Port San Luis Harbor District

Sediment Sampling and Analysis Report in Support of 2019 Dredge Permit Renewal

March 18, 2019

ESLO2019-005.1

Submitted to:
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1.0 Introduction

In order to maintain accessibility to its boat launching facilities, the Port San Luis Harbor District must periodically dredge the approaches to its Mobile Hoist Pier and Sport Launch. Dredging activities, and the subsequent deposition of the dredge spoils, are regulated by the U. S. Army Corps of Engineers (ACOE) as specified in Dredging Permit #200201383-LM, and by the California Coastal Commission (CCC) as set forth in Coastal Development Permit No. 3-08-038.

In February of 2019, Port San Luis Harbor District (the Port) submitted a sampling and analysis plan (SAP) for the testing of sediments to be collected from the Port San Luis dredge site to the California Coastal Commission (CCC). The SAP was assembled in accordance with the U. S. Environmental Protection Agency (EPA) 1998 "Evaluation of Dredged Material Proposed for Discharge in the Waters of the U.S. – Testing Manual (Inland Testing Manual)" (EPA 1998). In February 2019, the SAP was approved by the CCC and sediment samples were collected from sampling areas identified in the approved SAP. These sampling areas were the two proposed dredge areas and the two disposal sites currently intended for use by the Port. The samples were submitted for chemical and physical analysis in accordance with the SAP. This report documents the collection and analysis of those samples. Results of the analyses are summarized in the report and all laboratory reports are included in the appendices.

2.0 Project Description

Port San Luis Harbor District (the Port) proposes to dredge bottom sediments from two locations – the basins adjacent to the Mobile Hoist Pier and the Sport Launch (referred to as the Trailer Boat Launch in some of the past documents submitted to the ACOE) down to a depth of –10 feet below Mean Lower Low Water (MLLW). These areas are indicated in **Figure 1** in relation to the dredge areas and the six dredge spoil disposal sites approved in ACOE Dredging Permit #200201383-LM and the previous CDP permit. It should be noted that although the permitted dredge area encompasses 32 acres, at the present time and for the foreseeable future dredging will be limited to the smaller areas adjacent to the Sport Launch and the Mobile Hoist Pier.

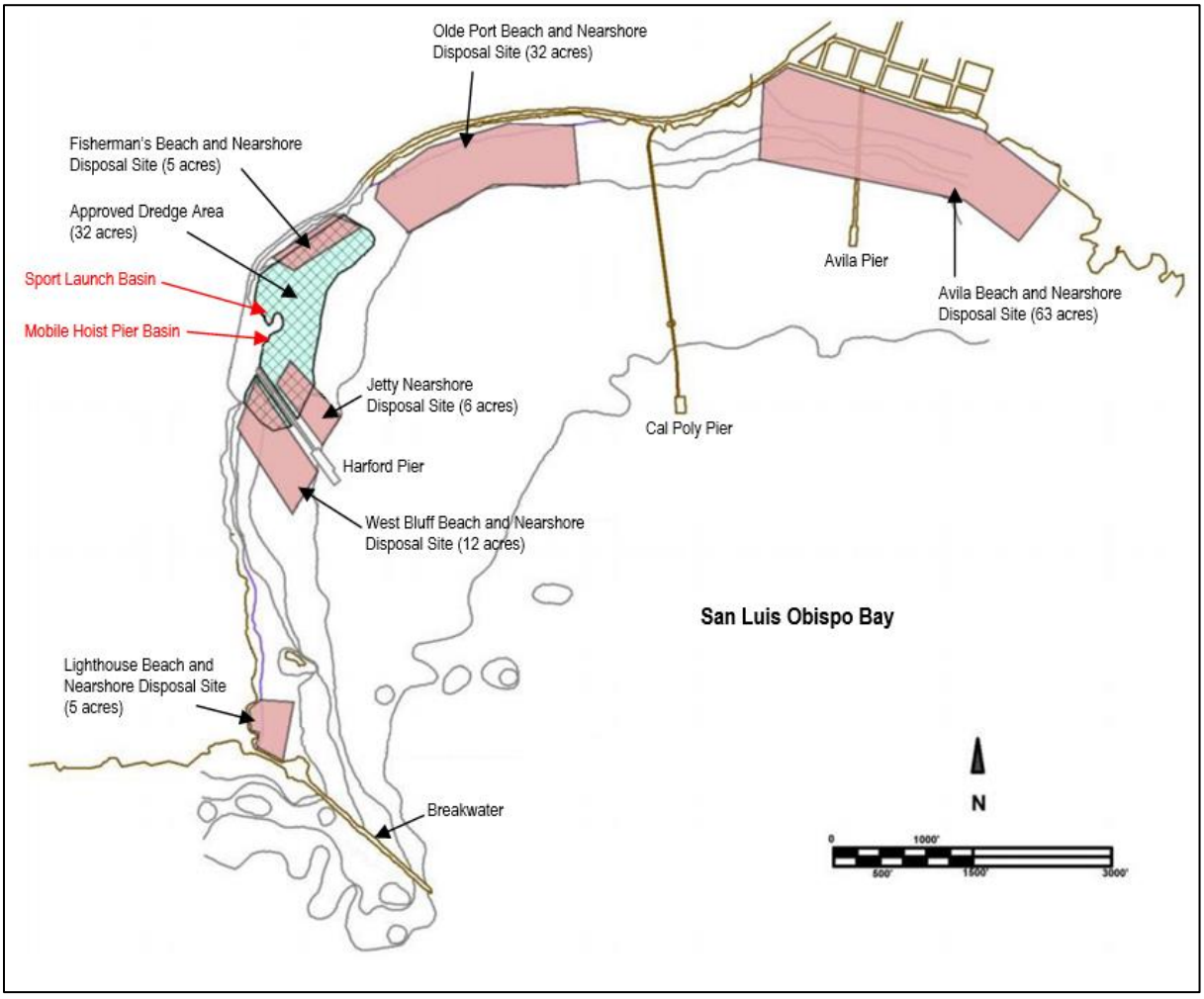

Figure 1. Intended dredging locations (Sport Launch basin and Mobile Hoist Pier basin) in relation to the previously approved dredge area and dredge disposal sites for Port San Luis Harbor District in San Luis Obispo Bay.

According to the existing ACOE permit and the previous CDP permit, the maximum dredge depth permitted is 10 feet below MLLW, with an additional foot to allow for over-dredging. Sand in the vicinity of Mobile Hoist Pier will be removed to the maximum depth allowed. Dredging in the vicinity of the Sport Launch, however, is limited by the nature of the bottom substrate. An underlying rocky bottom limits dredging in the area immediately adjacent to the Sport Launch to about 5 to 7 feet below MLLW. The depth to which dredgeable material can be found increases as one moves away from the Sport Launch, and dredging will extend to the maximum depth of 10 feet below MLLW where it can be achieved.

The Port anticipates that the volume of sediment to be removed annually from the entire dredge area will not exceed the maximum 250,000 cubic yards of material currently allowed by their ACOE dredge permit. Over the past five years (2014 through 2018) the average annual volume of material removed during maintenance dredging has been 17,549 cubic yards (**Table 1**). The Port anticipates that a similar volume of material will be removed annually for the foreseeable future.

Dredged material may be used for beach nourishment at any of the six sites shown in **Figure 1** according to the existing ACOE permit and the previous CDP permit. Fisherman's Beach is currently being used exclusively for beach nourishment. West Bluff Beach is also under consideration by the Port as a potential alternative site. The Port does not anticipate using any of the other four sites in the foreseeable future.

3.0 Site History

Port San Luis Harbor is a small craft harbor located in the lee of Point San Luis about 8 miles southwest of the city of San Luis Obispo, California. The harbor is protected by a rock rubble breakwater that extends southeast from Point San Luis for a distance of about 2,000 feet. While the point and breakwater provide adequate protection from the majority of the predominantly northwesterly swells, the high-energy nature of the ocean along this section of coastline can still produce significant water movement within the harbor. This is most notable during southerly and southwesterly swells, or during the larger northwesterly swells generated by winter storms. Wave action, combined with non-wave driven currents, is responsible for the transport of sand and other suspended particles from San Luis Creek and the outer coastal areas into the quieter waters of the harbor where they are deposited. Sand deposited in the lee of the breakwater is later transported within the harbor and contributes to the shoaling in areas like the Mobile Hoist Pier and the Sport Launch basins. This ongoing process necessitates the periodic dredging of these areas to allow their continued access by boats.

The volume of material dredged from the Sport Launch and Mobile Hoist Pier basins during the period from 1994 through the present is shown in **Table 1**.

Table 1. Recent dredge activity at Port San Luis, California.

Period of Dredge Activity	Sport Launch Dredge Vol. (yds^3)	Mobile Hoist Pier Dredge Vol. (yds^3)	Total Dredge Vol. (yds^3)
03/03-05/03	10,560	7,995	18,555
03/04-05/04	7,507	4,620	12,127
03/05-05/05	8,032	5,115	13,147
03/06-08/06	17,605	6,551	24,156
03/07-08/07	15,012	6,930	21,942
03/08-07/08	9,660	8,085	17,745
03/09-06/09	11,655	6,335	17,990
03/10-10/10	21,175	18,673	39,848
03/11-05/11	11,565	6,139	17,704
03/12-06/12	19,682	10,287	29,969
03/13-09/13	23,800	22,050	45,850
03/14-06/14	11,699	6,414	18,113
03/15-07/15	10,999	6,674	17,673
03/16-06/16	8,505	5,395	13,900
03/17-08/17	17,579	5,549	23,127
03/18-06/18	9,383	5,549	14,931

4.0 Tier 1 Evaluation

As described in the ACOE and EPA "Inland Testing Manual" (ACOE & EPA 1998), a Tier I evaluation should rely upon readily available, existing information (including all previous testing). Sediment samples were collected from the dredge areas and analyzed for their chemical constituents and physical characteristics (grain size) in 1996, 1998, 1999, 2000, 2003, 2009 and 2013. The results of these analyses were reported to the ACOE by the Port San Luis Harbor District at the conclusion of each sampling interval. Physical and chemical analyses of the sediment samples found the material to be relatively clean, coarse to medium grained sand with a low percentage of fines. Such characteristics would be consistent with those expected of sediments that had recently been deposited in an area of relatively high water movement. The annual dredging of the sediments reduces their potential to accumulate any contaminants, while water movement would inhibit the deposition of finer grained sediments. The frequency of dredging and the rapidity with which shoaling takes place in the dredge zone, inhibits stratification of the sediments in this area.

5.0 Methods

Two sediment sampling stations (PSL-1 and PSL-2) were established within the PSL dredge zone as shown in **Figure 2**. The locations of the sampling stations were chosen to place them adjacent to the principal storm drains that discharge into the dredge area. Proximity of the sampling stations to these discharge points should maximize the probability of sampling any potential contaminants that have accumulated in the sediments from land-based sources. The locations of areas of potential pollutant contact are also shown in **Figure 2**, as is the direction of runoff, runoff discharge points and the positions of the sediment sampling stations relative to the discharge points. Each of the stations specified has been sampled at least four times previously during the period from 1996 through 2013.

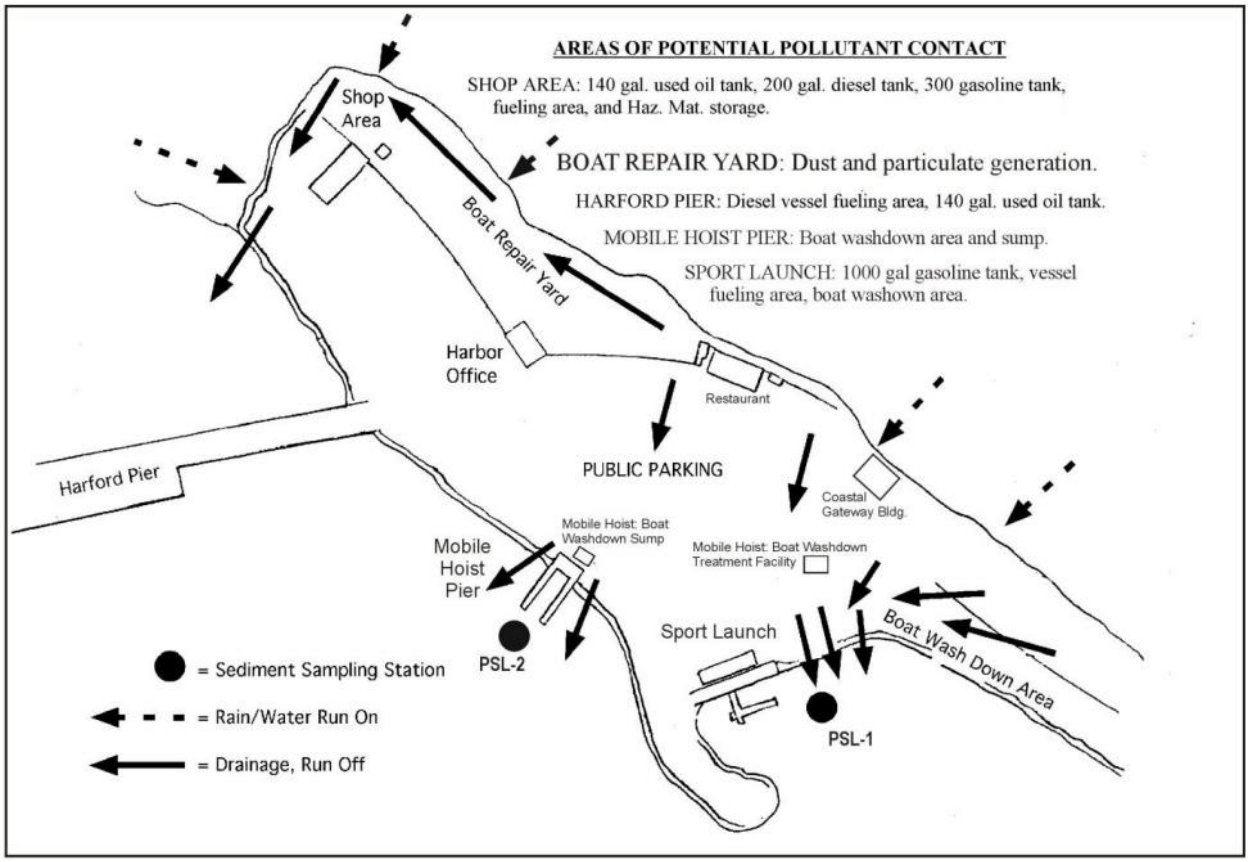

Figure 2. Port San Luis drainage, potential sediment contaminants, and sediment sampling sites.

To accurately characterize the sediments at each of the sampling stations, three individual cores were collected along a line running perpendicular to the shoreline and proceeding down the natural slope of the bottom as shown in **Figure 3**. Individual cores were capped and extruded, then combined to produce a composite sample representative of the mixed material that will be deposited on the beach by the dredge. All sediment samples were collected using a diver-operated coring device. The device utilizes a 2-inch diameter stainless steel tube with a

removable plastic liner. Each individual core was driven into the sediment achieving a nominal core length of 3 feet. The composited samples cover the entire depth range of the area to be dredged, extending down to 11 feet below MLLW. Information from the core samples is summarized in **Table 2**. The locations of the individual cores are shown in.

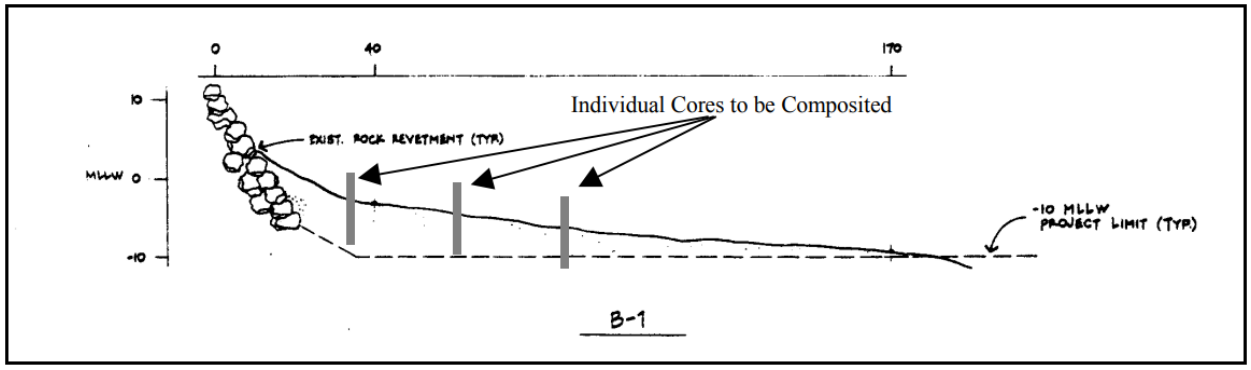

Figure 3. Profile of core sampling technique.

Table 2. Field data for core samples taken at Port San Luis Harbor on February 12, 2019.

Station	Time (PDT)	Water Depth (ft)	Depth of Core (ft)	Tide (ft MLLW)	Tide adjusted core depth (ft MLLW)	Composite Core Depths (ft MLLW)
PSL-1a	0810	4.9	3.0	1.9	-3.0 to -6.0	-3 to -10.5
PSL-1b	0820	8.0	3.0	1.8	-6.2 to -9.2	
PSL-1c	0835	9.2	3.0	1.7	-7.5 to -10.5	
PSL-2a	0900	5.5	3.0	1.6	-3.9 to -6.9	-3.9 to -11.0
PSL-2b	0915	7.2	3.0	1.5	-5.7 to -8.7	
PSL-2c	0924	9.5	3.0	1.5	-8.0 to -11.0	

For the purpose of subsequent physical and chemical analyses, three sub-samples were taken from each composite sample. One subsample was used for chemical analyses, another for particle grain size analysis, and a third sample was archived. The chemical constituents that were tested are shown in **Table 3**. The methods used for chemical analyses and the acceptable detection limits for these tests are specified in the EPA's 1995 "QA/QC Guidance for Sampling and Analysis of Sediments, Water and Tissues for Dredged Material Evaluations – Chemical Evaluations" (EPA 1995) and is cited by the "Inland Testing Manual" (EPA 1998) as the source of this information. In some cases, newer or revised methods of analysis have been substituted based on laboratory recommendations.

Table 3. Chemical constituents tested and methods of analysis for sediment samples.

Chemical Constituent	EPA Method
Metals	
Arsenic (As)	EPA 3050 / EPA 200.7
Cadmium (Cd)	EPA 3050 / EPA 200.7
Chromium (Cr)	EPA 3050 / EPA 200.7
Copper (Cu)	EPA 3050 / EPA 200.7
Lead (Pb)	EPA 3050 / EPA 200.7
Mercury (Hg)	EPA 7471 / EPA 245.1
Nickel (Ni)	EPA 3050 / EPA 200.7
Selenium (Se)	EPA 3050 / EPA 200.7
Silver (Ag)	EPA 3050 / EPA 200.7
Zinc (Zn)	EPA 3050 / EPA 200.7
Total sulfides	EPA 9034
Organo-chlorine pesticides	EPA 8081
Non-polar oil and grease	EPA 1664B
Oil and grease	EPA 1664M
Polynuclear Aromatic Hydrocarbons (PAH)	EPA 8270C

Samples taken for particle grain size analysis only, were collected from the two sites that are currently being used for dredge disposal. Samples from Fisherman's Beach, and West Bluff Beach disposal sites were collected from approximately 3 feet above MLLW elevation (**Figure 4**). The two resultant samples were analyzed for grain size distribution to determine their compatibility with sediments collected from the dredge area sampling stations. Current ACOE guidance requires that the percentage of dredge area and disposal site sediments that are retained by a #200 sieve be within 10% of each other to be considered compatible.

Figure 4. Locations of sediment cores taken for Dredge Site samples and grab samples taken for Disposal Site sampling.

6.0 Results

Potential contaminants were tested at the Sport Launch and Mobile Hoist Pier locations where dredging is anticipated to occur. These two locations were also sampled in 2013 as part of the previous permit renewal for the same chemical parameters. The results of the chemical and particle size analyses performed on the sediment samples collected from Port San Luis on February 12, 2019 are shown in **Table 4**. Copies of the chemical analysis data sheets supplied by FGL Laboratories are included in Appendix A.

Table 4. Results of laboratory analysis of chemical constituents and Effects Range Low (ERL) guidelines for metals (Long et al. 1995). Results below the ERL are indicated in green; above the ERL indicated in red.

Chemical Constituent	Detection limit* (mg/kg)	Sport Launch (mg/kg)	Mobile Hoist (mg/kg)	ERL (mg/kg)
Metals				
Arsenic (As)	0.5	2.6	2.4	**8.2**
Cadmium (Cd)	0.3	ND	ND	**1.2**
Chromium (Cr)	0.5	16.1	14.0	**81**
Copper (Cu)	0.5	4	4.5	**34**
Lead (Pb)	1	3	2	**46.7**
Mercury (Hg)	0.03	ND	ND	**0.15**
Nickel (Ni)	0.5	13.3	11.4	**20.9**
Selenium (Se)	0.5	ND	ND	
Silver (Ag)	0.5	ND	ND	**1.0**
Zinc (Zn)	1	14	14	**150**
Total sulfides	20*	ND	ND	
Organo-chlorine pesticides	0.021–0.43	ND	ND	
Non-polar oil and grease	500	ND	ND	
Oil and grease	500	ND	ND	
Polynuclear Aromatic Hydrocarbons (PAH)	0.07	ND	ND	

ND = none detected

* See appendices. Detection limits vary by parameter and test. Either, PQL, MDL, or MRL

Grain size analysis was completed for four locations; both dredge sample sites and two beach disposal sites. These four locations were also sampled on October 11, 2013 as part of the previous permit renewal. The results of the grain size analysis for these sites are shown in **Table 5** alongside the previous results for October 2013. The gravel fraction is the proportion of sediment retained by a #8 US Standard sieve. The sand fraction is the proportion of sediment passing through a #8 and retained by a #200 US Standard sieve. The silt-and-clay fraction is the proportion of sediment passing through a #200 US Standard sieve. The grain analysis indicates that all four locations mainly consisted of sandy material and had comparable percentages of fine sediments as required by ACOE guidance. Copies of the particle size analysis data sheets supplied by Earth Systems Pacific are included in Appendix B.

Table 5. Grain size analysis for 2019 and 2013 at four locations.

	2019			2013		
Site	**Gravel**	**Sand**	**Silt and Clay**	**Gravel**	**Sand**	**Silt and Clay**
Sport Launch	0.0%	97.1%	2.9%	1.0%	94.9%	4.1%
Mobile Hoist Pier	0.0%	97.3%	2.7%	0.0%	96.7%	3.3%
Fisherman's Beach	0.0%	98.9%	1.1%	0.0%	98.0%	2%
West Bluff Beach	1.0%	98.2%	0.8%	6.0%	92.6%	1.4%

7.0 Discussion

The Sport Launch and Mobile Hoist Pier proposed dredge locations are exposed coastal locations subject to wind-, wave- and tide-driven circulation within San Luis Bay. The persistent circulation of water, regular dredging activity, and the very low percentage of fine grain (silt-and-clay) particles results in a very low likelihood of contaminant accumulation at these locations. The Sport Launch is the most likely location to experience a risk of contaminant accumulation due to the high levels of recreational boating activity at this location. Furthermore, the short artificial breakwater that protects the Sport Launch basin would be expected to reduce water circulation and subsequently increase retention times for contaminants and smaller grain particles. Increasing contaminant residence times increases the potential for the accumulation of fine grain sediments and of contaminants that bind more readily with grains of smaller sizes. However, it is apparent from the grain size analysis that the breakwater does not result in detectable increase of fine grain sediments (silt-and-clay) at this site. Instead, the grain size analysis indicates that the material at the Sport Launch, Mobile Hoist Pier and the adjacent beach locations are very similar. The material collected was predominantly sandy sediments with very small proportions of silt-and-clay and even less gravel. It is highly likely that the material accumulating in the Sport Launch and Mobile Hoist Pier basins between periods of regular annual dredging originate from the adjacent beach areas.

Contaminants bind more readily with grains of smaller sizes. The sandy nature of the sediments at both the Sport Launch and Mobile Hoist Pier locations reduces the likelihood of accumulation of contaminants that may enter the water due to activities in and around these port facilities. The results indicate that the sediments are relatively clean of contaminants. Of the metals that were detected, the concentrations present were well below the effects range-low (ERL) levels described by E.R Long (1995) as the level below which the likelihood of adverse biological effects would be minimal. Long's work is generally accepted as a standard in the evaluation of the potential biological effects of chemical contaminants in marine and estuarine sediments. No organo-pesticides or PAH's were detected in any of the samples. The samples were also free of sulfides.

8.0 Literature Cited

EPA. 1995. QC/QA Guidance for Sampling and Analysis of Sediments, Water, and Tissues for Dredged Material Evaluations – Chemical Evaluations. EPA-823-B-95- 001.

EPA. 1998. Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. – Testing Manual – Inland Testing Manual. EPA-823-B-98-004.

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. Environmental Management Vol. 19, No. 1, pp. 81-97.

Tenera. 2003. Sediment Sampling and Analysis Report in Support of 2003 Dredge Permit Application. Prepared for Port San Luis Harbor District. 17 p. plus appendices.

Tenera. 2009. Sediment Sampling and Analysis Report in Support of Coastal Development Permit No. 3-08-038. Prepared for Port San Luis Harbor District. 17 p. plus appendices.

Appendix A

Laboratory Data Reports

February 28, 2019

Tenera Environmental
141 Suburban Rd., Suite A2
San Luis Obispo, CA 93401

Lab ID : CC 1980495
Customer : 8-769

Laboratory Report

Introduction: This report package contains total of 7 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(2 pages)	: Results for each sample submitted.
Quality Control	(3 pages)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
PSL - 1	02/12/2019	02/12/2019	CC 1980495-001	Sld
PSL - 2	02/12/2019	02/12/2019	CC 1980495-002	Sld

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived on ice. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Inorganic - Metals QC

200.7	02/27/2019:202892 All analysis quality controls are within established criteria.
245.1	02/15/2019:202208 All analysis quality controls are within established criteria.
3050	02/26/2019:202168 All preparation quality controls are within established criteria, except: The following note applies to Zinc: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery. The following note applies to Chromium, Nickel, Lead, Zinc: 430 Post Digestion Spike (PDS) not within Acceptance Range (AR) because of matrix interferences affecting this analyte. Data was accepted based on the LCS recovery.
7471	02/14/2019:201659 All preparation quality controls are within established criteria.

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February 28, 2019 Lab ID : CC 1980495
Tenera Environmental Customer : 8-769

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2019-02-28

February 28, 2019

Tenera Environmental
141 Suburban Rd., Suite A2
San Luis Obispo, CA 93401

Lab ID : CC 1980495-001
Customer ID : 8-769

Sampled On : February 12, 2019-08:10
Sampled By : Andrew Harmer /Gery
Received On : February 12, 2019-12:25
Matrix : Solid

Description : PSL - 1
Project : Port San Luis Sediment

Sample Result - Inorganic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Metals, Total								
Arsenic	2.6	0.5	mg/kg		3050	02/26/19:202168	200.7	02/27/19:202892
Cadmium	ND	0.3	mg/kg		3050	02/26/19:202168	200.7	02/27/19:202892
Chromium	16.1	0.5	mg/kg		3050	02/26/19:202168	200.7	02/27/19:202892
Copper	4.0	0.5	mg/kg		3050	02/26/19:202168	200.7	02/27/19:202892
Lead	3	1	mg/kg		3050	02/26/19:202168	200.7	02/27/19:202892
Mercury	ND	0.03	mg/kg		7471	02/14/19:201659	245.1	02/15/19:202208
Nickel	13.3	0.5	mg/kg		3050	02/26/19:202168	200.7	02/27/19:202892
Selenium	ND	0.5	mg/kg		3050	02/26/19:202168	200.7	02/27/19:202892
Silver	ND	0.5	mg/kg		3050	02/26/19:202168	200.7	02/27/19:202892
Zinc	14	1	mg/kg		3050	02/26/19:202168	200.7	02/27/19:202892

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

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February 28, 2019

Tenera Environmental
141 Suburban Rd., Suite A2
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Lab ID : CC 1980495-002
Customer ID : 8-769

Sampled On : February 12, 2019-09:00
Sampled By : Andrew Harmer /Gery
Received On : February 12, 2019-12:25
Matrix : Solid

Description : PSL - 2
Project : Port San Luis Sediment

Sample Result - Inorganic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Metals, Total								
Arsenic	2.4	0.5	mg/kg		3050	02/26/19:202168	200.7	02/27/19:202892
Cadmium	ND	0.3	mg/kg		3050	02/26/19:202168	200.7	02/27/19:202892
Chromium	14.0	0.5	mg/kg		3050	02/26/19:202168	200.7	02/27/19:202892
Copper	4.5	0.5	mg/kg		3050	02/26/19:202168	200.7	02/27/19:202892
Lead	2	1	mg/kg		3050	02/26/19:202168	200.7	02/27/19:202892
Mercury	ND	0.03	mg/kg		7471	02/14/19:201659	245.1	02/15/19:202208
Nickel	11.4	0.5	mg/kg		3050	02/26/19:202168	200.7	02/27/19:202892
Selenium	ND	0.5	mg/kg		3050	02/26/19:202168	200.7	02/27/19:202892
Silver	ND	0.5	mg/kg		3050	02/26/19:202168	200.7	02/27/19:202892
Zinc	14	1	mg/kg		3050	02/26/19:202168	200.7	02/27/19:202892

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

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February 28, 2019 Lab ID : CC 1980495
Tenera Environmental Customer : 8-769

Quality Control - Inorganic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Arsenic	200.7	02/27/19:202892AC	CCV	ppm	1.000	97.3 %	90-110	
			CCB	ppm		0.0070	0.01	
			CCV	ppm	1.000	102 %	90-110	
			CCB	ppm		0.0053	0.01	
Cadmium	200.7	02/27/19:202892AC	CCV	ppm	1.000	99.7 %	90-110	
			CCB	ppm		-0.00006	0.005	
			CCV	ppm	1.000	97.4 %	90-110	
			CCB	ppm		0.00006	0.005	
Chromium	200.7	02/27/19:202892AC	CCV	ppm	1.000	98.9 %	90-110	
			CCB	ppm		-0.00005	0.01	
			CCV	ppm	1.000	95.6 %	90-110	
			CCB	ppm		0.00008	0.01	
Copper	200.7	02/27/19:202892AC	CCV	ppm	1.000	98.5 %	90-110	
			CCB	ppm		-.000004	0.01	
			CCV	ppm	1.000	97.4 %	90-110	
			CCB	ppm		-0.0002	0.01	
Lead	200.7	02/27/19:202892AC	CCV	ppm	1.000	99.8 %	90-110	
			CCB	ppm		0.0018	0.01	
			CCV	ppm	1.000	98.4 %	90-110	
			CCB	ppm		0.0011	0.01	
Nickel	200.7	02/27/19:202892AC	CCV	ppm	1.000	99.6 %	90-110	
			CCB	ppm		-0.0003	0.01	
			CCV	ppm	1.000	97.0 %	90-110	
			CCB	ppm		-0.0001	0.01	
Selenium	200.7	02/27/19:202892AC	CCV	ppm	1.000	98.1 %	90-110	
			CCB	ppm		-0.0051	0.01	
			CCV	ppm	1.000	101 %	90-110	
			CCB	ppm		-0.0006	0.01	
Silver	200.7	02/27/19:202892AC	CCV	ppm	1.000	101 %	90-110	
			CCB	ppm		-0.00001	0.01	
			CCV	ppm	1.000	102 %	90-110	
			CCB	ppm		0.00009	0.01	
Zinc	200.7	02/27/19:202892AC	CCV	ppm	1.000	102 %	90-110	
			CCB	ppm		-0.0002	0.02	
			CCV	ppm	1.000	100 %	90-110	
			CCB	ppm		0.00008	0.02	
Mercury	245.1	02/15/19:202208AC	CCV	ppb	4.000	104 %	90-110	
			CCB	ppb		-0.08	20	
			CCV	ppb	4.000	100 %	90-110	
			CCB	ppb		-0.08	20	
Arsenic	3050	02/26/19:202168EMM	Blank	mg/kg		ND	<0.5	
			LCS	mg/kg	40.00	97.4 %	85-115	
			MS	mg/kg	40.00	96.6 %	75-125	
		(CC 1980495-001)	MSD	mg/kg	40.00	90.6 %	75-125	
			MSRPD	mg/kg	40.00	6.0%	≤20	
			PDS	mg/kg	40.00	88.8 %	75-125	
Cadmium	3050	02/26/19:202168EMM	Blank	mg/kg		ND	<0.3	
			LCS	mg/kg	40.00	92.3 %	85-115	
			MS	mg/kg	40.00	82.1 %	75-125	
		(CC 1980495-001)	MSD	mg/kg	40.00	81.4 %	75-125	
			MSRPD	mg/kg	40.00	0.9%	≤20	
			PDS	mg/kg	40.00	78.6 %	75-125	
Chromium	3050	02/26/19:202168EMM	Blank	mg/kg		ND	<0.5	
			LCS	mg/kg	40.00	96.5 %	85-115	
			MS	mg/kg	40.00	79.6 %	75-125	

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February 28, 2019 Lab ID : CC 1980495
Tenera Environmental Customer : 8-769

Quality Control - Inorganic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Chromium	3050	(CC 1980495-001)	MSD	mg/kg	40.00	80.6 %	75-125	
			MSRPD	mg/kg	40.00	0.9%	≤20	
			PDS	mg/kg	40.00	73.8 %	75-125	430
Copper	3050	02/26/19:202168EMM	Blank	mg/kg		ND	<0.5	
			LCS	mg/kg	40.00	97.8 %	85-115	
			MS	mg/kg	40.00	88.8 %	75-125	
		(CC 1980495-001)	MSD	mg/kg	40.00	88.6 %	75-125	
			MSRPD	mg/kg	40.00	0.2%	≤20	
			PDS	mg/kg	40.00	86.2 %	75-125	
Lead	3050	02/26/19:202168EMM	Blank	mg/kg		ND	<1	
			LCS	mg/kg	40.00	94.4 %	85-115	
			MS	mg/kg	40.00	75.8 %	75-125	
		(CC 1980495-001)	MSD	mg/kg	40.00	75.7 %	75-125	
			MSRPD	mg/kg	40.00	0.2%	≤20	
			PDS	mg/kg	40.00	73.2 %	75-125	430
Nickel	3050	02/26/19:202168EMM	Blank	mg/kg		ND	<0.5	
			LCS	mg/kg	40.00	96.7 %	85-115	
			MS	mg/kg	40.00	76.1 %	75-125	
		(CC 1980495-001)	MSD	mg/kg	40.00	75.3 %	75-125	
			MSRPD	mg/kg	40.00	0.7%	≤20	
			PDS	mg/kg	40.00	72.6 %	75-125	430
Selenium	3050	02/26/19:202168EMM	Blank	mg/kg		ND	<0.5	
			LCS	mg/kg	40.00	96.3 %	85-115	
			MS	mg/kg	40.00	95.6 %	75-125	
		(CC 1980495-001)	MSD	mg/kg	40.00	90.9 %	75-125	
			MSRPD	mg/kg	40.00	5.0%	≤20	
			PDS	mg/kg	40.00	88.4 %	75-125	
Silver	3050	02/26/19:202168EMM	Blank	mg/kg		ND	<0.5	
			LCS	mg/kg	40.00	95.0 %	85-115	
			MS	mg/kg	40.00	85.5 %	75-125	
		(CC 1980495-001)	MSD	mg/kg	40.00	84.0 %	75-125	
			MSRPD	mg/kg	40.00	1.7%	≤20	
			PDS	mg/kg	40.00	83.8 %	75-125	
Zinc	3050	02/26/19:202168EMM	Blank	mg/kg		ND	<1	
			LCS	mg/kg	40.00	95.1 %	85-115	
			MS	mg/kg	40.00	69.1 %	75-125	435
		(CC 1980495-001)	MSD	mg/kg	40.00	70.9 %	75-125	435
			MSRPD	mg/kg	40.00	1.6%	≤20	
			PDS	mg/kg	40.00	67.5 %	75-125	430
Mercury	7471	02/14/19:201659ac	Blank	mg/kg		ND	<0.03	
			LCS	mg/kg	0.2500	97.2 %	85-115	
			MS	mg/kg	0.2500	102 %	75-125	
		(STK1931527-001)	MSD	mg/kg	0.2500	103 %	75-125	
			MSRPD	mg/kg	0.2500	1.2%	≤20	

Definition

PDS	: PDS failed, matrix - Post Digestion Spike (PDS) not within Acceptance Range (AR) because of matrix interferences affecting this analyte. Data was accepted based on the LCS recovery.
CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.

February 28, 2019 Lab ID : CC 1980495
Tenera Environmental Customer : 8-769

Quality Control - Inorganic

Definition	
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
ND	: Non-detect - Result was below the DQO listed for the analyte.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.
Explanation	
430	: Post Digestion Spike (PDS) not within Acceptance Range (AR) because of matrix interferences affecting this analyte. Data was accepted based on the LCS recovery.
435	: Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

March 15, 2019

Tenera Environmental
141 Suburban Rd., Suite A2
San Luis Obispo, CA 93401

Subject: Subcontract Analyses for FGL Lab No. CC 1980495

Enclosed please find results for the following sample(s) which were received by FGL.

- Sub Organic-Organochlorine Pesticides by EPA 8081
- Sub Contracted-Oil & Grease - Non-Polar by EPA 1664B
- Sub Contracted-Oil & Grease - by EPA 1664M
- Sub Contracted-(PAH) by 8270C

Please note that this analysis was performed by Weck Laboratories, Inc. (ELAP Certified Laboratory)

Thank you for using FGL Environmental.

Sincerely,

Cindy Aguirre Digitally signed by Cindy Aguirre
Title: Customer Service Rep
Date: 2019-03-15

Enclosure

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 9B13025

Project: CC1980495

Attn: Cindy Aguirre

Client: FGL Environmental
853 Corporation Street
Santa Paula, CA 93060

Report Date: 3/15/2019

Received Date: 2/13/2019

Turnaround Time: Normal

Phones: (805) 392-2012

Fax: (805) 525-4172

P.O. #:

Billing Code:

Dear Cindy Aguirre,

Enclosed are the results of analyses for samples received 2/13/19 with the Chain-of-Custody document. The samples were received in good condition, at 5.3 °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: PSL-1
9B13025-01 (Solid)

Sampled: 02/12/19 8:10 by G. Cox/ A/ Harmer

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 1664M **Batch ID:** W9B1598 **Instr:** CONC03 **Prepared:** 02/28/19 09:44 **Analyst:** arb						
Oil & Grease (HEM)	ND	500	mg/kg	1	02/28/19 17:02	
Oil & Grease, Non-polar	ND	500	mg/kg	1	02/28/19 17:02	
Method: EPA 8081A **Batch ID:** W9B1023 **Instr:** GC07 **Prepared:** 02/19/19 13:48 **Analyst:** adm						
4,4´-DDD	ND	21	ug/kg	1	02/28/19 06:26	M-02
4,4´-DDE	ND	21	ug/kg	1	02/28/19 06:26	M-02
4,4´-DDT	ND	21	ug/kg	1	02/28/19 06:26	M-02
Aldrin	ND	21	ug/kg	1	02/28/19 06:26	M-02
alpha-BHC	ND	21	ug/kg	1	02/28/19 06:26	M-02
beta-BHC	ND	21	ug/kg	1	02/28/19 06:26	M-02
Chlordane (tech)	ND	430	ug/kg	1	02/28/19 06:26	M-02
delta-BHC	ND	21	ug/kg	1	02/28/19 06:26	M-02
Dieldrin	ND	21	ug/kg	1	02/28/19 06:26	M-02
Endosulfan I	ND	21	ug/kg	1	02/28/19 06:26	M-02
Endosulfan II	ND	21	ug/kg	1	02/28/19 06:26	M-02
Endosulfan sulfate	ND	21	ug/kg	1	02/28/19 06:26	M-02
Endrin	ND	21	ug/kg	1	02/28/19 06:26	M-02
Endrin aldehyde	ND	21	ug/kg	1	02/28/19 06:26	M-02
gamma-BHC (Lindane)	ND	21	ug/kg	1	02/28/19 06:26	M-02
Heptachlor	ND	21	ug/kg	1	02/28/19 06:26	M-02
Heptachlor epoxide	ND	21	ug/kg	1	02/28/19 06:26	M-02

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Sample Results

(Continued)

Sample: PSL-1

Sampled: 02/12/19 8:10 by G. Cox/ A/ Harmer

9B13025-01 (Solid)

(Continued)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 8081A (Continued) **Batch ID:** W9B1023 **Instr:** GC07 **Prepared:** 02/19/19 13:48 **Analyst:** adm						
Methoxychlor	ND	21	ug/kg	1	02/28/19 06:26	M-02
Toxaphene	ND	640	ug/kg	1	02/28/19 06:26	M-02
Surrogate(s)						
Decachlorobiphenyl	*95%*	*21-125*	*Conc: 203*		*02/28/19 06:26*	*M-02*
Tetrachloro-meta-xylene	*104%*	*18-112*	*Conc: 222*		*02/28/19 06:26*	*M-02*
Method: EPA 8270C SIM **Batch ID:** W9B0925 **Instr:** GCMS06 **Prepared:** 02/15/19 13:20 **Analyst:** rmr						
1-Methylnaphthalene	ND	70	ug/kg	1	03/14/19 03:10	M-02
2-Methylnaphthalene	ND	70	ug/kg	1	03/14/19 03:10	M-02
Acenaphthene	ND	70	ug/kg	1	03/14/19 03:10	M-02
Acenaphthylene	ND	70	ug/kg	1	03/14/19 03:10	M-02
Anthracene	ND	70	ug/kg	1	03/14/19 03:10	M-02
Benzo (a) anthracene	ND	70	ug/kg	1	03/14/19 03:10	M-02
Benzo (a) pyrene	ND	70	ug/kg	1	03/14/19 03:10	M-02
Benzo (b) fluoranthene	ND	70	ug/kg	1	03/14/19 03:10	M-02
Benzo (g,h,i) perylene	ND	70	ug/kg	1	03/14/19 03:10	M-02
Benzo (k) fluoranthene	ND	70	ug/kg	1	03/14/19 03:10	M-02
Chrysene	ND	70	ug/kg	1	03/14/19 03:10	M-02
Dibenzo (a,h) anthracene	ND	70	ug/kg	1	03/14/19 03:10	M-02
Fluoranthene	ND	70	ug/kg	1	03/14/19 03:10	M-02
Fluorene	ND	70	ug/kg	1	03/14/19 03:10	M-02
Indeno (1,2,3-cd) pyrene	ND	70	ug/kg	1	03/14/19 03:10	M-02
Naphthalene	ND	70	ug/kg	1	03/14/19 03:10	M-02
Phenanthrene	ND	70	ug/kg	1	03/14/19 03:10	M-02
Pyrene	ND	70	ug/kg	1	03/14/19 03:10	M-02
Surrogate(s)						
2-Fluorobiphenyl	*69%*	*0.1-109*	*Conc: 1610*		*03/14/19 03:10*	*M-02*
Nitrobenzene-d5	*75%*	*0.1-107*	*Conc: 1750*		*03/14/19 03:10*	*M-02*
Terphenyl-d14	*84%*	*28-128*	*Conc: 1950*		*03/14/19 03:10*	*M-02*

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Sample Results

(Continued)

Sample: PSL-2

9B13025-02 (Solid)

Sampled: 02/12/19 9:00 by G. Cox/ A/ Harmer

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 1664M **Batch ID:** W9B1598 **Instr:** CONC03 **Prepared:** 02/28/19 09:44 **Analyst:** arb						
Oil & Grease (HEM)	ND	500	mg/kg	1	02/28/19 17:02	
Oil & Grease, Non-polar	ND	500	mg/kg	1	02/28/19 17:02	
Method: EPA 8081A **Batch ID:** W9B1023 **Instr:** GC07 **Prepared:** 02/19/19 13:48 **Analyst:** adm						
4,4´-DDD	ND	19	ug/kg	1	02/28/19 06:57	M-02
4,4´-DDE	ND	19	ug/kg	1	02/28/19 06:57	M-02
4,4´-DDT	ND	19	ug/kg	1	02/28/19 06:57	M-02
Aldrin	ND	19	ug/kg	1	02/28/19 06:57	M-02
alpha-BHC	ND	19	ug/kg	1	02/28/19 06:57	M-02
beta-BHC	ND	19	ug/kg	1	02/28/19 06:57	M-02
Chlordane (tech)	ND	390	ug/kg	1	02/28/19 06:57	M-02
delta-BHC	ND	19	ug/kg	1	02/28/19 06:57	M-02
Dieldrin	ND	19	ug/kg	1	02/28/19 06:57	M-02
Endosulfan I	ND	19	ug/kg	1	02/28/19 06:57	M-02
Endosulfan II	ND	19	ug/kg	1	02/28/19 06:57	M-02
Endosulfan sulfate	ND	19	ug/kg	1	02/28/19 06:57	M-02
Endrin	ND	19	ug/kg	1	02/28/19 06:57	M-02
Endrin aldehyde	ND	19	ug/kg	1	02/28/19 06:57	M-02
gamma-BHC (Lindane)	ND	19	ug/kg	1	02/28/19 06:57	M-02
Heptachlor	ND	19	ug/kg	1	02/28/19 06:57	M-02
Heptachlor epoxide	ND	19	ug/kg	1	02/28/19 06:57	M-02
Methoxychlor	ND	19	ug/kg	1	02/28/19 06:57	M-02
Toxaphene	ND	580	ug/kg	1	02/28/19 06:57	M-02
Surrogate(s)						
Decachlorobiphenyl	*106%*	*21-125*	*Conc: 205*		*02/28/19 06:57*	*M-02*
Tetrachloro-meta-xylene	*111%*	*18-112*	*Conc: 215*		*02/28/19 06:57*	*M-02*
Method: EPA 8270C SIM **Batch ID:** W9B0925 **Instr:** GCMS06 **Prepared:** 02/15/19 13:20 **Analyst:** rmr						
1-Methylnaphthalene	ND	70	ug/kg	1	03/14/19 03:45	M-02
2-Methylnaphthalene	ND	70	ug/kg	1	03/14/19 03:45	M-02
Acenaphthene	ND	70	ug/kg	1	03/14/19 03:45	M-02
Acenaphthylene	ND	70	ug/kg	1	03/14/19 03:45	M-02
Anthracene	ND	70	ug/kg	1	03/14/19 03:45	M-02
Benzo (a) anthracene	ND	70	ug/kg	1	03/14/19 03:45	M-02
Benzo (a) pyrene	ND	70	ug/kg	1	03/14/19 03:45	M-02
Benzo (b) fluoranthene	ND	70	ug/kg	1	03/14/19 03:45	M-02
Benzo (g,h,i) perylene	ND	70	ug/kg	1	03/14/19 03:45	M-02
Benzo (k) fluoranthene	ND	70	ug/kg	1	03/14/19 03:45	M-02
Chrysene	ND	70	ug/kg	1	03/14/19 03:45	M-02
Dibenzo (a,h) anthracene	ND	70	ug/kg	1	03/14/19 03:45	M-02
Fluoranthene	ND	70	ug/kg	1	03/14/19 03:45	M-02
Fluorene	ND	70	ug/kg	1	03/14/19 03:45	M-02
Indeno (1,2,3-cd) pyrene	ND	70	ug/kg	1	03/14/19 03:45	M-02

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Sample Results

(Continued)

Sample: PSL-2

9B13025-02 (Solid)

Sampled: 02/12/19 9:00 by G. Cox/ A/ Harmer

(Continued)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 8270C SIM (Continued) **Batch ID:** W9B0925 **Instr:** GCMS06 **Prepared:** 02/15/19 13:20 **Analyst:** rmr						
Naphthalene	ND	70	ug/kg	1	03/14/19 03:45	M-02
Phenanthrene	ND	70	ug/kg	1	03/14/19 03:45	M-02
Pyrene	ND	70	ug/kg	1	03/14/19 03:45	M-02
Surrogate(s)						
2-Fluorobiphenyl	*77%*	*0.1-109*	*Conc: 1800*		*03/14/19 03:45*	*M-02*
Nitrobenzene-d5	*82%*	*0.1-107*	*Conc: 1920*		*03/14/19 03:45*	*M-02*
Terphenyl-d14	*93%*	*28-128*	*Conc: 2170*		*03/14/19 03:45*	*M-02*

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Quality Control Results

Chlorinated Pesticides and/or PCBs by GC/ECD

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W9B1023 - EPA 3545/ASE-PFE										
Blank (W9B1023-BLK1)				**Prepared: 02/19/19 Analyzed: 02/28/19**						
4,4´-DDD	ND	2.5	ug/kg							
4,4´-DDE	ND	2.5	ug/kg							
4,4´-DDT	ND	2.5	ug/kg							
Aldrin	ND	2.5	ug/kg							
alpha-BHC	ND	2.5	ug/kg							
beta-BHC	ND	2.5	ug/kg							
Chlordane (tech)	ND	50	ug/kg							
delta-BHC	ND	2.5	ug/kg							
Dieldrin	ND	2.5	ug/kg							
Endosulfan I	ND	2.5	ug/kg							
Endosulfan II	ND	2.5	ug/kg							
Endosulfan sulfate	ND	2.5	ug/kg							
Endrin	ND	2.5	ug/kg							
Endrin aldehyde	ND	2.5	ug/kg							
gamma-BHC (Lindane)	ND	2.5	ug/kg							
Heptachlor	ND	2.5	ug/kg							
Heptachlor epoxide	ND	2.5	ug/kg							
Methoxychlor	ND	2.5	ug/kg							
Toxaphene	ND	75	ug/kg							
Surrogate(s)										
Decachlorobiphenyl	*27.1*		*ug/kg*	*25.0*		*108*	*21-125*			
Tetrachloro-meta-xylene	*27.3*		*ug/kg*	*25.0*		*109*	*18-112*			
LCS (W9B1023-BS1)				**Prepared: 02/19/19 Analyzed: 02/28/19**						
4,4´-DDD	25.9	2.5	ug/kg	25.0		103	48-126			
4,4´-DDE	25.4	2.5	ug/kg	25.0		102	48-121			
4,4´-DDT	25.3	2.5	ug/kg	25.0		101	45-146			
Aldrin	26.1	2.5	ug/kg	25.0		105	57-137			
alpha-BHC	25.8	2.5	ug/kg	25.0		103	64-131			
beta-BHC	26.5	2.5	ug/kg	25.0		106	48-126			
delta-BHC	25.8	2.5	ug/kg	25.0		103	30-124			
Dieldrin	25.7	2.5	ug/kg	25.0		103	49-123			
Endosulfan I	17.9	2.5	ug/kg	25.0		71	14-101			
Endosulfan II	21.3	2.5	ug/kg	25.0		85	33-146			
Endosulfan sulfate	27.2	2.5	ug/kg	25.0		109	33-146			
Endrin	28.2	2.5	ug/kg	25.0		113	39-144			
Endrin aldehyde	27.7	2.5	ug/kg	25.0		111	23-104			Q-08
gamma-BHC (Lindane)	26.0	2.5	ug/kg	25.0		104	43-114			
Heptachlor	26.0	2.5	ug/kg	25.0		104	48-125			
Heptachlor epoxide	24.5	2.5	ug/kg	25.0		98	47-121			
Methoxychlor	27.3	2.5	ug/kg	25.0		109	47-157			
Surrogate(s)										
Decachlorobiphenyl	*26.7*		*ug/kg*	*25.0*		*107*	*21-125*			
Tetrachloro-meta-xylene	*27.4*		*ug/kg*	*25.0*		*109*	*18-112*			

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Quality Control Results

(Continued)

Chlorinated Pesticides and/or PCBs by GC/ECD (Continued)

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W9B1023 - EPA 3545/ASE-PFE (Continued)										
Matrix Spike (W9B1023-MS1)	**Source: 9B13025-01**			**Prepared: 02/19/19**	**Analyzed: 02/28/19**					
4,4´-DDD	245	24	ug/kg	236	*ND*	104	21-119			M-02
4,4´-DDE	244	24	ug/kg	236	*ND*	103	18-122			M-02
4,4´-DDT	226	24	ug/kg	236	*ND*	96	12-141			M-02
Aldrin	254	24	ug/kg	236	*ND*	108	24-173			M-02
alpha-BHC	246	24	ug/kg	236	*ND*	104	44-146			M-02
beta-BHC	296	24	ug/kg	236	*ND*	126	7-156			M-02
delta-BHC	253	24	ug/kg	236	*ND*	107	11-147			M-02
Dieldrin	243	24	ug/kg	236	*ND*	103	23-123			M-02
Endosulfan I	159	24	ug/kg	236	*ND*	68	0.1-94			M-02
Endosulfan II	190	24	ug/kg	236	*ND*	81	0.1-109			M-02
Endosulfan sulfate	246	24	ug/kg	236	*ND*	104	0.1-152			M-02
Endrin	272	24	ug/kg	236	*ND*	116	22-147			M-02
Endrin aldehyde	257	24	ug/kg	236	*ND*	109	0.1-114			M-02
gamma-BHC (Lindane)	231	24	ug/kg	236	*ND*	98	16-121			M-02
Heptachlor	237	24	ug/kg	236	*ND*	100	4-141			M-02
Heptachlor epoxide	235	24	ug/kg	236	*ND*	99	17-135			M-02
Methoxychlor	239	24	ug/kg	236	*ND*	101	14-153			M-02
Surrogate(s)										
Decachlorobiphenyl	*253*		*ug/kg*	*236*		*107*	*21-125*			*M-02*
Tetrachloro-meta-xylene	*247*		*ug/kg*	*236*		*105*	*18-112*			*M-02*
Matrix Spike Dup (W9B1023-MSD1)	**Source: 9B13025-01**			**Prepared: 02/19/19**	**Analyzed: 02/28/19**					
4,4´-DDD	264	24	ug/kg	239	*ND*	110	21-119	7	25	M-02
4,4´-DDE	260	24	ug/kg	239	*ND*	109	18-122	6	25	M-02
4,4´-DDT	237	24	ug/kg	239	*ND*	99	12-141	5	25	M-02
Aldrin	274	24	ug/kg	239	*ND*	114	24-173	8	25	M-02
alpha-BHC	265	24	ug/kg	239	*ND*	111	44-146	8	25	M-02
beta-BHC	310	24	ug/kg	239	*ND*	130	7-156	5	25	M-02
delta-BHC	283	24	ug/kg	239	*ND*	118	11-147	11	25	M-02
Dieldrin	252	24	ug/kg	239	*ND*	105	23-123	4	25	M-02
Endosulfan I	154	24	ug/kg	239	*ND*	64	0.1-94	3	25	M-02
Endosulfan II	191	24	ug/kg	239	*ND*	80	0.1-109	0.5	25	M-02
Endosulfan sulfate	274	24	ug/kg	239	*ND*	114	0.1-152	10	25	M-02
Endrin	291	24	ug/kg	239	*ND*	121	22-147	6	25	M-02
Endrin aldehyde	292	24	ug/kg	239	*ND*	122	0.1-114	13	25	M-02, Q-08
gamma-BHC (Lindane)	233	24	ug/kg	239	*ND*	97	16-121	0.6	25	M-02
Heptachlor	267	24	ug/kg	239	*ND*	111	4-141	12	25	M-02
Heptachlor epoxide	250	24	ug/kg	239	*ND*	104	17-135	6	25	M-02
Methoxychlor	255	24	ug/kg	239	*ND*	107	14-153	7	25	M-02
Surrogate(s)										
Decachlorobiphenyl	*271*		*ug/kg*	*239*		*113*	*21-125*			*M-02*
Tetrachloro-meta-xylene	*269*		*ug/kg*	*239*		*113*	*18-112*			*M-02, S-GC*

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Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W9B1598 - EPA 1664										
Blank (W9B1598-BLK1)				**Prepared & Analyzed: 02/28/19**						
Oil & Grease (HEM)	ND	500	mg/kg							
Oil & Grease, Non-polar	ND	500	mg/kg							
LCS (W9B1598-BS1)				**Prepared & Analyzed: 02/28/19**						
Oil & Grease (HEM)	3320	500	mg/kg	4000		83	70-105			
Matrix Spike (W9B1598-MS1)	**Source: 9B13025-01**			**Prepared & Analyzed: 02/28/19**						
Oil & Grease (HEM)	3850	500	mg/kg	4140	*ND*	93	70-130			
Matrix Spike Dup (W9B1598-MSD1)	**Source: 9B13025-01**			**Prepared & Analyzed: 02/28/19**						
Oil & Grease (HEM)	4170	500	mg/kg	4170	*ND*	100	70-130	8	30	

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Quality Control Results

(Continued)

Semivolatile Organics - Low Level by GC/MS SIM Mode

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W9B0925 - EPA 3545/ASE-PFE										
Blank (W9B0925-BLK1)				**Prepared: 02/15/19 Analyzed: 03/14/19**						
1-Methylnaphthalene	ND	5.0	ug/kg							
2-Methylnaphthalene	ND	5.0	ug/kg							
Acenaphthene	ND	5.0	ug/kg							
Acenaphthylene	ND	5.0	ug/kg							
Anthracene	ND	5.0	ug/kg							
Benzo (a) anthracene	ND	5.0	ug/kg							
Benzo (a) pyrene	ND	5.0	ug/kg							
Benzo (b) fluoranthene	ND	5.0	ug/kg							
Benzo (g,h,i) perylene	ND	5.0	ug/kg							
Benzo (k) fluoranthene	ND	5.0	ug/kg							
Chrysene	ND	5.0	ug/kg							
Dibenzo (a,h) anthracene	ND	5.0	ug/kg							
Fluoranthene	ND	5.0	ug/kg							
Fluorene	ND	5.0	ug/kg							
Indeno (1,2,3-cd) pyrene	ND	5.0	ug/kg							
Naphthalene	ND	5.0	ug/kg							
Phenanthrene	ND	5.0	ug/kg							
Pyrene	ND	5.0	ug/kg							
Surrogate(s)										
2-Fluorobiphenyl	*133*		*ug/kg*	*167*		*80*	*0.1-109*			
Nitrobenzene-d5	*143*		*ug/kg*	*167*		*86*	*0.1-107*			
Terphenyl-d14	*152*		*ug/kg*	*167*		*91*	*28-128*			
LCS (W9B0925-BS1)				**Prepared: 02/15/19 Analyzed: 03/14/19**						
Acenaphthene	257	5.0	ug/kg	333		77	27-103			
Acenaphthylene	294	5.0	ug/kg	333		88	29-112			
Anthracene	293	5.0	ug/kg	333		88	31-119			
Benzo (a) anthracene	309	5.0	ug/kg	333		93	26-132			
Benzo (a) pyrene	304	5.0	ug/kg	333		91	19-146			
Benzo (b) fluoranthene	345	5.0	ug/kg	333		104	40-120			
Benzo (g,h,i) perylene	245	5.0	ug/kg	333		73	18-135			
Benzo (k) fluoranthene	322	5.0	ug/kg	333		97	40-120			
Chrysene	337	5.0	ug/kg	333		101	40-120			
Dibenzo (a,h) anthracene	283	5.0	ug/kg	333		85	20-137			
Fluoranthene	311	5.0	ug/kg	333		93	33-123			
Fluorene	270	5.0	ug/kg	333		81	33-106			
Indeno (1,2,3-cd) pyrene	284	5.0	ug/kg	333		85	16-136			
Naphthalene	274	5.0	ug/kg	333		82	22-98			
Phenanthrene	305	5.0	ug/kg	333		91	32-110			
Pyrene	315	5.0	ug/kg	333		94	34-122			
Surrogate(s)										
2-Fluorobiphenyl	*130*		*ug/kg*	*167*		*78*	*0.1-109*			
Nitrobenzene-d5	*139*		*ug/kg*	*167*		*83*	*0.1-107*			
Terphenyl-d14	*156*		*ug/kg*	*167*		*94*	*28-128*			

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Quality Control Results

(Continued)

Semivolatile Organics - Low Level by GC/MS SIM Mode (Continued)

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W9B0925 - EPA 3545/ASE-PFE (Continued)										
Matrix Spike (W9B0925-MS1)	**Source: 8I05083-03**			**Prepared: 02/15/19**	**Analyzed: 03/14/19**					
Acenaphthene	14100	5700	ug/kg	18900	*ND*	75	5-115			M-02, M-04
Acenaphthylene	16300	5700	ug/kg	18900	*ND*	86	8-111			M-02, M-04
Anthracene	13500	5700	ug/kg	18900	*ND*	71	3-132			M-02, M-04
Benzo (a) anthracene	16500	5700	ug/kg	18900	*ND*	87	14-125			M-02, M-04
Benzo (a) pyrene	15300	5700	ug/kg	18900	*ND*	81	2-138			M-02, M-04
Benzo (b) fluoranthene	17200	5700	ug/kg	18900	*ND*	91	20-150			M-02, M-04
Benzo (g,h,i) perylene	12100	5700	ug/kg	18900	*ND*	64	9-129			M-02, M-04
Benzo (k) fluoranthene	16500	5700	ug/kg	18900	*ND*	87	20-150			M-02, M-04
Chrysene	17100	5700	ug/kg	18900	*ND*	90	20-150			M-02, M-04
Dibenzo (a,h) anthracene	14200	5700	ug/kg	18900	*ND*	75	10-144			M-02, M-04
Fluoranthene	16700	5700	ug/kg	18900	*ND*	89	11-127			M-02, M-04
Fluorene	14700	5700	ug/kg	18900	*ND*	78	4-125			M-02, M-04
Indeno (1,2,3-cd) pyrene	14400	5700	ug/kg	18900	*ND*	76	3-137			M-02, M-04
Naphthalene	14000	5700	ug/kg	18900	*ND*	74	0.1-117			M-02, M-04
Phenanthrene	16300	5700	ug/kg	18900	*ND*	87	10-122			M-02, M-04
Pyrene	17900	5700	ug/kg	18900	*ND*	95	10-128			M-02, M-04
Surrogate(s)										
2-Fluorobiphenyl	*7280*		*ug/kg*	*9430*		*77*	*0.1-109*			*M-02, M-04*
Nitrobenzene-d5	*7610*		*ug/kg*	*9430*		*81*	*0.1-107*			*M-02, M-04*
Terphenyl-d14	*9100*		*ug/kg*	*9430*		*96*	*28-128*			*M-02, M-04*
Matrix Spike Dup (W9B0925-MSD1)	**Source: 8I05083-03**			**Prepared: 02/15/19**	**Analyzed: 03/14/19**					
Acenaphthene	15700	5800	ug/kg	19200	*ND*	82	5-115	11	30	M-02, M-04
Acenaphthylene	17900	5800	ug/kg	19200	*ND*	93	8-111	9	30	M-02, M-04
Anthracene	14900	5800	ug/kg	19200	*ND*	78	3-132	10	30	M-02, M-04
Benzo (a) anthracene	18800	5800	ug/kg	19200	*ND*	98	14-125	13	30	M-02, M-04
Benzo (a) pyrene	17300	5800	ug/kg	19200	*ND*	90	2-138	13	30	M-02, M-04
Benzo (b) fluoranthene	20200	5800	ug/kg	19200	*ND*	105	20-150	16	30	M-02, M-04
Benzo (g,h,i) perylene	13900	5800	ug/kg	19200	*ND*	72	9-129	14	30	M-02, M-04
Benzo (k) fluoranthene	18600	5800	ug/kg	19200	*ND*	97	20-150	12	30	M-02, M-04
Chrysene	19800	5800	ug/kg	19200	*ND*	103	20-150	15	30	M-02, M-04
Dibenzo (a,h) anthracene	16500	5800	ug/kg	19200	*ND*	86	10-144	15	30	M-02, M-04
Fluoranthene	19200	5800	ug/kg	19200	*ND*	100	11-127	14	30	M-02, M-04
Fluorene	16600	5800	ug/kg	19200	*ND*	87	4-125	13	30	M-02, M-04
Indeno (1,2,3-cd) pyrene	16600	5800	ug/kg	19200	*ND*	86	3-137	14	30	M-02, M-04
Naphthalene	13900	5800	ug/kg	19200	*ND*	72	0.1-117	0.3	30	M-02, M-04
Phenanthrene	18800	5800	ug/kg	19200	*ND*	98	10-122	14	30	M-02, M-04
Pyrene	20200	5800	ug/kg	19200	*ND*	105	10-128	12	30	M-02, M-04
Surrogate(s)										
2-Fluorobiphenyl	*7690*		*ug/kg*	*9620*		*80*	*0.1-109*			*M-02, M-04*
Nitrobenzene-d5	*8090*		*ug/kg*	*9620*		*84*	*0.1-107*			*M-02, M-04*
Terphenyl-d14	*10500*		*ug/kg*	*9620*		*109*	*28-128*			*M-02, M-04*

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Notes and Definitions

Item	Definition
M-02	Due to the nature of matrix interferences, sample was diluted prior to preparation. The MDL and MRL were raised due to the dilution.
M-04	Due to the nature of matrix interferences, sample extract was diluted prior to analysis. The MDL and MRL were raised due to the dilution.
Q-08	High bias in the QC sample does not affect sample result since analyte was not detected or below the reporting limit.
S-GC	Surrogate recovery outside of control limits due to a possible matrix effect . The data was accepted based on valid recovery of the remaining surrogate.
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.

Analyses Accreditation Summary

Analyte	CAS #	Not By NELAP	By ANAB
EPA 1664M in Soil			
Oil & Grease, Non-polar			
Oil & Grease (HEM)		✓	

Reviewed by:

Regina Giancola
Project Manager

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 LABORATORIES, INC.

Sample Receipt

WORK ORDER:	9B13025	**Printed:**	2/15/2019 12:22:38PM
Client:	FGL Environmental	**Project Manager:**	Regina Giancola
Project:	FGL Environmental	**Project Number:**	FGL Environmental

Report To:
FGL Environmental
Cindy Aguirre
853 Corporation Street
Santa Paula, CA 93060
Phone: (805) 392-2012
Fax: (805) 525-4172

Invoice To:
FGL Environmental
Accounts Payable - Jackie Barnes
853 Corporation Street
Santa Paula, CA 93060
Phone :(805) 392-2038
Fax: (805) 525-4172

Date Due:	03/07/19 09:00 (15 day TAT)		
Received By:	Lester K. Abad	**Date Received:**	02/13/19 10:19
Logged In By:	Lester K. Abad	**Date Logged In:**	02/13/19 11:07

Samples Received at:	**5.3°C**				
All containers intact:	**Yes**	Sample labels & COC agree	**Yes**	Sufficient holding time for all tests	**Yes**
Custody Seals	**No**	Samples preserved properly	**Yes**	Received on Ice	**Yes**
Chain of custody completed	**Yes**	Sample volume sufficient	**Yes**	Appropriate sample containers	**Yes**

Samples

Analysis	Expires	Analysis Comments
9B13025-01 Sample Name: PSL-1 [Solid] Sampled 2/12/2019 08:10		
8081A Solid	02/26/19 08:10	
8270C Soil PAH SIM	02/26/19 08:10	
O&G soil 1664M	03/12/19 08:10	
O&G_NP soil 1664	03/12/19 08:10	
9B13025-02 Sample Name: PSL-2 [Solid] Sampled 2/12/2019 09:00		
8081A Solid	02/26/19 09:00	
8270C Soil PAH SIM	02/26/19 09:00	
O&G soil 1664M	03/12/19 09:00	
O&G_NP soil 1664	03/12/19 09:00	

Regina Giancola — 2/15/2019

Authorized Signature — Date

Note:
If any of the information included in this sample receipt acknowledgement is incorrect (sample information, analysis, etc), please contact the lab at (626) 336-2139. Thank you.

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Analytical Chemists

Special Subcontract to Weck Laboratories, Inc.

9B18225

CHAIN OF CUSTODY

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Laboratory Copy (1 of 3)

80777:03/04/2019

TEST DESCRIPTION - See Reverse side for Container, Preservative and Sampling information

Client: **Fruit Growers Laboratory, Inc.**
Address: FGL Environmental, Inc.
853 Corporation St.
Santa Paula, CA 93060-3005

Phone: Fax:
Contact Person: Cindy Aguirre
Project Name: CC19804195 - **(8-769)**
Purchase Order Number:
Quote Number: **CC 20190207-31**

Sampler(s) Gery Cox
Andrew Harmer

Sampling Fee: _____ Pickup Fee: _____
Compositor Setup Date: ___/___/___ Time: ___/___

Lab Number:

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling: Composite(C) Grab(G)	Type of Sample **SEE REVERSE SIDE**	Potable(P) Non-Potable(NP) Ag Water(AgW)	Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)	Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)	Sub Organic-Organochlorine Pesticides by EPA 8081 8oz(G)	Sub Contracted-Oil & Grease - Non-Polar by EPA 1664B 8oz(G)	Sub Contracted-Oil & Grease - by EPA 1664M 8oz(G)	Sub Contracted-(PAH) by 8270C 8oz(G)
1	PSL - 1	2/12/19	0810	G	Sld				1	1	1	1
2	PSL - 2	2/12/19	0900	G	Sld				1	1	1	1

Remarks:
Results on a wet weight basis

5.3°C

Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
GSO	2/12/19	1700	GSO	2-13-19				
Received By:	**Date:**	**Time:**	**Received By:**	**Date:**	**Time:**	**Received By:**	**Date:**	**Time:**
GSO					10:19			

Corporate Offices & Laboratory
853 Corporation Street
Santa Paula, CA 93060
Phone: (805) 392-2000
Env Fax: (805) 525-4172 / Ag Fax: (805) 392-2063

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Stockton, CA 95215
Phone: (209) 942-0182
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Chico, CA 95926
Phone: (530) 343-5818
Fax: (530) 343-3807

Office & Laboratory
3442 Empresa Drive, Suite D
San Luis Obispo, CA 93401
Phone: (805) 783-2940
Fax: (805) 783-2912

Office & Laboratory
9415 W. Goshen Avenue
Visalia, CA 93291
Phone: (559) 734-9473
Fax: (559) 734-8435

February 26, 2019

Tenera Environmental
141 Suburban Rd., Suite A2
San Luis Obispo, CA 93401

Subject: Subcontract Analysis for FGL Lab No. CC 1980495

Enclosed please find results for the following sample(s) which were received by FGL.

- Sub Inorganic-H2S

Please note that this analysis was performed by Test America - Irvine (ELAP Certified Laboratory)

Thank you for using FGL Environmental.

Sincerely,

Cindy Aguirre Digitally signed by Cindy Aguirre
Title: Customer Service Rep
Date: 2019-02-26

Enclosure

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-233593-1
Client Project/Site: CC1980495 - (8-769)

For:
FGL Environmental
853 Corporation Street
Santa Paula, California 93060-3005

Attn: Mrs. Cindy Aguirre

Authorized for release by:
2/26/2019 1:47:07 PM

Janice Hsu, Project Manager I
(949)261-1022
janice.hsu@testamericainc.com

Table of Contents

Sample Summary

Client: FGL Environmental
Project/Site: CC1980495 - (8-769)

TestAmerica Job ID: 440-233593-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-233593-1	PSL-1	Solid	02/12/19 08:10	02/14/19 10:45
440-233593-2	PSL-2	Solid	02/12/19 09:00	02/14/19 10:45

Case Narrative

Client: FGL Environmental
Project/Site: CC1980495 - (8-769)

TestAmerica Job ID: 440-233593-1

Job ID: 440-233593-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-233593-1

Comments
No additional comments.

Receipt
The samples were received on 2/14/2019 10:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.2º C.

General Chemistry
Method(s) 9034: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 440-529625 and analytical batch 440-529665 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client: FGL Environmental
Project/Site: CC1980495 - (8-769)

TestAmerica Job ID: 440-233593-1

Client Sample ID: PSL-1

Lab Sample ID: 440-233593-1

Date Collected: 02/12/19 08:10

Matrix: Solid

Date Received: 02/14/19 10:45

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Sulfide	ND	F1	40	20	mg/Kg		02/19/19 15:28	02/19/19 17:26	1

Client Sample ID: PSL-2

Lab Sample ID: 440-233593-2

Date Collected: 02/12/19 09:00

Matrix: Solid

Date Received: 02/14/19 10:45

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Sulfide	ND		40	20	mg/Kg		02/19/19 15:28	02/19/19 17:26	1

Method Summary

Client: FGL Environmental
Project/Site: CC1980495 - (8-769)

TestAmerica Job ID: 440-233593-1

Method	Method Description	Protocol	Laboratory
9034	Sulfide, Acid soluble and Insoluble (Titrimetric)	SW846	TAL IRV
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	TAL IRV

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: FGL Environmental
Project/Site: CC1980495 - (8-769)

TestAmerica Job ID: 440-233593-1

Client Sample ID: PSL-1

Lab Sample ID: 440-233593-1

Date Collected: 02/12/19 08:10

Matrix: Solid

Date Received: 02/14/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9030B			5.06 g	50 mL	529625	02/19/19 15:28	KMY	TAL IRV
Total/NA	Analysis	9034		1			529665	02/19/19 17:26	KMY	TAL IRV

Client Sample ID: PSL-2

Lab Sample ID: 440-233593-2

Date Collected: 02/12/19 09:00

Matrix: Solid

Date Received: 02/14/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9030B			5.03 g	50 mL	529625	02/19/19 15:28	KMY	TAL IRV
Total/NA	Analysis	9034		1			529665	02/19/19 17:26	KMY	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 440-529625/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 529665 — **Prep Batch: 529625**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Sulfide	ND		40	20	mg/Kg		02/19/19 15:28	02/19/19 17:26	1

Lab Sample ID: LCS 440-529625/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 529665 — **Prep Batch: 529625**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Sulfide	95.2	103		mg/Kg		108	80 - 120

Lab Sample ID: LCSD 440-529625/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 529665 — **Prep Batch: 529625**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Sulfide	95.8	95.8		mg/Kg		100	80 - 120	7	20

Lab Sample ID: 440-233593-1 MS — **Client Sample ID: PSL-1**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 529665 — **Prep Batch: 529625**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Sulfide	ND	F1	95.8	55.9	F1	mg/Kg		58	70 - 130

Lab Sample ID: 440-233593-1 MSD — **Client Sample ID: PSL-1**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 529665 — **Prep Batch: 529625**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Sulfide	ND	F1	94.3	62.9	F1	mg/Kg		67	70 - 130	12	30

QC Association Summary

Client: FGL Environmental
Project/Site: CC1980495 - (8-769)

TestAmerica Job ID: 440-233593-1

General Chemistry

Prep Batch: 529625

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-233593-1	PSL-1	Total/NA	Solid	9030B	
440-233593-2	PSL-2	Total/NA	Solid	9030B	
MB 440-529625/1-A	Method Blank	Total/NA	Solid	9030B	
LCS 440-529625/2-A	Lab Control Sample	Total/NA	Solid	9030B	
LCSD 440-529625/3-A	Lab Control Sample Dup	Total/NA	Solid	9030B	
440-233593-1 MS	PSL-1	Total/NA	Solid	9030B	
440-233593-1 MSD	PSL-1	Total/NA	Solid	9030B	

Analysis Batch: 529665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-233593-1	PSL-1	Total/NA	Solid	9034	529625
440-233593-2	PSL-2	Total/NA	Solid	9034	529625
MB 440-529625/1-A	Method Blank	Total/NA	Solid	9034	529625
LCS 440-529625/2-A	Lab Control Sample	Total/NA	Solid	9034	529625
LCSD 440-529625/3-A	Lab Control Sample Dup	Total/NA	Solid	9034	529625
440-233593-1 MS	PSL-1	Total/NA	Solid	9034	529625
440-233593-1 MSD	PSL-1	Total/NA	Solid	9034	529625

Qualifiers

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: FGL Environmental
Project/Site: CC1980495 - (8-769)

TestAmerica Job ID: 440-233593-1

Laboratory: TestAmerica Irvine

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	CA01531	06-30-19
Arizona	State Program	9	AZ0671	10-14-19
California	LA Cty Sanitation Districts	9	10256	06-30-19
California	State Program	9	CA ELAP 2706	06-30-19
Guam	State Program	9	Cert. No. 19-005R	01-23-20
Hawaii	State Program	9	N/A	01-29-20
Kansas	NELAP	7	E-10420	07-31-19
Nevada	State Program	9	CA015312018-1	07-31-19
New Mexico	State Program	6	N/A	01-29-20
Oregon	NELAP	10	4028	01-29-20
US Fish & Wildlife	Federal		058448	07-31-19
USDA	Federal		P330-18-00214	07-09-21
Washington	State Program	10	C900	09-03-19

Earth Systems
4378 Old Santa Fe Road | San Luis Obispo, CA 93401 | Ph: 805.544.3276 | www.earthsystems.com

February 19, 2019

Mr. Joe Phelan, PhD
Tenera Environmental
141 Suburban Road, Suite A-2
San Luis Obispo, CA 93401

File No.: 302938-001
Doc. No. 1902-003.LAB

PROJECT:	Tenera Environmental Project No. 19232001 DSP-1, DSP-2, PSL-1 and PSL-2 Sediment Samples
SUBJECT:	Laboratory Test Results
SAMPLED BY:	Representative of Tenera Environmental on 2/12/19

Attached are the laboratory test results that you requested. We appreciate the opportunity to have provided services for this project and look forward to working with you in the future. If there are any questions concerning this matter, please do not hesitate to contact this office.

Earth Systems Pacific

Terry Reyes, Laboratory Testing Manager

Attachments: Particle Size Analysis, 4 Pages

Earth Systems
4378 Old Santa Fe Road | San Luis Obispo, CA 93401 | Ph: 805.544.3276 | www.earthsystems.com

Mr. Joe Phelan, PhD
Tenera Environmental
141 Suburban Road, Suite A-2
San Luis Obispo, CA 93401

February 19, 2019
File No.: 302938-001
Doc. No.: 1902-004.LAB

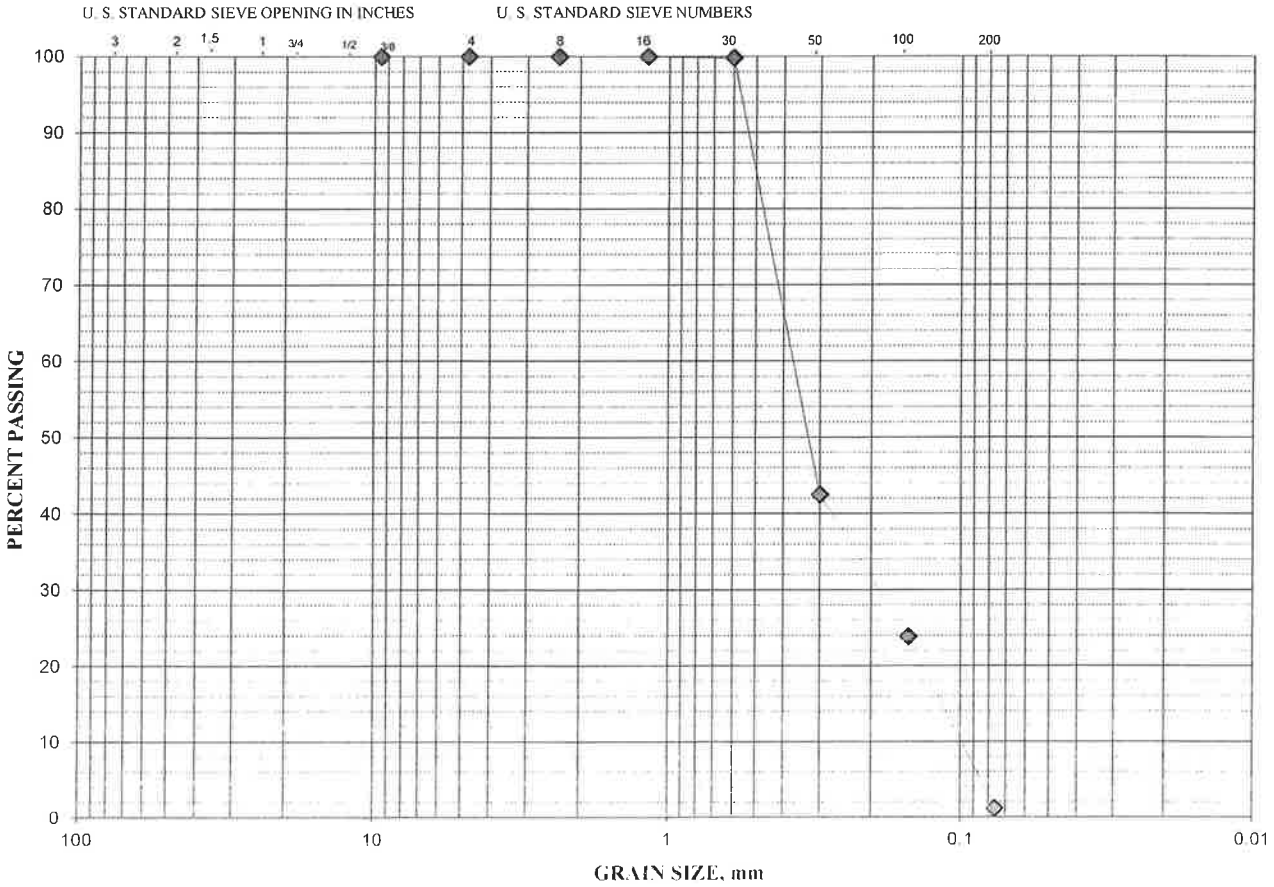
PROJECT: Project No. 19232001

SAMPLE I.D.: DSP-1; PSL Fishermans B.

PARTICLE SIZE ANALYSIS

ASTM D 422-63/07; D 1140-17

Sieve size	% Retained	% Passing
3/8"	0	100
#4	0	100
#8	0	100
#16	0	100
#30	0	100
#50	58	42
#100	76	24
#200	98.9	1.1



Earth Systems
4378 Old Santa Fe Road | San Luis Obispo, CA 93401 | Ph: 805.544.3276 | www.earthsystems.com

Mr. Joe Phelan, PhD
Tenera Environmental
141 Suburban Road, Suite A-2
San Luis Obispo, CA 93401

February 19, 2019
File No.: 302938-001
Doc. No.: 1902-005.LAB

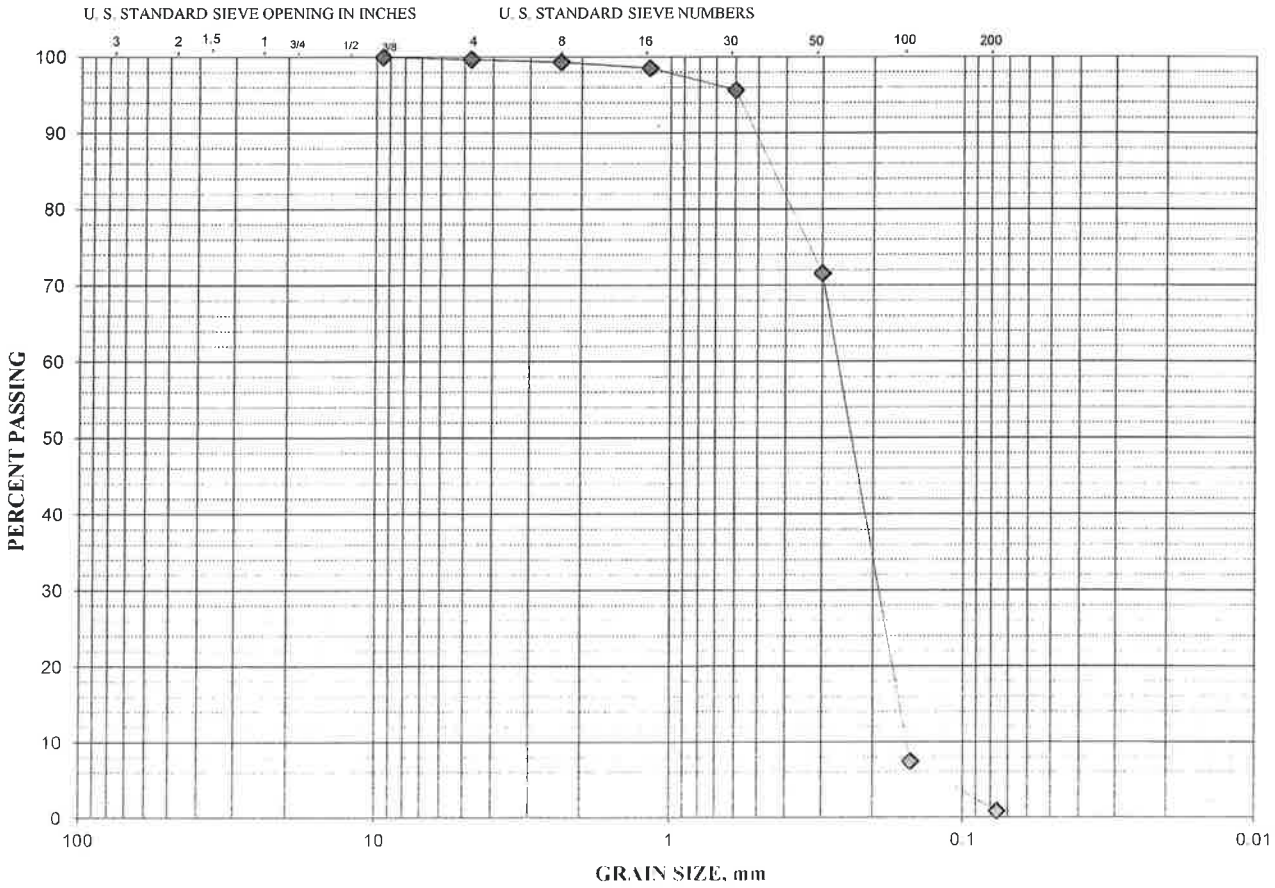
PROJECT: Project No. 19232001

SAMPLE I.D.: DSP-2; PSL W. Bluff Beach

PARTICLE SIZE ANALYSIS

ASTM D 422-63/07; D 1140-17

Sieve size	% Retained	% Passing
3/8"	0	100
#4	0	100
#8	1	99
#16	1	99
#30	4	96
#50	28	72
#100	93	7
#200	99.2	0.8



Earth Systems
4378 Old Santa Fe Road | San Luis Obispo, CA 93401 | Ph: 805.544.3276 | www.earthsystems.com

Mr. Joe Phelan, PhD
Tenera Environmental
141 Suburban Road, Suite A-2
San Luis Obispo, CA 93401

February 19, 2019
File No.: 302938-001
Doc. No.: 1902-006.LAB

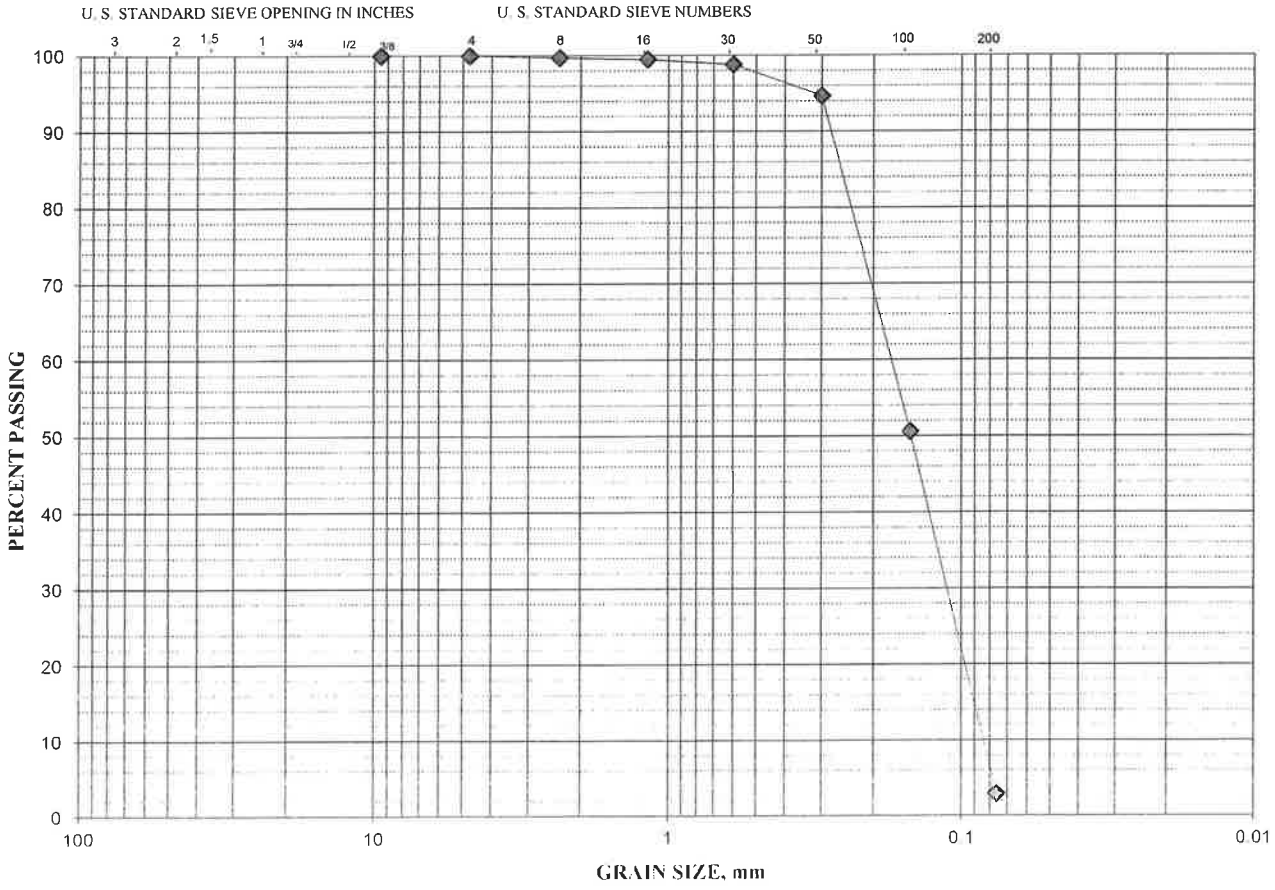
PROJECT: Project No. 19232001

SAMPLE I.D.: PSL-1; PSL Boat Launch

PARTICLE SIZE ANALYSIS

ASTM D 422-63/07; D 1140-17

Sieve size	% Retained	% Passing
3/8"	0	100
#4	0	100
#8	0	100
#16	1	99
#30	1	99
#50	5	95
#100	49	51
#200	97.1	2.9



Earth Systems
4378 Old Santa Fe Road | San Luis Obispo, CA 93401 | Ph: 805.544.3276 | www.earthsystems.com

Mr. Joe Phelan, PhD
Tenera Environmental
141 Suburban Road, Suite A-2
San Luis Obispo, CA 93401

February 19, 2019
File No.: 302938-001
Doc. No.: 1902-007.LAB

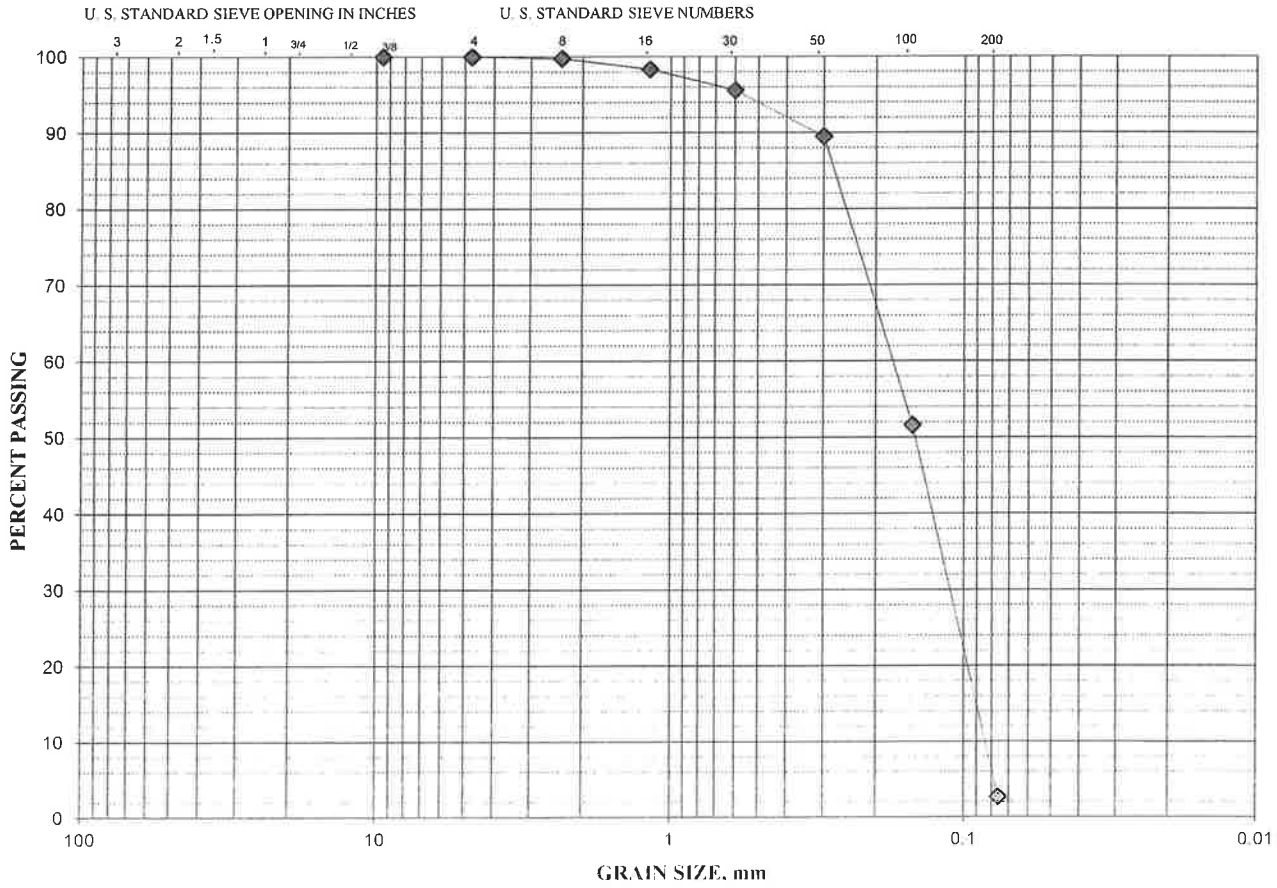
PROJECT: Project No. 19232001

SAMPLE I.D.: PSL-2; PSL Mobile Hoist

PARTICLE SIZE ANALYSIS

ASTM D 422-63/07; D 1140-17

Sieve size	% Retained	% Passing
3/8"	0	100
#4	0	100
#8	0	100
#16	2	98
#30	4	96
#50	10	90
#100	48	52
#200	97.3	2.7



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Laboratory Copy (1 of 3)

80777:03/04/2019

TEST DESCRIPTION - See Reverse side for Container, Preservative and Sampling information

Client: **Fruit Growers Laboratory, Inc.**

Address: FGL Environmental, Inc.
853 Corporation St.
Santa Paula, CA 93060-3005

Phone: Fax:

Contact Person: Cindy Aguirre

Project Name: CC19803495 - **(8-769)**

Purchase Order Number:

Quote Number: **CC 20190207-31**

Sampler(s) Greg Cox
Andrew Hamer

Sampling Fee: _____ Pickup Fee: _____

Compositor Setup Date: ___/___/___ Time: ___/___

Lab Number:

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling: Composite(C) Grab(G)	Type of Sample **SEE REVERSE SIDE**	Potable(P) Non-Potable(NP) Ag Water(AgW)	Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)	Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)	Sub Inorganic-H2S 8oz(G)									
1	PSL - 1	2/12/19	0950	G	Sld				1									
2	PSL - 2	2/12/19	0900	G	Sld				1									

11288 42/4.2

Remarks:
Results on a wet weight basis

Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
Greg Cox	2/12/19	1700	GSO				2/14/19	1047
Received By:	**Date:**	**Time:**	**Received By:**	**Date:**	**Time:**	**Received By:**	**Date:**	**Time:**
GSO				2/13/19	1030		2/14/19	1045

(GSO)

Corporate Offices & Laboratory
853 Corporation Street
Santa Paula, CA 93060
Phone. (805) 392-2000
Env Fax: (805) 525-4172 / Ag Fax (805) 392-2063

Office & Laboratory
2500 Stagecoach Road
Stockton, CA 95215
Phone· (209) 942-0182
Fax. (209) 942-0423

Office & Laboratory
563 E Lindo
Chico, CA 95926
Phone· (530) 343-5818
Fax (530) 343-3807

Office & Laboratory
3442 Empresa Drive, Suite D
San Luis Obispo, CA 93401
Phone: (805) 783-2940
Fax: (805) 783-2912

Office & Laboratory
9415 W. Goshen Avenue
Visalia, CA 93291
Phone· (559) 734-9473
Fax: (559) 734-8435

Login Sample Receipt Checklist

Client: FGL Environmental

Job Number: 440-233593-1

Login Number: 233593

List Source: TestAmerica Irvine

List Number: 1

Creator: Skinner, Alma D

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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Laboratory Copy (1 of 3)

80777:03/04/2019

TEST DESCRIPTION - See Reverse side for Container, Preservative and Sampling information

Client: Tenera Environmental
Address: 141 Suburban Rd., Suite A2
San Luis Obispo, CA 93401

Phone: (805)541-0310 Fax:
Contact Person: Fred Steinert
Project Name: **Port San Luis Sediment**
Purchase Order Number:
Quote Number: **CC 20190207-31**

Sampler(s)
Gery COX
Andrew Harmer

Sampling Fee: _____ Pickup Fee: _____
Compositor Setup Date: ___/___/___ Time: ___/___

Lab Number: **CC** 1980495 **8-769**

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling: Composite(C) Grab(G)	Type of Sample **SEE REVERSE SIDE**	Potable(P) Non-Potable(NP) Ag Water(AgW)	Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)	Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)	Metals, Total-As,Cd,Cr,Cu,Pb,Hg,Ni,Se,Ag,Zn 8oz(G)	Sub Inorganic-H2S 8oz(G)	Sub Organic-Organochlorine Pesticides by EPA 8081 8oz(G)	Sub Contracted-Oil & Grease - Non-Polar by EPA 1664B 8oz(G)	Sub Contracted-Oil & Grease - by EPA 1664M 8oz(G)	Sub Contracted-(PAH) by 8270C 8oz(G)					
1	PSL - 1	2/12/19	08:10	G	Sld				1	Sub-1	Sub-1	Sub-1	Sub-1	Sub-1					
2	PSL - 2	2/12/19	09:00	G	Sld				1	Sub-1	Sub-1	Sub-1	Sub-1	Sub-1					

Remarks:
Results on a wet weight basis

POF

Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
	2/12/19	12:25		2/12/19	1700			
Received By:	**Date:**	**Time:**	**Received By:**	**Date:**	**Time:**	**Received By:**	**Date:**	**Time:**
			650				2/13/19	9:19

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Fax: (559) 734-8435

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Analytical Chemists

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Customer Copy (2 of 3)

80777:03/04/2019

TEST DESCRIPTION - See Reverse side for Container, Preservative and Sampling information

Client: **Fruit Growers Laboratory, Inc.**
Address: FGL Environmental, Inc.
853 Corporation St.
Santa Paula, CA 93060-3005

Phone: Fax:
Contact Person: Cindy Aguirre
Project Name: CC19980495 - **(8-769)**
Purchase Order Number:
Quote Number: **CC 20190207-31**

Sampler(s) Gary Cox
Andrew Hammer

Sampling Fee: _____ Pickup Fee: _____
Compositor Setup Date: ___/___/___ Time: ___/___

Lab Number:

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling: Composite(C) Grab(G)	Type of Sample **SEE REVERSE SIDE**	Potable(P) Non-Potable(NP) Ag Water(AgW)	Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)	Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)	Sub Inorganic-H2S 8oz(G)								
1	PSL - 1	2/12/19	0810	G	Sld				1								
2	PSL - 2	2/12/19	0900	G	Sld				1								

Remarks:
Results on a wet weight basis

Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
Ghost	2/12/19	1700				GSO		
Received By:	**Date:**	**Time:**	**Received By:**	**Date:**	**Time:**	**Received By:**	**Date:**	**Time:**
GSO						MB	2/13/19	9:10

Corporate Offices & Laboratory
853 Corporation Street
Santa Paula, CA 93060
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Fax: (209) 942-0423

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Phone: (530) 343-5818
Fax: (530) 343-3807

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San Luis Obispo, CA 93401
Phone: (805) 783-2940
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Office & Laboratory
9415 W. Goshen Avenue
Visalia, CA 93291
Phone: (559) 734-9473
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ENVIRONMENTAL FGL AGRICULTURAL
Analytical Chemists

Special Subcontract to Weck Laboratories, Inc.

CHAIN OF CUSTODY
www.fglinc.com

Customer Copy (2 of 3)

80777:03/04/2019

TEST DESCRIPTION - See Reverse side for Container, Preservative and Sampling information

Client: **Fruit Growers Laboratory, Inc.**
Address: FGL Environmental, Inc.
853 Corporation St.
Santa Paula, CA 93060-3005

Phone: Fax:
Contact Person: Cindy Figueroa
Project Name: CC1980495 - **(8-769)**
Purchase Order Number:
Quote Number: **CC 20190207-31**

Sampler(s) Gary Cox
Andrew Hamer

Sampling Fee: _____ Pickup Fee: _____
Compositor Setup Date: ___/___/___ Time: ___/___

Lab Number:

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling: Composite(C) Grab(G)	Type of Sample **SEE REVERSE SIDE**	Potable(P) Non-Potable(NP) Ag Water(AgW)	Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)	Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)	Sub Organic-Orgnochlorine Pesticides by EPA 8081 8oz(G)	Sub Contracted-Oil & Grease - Non-Polar by EPA 1664B 8oz(G)	Sub Contracted-Oil & Grease - by EPA 1664M 8oz(G)	Sub Contracted-(PAH) by 8270C 8oz(G)							
1	PSL - 1	2/12/19	0810	G	Sld				1	1	1	1							
2	PSL - 2	2/12/19	0900	G	Sld				1	1	1	1							

Remarks:
Results on a wet weight basis

Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
[illegible]	2/12/19	17:00				[illegible]		
Received By:	**Date:**	**Time:**	**Received By:**	**Date:**	**Time:**	**Received By:**	**Date:**	**Time:**
GSU						[illegible]	2/13/19	[illegible]

Corporate Offices & Laboratory
853 Corporation Street
Santa Paula, CA 93060
Phone: (805) 392-2000
Env Fax: (805) 525-4172 / Ag Fax: (805) 392-2063

Office & Laboratory
2500 Stagecoach Road
Stockton, CA 95215
Phone: (209) 942-0182
Fax: (209) 942-0423

Office & Laboratory
563 E. Lindo
Chico, CA 95926
Phone: (530) 343-5818
Fax: (530) 343-3807

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CHAIN OF CUSTODY FORM

TENERA
Environmental, Inc.
141 Suburban Road, Suite A2
San Luis Obispo, CA 93401
805.541.0310 [phone] 805.541.0421 [fax]

Total Number of Samples: 4

Samples Sent From:	**Samples Sent To:**	**Client Information:**
Tenera Environmental	Earth Systems	Port San Luis Harbor District- Chris Munson
141 suburban Rd., Suite A2	4378 Old Santa Fe Road.	PO Box 249, Pier 3
San Luis Obispo, CA 93401	San Luis Obispo, CA 93401	Avila Beach, CA 9324

Project Number: 19232001 Shipping Method: Vehicle Tracking #:

Project Location: Port San Luis Field Sampled By: Tenera Environmental

Sample Desciption: Sediment samples in plastic jars Requested Analyses: Sieve Analysis with wash

Sample Condition / Remarks: Sieve to #200

Sample Number	Location	Collection Date	Number of Containers	Preservative
PSL-1	PSL Boat Launch	2/12/2019	1	None
PSL-2	PSL Mobile Hoist	2/12/2019	1	None
DSP-1	PSL Fishermans B.	2/12/2019	1	None
DSP-2	PSL W. Bluff Beach	2/12/2019	1	None

Sample Number	Location	Collection Date	Number of Containers	Preservative

Relinquished By: Matt McKennie Date/Time: 2/12/19 12:15 Relinquished To: Amy Reyes Date/Time: 2/12/19 12:15

Relinquished By: Date/Time: Relinquished To: Date/Time:

Relinquished By: Date/Time: Relinquished To: Date/Time:

Inter-Laboratory Condition Upon Receipt (Attach to COC) CQ980495

Sample Receipt at: STK (CC) CH VI

1. Number of ice chests/packages received: 1 Shipping tracking # OTC

2. Were samples received in a chilled condition? Temps: ROT / ____ / ____ / ____ / ____
Surface water SWTR bact samples: A sample that has a temperature upon receipt of >10° C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.

3.	Do the number of bottles received agree with the COC?	(Yes)	No	N/A
4.	Were samples received intact? (i.e. no broken bottles, leaks etc.)	(Yes)	No	
5.	VOAs checked for Headspace?	Yes	No	(N/A)
6.	Were sample custody seals intact?	Yes	No	(N/A)
7.	If required, was sample split for pH analysis?	Yes	No	(N/A)
8.	Were all analyses within holding times at time of receipt?	(Yes)	No	
9.	Verify sample date, time and sampler name	(Yes)	No	

Sign and date the COC, place in a ziplock and put in the same ice chest as the samples.
Sample Receipt Review completed by (initials): JK

Sample Receipt at SP:

1. Were samples received in a chilled condition? Temps: 3 / ____ / ____ / ____ / ____
Acceptable is above freezing to 6° C. If many packages are received at one time check for tests/H.T.'s/rushes/
2. Shipping tracking numbers: 548710 31032

3.	Do the number of bottles received agree with the COC?	(Yes)	No	N/A
4.	Were samples received intact? (i.e. no broken bottles, leaks etc.)	(Yes)	No	
5.	Were sample custody seals intact?	Yes	No	(N/A)

Sign and date the COC, obtain LIMS sample numbers, select methods/tests and print labels.

Sample Verification, Labeling and Distribution:

1.	Were all requested analyses understood and acceptable?	(Yes)	No	
2.	Did bottle labels correspond with the client's ID's?	(Yes)	No	
3.	Were all bottles requiring sample preservation properly preserved? [Exception: Oil & Grease, VOA and CrVI verified in lab]	Yes	No	(N/A) FGL
4.	VOAs checked for Headspace?	Yes	No	(N/A)
5.	Have rush or project due dates been checked and accepted?	Yes	No	(N/A)
6.	Were all analyses within holding times at time of receipt?	(Yes)	No	

Attach labels to the containers and include a copy of the COC for lab delivery.
Sample Receipt, Login and Verification completed by (initials): JK

Discrepancy Documentation:
Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted:_____ Phone Number:_____
Initiated By:_____ Date:_____
Problem:
Resolution:

2. Person Contacted:_____ Phone Number:_____
Initiated By:_____
Problem:
Resolution:

(Please use the back of this sheet for additional comment: contacts)

(8-769)
Tenera Environmental
CC 1980495
IV-02/12/2019-14:55:33