	Renewal Time: <u>1344</u>
1	-	-	-	-	-	-	-	-	-	-	-	Renewal Signoff: <u>TK</u>
2	-	-	-	-	-	-	-	-	-	-	-	Old WQ: <u>JR</u>
Meter ID	100A	PH25	PH24	RD13	RD11	EC13	EC11					a.m. Feeding Signoff: <u>TK</u>
												p.m. Feeding Signoff: <u>NS</u>
												RT Batch #: <u>203</u>
Control	19.7		7.89		7.3		25.9	10	10	10	10	Count Date: <u>11/17/18</u>
0.125	19.5		7.87		7.3		26.2	10	9	10	10	Count Time: <u>0930</u>
0.25	19.5		7.98		7.4		26.2	10	10	10	10	Count Signoff: <u>TK</u>
0.5	19.6		7.96		7.3		26.9	10	9	10	9	Old WQ: <u>JR</u>
1	-		-		-		-	-	-	-	-	a.m. Feeding Signoff: <u>JR</u>
2	-		-		-		-	-	-	-	-	p.m. Feeding Signoff: <u>KB</u>
Meter ID	100A		PH24		RD13		EC13					
Control	19.7		7.59		6.4		26.7	10	10	10	10	Termination Date: <u>11/18/18</u>
0.125	19.6		7.57		6.1		27.3	9	9	10	10	Termination Time: <u>1310</u>
0.25	19.6		7.63		6.2		27.3	10	10	10	10	Termination Signoff: <u>KG</u>
0.5	19.7		7.65		6.4		27.9	9	9	10	9	Old WQ: <u>TP</u>
1	-		-		-		-	-	-	-	-	a.m. Feeding Signoff: <u>KG</u>
2	-		-		-		-	-	-	-	-	
Meter ID	81A		PH19		RD13		EC13					

Appendix K

Test Data and Summary of Statistics for the Evaluation of the Toxicity of the Port of Long Beach Carnival Cruise Terminal Sediment Elutriates to Inland Siversides (*Menidia beryllina*)

CETIS Summary Report

Report Date: 20 Nov-18 12:57 (p 1 of 1)
 Test Code: 80611 | 02-4061-8256

Acute Fish Survival Test			Pacific EcoRisk
Batch ID: 20-2163-6803	Test Type: Survival (96h)	Analyst: Bella Volpatti	
Start Date: 14 Nov-18 13:56	Protocol: EPA-821-R-02-012 (2002)	Diluent: Diluted Seawater	
Ending Date: 18 Nov-18 13:00	Species: Menidia beryllina	Brine: Not Applicable	
Duration: 95h	Source: Aquatic Indicators, FL	Age: 13	
Sample ID: 04-4170-5342	Code: DMMO	Client: Kinnetic Laboratories, Inc	
Sample Date: 30 Oct-18 13:25	Material: Elutriate	Project: 29525	
Receipt Date: 06 Nov-18 11:25	Source: Long Beach Carnival Cruise (LBCARCRUZ)		
Sample Age: 15d 1h (0 °C)	Station: CCT-18-Composite-a		

Single Comparison Summary				
Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result
13-5225-3445	96h Survival Rate	Wilcoxon Rank Sum Two-Sample Test	1.0000	Site Water passed 96h survival rate

Multiple Comparison Summary							
Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
02-1813-5575	96h Survival Rate	Dunnett Multiple Comparison Test	100	> 100	n/a	1	10.0%

96h Survival Rate Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	LW	5	0.980	0.924	1.000	0.900	1.000	0.020	0.045	4.56%	0.00%
0	SW	5	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	-2.04%
1		5	0.940	0.829	1.000	0.800	1.000	0.040	0.089	9.52%	4.08%
10		5	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	-2.04%
50		5	0.960	0.892	1.000	0.900	1.000	0.025	0.055	5.71%	2.04%
100		5	0.920	0.784	1.000	0.800	1.000	0.049	0.110	11.91%	6.12%

96h Survival Rate Detail						
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	LW	1.000	1.000	0.900	1.000	1.000
0	SW	1.000	1.000	1.000	1.000	1.000
1		1.000	1.000	0.900	0.800	1.000
10		1.000	1.000	1.000	1.000	1.000
50		1.000	1.000	1.000	0.900	0.900
100		0.800	0.800	1.000	1.000	1.000

96h Survival Rate Binomials						
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	LW	10/10	10/10	9/10	10/10	10/10
0	SW	10/10	10/10	10/10	10/10	10/10
1		10/10	10/10	9/10	8/10	10/10
10		10/10	10/10	10/10	10/10	10/10
50		10/10	10/10	10/10	9/10	9/10
100		8/10	8/10	10/10	10/10	10/10

CETIS Analytical Report

Report Date: 19 Nov-18 11:35 (p 2 of 2)

Test Code: 80611 | 02-4061-8256

Acute Fish Survival Test Pacific EcoRisk

Analysis ID: 02-1813-5575 Endpoint: 96h Survival Rate CETIS Version: CETISv1.9.2
 Analyzed: 19 Nov-18 11:35 Analysis: Parametric-Control vs Treatments Official Results: Yes

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	C > T	100	> 100	n/a	1	10.03%

Dunnett Multiple Comparison Test

Control	vs	Conc-%	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Lab Water Contr		1	0.879	2.3	0.16	8	CDF	0.4330	Non-Significant Effect
		10	-0.47	2.3	0.16	8	CDF	0.9168	Non-Significant Effect
		50	0.47	2.3	0.16	8	CDF	0.6169	Non-Significant Effect
		100	1.29	2.3	0.16	8	CDF	0.2677	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0465342	0.0116336	4	0.968	0.4468	Non-Significant Effect
Error	0.240381	0.012019	20			
Total	0.286915		24			

Distributional Tests

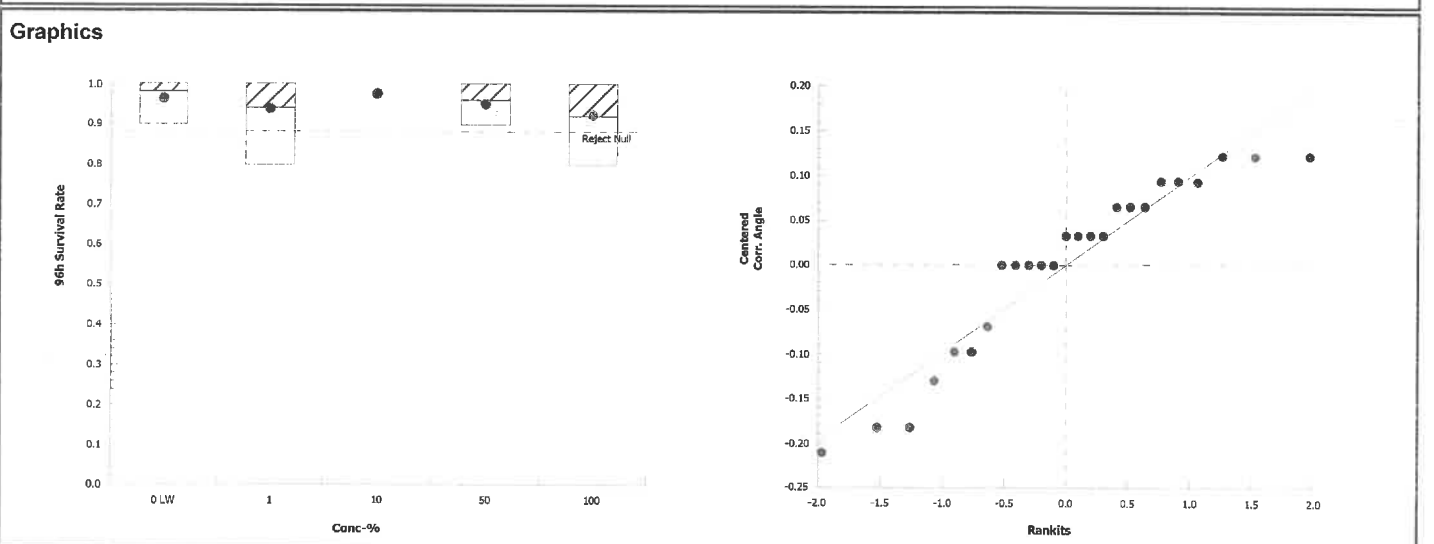
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Levene Equality of Variance Test	12.1	4.43	3.7E-05	Unequal Variances
Variances	Mod Levene Equality of Variance Test	1.07	4.89	0.4064	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.902	0.888	0.0203	Normal Distribution

96h Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LW	5	0.980	0.924	1.000	1.000	0.900	1.000	0.020	4.56%	0.00%
1		5	0.940	0.829	1.000	1.000	0.800	1.000	0.040	9.52%	4.08%
10		5	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	-2.04%
50		5	0.960	0.892	1.000	1.000	0.900	1.000	0.025	5.71%	2.04%
100		5	0.920	0.784	1.000	1.000	0.800	1.000	0.049	11.91%	6.12%

Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LW	5	1.38	1.29	1.47	1.41	1.25	1.41	0.0326	5.28%	0.00%
1		5	1.32	1.15	1.49	1.41	1.11	1.41	0.0615	10.44%	4.42%
10		5	1.41	1.41	1.41	1.41	1.41	1.41	0	0.00%	-2.36%
50		5	1.35	1.24	1.46	1.41	1.25	1.41	0.0399	6.63%	2.36%
100		5	1.29	1.08	1.5	1.41	1.11	1.41	0.0747	12.94%	6.48%



96 Hour Acute Inland Silverside (*M. beryllina*) Toxicity Test

Client: KLI: Carnival Cruise
 Test Material: Composite-a SET
 Test ID#: 80611 Project # 29525
 Test Date: 11/14/18 Randomization: 5.6.1
 Feeding To Time: 0900 Initials: ER

Organism Log #: 11287 B Age: 13 days
 Organism Supplier: Aquatic Indicators
 Control/Diluent: DI + FSW at 33 ppt
 Control Water Batch: —

Treatment (% Elutriate)	Temp (°C)	pH		D.O. (mg/L)		Salinity (ppt)		NH ₃	# Live Organisms					SIGN-OFF
		new	old	new	old	new	old		new	Rep A	Rep B	Rep C	Rep D	
Control	19.2	7.52		9.1		33.6			10	10	10	10	10	Test Solution Prep: <u>HR</u>
1	19.5	7.61		8.7		33.7			10	10	10	10	10	New WQ: <u>TK</u>
10	19.4	7.64		8.7		34.0			10	10	10	10	10	Initiation Date: <u>11/14/18</u>
50	19.6	7.78		8.2		33.9			10	10	10	10	10	Initiation Time: <u>1356</u>
100	19.2	7.91		7.0		33.7		2.68	10	10	10	10	10	Initiation Signoff: <u>SMC</u>
Meter ID	S9A	PH19		RD11		EC11		DR3800						a.m. Feeding Signoff: <u>ER</u>
														p.m. Feeding Signoff: <u>KL</u>
Control	20.0		7.48		7.3		34.2		10	10	9	10	10	Count Date: <u>11/15/18</u>
1	20.1		7.36		6.7		33.9		10	10	10	9	10	Count Time: <u>1030</u>
10	19.9		7.38		5.4		34.0		10	10	10	10	10	Count Signoff: <u>ER</u>
50	19.9		7.50		5.7		33.6		10	10	10	9	9	Old WQ: <u>TP</u>
100	19.9		7.49		5.1		34.0		10	10	10	10	10	a.m. Feeding Signoff: <u>KL</u>
Meter ID	S9A		PH19		RD11		EC11							p.m. Feeding Signoff: <u>TK</u>
Control	19.8		7.59		7.5		34.9		10	10	9	10	10	Count Date: <u>11/16/18</u>
1	20.0		7.63		7.5		35.0		10	10	10	8	10	Count Time: <u>1115</u>
10	20.0		7.65		7.5		35.2		10	10	10	10	10	Count Signoff: <u>ER</u>
50	20.0		7.71		7.4		35.1		10	10	10	9	9	Old WQ: <u>SR</u>
100	19.9		7.79		7.3		35.4		10	8	10	10	10	a.m. Feeding Signoff: <u>TK</u>
Meter ID	107A		PH25		RD13		EC13							p.m. Feeding Signoff: <u>MS</u>
Control	19.3		7.88		7.2		35.5		10	10	9	10	10	Count Date: <u>11/17/18</u>
1	19.4		7.85		7.0		35.5		10	10	10	8	10	Count Time: <u>0930</u>
10	19.4		7.90		6.9		36.2		10	10	10	10	10	Count Signoff: <u>SR</u>
50	19.4		7.96		7.0		36.0		10	10	10	9	9	Old WQ: <u>SR</u>
100	19.4		8.05		7.1		35.5		8	8	10	10	10	a.m. Feeding Signoff: <u>SR</u>
Meter ID	100A		PH24		RD13		EC13							p.m. Feeding Signoff: <u>MS</u>
Control	20.0		7.60		6.9		36.0		10	10	9	10	10	Termination Date: <u>11/18/18</u>
1	20.1		7.62		6.8		36.3		10	10	9	8	10	Termination Time: <u>1300</u>
10	20.0		7.68		6.9		37.4		10	10	10	10	10	Termination Signoff: <u>WE</u>
50	20.0		7.69		6.7		36.4		10	10	10	9	9	Old WQ: <u>TP</u>
100	19.9		7.78		6.7		36.1		8	8	10	10	10	a.m. Feeding Signoff: <u>KL</u>
Meter ID	81A		PH19		RD13		EC13							

CETIS Analytical Report

Report Date: 19 Nov-18 11:35 (p 1 of 2)
 Test Code: 80611 | 02-4061-8256

Acute Fish Survival Test Pacific EcoRisk

Analysis ID: 13-5225-3445 Endpoint: 96h Survival Rate CETIS Version: CETISv1.9.2
 Analyzed: 19 Nov-18 11:35 Analysis: Nonparametric-Two Sample Official Results: Yes

Data Transform	Alt Hyp	Comparison Result	PMSD
Angular (Corrected)	C > T	Site Water passed 96h survival rate	4.30%

Wilcoxon Rank Sum Two-Sample Test

Control	vs	Control II	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Lab Water Contr		Site Water	30	n/a	1	8	Exact	1.0000	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0026559	0.0026559	1	1	0.3466	Non-Significant Effect
Error	0.0212475	0.0026559	8			
Total	0.0239034		9			

Distributional Tests

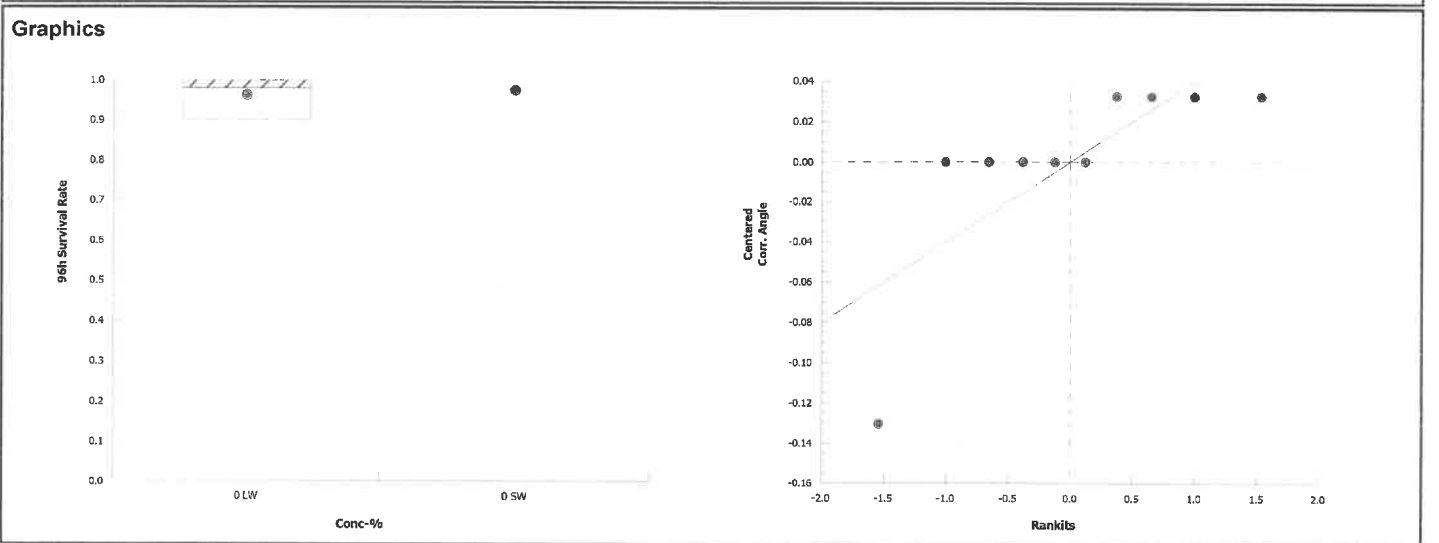
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Levene Equality of Variance Test	7.11	11.3	0.0285	Equal Variances
Variances	Mod Levene Equality of Variance Test	1	13.7	0.3559	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.625	0.741	1.1E-04	Non-Normal Distribution

96h Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LW	5	0.980	0.924	1.000	1.000	0.900	1.000	0.020	4.56%	0.00%
0	SW	5	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	-2.04%

Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LW	5	1.38	1.29	1.47	1.41	1.25	1.41	0.0326	5.28%	0.00%
0	SW	5	1.41	1.41	1.41	1.41	1.41	1.41	0	0.00%	-2.36%



96 Hour Acute Inland Silverside (*M. beryllina*) Toxicity Test

Client: KLI: Carnival Cruise
 Test Material: Site Water
 Test ID#: 80611-80612 Project # 29525
 Test Date: 11/14/18 Randomization: 5-6-1-

Organism Log #: 11287 B Age: 13days
 Organism Supplier: Aquatic Indicators
 Control/Diluent: DI + FSW at 33 ppt
 Control Water Batch: _____

Treatment (% Elutriate)	Temp (°C)	pH		D.O. (mg/L)		Salinity (ppt)		# Live Organisms					SIGN-OFF
		new	old	new	old	new	old	Rep A	Rep B	Rep C	Rep D	Rep E	
Lab Control	19.2	7.52		9.1		33.6		10	10	10	10	10	Test Solution Prep: <u>JK</u>
Site Water	19.5	7.88		9.6		35.1		10	10	10	10	10	New WQ: <u>TA</u>
													Initiation Date: <u>11/14/18</u>
													Initiation Time: <u>1356</u>
													Initiation Signoff: <u>SMC</u>
													a.m. Feeding Signoff: <u>ER</u>
													p.m. Feeding Signoff: <u>KL</u>
Meter ID	<u>59A</u>	<u>PH19</u>		<u>RD11</u>		<u>EC11</u>							
Lab Control	20.0	7.48		7.3		34.2		10	10	9	10	10	Count Date: <u>11/15/18</u>
Site Water	20.1	7.53		7.0		33.6		10	10	10	10	10	Count Time: <u>1030</u>
													Count Signoff: <u>ER</u>
													Old WQ: <u>TP</u>
													a.m. Feeding Signoff: <u>K6</u>
													p.m. Feeding Signoff: <u>TP</u>
Meter ID	<u>59A</u>	<u>PH19</u>		<u>RD11</u>		<u>EC11</u>							
Lab Control	19.8	7.59		7.5		34.9		10	10	9	10	10	Count Date: <u>11/16/18</u>
Site Water	19.9	7.60		7.5		34.9		10	10	10	10	10	Count Time: <u>1115</u>
													Count Signoff: <u>ER</u>
													Old WQ: <u>STB</u>
													a.m. Feeding Signoff: <u>TK</u>
													p.m. Feeding Signoff: <u>MB</u>
Meter ID	<u>107A</u>	<u>PH25</u>		<u>RD13</u>		<u>EC13</u>							
Lab Control	19.3	7.88		7.2		35.8		10	10	9	10	10	Count Date: <u>11/17/18</u>
Site Water	19.4	7.92		7.2		35.5		10	10	10	10	10	Count Time: <u>0930</u>
													Count Signoff: <u>MB</u>
													Old WQ: <u>JR</u>
													a.m. Feeding Signoff: <u>JL</u>
													p.m. Feeding Signoff: <u>MB</u>
Meter ID	<u>100A</u>	<u>PH24</u>		<u>RD13</u>		<u>EC13</u>							
Lab Control	20.0	7.60		6.9		36.0		10	10	9	10	10	Termination Date: <u>11/18/18</u>
Site Water	20.0	7.60		6.6		36.0		10	10	10	10	10	Termination Time: <u>1300</u>
													Termination Signoff: <u>WC</u>
													Old WQ: <u>TP</u>
													a.m. Feeding Signoff: <u>K6</u>
Meter ID	<u>81A</u>	<u>PH19</u>		<u>RD13</u>		<u>EC13</u>							

CETIS Summary Report

Report Date: 20 Nov-18 13:03 (p 1 of 1)
 Test Code: 80612 | 19-3749-3231

Acute Fish Survival Test			Pacific EcoRisk		
Batch ID: 20-0047-1332	Test Type: Survival (96h)	Analyst: Bella Volpatti			
Start Date: 14 Nov-18 12:56	Protocol: EPA-821-R-02-012 (2002)	Diluent: Diluted Seawater			
Ending Date: 18 Nov-18 11:50	Species: Menidia beryllina	Brine: Not Applicable			
Duration: 95h	Source: Aquatic Indicators, FL	Age: 13			
Sample ID: 11-3318-1613	Code: DMMO	Client: Kinetic Laboratories, Inc			
Sample Date: 31 Oct-18 08:40	Material: Elutriate	Project: 29525			
Receipt Date: 06 Nov-18 11:25	Source: Long Beach Carnival Cruise (LBCARCRUZ)				
Sample Age: 14d 4h (0 °C)	Station: CCT-18-Composite-b				

Multiple Comparison Summary							
Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
16-7355-1134	96h Survival Rate	Steel Many-One Rank Sum Test	100	> 100	n/a	1	6.88%

96h Survival Rate Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	LW	5	0.980	0.924	1.000	0.900	1.000	0.020	0.045	4.56%	0.00%
1		5	0.960	0.892	1.000	0.900	1.000	0.025	0.055	5.71%	2.04%
10		5	0.960	0.892	1.000	0.900	1.000	0.025	0.055	5.71%	2.04%
25		5	0.980	0.924	1.000	0.900	1.000	0.020	0.045	4.56%	0.00%
50		5	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	-2.04%
100		5	0.980	0.924	1.000	0.900	1.000	0.020	0.045	4.56%	0.00%

96h Survival Rate Detail						
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	LW	0.900	1.000	1.000	1.000	1.000
1		1.000	1.000	0.900	0.900	1.000
10		1.000	0.900	1.000	0.900	1.000
25		0.900	1.000	1.000	1.000	1.000
50		1.000	1.000	1.000	1.000	1.000
100		1.000	0.900	1.000	1.000	1.000

96h Survival Rate Binomials						
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	LW	9/10	10/10	10/10	10/10	10/10
1		10/10	10/10	9/10	9/10	10/10
10		10/10	9/10	10/10	9/10	10/10
25		9/10	10/10	10/10	10/10	10/10
50		10/10	10/10	10/10	10/10	10/10
100		10/10	9/10	10/10	10/10	10/10

CETIS Analytical Report

Report Date: 19 Nov-18 11:31 (p 1 of 2)
 Test Code: 80612 | 19-3749-3231

Acute Fish Survival Test										Pacific EcoRisk	
Analysis ID: 16-7355-1134		Endpoint: 96h Survival Rate			CETIS Version: CETISv1.9.2						
Analyzed: 19 Nov-18 11:31		Analysis: Nonparametric-Control vs Treatments			Official Results: Yes						
Data Transform	Alt Hyp		NOEL	LOEL	TOEL	TU	PMSD				
Angular (Corrected)	C > T		100	> 100	n/a	1	6.88%				
Steel Many-One Rank Sum Test											
Control	vs	Conc-%	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)		
Lab Water Contr		1	25	16	2	8	Asymp	0.6353	Non-Significant Effect		
		10	25	16	2	8	Asymp	0.6353	Non-Significant Effect		
		25	27.5	16	2	8	Asymp	0.8333	Non-Significant Effect		
		50	30	16	1	8	Asymp	0.9446	Non-Significant Effect		
		100	27.5	16	2	8	Asymp	0.8333	Non-Significant Effect		
ANOVA Table											
Source	Sum Squares		Mean Square	DF	F Stat	P-Value	Decision(α:5%)				
Between	0.0150503		0.0030101	5	0.567	0.7246	Non-Significant Effect				
Error	0.127485		0.0053119	24							
Total	0.142535			29							
Distributional Tests											
Attribute	Test			Test Stat	Critical	P-Value	Decision(α:1%)				
Variances	Levene Equality of Variance Test			3.84	3.9	0.0107	Equal Variances				
Variances	Mod Levene Equality of Variance Test			0.6	4.25	0.7006	Equal Variances				
Distribution	Shapiro-Wilk W Normality Test			0.778	0.903	2.7E-05	Non-Normal Distribution				
96h Survival Rate Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LW	5	0.980	0.924	1.000	1.000	0.900	1.000	0.020	4.56%	0.00%
1		5	0.960	0.892	1.000	1.000	0.900	1.000	0.025	5.71%	2.04%
10		5	0.960	0.892	1.000	1.000	0.900	1.000	0.025	5.71%	2.04%
25		5	0.980	0.924	1.000	1.000	0.900	1.000	0.020	4.56%	0.00%
50		5	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	-2.04%
100		5	0.980	0.924	1.000	1.000	0.900	1.000	0.020	4.56%	0.00%
Angular (Corrected) Transformed Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LW	5	1.38	1.29	1.47	1.41	1.25	1.41	0.0326	5.28%	0.00%
1		5	1.35	1.24	1.46	1.41	1.25	1.41	0.0399	6.63%	2.36%
10		5	1.35	1.24	1.46	1.41	1.25	1.41	0.0399	6.63%	2.36%
25		5	1.38	1.29	1.47	1.41	1.25	1.41	0.0326	5.28%	0.00%
50		5	1.41	1.41	1.41	1.41	1.41	1.41	0	0.00%	-2.36%
100		5	1.38	1.29	1.47	1.41	1.25	1.41	0.0326	5.28%	0.00%

Acute Fish Survival Test

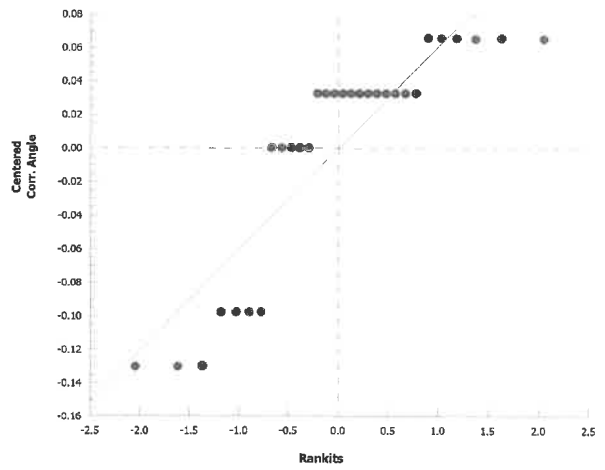
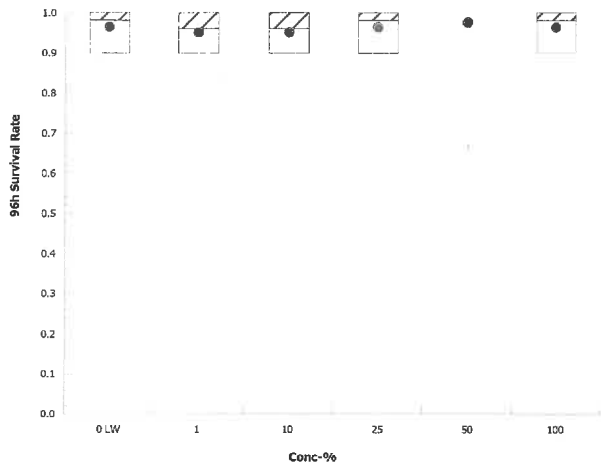
Pacific EcoRisk

Analysis ID: 16-7355-1134
Analyzed: 19 Nov-18 11:31

Endpoint: 96h Survival Rate
Analysis: Nonparametric-Control vs Treatments

CETIS Version: CETISv1.9.2
Official Results: Yes

Graphics



Appendix L

Test Data and Summary of Statistics for the Reference Toxicant Evaluations of the Inland Silverside, *Menidia beryllina*

CETIS Summary Report

Report Date: 19 Nov-18 08:33 (p 1 of 1)
 Test Code: 80699 | 08-7022-6125

Acute Fish Survival Test				Pacific EcoRisk
Batch ID: 05-1683-0433	Test Type: Survival (96h)	Analyst: James Lem		
Start Date: 14 Nov-18 11:45	Protocol: EPA-821-R-02-012 (2002)	Diluent: Laboratory Water		
Ending Date: 18 Nov-18 09:50	Species: Menidia beryllina	Brine: Crystal Sea		
Duration: 94h	Source: Aquatic Indicators, FL	Age: 13		
Sample ID: 10-2335-7221	Code: KCI	Client: Reference Toxicant		
Sample Date: 14 Nov-18 11:45	Material: Potassium chloride	Project: 29623		
Receipt Date: 14 Nov-18 11:45	Source: Reference Toxicant			
Sample Age: n/a (20.4 °C)	Station: In House			

Multiple Comparison Summary							
Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
18-0206-9831	96h Survival Rate	Dunnett Multiple Comparison Test	1	> 1	n/a		9.05%

Point Estimate Summary								
Analysis ID	Endpoint	Point Estimate Method	Level	g/L	95% LCL	95% UCL	TU	✓
15-7041-0787	96h Survival Rate	Spearman-Kärber	EC50	1.37	1.28	1.46		

96h Survival Rate Summary											
Conc-g/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	LW	2	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
0.125		2	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
0.25		2	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
0.5		2	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
1		2	0.950	0.315	1.000	0.900	1.000	0.050	0.071	7.44%	5.00%
2		2	0.000	0.000	0.000	0.000	0.000	0.000	0.000		100.00%

96h Survival Rate Detail			
Conc-g/L	Code	Rep 1	Rep 2
0	LW	1.000	1.000
0.125		1.000	1.000
0.25		1.000	1.000
0.5		1.000	1.000
1		1.000	0.900
2		0.000	0.000

96h Survival Rate Binomials			
Conc-g/L	Code	Rep 1	Rep 2
0	LW	10/10	10/10
0.125		10/10	10/10
0.25		10/10	10/10
0.5		10/10	10/10
1		10/10	9/10
2		0/10	0/10

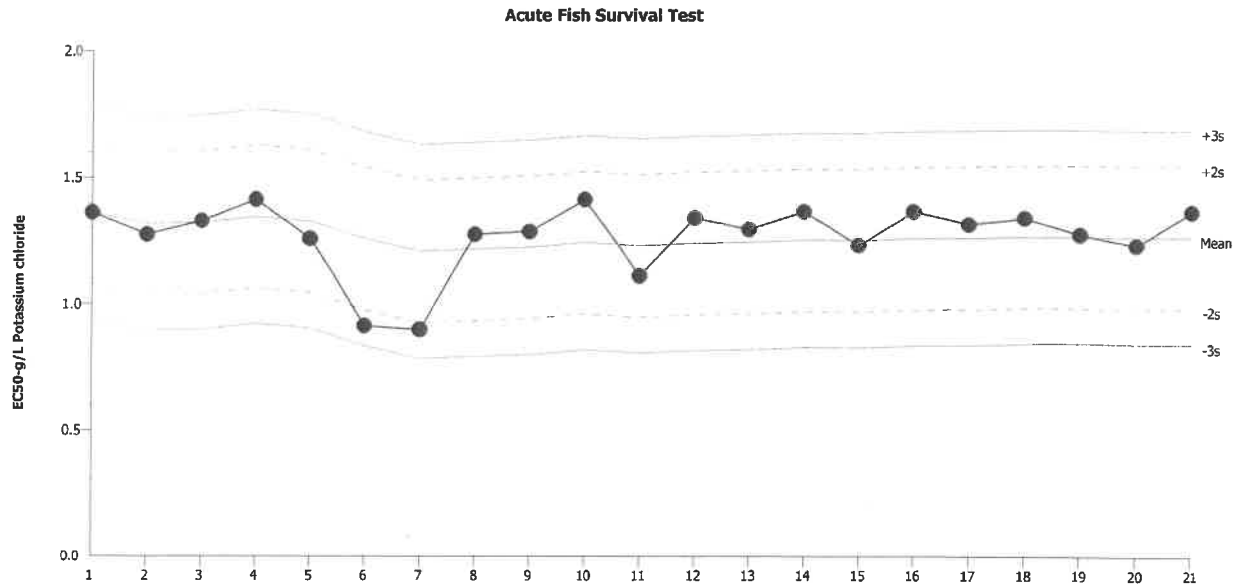
Acute Fish Survival Test

Pacific EcoRisk

Test Type: Survival (96h)
Protocol: EPA-821-R-02-012 (2002)

Organism: Menidia beryllina (Inland Silverside)
Endpoint: 96h Survival Rate

Material: Potassium chloride
Source: Reference Toxicant-REF



Mean: 1.264 Count: 20 -2s Warning Limit: 0.9812 -3s Action Limit: 0.8396
Sigma: 0.1416 CV: 11.20% +2s Warning Limit: 1.548 +3s Action Limit: 1.689

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2018	Jan	31	15:32	1.364	0.09955	0.703			04-8412-1334	17-3507-1455
2		Feb	7	14:25	1.275	0.01056	0.07458			09-9563-6881	10-2806-2441
3		Mar	10	13:42	1.329	0.06489	0.4583			01-1551-0089	04-7366-5663
4			14	14:43	1.414	0.1502	1.061			00-2839-7684	05-3129-6577
5		Apr	18	11:40	1.256	-0.00757	-0.05344			08-4351-6538	08-1338-6628
6			25	16:38	0.9113	-0.3527	-2.491	(-)		07-1107-7671	16-3035-9532
7		May	2	15:38	0.897	-0.367	-2.592	(-)		12-8746-7533	07-2445-0657
8			16	17:32	1.275	0.01056	0.07458			02-2988-8406	12-4959-9584
9		Jun	6	16:00	1.286	0.02187	0.1544			02-7247-9910	02-0275-2104
10			27	13:58	1.414	0.1502	1.061			06-2989-1887	16-8975-4905
11		Jul	18	16:27	1.11	-0.1544	-1.091			20-1872-7432	20-8901-6446
12			25	16:00	1.34	0.07623	0.5384			10-9658-6005	17-3433-1917
13		Aug	1	11:00	1.294	0.02996	0.2116			09-3017-7198	08-2658-6105
14			22	15:15	1.366	0.102	0.7206			08-5971-6070	05-9030-6968
15			23	13:30	1.231	-0.03286	-0.232			13-8077-8936	07-0924-2020
16			29	16:00	1.366	0.102	0.7206			05-6294-8760	21-4078-0987
17		Sep	19	16:00	1.315	0.0507	0.3581			16-8533-8848	12-9015-8106
18			26	15:30	1.341	0.07678	0.5423			10-6565-5598	01-5260-5837
19		Oct	5	16:35	1.275	0.01056	0.07458			18-4836-1501	16-0609-1118
20		Nov	9	14:00	1.231	-0.03286	-0.232			21-4466-4169	09-1406-2130
21			14	11:45	1.366	0.102	0.7206			08-7022-6125	15-7041-0787

96 Hour Acute Inland Silverside Reference Toxicant Test

Client: Reference Toxicant
 Test Material: Potassium Chloride
 Test ID#: 80699 Project # 29623
 Test Date: 11/14/18 Randomization: 2.6.2

Organism Log #: 11287 A Age: 13 days
 Organism Supplier: ARC
 Control/Diluent: DI + Crystal Sea @ 25 ppt
 Control Water Batch: 1324

Treatment (g KCl/L)	Temp (°C)	pH		D.O. (mg/L)		Salinity (ppt)		# Live Organisms		SIGN-OFF
		new	old	new	old	new	old	Rep A	Rep B	
Control	20.4	7.91		8.1		24.1		10	10	Test Solution Prep: <u>KB</u>
0.125	20.5	7.93		8.0		24.7		10	10	New WQ: <u>TA</u>
0.25	20.5	7.93		8.0		24.9		10	10	Initiation Date: <u>11/14/18</u>
0.5	20.5	7.93		8.0		25.2		10	10	Initiation Time: <u>1145</u>
1	20.4	7.91		8.1		25.7		10	10	Initiation Signoff: <u>SK</u>
2	20.4	7.89		8.1		26.8		10	10	RT Batch # <u>W6</u>
Meter ID:	100A	PH19		RD11		EC11				a.m. Feeding Signoff: <u>ER</u>
Control	20.9	7.95		6.5		24.5		10	10	p.m. Feeding Signoff: <u>KL</u>
0.125	20.9	8.03		6.5		24.5		10	10	Count Date: <u>11/15/18</u>
0.25	21.0	8.03		6.5		24.8		10	10	Count Time: <u>0958</u>
0.5	20.9	8.07		6.7		25.0		10	10	Count Signoff: <u>TF</u>
1	20.6	8.04		6.4		25.5		10	10	Old WQ: <u>KB</u>
2	20.7	8.01		5.9		26.5		0	0	a.m. Feeding Signoff: <u>KB</u>
Meter ID:	93A	PH24		RD12		EC12				p.m. Feeding Signoff: <u>TF</u>
Control	20.3	8.30	7.87	8.0	6.5	24.5	25.0	10	10	Test Solution Prep: <u>TF</u>
0.125	20.0	8.30	7.89	8.1	6.0	24.8	25.1	10	10	New WQ: <u>SMC</u>
0.25	20.2	8.29	7.93	8.1	6.2	25.0	25.6	10	10	Renewal Date: <u>11/16/18</u>
0.5	20.4	8.28	7.94	8.1	6.5	25.3	25.3	10	10	Renewal Time: <u>1302</u>
1	20.4	8.28	7.88	8.1	6.1	25.8	26.6	10	10	Renewal Signoff: <u>NB</u>
2	-	-	-	-	-	-	-	-	-	Old WQ: <u>SR</u>
Meter ID:	105A	PH24	PH24	RD11	RD11	EC11	EC11			RT Batch #: <u>66</u>
Control	20.0	7.83		7.2		25.0		10	10	a.m. Feeding Signoff: <u>TR</u>
0.125	19.7	7.80		7.2		25.0		10	10	p.m. Feeding Signoff: <u>NB</u>
0.25	20.3	7.82		7.3		25.4		10	10	Count Date: <u>11/17/18</u>
0.5	20.4	7.83		7.4		25.4		10	10	Count Time: <u>0937</u>
1	19.1	7.81		7.4		27.8		10	9	Count Signoff: <u>TF</u>
2	-	-		-		-		-	-	Old WQ: <u>NB</u>
Meter ID:	105A	PH25		RD10		EC10				a.m. Feeding Signoff: <u>SR</u>
Control	20.3	7.64		6.8		25.4		10	10	p.m. Feeding Signoff: <u>NB</u>
0.125	20.3	7.65		6.4		25.6		10	10	Termination Date: <u>11/21/18</u>
0.25	20.3	7.65		6.2		25.4		10	10	Termination Time: <u>0950</u>
0.5	20.2	7.68		6.2		27.9		10	10	Termination Signoff: <u>WC</u>
1	19.9	7.68		6.2		28.4		10	9	Old WQ: <u>TP</u>
2	-	-		-		-		-	-	a.m. Feeding Signoff: <u>KB</u>
Meter ID:	81A	PH24		RD12		EC12				

Appendix M

Test Data for Port of Long Beach Carnival Cruise Terminal Sediment Bioaccumulation Tests with the Bivalve, *Macoma nasuta*

28-day *Macoma nasuta* Sediment Bioaccumulation Test Data

Client: KL: Carnival Cruise Test Material: Lab Control (Paradise Cove) Test ID: 80613-80615 Project #: 29525
 Organism Log#: 11290 Age: Adult Organism Supplier: J&G Gunstone Sample ID: —

Day 0 # Live Organisms							Rep A	Rep B	Rep C	Rep D	Rep E	Sign-Off	
							20	20	20	20	20	Initials: <u>AV</u> Confirmation: <u>VC</u>	
Day	Date	Water Quality Measurements					Observed Mortality						
		Temp. (°C)	NH ₃ (mg/L)	pH	D.O. (mg/L)	Salinity (ppt)	Rep A	Rep B	Rep C	Rep D	Rep E		
0	11/15/18	14.7	21.00	7.84	8.1	33.9	0	0	0	0	0	Time: 0852	Initials: TP
1	11/16/18	15.2			7.8	34.3	0	0	0	0	0	Time: 0900	Initials: TP
2	11/17/18	15.0			7.8	34.6	0	0	0	0	0	Time: 1329	Initials: JR
3	11/18/18	16.0			7.0	34.6	1	0	0	0	0	Time: 1141	Initials: OM
4	11/19/18	16.0			7.8	34.6	0	0	0	0	0	Time: 0910	Initials: OM
5	11/20/18	15.5			7.8	34.7	0	0	0	0	0	Time: 0905	Initials: IO
6	11/21/18	16.0			7.8	34.7	0	0	0	1	0	Time: 0922	Initials: OM
7	11/22/18	15.5	1.14	7.71	7.8	34.6	0	0	0	0	0	Time: 0850	Initials: JR
8	11/23/18	15.8			7.9	34.5	0	0	0	0	0	Time: 0920	Initials: SB
9	11/24/18	15.2			7.5	34.7	0	0	0	0	0	Time: 1021	Initials: JR
10	11/25/18	15.9			7.8	34.9	0	0	0	0	0	Time: 1049	Initials: mjc
11	11/24/18	15.6			7.9	34.6	0	0	0	0	0	Time: 0920	Initials: OM
12	11/27/18	15.7			7.7	34.9	0	0	0	0	0	Time: 0851	Initials: IO
13	11/28/18	14.9			7.7	34.8	0	0	0	0	0	Time: 0927	Initials: OM
14	11/29/18	15.9	21.00	7.74	7.7	34.3	0	0	0	0	0	Time: 0940	Initials: JP
15	11/30/18	14.6			7.8	34.3	0	0	0	0	0	Time: 0835	Initials: AR
16	12/1/18	15.9			7.8	34.6	0	0	0	0	0	Time: 0843	Initials: SJB
17	12/2/18	14.9			7.9	34.5	0	0	0	0	0	Time: 1019	Initials: TP
18	12/3/18	15.4			8.2	34.7	0	0	0	0	0	Time: 0943	Initials: SJB
19	12/4/18	14.6			7.7	34.4	0	0	0	1	0	Time: 0850	Initials: AR
20	12/5/18	15.9			7.7	34.7	0	0	0	0	0	Time: 1319	Initials: JR
21	12/6/18	15.5	21.00	7.67	7.9	34.5	0	0	0	0	0	Time: 0945	Initials: TP
22	12/7/18	16.4			7.7	34.7	0	0	0	0	0	Time: 0927	Initials: JR
23	12/8/18	15.0			8.3	35.0	0	0	0	0	0	Time: 0906	Initials: JR
24	12/9/18	15.7			7.7	35.2	0	0	2	0	0	Time: 0859	Initials: OM
25	12/10/18	15.1			8.1	35.0	0	0	0	0	0	Time: 0843	Initials: OM
26	12/11/18	15.6			7.3	34.9	0	0	1	0	0	Time: 1215	Initials: BR
27	12/12/18	14.9			8.2	34.8	0	0	0	0	0	Time: 0922	Initials: JR
28	12/13/18	15.4	<1.00	7.84	7.9	34.9	2	3	0	2	1	Time: 0853	Initials: JR
Day 28 # Live Organisms							17	17	17	16	19	Initials: <u>BV</u>	

28-day *Macoma nasuta* Sediment Bioaccumulation Test Data

Client: KL: Carnival Cruise Test Material: LA-2 Test ID: 80613 Project #: 29525
 Organism Log#: 11290 Age: Adult Organism Supplier: J&G Gunstone Sample ID: 51250

		Day 0 # Live Organisms					Rep A	Rep B	Rep C	Rep D	Rep E	Sign-Off	
							20	20	20	20	20	Initials: <u>BJ</u>	Confirmation: <u>W</u>
Day	Date	Water Quality Measurements					Observed Mortality						
		Temp. (°C)	NH ₃ (mg/L)	pH	D.O. (mg/L)	Salinity (ppt)	Rep A	Rep B	Rep C	Rep D	Rep E		
0	11/15/18	14.6	<1.00	7.92	8.2	34.2	0	0	0	0	0	Time: 0857 Initials: TP	
1	11/16/18	15.2			6.5	34.4	0	0	0	0	0	Time: 1029 Initials: TP	
2	11/17/18	14.8			7.8	35.0	0	0	0	0	0	Time: 1330 Initials: JR	
3	11/18/18	15.9			7.5	35.0	0	0	1	0	0	Time: 1/41 Initials: DM	
4	11/19/18	16.0			7.9	34.8	0	0	0	0	0	Time: 0910 Initials: DM	
5	11/20/18	15.3			7.9	35.2	0	0	0	0	0	Time: 0905 Initials: JA	
6	11/21/18	16.0			7.8	34.8	0	0	0	0	0	Time: 0922 Initials: DM	
7	11/22/18	15.3	1.62	7.78	7.8	34.8	0	0	0	0	0	Time: 0851 Initials: JR	
8	11/23/18	15.9			7.8	34.7	0	0	0	0	0	Time: 0922 Initials: SB	
9	11/24/18	15.2			7.8	35.1	0	0	0	0	0	Time: ^{32 1024} 1030 Initials: JR	
10	11/25/18	15.9			7.9	35.0	1	0	0	0	0	Time: 1050 Initials: MYL	
11	11/26/18	15.3			7.7	34.9	0	0	0	0	0	Time: 0920 Initials: DM	
12	11/27/18	15.8			7.8	35.0	0	0	0	0	0	Time: 0851 Initials: IO	
13	11/28/18	15.1			8.0	34.8	0	0	0	0	0	Time: 0927 Initials: DM	
14	11/29/18	15.7	<1.00	7.90	7.8	34.5	0	0	0	0	0	Time: 0941 Initials: J	
15	11/30/18	14.4			7.8	34.5	0	0	0	0	0	Time: 0836 Initials: AR	
16	12/1/18	15.9			7.8	34.8	0	0	0	0	0	Time: 0843 Initials: SB	
17	12/2/18	14.2			7.7	34.7	0	0	0	0	0	Time: 1020 Initials: TP	
18	12/3/18	15.5			8.2	34.6	0	0	0	0	0	Time: 0942 Initials: SB	
19	12/4/18	14.5			7.8	34.5	0	0	0	0	0	Time: 0852 Initials: AR	
20	12/5/18	15.9			7.2	34.7	0	0	0	0	0	Time: 1320 Initials: JR	
21	12/6/18	15.4	<1.00	7.72	8.0	34.7	0	0	0	0	0	Time: 0945 Initials: TP	
22	12/7/18	16.2			7.9	34.9	0	0	0	0	0	Time: 0920 Initials: JR	
23	12/8/18	14.8			8.2	35.0	0	0	0	0	0	Time: 0907 Initials: JR	
24	12/9/18	15.6			7.6	35.1	0	0	0	0	0	Time: 0859 Initials: DM	
25	12/10/18	15.0			8.1	34.9	0	0	0	0	0	Time: 0843 Initials: DM	
26	12/11/18	15.8			7.8	35.1	0	0	0	0	0	Time: 1246 Initials: JR	
27	12/12/18	14.7			8.3	34.7	0	0	0	0	0	Time: 0923 Initials: JR	
28	12/13/18	15.3	<1.00	8.01	8.1	34.9	0	0	2	1	1	Time: 0858 Initials: JR	
		Day 28 # Live Organisms					19	20	17	19	19	Initials: <u>WJ</u>	

28-day *Macoma nasuta* Sediment Bioaccumulation Test Data

Client: KLJ: Carnival Cruise Test Material: Composite-a Test ID: 80614 Project #: 29525
 Organism Log#: 11290 Age: Adult Organism Supplier: J&G Gunstone Sample ID: 57248

		Day 0 # Live Organisms					Rep A					Rep B					Rep C					Rep D					Rep E					Sign-Off	
							20					20					20					20					20					Initials: <u>JK</u>	Confirmation: <u>KV</u>
Day	Date	Water Quality Measurements					Observed Mortality																										
		Temp. (°C)	NH ₃ (mg/L)	pH	D.O. (mg/L)	Salinity (ppt)	Rep A	Rep B	Rep C	Rep D	Rep E	Rep A	Rep B	Rep C	Rep D	Rep E	Rep A	Rep B	Rep C	Rep D	Rep E	Rep A	Rep B	Rep C	Rep D	Rep E	Time	Initials					
0	11/15/18	14.4	21.00	7.93	8.0	34.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 0905	Initials: TP				
1	11/16/18	15.1			7.4	34.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 1029	Initials: TP				
2	11/17/18	15.7			7.9	34.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 1331	Initials: JR				
3	11/18/18	15.7			7.3	34.8	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 1141	Initials: DM				
4	11/19/18	15.8			7.9	34.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 0910	Initials: DM				
5	11/20/18	15.2			7.5	34.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 0905	Initials: JD				
6	11/21/18	15.9			7.9	34.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 0922	Initials: DM				
7	11/22/18	15.2	1.96	7.77	7.8	34.8	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	Time: 0852	Initials: JR				
8	11/23/18	15.8			7.6	34.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 0924	Initials: SB				
9	11/24/18	14.8			7.7	34.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 1031	Initials: JR				
10	11/25/18	15.8			7.5	35.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 1051	Initials: MJL				
11	11/26/18	15.2			7.9	34.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 0920	Initials: DM				
12	11/27/18	15.5			7.8	35.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 0851	Initials: FD				
13	11/28/18	14.8			7.6	34.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 0927	Initials: DM				
14	11/29/18	15.8	1.37	7.73	7.2	34.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 0943	Initials: JK				
15	11/30/18	14.3			7.5	34.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 0837	Initials: AR				
16	12/1/18	15.7			7.6	34.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 0844	Initials: SJB				
17	12/2/18	14.7			7.7	34.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 1021	Initials: TP				
18	12/3/18	15.5			8.0	34.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 0942	Initials: SJB				
19	12/4/18	14.3			7.8	34.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 0854	Initials: AR				
20	12/5/18	15.9			7.4	34.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 1321	Initials: JR				
21	12/6/18	15.4	21.00	7.72	8.0	34.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 0945	Initials: TP				
22	12/7/18	16.1			7.9	34.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 0929	Initials: SR				
23	12/8/18	14.9			8.1	35.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 0908	Initials: JR				
24	12/9/18	15.5			7.8	35.1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 0859	Initials: DM				
25	12/10/18	14.8			7.9	34.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 0843	Initials: DM				
26	12/11/18	15.6			7.9	34.8	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 1247	Initials: JR				
27	12/14/18	14.6			8.2	34.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 0924	Initials: SR				
28	12/17/18	15.4	21.00	7.92	8.0	34.8	2	1	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time: 0902	Initials: JR				
		Day 28 # Live Organisms					18	18	18	19	18	Initials: <u>JK</u>																					

28-day *Macoma nasuta* Sediment Bioaccumulation Test Data

Client: KLJ: Carnival Cruise Test Material: Composite-b Test ID: 80615 Project #: 29525
 Organism Log#: 11290 Age: Adult Organism Supplier: J&G Gunstone Sample ID: 51249

		Day 0 # Live Organisms					Rep A Rep B Rep C Rep D Rep E					Sign-Off	
							20	20	20	20	20	Initials: <u>UE</u>	Confirmation: <u>RJ</u>
Day	Date	Water Quality Measurements					Observed Mortality						
		Temp. (°C)	NH ₃ (mg/L)	pH	D.O. (mg/L)	Salinity (ppt)	Rep A	Rep B	Rep C	Rep D	Rep E		
0	11/15/18	14.7	1.33	8.20	8.1	34.2	0	0	0	0	0	Time: 0910	Initials: TP
1	11/16/18	15.3			7.0	34.6	0	0	0	0	0	Time: 1030	Initials: TP
2	11/17/18	16.0			7.6	34.9	0	0	0	0	0	Time: 1332	Initials: JR
3	11/18/18	16.0			7.6	34.7	0	0	0	0	0	Time: 1141	Initials: DM
4	11/19/18	15.8			7.7	34.7	0	0	0	0	0	Time: 0910	Initials: DM
5	11/20/18	15.2			7.8	35.0	0	0	0	0	0	Time: 0905	Initials: ID
6	11/21/18	15.8			7.6	34.6	0	0	0	0	0	Time: 0922	Initials: DM
7	11/22/18	15.8	1.99	7.75	7.4	34.6	0	0	0	0	0	Time: 0854	Initials: JR
8	11/23/18	15.5			7.7	34.3	0	0	0	0	0	Time: 0920	Initials: SB
9	11/24/18	15.3			7.2	35.0	0	0	0	0	0	Time: 1032	Initials: JR
10	11/25/18	15.8			7.6	34.9	0	0	1	0	0	Time: 1052	Initials: MJL
11	11/26/18	15.3			7.9	34.9	0	0	0	0	0	Time: 0920	Initials: DM
12	11/27/18	15.6			7.8	35.0	0	0	0	0	0	Time: 0851	Initials: ID
13	11/28/18	15.7			7.6	34.7	0	0	0	0	0	Time: 0927	Initials: DM
14	11/29/18	15.7	<1.00	7.78	7.5	34.5	0	0	0	0	0	Time: 0944	Initials: JK
15	11/30/18	15.1			7.7	34.5	0	0	0	0	0	Time: 0837	Initials: AR
16	12/1/18	15.8			7.7	34.6	0	0	0	0	0	Time: 0844	Initials: SSB
17	12/2/18	14.9			7.6	34.6	0	0	0	0	0	Time: 1021	Initials: TP
18	12/3/18	15.6			7.9	34.6	0	0	0	0	0	Time: 0941	Initials: SSB
19	12/4/18	15.2			7.9	34.5	0	0	0	1	0	Time: 0856	Initials: AR
20	12/5/18	15.8			7.1	34.9	0	0	0	0	0	Time: 1322	Initials: JR
21	12/6/18	15.4	<1.00	7.72	7.9	34.9	0	0	0	0	0	Time: 0945	Initials: TP
22	12/7/18	16.0			7.9	35.1	0	0	0	0	0	Time: 0929	Initials: JR
23	12/8/18	15.3			7.8	35.0	0	0	0	0	0	Time: 0909	Initials: JR
24	12/9/18	15.7			7.6	35.0	0	0	0	0	0	Time: 0859	Initials: DM
25	12/10/18	15.5			7.6	34.6	0	0	0	0	0	Time: 0843	Initials: DM
26	12/11/18	15.6			7.9	34.7	0	0	0	0	1	Time: 1248	Initials: JR
27	12/12/18	15.2			7.9	34.5	0	0	0	0	0	Time: 0925	Initials: JR
28	12/13/18	15.4	<6.00	7.95	8.0	35.0	2	1	0	0	0	Time: 0910	Initials: JR
		Day 28 # Live Organisms					19	19	19	19	19	Initials: <u>RJ</u>	

28-day Macoma Sediment Bioaccumulation Initial Water Quality Data

Client: KLI Project: Carnival Cruise Project #: 29525 Date (Day 0): 11/15/18

Treatment	Replicate	Temp. (°C)	pH	DO (mg/L)	Salinity (ppt)	Date	Time	Initials
Lab Control	A	14.7	7.84	8.1	33.9	11/15/18	0852	TP
	B	14.6	7.86	8.1	34.0			
	C	14.6	7.91	8.1	34.0			
	D	14.5	7.91	8.1	34.0			
	E	14.6	7.89	8.1	34.0			
LA-2	A	14.6	7.99	8.2	34.2	11/15/18	0857	TP
	B	14.7	8.02	8.1	34.1			
	C	14.7	8.02	8.1	34.1			
	D	14.5	8.04	8.1	34.2			
	E	14.6	8.03	8.1	34.1			
Composite-a	A	14.4	7.93	8.0	34.0	11/15/18	0905	TP
	B	14.5	8.05	8.1	34.1			
	C	14.5	8.08	8.1	34.1			
	D	14.5	8.06	8.1	34.1			
	E	14.6	8.10	8.1	34.2			
Composite-b	A	14.7	8.20	8.1	34.2	11/15/18	0910	TP
	B	14.9	8.18	8.0	34.2			
	C	15.1	8.19	8.0	34.2			
	D	15.0	8.22	8.0	34.1			
	E	15.0	8.21	8.0	34.1			

28-day Macoma Sediment Bioaccumulation Final Water Quality Data

Client: KLI Project: Carnival Cruise Project #: 29525 Date (Day 28): 12/13/18

Treatment	Replicate	Temp. (°C)	pH	DO (mg/L)	Salinity (ppt)	Date	Time	Initials
Lab Control	A	15.4	7.84	7.9	34.9	12/13/18	0853	JK
	B	15.5	7.90	8.0	34.9			
	C	15.4	7.97	8.1	34.9			
	D	15.5	7.96	8.2	34.8			
	E	15.5	7.96	8.2	34.7			
LA-2	A	15.3	8.01	8.1	34.9	12/13/18	0858	JK
	B	15.3	8.04	7.9	35.2			
	C	15.3	8.03	8.1	34.8			
	D	15.2	8.05	8.3	35.1			
	E	15.3	7.99	8.2	34.9			
Composite-a	A	15.4	7.92	8.0	34.8	12/13/18	0902	JK
	B	15.3	7.95	8.0	34.8			
	C	15.3	7.97	8.1	34.8			
	D	15.3	7.92	8.1	34.7			
	E	15.2	7.93	8.1	35.0			
Composite-b	A	15.4	7.95	8.0	35.0	12/13/18	0910	JK
	B	15.5	7.92	8.1	34.8			
	C	15.5	7.88	7.9	34.6			
	D	15.4	7.89	7.9	34.8			
	E	15.3	7.94	7.9	34.6			

Appendix N

Test Data for Port of Long Beach Carnival Cruise Terminal Sediment Bioaccumulation Tests with the Polychaete, *Nereis virens*

28-day *Nereis virens* Sediment Bioaccumulation Test Data

Client: KLI: Carnival Cruise Test Material: Lab Control (Paradise Cove) Test ID: 80616-80618 Project #: 29525
 Organism Log#: 11282 Age: Adult Organism Supplier: ARO Sample ID: —

Day 0 # Live Organisms							Rep A	Rep B	Rep C	Rep D	Rep E	Sign-Off
							10	10	10	10	10	
Day	Date	Water Quality Measurements					Observed Mortality					
		Temp. (°C)	NH ₃ (mg/L)	pH	D.O. (mg/L)	Salinity (ppt)	Rep A	Rep B	Rep C	Rep D	Rep E	
0	11/14/18	14.7	<1.00	7.80	8.2	33.4	0	0	0	0	0	Time: 0855 Initials: <u>IO</u>
1	11/15/18	15.0			8.2	34.0	0	0	0	0	0	Time: 0910 Initials: <u>TP</u>
2	11/16/18	15.0			8.0	34.4	0	0	0	0	0	Time: 0903 Initials: <u>TP</u>
3	11/17/18	15.9			7.8	34.7	0	0	0	0	0	Time: 1335 Initials: <u>JR</u>
4	11/18/18	15.5			7.8	34.8	0	0	0	0	0	Time: 1150 Initials: <u>UM</u>
5	11/19/18	15.6			7.9	35.0	0	0	0	0	0	Time: 0918 Initials: <u>UM</u>
6	11/20/18	15.1			7.8	34.6	0	0	0	0	0	Time: 0840 Initials: <u>IO</u>
7	11/21/18	15.5	<1.00	7.76	7.8	34.7	0	0	0	0	0	Time: 0922 Initials: <u>UM</u>
8	11/22/18	15.6			7.8	34.6	0	0	0	0	0	Time: 0845 Initials: <u>JR</u>
9	11/23/18	15.1			7.8	34.6	0	0	0	0	0	Time: 0928 Initials: <u>SB</u>
10	11/24/18	15.6			7.9	34.9	0	0	0	0	0	Time: 1036 Initials: <u>JR</u>
11	11/25/18	15.9			8.0	35.1	0	0	0	0	0	Time: 1037 Initials: <u>myc</u>
12	11/26/18	15.8			8.0	35.3	0	0	0	0	0	Time: 0913 Initials: <u>UM</u>
13	11/27/18	15.6			7.6	34.7	0	0	0	0	0	Time: 0839 Initials: <u>IO</u>
14	11/28/18	15.9	<1.00	7.76	7.8	34.9	0	0	0	0	0	Time: 0850 Initials: <u>UM</u>
15	11/29/18	15.0			8.1	34.6	0	0	0	0	0	Time: 0949 Initials: <u>JR</u>
16	11/30/18	15.4			7.7	35.0	0	0	0	0	0	Time: 0905 Initials: <u>AR</u>
17	12/1/18	15.6			8.0	34.6	0	0	0	0	0	Time: 0830 Initials: <u>SB</u>
18	12/2/18	15.3			7.9	34.6	0	0	0	0	0	Time: 1120 Initials: <u>TP</u>
19	12/3/18	15.7			8.1	34.2	0	0	0	0	0	Time: 0940 Initials: <u>SB</u>
20	12/4/18	15.2			8.1	34.5	0	0	0	0	0	Time: 0835 Initials: <u>AR</u>
21	12/5/18	15.9	<1.00	7.99	8.1	35.0	0	0	0	0	0	Time: 1324 Initials: <u>JR</u>
22	12/6/18	15.1			8.0	35.0	0	0	0	0	0	Time: 0850 Initials: <u>TP</u>
23	12/7/18	15.8			8.2	35.1	0	0	0	0	0	Time: 0933 Initials: <u>JR</u>
24	12/8/18	14.9			8.3	35.0	0	0	0	0	0	Time: 0912 Initials: <u>JR</u>
25	12/9/18	14.9			8.1	35.2	0	0	0	0	0	Time: 0851 Initials: <u>UM</u>
26	12/10/18	14.4			8.2	35.3	0	0	0	0	0	Time: 0851 Initials: <u>UM</u>
27	12/11/18	15.1			8.1	35.2	0	0	0	0	0	Time: 1304 Initials: <u>JR</u>
28	12/12/18	14.9	<1.00	7.84	8.1	34.8	0	0	0	0	0	Time: 0835 Initials: <u>JR</u>
Day 28 # Live Organisms							10	10	10	10	10	Initials: <u>BV</u>

28-day *Nereis virens* Sediment Bioaccumulation Test Data

Client: KLI: Carnival Cruise Test Material: LA-2 Test ID: 80616 Project #: 29525
 Organism Log#: 11202 Age: Adult Organism Supplier: ARO Sample ID: 51250

		Day 0 # Live Organisms					Rep A	Rep B	Rep C	Rep D	Rep E	Sign-Off	
							10	10	10	10	10	Initials: <u>NL</u> Confirmation: <u>RL</u>	
Day	Date	Water Quality Measurements					Observed Mortality						
		Temp. (°C)	NH ₃ (mg/L)	pH	D.O. (mg/L)	Salinity (ppt)	Rep A	Rep B	Rep C	Rep D	Rep E		
0	11/14/18	14.7	<1.00	7.80	8.3	33.7	0	0	0	0	0	Time: 0905	Initials: <u>TD</u>
1	11/15/18	15.1			7.8	34.3	0	0	0	0	0	Time: 0910	Initials: <u>TP</u>
2	11/16/18	15.2			7.7	34.3	0	0	0	0	0	Time: 1030	Initials: <u>TP</u>
3	11/17/18	15.7			7.7	34.8	0	0	0	0	0	Time: 1336	Initials: <u>JR</u>
4	11/18/18	15.7			7.6	34.9	0	0	0	0	0	Time: 1150	Initials: <u>UM</u>
5	11/19/18	15.7			7.8	35.1	0	0	0	0	0	Time: 0918	Initials: <u>UM</u>
6	11/20/18	15.2			7.4	34.7	0	0	0	0	0	Time: 0840	Initials: <u>TD</u>
7	11/21/18	15.6	1.45	7.77	7.8	34.8	0	0	0	0	0	Time: 0922	Initials: <u>UM</u>
8	11/22/18	15.3			7.8	34.8	0	0	0	0	0	Time: 0846	Initials: <u>JR</u>
9	11/23/18	15.2			7.7	34.7	0	0	0	0	0	Time: 0930	Initials: <u>SB</u>
10	11/24/18	15.9			7.8	34.9	0	0	0	0	0	Time: 1036	Initials: <u>JR</u>
11	11/25/18	15.7			7.7	35.0	0	0	0	0	0	Time: 1038	Initials: <u>MYL</u>
12	11/26/18	15.2			7.7	35.3	0	0	0	0	0	Time: 0913	Initials: <u>UM</u>
13	11/27/18	15.9			7.6	34.7	0	0	0	0	0	Time: 0839	Initials: <u>TD</u>
14	11/28/18	15.7	<1.00	7.75	7.3	34.8	0	0	0	0	0	Time: 0850	Initials: <u>UM</u>
15	11/29/18	15.2			7.1	34.6	0	0	0	0	0	Time: 0950	Initials: <u>JR</u>
16	11/30/18	15.3			7.6	34.7	0	0	0	0	0	Time: 0906	Initials: <u>AR</u>
17	12/1/18	15.4			7.9	34.6	0	0	0	0	0	Time: 0850	Initials: <u>SB</u>
18	12/2/18	15.2			7.8	34.4	0	0	0	0	0	Time: 1120	Initials: <u>TP</u>
19	12/3/18	15.9			8.0	34.2	0	0	0	0	0	Time: 0940	Initials: <u>SB</u>
20	12/4/18	15.1			8.0	34.3	0	0	0	0	0	Time: 0837	Initials: <u>AR</u>
21	12/5/18	15.8	<1.00	7.96	8.0	35.0	0	0	0	0	0	Time: 1325	Initials: <u>JR</u>
22	12/6/18	15.1			8.0	34.9	0	0	0	0	0	Time: 0855	Initials: <u>TP</u>
23	12/7/18	15.8			8.1	35.1	0	0	0	0	0	Time: 0934	Initials: <u>JR</u>
24	12/8/18	15.1			8.1	35.1	0	0	0	0	0	Time: 0913	Initials: <u>JR</u>
25	12/9/18	15.2			7.9	35.0	0	0	0	0	0	Time: 0857	Initials: <u>UM</u>
26	12/10/18	15.0			8.1	35.2	0	0	0	0	0	Time: 0857	Initials: <u>UM</u>
27	12/11/18	15.1			8.2	34.8	0	0	0	0	0	Time: 1254	Initials: <u>JR</u>
28	12/12/18	14.9	<1.00	7.95	8.3	35.2	0	0	0	0	0	Time: 0850	Initials: <u>JR</u>
		Day 28 # Live Organisms					10	10	10	10	10	Initials: <u>RL</u>	

28-day *Nereis virens* Sediment Bioaccumulation Test Data

Client: KLJ: Carnival Cruise Test Material: Composite-a Test ID: 80617 Project #: 29525
 Organism Log#: 11282 Age: Adult Organism Supplier: ARO Sample ID: 51248

		Day 0 # Live Organisms					Rep A	Rep B	Rep C	Rep D	Rep E	Sign-Off	
							10	10	10	10	10	Initials: <u>BV</u>	Confirmation: <u>ML</u>
Day	Date	Water Quality Measurements					Observed Mortality						
		Temp. (°C)	NH ₃ (mg/L)	pH	D.O. (mg/L)	Salinity (ppt)	Rep A	Rep B	Rep C	Rep D	Rep E		
0	11/14/18	14.9	<1.00	7.81	8.2	33.9	0	0	0	0	0	Time: 0913	Initials: <u>ID</u>
1	11/15/18	14.9			7.9	34.3	0	0	0	0	0	Time: 0912	Initials: <u>TP</u>
2	11/16/18	14.7			7.6	34.6	0	0	0	0	0	Time: 1030	Initials: <u>TP</u>
3	11/17/18	15.1			7.8	34.9	0	0	0	0	0	Time: 1337	Initials: <u>JR</u>
4	11/18/18	15.6			7.8	34.9	0	0	0	0	0	Time: 1150	Initials: <u>DM</u>
5	11/19/18	15.5			7.9	35.2	0	0	0	0	0	Time: 0918	Initials: <u>DM</u>
6	11/20/18	14.9			7.8	34.9	0	0	0	0	0	Time: 0840	Initials: <u>ID</u>
7	11/21/18	15.6	1.56	7.70	7.178	34.7	0	0	0	0	0	Time: 0930/0922	Initials: <u>DM</u>
8	11/22/18	15.3			7.9	34.9	0	0	0	0	0	Time: 0847	Initials: <u>JR</u>
9	11/23/18	15.4			7.8	35.0	0	0	0	0	0	Time: 0932	Initials: <u>SB</u>
10	11/24/18	15.6			7.8	35.2	0	0	0	0	0	Time: 1037	Initials: <u>JR</u>
11	11/25/18	15.6			7.9	35.4	0	0	0	0	0	Time: 1039	Initials: <u>myc</u>
12	11/26/18	15.4			7.6	35.2	0	0	0	0	0	Time: 0913	Initials: <u>DM</u>
13	11/27/18	15.9			7.7	35.0	0	0	0	0	0	Time: 0834	Initials: <u>SO</u>
14	11/28/18	15.6	<1.00	7.96	7.9	35.3	0	0	0	0	0	Time: 0850	Initials: <u>DM</u>
15	11/29/18	15.2			7.8	34.7	0	0	0	0	0	Time: 0951	Initials: <u>JR</u>
16	11/30/18	15.6			7.7	35.2	0	0	0	0	0	Time: 0907	Initials: <u>AR</u>
17	12/1/18	15.5			7.8	34.8	0	0	0	0	0	Time: 0850	Initials: <u>SB</u>
18	12/2/18	15.1			8.3	34.5	0	0	0	0	0	Time: 1122	Initials: <u>TP</u>
19	12/3/18	15.8			7.9	34.0	0	0	0	0	0	Time: 0939	Initials: <u>SB</u>
20	12/4/18	15.0			8.0	34.7	0	0	0	0	0	Time: 0838	Initials: <u>AR</u>
21	12/5/18	15.6	<1.00	8.03	7.8	35.0	0	0	0	0	0	Time: 1326	Initials: <u>JR</u>
22	12/6/18	15.0			7.8	35.3	0	0	0	0	0	Time: 0900	Initials: <u>TP</u>
23	12/7/18	15.7			8.0	35.5	0	0	0	0	0	Time: 0935	Initials: <u>JR</u>
24	12/8/18	14.9			8.1	35.3	0	0	0	0	0	Time: 0914	Initials: <u>JR</u>
25	12/9/18	15.1			7.9	35.4	0	0	0	0	0	Time: 0851	Initials: <u>DM</u>
26	12/10/18	14.9			8.1	35.6	0	0	0	0	0	Time: 0851	Initials: <u>DM</u>
27	12/11/18	15.0			8.2	35.0	0	0	0	0	0	Time: 1252	Initials: <u>JR</u>
28	12/12/18	14.9	<1.00	8.01	8.2	35.4	0	0	0	0	0	Time: 0902	Initials: <u>JR</u>
		Day 28 # Live Organisms					10	10	10	10	10	Initials: <u>BV</u>	

28-day *Nereis virens* Sediment Bioaccumulation Test Data

Client: KKI: Carnival Cruise Test Material: Composite-b Test ID: 80618 Project #: 29525
 Organism Log#: 11282 Age: Adult Organism Supplier: ARO Sample ID: 51249

		Day 0 # Live Organisms					Rep A	Rep B	Rep C	Rep D	Rep E	Sign-Off	
							10	10	10	10	10	Initials: <u>BV</u>	Confirmation: <u>X</u> ML
Day	Date	Water Quality Measurements					Observed Mortality						
		Temp. (°C)	NH ₃ (mg/L)	pH	D.O. (mg/L)	Salinity (ppt)	Rep A	Rep B	Rep C	Rep D	Rep E		
0	11/14/18	15.1	1.53	7.85	8.1	33.8	0	0	0	0	0	Time: 0924 Initials: <u>TD</u>	
1	11/15/18	15.2			7.5	34.2	0	0	0	0	0	Time: 0915 Initials: <u>TP</u>	
2	11/16/18	15.3			7.7	34.6	0	0	0	0	0	Time: 1030 Initials: <u>TP</u>	
3	11/17/18	16.0			7.9	34.4	0	0	0	0	0	Time: 1339 Initials: <u>JR</u>	
4	11/18/18	15.8			7.7	34.8	0	0	0	0	0	Time: 1150 Initials: <u>DM</u>	
5	11/19/18	16.0			7.6	34.9	0	0	0	0	0	Time: 0918 Initials: <u>DM</u>	
6	11/20/18	15.4			7.8	34.7	0	0	0	0	0	Time: 0840 Initials: <u>TD</u>	
7	11/21/18	15.7	2.93	7.80	7.6	34.6	0	0	0	0	0	Time: 0922 Initials: <u>DM</u>	
8	11/22/18	15.8			7.7	34.9	0	0	0	0	0	Time: 0848 Initials: <u>JR</u>	
9	11/23/18	15.3			7.8	34.9	0	0	0	0	0	Time: 0934 Initials: <u>SB</u>	
10	11/24/18	15.7			7.8	35.0	0	0	0	0	0	Time: 1034 Initials: <u>JR</u>	
11	11/25/18	15.4			7.7	35.0	0	0	0	0	0	Time: 1040 Initials: <u>MYL</u>	
12	11/26/18	15.8			7.7	35.3	0	0	0	0	0	Time: 0913 Initials: <u>DM</u>	
13	11/27/18	16.0			7.8	34.7	0	0	0	0	0	Time: 0834 Initials: <u>TD</u>	
14	11/28/18	15.8	1.98	7.74	7.6	35.1	0	0	0	0	0	Time: 0850 Initials: <u>DM</u>	
15	11/29/18	15.3			7.9	34.8	0	0	0	0	0	Time: 0952 Initials: <u>ZJ</u>	
16	11/30/18	15.1			7.5	34.8	0	0	0	0	0	Time: 0907 Initials: <u>AR</u>	
17	12/1/18	15.4			7.7	34.7	0	0	0	0	0	Time: 0850 Initials: <u>SB</u>	
18	12/2/18	15.4			8.4	34.6	0	0	0	0	0	Time: 1122 Initials: <u>TP</u>	
19	12/3/18	15.8			7.9	34.3	0	0	0	0	0	Time: 0940 Initials: <u>SB</u>	
20	12/4/18	15.4			7.7	34.2	0	0	0	0	0	Time: 0839 Initials: <u>AR</u>	
21	12/5/18	15.7	<1.00	7.95	7.8	35.3	0	0	0	0	0	Time: 1328 Initials: <u>JR</u>	
22	12/6/18	15.2			7.8	35.0	0	0	0	0	0	Time: 0900 Initials: <u>TP</u>	
23	12/7/18	16.0			8.0	35.3	0	0	0	0	0	Time: 0936 Initials: <u>JR</u>	
24	12/8/18	15.4			8.1	35.1	0	0	0	0	0	Time: 0915 Initials: <u>JR</u>	
25	12/9/18	15.3			7.9	35.0	0	0	0	0	0	Time: 0851 Initials: <u>DM</u>	
26	12/10/18	15.3			8.0	35.3	0	0	0	0	0	Time: 0851 Initials: <u>DM</u>	
27	12/11/18	15.0			8.2	35.0	0	0	0	0	0	Time: 1556 Initials: <u>JK</u>	
28	12/12/18	15.2	<1.00	7.81	7.7	34.8	0	0	0	0	0	Time: 0915 Initials: <u>JR</u>	
		Day 28 # Live Organisms					10	10	9	9	10	Initials: <u>BV</u>	

28-day *Nereis virens* Sediment Bioaccumulation Initial Water Quality DataClient: KLI Project: Carnival Cruise Project #: 29525 Date (Day 0): 11/14/18

Treatment	Replicate	Temp. (°C)	pH	DO (mg/L)	Salinity (ppt)	Date	Time	Initials
Lab Control	A	14.7	7.80	8.2	33.4	11/14/18	0855	ID
	B	14.6	7.78	8.3	33.6			
	C	14.6	7.80	8.2	33.6			
	D	14.6	7.79	8.3	33.6			
	E	14.5	7.79	8.3	33.6			
LA-2	A	14.7	7.80	8.3	33.7	11/14/18	0905	ID
	B	14.5	7.82	8.3	33.7			
	C	14.4	7.78	8.2	33.7			
	D	14.7	7.80	8.3	33.7			
	E	14.7	7.77	8.2	33.7			
Composite-a	A	14.9	7.81	8.2	33.9	11/14/18	0913	ID
	B	14.9	7.78	8.1	33.7			
	C	14.7	7.84	8.2	33.8			
	D	14.8	7.81	8.2	33.7			
	E	14.9	7.77	8.1	33.7			
Composite-b	A	15.1	7.85	8.1	33.8	11/14/18	0924	ID
	B	14.9	7.89	8.2	33.8			
	C	14.9	7.89	8.2	33.8			
	D	15.0	7.82	8.2	33.8			
	E	14.9	7.85	8.2	33.8			

28-day *Nereis virens* Sediment Bioaccumulation Final Water Quality Data

Client: KLI Project: Carnival Cruise Project #: 29525 Date (Day 28): 12/12/18

Treatment	Replicate	Temp. (°C)	pH	DO (mg/L)	Salinity (ppt)	Date	Time	Initials
Lab Control	A	14.9	7.84	8.1	34.8	12/12/18	0835	JR
	B	14.9	7.84	8.3	35.2			
	C	14.8	7.81	8.3	35.2			
	D	14.7	7.85	8.3	35.6			
	E	14.6	7.82	8.3	35.4			
LA-2	A	14.9	7.95	8.3	35.2	12/12/18	0850	JR
	B	14.9	7.90	8.2	35.0			
	C	14.7	7.92	8.3	35.1			
	D	14.7	7.88	8.3	35.1			
	E	14.7	7.86	8.2	35.2			
Composite-a	A	14.9	8.01	8.2	35.4	12/12/18	0902	JR
	B	14.8	8.03	8.1	35.3			
	C	14.8	7.91	7.8	35.1			
	D	14.8	7.90	7.9	35.1			
	E	14.8	7.89	7.7	35.2			
Composite-b	A	15.2	7.81	7.7	34.8	12/12/18	0915	JR
	B	15.2	7.92	8.1	35.2			
	C	15.4	7.89	8.3	35.1			
	D	15.2	7.88	8.2	35.1			
	E	15.0	7.85	8.0	35.1			

Appendix O

Bioassay Standard Test Conditions

Summary of Test Conditions and Acceptability Criteria for the Amphipod (<i>Ampelisca abdita</i>) 10-Day Sediment Toxicity Test.	
1. Test type	Static non-renewal
2. Test duration	10 d
3. Temperature	20 ± 1°C
4. Salinity	28 ± 2 ppt
5. Light quality	Ambient Laboratory
6. Light intensity	50 – 100 ft candles
7. Photoperiod	Continuous
8. Test chamber size	1 L
9. Seawater volume	800 mL
10. Sediment depth	20 mm
11. Renewal of seawater	None
12. Age of test organisms	Young adults, 3-5 mm
13. # of organisms per test chamber	20
14. # of replicate chambers/concentration	5
15. # of organisms per sediment type	100
16. Feeding regime	None
17. Test chamber cleaning	Lab washing prior to test
18. Test solution aeration	Low bubble (~100/minute)
19. Overlying water	1 µm-filtered seawater (at test salinity)
20. Test materials	Test sites, reference and control
21. Dilution series	None
22. Endpoint	% Survival
23. Sample holding requirements	< 8 weeks
24. Sample volume required	4 L
25. Test acceptability criteria	≥ 90% survival in the Control treatment
26. Reference toxicant results	Within 2 SD of laboratory mean



Summary of Test Conditions and Acceptability Criteria for the Marine Polychaete (<i>Neanthes arenaceodentata</i>) 10-Day Sediment Toxicity Test.	
1. Test type	Static-renewal
2. Test duration	10 d
3. Temperature	20 ± 1°C
4. Salinity	28 ± 2 ppt
5. Light quality	Ambient Laboratory
6. Light intensity	50 – 100 ft c.
7. Photoperiod	12L/12D
8. Test chamber size	1 L glass beakers
9. Test solution volume	800 L
10. Sediment depth	25 mm (200 mL)
11. Renewal of seawater	None, unless needed. If needed, renew 80% of overlying water at 48 hour intervals
12. Age of test organisms	2-3 weeks
13. # of organisms per test chamber	5
14. # of replicate chambers/concentration	5
15. # of organisms per sediment type	25
16. Feeding regime	None
17. Test chamber cleaning	Lab washing prior to test
18. Test solution aeration	Low bubble (~100/minute)
19. Overlying water	1 µm-filtered seawater, at test salinity
20. Test concentrations	Test sites, reference and Control
21. Dilution series	None
22. Endpoint	Survival
23. Sample holding requirements	< 8 weeks
24. Sample volume required	4 L
25. Test acceptability criteria	≥ 90% survival in the Control treatment
26. Reference toxicant results	Within 2 SD of laboratory mean



Summary of Test Conditions and Acceptability Criteria for the Mussel (<i>Mytilus galloprovincialis</i>) Water Column Toxicity Test.	
1. Test type	Static non-renewal
2. Test duration	48 hours
3. Salinity	28 – 32 ppt
4. Temperature	16 ± 1°C (mussels)
5. Light quality	Ambient Laboratory
6. Light intensity	50 – 100 ft c.
7. Photoperiod	16L/8D
8. Test chamber size	20 mL vials
9. Test solution volume	10 mL
10. Renewal of seawater	None
11. Age of test organisms	Embryo ≤ 4h old
12. # of organisms per test chamber	150 – 300
13. # of replicate chambers per concentration	5
14. # of organisms per concentration	750 – 1,500
15. Feeding regime	None
16. Test chamber cleaning	Lab washing prior to test
17. Test chamber aeration	None
18. Elutriate preparation water	Site water
19. Test concentrations	Test sites, and Lab Control
20. Dilution series	Four concentrations (1, 10, 25, 50, and 100%) and a Lab Control.
21. Dilution water	Natural seawater
22. Endpoints	%Survival and %normal development
23. Sampling holding requirements	< 8 weeks
24. Sample volume required	2L
25. Test acceptability criteria	≥70% survival and normal development in the Lab Controls, <10% abnormal in Lab Control



Summary of Test Conditions and Acceptability Criteria for the Mysid (<i>Americamysis bahia</i>) Water Column Toxicity Test.	
1. Test type	Static non-renewal
2. Test duration	96 hours
3. Salinity	5-30 ppt \pm 10 ppt
4. Temperature	20 \pm 1°C
5. Light quality	Ambient Laboratory
6. Light intensity	50 – 100 ft c.
7. Photoperiod	16L/8D
8. Test chamber size	400 mL beaker
9. Test solution volume	200 mL
10. Renewal of seawater	None
11. Age of test organisms	1-5 days; 24 hour range in age
12. # of organisms per test chamber	10
13. # of replicate chambers per concentration	5
14. # of organisms per concentration	50
15. Feeding regime	daily
16. Test chamber cleaning	Lab washing prior to test
17. Test chamber aeration	If needed to maintain >40% saturation
18. Elutriate preparation water	Site water or Clean sea water
19. Test concentrations	Test sites, and Lab Control
20. Dilution series	Four concentrations (1, 10, 25, 50, and 100%) and a Lab Control.
21. Dilution water	Natural seawater/artificial seawater
22. Endpoints	% Survival
23. Sampling holding requirements	< 8 weeks
24. Sample volume required	2L
25. Test acceptability criteria	\geq 90% survival in the Lab Controls



Summary of Test Conditions and Acceptability Criteria for the Inland Silverside (<i>Menidia beryllina</i>) Water Column Toxicity Test.	
1. Test type	Static non-renewal
2. Test duration	96 hours
3. Salinity	5 – 32 ppt \pm 10 ppt
4. Temperature	20 \pm 1°C
5. Light quality	Ambient Laboratory
6. Light intensity	50 – 100 ft c.
7. Photoperiod	16L/8D
8. Test chamber size	400 mL beaker
9. Test solution volume	200 mL
10. Renewal of seawater	None
11. Age of test organisms	9-14 days; 24 hour range in age
12. # of organisms per test chamber	10
13. # of replicate chambers per concentration	5
14. # of organisms per concentration	50
15. Feeding regime	At 48 hrs
16. Test chamber cleaning	Lab washing prior to test
17. Test chamber aeration	If needed to maintain >40% saturation
18. Elutriate preparation water	Site water or Clean sea water
19. Test concentrations	Test sites, and Lab Control
20. Dilution series	Four concentrations (1, 10, 25, 50, and 100%) and a Lab Control.
21. Dilution water	Natural seawater/artificial seawater
22. Endpoints	%Survival
23. Sampling holding requirements	< 8 weeks
24. Sample volume required	2L
25. Test acceptability criteria	\geq 90% survival in the Lab Controls



Summary of Test Conditions and Acceptability Criteria for the Bioaccumulation Testing Using <i>Macoma nasuta</i> and <i>Nereis virens</i> .	
1. Test type	Static-renewal
2. Test duration	28-days
3. Salinity	>25 ppt
4. Temperature	12-16 ± 1°C
5. Light quality	Ambient Laboratory
6. Light intensity	50 – 100 ft c.
7. Photoperiod	16L/8D
8. Test chamber size	12-L tank
9. Test sediment/test solution volume	4-L sediment/8-L water
10. Renewal of seawater	3x per week
11. Age of test organisms	<i>Macoma</i> 2-4 years, 28-45 mm shell length; <i>Nereis</i> large adults
12. # of organisms per test chamber	20 <i>Macoma</i> /10 <i>Nereis</i> (or as needed)
13. # of replicate chambers per concentration	5
14. # of organisms per concentration	100 <i>Macoma</i> /50 <i>Nereis</i> (or as needed)
15. Feeding regime	None
16. Test chamber cleaning	As needed
17. Test chamber aeration	Moderate as needed
18. Elutriate preparation water	Site water or Clean sea water
19. Test concentrations	Test sediment, reference sediment, and a Lab Control sediment
20. Dilution series	N/A
21. Dilution water	Natural seawater/artificial seawater
22. Endpoints	Bioaccumulation
23. Sampling holding requirements	< 8 weeks
24. Sample volume required	≥25-L
25. Test acceptability criteria	Adequate mass of organisms at test completion for detection of target analytes



Appendix F
Analytical Quality Assurance/Quality Control Report

APPENDIX F
LONG BEACH CARNIVAL CRUISE TERMINAL 2018
QUALITY ASSURANCE/QUALITY CONTROL EVALUATION REPORT

February 2019

TABLE OF CONTENTS

	<u>Page No.</u>
1.0 INTRODUCTION	3
2.0 QA/QC METHODS	4
2.1 Precision.....	4
2.2 Accuracy	4
2.3 Representativeness, Comparability and Completeness.....	4
2.4 Data Qualifier Codes.....	8
3.0 QA/QC RESULTS	9
3.1 Water Quality Control Records	10
3.1.1 Completeness and Holding Times.....	10
3.1.2 Reporting Limits	10
3.1.3 Method Blanks	10
3.1.4 Laboratory Duplicates.....	10
3.1.5 Laboratory Control Sample.....	10
3.2 Sediment Quality Control Records	11
3.2.1 Completeness and Holding Times.....	11
3.2.2 Reporting Limits	11
3.2.3 Method Blanks	11
3.2.4 Laboratory Duplicates.....	12
3.2.5 Laboratory Control Sample.....	12
3.2.6 Matrix Spikes	12
3.2.7 Post Digestion Spikes.....	13
3.2.8 Surrogates.....	13
3.3 Tissue Quality Control Records.....	13
3.3.1 Completeness and Holding Times.....	13
3.3.2 Reporting Limits	13
3.3.3 Method Blanks	13
3.3.4 Laboratory Duplicates.....	14
3.3.5 Laboratory Control Sample.....	14
3.3.6 Matrix Spikes	14
3.3.7 Surrogates.....	15
4.0 QA/QC CONCLUSIONS	15

LIST OF TABLES

Page No.

Table F-1. Summary of Quality Control Performed on the Bulk Sediment Chemistry Samples.	3
Table F-2. Sediment Quality Assurance/Quality Control Objectives.	5
Table F-3. Counts of QC records per Chemical Category	9
Table F-4. Final QC Qualification Applied to Sample Results.	10
Table F-5. Summary of Sediment Samples with Elevated Reporting Limits.	11
Table F-6. Sediment Method Blank QC Review Detail.	12
Table F-7. Summary of Sediments Matrix Spike Results Outside QC Limits.	12
Table F-8. Tissue Method Blank QC Review Detail.	14
Table F-9. Summary of Tissue Matrix Spike Results Outside QC Limits.....	14

1.0 INTRODUCTION

Kinnetic Laboratories conducts its activities in accordance with formal QA/QC procedures. The objectives of this QA/QC Program are to fully document the field and laboratory data collected, to maintain data integrity from the time of field collection to storage at the end of the project, and to produce the highest quality data possible. This program was designed to allow data to be assessed by the following parameters: Precision, Accuracy, Comparability, Representativeness, and Completeness. These parameters were controlled by adhering to documented methods and procedures (SOPs), and by the analysis of quality control (QC) samples on a routine basis.

QC checks such as method blanks, laboratory control sample/laboratory control sample duplicates (LCS/LCSDs), matrix spike/spike duplicates (MS/MSDs), and surrogates were performed on the samples. Post digestion spike/spike duplicates (PDS/PDSDs) were also run for the metals analyses. Table F-1 summarizes laboratory QC performed for the chemical analyses.

All analytical data collected for this Carnival Cruise Terminal sediment-testing program underwent QA/QC evaluation according to EPA National Functional Guidelines for inorganic and organic data review (USEPA, 2017 a; 2017b). Established laboratory QC objectives were used in the evaluation of data.

Table F-1. Summary of Quality Control Performed on the Bulk Sediment Chemistry Samples.

Analyte	Blanks	Duplicates ¹	LCS ²	MS/MSDs ³	PDS/PDSD ⁴	Surrogates
<i>Sediment Matrices</i>						
Percent Solids	✓	✓	—	—	—	—
Ammonia	✓	—	✓	✓	—	—
Total Organic Carbon	✓	—	✓	✓	—	—
Total Volatile Solids	—	✓	—	—	—	—
O&G	✓	—	✓	✓	—	—
TRPH	✓	—	✓	✓	—	—
Dissolved Sulfides	✓	✓	✓	—	—	—
Total Sulfides	✓	✓	✓	—	—	—
<i>Total Metals including Hg</i>	✓	—	✓	✓	✓	—
<i>PAH's, Phthalates & Phenols</i>	✓	—	✓	✓	—	✓
<i>Chlorinated Pesticides</i>	✓	—	✓	✓	—	✓
<i>PCB Congeners</i>	✓	—	✓	✓	—	✓
<i>Butyltins</i>	✓	—	✓	✓	—	✓
<i>Pyrethroid pesticides</i>	✓	—	✓	✓	—	✓

1. Laboratory duplicates.
2. Laboratory Control Sample
3. Matrix Spike/Matrix Spike Duplicate
4. Post Digestion Spike/Spike Duplicate

2.0 QA/QC METHODS

The overall quality of the dataset is determined to a large degree by the thoroughness, accuracy and precision of the laboratory QC records. That explains why the majority of this section is devoted to examining them in detail. The QC is discussed individually by topic. Table F-2 summarizes QA/QC Objectives for this project.

2.1 Precision

Precision provides an assessment of mutual agreement between repeated measurements. These measures may apply to matrix spike duplicates (MSD), post digestion spike duplicates (PDSD), laboratory control sample duplicates (LCSD) and lab duplicates (DUP). Monitoring of precision through the process allows for the evaluation of the consistency of laboratory analyses.

The Relative Percent Difference (RPD) is used to evaluate duplicate samples. The RPD is the difference between the two samples divided by their average expressed as percent and is calculated as:

$$RPD = 100 * \left(\frac{|x_1 - x_2|}{\frac{1}{2}(x_1 + x_2)} \right)$$

where:
 x_1 = Concentration of sample 1
 x_2 = Concentration of sample 2

RPDs can be large when analyzing differences between small numbers, a situation that is common when analyzing DUPs with values near the reporting limit. When one or both concentrations are less than five times the reporting limit, replication is assessed by determining if the two values differ by more than one times the reporting limit. When one or both values are less than the reporting limit, then precision cannot be ascertained.

2.2 Accuracy

An assessment of the accuracy of measurements is based on determining the difference between measured values and the known or “true” value and is applied to MS/MSDs, LCS/LCSDs, and PDS/PDSDs.

In general, Percent Recovery is calculated as:

$$\% R = 100 * \left(\frac{Measured_Value}{True_Value} \right)$$

Matrix Spike recoveries take into account the concentration of the source sample:

$$\% R_{MS} = 100 * \left(\frac{Measured_Value - Sample_Value}{True_Value} \right)$$

2.3 Representativeness, Comparability and Completeness

Representativeness is the degree to which data accurately and precisely represents the natural environment.

Table F-2. Sediment Quality Assurance/Quality Control Objectives.

Analyte	Method	Method Detection Limits (Dry Weight)	Laboratory Reporting Limits (Dry Weight)
CONVENTIONALS (mg/kg dry except where noted)			
Total Solids	SM 2540		0.1
Ammonia	SM 4500-NH3 B/C (M)		0.5
Oil & Grease	EPA 1664A (M) HEM		25
TRPH	EPA 1664A (M) HEM-SGT		25
Sulfides, Dissolved	Plumb (1981)		0.1
Sulfides, Total	Plumb (1981)		0.1
TOC (%)	EPA 9060A		0.1
TDS	SM 2540		2.5
TSS	SM 2540		5
TVS	SM 2540		0.1
METALS (mg/kg dry)			
Arsenic	EPA 6020	0.051	0.2
Cadmium	EPA 6020	0.005	0.2
Chromium	EPA 6020	0.017	0.2
Copper	EPA 6020	0.018	0.2
Lead	EPA 6020	0.009	0.2
Mercury	EPA 7471A	0.001	0.04
Nickel	EPA 6020	0.016	0.2
Selenium	EPA 6020	0.035	0.2
Silver	EPA 6020	0.004	0.2
Zinc	EPA 6020	0.26	0.2
ORGANICS-CHLORINATED PESTICIDES (µg/kg dry)			
2,4' DDD	EPA 8270C PEST-SIM	0.2	2
2,4' DDE	EPA 8270C PEST-SIM	0.18	2
2,4' DDT	EPA 8270C PEST-SIM	0.14	2
4,4' DDD	EPA 8270C PEST-SIM	0.26	2
4,4' DDE	EPA 8270C PEST-SIM	0.3	2
4,4' DDT	EPA 8270C PEST-SIM	0.33	2
Total DDT	EPA 8270C PEST-SIM	- -	2
Aldrin	EPA 8270C PEST-SIM	0.31	2
BHC-alpha	EPA 8270C PEST-SIM	0.29	2
BHC-beta	EPA 8270C PEST-SIM	0.26	2
BHC-delta	EPA 8270C PEST-SIM	0.32	2
BHC-gamma (Lindane)	EPA 8270C PEST-SIM	0.23	2
Chlordane (Technical)	EPA 8081A	1.9	10
Dieldrin	EPA 8270C PEST-SIM	0.23	2
Endosulfan sulfate	EPA 8270C PEST-SIM	0.26	2
Endosulfan I	EPA 8270C PEST-SIM	0.36	2
Endosulfan II	EPA 8270C PEST-SIM	0.18	2
Endrin	EPA 8270C PEST-SIM	0.2	2
Endrin aldehyde	EPA 8270C PEST-SIM	0.2	2
Endrin ketone	EPA 8270C PEST-SIM	0.3	2
Heptachlor	EPA 8270C PEST-SIM	0.22	2
Heptachlor epoxide	EPA 8270C PEST-SIM	0.18	2
Methoxychlor	EPA 8270C PEST-SIM	0.17	2
Toxaphene	EPA 8081A	8.5	40

Table F-2. Sediment Quality Assurance/Quality Control Objectives Continued.

Analyte	Method	Method Detection Limits (Dry Weight)	Laboratory Reporting Limits (Dry Weight)
ORGANICS-Pyrethroid Pesticides (µg/kg dry)			
Allethrin (Bioallethrin)	EPA 8270D (M)/TQ/EI	0.09	1
Bifenthrin	EPA 8270D (M)/TQ/EI	0.085	1
Cyfluthrin-beta (Baythroid)	EPA 8270D (M)/TQ/EI	0.1	1
Cyhalothrin-Lamba	EPA 8270D (M)/TQ/EI	0.078	1
Cypermethrin	EPA 8270D (M)/TQ/EI	0.15	1
Deltamethrin (Decamethrin)	EPA 8270D (M)/TQ/EI	0.093	1
Esfenvalerate	EPA 8270D (M)/TQ/EI	0.087	1
Fenpropathrin (Danitol)	EPA 8270D (M)/TQ/EI	0.091	1
Fenvalerate (sanmarton)	EPA 8270D (M)/TQ/EI	0.094	1
Fluvalinate	EPA 8270D (M)/TQ/EI	0.12	1
Permethrin (cis and trans)	EPA 8270D (M)/TQ/EI	0.088	1
Resmethrin/Bioresmethrin	EPA 8270D (M)/TQ/EI	0.079	1
Sumithrin (Phenothrin)	EPA 8270D (M)/TQ/EI	0.09	1
Tetramethrin	EPA 8270D (M)/TQ/EI	0.085	1
Tralomethrin	EPA 8270D (M)/TQ/EI	0.1	1
ORGANICS-BUTYLTINS (µg/kg dry)			
Monbutyltin	Krone et al., 1989	0.97	6
Dibutyltin	Krone et al., 1989	0.6	6
Tributyltin	Krone et al., 1989	0.33	6
Tetrabutyltin	Krone et al., 1989	0.36	6
ORGANICS-PHTHALATES (µg/kg dry)			
bis(2-ethylhexyl) phthalate	EPA 8270C (SIM)	4.1	50
Butyl benzyl phthalate	EPA 8270C (SIM)	4.4	50
Diethyl Phthalate	EPA 8270C (SIM)	5.0	50
Dimethyl Phthalate	EPA 8270C (SIM)	5.4	50
Di-n-butyl Phthalate	EPA 8270C (SIM)	5.1	50
Di-n-octyl Phthalate	EPA 8270C (SIM)	4.7	50
ORGANICS-PHENOLS (µg/kg dry)			
2,4,5-Trichlorophenol	EPA 8270C (SIM)	1.5	10
2,4,6-Trichlorophenol	EPA 8270C (SIM)	3.6	20
2,4-Dichlorophenol	EPA 8270C (SIM)	2.7	20
2,4-Dimethylphenol	EPA 8270C (SIM)	3.1	20
2,4-Dinitrophenol	EPA 8270C (SIM)	63	1000
2-Chlorophenol	EPA 8270C (SIM)	3.4	20
2-Methyl-4,6-dinitrophenol	EPA 8270C (SIM)		--
2-Methylphenol	EPA 8270C (SIM)	5.3	20
2-Nitrophenol	EPA 8270C (SIM)	2.4	20
3+4-Methylphenol	EPA 8270C (SIM)		--
4-Chloro-3-methylphenol	EPA 8270C (SIM)		20
Bisphenol A	EPA 8270C Bisphenol		--
Pentachlorophenol	EPA 8270C (SIM)	88	1000
Phenol	EPA 8270C (SIM)	3.7	30

Table F-2. Sediment Quality Assurance/Quality Control Objectives Continued.

Analyte	Method	Method Detection Limits (Dry Weight)	Laboratory Reporting Limits (Dry Weight)
ORGANICS-PCBs (µg/kg dry)			
PCB congeners of: 018, 028, 037, 044, 049, 052, 066, 070, 074, 077, 081, 087, 099, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138/158, 149, 151, 153, 156, 157, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, 206	EPA 8270C (SIM)	0.053 – 0.53	0.5
Total PCBs as sum of all individual PCB congeners	EPA 8270C (SIM)		0.5
ORGANICS-PAHs (µg/kg dry)			
1-Methylnaphthalene	EPA 8270C (SIM)	1.04	20
2-Methylnaphthalene	EPA 8270C (SIM)	1.04	20
Acenaphthene	EPA 8270C (SIM)	0.76	20
Acenaphthylene	EPA 8270C (SIM)	0.73	20
Anthracene	EPA 8270C (SIM)	0.66	20
Benzo[a]anthracene	EPA 8270C (SIM)	1.01	20
Benzo[a]pyrene	EPA 8270C (SIM)	0.64	20
Benzo[b]fluoranthene	EPA 8270C (SIM)	0.77	20
Benzo[g,h,i]perylene	EPA 8270C (SIM)	1.14	20
Benzo[k]fluoranthene	EPA 8270C (SIM)	0.96	20
Chrysene	EPA 8270C (SIM)	0.76	20
Dibenzo[a,h]anthracene	EPA 8270C (SIM)	0.53	20
Fluoranthene	EPA 8270C (SIM)	0.78	20
Fluorene	EPA 8270C (SIM)	0.7	20
Indeno[1,2,3-c,d]pyrene	EPA 8270C (SIM)	0.66	20
Naphthalene	EPA 8270C (SIM)	0.83	20
Phenanthrene	EPA 8270C (SIM)	1.08	20
Pyrene	EPA 8270C (SIM)	0.82	30

Comparability is the measure of confidence with which one dataset can be compared to another. The use of standardized methods of chemical analysis and field sampling and processing are ways of assuring comparability. The implementation of thorough QA/QC methods such as laboratory QC is essential.

Completeness is a measure of the percentage of the data judged valid after comparison with specific validation criteria. This includes data lost through accidental breakage of sample containers or other activities that result in irreparable loss of samples. Implementation of standardized Chain-of-Custody procedures which track samples as they are transferred between custodians is one method of maintaining a high level of completeness

A high level of completeness is essential to all phases of this study due to the limited number of samples. Of course, the overall goal is to obtain completeness of 100 percent. However, a realistic data quality objective of 95% will insure an adequate level of data return.

Close adherence to 'Standard Operating Procedures' (SOPs) assures that the resulting data is representative, complete and comparable. The results are further assessed with a thorough validation process.

2.4 Data Qualifier Codes

Where appropriate, data qualifiers were associated with the results using the following standard notations from the EPA guidance documents:

<u>Data Review Qualifiers</u>	
<	Not detected above the MDL The compound was analyzed for but was not detected above method detection limits. The associated value is the sample MDL
UJ	Estimated Detection Limit The compound was analyzed for but was not detected. The associated value is an estimate and may be inaccurate or imprecise
J-	Estimated Value The associated value is a low estimate
J	Estimated Value The associate value is an estimated quantity
J+	Estimated Value The associated value is a high estimate
R	Rejected The data are unusable. The analyte may or may not be present

EPA guidance documents are clear that data review and qualification rules are to be tempered using professional judgment. The specific data qualifications as they apply to this project are discussed in the following section.

3.0 QA/QC RESULTS

This project generated a count of 4 aqueous results, 544 sediment sample results and another 2,850 tissue results for a total sample count of 3,398 with an additional 1,231 supporting QC records. The counts of each type per chemical category are presented in Table F-3.

Generally, the QC data were within limits with the exceptions fully noted below. A total of 12 sediment sample results and 40 tissue results which resulted in 1.5% of the data to be qualified. Those qualifiers are summarized in Table F-4, the details of the entire review follows.

Table F-3. Counts of QC records per Chemical Category

Analyte Group	BLK	DUP	LCS / LCSD	MS / MSD	PDS	SURR	Total
<i>Water</i>							
TSS	1	1	2				4
TDS	1	1	2				4
Water Totals	2	2	4				8
<i>Sediment</i>							
Percent Solids	1	1					2
Ammonia	1		2	2			5
Total Organic Carbon	1		2	2			5
Total Volatile Solids		2					2
O&G	1		2	2			5
TRPH	1		2	2			5
Dissolved Sulfides	1	1	2				4
Total Sulfides	1	1	2				4
Total Metals	10		20	20	9		59
PAH's, Phthalates & Phenols	38		17	34		30	119
Chlorinated Pesticides	23		20	40		26	109
PCB Congeners	40		15	30		10	95
Butyltins	4		4	4		5	17
Pyrethroids	13		26	26		5	70
Sediment Totals	135	5	114	162	9	76	501
<i>Tissues</i>							
Percent Lipids	3	3					6
Total Metals	30		60	60			150
DDTs	18		18	18		106	160
PCB Congeners	120		90	90		106	406
Tissue Totals	171	3	168	168		212	722

Table F-4. Final QC Qualification Applied to Sample Results.

Analyte	# Samples Qualified	Final Qualifier	BLK	DUP	LCS	MS	PDS	SURR
<i>Phenols – Sediment</i>								
Bisphenol A	3	U	U					
<i>Phthalates –2017 Sediment</i>								
Bis(2-Ethylhexyl) Phthalate	1	U	U					
Butyl Benzyl Phthalate	4	U	U					
Di-n-Butyl Phthalate	4	U	U					
<i>OC Pesticides – Tissues</i>								
4,4'-DDD	10	UJ-				UJ-		
4,4'-DDT	30	J/UJ-	J			J/UJ-		
Total number of affected samples	52							
Percentage of all samples	1.5%							

3.1 Water Quality Control Records

Quality control results for the TSS and TDS in the standard elutriate are discussed in subsections that follow.

3.1.1 Completeness and Holding Times

All samples for this project were received intact and within proper temperature range and were analyzed within EPA holding times.

3.1.2 Reporting Limits

Reporting limits (RLs) and method detection limits (MDLs) were compared to the SC-DMMT target limits and Project SAP limits. All constituents met the required reporting limits with no samples being non-detect.

3.1.3 Method Blanks

Method blanks were prepared and run alongside all samples and were evaluated down to the MDL with all method blanks being non-detect.

3.1.4 Laboratory Duplicates

Laboratory duplicates were performed on total dissolved solids and total suspended solids with all resulting RPDs within acceptable QC limits.

3.1.5 Laboratory Control Sample

All aqueous LCS/LCSD samples for this project were recovered within acceptable QC limits.

3.2 Sediment Quality Control Records

Quality control results for the sediment samples are discussed in subsections that follow.

3.2.1 Completeness and Holding Times

All sediment samples for this project were received intact and within proper temperature range and were analyzed within EPA holding times.

3.2.2 Reporting Limits

Sediment reporting limits (RLs) and method detection limits (MDLs) were compared to the SC-DMMT target limits and Project SAP limits. Low percent solids results cause reporting limits to be elevated once they are dry weight adjusted. If a target limit was achieved in the method blank the excursion was dismissed due to dry weight conversions. Minor fluctuations to the MDL are normal as the MDL is a continuing study performed by the laboratory with no effect to the reporting limit of the constituent.

There were three constituents that exceeded target limits in both the sample results and the method blank. This effected 12 data records, details of these have been summarized in Table F-5. Ranges are reported for sample quantification limits because of variations in percent solids. Neither 2,4-Dimethylphenol or 2-Nitrophenol were found in any sample and were estimated down to the MDL which is below the target RL. A summary of all elevated reporting limits can be found in Table F-5 below.

Table F-5. Summary of Sediment Samples with Elevated Reporting Limits.

Analyte	Number Exceeded	Target RL	Lab RL Range	Lab MDL Range
PAH's (µg/kg)				
2,4-Dimethylphenol	4	20	850 - 980	4.4 - 5.1
2-Nitrophenol	4	20	850 - 980	2.8 - 3.3
Total number exceeding target RL	12			

All units of concentration are dry weight corrected.

3.2.3 Method Blanks

Method blanks were prepared and run alongside all sediment samples and were evaluated down to the MDL. Four constituents, bisphenol A, bis(2-ethylhexyl) phthalate, butyl benzyl phthalate and di-n-butyl phthalate, were detected in the method blanks, all were found below the reporting limit. Three sample results for bisphenol A were found below the reporting limit causing the results to be raised to the RL and qualified with a "U" indicating that they are non-detect at the reporting limit level. A total of nine sample results were also qualified as non-detect at the reporting limit level in the phthalate analysis, a summary of those can be found in Table F-6 below.

Table F-6. Sediment Method Blank QC Review Detail.

Analyte	Batch	Blank Result	RL	MDL	Qualifier	No. of Qualified Samples
<i>Phenols</i>						
Bisphenol A	181109L13	2.9J	10	2.1	U	3
<i>Phthalates</i>						
Bis(2-Ethylhexyl) Phthalate	181106L06	8J	50	1.5	U	1
Butyl Benzyl Phthalate	181106L06	5.4J	50	2	U	4
Di-n-Butyl Phthalate	181106L06	11J	50	1.9	U	4

3.2.4 Laboratory Duplicates

Laboratory duplicates were performed on percent solids and volatile solids. The resulting RPDs were within acceptable QC limits.

3.2.5 Laboratory Control Sample

All sediment LCS/LCSD samples for this project were recovered within acceptable QC limits.

3.2.6 Matrix Spikes

Eleven MS/MSD pairs were reported outside of their respective QC limits. Details of these excursions and assigned final qualifier codes are summarized in Table F-7. High spike recoveries indicate a possibly high bias and low recoveries a possible low bias. MS/MSD spike concentrations were too low for oil & grease, TRPH, copper, zinc, 4,4'-DDD and 4,4'-DDE. Since the LCS/LCSD recoveries were within limits for these constituents the results were forwarded without qualification. Dieldrin was found (259% and 341%) above the reporting limit of 200, however all sample results were non-detect and so the results were forwarded without qualification. The remaining excursions were minor and since all other QC was within limits, no qualification was necessary. A summary of all matrix spike excursions can be found in Table F-7 below.

Table F-7. Summary of Sediments Matrix Spike Results Outside QC Limits.

Analyte	Batch	Control Range	Final Qualifier	Details
<i>Conventionals</i>				
Oil & Grease	I1109HEML1	78-114	None	MS: 4X%; MSD: 4X%; RPD: 4X
TRPH	I1109HEML2	64-132	None	MS: 4X%; MSD: 4X%; RPD: 4X
<i>Metals</i>				
Copper	181109L01E	80-120	None	MS: 38%; MSD: 57% ; RPD: 9
Mercury	181112L02E	76-136	None	MS: 62%; MSD: 61% ; RPD: 2
Zinc	181109L01E	80-120	None	MS: 4X%; MSD: 4X%; RPD: 4X
<i>OC Pesticides</i>				
4,4'-DDD	181107L12	25-200	None	MS: 202% ; MSD: 183%; RPD: 5
4,4'-DDE	181107L12	25-200	None	MS: 217% ; MSD: 198%; RPD: 4

Table F-7. Summary of Sediments Matrix Spike Results Outside QC Limits.

Analyte	Batch	Control Range	Final Qualifier	Details
Dieldrin	181107L12	25-200	None	MS: 259%; MSD: 341%; RPD: 28
Toxaphene	181106L07A	50-135	None	MS: 41%; MSD: 44%; RPD: 8
<i>Pyrethroids</i>				
Bifenthrin	181107L12	26-128	None	MS: 24%; MSD: 28%; RPD: 6
lambda-Cyhalothrin	181107L12	10-123	None	MS: 113%; MSD: 133%; RPD: 16

3.2.7 Post Digestion Spikes

All post digestion spikes for this project were recovered within acceptable QC limits. Zinc was spiked at a concentration that was less than 4 times the sample value and so was dismissed by the laboratory. No further action was required.

3.2.8 Surrogates

All surrogates for this project were recovered within acceptable QC limits with the exception of dibutylchloroendate and decachlorobiphenyl. In both cases the recoveries were above the upper control limit, however as all samples results associated with the surrogate were non-detect no qualification to the data set was necessary.

3.3 Tissue Quality Control Records

Quality control results for the tissue samples are discussed in subsections that follow.

3.3.1 Completeness and Holding Times

All tissue samples for this project were received intact and within proper temperature range and were analyzed within EPA holding times. Tissue samples were frozen extending the holding time on analysis.

3.3.2 Reporting Limits

Reporting limits (RLs) and method detection limits (MDLs) were compared to the SC-DMMT target limits and Project SAP limits. All tissue reporting limits were met.

3.3.3 Method Blanks

Method blanks were prepared and run alongside all samples and were evaluated down to the MDL. All method blanks were non-detect other than 4,4'-DDT which was found below the reporting limit in one of the batches. Two sample results needed qualification due to this detection, however as this compound was recovered low in the matrix spike the final qualifier was designated as "J" rather than "J+" indicating that it should be viewed as an estimate. A summary of the method blank detection is summarized in Table F-8 below.

Table F-8. Tissue Method Blank QC Review Detail.

Analyte	Batch	Blank Result	RL	MDL	Final Qualifier	No. of Qualified Samples
<i>OC Pesticides</i>						
4,4'-DDT	181228L17	0.18J	0.2	0.053	J	2

3.3.4 Laboratory Duplicates

Laboratory duplicates were performed on percent lipids with all results within acceptable QC limits.

3.3.5 Laboratory Control Sample

All tissue LCS/LCSD samples for this project were recovered within acceptable QC limits.

3.3.6 Matrix Spikes

Nine MS/MSD pairs were reported outside of their respective QC limits. Details of these excursions and assigned final qualifier codes are summarized in Table F-9. High spike recoveries indicate a possibly high bias and low recoveries a possible low bias. Other than 4,4'-DDD and 4,4'-DDT, all excursions were minor and therefore dismissed without further qualification. Ten sample results for 4,4'-DDD and twenty-eight results for 4,4'-DDT were qualified with a "UJ-" indicating that the non-detect result should be viewed as an estimate possibly biased low. Another two results for 4,4'-DDT were qualified as an "J" rather than a "J-" due to a method blank detection in that batch. No other qualifications to the data were necessary.

Table F-9. Summary of Tissue Matrix Spike Results Outside QC Limits.

Analyte	Batch	Control Range	Final Qualifier	Details
<i>Metals</i>				
Mercury	190102L02T	76-136	None	MS: 65%; MSD: 67%; RPD: 4
Mercury	190102L03T	76-136	None	MS: 51%; MSD: 55%; RPD: 9
Mercury	190102L04T	76-136	None	MS: 74%; MSD: 58%; RPD: 24
Zinc	181220L03	80-120	None	MS: 122%; MSD: 82%; RPD: 18
<i>OC Pesticides</i>				
4,4'-DDD	181228L17	25-200	UJ-	MS: 6%; MSD: 2%; RPD: 7
4,4'-DDT	181227L19	25-200	UJ-	MS: 8%; MSD: 8%; RPD: 4
4,4'-DDT	181227L20	25-200	None	MS: 39%; MSD: 26%; RPD: 38
4,4'-DDT	181228L17	25-200	UJ-/J	MS: 11%; MSD: 3%; RPD: 68
<i>PCB Congeners</i>				
PCB126	181227L18	50-150	None	MS: 151%; MSD: 144%; RPD: 4

3.3.7 Surrogates

All surrogates for this project were recovered within acceptable QC limits with the exception of 2-fluorobiphenyl (12%) in the PCB analysis which was recovered below the lower reporting limit of 14. This excursion was minor and as all other QC for this batch was within limits no qualification was deemed necessary.

4.0 QA/QC CONCLUSIONS

A careful review of the results confirmed that the laboratories met most QA/QC requirements. Twelve sediment samples and 40 tissue samples required qualification. This resulted in 1.5% of the data being qualified. Overall evaluation of the analytical QA/QC data indicates that the chemical data are within established performance criteria and can be used for characterization of sediments in the Carnival Cruise Terminal project area.

Appendix G
Grain Size Report



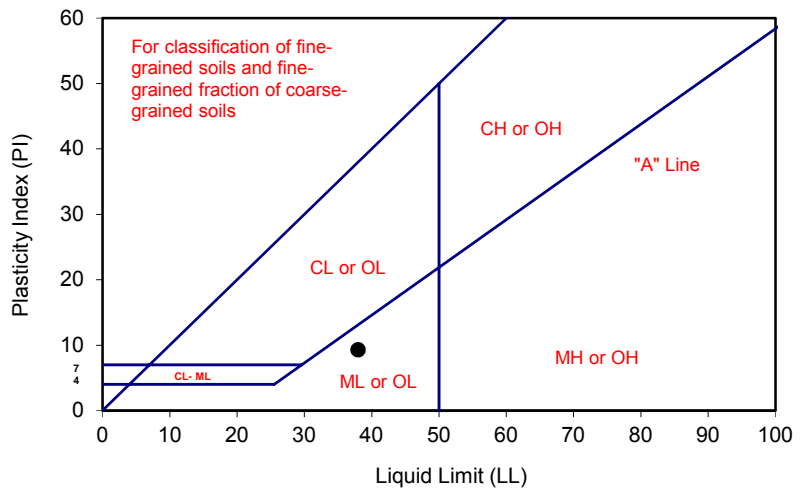
ATTERBERG LIMITS

ASTM D 4318

Project Name: POLB Carnival Cruise Terminal 2018 Tested By: R. Manning Date: 11/13/18
 Project No. : 5816.05 Input By: G. Bathala Date: 11/14/18
 Station ID: Area C1-b Checked By: J. Ward
 Sample No.: CCT-18-C1-b Date, Time: 10/31/18, 0800
 Soil Identification: Dark olive gray silt (ML)

TEST NO.	PLASTIC LIMIT		LIQUID LIMIT			
	1	2	1	2	3	4
Number of Blows [N]			35	24	17	
Wet Wt. of Soil + Cont. (g)	18.16	18.50	24.26	25.84	25.73	
Dry Wt. of Soil + Cont. (g)	16.59	16.87	21.45	22.56	22.34	
Wt. of Container (g)	11.11	11.21	13.69	13.80	13.75	
Moisture Content (%) [Wn]	28.65	28.80	36.21	37.44	39.46	

Liquid Limit	38
Plastic Limit	29
Plasticity Index	9
Classification	ML



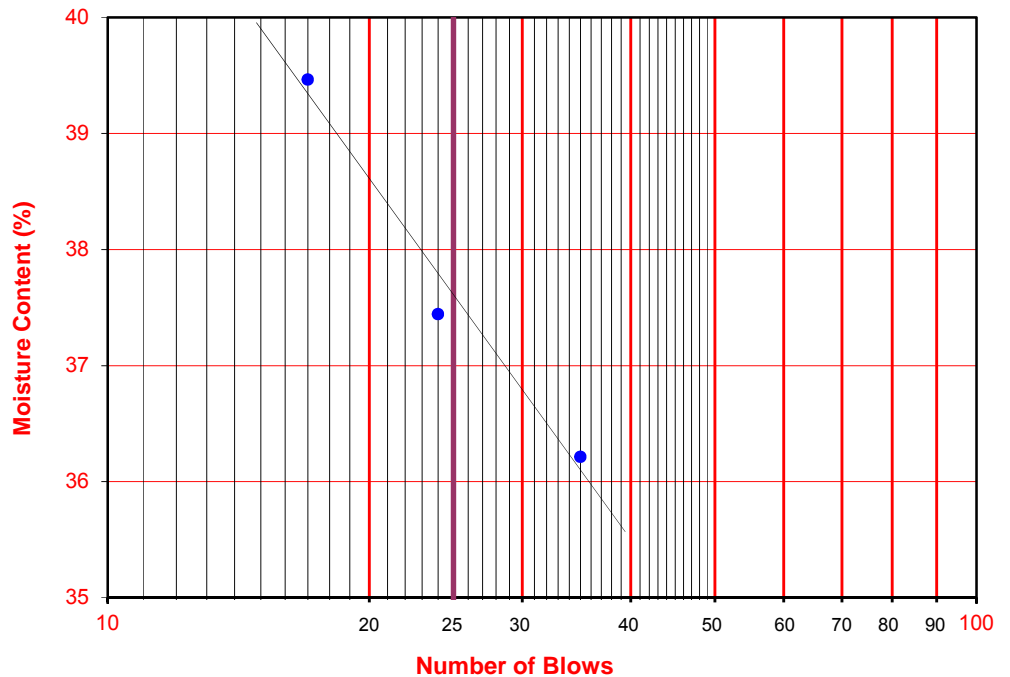
PI at "A" - Line = $0.73(LL-20)$ 13.14

One - Point Liquid Limit Calculation

$$LL = Wn(N/25)^{0.121}$$

PROCEDURES USED

- Wet Preparation
Multipoint - Wet
- Dry Preparation
Multipoint - Dry
- Procedure A
Multipoint Test
- Procedure B
One-point Test





PARTICLE-SIZE ANALYSIS OF SOILS

ASTM D 422

Project Name: POLB Carnival Cruise Terminal 2018 Tested By: G. Berdy Date: 11/06/18
 Project No.: 5816.05 Data Input By: J. Ward Date: 11/27/18
 Station ID: Area C1-b
 Sample No.: CCT-18-C1-b Date, Time: 10/31/18, 0800
 Soil Identification: Dark olive gray silt (ML)

% Gravel	0	Soil Type ML	Moisture Content of Total Air-Dry Soil	Moisture Content of Air-Dry Soil Passing #10	After Hydrometer & Wet Sieve ret. in #230 Sieve
% Sand	5				
% Fines	95				

Specific Gravity	2.88	Wt. of Air-Dry Soil + Cont. (g)	0.00	73.49	
Correction for Specific Gravity	0.96	Dry Wt. of Soil + Cont. (g)	0.00	71.23	87.61
Wt. of Air-Dry Soil + Cont. (g)	796.03	Wt. of Container No. ____ (g)	1.00	50.94	82.60
Wt. of Container	0.00	Moisture Content (%)	0.00	11.14	
Dry Wt. of Soil (g)	796.03	Wt. of Dry Soil (g)			5.01

Coarse Sieve		
U.S. Sieve	Cumulative Wt. Of Dry Soil Retained (g)	% Passing
3"	0.00	100.0
1½"	0.00	100.0
¾"	0.00	100.0
⅜"	0.00	100.0
No. 4	0.16	100.0
No. 10	0.72	99.9
Pan		

Sieve after Hydrometer & Wet Sieve			
U.S. Sieve Size	Cumulative Wt. Of Dry Soil Retained (g)	% Passing	% Total Sample
No. 10	0.00	100.0	99.9
No. 16	0.03	99.9	99.8
No. 30	0.09	99.8	99.7
No. 50	0.22	99.5	99.4
No. 100	0.44	99.1	99.0
No. 200	2.53	94.7	94.6
No. 230	4.08	91.4	91.3

Hydrometer

Wt. of Air-Dry Soil (g) 52.69
Wt. of Dry Soil (g) 47.41

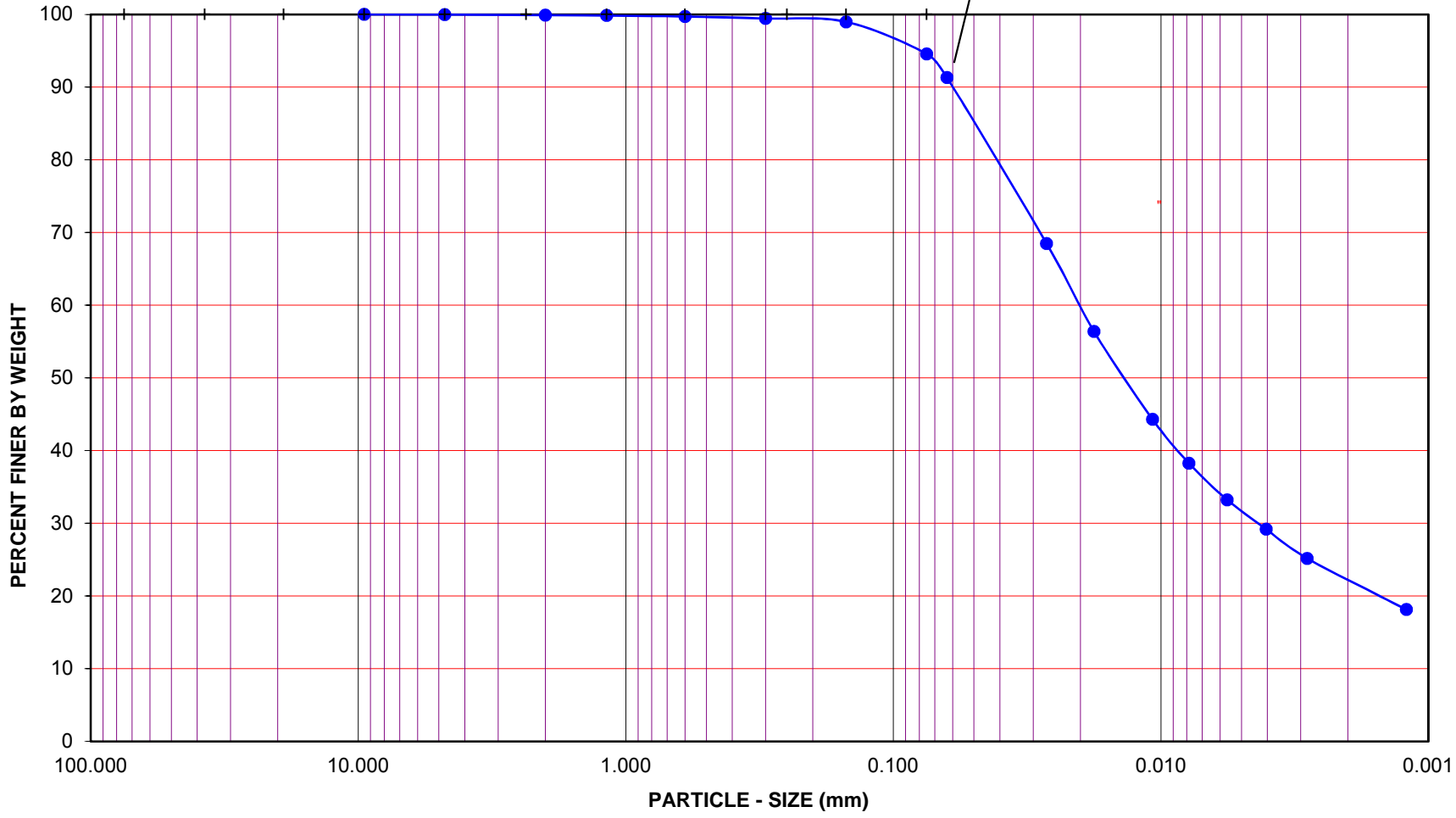
Deflocculant 125 cc of 4% Solution

Date	Time	Elapsed Time (min)	Water Temperature (°C)	Composite Correction 152H	Actual Hydrometer Readings	% Total Sample (%)	Soil Particle Diameter (mm)
07-Nov-18	7:54	0		8.0			
	7:56	2	23.0	8.0	42.0	68.5	0.0267
	7:59	5	23.0	8.0	36.0	56.4	0.0178
	8:09	15	23.0	8.0	30.0	44.3	0.0108
	8:24	30	22.9	8.0	27.0	38.3	0.0079
	8:54	60	22.9	8.0	24.5	33.2	0.0056
	9:54	120	22.8	8.0	22.5	29.2	0.0040
	12:04	250	22.7	8.0	20.5	25.2	0.0028
08-Nov-18	7:54	1440	22.3	8.0	17.0	18.1	0.0012

GRAVEL				SAND					FINES		
COARSE		FINE		CRSE	MEDIUM		FINE		SILT		CLAY

U.S. STANDARD SIEVE OPENING U.S. STANDARD SIEVE NUMBER HYDROMETER

3.0" 1 1/2" 3/4" 3/8" #4 #8 #16 #30 #50 #100 #200 #230



Project Name: POLB Carnival Cruise Terminal 2018

Project No.: 5816.05

Station ID: Area C1-b

Sample No.: CCT-18-C1-b

Date, Time: 10/31/18, 0800

Soil Type : ML

Soil Identification: Dark olive gray silt (ML)

GR:SA:FI : (%) 0 : 5 : 95



**PARTICLE - SIZE
DISTRIBUTION
ASTM D 422**

Nov-18



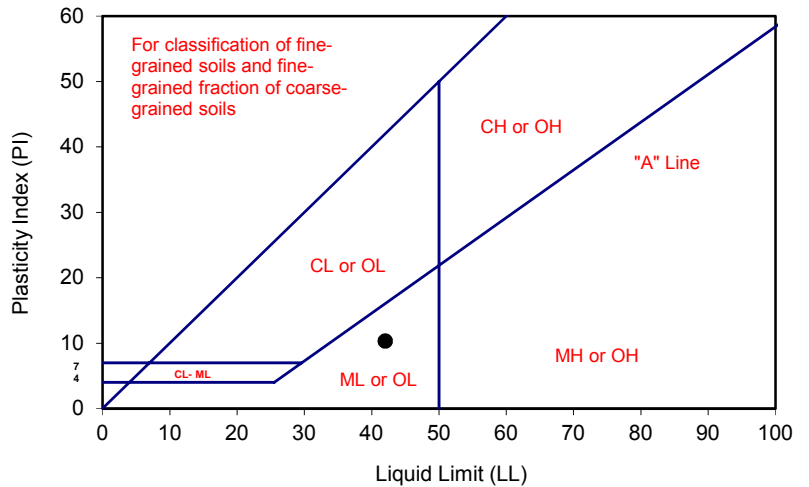
ATTERBERG LIMITS

ASTM D 4318

Project Name: POLB Carnival Cruise Terminal 2018 Tested By: R. Manning Date: 11/13/18
 Project No. : 5816.05 Input By: G. Bathala Date: 11/14/18
 Station ID: Comp Area-a Checked By: J. Ward
 Sample No.: CCT-18-Composite-a Date, Time: 10/30/18, 1325
 Soil Identification: Dark olive gray silt with sand (ML)s, shells noted

TEST NO.	PLASTIC LIMIT		LIQUID LIMIT			
	1	2	1	2	3	4
Number of Blows [N]			33	21	15	
Wet Wt. of Soil + Cont. (g)	18.22	17.92	24.98	24.47	24.95	
Dry Wt. of Soil + Cont. (g)	16.53	16.27	21.67	21.27	21.59	
Wt. of Container (g)	11.16	11.09	13.60	13.70	13.86	
Moisture Content (%) [Wn]	31.47	31.85	41.02	42.27	43.47	

Liquid Limit	42
Plastic Limit	32
Plasticity Index	10
Classification	ML



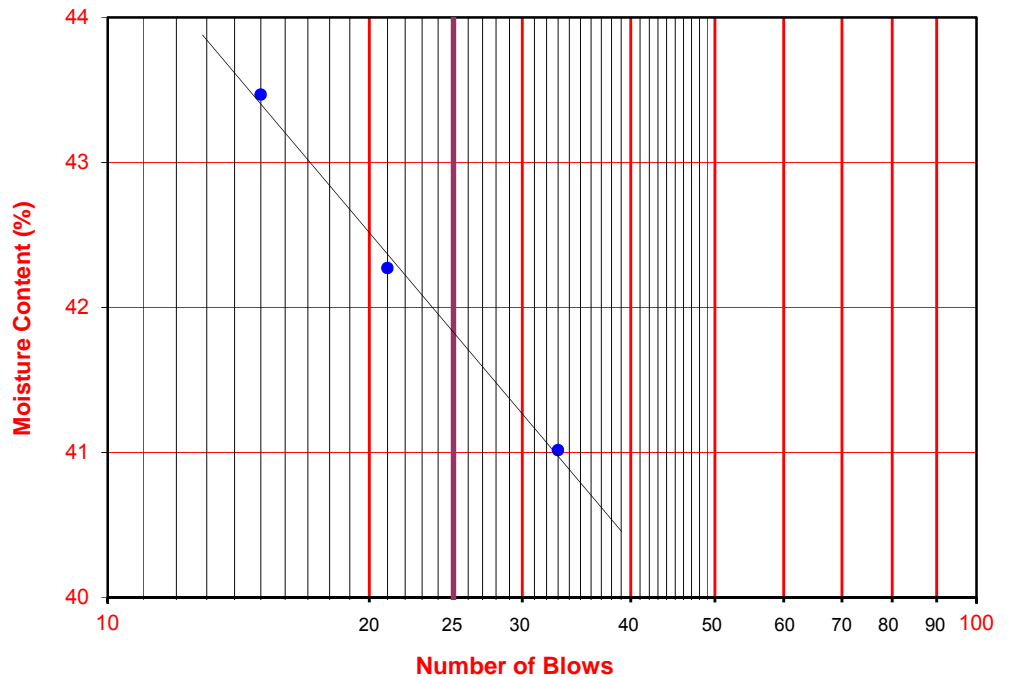
PI at "A" - Line = $0.73(LL-20)$ 16.06

One - Point Liquid Limit Calculation

$$LL = Wn(N/25)^{0.121}$$

PROCEDURES USED

- Wet Preparation
Multipoint - Wet
- Dry Preparation
Multipoint - Dry
- Procedure A
Multipoint Test
- Procedure B
One-point Test





PARTICLE-SIZE ANALYSIS OF SOILS

ASTM D 422

Project Name: POLB Carnival Cruise Terminal 2018 Tested By: G. Berdy Date: 11/06/18
 Project No.: 5816.05 Data Input By: J. Ward Date: 11/27/18
 Station ID: Comp Area-a
 Sample No.: CCT-18-Composite-Area-a Date, Time: 10/30/18, 1325
 Soil Identification: Dark olive gray silt with sand (ML)s, shells noted

% Gravel	0	Soil Type (ML)s	Moisture Content of Total Air-Dry Soil	Moisture Content of Air-Dry Soil Passing #10	After Hydrometer & Wet Sieve ret. in #230 Sieve
% Sand	16				
% Fines	84				

Specific Gravity	2.80	Wt. of Air-Dry Soil + Cont. (g)	0.00	77.57	
Correction for Specific Gravity	0.97	Dry Wt. of Soil + Cont. (g)	0.00	77.45	89.24
Wt. of Air-Dry Soil + Cont. (g)	1015.75	Wt. of Container No. ____ (g)	1.00	64.62	77.81
Wt. of Container	0.00	Moisture Content (%)	0.00	0.94	
Dry Wt. of Soil (g)	1015.75	Wt. of Dry Soil (g)			11.43

Coarse Sieve		
U.S. Sieve	Cumulative Wt. Of Dry Soil Retained (g)	% Passing
3"	0.00	100.0
1½"	0.00	100.0
¾"	0.00	100.0
⅜"	0.00	100.0
No. 4	1.88	99.8
No. 10	14.45	98.6
Pan		

Sieve after Hydrometer & Wet Sieve			
U.S. Sieve Size	Cumulative Wt. Of Dry Soil Retained (g)	% Passing	% Total Sample
No. 10	0.00	100.0	98.6
No. 16	0.23	99.6	98.2
No. 30	0.59	99.0	97.6
No. 50	1.15	98.0	96.6
No. 100	2.43	95.7	94.4
No. 200	8.17	85.6	84.4
No. 230	10.81	81.0	79.9

Hydrometer

Wt. of Air-Dry Soil (g) 57.45
Wt. of Dry Soil (g) 56.92

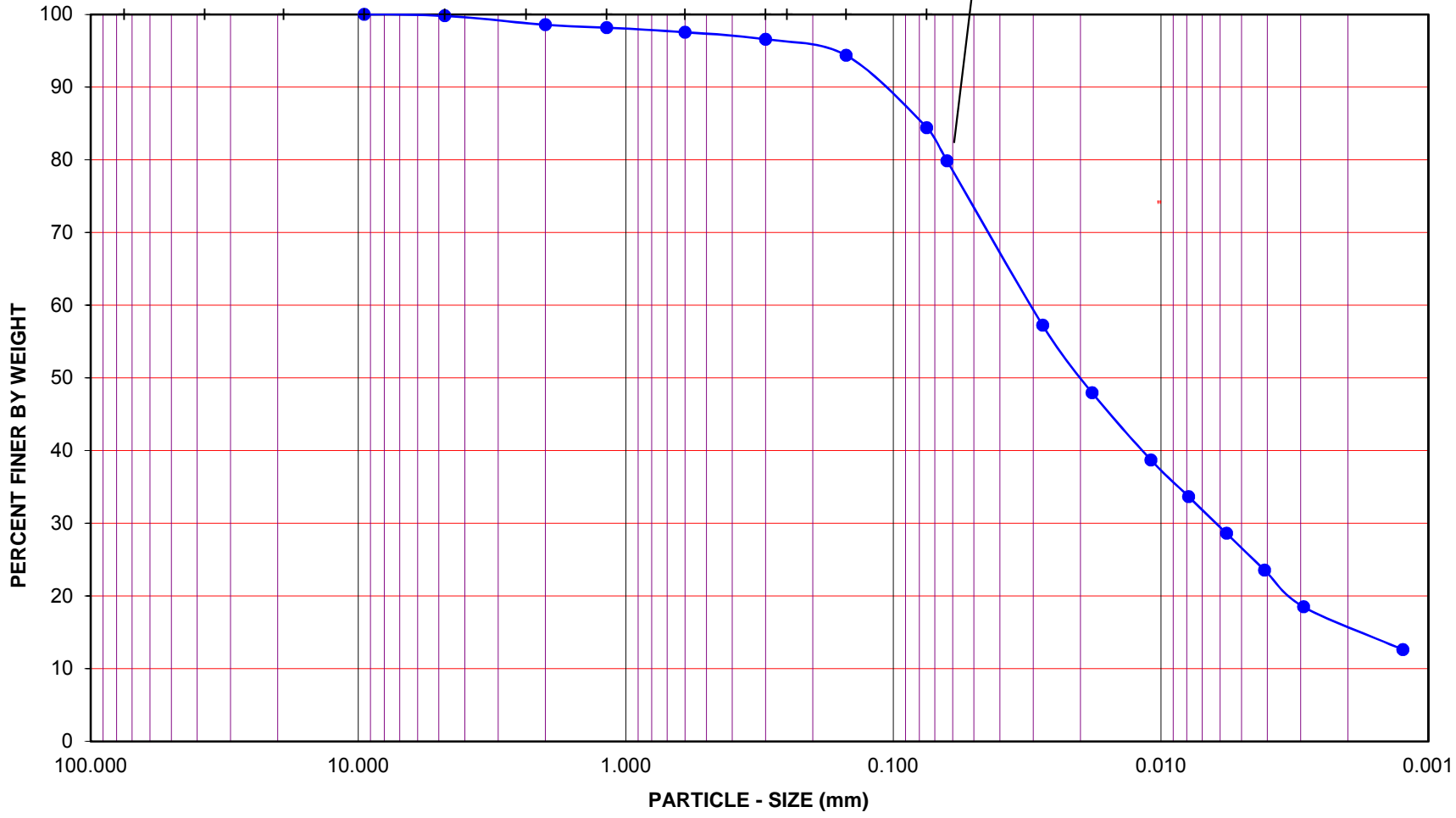
Deflocculant 125 cc of 4% Solution

Date	Time	Elapsed Time (min)	Water Temperature (°C)	Composite Correction 152H	Actual Hydrometer Readings	% Total Sample (%)	Soil Particle Diameter (mm)
07-Nov-18	7:14	0		8.0			
	7:16	2	22.9	8.0	42.0	57.2	0.0276
	7:19	5	23.0	8.0	36.5	48.0	0.0181
	7:29	15	23.0	8.0	31.0	38.7	0.0109
	7:44	30	23.0	8.0	28.0	33.7	0.0079
	8:14	60	23.0	8.0	25.0	28.6	0.0057
	9:14	120	23.0	8.0	22.0	23.6	0.0041
	11:24	250	22.9	8.0	19.0	18.5	0.0029
08-Nov-18	7:14	1440	22.3	8.0	15.5	12.6	0.0012

GRAVEL				SAND					FINES		
COARSE		FINE		CRSE	MEDIUM		FINE		SILT		CLAY

U.S. STANDARD SIEVE OPENING U.S. STANDARD SIEVE NUMBER HYDROMETER

3.0" 1 1/2" 3/4" 3/8" #4 #8 #16 #30 #50 #100 #200 #230



Project Name: POLB Carnival Cruise Terminal 2018

Project No.: 5816.05

Station ID: Comp Area-a Sample No.: CCT-18-Composite-Area-a

Date, Time: 10/30/18, 1325 Soil Type : (ML)s

Soil Identification: Dark olive gray silt with sand (ML)s, shells noted

GR:SA:FI : (%) **0 : 16 : 84**

Nov-18



**PARTICLE - SIZE
DISTRIBUTION
ASTM D 422**



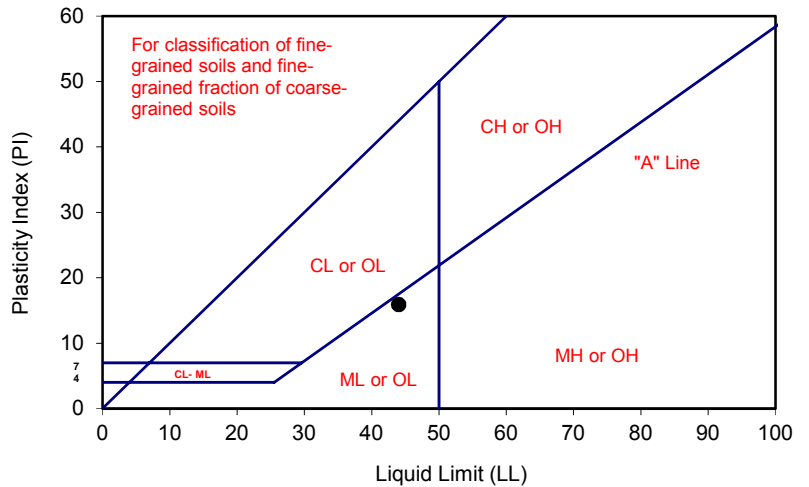
ATTERBERG LIMITS

ASTM D 4318

Project Name: POLB Carnival Cruise Terminal 2018 Tested By: R. Manning Date: 11/12/18
 Project No. : 5816.05 Input By: G. Bathala Date: 11/14/18
 Station ID: Comp Area-b Checked By: J. Ward
 Sample No.: CCT-18-Composite-b Date, Time: 10/31/18, 0840
 Soil Identification: Dark olive gray silt (ML)

TEST NO.	PLASTIC LIMIT		LIQUID LIMIT			
	1	2	1	2	3	4
Number of Blows [N]			35	26	16	
Wet Wt. of Soil + Cont. (g)	18.61	18.95	26.09	23.99	25.25	
Dry Wt. of Soil + Cont. (g)	16.97	17.23	22.39	20.86	21.68	
Wt. of Container (g)	11.16	11.08	13.66	13.68	13.82	
Moisture Content (%) [Wn]	28.23	27.97	42.38	43.59	45.42	

Liquid Limit	44
Plastic Limit	28
Plasticity Index	16
Classification	ML



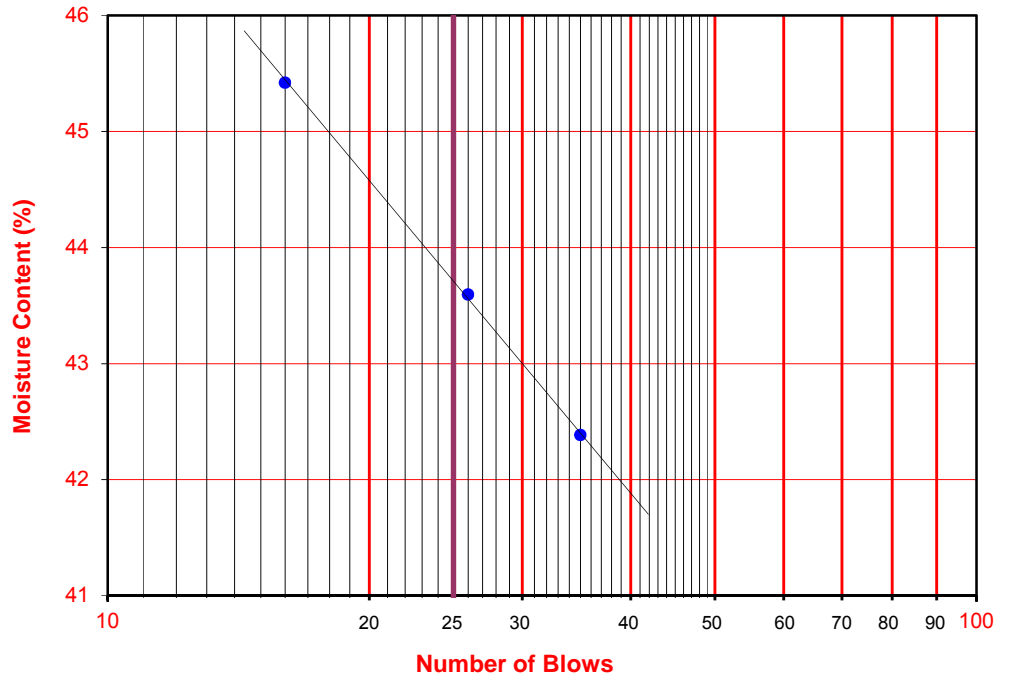
PI at "A" - Line = $0.73(LL-20)$ 17.52

One - Point Liquid Limit Calculation

$$LL = Wn(N/25)^{0.121}$$

PROCEDURES USED

- Wet Preparation
Multipoint - Wet
- Dry Preparation
Multipoint - Dry
- Procedure A
Multipoint Test
- Procedure B
One-point Test





PARTICLE-SIZE ANALYSIS OF SOILS

ASTM D 422

Project Name: POLB Carnival Cruise Terminal 2018 Tested By: G. Berdy Date: 11/06/18
 Project No.: 5816.05 Data Input By: J. Ward Date: 11/27/18
 Station ID: Comp Area-b
 Sample No.: CCT-18-Composite-Area-b Date, Time: 10/31/18, 0840
 Soil Identification: Dark olive gray silt (ML)

% Gravel	0	Soil Type ML	Moisture Content of Total Air-Dry Soil	Moisture Content of Air-Dry Soil Passing #10	After Hydrometer & Wet Sieve ret. in #230 Sieve
% Sand	5				
% Fines	95				

Specific Gravity	2.75	Wt. of Air-Dry Soil + Cont. (g)	0.00	49.08	
Correction for Specific Gravity	0.98	Dry Wt. of Soil + Cont. (g)	0.00	48.79	79.62
Wt. of Air-Dry Soil + Cont. (g)	575.02	Wt. of Container No. ____ (g)	1.00	35.61	75.58
Wt. of Container	0.00	Moisture Content (%)	0.00	2.20	
Dry Wt. of Soil (g)	575.02	Wt. of Dry Soil (g)			4.04

Coarse Sieve		
U.S. Sieve	Cumulative Wt. Of Dry Soil Retained (g)	% Passing
3"	0.00	100.0
1½"	0.00	100.0
¾"	0.00	100.0
⅜"	0.00	100.0
No. 4	0.00	100.0
No. 10	0.57	99.9
Pan		

Sieve after Hydrometer & Wet Sieve			
U.S. Sieve Size	Cumulative Wt. Of Dry Soil Retained (g)	% Passing	% Total Sample
No. 10	0.00	100.0	99.9
No. 16	0.00	100.0	99.9
No. 30	0.03	99.9	99.8
No. 50	0.10	99.8	99.7
No. 100	0.42	99.2	99.1
No. 200	2.43	95.2	95.1
No. 230	3.63	92.9	92.8

Hydrometer

Wt. of Air-Dry Soil (g) 52.22
Wt. of Dry Soil (g) 51.10

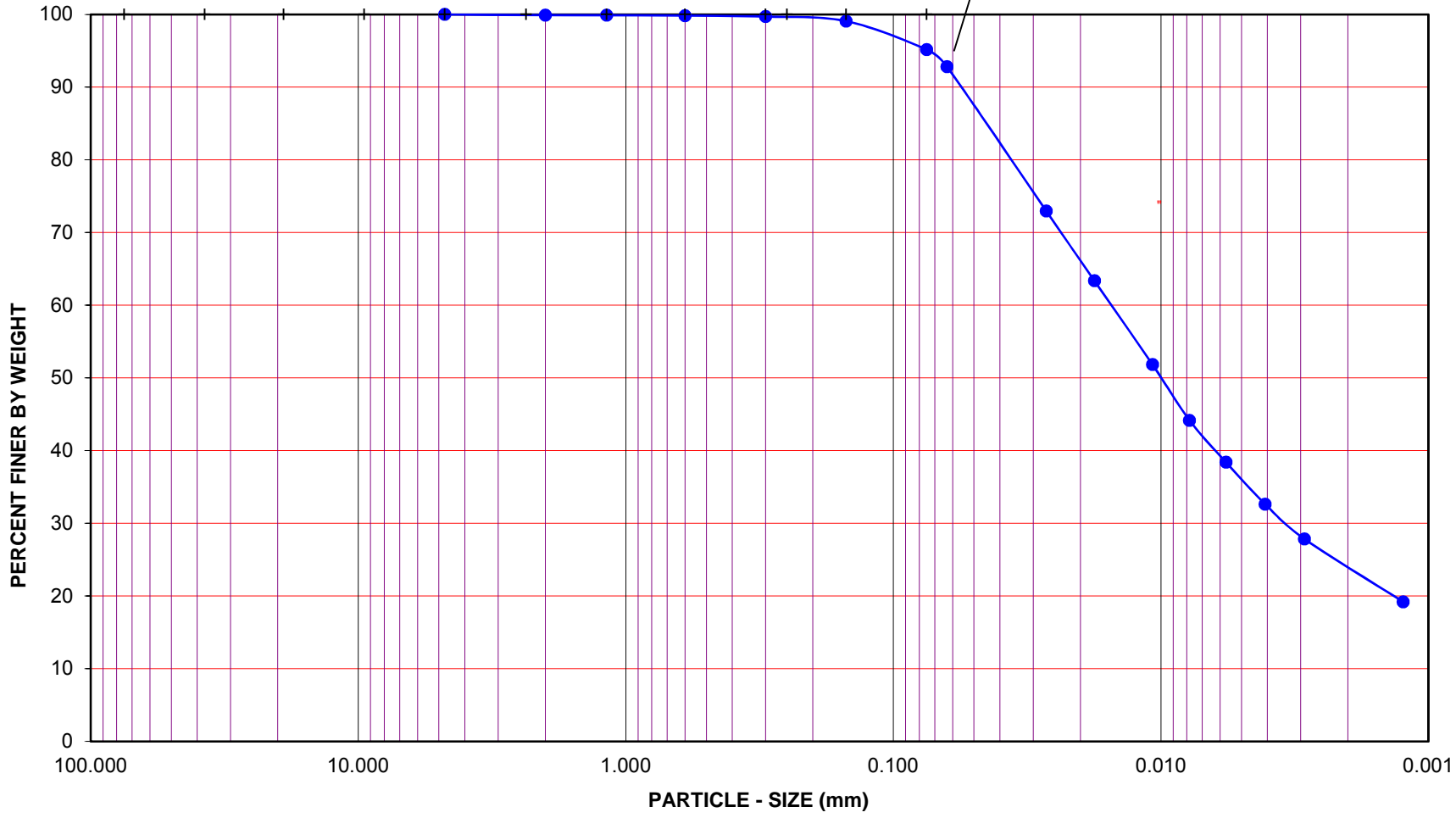
Deflocculant 125 cc of 4% Solution

Date	Time	Elapsed Time (min)	Water Temperature (°C)	Composite Correction 152H	Actual Hydrometer Readings	% Total Sample (%)	Soil Particle Diameter (mm)
07-Nov-18	7:18	0		8.0			
	7:20	2	23.0	8.0	46.0	73.0	0.0268
	7:23	5	23.0	8.0	41.0	63.4	0.0177
	7:33	15	23.1	8.0	35.0	51.8	0.0107
	7:48	30	23.0	8.0	31.0	44.2	0.0078
	8:18	60	22.9	8.0	28.0	38.4	0.0057
	9:18	120	23.0	8.0	25.0	32.6	0.0041
	11:28	250	22.7	8.0	22.5	27.8	0.0029
08-Nov-18	7:18	1440	22.3	8.0	18.0	19.2	0.0012

GRAVEL				SAND				FINES			
COARSE		FINE		CRSE	MEDIUM		FINE	SILT		CLAY	

U.S. STANDARD SIEVE OPENING U.S. STANDARD SIEVE NUMBER HYDROMETER

3.0" 1 1/2" 3/4" 3/8" #4 #8 #16 #30 #50 #100 #200 #230



Project Name: POLB Carnival Cruise Terminal 2018

Project No.: 5816.05

Station ID: Comp Area-b Sample No.: CCT-18-Composite-Area-b

Date, Time: 10/31/18, 0840 Soil Type : ML

Soil Identification: Dark olive gray silt (ML)

GR:SA:FI : (%) 0 : 5 : 95



**PARTICLE - SIZE
DISTRIBUTION
ASTM D 422**

Nov-18



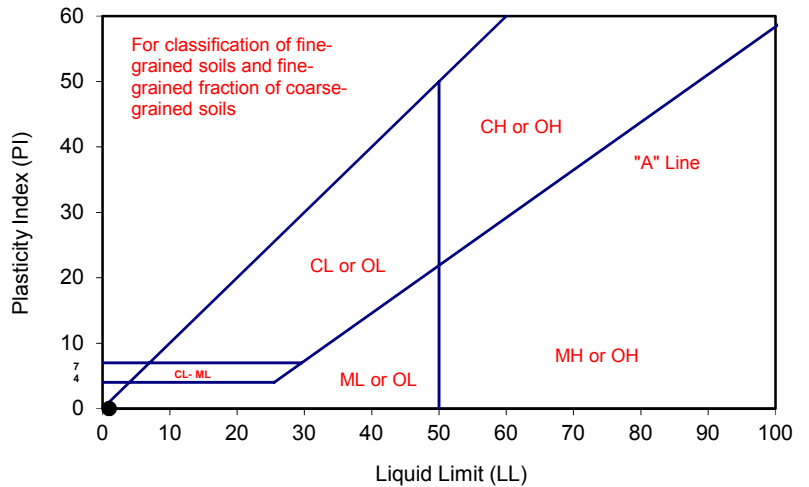
ATTERBERG LIMITS

ASTM D 4318

Project Name: POLB Carnival Cruise Terminal 2018 Tested By: R. Manning Date: 11/13/18
 Project No. : 5816-05 Input By: G. Bathala Date: 11/14/18
 Station ID: LA2-Reference Checked By: J. Ward
 Sample No.: LA2-Ref Date, Time: 10/31/18, 1330
 Soil Identification: Dark olive gray sandy silt s(ML), shells noted

TEST NO.	PLASTIC LIMIT		LIQUID LIMIT			
	1	2	1	2	3	4
Number of Blows [N]			4			
Wet Wt. of Soil + Cont. (g)	Cannot be rolled:		24.89 Cannot get more than 4 blows:			
Dry Wt. of Soil + Cont. (g)	NonPlastic		21.91 NonPlastic			
Wt. of Container (g)			13.67			
Moisture Content (%) [Wn]			36.17			

Liquid Limit	NP
Plastic Limit	NP
Plasticity Index	NP
Classification	NP



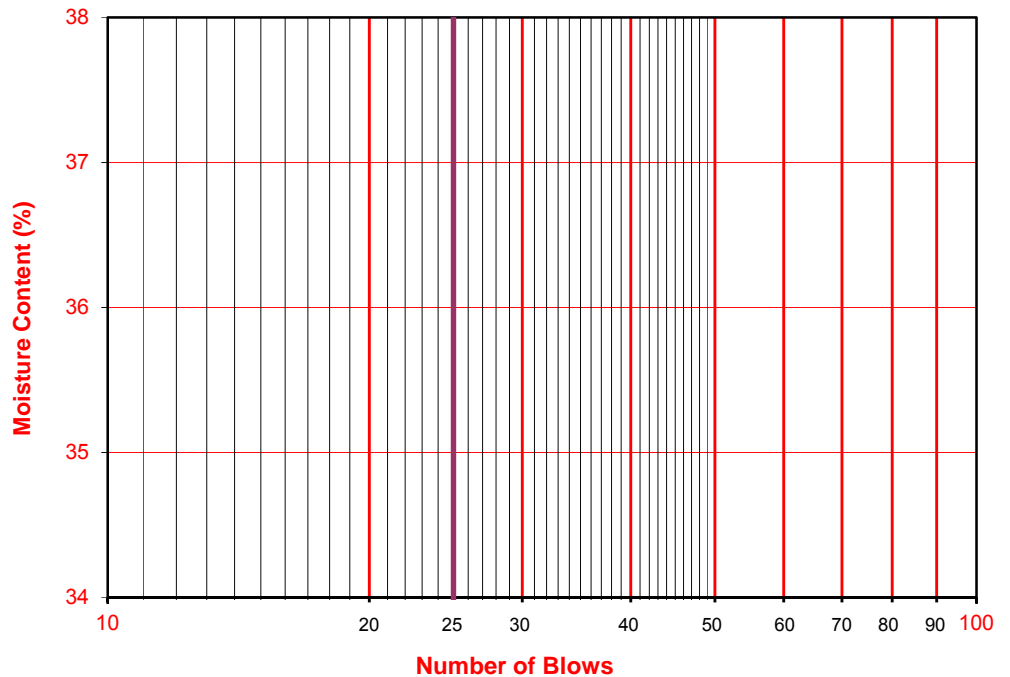
PI at "A" - Line = $0.73(LL-20)$ =

One - Point Liquid Limit Calculation

$$LL = Wn(N/25)^{0.121}$$

PROCEDURES USED

- Wet Preparation
Multipoint - Wet
- Dry Preparation
Multipoint - Dry
- Procedure A
Multipoint Test
- Procedure B
One-point Test





PARTICLE-SIZE ANALYSIS OF SOILS

ASTM D 422

Project Name: POLB Carnival Cruise Terminal 2018 Tested By: G. Berdy Date: 11/06/18
 Project No.: 5816.05 Data Input By: J. Ward Date: 11/27/18
 Station ID: LA2-Reference
 Sample No.: LA2-Ref Date, Time: 10/31/18, 1330
 Soil Identification: Dark olive gray sandy silt s(ML), shells noted

% Gravel	0	Soil Type s(ML)	Moisture Content of Total Air-Dry Soil	Moisture Content of Air-Dry Soil Passing #10	After Hydrometer & Wet Sieve ret. in #230 Sieve
% Sand	47				
% Fines	53				

Specific Gravity	2.71	Wt. of Air-Dry Soil + Cont. (g)	0.00	92.99	
Correction for Specific Gravity	0.99	Dry Wt. of Soil + Cont. (g)	0.00	92.90	128.40
Wt. of Air-Dry Soil + Cont. (g)	721.50	Wt. of Container No. ____ (g)	1.00	74.56	76.37
Wt. of Container	0.00	Moisture Content (%)	0.00	0.49	
Dry Wt. of Soil (g)	721.50	Wt. of Dry Soil (g)			52.03

Coarse Sieve		
U.S. Sieve	Cumulative Wt. Of Dry Soil Retained (g)	% Passing
3"	0.00	100.0
1½"	0.00	100.0
¾"	0.00	100.0
⅜"	0.00	100.0
No. 4	0.00	100.0
No. 10	0.00	100.0
Pan		

Sieve after Hydrometer & Wet Sieve			
U.S. Sieve Size	Cumulative Wt. Of Dry Soil Retained (g)	% Passing	% Total Sample
No. 10	0.00	100.0	100.0
No. 16	0.00	100.0	100.0
No. 30	0.03	100.0	100.0
No. 50	0.13	99.8	99.8
No. 100	0.87	98.8	98.8
No. 200	34.59	52.7	52.7
No. 230	45.27	38.09	38.1

Hydrometer

Wt. of Air-Dry Soil (g) 73.48
Wt. of Dry Soil (g) 73.12

Deflocculant 125 cc of 4% Solution

Date	Time	Elapsed Time (min)	Water Temperature (°C)	Composite Correction 152H	Actual Hydrometer Readings	% Total Sample (%)	Soil Particle Diameter (mm)
07-Nov-18	7:58	0		8.0			
	8:00	2	23.1	8.0	16.0	10.8	0.0338
	8:03	5	23.2	8.0	14.0	8.1	0.0216
	8:13	15	23.2	8.0	13.0	6.8	0.0126
	8:28	30	23.1	8.0	13.0	6.8	0.0089
	8:58	60	23.1	8.0	12.0	5.4	0.0063
	9:58	120	22.8	8.0	12.0	5.4	0.0045
	12:08	250	22.6	8.0	11.5	4.7	0.0031
08-Nov-18	7:58	1440	22.2	8.0	11.0	4.1	0.0013

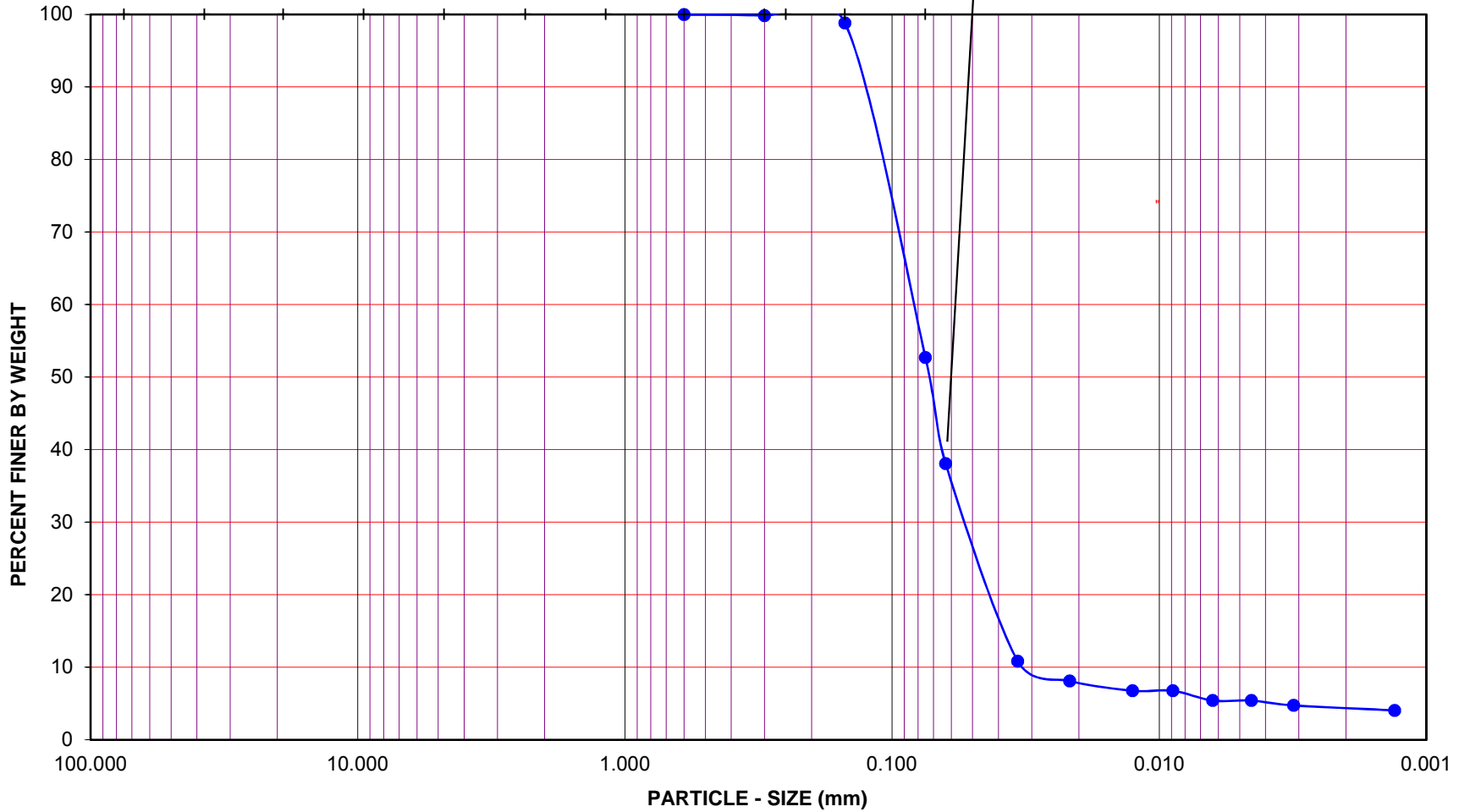
GRAVEL				SAND					FINES		
COARSE		FINE		CRSE	MEDIUM	FINE		SILT		CLAY	

U.S. STANDARD SIEVE OPENING

U.S. STANDARD SIEVE NUMBER

HYDROMETER

3.0" 1 1/2" 3/4" 3/8" #4 #8 #16 #30 #50 #100 #200 #230



Project Name: POLB Carnival Cruise Terminal 2018

Project No.: 5816.05

Station ID: LA2-Reference

Sample No.: LA2-Ref

Date, Time: 10/31/18, 1330

Soil Type : s(ML)

Soil Identification: Dark olive gray sandy silt s(ML), shells noted

GR:SA:FI : (%) **0 : 47 : 53**



**PARTICLE - SIZE
DISTRIBUTION
ASTM D 422**

Nov-18



**SPECIFIC GRAVITY of SOILS and SPECIFIC GRAVITY
and ABSORPTION of COARSE AGGREGATE**

ASTM D 854 and C 127

Project Name: POLB Carnival Cruise Terminal 2018 Tested By: G. Bathala Date: 11/07/18
 Project No.: 5816.05 Checked By: J. Ward Date: 11/27/18

Station ID	Comp Area-a	Comp Area-b	Area C1-b	LA2-Reference	
Sample No.	CCT-18-Composite-a	CCT-18-Composite-b	CCT-18-C1-b	LA2-Ref	
Date, Time	10/30/18, 1325	10/31/18, 0840	10/31/18, 0800	10/31/18, 1330	
Sample Description	Dark olive gray (ML)s, shells noted	Dark olive gray ML	Dark olive gray ML	Dark olive gray s(ML), shells noted	

Sample Passing #4 - ASTM D 854

Flask / Container No.	A	I	A	I	
Weight of Dry Soil (g)	49.58	49.00	49.93	50.87	
Weight of Flask + Water + Soil (g)	701.43	702.49	702.30	703.56	
Weight of Flask + Water (g)	669.55	671.29	669.72	671.45	
Temperature (°C)	25.3	25.2	23.9	23.9	
Correction Factor	0.99876	0.99879	0.99912	0.99912	
Specific Gravity of Soil Passing #4	2.798	2.749	2.875	2.709	
Dry - Back Weight of Soil + Container (g)	145.53	251.48	251.18	265.72	
Weight of Container	96.01	202.58	201.28	214.91	
Dry - Back Weight of Soil	49.52	48.90	49.90	50.81	

Sample Retained #4 - ASTM C 127

Wt. of Sat. Surface - Dry Soil in Air + Cont. (g)					
Weight of Container (g)					
Wt. of Sat. Surface - Dry Soil in Air (g) (B)					
Weight of Soil + Container in Water (g)					
Weight of Container (g)					
Weight of Soil in Water (g) (C)					
Weight of Oven Dry Soil + Container (g)					
Weight of Container (g)					
Weight of Oven Dry Soil (g) (A)					

Calculations

Specific Gravity of Soil Passing #4	2.798	2.749	2.875	2.709	
Bulk Specific Gravity [A/(B-C)]					
Bulk Specific Gravity (SSD) [B/(B-C)]					
Apparent Specific Gravity [A/(A-C)]					
Absorption (%) [(B-A)/A]					

Remarks: _____