DUFFEL PROPERTY

PHASE II INVESTIGATION

100-MCP-T39745

JULY 2019

Prepared For:

Lewis Management Corp.
9216 Kiefer Boulevard
Sacramento, California 95826

Prepared By:

Tetra Tech, Inc.
5012 Luce Ave.
Suite 103
McClellan, CA 95652

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ACRONYMS AND ABBREVIATIONS

APN	Assessor's Parcel Number
bgs	below ground surface
CLS	California Laboratory Services
COC	Chain of Custody
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltrichloroethane
ESA	Phase I Environmental Site Assessment
mg/kg	milligram(s) per kilogram
OCPs	organochlorine pesticides
OFR	Open File Report
µg/kg	microgram(s) per kilogram
USGS	United States Geological Survey

1.0 INTRODUCTION

Tetra Tech completed a Phase II Investigation of the Duffel Property (hereinafter referred to as Site) located in the City of Dixon, Solano County, California.

Concurrent to this effort, a Phase I Environmental Site Assessment (ESA) is being completed for the Site (Tetra Tech 2019 *in preparation*). The initial stage of the completing the ESA, the historic agricultural uses attributed to the Site necessitated a recommendation to perform a Phase II investigation to assess the potential for persistent pesticide contaminants potentially remaining in the near surface soils of the Site, and arsenic which could pose a threat to human health of the environment. The scope of the Phase II investigation was limited to the historic agricultural uses of pesticides within the Site and in accordance with the scope and budget addendum dated 28 June 2019. This report describes the scope, methods, results, and conclusions of the associated activities.

1.1 SITE DESCRIPTION

The approximately 13-acre Site is located southwest of Vaughn Road and Highway 113 in the City of Dixon, California (Figure 1). The Site is identified by Solano County Assessor's Parcel Numbers (APNs) 108-110-450 and 108-110-460.

1.2 SITE HISTORY AND PREVIOUS INVESTIGATIONS

The Site history was obtained from the Phase I ESA that is being prepared concurrently with this report (Tetra Tech 2019 *in preparation).* Between 1937 and approximately 1993, the Site land use appears to have been continuously utilized for irrigated agricultural production. A review of the historic aerial photographs (Tetra Tech 2019 *draft in preparation*) found no visual evidence of orchards within the Site. By 2006, development had encroached upon the boundaries of the Site and that the agricultural uses had ceased. The development encroachment to the west, southwest, and northwest appears to be residential subdivisions with the remaining development encroachment largely appearing to be commercial/retail. Tetra Tech was provided with a 2018 Phase I ESA (AEI 2018) which similarly identified agricultural uses as the only historically significant land use within the Site.

1.3 SUMMARY OF FIELD ACTIVITIES

On 1 July 2019, Tetra Tech collected twenty-eight (28) surface soil samples at the locations shown on Figure 2. A pin flag was placed and global positioning satellite (GPS) coordinates were obtained at each sample location. The samples were collected from an interval ranging from 0 to 6 inches below ground surface (bgs). Utilizing hand sampling methods (hand trowel), each soil sample was collected into a laboratory-provided eight-ounce jar that was sealed using a Teflon™-lined cap. Tetra Tech 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 (COC) forms to California Laboratory Services (CLS), in Rancho Cordova, California, a State Water Resources Control Board certified laboratory.

2.0 ANALYTICAL RESULTS

Tetra Tech requested that the 28 collected surface soil samples be composited by the laboratory at a 4:1 ratio for the analysis of organochlorine pesticides (OCPs) and arsenic using EPA Method 6010B (7 samples analyzed). A copy of the laboratory analytical data report and completed COC documentation is presented in Appendix A. A summary of the laboratory analytical results for OCPs is presented in Table 1 below. A summary of the laboratory analytical results for arsenic is presented in Table 2 below. Analytical results are evaluated and discussed in Section 3.0.

Table 1
Summary of Soil Analytical Results-Organochlorine Pesticides

Sample ID	Sample Date	Sample Depth (Inches)	Organochlorine Pesticides EPA Method 8081A* (µg/kg)		
			DDE	DDT	Endosulfan II
DP-PE-0.5 (01-04)	7/1/2019	0-6	34	ND	ND
DP-PE-0.5 (05-08)	7/1/2019	0-6	63	31	ND
DP-PE-0.5 (09-12)	7/1/2019	0-6	65	28	ND
DP-PE-0.5 (13-16)	7/1/2019	0-6	56	32	ND
DP-PE-0.5 (17-20)	7/1/2019	0-6	57	43	16
DP-PE-0.5 (21-24)	7/1/2019		50	38	5.8
DP-PE-0.5 (25-28)	7/1/2019	0-6	48	ND	ND

Notes: µg/kg microgram(s) per kilogram
ND below the laboratory method reporting limit
* Constituents not listed were detected below the laboratory reporting limit

Table 2
Summary of Soil Analytical Results-Arsenic

Sample ID	Sample Date	Sample Depth (Inches)	Arsenic EPA Method 6010B (mg/kg)
DP-PE-0.5 (01-04)	7/1/2019	0-6	3.6
DP-PE-0.5 (05-08)	7/1/2019	0-6	5.3
DP-PE-0.5 (09-12)	7/1/2019	0-6	5.1
DP-PE-0.5 (13-16)	7/1/2019	0-6	5.5
DP-PE-0.5 (17-20)	7/1/2019	0-6	4.4
DP-PE-0.5 (21-24)	7/1/2019	0-6	4.8
DP-PE-0.5 (25-28)	7/1/2019	0-6	4.3

Notes: mg/kg milligram(s) per kilogram

3.0 DATA EVALUATION

In 2019, the California Department of Toxic Substances Control (DTSC) implemented the revised Human and Ecological Risk Office (HERO), Human Health Risk Assessment (HHRA) Note Number 3 April 2019 (DTSC 2019). Tetra Tech utilized this document to identify the appropriate residential use threshold concentrations for each of the constituents of concern. Detectible concentrations of OCPs above the laboratory reporting limits within the seven (7) composite samples were limited to Dichlorodiphenyldichloroethylene (DDE), Dichlorodiphenyltrichloroethane (DDT), and Endosulfan II. Additionally, concentrations of arsenic were detected above the laboratory reporting limit in each of the seven (7) composite samples.

Concentrations of DDE were detected above the laboratory method reporting limits in each of the seven (7) composite samples analyzed. The detected concentrations of DDE ranged from 34 micrograms per kilogram (µg/kg) to 65 µg/kg which are significantly lower than the residential use threshold of 2,000 µg/kg (DTSC 2019).

Concentrations of DDT were detected above the laboratory method reporting limits in five (5) of the seven (7) composite samples analyzed. The concentrations of DDT ranged from 28 µg/kg to 43 µg/kg, which are significantly lower than the residential use threshold of 1,900 µg/kg (DTSC 2019).

Concentrations of Endosulfan II were detected above the laboratory method reporting limits in two (2) of the seven (7) composite samples analyzed. The concentrations of Endosulfan II ranged from 5.8 µg/kg to 16 µg/kg which are significantly lower than the residential use threshold of 450 µg/kg (DTSC 2019).

Arsenic concentrations detected within seven (7) composite samples analyzed ranged from 3.6 mg/kg to 5.5 mg/kg with a mean concentration of 4.71 mg/kg, which exceeds the 0.11 mg/kg for residential use threshold (DTSC 2019). Arsenic is a naturally occurring metal in California soils often at concentrations above residential screening levels. As demonstrated by United States Geological Survey's (USGS) Geochemical and Mineralogical Maps for the Conterminous United States; Solano County has an average arsenic concentration of 6.0 to 7.0 mg/kg (USGS, 2014). Therefore, the arsenic concentrations reported within soils at the Site are consistent with natural background concentrations.

3.1 CONCLUSIONS

Tetra Tech collected twenty-eight (28) surface soil samples at the Site to evaluate the potential for arsenic and OCP impacts to shallow soil due to historical agricultural land use. The results of the laboratory analysis where compared to the residential screening criteria (DTSC 2019), and none of the OCP or arsenic concentrations were detected above the screening criteria. The data evaluation of composite arsenic results are consider to be representative of the actual conditions due to the absence of orchard crops planted at the site; therefore no further sampling is warranted.

4.0 LIMITATIONS

The statements and results presented in this report are based on the scope of work described above and on observations made on the dates of Tetra Tech's applicable fieldwork. This assessment 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 Site 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.

Should you have any questions concerning the contents of this letter, please contact the undersigned at (916) 643-4826.

Sincerely,

Bryan C. Yates, AICP
Program Manager

Peter Oblander, P.G. 8111
Senior Geologist

5.0 REFERENCES

AEI Consultants

2018 Phase I Environmental Site Assessment, SWC of North 1st Street and Vaughn Road, AEI Project No. 394594

California Department of Toxic Substances Control

2019 Human and Ecological Risk Office, Human Health Risk Assessment Note Number 3

United States Geological Survey

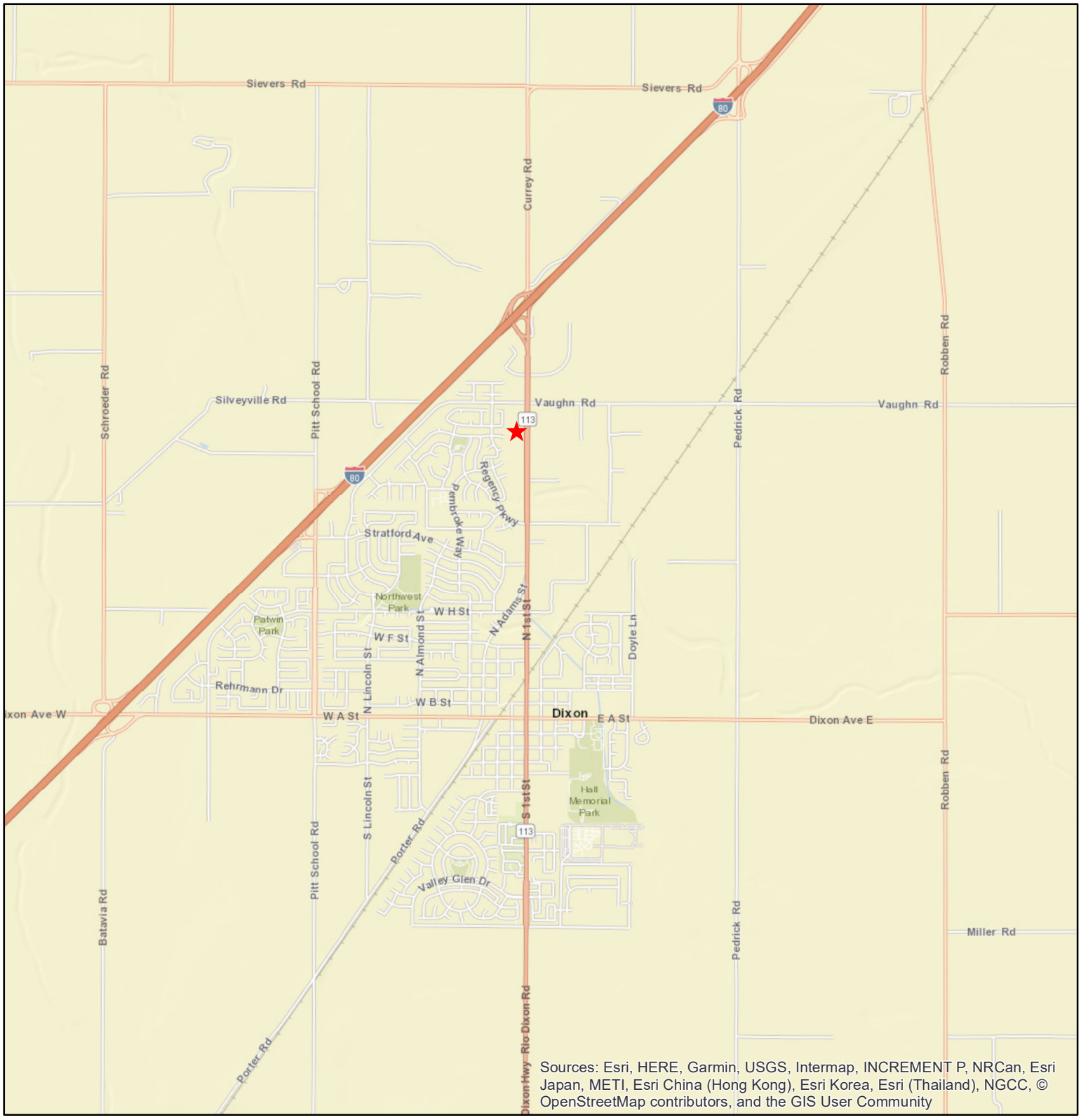
2014 Geochemical and Mineralogical Maps for Soil of the Conterminous United States, Open File Report 2014-1082 (OFR 2014-1082)

Tetra Tech (*in preparation*)

2019 Phase I Environmental Site Assessment, Duffel Property, 100-MCP-T39745, July

FIGURES

APPENDIX A



Legend

★ Site Location

N

0 0.75 1.5 Miles

Duffel Property	
Vicinity Map	
Date Created : 07/08/19 Revised:	Drafted : Evan Enriquez Checked: Bryan Yates
TETRA TECH	**FIGURE 1**

Legend

- Site Boundary (Approx. 13 Acres)
- Sample Locations

0 200 400 Feet

Duffel Property	
Sample Location Map	
Date Created : 07/08/19 Revised:	Drafted : Evan Enriquez Checked: Bryan Yates
TETRA TECH	**FIGURE 2**

CALIFORNIA LABORATORY SERVICES
Committed. Responsive. Flexible.

July 03, 2019

CLS Work Order #: 19G0039
COC #:

Bryan Yates
Tetra Tech Inc
5012 Luce Ave Ste# 103
McClellan, CA 95652

Project Name: Duffel Property

Enclosed are the results of analyses for samples received by the laboratory on 07/01/19 13:03. 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,

James Liang, Ph.D.
Laboratory Director

CA SWRCB ELAP Accreditation/Registration number 1233

1960659

Chain of Custody Number

TETRA TECH, INC.
5012 Luce Ave, Suite 103
McClellan, CA 95652
Phone (916) 643-4829
Fax (916) 643-9685

SERVICE TO: California Laboratory Services
3249 Fitzgerald Road
Rancho Cordova, CA 95742

CHAIN OF CUSTODY RECORD

SITE: _____ DATE: 7/1/2019

CLIENT: Lewis Management Corp.
PROJECT NAME: Duffel Prpoperty
PROJECT MANAGER: Bryan C Yates
TC No.:

SAMPLER (Name[s] and Signature[s])
Print: Bryan C Yates X Signature
Print: _____ X Signature

TURN-AROUND TIME:
- ☐ Standard (5 days)
- ☑ Expedite (3 Days)
- ☐ Rush (24 Hours)
- ☐ Other _____

CHEMICAL PRESERVATIVE(S):
Chemical preservative(s), if used, are indicated on the sample label(s).

ANALYTICAL METHODS

LINE ITEM	SAMPLE NO.	DATE	TIME	SVOCs (EPA 8270C, SW-846) - Site Specific	PAHs (EPA 8270 SIM, SW-846) - Site Specific	PCBs (EPA 8082, SW-846) - Site Specific	Dioxins/ Furans (EPA 8290, SW-846) - Site Specific	TPH-DHC/MO (EPA 8015M, SW-846) - Site Specific	TPH-G (EPA 8260B, SW-846) - Site Specific	Total Metals (EPA 6020, SW-846) - Site Specific	Pesticides (EPA 8081A, SW-846) Site Specific	Mercury (EPA 7471, SW 846) - Site Specific	VOCs (EPA 8260B, SW 846) - Site Specific	VOCs (TO-15)	Total Metals (EPA 6020, SW 846) - CAM 17 Metals	Arsenic (EPA 6010B)	Total Lead (EPA 6010C)	Matrix Type	Container Type	Sample Location	Sample Collection Composition	Number of Containers	PID Reading (ppm)	OBSERVATIONS/COMMENTS:
1	DP-PE-01-0.5	7/1/19	830								X					X								
2	DP-PE-02-0.5	7/1/19	835	Composite 4:1							X					X								
3	DP-PE-03-0.5	7/1/19	842								X					X								
4	DP-PE-04-0.5	7/1/19	1001								X					X								
5	DP-PE-05-0.5	7/1/19	951								X					X								
6	DP-PE-06-0.5	7/1/19	939	Composite 4:1							X					X								
7	DP-PE-07-0.5	7/1/19	1019								X					X								
8	DP-PE-08-0.5	7/1/19	1012								X					X								
9	DP-PE-09-0.5	7/1/19	1005								X					X								See page 2 of 3
10	DP-PE-10.5	7/1/19	1031	Composite 4:1							X					X								

MATRIX TYPE:
S = Soil
W = Water
O = Other _____

CONTAINER TYPE:
G = Glass Jar
P = Poly Bottle
S = Stainless Steel Liner
B = Brass Liner
V = 40mL VOA
A = Amber Glass
O = Other _____

SAMPLE LOCATION:
A = AOC G-3
B = AOC G-4
C = AOC G-5
D = CS 038
E = CS 040/ PRL S-006/PRL S-019
F = CS B-005
G = CS T-036
H = CS T-047
I = CS T-057/ SA 080 / SA 107
J = PRL S-001
K = PRL S-018 / CS T-030
L = PRL T-032
M = SA 064
N = SA 045
O = SA 049
P = SA 063
Q = SA 100
R = SA 109

SAMPLE COLLECTION COMPOSITION:
X = Discrete
Y = Composite

FIELD QUALITY CONTROL SAMPLES:
Trip Blank Yes ☐ No ☐
Field Blank Yes ☐ No ☐

	SIGNATURE	COMPANY	DATE	TIME	
RELINQUISHED BY: Bryan C Yates					TOTAL NUMBER OF CONTAINERS
RECEIVED BY:		Tetra Tech, Inc.	7/1/2019	1005	METHOD OF SHIPMENT
RELINQUISHED BY:			7/1/19	1303	SPECIAL SHIPMENT / HANDLING / STORAGE REQUIREMENTS
RECEIVED BY:					Samples on ice? Yes ☐ No ☐

DISTRIBUTION: White = Lab; Yellow = Tetra Tech, Inc.; Pink = Field

TETRA TECH, INC.
5012 Luce Ave. Suite 103
McClellan, CA 95652
Phone (916) 643-4826
Fax (916) 643-9685

SHIPPED TO: California Laboratory Services
3249 Fitzgerald Road
Rancho Cordova, CA 95742

Chain of Custody Number

CHAIN OF CUSTODY RECORD

SITE: _____ DATE: 7/1/2019

CLIENT: Lewis Management Corp.
PROJECT NAME: Doffer Property
PROJECT MANAGER: Bryan C. Yates
TC No.:

SAMPLER (Name[s] and Signature[s])
Print: Bryan C. Yates X Signature
Print: _____ X Signature

TURN-AROUND TIME:
- ☐ Standard (5 days)
- ☑ Expedite (3 Days)
- ☐ Rush (24 Hours)
- ☐ Other _____

CHEMICAL PRESERVATIVE(S):
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1	DP-PE-11-0.5	7/1/19	1026				Composite 4:1				X					X								
2	DP-PE-12-0.5	7/1/19	1022								X					X								See page 1 of 2
3	DP-PE-13-0.5	7/1/19	1042								X					X								
4	DP-PE-14-0.5	7/1/19	1028		Composite 4:1						X					X								
5	DP-PE-15-0.5	7/1/19	1035								X					X								
6	DP-PE-16-0.5	7/1/19	1103								X					X								
7	DP-PE-17-0.5	7/1/19	1057								X					X								
8	DP-PE-18-0.5	7/1/19	1051		Composite 4:1						X					X								
9	DP-PE-19-0.5	7/1/19	1119								X					X								
10	DP-PE-20.5	7/1/19	1114								X					X								

MATRIX TYPE:
S = Soil
W = Water
O = Other

CONTAINER TYPE:
G = Glass Jar
P = Poly Bottle
S = Stainless Steel Liner
B = Brass Liner
V = 40mL VOA
A = Amber Glass
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SAMPLE LOCATION:
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H = CS T-047
I = CS T-057/ SA 080 / SA 107
J = PRL S-001
K = PRL S-018 / CS T-030
L = PRL T-032
M = SA 004
N = SA 045
O = SA 049
P = SA 063
Q = SA 100
R = SA 109

SAMPLE COLLECTION COMPOSITION:
X = Discrete
Y = Composite

FIELD QUALITY CONTROL SAMPLES:
Trip Blank Yes ☐ No ☐
Field Blank Yes ☐ No ☐

RELINQUISHED BY: Bryan Yates	SIGNATURE	COMPANY	DATE	TIME	TOTAL NUMBER OF CONTAINERS
RECEIVED BY	SIGNATURE	COMPANY: Tetra Tech, Inc.	DATE: 7/1/2019	TIME: 1502	METHOD OF SHIPMENT
RELINQUISHED BY	SIGNATURE	COMPANY	DATE	TIME	SPECIAL SHIPMENT / HANDLING / STORAGE REQUIREMENTS:
RECEIVED BY	SIGNATURE	COMPANY	DATE	TIME	Samples on Ice? Yes ☐ No ☐

DISTRIBUTION: White - Lab; Yellow - Tetra Tech, Inc.; Pink - Field

19C0359

TETRA TECH, INC.
5012 Luce Ave. Suite 103
McClellan, CA 95652
Phone (916) 643-4826
Fax (916) 643-9680

SHIPPED TO: California Laboratory Services
3249 Fitzgerald Road
Rancho Cordova, CA 95742

Chain of Custody Number:

CHAIN OF CUSTODY RECORD

SITE: DATE: 7/1/2019 Page 3 of 3

CLIENT: Lewis Management Corp.
PROJECT NAME: Duffel Prpoperty
PROJECT MANAGER: Bryan C. Yates
TC No.:
SAMPLER (Name[s] and Signature[s])
Print: Bryan C. Yates X Signature:
Print: X Signature:

ANALYTICAL METHODS

LINE ITEM	SAMPLE NO.	DATE	TIME	SVOCs (EPA 8270C; SW-846) - Site Specific	PAHs (EPA 8270 SIM; SW-846) - Site Specific	PCBs (EPA 8082; SW-846) - Site Specific	Dioxins/ Furans (EPA 8290; SW-846) - Site Specific	TPH-D/HO/MO (EPA 8015M; SW 846) - Site Specific	TPH-G (EPA 8260B; SW 846) - Site Specific	Total Metals (EPA 6020; SW-846) - Site Specific	Pesticides (EPA 8081A; SW-846) Site Specific	Mercury (EPA 7471; SW-846) - Site Specific	VOCs (EPA 8260B; SW 846) - Site Specific	VOCs (TO-15)	Total Metals (EPA 6020; SW 846) - CAM 17 Metals	Arsenic (EPA 6010B)	Total Lead (EPA 6010C)	Matrix Type	Container Type	Sample Location	Sample Collection Composition	Number of Containers	PID Reading (ppm)	OBSERVATIONS/COMMENTS:
1	DP-PE-21-0.5	7/1/19	1100								X					X								
2	DP-PE-22-0.5	7/1/19	~~1135~~	Composite							X					X								
3	DP-PE-23-0.5	7/1/19	1128	4:1							X					X								
4	DP-PE-24-0.5	7/1/19	1123								X					X								
5	DP-PE-25-0.5	7/1/19	1151								X					X								
6	DP-PE-26-0.5	7/1/19	1148	Composite							X					X								
7	DP-PE-27-0.5	7/1/19	1142	4:1							X					X								
8	DP-PE-28-0.5	7/1/19	1159								X					X								
9																								
10																								

TURN-AROUND TIME:
- ☐ Standard (5 days)
- ☑ Expedite (3 Days)
- ☐ Rush (24 Hours)
- ☐ Other

CHEMICAL PRESERVATIVE(S):
Chemical preservative(s), if used, are indicated on the sample label(s).

MATRIX TYPE:
S = Soil
W = Water
O = Other

CONTAINER TYPE:
G = Glass Jar
P = Poly Bottle
S = Stainless Steel Liner
B = Brass Liner
V = 40mL VOA
A = Amber Glass
O = Other

SAMPLE LOCATION:
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B = AOC G-4
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D = CS 036
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F = CS B-005
G = CS T-036
H = CS T-047
I = CS T-957/ SA 080 / SA 107
J = PRL S-001
K = PRL S-018 / CS T-030
L = PRL T 032
M = SA 034
N = SA 045
O = SA 049
P = SA 063
Q = SA 100
R = SA 109

SAMPLE COLLECTION COMPOSITION:
X = Discrete
Y = Composite

FIELD QUALITY CONTROL SAMPLES:
Trip Blank Yes ☐ No ☐
Field Blank Yes ☐ No ☐

RELINQUISHED BY: Bryan C. Yates	SIGNATURE:	COMPANY: Tetra Tech, Inc.	DATE: 7/1/2019	TIME: 1100	TOTAL NUMBER OF CONTAINERS:
RECEIVED BY:	SIGNATURE:	COMPANY: CAL	DATE: 7/1/19	TIME: 1310 (1317)	METHOD OF SHIPMENT:
RELINQUISHED BY:	SIGNATURE:	COMPANY:	DATE:	TIME:	SPECIAL SHIPMENT / HANDLING / STORAGE REQUIREMENTS:
RECEIVED BY:	SIGNATURE:	COMPANY:	DATE:	TIME:	Sample(s) on ice? Yes ☐ No ☐

DISTRIBUTION: White = Lab; Yellow = Tetra Tech, Inc.; Pink = Field

Tetra Tech Inc	Project:	Duffel Property	
5012 Luce Ave Ste# 103	Project Number:	[none]	**CLS Work Order #: 19G0039**
McClellan, CA 95652	Project Manager:	Bryan Yates	COC #:

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
DP-PE-0.5 (01-04 Composite) (19G0039-05) Soil	**Sampled: 07/01/19 08:30**		**Received: 07/01/19 13:03**						
Arsenic	**3.6**	2.0	mg/kg	10	1905427	07/02/19	07/02/19	EPA 6020	
DP-PE-0.5 (05-08 Composite) (19G0039-10) Soil	**Sampled: 07/01/19 09:39**		**Received: 07/01/19 13:03**						
Arsenic	**5.3**	2.0	mg/kg	10	1905427	07/02/19	07/02/19	EPA 6020	
DP-PE-0.5 (09-12 Composite) (19G0039-15) Soil	**Sampled: 07/01/19 10:05**		**Received: 07/01/19 13:03**						
Arsenic	**5.1**	2.0	mg/kg	10	1905427	07/02/19	07/02/19	EPA 6020	
DP-PE-0.5 (13-16 Composite) (19G0039-20) Soil	**Sampled: 07/01/19 10:35**		**Received: 07/01/19 13:03**						
Arsenic	**5.5**	2.0	mg/kg	10	1905427	07/02/19	07/02/19	EPA 6020	
DP-PE-0.5 (17-20 Composite) (19G0039-25) Soil	**Sampled: 07/01/19 10:51**		**Received: 07/01/19 13:03**						
Arsenic	**4.4**	2.0	mg/kg	10	1905427	07/02/19	07/02/19	EPA 6020	
DP-PE-0.5 (21-24 Composite) (19G0039-30) Soil	**Sampled: 07/01/19 11:08**		**Received: 07/01/19 13:03**						
Arsenic	**4.8**	2.0	mg/kg	10	1905427	07/02/19	07/02/19	EPA 6020	
DP-PE-0.5 (25-28 Composite) (19G0039-35) Soil	**Sampled: 07/01/19 11:42**		**Received: 07/01/19 13:03**						
Arsenic	**4.3**	2.0	mg/kg	10	1905427	07/02/19	07/02/19	EPA 6020	

Tetra Tech Inc	Project:	Duffel Property	
5012 Luce Ave Ste# 103	Project Number:	[none]	**CLS Work Order #: 19G0039**
McClellan, CA 95652	Project Manager:	Bryan Yates	COC #:

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
DP-PE-0.5 (01-04 Composite) (19G0039-05) Soil	**Sampled: 07/01/19 08:30**		**Received: 07/01/19 13:03**						**QRL-8**
4,4′-DDD	ND	17	µg/kg	5	1905401	07/01/19	07/02/19	EPA 8081A	
4,4′-DDE	**34**	17	"	"	"	"	"	"	
4,4′-DDT	ND	17	"	"	"	"	"	"	
Aldrin	ND	5.0	"	"	"	"	"	"	
alpha-BHC	ND	8.5	"	"	"	"	"	"	
beta-BHC	ND	8.5	"	"	"	"	"	"	
Chlordane-technical	ND	17	"	"	"	"	"	"	
delta-BHC	ND	8.5	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	8.5	"	"	"	"	"	"	
Endosulfan II	ND	17	"	"	"	"	"	"	
Endosulfan sulfate	ND	17	"	"	"	"	"	"	
Endrin	ND	17	"	"	"	"	"	"	
Endrin aldehyde	ND	17	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	8.5	"	"	"	"	"	"	
Heptachlor	ND	8.5	"	"	"	"	"	"	
Heptachlor epoxide	ND	8.5	"	"	"	"	"	"	
Methoxychlor	ND	85	"	"	"	"	"	"	
Mirex	ND	17	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Decachlorobiphenyl		*70 %*	*52-141*		"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*66 %*	*46-139*		"	"	"	"	
DP-PE-0.5 (05-08 Composite) (19G0039-10) Soil	**Sampled: 07/01/19 09:39**		**Received: 07/01/19 13:03**						**QRL-8**
4,4′-DDD	ND	17	µg/kg	5	1905401	07/01/19	07/02/19	EPA 8081A	
4,4′-DDE	**63**	17	"	"	"	"	"	"	
4,4′-DDT	**31**	17	"	"	"	"	"	"	
Aldrin	ND	5.0	"	"	"	"	"	"	
alpha-BHC	ND	8.5	"	"	"	"	"	"	
beta-BHC	ND	8.5	"	"	"	"	"	"	

Tetra Tech Inc	Project:	Duffel Property	
5012 Luce Ave Ste# 103	Project Number:	[none]	**CLS Work Order #: 19G0039**
McClellan, CA 95652	Project Manager:	Bryan Yates	COC #:

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
DP-PE-0.5 (05-08 Composite) (19G0039-10) Soil	**Sampled: 07/01/19 09:39**		**Received: 07/01/19 13:03**						**QRL-8**
Chlordane-technical	ND	17	µg/kg	5	1905401	"	07/02/19	EPA 8081A	
delta-BHC	ND	8.5	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	8.5	"	"	"	"	"	"	
Endosulfan II	ND	17	"	"	"	"	"	"	
Endosulfan sulfate	ND	17	"	"	"	"	"	"	
Endrin	ND	17	"	"	"	"	"	"	
Endrin aldehyde	ND	17	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	8.5	"	"	"	"	"	"	
Heptachlor	ND	8.5	"	"	"	"	"	"	
Heptachlor epoxide	ND	8.5	"	"	"	"	"	"	
Methoxychlor	ND	85	"	"	"	"	"	"	
Mirex	ND	17	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Decachlorobiphenyl		*69 %*	*52-141*		"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*70 %*	*46-139*		"	"	"	"	
DP-PE-0.5 (09-12 Composite) (19G0039-15) Soil	**Sampled: 07/01/19 10:05**		**Received: 07/01/19 13:03**						**QRL-8**
4,4´-DDD	ND	17	µg/kg	5	1905401	07/01/19	07/02/19	EPA 8081A	
4,4´-DDE	**65**	17	"	"	"	"	"	"	
4,4´-DDT	**28**	17	"	"	"	"	"	"	
Aldrin	ND	5.0	"	"	"	"	"	"	
alpha-BHC	ND	8.5	"	"	"	"	"	"	
beta-BHC	ND	8.5	"	"	"	"	"	"	
Chlordane-technical	ND	17	"	"	"	"	"	"	
delta-BHC	ND	8.5	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	8.5	"	"	"	"	"	"	
Endosulfan II	ND	17	"	"	"	"	"	"	
Endosulfan sulfate	ND	17	"	"	"	"	"	"	

Tetra Tech Inc	Project:	Duffel Property	
5012 Luce Ave Ste# 103	Project Number:	[none]	**CLS Work Order #: 19G0039**
McClellan, CA 95652	Project Manager:	Bryan Yates	COC #:

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
DP-PE-0.5 (09-12 Composite) (19G0039-15) Soil	**Sampled: 07/01/19 10:05**		**Received: 07/01/19 13:03**						**QRL-8**
Endrin	ND	17	µg/kg	5	1905401	"	07/02/19	EPA 8081A	
Endrin aldehyde	ND	17	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	8.5	"	"	"	"	"	"	
Heptachlor	ND	8.5	"	"	"	"	"	"	
Heptachlor epoxide	ND	8.5	"	"	"	"	"	"	
Methoxychlor	ND	85	"	"	"	"	"	"	
Mirex	ND	17	"	"	"	"	"	"	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Decachlorobiphenyl		*61 %*	*52-141*		"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*63 %*	*46-139*		"	"	"	"	
DP-PE-0.5 (13-16 Composite) (19G0039-20) Soil	**Sampled: 07/01/19 10:35**		**Received: 07/01/19 13:03**						**QRL-8**
4,4´-DDD	ND	17	µg/kg	5	1905401	07/01/19	07/02/19	EPA 8081A	
4,4´-DDE	**56**	17	"	"	"	"	"	"	
4,4´-DDT	**32**	17	"	"	"	"	"	"	
Aldrin	ND	5.0	"	"	"	"	"	"	
alpha-BHC	ND	8.5	"	"	"	"	"	"	
beta-BHC	ND	8.5	"	"	"	"	"	"	
Chlordane-technical	ND	17	"	"	"	"	"	"	
delta-BHC	ND	8.5	"	"	"	"	"	"	
Dieldrin	ND	5.0	"	"	"	"	"	"	
Endosulfan I	ND	8.5	"	"	"	"	"	"	
Endosulfan II	ND	17	"	"	"	"	"	"	
Endosulfan sulfate	ND	17	"	"	"	"	"	"	
Endrin	ND	17	"	"	"	"	"	"	
Endrin aldehyde	ND	17	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	8.5	"	"	"	"	"	"	
Heptachlor	ND	8.5	"	"	"	"	"	"	
Heptachlor epoxide	ND	8.5	"	"	"	"	"	"	
Methoxychlor	ND	85	"	"	"	"	"	"	

Tetra Tech Inc	Project:	Duffel Property	
5012 Luce Ave Ste# 103	Project Number:	[none]	**CLS Work Order #: 19G0039**
McClellan, CA 95652	Project Manager:	Bryan Yates	COC #:

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
DP-PE-0.5 (13-16 Composite) (19G0039-20) Soil	**Sampled: 07/01/19 10:35**		**Received: 07/01/19 13:03**						**QRL-8**
Mirex	ND	17	µg/kg	5	1905401	"	07/02/19	EPA 8081A	
Toxaphene	ND	100	"	"	"	"	"	"	
Surrogate: Decachlorobiphenyl		*81 %*	*52-141*		"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*80 %*	*46-139*		"	"	"	"	
DP-PE-0.5 (17-20 Composite) (19G0039-25) Soil	**Sampled: 07/01/19 10:51**		**Received: 07/01/19 13:03**						
4,4´-DDD	ND	3.3	µg/kg	1	1905401	07/01/19	07/02/19	EPA 8081A	
4,4´-DDE	**57**	17	"	5	"	"	"	"	
4,4´-DDT	**43**	17	"	"	"	"	"	"	
Aldrin	ND	1.0	"	1	"	"	"	"	
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	**16**	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		*80 %*	*52-141*		"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*91 %*	*46-139*		"	"	"	"	

Tetra Tech Inc	Project:	Duffel Property	
5012 Luce Ave Ste# 103	Project Number:	[none]	**CLS Work Order #: 19G0039**
McClellan, CA 95652	Project Manager:	Bryan Yates	COC #:

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
DP-PE-0.5 (21-24 Composite) (19G0039-30) Soil	**Sampled: 07/01/19 11:08**		**Received: 07/01/19 13:03**						
4,4´-DDD	ND	3.3	µg/kg	1	1905401	07/01/19	07/02/19	EPA 8081A	
4,4´-DDE	**50**	17	"	5	"	"	"	"	
4,4´-DDT	**38**	17	"	"	"	"	"	"	
Aldrin	ND	1.0	"	1	"	"	"	"	
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	**5.8**	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		*66 %*	*52-141*		"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*71 %*	*46-139*		"	"	"	"	
DP-PE-0.5 (25-28 Composite) (19G0039-35) Soil	**Sampled: 07/01/19 11:42**		**Received: 07/01/19 13:03**						
4,4´-DDD	ND	3.3	µg/kg	1	1905401	07/01/19	07/02/19	EPA 8081A	
4,4´-DDE	**48**	17	"	5	"	"	"	"	
4,4´-DDT	ND	17	"	"	"	"	"	"	
Aldrin	ND	1.0	"	1	"	"	"	"	
alpha-BHC	ND	1.7	"	"	"	"	"	"	
beta-BHC	ND	1.7	"	"	"	"	"	"	

Tetra Tech Inc	Project:	Duffel Property	
5012 Luce Ave Ste# 103	Project Number:	[none]	**CLS Work Order #: 19G0039**
McClellan, CA 95652	Project Manager:	Bryan Yates	COC #:

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
DP-PE-0.5 (25-28 Composite) (19G0039-35) Soil	**Sampled: 07/01/19 11:42**		**Received: 07/01/19 13:03**						
Chlordane-technical	ND	3.3	µg/kg	1	1905401	"	07/02/19	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		*67 %*	*52-141*		"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*67 %*	*46-139*		"	"	"	"	

Tetra Tech Inc	Project:	Duffel Property	
5012 Luce Ave Ste# 103	Project Number:	[none]	**CLS Work Order #: 19G0039**
McClellan, CA 95652	Project Manager:	Bryan Yates	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
Batch 1905427 - EPA 3050B										
Blank (1905427-BLK1)				Prepared & Analyzed: 07/02/19						
Arsenic	ND	0.20	mg/kg							
LCS (1905427-BS1)				Prepared & Analyzed: 07/02/19						
Arsenic	8.50	0.20	mg/kg	10.0		85	75-125			
Matrix Spike (1905427-MS1)	**Source: 19G0039-05**			Prepared & Analyzed: 07/02/19						
Arsenic	11.9	2.0	mg/kg	10.0	3.65	83	75-125			
Matrix Spike Dup (1905427-MSD1)	**Source: 19G0039-05**			Prepared & Analyzed: 07/02/19						
Arsenic	11.5	2.0	mg/kg	10.0	3.65	79	75-125	3	30	

Tetra Tech Inc	Project:	Duffel Property	
5012 Luce Ave Ste# 103	Project Number:	[none]	**CLS Work Order #: 19G0039**
McClellan, CA 95652	Project Manager:	Bryan Yates	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
Batch 1905401 - LUFT-DHS GCNV										
Blank (1905401-BLK1)				Prepared: 07/01/19 Analyzed: 07/02/19						
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	*4.47*		"	*8.33*		*54*	*46-139*			
Surrogate: Decachlorobiphenyl	*6.13*		"	*8.33*		*74*	*52-141*			
LCS (1905401-BS1)				Prepared: 07/01/19 Analyzed: 07/02/19						
Aldrin	12.7	1.0	µg/kg	16.7		76	47-132			
gamma-BHC (Lindane)	14.2	1.7	"	16.7		85	56-133			
4,4´-DDT	17.1	3.3	"	16.7		103	46-137			
Dieldrin	15.1	1.0	"	16.7		91	44-143			
Endrin	20.5	3.3	"	16.7		123	30-147			
Heptachlor	14.3	1.7	"	16.7		86	33-148			
Surrogate: Tetrachloro-meta-xylene	*5.80*		"	*8.33*		*70*	*46-139*			

Tetra Tech Inc	Project:	Duffel Property	
5012 Luce Ave Ste# 103	Project Number:	[none]	**CLS Work Order #: 19G0039**
McClellan, CA 95652	Project Manager:	Bryan Yates	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
Batch 1905401 - LUFT-DHS GCNV										
LCS (1905401-BS1)				Prepared: 07/01/19 Analyzed: 07/02/19						
Surrogate: Decachlorobiphenyl	*6.70*		*µg/kg*	*8.33*		*80*	*52-141*			
LCS Dup (1905401-BSD1)				Prepared: 07/01/19 Analyzed: 07/02/19						
Aldrin	13.5	1.0	µg/kg	16.7		81	47-132	7	30	
gamma-BHC (Lindane)	14.9	1.7	"	16.7		89	56-133	5	30	
4,4´-DDT	17.2	3.3	"	16.7		103	46-137	0.7	30	
Dieldrin	15.4	1.0	"	16.7		92	44-143	2	30	
Endrin	21.0	3.3	"	16.7		126	30-147	2	30	
Heptachlor	15.1	1.7	"	16.7		91	33-148	6	30	
Surrogate: Tetrachloro-meta-xylene	*6.60*		*"*	*8.33*		*79*	*46-139*			
Surrogate: Decachlorobiphenyl	*6.81*		*"*	*8.33*		*82*	*52-141*			
Matrix Spike (1905401-MS1)		**Source: 19G0036-05**		Prepared: 07/01/19 Analyzed: 07/02/19						**QRL-8**
Aldrin	8.77	5.0	µg/kg	16.7	ND	53	47-138			
gamma-BHC (Lindane)	9.12	8.5	"	16.7	ND	55	38-144			
4,4´-DDT	5.59	17	"	16.7	ND	34	41-157			QM-7
Dieldrin	9.36	5.0	"	16.7	ND	56	46-155			
Endrin	12.6	17	"	16.7	ND	76	34-149			
Heptachlor	8.19	8.5	"	16.7	ND	49	36-155			
Surrogate: Tetrachloro-meta-xylene	*10.9*		*"*	*20.8*		*52*	*46-139*			
Surrogate: Decachlorobiphenyl	*15.1*		*"*	*20.8*		*72*	*52-141*			
Matrix Spike Dup (1905401-MSD1)		**Source: 19G0036-05**		Prepared: 07/01/19 Analyzed: 07/02/19						**QRL-8**
Aldrin	10.3	5.0	µg/kg	16.7	ND	62	47-138	16	35	
gamma-BHC (Lindane)	9.84	8.5	"	16.7	ND	59	38-144	8	35	
4,4´-DDT	4.84	17	"	16.7	ND	29	41-157	14	35	QM-7
Dieldrin	10.7	5.0	"	16.7	ND	64	46-155	13	35	
Endrin	14.3	17	"	16.7	ND	86	34-149	12	35	
Heptachlor	9.19	8.5	"	16.7	ND	55	36-155	12	35	
Surrogate: Tetrachloro-meta-xylene	*11.6*		*"*	*20.8*		*56*	*46-139*			
Surrogate: Decachlorobiphenyl	*14.7*		*"*	*20.8*		*70*	*52-141*			

Tetra Tech Inc	Project:	Duffel Property	
5012 Luce Ave Ste# 103	Project Number:	[none]	**CLS Work Order #: 19G0039**
McClellan, CA 95652	Project Manager:	Bryan Yates	COC #:

Notes and Definitions

QRL-8	The extract of this sample was dark and/or oily. Therefore, the sample was analyzed with a dilution and the reporting limit was raised for all target compounds.
QM-7	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS and/or LCSD recovery.
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