

**APPENDIX 4.5b**

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**Phase II Environmental Site Assessment**

*Phase II Environmental Site Assessment*

**GREEN VALLEY II PROPERTY**

Fairfield, California

WKA No. 11731.03

February 16, 2018

*Prepared for:*

Ms. Karen Garrett

The Spanos Corporation

10100 Trinity Parkway, Suite 500

Stockton, CA, 95219

*Phase II Environmental Site Assessment*

**GREEN VALLEY II PROPERTY**

Fairfield, California

WKA No. 11731.03

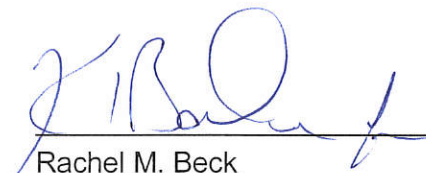
February 16, 2018

**CORPORATE OFFICE**  
3050 Industrial Boulevard  
West Sacramento, CA 95691  
916.372.1434 phone  
916.372.2565 fax

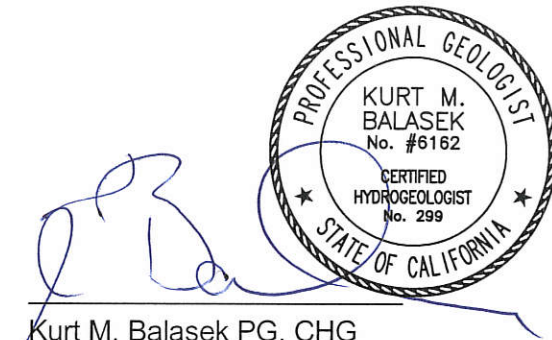
**STOCKTON OFFICE**  
3422 West Hammer Lane, Suite D  
Stockton, CA 95219  
209.234.7722 phone  
209.234.7727 fax

Wallace-Kuhl & Associates, on behalf The Spanos Corporation, has prepared this *Phase II Environmental Site Assessment Report* for activities at the Green Valley II Property located in Fairfield, Solano County, California. This report was prepared in a manner consistent with the level of care and skill ordinarily exercised by professional geologists and environmental scientists. This report was prepared under the supervision of a California Professional Geologist.

**WALLACE-KUHL & ASSOCIATES**



Rachel M. Beck  
Staff Geologist



The seal is a circular stamp for a Professional Geologist in the State of California. It contains the text: "PROFESSIONAL GEOLOGIST", "KURT M. BALASEK", "No. #6162", "CERTIFIED HYDROGEOLOGIST", "No. 299", and "STATE OF CALIFORNIA".

Kurt M. Balasek PG, CHG  
Senior Hydrogeologist

*Phase II Environmental Site Assessment*

**GREEN VALLEY II PROPERTY**

Fairfield, California

WKA No. 11731.03

February 16, 2018

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- A Laboratory Analytical Reports and Chain-of-Custody Documentation



*Phase II Environmental Site Assessment*

**GREEN VALLEY II PROPERTY**

Fairfield, California

WKA No. 11731.03

February 16, 2018

## **1.0 INTRODUCTION**

Wallace-Kuhl and Associates (WKA) has prepared this report to describe activities, summarize laboratory analytical results, and present conclusions for soil sampling and analysis activities completed at the Green Valley II Property (herein referred to as Site) located in Fairfield, Solano County, California (Figure 1 and 2). WKA utilized the State of California, Department of Toxic Substances Control (DTSC) *Interim Guidance for Sampling Agricultural Properties-Third Revision* (August 7, 2008) to guide the preparation of the soil sampling and analysis activities. This soil sampling and analysis study was implemented in response to recommendations included in WKA's *Phase I Environmental Site Assessment* report for the Site, dated January 26, 2018. The Site is comprised of 13.2 acres of currently vacant land. WKA's *Phase I Environmental Site Assessment* report states on-site concerns were noted from the historical agriculture activities including the cultivation of vineyards and the potential for residues of historically applied persistent pesticides.

## **2.0 FIELD ACTIVITIES**

WKA marked the Site with white paint and notified Underground Service Alert (USA) for the purpose of identifying any underground utility conduits. WKA notified USA and received a Dig Ticket permit number more than 72 hours prior to beginning sample collection activities.

On February 2, 2018, WKA collected 24 soil samples from the Site (Figure 3). At the time of sampling, the central portion of the Site had previously been disced and was covered by low-lying volunteer grasses. Along the east to south-east boundary of the Site, a berm was observed level with the surrounding roadway but higher in elevation relative to the central portion of the Site. This area had not been disced and was covered with low-lying volunteer grass and shrubbery.

Prior to sampling, WKA utilized Global Information System (GIS) mapping software to grid the property and locate the 24 soil samples into approximately equal sections. A global positioning system receiver (GPS) was used to navigate the sample locations in the field. Each soil sample was collected using a trowel from the surface soil interval from zero to six inches below ground



## GREEN VALLEY II PROPERTY

WKA No. 11731.03

February 16, 2018

surface (bgs). Soil at the Site was observed to be brown, moist, silty clay, however, at sample location S5, the soil contained more than fifty percent gravel.

Each soil sample was collected into a laboratory provided four-ounce glass jar that was sealed using a Teflon™-lined cap. WKA labeled each container to indicate a unique sample number, sample location, time and date collected and sampler's identification. Samples were preserved in a chilled cooler during transportation with completed chain-of-custody forms to California Laboratory Services (CLS), in Rancho Cordova, California, a State Water Resources Control Board certified laboratory.

### **3.0 LABORATORY ANALYSIS**

Each of the 24 soil samples was submitted to CLS Analytical Laboratory. WKA requested that the laboratory composite the 24 soil samples at a four to one ratio to produce six soil samples for analysis of organochlorine pesticides by EPA Method 8081A. One sample from each composited set was selected to be analyzed discretely for arsenic by EPA method 6010B and copper by EPA method 6020. A copy of the laboratory data sheets and completed chain of custody documentation is presented in Appendix A.

### **4.0 FINDINGS**

A summary of laboratory analytical results for soil samples collected at the Site is reported in Tables 1 and 2.

The organochlorine pesticide DDE was found in composite set S1-S4 at a concentration of 5.9 micrograms per kilogram ( $\mu\text{g/kg}$ ) and in composite set S5-S8 at a concentration of 5.6  $\mu\text{g/kg}$ . These concentrations of DDE are well below the U.S. Environmental Protection Agency's Regional Screening Level (USEPA RSL) of 2,000  $\mu\text{g/kg}$  for protecting human health under a residential scenario.

Samples S2, S5, S11, S13, S18, and S23 were analyzed discretely for copper. Concentrations of copper were found above the reporting limit in each of these samples. The concentrations ranged from 19 milligrams per kilogram ( $\text{mg/kg}$ ) to 42  $\text{mg/kg}$  which are below the USEPA RSL of 3,100  $\text{mg/kg}$  for protecting human health under residential scenario.



## GREEN VALLEY II PROPERTY

WKA No. 11731.03

February 16, 2018

Samples S2, S5, S11, S13, S18, and S23 were analyzed discretely for arsenic. Concentrations of arsenic were found above the reporting limit in each of these samples. The concentrations ranged from 3.3 mg/kg to 7.5 mg/kg which are above the Department of Toxic Substance Control's Human and Ecological Risk Office Human Health Risk Assessment Note 3 screening level (DTSC-SL) of 0.11 mg/kg for protecting human health under residential scenario. However, the United States Geological Survey's (USGS) Geochemical and Mineralogical Maps for the Conterminous United States, shows that arsenic concentrations in the area around the city of Fairfield, CA range from 8.3 mg/kg to 10.4 mg/kg. This map and WKA's repeated experience show that naturally occurring arsenic in California soils often exceeds the residential DTSC-SL, and the concentrations of arsenic reported within soils remaining at the Site are consistent with naturally occurring arsenic levels.

## **5.0 CONCLUSIONS**

WKA collected 24 surface soil samples at the Site to evaluate the potential for impacts due to historical activities. Laboratory analysis of the surface soil samples indicates that there are no detections of the target compounds present that would pose a threat to human health under a residential scenario. As stated previously, naturally occurring arsenic in California soils often exceeds the residential DTSC-SL, and the concentrations of arsenic reported within the soils at the Site are below naturally occurring arsenic levels.

## **6.0 LIMITATIONS**

The statements and results presented in this report are based upon the scope of work described above and on observations made on the dates of WKA's applicable fieldwork. The summary report was prepared in a manner consistent with the level of care and skill ordinarily exercised by Professional Geologists. Work was performed using a degree of skill consistent with that of competent environmental consulting firms performing similar work in the area. No recommendation is made as to the suitability of the property for any purpose. The result of the investigation does not preclude the possibility that materials currently, or in the future, defined as hazardous are present on the site. This report is applicable only to the investigated site and should not be used for any other site. No warranty is expressed or implied.



## 7.0 REFERENCES

Smith, D.B., Cannon, W.F., Woodruff, L.G., Solano, Federico, Kilburn, J.E., and Fey, D.L., 2013, Geochemical and Mineralogical Data for Soils of the Conterminous United States: U.S. Geological Survey Data Series 801, 19 p., <https://pubs.usgs.gov/ds/801/>

United States Environmental Protection Agency, 2017, Regional Screening level (RSL) Summary Table (TR=1E-06, HQ=1), <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-november-2017>

The State of California, Department of Toxic Substance Control (DTSC), 2018, Human Health Risk Assessment Note 3 – DTSC-Modified Screening Levels (DTSC-SLs), Table 1 Screening Levels for Soil, <https://www.dtsc.ca.gov/AssessingRisk/upload/HHRA-Note-3-January-2018.pdf>

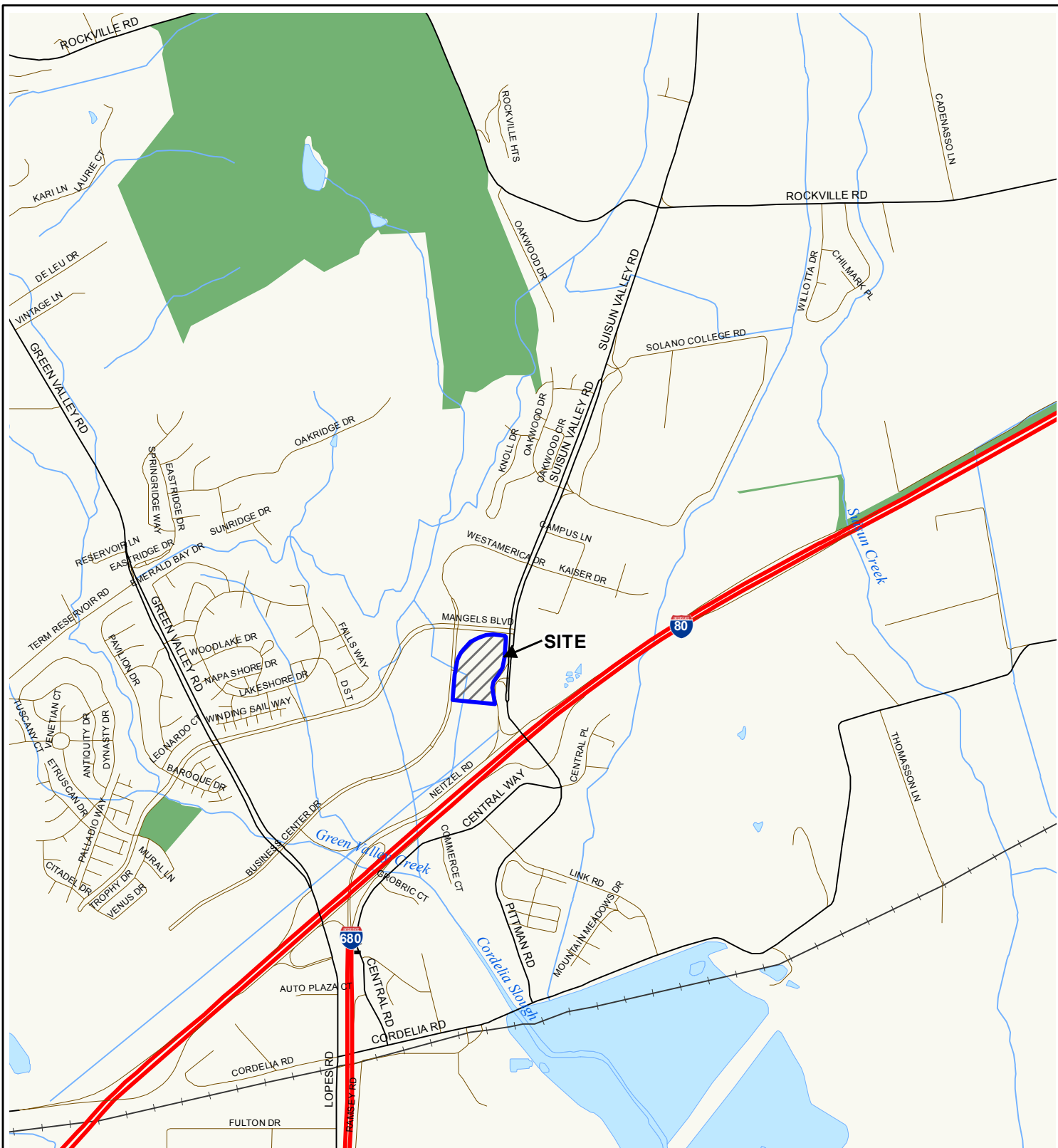
The State of California, Department of Toxics Substance Control (DTSC), 2008, *Interim Guidance for Sampling Agricultural Properties-Third Revision*, <http://www.dtsc.ca.gov/Schools/upload/Ag-Guidance-Rev-3-August-7-2008-2.pdf>



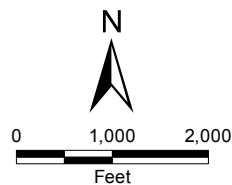


## FIGURES





Street data courtesy of ESRI, 2010.  
 Hydrography courtesy of the U.S. Geological Survey  
 acquired from the GIS Data Depot, December, 2007.  
 Projection: NAD 83, California State Plane, Zone II



### VICINITY MAP

GREEN VALLEY II PROPERTY

Fairfield, California

### FIGURE 1

DRAWN BY	RWO
CHECKED BY	MAT
PROJECT MGR	KMB
DATE	02/18
WKA NO. 11731.03	





Parcel Map provided by the county of Solano  
Assessor's Map Book 148, Page 54.  
Projection: NAD 83, California State Plane, Zone II

#### Legend

 Approximate Site Boundary

N



0 350 700  
Feet



## PARCEL MAP

### GREEN VALLEY II PROPERTY

Fairfield, California

## FIGURE 2


DRAWN BY	RWO
CHECKED BY	MAT
PROJECT MGR	KMB
DATE	02/18
WKA NO. 11731.03	

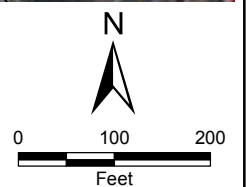




Aerial provided by ESRI.  
Projection: NAD 83, California State Plane, Zone II

#### Legend

 Approximate Site Boundary



## AERIAL SITE MAP

### GREEN VALLEY II PROPERTY

Fairfield, California

## FIGURE 3

DRAWN BY	RWO
CHECKED BY	MAT
PROJECT MGR	KMB
DATE	02/18
WKA NO. 11731.03	

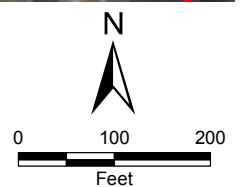




Aerial provided by ESRI.  
Projection: NAD 83, California State Plane, Zone II

**Legend**

- Approximate Site Boundary
- Approximate Soil Sample Location



**SOIL SAMPLE LOCATION MAP**

GREEN VALLEY II PROPERTY

Fairfield, California

**FIGURE 4**

DRAWN BY	RWO
CHECKED BY	MAT
PROJECT MGR	KMB
DATE	02/18
WKA NO. 11731.03	

## TABLES



Table 1  
Summary of Soil Analytical Results Metals  
GREEN VALLEY II PROPERTY  
WKA No. 11731.03

Sample ID	Sample Date	Sample Depth (ft bgs)	EPA Methods 6020	EPA Methods 6010B
			Arsenic	Copper
Concentrations reported in milligrams per kilogram (mg/kg)				
S2	2/2/2018	0.5	3.6	19
S5	2/2/2018	0.5	3.3	19
S11	2/2/2018	0.5	5.2	23
S13	2/2/2018	0.5	6.9	34
S18	2/2/2018	0.5	7.5	39
S23	2/2/2018	0.5	7.5	42
		DTSC-SL	0.11	N.E.
		USEPA RSL	0.68	3,100

Notes:

U.S. Environmental Protection Agency's Regional Screening Level (USEPA RSL) (November 2017)

Department of Toxic Substance Control's Human and Ecological Risk Human Health Risk Assessment  
Note 3 (DTSC-SL) (January 2018)

< less than laboratory reporting limit(s)

Below ground surface (bgs)

Not established (N.E.)

Refer to Figure 4 for sample locations

Table 2  
Summary of Soil Analytical Results for Organochlorine Pesticides  
GREEN VALLEY II PROPERTY  
WKA No. 11731.03

Sample ID	Sample Date	Sample Depth (Feet bgs)	EPA Method 8081A																			
			4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin	alpha-BHC	beta-BHC	Chlordane-technical	delta-BHC	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulfate	Endrin	Endrin aldehyde	gamma-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Mirex	Toxaphene
Concentrations reported in micrograms per kilogram (µg/kg)																						
S1-S4	2/2/2018	0.5	<3.3	5.9	<3.3	<1.0	<1.7	<1.7	<3.3	<1.7	<1.0	<1.7	<3.3	<3.3	<3.3	<3.3	<1.7	<1.7	<1.7	<17	<3.3	<20
S5-S8	2/2/2018	0.5	<3.3	5.6	<3.3	<1.0	<1.7	<1.7	<3.3	<1.7	<1.0	<1.7	<3.3	<3.3	<3.3	<3.3	<1.7	<1.7	<1.7	<17	<3.3	<20
S9-S12	2/2/2018	0.5	<3.3	<3.3	<3.3	<1.0	<1.7	<1.7	<3.3	<1.7	<1.0	<1.7	<3.3	<3.3	<3.3	<3.3	<1.7	<1.7	<1.7	<17	<3.3	<20
S13-S16	2/2/2018	0.5	<3.3	<3.3	<3.3	<1.0	<1.7	<1.7	<3.3	<1.7	<1.0	<1.7	<3.3	<3.3	<3.3	<3.3	<1.7	<1.7	<1.7	<17	<3.3	<20
S17-S20	2/2/2018	0.5	<3.3	<3.3	<3.3	<1.0	<1.7	<1.7	<3.3	<1.7	<1.0	<1.7	<3.3	<3.3	<3.3	<3.3	<1.7	<1.7	<1.7	<17	<3.3	<20
S21-S24	2/2/2018	0.5	<3.3	<3.3	<3.3	<1.0	<1.7	<1.7	<3.3	<1.7	<1.0	<1.7	<3.3	<3.3	<3.3	<3.3	<1.7	<1.7	<1.7	<17	<3.3	<20
		USEPA RSL	1,900	2,000	1,900	39	N.E.	N.E.	1,700	N.E.	34	470,000	470,000	N.E.	19,000	N.E.	N.E.	130	70	320,000	36	490

Notes:

U.S. Environmental Protection Agency's Regional Screening Level (USEPA RSL) (November 2017)

< Less than laboratory reporting limit(s)

Below ground surface (bgs)

Not established (N.E.)

Refer to Figure 4 for sample locations



## **APPENDIX A**

### Laboratory Analytical Reports and Chain-of-Custody Documentation



# CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

February 09, 2018

**CLS Work Order #: 18B0122**

**COC #:**

Matthew Taylor

Wallace Kuhl & Associates- West Sacramento

3050 Industrial Boulevard

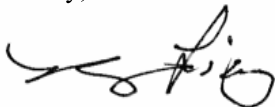
West Sacramento, CA 95691

**Project Name: Green Valley II Property**

Enclosed are the results of analyses for samples received by the laboratory on 02/02/18 12:38. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

A handwritten signature in black ink, appearing to read 'James Liang', with a stylized flourish at the end.

James Liang, Ph.D.

Laboratory Director

CA SWRCB ELAP Accreditation/Registration number 1233

2-2

2.2

# CALIFORNIA LABORATORY SERVICES

Page 2 of 11

02/09/18 15:27

Wallace Kuhl & Associates- West Sacramento  
3050 Industrial Boulevard  
West Sacramento, CA 95691

Project: Green Valley II Property  
Project Number: 11731.03  
Project Manager: Matthew Taylor

**CLS Work Order #: 18B0122**  
COC #:

## Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>S2 (18B0122-02) Soil Sampled: 02/02/18 10:03 Received: 02/02/18 12:38</b>									
Arsenic	3.6	1.0	mg/kg	10	1801103	02/07/18	02/08/18	EPA 6020	
Copper	19	0.50	"	"	"	"	"	EPA 6010B	ICP/MS
<b>S5 (18B0122-06) Soil Sampled: 02/02/18 10:30 Received: 02/02/18 12:38</b>									
Arsenic	3.3	1.0	mg/kg	10	1801103	02/07/18	02/08/18	EPA 6020	
Copper	19	0.50	"	"	"	"	"	EPA 6010B	ICP/MS
<b>S11 (18B0122-13) Soil Sampled: 02/02/18 10:42 Received: 02/02/18 12:38</b>									
Arsenic	5.2	1.0	mg/kg	10	1801103	02/07/18	02/08/18	EPA 6020	
Copper	23	0.50	"	"	"	"	"	EPA 6010B	ICP/MS
<b>S13 (18B0122-16) Soil Sampled: 02/02/18 10:32 Received: 02/02/18 12:38</b>									
Arsenic	6.9	1.0	mg/kg	10	1801103	02/07/18	02/08/18	EPA 6020	
Copper	34	0.50	"	"	"	"	"	EPA 6010B	ICP/MS
<b>S18 (18B0122-22) Soil Sampled: 02/02/18 10:25 Received: 02/02/18 12:38</b>									
Arsenic	7.5	1.0	mg/kg	10	1801103	02/07/18	02/08/18	EPA 6020	
Copper	39	0.50	"	"	"	"	"	EPA 6010B	ICP/MS
<b>S23 (18B0122-28) Soil Sampled: 02/02/18 09:59 Received: 02/02/18 12:38</b>									
Arsenic	7.5	1.0	mg/kg	10	1801103	02/07/18	02/08/18	EPA 6020	
Copper	42	0.50	"	"	"	"	"	EPA 6010B	ICP/MS

02/09/18 15:27

**CLS Work Order #: 18B0122**  
COC #:

## Organochlorine Pesticides by EPA Method 8081A

Surrogate: Decachlorobiphenyl	57 %	52-141	"	"	"	"
Surrogate: Tetrachloro-meta-xylene	61 %	46-139	"	"	"	"

**S5-S8 (COMPOSITE) (18B0122-10) Soil**    **Sampled: 02/02/18 10:30**    **Received: 02/02/18 12:38**

4,4'-DDD	ND	3.3	µg/kg	1	1801041	02/05/18	02/07/18	EPA 8081A
<b>4,4'-DDE</b>	<b>5.6</b>	3.3	"	"	"	"	"	"
4,4'-DDT	ND	3.3	"	"	"	"	"	"
Aldrin	ND	1.0	"	"	"	"	"	"
alpha-BHC	ND	1.7	"	"	"	"	"	"
beta-BHC	ND	1.7	"	"	"	"	"	"

# CALIFORNIA LABORATORY SERVICES

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02/09/18 15:27

Wallace Kuhl & Associates- West Sacramento  
3050 Industrial Boulevard  
West Sacramento, CA 95691

Project: Green Valley II Property  
Project Number: 11731.03  
Project Manager: Matthew Taylor

CLS Work Order #: 18B0122

COC #:

## Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>S5-S8 (COMPOSITE) (18B0122-10) Soil Sampled: 02/02/18 10:30 Received: 02/02/18 12:38</b>									
Chlordane-technical	ND	3.3	µg/kg	1	1801041	"	02/07/18	EPA 8081A	
delta-BHC	ND	1.7	"	"	"	"	"	"	
Dieldrin	ND	1.0	"	"	"	"	"	"	
Endosulfan I	ND	1.7	"	"	"	"	"	"	
Endosulfan II	ND	3.3	"	"	"	"	"	"	
Endosulfan sulfate	ND	3.3	"	"	"	"	"	"	
Endrin	ND	3.3	"	"	"	"	"	"	
Endrin aldehyde	ND	3.3	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	1.7	"	"	"	"	"	"	
Heptachlor	ND	1.7	"	"	"	"	"	"	
Heptachlor epoxide	ND	1.7	"	"	"	"	"	"	
Methoxychlor	ND	17	"	"	"	"	"	"	
Mirex	ND	3.3	"	"	"	"	"	"	
Toxaphene	ND	20	"	"	"	"	"	"	

Surrogate: Decachlorobiphenyl

59 %

52-141

"

"

"

"

Surrogate: Tetrachloro-meta-xylene

62 %

46-139

"

"

"

"

### S9-S12 (COMPOSITE) (18B0122-15) Soil Sampled: 02/02/18 10:38 Received: 02/02/18 12:38

4,4'-DDD	ND	3.3	µg/kg	1	1801041	02/05/18	02/07/18	EPA 8081A	
4,4'-DDE	ND	3.3	"	"	"	"	"	"	
4,4'-DDT	ND	3.3	"	"	"	"	"	"	
Aldrin	ND	1.0	"	"	"	"	"	"	
alpha-BHC	ND	1.7	"	"	"	"	"	"	
beta-BHC	ND	1.7	"	"	"	"	"	"	
Chlordane-technical	ND	3.3	"	"	"	"	"	"	
delta-BHC	ND	1.7	"	"	"	"	"	"	
Dieldrin	ND	1.0	"	"	"	"	"	"	
Endosulfan I	ND	1.7	"	"	"	"	"	"	
Endosulfan II	ND	3.3	"	"	"	"	"	"	
Endosulfan sulfate	ND	3.3	"	"	"	"	"	"	

# CALIFORNIA LABORATORY SERVICES

Page 5 of 11

02/09/18 15:27

Wallace Kuhl & Associates- West Sacramento  
3050 Industrial Boulevard  
West Sacramento, CA 95691

Project: Green Valley II Property  
Project Number: 11731.03  
Project Manager: Matthew Taylor

CLS Work Order #: 18B0122  
COC #:

## Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>S9-S12 (COMPOSITE) (18B0122-15) Soil Sampled: 02/02/18 10:38 Received: 02/02/18 12:38</b>									
Endrin	ND	3.3	µg/kg	1	1801041	"	02/07/18	EPA 8081A	
Endrin aldehyde	ND	3.3	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	1.7	"	"	"	"	"	"	
Heptachlor	ND	1.7	"	"	"	"	"	"	
Heptachlor epoxide	ND	1.7	"	"	"	"	"	"	
Methoxychlor	ND	17	"	"	"	"	"	"	
Mirex	ND	3.3	"	"	"	"	"	"	
Toxaphene	ND	20	"	"	"	"	"	"	

Surrogate: Decachlorobiphenyl	52 %	52-141	"	"	"	"
Surrogate: Tetrachloro-meta-xylene	56 %	46-139	"	"	"	"

### S13-S16 (COMPOSITE) (18B0122-20) Soil Sampled: 02/02/18 10:32 Received: 02/02/18 12:38

4,4'-DDD	ND	3.3	µg/kg	1	1801041	02/05/18	02/07/18	EPA 8081A	
4,4'-DDE	ND	3.3	"	"	"	"	"	"	
4,4'-DDT	ND	3.3	"	"	"	"	"	"	
Aldrin	ND	1.0	"	"	"	"	"	"	
alpha-BHC	ND	1.7	"	"	"	"	"	"	
beta-BHC	ND	1.7	"	"	"	"	"	"	
Chlordane-technical	ND	3.3	"	"	"	"	"	"	
delta-BHC	ND	1.7	"	"	"	"	"	"	
Dieldrin	ND	1.0	"	"	"	"	"	"	
Endosulfan I	ND	1.7	"	"	"	"	"	"	
Endosulfan II	ND	3.3	"	"	"	"	"	"	
Endosulfan sulfate	ND	3.3	"	"	"	"	"	"	
Endrin	ND	3.3	"	"	"	"	"	"	
Endrin aldehyde	ND	3.3	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	1.7	"	"	"	"	"	"	
Heptachlor	ND	1.7	"	"	"	"	"	"	
Heptachlor epoxide	ND	1.7	"	"	"	"	"	"	
Methoxychlor	ND	17	"	"	"	"	"	"	



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Wallace Kuhl & Associates- West Sacramento  
3050 Industrial Boulevard  
West Sacramento, CA 95691

Project: Green Valley II Property  
Project Number: 11731.03  
Project Manager: Matthew Taylor

**CLS Work Order #: 18B0122**  
COC #:

## Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>S13-S16 (COMPOSITE) (18B0122-20) Soil Sampled: 02/02/18 10:32 Received: 02/02/18 12:38</b>									
Mirex	ND	3.3	µg/kg	1	1801041	"	02/07/18	EPA 8081A	
Toxaphene	ND	20	"	"	"	"	"	"	
<i>Surrogate: Decachlorobiphenyl</i>		51 %	52-141		"	"	"	"	QS-4
<i>Surrogate: Tetrachloro-meta-xylene</i>		54 %	46-139		"	"	"	"	
<b>S17-S20 (COMPOSITE) (18B0122-25) Soil Sampled: 02/02/18 10:30 Received: 02/02/18 12:38</b>									
4,4'-DDD	ND	3.3	µg/kg	1	1801041	02/05/18	02/07/18	EPA 8081A	
4,4'-DDE	ND	3.3	"	"	"	"	"	"	
4,4'-DDT	ND	3.3	"	"	"	"	"	"	
Aldrin	ND	1.0	"	"	"	"	"	"	
alpha-BHC	ND	1.7	"	"	"	"	"	"	
beta-BHC	ND	1.7	"	"	"	"	"	"	
Chlordane-technical	ND	3.3	"	"	"	"	"	"	
delta-BHC	ND	1.7	"	"	"	"	"	"	
Dieldrin	ND	1.0	"	"	"	"	"	"	
Endosulfan I	ND	1.7	"	"	"	"	"	"	
Endosulfan II	ND	3.3	"	"	"	"	"	"	
Endosulfan sulfate	ND	3.3	"	"	"	"	"	"	
Endrin	ND	3.3	"	"	"	"	"	"	
Endrin aldehyde	ND	3.3	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	1.7	"	"	"	"	"	"	
Heptachlor	ND	1.7	"	"	"	"	"	"	
Heptachlor epoxide	ND	1.7	"	"	"	"	"	"	
Methoxychlor	ND	17	"	"	"	"	"	"	
Mirex	ND	3.3	"	"	"	"	"	"	
Toxaphene	ND	20	"	"	"	"	"	"	
<i>Surrogate: Decachlorobiphenyl</i>		59 %	52-141		"	"	"	"	
<i>Surrogate: Tetrachloro-meta-xylene</i>		62 %	46-139		"	"	"	"	

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Wallace Kuhl & Associates- West Sacramento  
3050 Industrial Boulevard  
West Sacramento, CA 95691

Project: Green Valley II Property  
Project Number: 11731.03  
Project Manager: Matthew Taylor

CLS Work Order #: 18B0122

COC #:

## Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>S21-S24 (COMPOSITE) (18B0122-30) Soil    Sampled: 02/02/18 09:55    Received: 02/02/18 12:38</b>									
4,4'-DDD	ND	3.3	µg/kg	1	1801041	02/05/18	02/07/18	EPA 8081A	
4,4'-DDE	ND	3.3	"	"	"	"	"	"	
4,4'-DDT	ND	3.3	"	"	"	"	"	"	
Aldrin	ND	1.0	"	"	"	"	"	"	
alpha-BHC	ND	1.7	"	"	"	"	"	"	
beta-BHC	ND	1.7	"	"	"	"	"	"	
Chlordane-technical	ND	3.3	"	"	"	"	"	"	
delta-BHC	ND	1.7	"	"	"	"	"	"	
Dieldrin	ND	1.0	"	"	"	"	"	"	
Endosulfan I	ND	1.7	"	"	"	"	"	"	
Endosulfan II	ND	3.3	"	"	"	"	"	"	
Endosulfan sulfate	ND	3.3	"	"	"	"	"	"	
Endrin	ND	3.3	"	"	"	"	"	"	
Endrin aldehyde	ND	3.3	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	1.7	"	"	"	"	"	"	
Heptachlor	ND	1.7	"	"	"	"	"	"	
Heptachlor epoxide	ND	1.7	"	"	"	"	"	"	
Methoxychlor	ND	17	"	"	"	"	"	"	
Mirex	ND	3.3	"	"	"	"	"	"	
Toxaphene	ND	20	"	"	"	"	"	"	

Surrogate: Decachlorobiphenyl

67 %

52-141

"

"

"

"

Surrogate: Tetrachloro-meta-xylene

69 %

46-139

"

"

"

"

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West Sacramento, CA 95691

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Project Manager: Matthew Taylor

CLC Work Order #: 18B0122

COC #:

## Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 1801103 - EPA 3050B</b>										
<b>Blank (1801103-BLK1)</b>				Prepared: 02/07/18 Analyzed: 02/08/18						
Arsenic	ND	0.10	mg/kg							
Copper	ND	0.50	"							
<b>LCS (1801103-BS1)</b>				Prepared: 02/07/18 Analyzed: 02/08/18						
Arsenic	7.95	0.10	mg/kg	10.0		80	75-125			
Copper	8.22	0.50	"	10.0		82	75-125			
<b>Matrix Spike (1801103-MS1)</b>				<b>Source: 18B0122-02</b>		Prepared: 02/07/18 Analyzed: 02/08/18				
Copper	39.8	0.50	mg/kg	10.0	19.1	207	75-125			QM-5
Arsenic	13.2	1.0	"	10.0	3.62	96	75-125			
<b>Matrix Spike Dup (1801103-MSD1)</b>				<b>Source: 18B0122-02</b>		Prepared: 02/07/18 Analyzed: 02/08/18				
Copper	35.9	0.50	mg/kg	10.0	19.1	168	75-125	10	30	QM-5
Arsenic	12.1	1.0	"	10.0	3.62	85	75-125	9	30	

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3050 Industrial Boulevard  
West Sacramento, CA 95691

Project: Green Valley II Property  
Project Number: 11731.03  
Project Manager: Matthew Taylor

CLS Work Order #: 18B0122

COC #:

## Organochlorine Pesticides by EPA Method 8081A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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### Batch 1801041 - LUFT-DHS GCNV

#### Blank (1801041-BLK1)

Prepared: 02/05/18 Analyzed: 02/07/18

Aldrin	ND	1.0	µg/kg							
alpha-BHC	ND	1.7	"							
beta-BHC	ND	1.7	"							
gamma-BHC (Lindane)	ND	1.7	"							
delta-BHC	ND	1.7	"							
Chlordane-technical	ND	3.3	"							
4,4'-DDD	ND	3.3	"							
4,4'-DDE	ND	3.3	"							
4,4'-DDT	ND	3.3	"							
Dieldrin	ND	1.0	"							
Endosulfan I	ND	1.7	"							
Endosulfan II	ND	3.3	"							
Endosulfan sulfate	ND	3.3	"							
Endrin	ND	3.3	"							
Endrin aldehyde	ND	3.3	"							
Heptachlor	ND	1.7	"							
Heptachlor epoxide	ND	1.7	"							
Methoxychlor	ND	17	"							
Mirex	ND	3.3	"							
Toxaphene	ND	20	"							
Surrogate: Tetrachloro-meta-xylene	8.06		"	8.33		97	46-139			
Surrogate: Decachlorobiphenyl	8.20		"	8.33		98	52-141			

#### LCS (1801041-BS1)

Prepared: 02/05/18 Analyzed: 02/07/18

Aldrin	15.0	1.0	µg/kg	16.7		90	47-132			
gamma-BHC (Lindane)	14.8	1.7	"	16.7		89	56-133			
4,4'-DDT	15.9	3.3	"	16.7		96	46-137			
Dieldrin	15.6	1.0	"	16.7		94	44-143			
Endrin	17.7	3.3	"	16.7		106	30-147			
Heptachlor	15.3	1.7	"	16.7		92	33-148			
Surrogate: Tetrachloro-meta-xylene	7.23		"	8.33		87	46-139			

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Wallace Kuhl & Associates- West Sacramento  
3050 Industrial Boulevard  
West Sacramento, CA 95691

Project: Green Valley II Property  
Project Number: 11731.03  
Project Manager: Matthew Taylor

CLS Work Order #: 18B0122  
COC #:

## Organochlorine Pesticides by EPA Method 8081A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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### Batch 1801041 - LUFT-DHS GCNV

#### LCS (1801041-BS1)

Prepared: 02/05/18 Analyzed: 02/07/18

Surrogate: Decachlorobiphenyl	8.00		µg/kg	8.33		96	52-141			
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#### LCS Dup (1801041-BSD1)

Prepared: 02/05/18 Analyzed: 02/07/18

Aldrin	15.9	1.0	µg/kg	16.7		95	47-132	6	30	
gamma-BHC (Lindane)	15.6	1.7	"	16.7		94	56-133	6	30	
4,4'-DDT	16.1	3.3	"	16.7		97	46-137	1	30	
Dieldrin	16.3	1.0	"	16.7		98	44-143	4	30	
Endrin	18.2	3.3	"	16.7		109	30-147	3	30	
Heptachlor	16.0	1.7	"	16.7		96	33-148	5	30	

Surrogate: Tetrachloro-meta-xylene	7.30		"	8.33		88	46-139			
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Surrogate: Decachlorobiphenyl	8.19		"	8.33		98	52-141			
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#### Matrix Spike (1801041-MS1)

Source: 18B0122-05

Prepared: 02/05/18 Analyzed: 02/07/18

Aldrin	14.2	1.0	µg/kg	16.7	ND	85	47-138			
gamma-BHC (Lindane)	15.0	1.7	"	16.7	ND	90	38-144			
4,4'-DDT	14.8	3.3	"	16.7	ND	89	41-157			
Dieldrin	14.4	1.0	"	16.7	ND	87	46-155			
Endrin	16.7	3.3	"	16.7	ND	100	34-149			
Heptachlor	14.4	1.7	"	16.7	ND	87	36-155			

Surrogate: Tetrachloro-meta-xylene	13.3		"	20.8		64	46-139			
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Surrogate: Decachlorobiphenyl	12.7		"	20.8		61	52-141			
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#### Matrix Spike Dup (1801041-MSD1)

Source: 18B0122-05

Prepared: 02/05/18 Analyzed: 02/07/18

Aldrin	13.8	1.0	µg/kg	16.7	ND	83	47-138	3	35	
gamma-BHC (Lindane)	14.6	1.7	"	16.7	ND	87	38-144	3	35	
4,4'-DDT	12.2	3.3	"	16.7	ND	73	41-157	20	35	
Dieldrin	14.0	1.0	"	16.7	ND	84	46-155	3	35	
Endrin	16.2	3.3	"	16.7	ND	97	34-149	3	35	
Heptachlor	14.0	1.7	"	16.7	ND	84	36-155	3	35	

Surrogate: Tetrachloro-meta-xylene	12.9		"	20.8		62	46-139			
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Surrogate: Decachlorobiphenyl	12.4		"	20.8		60	52-141			
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# CALIFORNIA LABORATORY SERVICES

Wallace Kuhl & Associates- West Sacramento	Project: Green Valley II Property	
3050 Industrial Boulevard	Project Number: 11731.03	CLS Work Order #: 18B0122
West Sacramento, CA 95691	Project Manager: Matthew Taylor	COC #:

Notes and Definitions

QS-4	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QM-5	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
ICP/MS	It was run by ICP/MS (EPA method 200.8/6020).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit (or method detection limit when specified)
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference