# FREY ENVIRONMENTAL, INC.

Environmental Geologists, Engineers, Assessors

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September 23, 2014 784-01

Ms. Pauline Belcher 528 Arizona Avenue, Suite 120 Santa Monica, California 90401

### SOIL INVESTIGATION ORANGE SQUARE 1009-1023 NORTH ORANGE DRIVE LOS ANGELES, CALIFORNIA

Dear Ms. Belcher:

This report documents and presents the results of a subsurface soil investigation by FREY Environmental, Inc. (FREY) in parking lot areas at the properties located at 1009 through 1023 North Orange Drive in Los Angeles, California (Site) (Figures 1 and 2). This Site also includes the area of 1012 through 1020 North Sycamore Drive. This investigation was performed in accordance with our proposal titled, "Proposal to Conduct a Phase II Soil Sample Investigation at 1009-1023 North Orange Drive and 1012-1020 North Sycamore Avenue in Los Angeles, California" dated August 12, 2014. (FREY, 2014)

#### BACKGROUND

FREY reviewed the Phase II Environmental Site Assessment (ESA) prepared for the Site by Rincon Consultants, Inc. Dated August 1, 2013 (Rincon, 2013) and the Surface Sampling - Heavy Metals report prepared for the Site by Ellis Environmental Management, Inc. (Ellis, 2014). It is our understanding that a fire occurred at an adjacent metals plating facility located at 1006 North Orange Drive on July 13, 2014. Significant runoff of water, ash, and metal contaminated liquids were washed onto the Site in an effort to extinguish the fire by local fire departments. Stained asphalt and concrete, including areas of pooled discolored liquids, were documented in photographs taken after the fire. Surface samples collected on July 18, 2014 contained high levels of chromium, copper, nickel, and zinc.

#### **OBJECTIVE**

The objective of the scope of work described below was to evaluate for the presence of contaminants of concern in subsurface soils in the areas of runoff due to fire suppression efforts and potentially from uncontrolled previous releases from the metal plating facility.

#### SCOPE OF WORK

The scope of work, designed to meet the objective was as follows:

- Prepared and implemented a Site-specific Health and Safety Plan;
- Marked the proposed hand auger locations and had underground utilities marked by Underground Service Alert (USA);
- Advanced soil borings B1 through B7 to final depths of one foot below the ground surface (bgs);
- Collect asphalt/concrete surface samples from boring locations B3 through B6
- Collected soil samples from borings B1 through B7 at various depths;
- Examined soil samples to characterize the soil lithology;
- · Provided laboratory analyses of soil samples for chemical constituents; and,
- Evaluated data and prepared this report.

A more detailed description of the field investigation, laboratory testing program, and various other activities follows.

#### PRE-FIELD ACTIVITIES

Prior to the advancement of soil borings, FREY personnel notified USA in order for utility companies to mark underground lines in the vicinity.

#### FIELD ACTIVITIES

#### Hand Auger and Sampling of Seven Soil Borings

On August 22, 2014, soil borings B1 through B7 were hand augered to final depths of approximately 1 foot bgs at the locations show on Figure 2. Using a jackhammer, an asphalt surface sample was collected from boring location B3 and concrete surface samples were collected from boring locations B4, B5, and B6. Soil samples were collected at approximately 0.5 feet bgs and 1 feet bgs in all borings. In soil borings B3 through B6 located in either asphalt or concrete, soil samples were collected just below the concrete or asphalt layer (these are referred to as the 0.5 feet bgs samples). The samples were labeled and transported to the laboratory using chain of custody procedures and protocol.

Soil samples and soil cuttings were examined in order to characterize the soil lithology. Field procedures used in the hand augering and soil sampling of soil borings B1 through B7 are presented in Appendix A.

Hand auger and sampling activities related to this investigation were conducted under the supervision of a State of California Professional Geologist in accordance with accepted engineering practice and protocol. All field work was conducted under the general guidelines set forth in the Site-specific health and safety plan prepared for the Site.

#### LABORATORY ANALYSES OF SOIL SAMPLES

Selected soil samples collected from soil borings B1 through B7 were analyzed for California Code of Regulations (CCR) Title 22 Metals (Title 22 Metals) in general accordance with EPA Methods 6010B/7471A.

#### RESULTS OF THE SUBSURFACE INVESTIGATION

#### **Surface and Subsurface Conditions**

Surface materials included native dirt/soil in borings B1, B2, and B7, asphalt in boring B3, and concrete in boring B4, B5, and B6. Subsurface materials (below the asphalt and concrete) encountered during augering operations consisted predominantly of light to dark brown silts with traces of fine grained sand, clay and gravel from just below the ground surface to the bottom of each boring. Groundwater was not encountered in borings.

#### Soil Sample Analytical Results

Soil samples B1 through B7 contained the following metals at these maximum concentrations: antimony (22.4 mg/kg), arsenic (9.97 mg/kg), barium (242 mg/kg), berylhium (0.453 mg/kg), cadmium (21.4 mg/kg), chromium (2,350 mg/kg), cobalt (88.3 mg/kg), copper (10,900 mg/kg), lead (1,010 mg/kg), mercury (1,050 mg/kg), molybdenum (4.38 mg/kg), nickel (2,910 mg/kg), silver (156 (mg/kg), vanadium (52.6 mg/kg), and zinc (2,120 mg/kg) (Table 1).

Table 1 summarizes the analytical results of soil samples collected and analyzed on August 22, 2014. The laboratory reports and laboratory quality assurance / quality control reports are included in Appendix B.

#### DISCUSSION OF METAL ANALYTICAL RESULTS

Soil sample B7-1 contained high concentrations of copper (10,900 mg/kg), lead (1,010 mg/kg), mercury (1,050 mg/kg), and nickel (2,910 mg/kg) which were detected above California's Total Threshold Limit Concentration (TTLC) limits of 2,500 mg/kg, 1,000 mg/kg, 20 mg/kg, and 2,000 mg/kg, respectively. TTLC values are criteria which refer to the concentrations of total metals in soil, asphalt, or concrete, above which are considered a California Hazardous Waste (Cal-Haz).

Soil samples from borings B1-0.5, B2-0.5, B4-1, B7-0.5, and B7-1 contained concentrations of chromium, copper, lead, nickel, and silver which were detected above 10 times California's Soluble Threshold Limit Concentration (STLC) limits (Table 1). Ten times the STLC values are criteria for soluble constituents extracted from soil in accordance with the California Waste Extraction Test (WET) method. The WET involves a tenfold dilution of the soil sample with the extraction solvent;

multiplying the STLC value by a factor of 10 provides a minimum concentration criteria for which soil, asphalt, or concrete could exceed the STLC limit and be considered a Cal-Haz waste.

#### **CONCLUSIONS**

The following conclusions have been drawn based upon the data collected and analyzed as part of this investigation:

- Subsurface soils contain high concentrations of Title 22 Metals in the southwest corner of the Site as well as in the soil area of boring B7. Copper, lead, mercury, and nickel concentrations detected in soil boring B7-1 exceeded the TTLC limit and are considered to be hazardous.
- Concentrations of cadmium, chromium, copper, lead, mercury, nickel, and silver detected in soil borings B1-0.5, B2-0.5, B4-1, B7-0.5, and B7-1 exceed 10 times the STLC limit and have the potential to be Cal-Haz waste if the soluble concentrations exceed the STLC limits.
- Cadmium, chromium, lead, mercury, and silver are listed as Federal Resource Conservation and Recovery Act (RCRA) metals and the concentrations detected in soil boring B7-1 have the potential to constitute a RCRA Hazardous Waste (RCRA-Haz) waste if the soluble concentrations exceed the Toxicity Characteristic Leaching Procedure (TCLP) limits.

#### RECOMMENDATIONS

Hazardous total concentrations of metals as defined by the CCR have been detected through chemical analysis conducted as reported herein in a number of soil samples. Furthermore hazardous soluble concentrations of metals as defined by the CCR and the RCRA may be present. Determination of soluble concentrations of metals can be reached through the conduct of a WET analysis and a TCLP analysis.

Twenty times the Federal regulatory criteria for TCLP values are criteria for soluble constituents extracted from soil in accordance with the TCLP method. The TCLP involves a twentyfold dilution of the soil sample with the extraction solvent; multiplying the TCLP value by a factor of 20 provides concentration criteria which can be compared directly with total metals concentrations in the soil sample.

Soil exceeding the TCLP limit would be considered a RCRA-Haz. Cal-Haz and/or RCRA-Haz soils would require disposal at landfills that accept this waste, which can be compared directly with total metals concentrations in the soil sample.

- FREY recommends that any RCRA metals that exceed the TTLC limit be run for TCLP analyses to determine if the soils are considered to be RCRA-Haz.
- FREY recommends that any soils that exceed 10 times the STLC limit to be run for WET analysis.

• FREY recommends that soils identified as hazardous in this report be assessed and mitigated properly by the adjacent plating facility owner.

#### LIMITATIONS

The judgments described in this report are professional opinions based solely within the limits of the scope of work authorized, and pertain to conditions judged to be present or applicable at the time the work was performed. Future conditions may differ from those described herein, and this report is not intended for future evaluations of this Site unless an update is conducted by a consultant familiar with environmental assessments.

This report was compiled partially from information supplied to FREY Environmental, Inc. from outside sources, other information that is in the public domain and a visual inspection of the property. FREY Environmental, Inc. makes no warranty as to the accuracy of statements made by others, which may be contained in this report, nor are any other warranties or guarantees, expressed or implied, included or intended by the report, except that it has been prepared in accordance with the current accepted practices and standards consistent with the level of care and skill exercised under similar circumstances by other professional consultants or firms performing similar services.

Site conditions may change with time as the result of natural alterations or man-made changes on this or adjacent properties. Future environmental investigations conducted at the Site may reveal site conditions not indicated in the data reviewed by FREY Environmental, Inc. Additionally, changes in standards or regulations applicable to the Site may occur. The findings of this report may be partially or wholly invalidated by changes of which FREY Environmental, Inc. is not aware or has not had the opportunity to evaluate.

Environmental assessments provide an additional source of information regarding the environmental conditions of a particular property or facility. The report is a professional opinion and judgment to the Client, dependent upon FREY's knowledge and information obtained during the course of performance of the services.

If you have any questions regarding this report, please contact us at (949) 723-1645.

Joe Frey Principal Ca

Sincerely

Engineering & CEG#1500 .

Brian Finkelstein Staff Engineer

FREY Environmental, Inc.

John V. Payne
Senior Project Geologist

Payne 10. 5875

#### Attachments:

Table 1 - Soil Sample Analytical Results for Title 22 Metals

Figure 1 - Site Location Map Figure 2 - Site Sketch Showing Soil Boring Locations

Appendix A - Field Procedures

Appendix B - Laboratory Analyses

- Ellis (Ellis Environmental Management, Inc.), 2014, Surface Sampling Heavy Metals, 1009 N. Orange Drive, Los Angeles, CA 90038, Sampling Date July 18, 2014, report dated July 25, 2014.
- FREY (Frey Environmental, Inc.), 2014, Proposal to Conduct a Phase II Soil Sample Investigation at 1009-1023 North Orange Drive and 1012 1020 North Sycamore Avenue in Los Angeles, California, report dated August 12, 2014.
- Rincon (Rincon Consultants, Inc.), 2014, Phase II Environmental Site Assessment, 1016 North Sycamore Avenue, Los Angeles, CA, report dated August 1, 2013.

**TABLE** 

Table 1
Soil Sample Analytical Results for Title 22 Metals
Orange Square
1009 North Orange Drive, Los Angeles, California

Sample ID	Depth (feet bgs)	Date Sampled	51.00.00	Arsenic	Barlum	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molyb- denum	Nicket	Selenium	Silver	Thaillum	Vanadlum	Zinc
								-			mg/kg						ı		
B1-0.5	0.5	8/22/2014	ND<0.750	2.56	181	0.329	1.33	103	7.70	126	463	0.630	1.82	86.1	ND<0.750	153	ND<0.750	34.4	758
B2-0.5	0.5	8/22/2014	ND<0.750	1.85	120	ND<0.253	2.85	85.5	7.27	169	267	0.236	3.02	107	ND<0.758	156	ND<0.758	20.3	970
B3-Surface	Surface	8/22/2014	ND<0.735	5.11	105	ND<0.245	ND<0.490	17.8	8.00	46.6	11.1	0.727	0.976	22.7	ND<0.735	4.97	ND<0.735	41.3	91.2
B3-1	1	8/22/2014	ND<0.725	ND<0.725	87.5	0.335	ND<0.483	26.6	12.1	24.6	16.9	0.148	ND<0.242	23.7	ND<0.725	ND<0.242	ND<0.725	40.7	58.1
B4-1	1	8/22/2014	3,32	4.20	79.4	0.356	0.608	2,350	12.2	451	39.7	0.156	1.58	314	ND<0.765	9.47	ND<0.765	39,3	330
B5-1	11	8/22/2014	ND<0.765	ND<0.765	107	0,453	0,674	39,4	12,4	54,3	28,9	0.833	0.260	40.1	ND<0.765	ND<0.255	ND<0,765	45,4	127
B6-Surface	Surface	8/22/2014	ND<0.754	4.19	73.3	ND<0.251	ND<0.503	20.4	7.59	28.0	7.15	ND<0.0862	0.977	18.1	ND<0.754	ND<0.251	ND<0.754	45.0	61.7
B7-0.5	0.5	8/22/2014	5.61	ND<0.750	131	0.381	ND<0.500	43.8	13.2	952	44.3	0.0941	ND<0.250	1,070	ND<0.750	9.87	ND<0.750	51.5	182
B7-1	1	8/22/2014	22.4	9.97	242	ND<0.248	21,4	145	88.3	10,909	1,010	1,050	4.38	2,910	ND<0.743	1.92	ND<0.743	52.6	2,120
	itle 22 TTLC itle 22 STL		500 15	500 5	10,000	75 0,75	100	2,500 5	8,000 80	2,500 25	1,000 5	20 0,2	3,500 350	2,000 20	100	500 5	700 7	2,400	5,000 250
	TCLP (mg/			5	100		1	5			5	0.2			1	5			

#### Notes:

Samples collected by FREY Environmental, Inc. on August 22, 2013.

Depth in feet below ground surface (bgs).

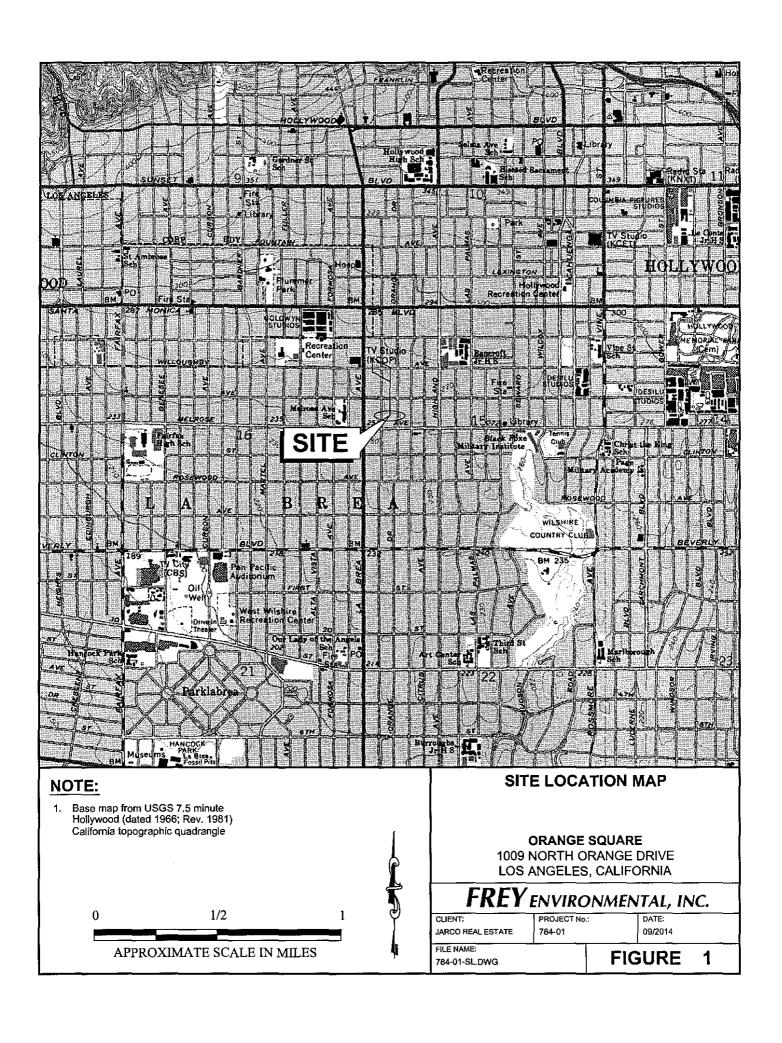
All soil samples were analyzed for Title 22 metals in accordance with EPA Method 6010B.

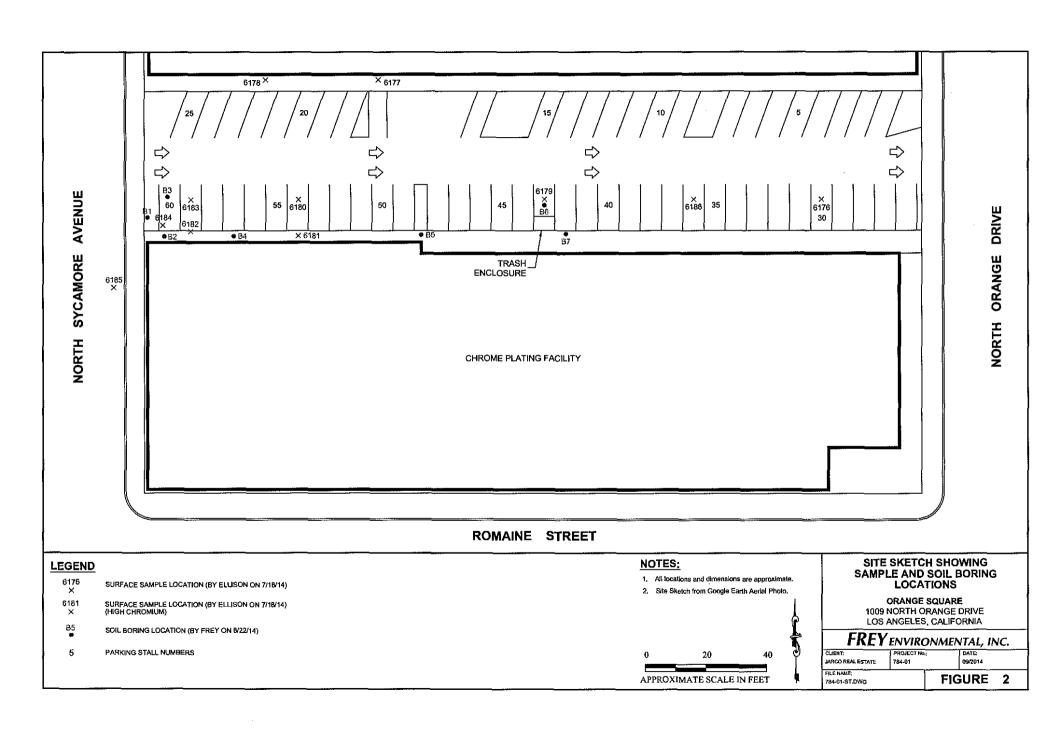
mg/kg = milligrams per kilogram. Mg/L = milligrams per liter.

ND<# - Indicates results less than the laboratory reporting limit, number indicates individual analyte reporting limit,

Red font - indicates the result is greater than the TTLC limit, and/or the result is 10 times greater than the STLC limit, and/or the result is 20 times greater than the TCLP limit.

## **FIGURES**





# APPENDIX A FIELD PROCEDURES

FIELD PROCEDURES

FREY Environmental, Inc.

#### A.1 Advancement and Sampling of Soil Borings B1 through B7

- 1. Soil borings B1 through B7 were advanced with a hand operated auger.
- 2. Soil samples from borings B1 through B7 were collected via grab sample.
- 3. At depths of 0.5 feet and 1 feet bgs, a grab sample was taken and placed into an eight ounce sample jar. The sample jar was capped and labeled.
- 4. All down hole equipment was cleaned by FREY personnel between sample intervals using a brush and tap water followed by a brush and TSP solution, a tap water rinse, and deionized water rinse. The augers were dried by air or with a towel prior to sampling.
- 5. Soil samples were placed in an ice chest cooled with ice.
- 6. The samples were delivered to the laboratory following collection. Sample handling, transport, and delivery to the laboratory were documented using Chain-of-Custody procedures, including the use of Chain-of-Custody forms.

# APPENDIX B LABORATORY REPORTS





WORK ORDER NUMBER: 14-08-1926

The difference is service



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**Analytical Report For** 

Client: Frey Environmental, Inc.

Client Project Name: Orange Square / 784-01

Attention: John Payne

2817-A Lafayette Avenue

Newport Beach, CA 92663-3715

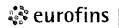
Je Monde

Approved for release on 09/05/2014 by: Stephen Nowak Project Manager



ResultLink > Email your PM >

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.



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Orange Square / 784-01

Work Order Number: 14-08-1926

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4	Quality Control Sample Data.4.1 MS/MSD.4.2 LCS/LCSD.	16 16 18
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#### **Work Order Narrative**

Work Order: 14-08-1926 Page 1 of 1

#### **Condition Upon Receipt:**

Samples were received under Chain-of-Custody (COC) on 08/26/14. They were assigned to Work Order 14-08-1926.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

#### **Holding Times:**

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

#### **Quality Control:**

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

#### **Additional Comments:**

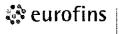
Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

New York NELAP air certification does not certify for all reported methods and analytes, reference the accredited items here: http://www.calscience.com/PDF/New\_York.pdf

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

#### Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.



## **Sample Summary**

Client: Frey Environmental, Inc.

Work Order:

14-08-1926

2817-A Lafayette Avenue

Project Name:

Orange Square / 784-01

Newport Beach, CA 92663-3715

PO Number:

08/26/14 14:00

Date/Time

Received:

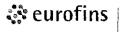
8

Number of Containers:

Attn: John Payne

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
B1-0.5	14-08-192 <del>6-</del> 1	08/22/14 07:35	1	Solid
B2-0.5	14-08-1926-2	08/22/14 07:55	1	Solid
B3-1	14-08-1926-3	08/22/14 10:33	1	Solid
B4-1	14-08-1926-4	08/22/14 10:51	1	Solid
B5-1	14-08-1926-5	08/22/14 12:11	1	Solid
B7-1	14-08-1926-6	08/22/14 08:33	1	Solid
B3-Surface	14-08-1926-7	08/22/14 10:18	1	Solid
B6-Surface	14-08-1926-8	08/22/14 11:02	1	Solid





## **Analytical Report**

Calscience

Frey Environmental, Inc.

2817-A Lafayette Avenue

Newport Beach, CA 92663-3715

Project: Orange Square / 784-01

Date Received:

Work Order:

Preparation:

Method: Units: 08/26/14

14-08-1926

**EPA 3050B** 

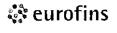
**EPA 6010B** 

mg/kg

Page 1 of 9

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B1-0.5	14-08-1926-1-A	08/22/14 07:35	Solid	ICP 7300	08/30/14	09/02/14 19:29	140830L02
Parameter		Result		<u>RL</u>	<u>DF</u>	Qua	alifiers
Antimony		ND		0.750	1.00		
Arsenic		2.56		0.750	1.00		
Barium		181		0.500	1.00		
Beryllium		0.329		0.250	1.00		
Cadmium		1.33		0.500	1.00		
Chromium		103		0.250	1.00		
Cobalt		7.70		0.250	1.00		
Copper		126		0.500	1.00		
Lead	•	463		0.500	1.00		
Molybdenum		1.82		0.250	1.00		
Nickel		86.1		0.250	1.00		
Selenium		ND		0.750	1.00		
Silver		153		0.250	1.00		
Thallium		ND		0.750	1.00		
Vanadium		34.4		0.250	1.00		
Zinc		758		1.00	1.00		





## **Analytical Report**

Frey Environmental, Inc. 2817-A Lafayette Avenue

Newport Beach, CA 92663-3715

Date Received:

Work Order:

Preparation:

Method: Units: 08/26/14

14-08-1926

EPA 3050B

EPA 6010B

mg/kg

Project: Orange Square / 784-01

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B2-0.5	14-08-1926-2-A	08/22/14 07:55	Solid	ICP 7300	08/30/14	09/02/14 19:32	140830L02
<u>Parameter</u>		Result		RL	DF	Qua	<u>lifiers</u>
Antimony		ND		0.758	1.01		
Arsenic		1.85		0.758	1.01		
Barium		120		0.505	1.01		
Beryllium		ND		0.253	1.01		
Cadmium		2.85		0.505	1.01		
Chromium		85.5		0.253	1.01		
Cobalt		7.27		0.253	1.01		
Copper		169		0.505	1.01		
Lead		267		0.505	1.01		
Molybdenum		3.02		0.253	1.01		
Nickel		107		0.253	1.01		
Selenium		ND		0.758	1.01		
Silver		156		0.253	1.01		
Thallium		ND		0.758	1.01		
Vanadium		20.3		0.253	1.01		
Zinc		970		1.01	1.01		



## **Analytical Report**

Frey Environmental, Inc. 2817-A Lafayette Avenue

Newport Beach, CA 92663-3715

Date Received:

Work Order:

Preparation:

Method: Units: 08/26/14

14-08-1926

**EPA 3050B** 

EPA 6010B

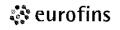
mg/kg

Project: Orange Square / 784-01

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B3-1	14-08-1926-3-A	08/22/14 10:33	Solid	ICP 7300	08/30/14	09/02/14 19:33	140830L02
<u>Parameter</u>		Result	<u> </u>	<u>-</u>	<u>DF</u>	Qua	lifiers
Antimony		ND	0	).725	0.966		
Arsenic		ND	C	).725	0.966		
Barium		87.5	C	0.483	0.966		
Beryllium		0.355	0	).242	0.966		
Cadmium		ND	C	0.483	0.966		
Chromium		26.6	C	),242	0.966		
Cobalt		12.1	0	),242	0.966		
Copper		24.6	C	.483	0.966		
Lead		16.9	C	0.483	0.966		
Molybdenum		ND	C	),242	0.966		
Nickel		23.7	C	).242	0.966		
Selenium		ND	C	),725	0.966		
Silver		ND	O	.242	0.966		
Thallium		ND	O	).725	0.966		
Vanadium		40.7	C	).242	0.966		
Zinc		58.1	C	.966	0.966		





## **Analytical Report**

Calscience

Frey Environmental, Inc. 2817-A Lafayette Avenue

Newport Beach, CA 92663-3715

Date Received:

Work Order:

Preparation:

Method: Units: 08/26/14

14-08-1926

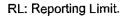
EPA 3050B EPA 6010B

mg/kg

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Project: Orange Square / 784-01

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B4-1	14-08-1926-4-A	08/22/14 10:51	Solid	JCP 7300	. 08/30/14	09/02/14 19:34	140830L02
Parameter		Result	Ţ	RL	<u>DF</u>	Qua	lifiers
Antimony		3.32	(	0.765	1.02		
Arsenic		4.20	(	0.765	1.02		
Barium		79.4	(	0.510	1.02		
Beryllium		0.356	(	0.255	1.02		
Cadmium		0.608	(	0.510	1.02		
Chromium		2350	(	0.255	1.02		
Cobalt		12.2	(	0.255	1.02		
Copper		451	(	0.510	1.02		
Lead		39.7	(	0.510	1.02		
Molybdenum		1.58	(	),255	1.02		
Nickel		314	(	0.255	1.02		
Selenium		ND	(	0.765	1.02		
Silver		9.47	(	0.255	1.02		
Thallium		ND	(	0.765	1.02		
Vanadium		39.3	(	0.255	1.02		
Zinc		330		1.02	1.02		



DF: Dilution Factor.

MDL: Method Detection Limit.

## **Analytical Report**

Frey Environmental, Inc. 2817-A Lafayette Avenue Newport Beach, CA 92663-3715 Date Received: Work Order: Preparation:

14-08-1926 EPA 3050B EPA 6010B

08/26/14

Method: Units:

mg/kg

Project: Orange Square / 784-01

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B5-1	14-08-1926-5-A	08/22/14 12:11	Solid	ICP 7300	08/30/14	09/02/14 19:35	140830L02
<u>Parameter</u>		<u>Result</u>		<u>₹L</u>	<u>DF</u>	Qua	lifiers
Antimony		ND	(	),765	1.02		
Arsenic		ND	(	).765	1.02		
Barium		107	(	0.510	1.02		
Beryllium		0.453	(	0.255	1.02		
Cadmium		0.674	(	0.510	1.02		
Chromium		39.4	(	).255	1.02		
Cobalt		12.4	(	0.255	1.02		
Copper		54.3	(	).510	1.02		
Lead		28.9	(	).510	1.02		
Molybdenum		0.260	(	0.255	1.02		
Nickel		40.1	(	0.255	1.02		
Selenium		ND	(	).765	1.02		
Silver		ND	(	0.255	1.02		
Thallium		ND	(	0.765	1.02		
Vanadium		45.4	(	).255	1.02		
Zinc		127	1	1.02	1.02		



## **Analytical Report**

Frey Environmental, Inc. 2817-A Lafayette Avenue

Newport Beach, CA 92663-3715

Date Received:

Work Order:

Preparation:

Method: Units: 14-08-1926

EPA 3050B EPA 6010B

08/26/14

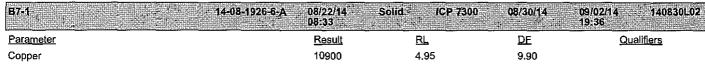
mg/kg

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Project:	Orange	Square .	784-01
i i Ojcot.	Clunge	Oqua.c.	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B7-1	14-08-1926-6-A	08/22/14 08:33	Solid	ICP 7300	08/30/14	09/02/14 17:42	140830L02
Parameter	<b>***</b>	Result	E	<u>.                                    </u>	<u>D</u> E	Qua	<u>lifiers</u>
Antimony		22,4	0	. <b>7</b> 43	0.990		
Arsenic		9.97	0	,743	0.990		
Barium		242	0	.495	0.990		
Beryllium		ND	0	.248	0.990		
Cadmium		21.4	0	.495	0.990		
Chromium		145	0	.248	0.990		
Cobalt		88.3	0	.248	0.990		
Lead		1010	0	.495	0.990		
Molybdenum		4.38	0	.248	0.990		
Nickel		2910	0	.248	0.990		
Selenium		ND	0	.743	0.990		
Silver		1.92	0	.248	0.990		
Thallium		ND	0	.743	0.990		
Vanadium		52.6	0	.248	0.990		
Zinc		2120	0	.990	0.990		





RL: Reporting Limit.

DF: Dilution Factor.

MDL: Method Detection Limit.

## **Analytical Report**

Frey Environmental, Inc. 2817-A Lafayette Avenue

Date Received: Work Order: Preparation:

Units:

08/26/14 14-08-1926 EPA 3050B

Newport Beach, CA 92663-3715

Preparation: EPA 3050B Method: EPA 6010B

mg/kg

Project: Orange Square / 784-01

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B3-Surface	14-08-1926-7-A	08/22/14 10:18	Solid	ICP 7300	08/30/14	09/02/14 19:42	140830L02
<u>Parameter</u>		Result		<u>RL</u>	<u>DF</u>	Qua	lifiers
Antimony		ND	1	0.735	0.980		
Arsenic		5.11	,	0.735	0.980		
Barium		105		0.490	0.980		
Beryllium		ND	1	0.245	0.980		
Cadmium		ND		0.490	0.980		
Chromium		17.8		0.245	0.980		
Cobalt		8.00	1	0.245	0.980		
Copper		46.6	1	0.490	0.980		
Lead		11.1		0.490	0.980		
Molybdenum		0.976	(	0.245	0.980		
Nickel		22.7	(	0.245	0.980		
Selenium		ND	I	0.735	0.980		
Silver		4.97	(	0.245	0.980		
Thallium		ND		0.735	0.980		
Vanadium		41.3	1	0.245	0.980		
Zinc		91.2	(	0.980	0.980		



## **Analytical Report**

Frey Environmental, Inc. 2817-A Lafayette Avenue

Newport Beach, CA 92663-3715

Date Received:

Work Order: Preparation:

Method: Units: 08/26/14

14-08-1926

EPA 3050B EPA 6010B

mg/kg

Page 8 of 9

Proid	oct.	Orange	Square	1	784 <u>-</u> 0	1
LIAM	さいし.	Oraniue	Square	,	104-U	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B6-Surface	14-08-1926-8-A	08/22/14 11:02	Solid	ICP 7300	08/30/14	09/02/14 19:43	140830L02
Parameter		Result		<u>RL</u>	<u>DF</u>	Qua	<u>lifiers</u>
Antimony		ND		0.754	1.01		
Arsenic		4.19		0.754	1.01		
Barium		73.3		0.503	1.01		
Beryllium		ND		0.251	1.01		
Cadmium		ND		0.503	1.01		
Chromium		20.4		0.251	1.01		
Cobalt		7.59		0.251	1.01		
Copper		28.0		0.503	1.01		á
Lead		7.15		0.503	1.01		
Molybdenum		0.977		0.251	1.01		
Nickel		18.1		0.251	1.01		
Selenium		ND		0.754	1.01		
Silver		ND		0.251	1.01		
Thallium		ND		0.754	1.01		
Vanadium		45.0		0.251	1.01		
Zinc		61.7		1.01	1.01		



## **Analytical Report**

Frey Environmental, Inc. 2817-A Lafayette Avenue

Newport Beach, CA 92663-3715

Date Received:

Work Order:

Units:

Preparation: Method:

08/26/14

14-08-1926 **EPA 3050B** 

**EPA 6010B** 

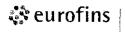
mg/kg

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Project: Orange Square / 784-01

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	097-01-002-1888	1 NA	Solid	ICP 7300	08/30/14	09/02/14 19:26	140830L02
Parameter		Result	E	<u>₹L</u>	<u>DF</u>	Qua	lifiers
Antimony		ND	0	0.750	1.00		
Arsenic		ND	0	),750	1.00		
Barium		ND	C	0.500	1.00		
Beryllium		ND	0	).250	1.00		
Cadmium		ND	0	).500	1.00		
Chromium		ND	C	0.250	1.00		
Cobalt		ND	0	0.250	1.00		
Copper		ND	0	).500	1.00		
Lead		ND	C	).500	1.00		
Molybdenum		ND	0	).250	1.00		
Nickel		ND	O	).250	1.00		
Selenium		ND	C	).750	1.00		
Silver		ND	0	).250	1.00		
Thallium		ND	0	).750	1.00		
Vanadium		ND	C	).250	1.00		
Zinc		ND	1	.00	1.00		





## **Analytical Report**

Frey Environmental, Inc.		<u> </u>	Date Rec	eived:			08/26/14
2817-A Lafayette Avenue			Work Orc	ler:			14-08-1926
Newport Beach, CA 92663-3715			Preparati	on:		EP.	A 7471A Total
Newport Bedon, C. (C2000 C. 10			Method:				EPA 7471A
			Units:				•
Draiget: Orange Squere / 794 04			Offics.			По	mg/kg
Project: Orange Square / 784-01			<del></del>				ge 1 of 2
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B1-0.5	14-08-1926-1-A	08/22/14 07:35	Solid	Mercury 05	09/02/14	09/02/14 17:35	140902L03
<u>Parameter</u>		<u>Result</u>	į	<u>RL</u>	<u>DF</u>	<u>Qua</u>	<u>lifiers</u>
Mercury		0.630	(	0.0833	1,00		
B2-0.5	14-08-1926-2-A	08/22/14 07:55	Solid	Mercury 05	09/02/14	09/02/14 17:42	140902L03
<u>Parameter</u>		Result		RL	<u>DF</u>	Qua	lifiers
Mercury		0.236	(	0.0833	1.00		
B3-1	14-08-1926-3-A	08/22/14 10:33	Sölid	Mercury 05	09/02/14	09/02/14 17:44	140902L03
<u>Parameter</u>		<u>Result</u>	Į	<u>RL</u>	<u>DF</u>	<u>Qua</u>	lifiers
Mercury		0.148	(	0.0847	1.00		
B4-1	14-08-1926-4-A	08/22/14 10:51	Solid	Mercury 05	09/02/14	09/02/14 17:51	140902L03
<u>Parameter</u>		Result		<u> </u>	<u>DF</u>	Qua	lifiers
Mercury		0.156		0.0847	1.00		
<b>B5-1</b>	14-08-1926-5-A	08/22/14 12:11	Solld :	Mercury 05	09/02/14	09/02/14 17:53	140902L03
<u>Parameter</u>		<u>Result</u>	<u> </u>	<u>₹L</u>	DE	Qua	lifiers
Mercury		0.833	(	0.0833	1.00		
B7-1	14-08-1926-6-A	08/22/14 08:33	' Solid	Marcury 05	09/02/14	09/03/14 13:37	140902L03
<u>Parameter</u>		<u>Result</u>	į	<u>₹L</u>	<u>DF</u>	<u>Qua</u>	<u>lifiers</u>
Mercury		1050	1	33.3	1000		
B3-Surface	14-08-1926-7-A	08/22/14 10:18	Solid:	Метсигу 05	.09/02/14	09/02/14 17;57	140902L03
Parameter	***************************************	Result	***************************************	<u>RL</u>	<u>DF</u>	Qua	lifiers
Mercury		0.727		0.0806	1.00		
B6-Surface	14-08-1926-8-A	08/22/14 11:02	Şolid	Mercury 05	09/02/14	09/02/14 18:00	140902L03
Parameter		Result		<u>₹L</u>	<u>D</u> E	Qua	lifiers
Mercury		ND	(	0.0862	1.00		



DF: Dilution Factor.

MDL: Method Detection Limit.

## **Analytical Report**

Frey Environmental, Inc. 2817-A Lafayette Avenue

Newport Beach, CA 92663-3715

Date Received:

Work Order:

Preparation:

Method:

Units:

EPA 7471A Total EPA 7471A

mg/kg

08/26/14

14-08-1926

Project: Orange Square / 784-01

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-16-272-534	N/A	Solid	Mercury 05	09/02/14	09/02/14 17:31	140902L03
<u>Parameter</u>		<u>Result</u>	<u>R</u>	<u>L</u>	<u>DF</u>	Qua	lifters
Mercury		ND	0.	0833	1.00		



RL: Reporting Limit.

DF: Dilution Factor.

MDL: Method Detection Limit.

08/26/14

## Quality Control - Spike/Spike Duplicate

Calscience

Frey Environmental, Inc. 2817-A Lafayette Avenue Newport Beach, CA 92663-3715 Date Received: Work Order: Preparation:

Method:

14-08-1926 EPA 3050B EPA 6010B

Project: Orange Square / 784-01

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Quality Control Sample ID	Туре		Matrix	Inst	rument	Date Prepare	d Date Ana	lyzed	MS/MSD Ba	tch Number
B1-0.5	Sample		Solid	ICP	7300	08/30/14	09/02/14	19:29	140830502	
B1-0.5	Matrix Spike		Solid	ICP	7300	08/30/14	09/02/14	19:30	140830502	
B1-0.5	Matrix Spike	Duplicate	Solid	ICP	7300	08/30/14	09/02/14	19:31	140830502	
Parameter	<u>Sample</u> <u>Conc.</u>	<u>Spike</u> Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Antimony	ND	25.00	8.150	<b>3</b> 3	7.771	31	50-115	5	0-20	3
Arsenic	2.560	25.00	28.07	102	27.56	100	75-125	2	0-20	
Barium	180.6	25.00	179.1	4X	183.1	4X	75-125	4X	0-20	Q
Beryllium	0.3293	25.00	25.69	101	25.20	99	75-125	2	0-20	
Cadmium	1,332	25.00	26.56	101	26.43	100	75-125	0	0-20	
Chromium	102.7	25.00	111.8	4X	129.4	4X	75-125	4X	0-20	Q
Cobalt	7.701	25.00	33.61	104	33.30	102	75-125	1	0-20	
Copper	126.0	25.00	133.7	4X	143.7	4X	75-125	4X	0-20	Q
Lead	463.1	25.00	448.6	4X	536.5	4X	75-125	4X	0-20	Q
Molybdenum	1.819	25.00	24.94	92	24.64	91	75-125	1	0-20	
Nickel	86.14	25.00	96.14	40	102.5	<b>6</b> 5	75-125	6	0-20	3
Selenium	ND	25.00	22.37	89	22.35	89	75-125	0	0-20	
Silver	152.5	12.50	155.1	4X	157.1	4X	75-125	4X	0-20	Q
Thallium	ND	25.00	20.54	82	20.30	81	75-125	1	0-20	
Vanadium	34.39	25.00	54.83	82	56.22	87	<b>75-</b> 125	3	0-20	
Zinc	758.4	25.00	675.8	4X	746.7	4X	75-125	4X	0-20	Q





## **Quality Control - Spike/Spike Duplicate**

Frey Environmental, Inc. 2817-A Lafayette Avenue Newport Beach, CA 92663-3715 Date Received: Work Order: Preparation: Method:

14-08-1926 EPA 7471A Total

EPA 7471A

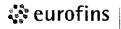
08/26/14

Project: Orange Square / 784-01

Page 2 of 2

Quality Control Sample ID	Туре		Matrix	Inst	trument	Date Prepared	Date Ana	lyzed	MS/MSD Ba	atch Number
B1-0.5	Sample		Solid	Me	rcury 05	09/02/14	09/02/14	17:35	140902503	
B1-0.5	Matrix Spike		Solid	Me	rcury 05	09/02/14	09/03/14	16:30	140902503	
B1-0.5	Matrix Spike I	Duplicate	Solid	Me	rcury 05	09/02/14	09/02/14	17:39	140902503	
<u>Parameter</u>	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	0.6303	0.8350	1.063	<u>781 (80.</u> 52	1,227	701 <u>400.</u> 71	71-137	14	0-14	3





## **Quality Control - LCS**

Frey Environmental, Inc. 2817-A Lafayette Avenue

Newport Beach, CA 92663-3715

Date Received:

Work Order:

Preparation:

14-08-1926 EPA 3050B

08/26/14

Method: EPA 6010B

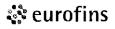
Project: Orange Square / 784-01

Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrumen	t Date Pre	pared Date Ana	lyzed LCS Bate	ch Number
097-01-002-18881	. LCs.	, T. Solid	ICP 7300	08/30/14	09/02/14	19:27 140830L	02
Parameter		Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Antimony		25.00	27.63	111	80-120	73-127	
Arsenic		25.00	26.50	106	80-120	<b>7</b> 3-127	
Barium		25.00	26.99	108	80-120	73-127	
Beryllíum		25.00	25.66	103	80-120	73-127	
Cadmium		25.00	28.06	112	80-120	73-127	
Chromium		25.00	27.92	112	80-120	73-127	
Cobalt		25.00	29.88	120	80-120	<b>7</b> 3-127	
Copper		25.00	27.69	111	80-120	73-127	
Lead		25.00	27.63	111	80-120	73-127	
Molybdenum		25.00	26.90	108	80-120	73-127	
Nickel		25.00	28.94	116	80-120	73-127	
Selenium		25.00	24.26	97	80-120	73-127	
Silver		12.50	13.92	111	80-120	<b>7</b> 3-127	
Thallium		25.00	28.03	112	80-120	73-127	
Vanadium		25.00	26.91	108	80-120	73-127	
Zinc		25.00	26.56	106	80-120	73-127	



Total number of LCS compounds: 16
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass



## **Quality Control - LCS**

Frey Environmental, Inc. 2817-A Lafayette Avenue

Date Received: Work Order:

08/26/14

2817-A Lafayette Avenue Newport Beach, CA 92663-3715

Preparation:

14-08-1926 EPA 7471A Total

Method:

EPA 7471A

Project: Orange Square / 784-01

Page 2 of 2

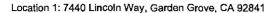
Quality Control Sample ID	Туре	Matrix	Instrument Da	ate Prepared Date A	nalyzed LCS Ba	atch Number
099-16-272-534	LCS	Solid	Mercury 05 09	)/02/14 09/02/	14 17:33 140902	LO3
<u>Parameter</u>	<del></del> ,	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Mercury		0.8350	0.8561	103	85-12 <b>1</b>	

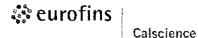




## Sample Analysis Summary Report

Work Order: 14-08-1926	Page 1 of 1			
Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA 6010B	EPA 3050B	469	ICP 7300	1
EPA 6010B	EPA 3050B	915	ICP 7300	1
EPA 7471A	EPA 7471A Total	915	Mercury 05	1





### **Glossary of Terms and Qualifiers**

Vork Order:	: 14-08-1926 Page 1 of 1
Qualifiers	<u>Definition</u>
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without furth clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
В	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons wer also present (or detected).
· J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.

SG The sample extract was subjected to Silica Gel treatment prior to analysis. Х

concentration by a factor of four or greater.

% Recovery and/or RPD out-of-range.

Q

z Analyte presence was not confirmed by second column or GC/MS analysis.

> Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

## Calscience Environmental Laboratories, Inc.

7440 Lincoln Way Garden Grove, CA 92841-1427 TEL: (714) 895-5494 • FAX: (714) 894-7501

CHAIN	OF	CUSTODY R	ECORD
Date	8/	25/14	
	7	1''	

LABORATORY CLIENT: FREY	BORATORY CLIENT: FREY ENVIRONMENTAL, INC.									CLIENT PROJECT NAME / NUMBER: P.O. NO.:  Orangl Squark  PROJECT COVACT: PROJECT COVACT: ABUSEON					<u> </u>	<u> </u>						
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3	B3-1		<b>/0:33</b>											]								
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DISTRIBUTION: White with final report, Green and Yellow to Client.

Please note that pages 1 and 2 of 2 of our T/Cs are printed on the reverse side of the green and yellow copies respectively.

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05/01/07 Revision



WORK ORDER #: 14-08- 4 9 2 6

# SAMPLE RECEIPT FORM

Cooler of

CLIENT: FRCY	DATE:	08/26/	/ 14
TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0°C – 6.0°C, not frozer	ı except se	diment/tissu	e)
Temperature $\frac{\cancel{3} \cdot \cancel{9} \circ C - 0.3 \circ C}{(CF)} = \frac{\cancel{3} \cdot \cancel{6} \circ C}{\cancel{5}}$	Blank	☐ Sample	<b>)</b>
☐ Sample(s) outside temperature criteria (PM/APM contacted by:)			
☐ Sample(s) outside temperature criteria but received on ice/chilled on same da	ay of samp	ling.	
☐ Received at ambient temperature, placed on ice for transport by Co	-		
Ambient Temperature: □ Air □ Filter		Checked by	y: <u>678</u>
OUOTODY OF ALC INTACT.			
CUSTODY SEALS INTACT:	□ N/A	Obsales de	/2 YD
□ Cooler □ □ No (Not Intact) □ Not Present	□ N/A	_	
□ Sample □ □ No (Not Intact) ☑ Not Present		Checked by	": <u>W 7</u>
SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples			
COC document(s) received complete			
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC			
Sample container label(s) consistent with COC	乜		
Sample container(s) intact and good condition	K		
Proper containers and sufficient volume for analyses requested			
Analyses received within holding time	ø		
Aqueous samples received within 15-minute holding time			_
□ pH □ Residual Chlorine □ Dissolved Sulfides □ Dissolved Oxygen			4
Proper preservation noted on COC or sample container			6
☐ Unpreserved vials received for Volatiles analysis			/
Volatile analysis container(s) free of headspace			4
Tedlar bag(s) free of condensation  CONTAINER TYPE:			(-7,-8)
Solid: □4ozCGJ ☑8ozCGJ □16ozCGJ □Sleeve () □EnCores	<sup>,®</sup> □Terra	.Cores <sup>®</sup> .Д_	2_
Aqueous: □VOA □VOAh □VOAna₂ □125AGB □125AGBh □125AGBp	□1 <b>A</b> GB(	⊒1AGB <b>na</b> ₂ ⊏	l1AGB <b>s</b>
□500AGB □500AGJ □500AGJs □250AGB □250CGB □250CGBs	□1PB	□1PBna □	500PB
□250PB □250PBn □125PB □125PBznna □100PJ □100PJna₂ □			
Air: Tedlar Canister Other: Trip Blank Lot#:  Container: C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Env	_ Labeled	/Checked by: Reviewed by:	103 840

Preservative: h: HCL n: HNO<sub>3</sub> na<sub>2</sub>:Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> na: NaOH p: H<sub>3</sub>PO<sub>4</sub> s: H<sub>2</sub>SO<sub>4</sub> u: Ultra-pure znna: ZnAc<sub>2</sub>+NaOH f: Filtered Scanned by:





WORK ORDER NUMBER: 14-09-0272

The difference is service



AIR SOIL WATER MARINE CHEMISTRY

**Analytical Report For** 

Client: Frey Environmental, Inc.

HMoule\_

Client Project Name: Orange Square / 784-01

Attention: John Payne

2817-A Lafayette Avenue

Newport Beach, CA 92663-3715

Email your PM >

ResultLink >

Approved for release on 09/10/2014 by: Stephen Nowak Project Manager



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.



# **Contents**

Client Project Name:	
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Orange Square / 784-01

Work Order Number:

14-09-0272

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3	Client Sample Data.	5 5 7
4	Quality Control Sample Data.          4.1 MS/MSD.          4.2 LCS/LCSD.	8 8 10
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6	Glossary of Terms and Qualifiers	13
7	Chain-of-Custody/Sample Receipt Form	14



#### Work Order Narrative

Work Order: 14-09-0272 Page 1 of 1

#### **Condition Upon Receipt:**

Samples were received under Chain-of-Custody (COC) on 09/04/14. They were assigned to Work Order 14-09-0272.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

#### **Holding Times:**

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

#### **Quality Control:**

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

#### **Additional Comments:**

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

New York NELAP air certification does not certify for all reported methods and analytes, reference the accredited items here: http://www.calscience.com/PDF/New\_York.pdf

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

#### Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

# Sample Summary

Calscience

Client: Frey Environmental, Inc.

2817-A Lafayette Avenue

Newport Beach, CA 92663-3715

Work Order:

Project Name:

PO Number:

Date/Time

Received: Number of

Containers:

Orange Square / 784-01

14-09-0272

09/04/14 14:00

1

Attn: John Payne

B7-0.5

Sample Identification Lab Number

14-09-0272-1

Collection Date and Time

08/22/14 08:13

Number of Containers

Matrix

1

Solid

Contents III

### **Analytical Report**

Frey Environmental, Inc. 2817-A Lafayette Avenue Newport Beach, CA 92663-3715

Project: Orange Square / 784-01

Date Received: Work Order: Preparation:

14-09-0272 EPA 3050B

Units:

Method:

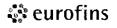
EPA 6010B mg/kg

09/04/14

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B7-0.5	14-09-0272-1-A	08/22/14 08:13	Solid	ICP 7300	09/05/14	09/10/14 13:49	140905L05
<u>Parameter</u>		Result	<u>_</u>	<u></u>	DF	Qua	lifiers
Antimony		5.61	0	).750	1.00		
Arsenic		ND	(	).750	1.00		
Barium		131	(	).500	1.00		
Beryllium		0.381	0	).250	1.00		
Cadmium		ND	C	0.500	1.00		
Chromium		43.8	(	).250	1.00		
Cobalt		13.2	(	).250	1.00		
Copper		952	C	.500	1.00		
Lead		44.3	C	).500	1.00		
Molybdenum		ND	(	).250	1.00		
Nickel		1070	(	).250	1.00		
Selenium		ND	C	).750	1.00		
Silver		9.87	. (	).250	1.00		
Thallium		ND	C	).750	1.00		
Vanadium		51.5	(	).250	1.00		
Zinc		182	1	i.00	1.00		





### **Analytical Report**

Frey Environmental, Inc. 2817-A Lafayette Avenue

Newport Beach, CA 92663-3715

Project: Orange Square / 784-01

Date Received: Work Order:

Preparation: Method:

Units:

09/04/14

14-09-0272 EPA 3050B

EPA 6010B

mg/kg

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	097-01-002-189:	34 N/A	Solid	ICP 7300	09/05/14	09/08/14 19:46	140905L05
Parameter		Result	. <u> </u>	<u>.</u>	<u>DF</u>	Qua	lifiers
Antimony		ND	0	.750	1.00		
Arsenic		ND	0	.750	1.00		
Barium		ND	0	.500	1.00		
Beryllium		ND	0	.250	1.00		
Cadmium		ND	0	.500	1.00		
Chromium		ND	0	.250	1.00		
Cobalt		ND	0	.250	1.00		
Copper		ND	0	.500	1.00		
Lead	•	ND	0	.500	1.00	•	
Molybdenum		ND	0	.250	1.00		
Nickel		ND	0	.250	1.00		
Selenium		ND	0	.750	1.00		
Silver		ND	0	.250	1.00		
Thallium		ND	0	.750	1.00		

0.250

1.00

1.00

1.00

ND

ND



RL: Reporting Limit.

Vanadium Zinc

DF: Dilution Factor.

MDL: Method Detection Limit.

### **Analytical Report**

 Frey Environmental, Inc.
 Date Received:
 09/04/14

 2817-A Lafayette Avenue
 Work Order:
 14-09-0272

 Newport Beach, CA 92663-3715
 Preparation:
 EPA 7471A Total

 Method:
 EPA 7471A

 Units:
 mg/kg

 Project: Orange Square / 784-01
 Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B7-0.5	14-09-0272-1-A	08/22/14 08:13	Solid	Mercury 04	09/08/14	09/08/14 17:27	140908L04
<u>Parameter</u>		<u>Result</u>	<u>R</u>	L	<u>DF</u>	Qua	lifiers
Mercury		0.0941	0.	.0833	1.00		

Method Blank 099-16-272-549	N/A	Solid Mercury 04	09/08/14	09/08/14 140908L04 17:23
Parameter	Result	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.0833	1.00	



**Quality Control - Spike/Spike Duplicate** 

Frey Environmental, Inc. 2817-A Lafayette Avenue Newport Beach, CA 92663-3715 Date Received: Work Order: Preparation:

09/04/14 14-09-0272 EPA 3050B

Method:

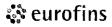
EPA 6010B

Project: Orange Square / 784-01

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Quality Control Sample ID	Туре		Matrix	Instrument		Date Prepare	Date Prepared Date Analyzed			MS/MSD Batch Number		
14-08-2204-1	Sample	19 (1)	Solid	ICP	ICP 7300		09/05/14 09/08/14 20:40		140905505			
14-08-2204-1	Matrix Spike		Solid	ICP 7300		09/05/14	09/05/14 09/08/14 20:32			140905805		
14-08-2204-1	Matrix Spike	Duplicate	Solid	ICP 7300		09/05/14 09/08/14 20:38		20:38	140905805			
<u>Parameter</u>	Sample Conc.	<u>Spike</u> Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	<u>RPD</u>	RPD CL	Qualifiers		
Antimony	ND	25.00	7.917	32	11.38	46	50-115	36	0-20	3,4		
Arsenic	ND	25,00	24.40	98	27.30	109	75-125	11	0-20			
Barium	101.8	25.00	115.8	4X	121.6	4X	75-125	4X	0-20	Q		
Beryllium	0.3300	25.00	24.73	98	26.52	105	75-125	7	0-20			
Cadmíum	ND	25.00	24.67	99	25.81	103	75-125	5	0-20			
Chromium	47.17	25.00	70.19	92	74.79	110	75-125	6	0-20			
Cobalt	12.87	25.00	36.38	94	38.08	101	75-125	5	0-20			
Copper	15.75	25.00	39.90	97	42.46	107	75-125	6	0-20			
Lead	2.253	25.00	26.59	97	28.40	105	75-125	7	0-20			
Molybdenum	ND	25.00	20.16	81	22.98	92	75-125	13	0-20			
Nickel	87.57	25.00	105.1	70	109.1	86	75-125	4	0-20	3		
Selenium	ND	25.00	21,54	86	23.60	94	75-125	9	0-20			
Silver	ND	12.50	12.96	104	13.40	107	75-125	3	0-20			
Thallium	ND	25.00	21.87	87	23.40	94	75-125	7	0-20			
Vanadium	46.85	25.00	65.07	73	70.87	96	75-125	9	0-20	3		
Zinc	32.50	25.00	55.36	91	57.88	102	75-125	4	0-20			





## **Quality Control - Spike/Spike Duplicate**

Frey Environmental, Inc. 2817-A Lafayette Avenue Newport Beach, CA 92663-3715 Date Received: Work Order: Preparation: Method:

14-09-0272 EPA 7471A Total EPA 7471A

09/04/14

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Project: Orange Square / 784-01

Quality Control Sample ID	Туре		Matrix	Inst	trument	Date Prepared	i Date Ana	lyzed	MS/MSD Ba	atch Number
B7-0.5	Sample	1 - A 150-181	Solid	Me	rcury 04	09/08/14	09/08/14	17:27	140908504	
B7-0.5	Matrix Spike		Solid	Me	rcury 04	09/08/14	09/08/14	17:29	140908804	
B7-0.5	Matrix Spike	Duplicate	Solid	Me	rcury 04	09/08/14	09/08/14	17:31	140908504	
<u>Parameter</u>	<u>Sample</u> <u>Conc.</u>	<u>Spike</u> Added	<u>MS</u> Conc.	<u>MS</u> %Rec.	MSD Conc.	<u>MSD</u> %Rec.	%Rec. CL	RPD	<u>RPD CL</u>	Qualifiers
Mercury	0.09413	0.8350	1.077	118	0.9257	100	71-137	15	0-14	4





## Quality Control - LCS

Calscience

Frey Environmental, Inc. 2817-A Lafayette Avenue Newport Beach, CA 92663-3715 Date Received: Work Order: Preparation:

Method:

09/04/14 14-09-0272 EPA 3050B EPA 6010B

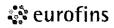
Project: Orange Square / 784-01

Page 1 of 2

Quality Control Sample ID	Туре	Matrix	Instrumen	t Date Pre	pared Date Ana	lyzed LCS Bat	h Number
097-01-002-18934	LCS	Solid	ICP 7300	99/05/14	09/08/14	19:51 140905L	05
<u>Parameter</u>		Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Antimony		25.00	26.02	104	80-120	73-127	
Arsenic		25.00	25.07	100	80-120	73-127	
Barium		25.00	25,20	101	80-120	73-127	
Beryllium		25.00	24.78	99	80-120	73-127	
Cadmium		25.00	26.34	105	80-120	73-127	
Chromium		25.00	26.53	106	80-120	73-127	
Cobalt		25.00	27.98	112	80-120	73-127	
Copper		25.00	26.28	105	80-120	73-127	
Lead		25.00	26.33	105	80-120	73-127	
Molybdenum		25.00	25.51	102	80-120	73-127	
Nickel		25.00	27.54	110	80-120	73-127	
Selenium		25.00	22.98	92	80-120	73-127	
Silver		12.50	13.25	106	80-120	73-127	
Thallium		25.00	26.59	106	80-120	73-127	
Vanadium		25.00	25.08	100	80-120	73-127	
Zinc		25.00	25.63	103	80-120	73-127	

साम कि जिल्लाकर हैं

Total number of LCS compounds: 16
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass



### **Quality Control - LCS**

Date Received:

09/04/14

Frey Environmental, Inc. 2817-A Lafayette Avenue

Work Order:

14-09-0272

Newport Beach, CA 92663-3715

Preparation:

EPA 7471A Total

Method:

EPA 7471A

Page 2 of 2

Project: Orange Square / 784-01

\_\_\_\_<u>\_</u>\_\_\_

Quality Control Sample ID	Туре	Matrix	Instrument D	ate Prepared Da	ite Analyzed LCS Ba	atch Number
099-16-272-549	LCS	Solid	Mercury 04 D	9/08/14 1 09	/08/14 17:25   140908	ILO4
<u>Parameter</u>		Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Mercury		0.8350	0.8486	102	85-121	

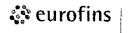




### Sample Analysis Summary Report

Work Order: 14-09-0272 Page 1 of 1 Method Extraction Chemist ID <u>Instrument</u> **Analytical Location** EPA 6010B EPA 3050B 469 ICP 7300 EPA 7471A EPA 7471A Total 915 Mercury 04 1





#### **Glossary of Terms and Qualifiers**

Work Order: 14-09-0272 Page 1 of 1

<u>-</u>	
<b>Qualifiers</b>	<u>Definition</u>
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
В	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
в٧	Sample received after holding time expired.
E	Concentration exceeds the calibration range.
Εľ	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.

- SG The sample extract was subjected to Silica Gel treatment prior to analysis.

  X Recovery and/or RPD out-of-range.
- Z Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

### Calscience Environmental Laboratories, Inc.

7440 Lincoln Way Garden Grove, CA 92841-1427

TEL: (714) 895-5494 • FAX: (714) 894-7501

CHAIN OF/CUSTODY RECORD	
Date 0/2/14	
Date	

LABORATORY CLIENT: FREY ENVIRONMENTAL, INC.						CLIENT PROJECT NAME / NUMBER:									P.O. NO.:								
ADDRESS: 2817-A LAFAYETTE AVENUE						PROJECT CONFICT:										784-01 14-09-0272							
CITY STATE ZIP NEWPORT BEACH, CA 92663-3715																77							
TEL: FAX: E-Mail;						SAM	SAMPLER(S): (PRINT) COELT LOG CODE COOLER RECEIPT																
949/723-1645 949/723/1854 949/723/1854 949/723/1854 @freyinc.com									TEN	(P=				•	°c								
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USE GEIMS ID	SAMPLE ID	SAMF		MATRIX	NO. OF	TPH (G)	TPH (D) or	BTEX / MTBE (8021B)	HALOCARBONS (8021B)	BTEX / OXYGENATES	VOCs (8260B)	ő					CAC,	NAS	VOCs				
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DISTRIBUTION: White with final report, Green and Yellow to Client.

Please note that pages 1 and 2 of 2 of our T/Cs are printed on the reverse side of the green and yellow copies respectively.

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05/01/07 Revision

WORK ORDER #: 14-09-10

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# SAMPLE RECEIPT FORM

	Cooler 1. OI
CLIENT: Frey DA	TE: <u>09/04/14</u>
TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen exce	pt sediment/tissue)
Temperature 2 · ¼ °C - 0.3 °C (CF) = 2 · 1 °C DBIa	nk 🛚 Sample
☐ Sample(s) outside temperature criteria (PM/APM contacted by:)	
☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of	sampling.
☐ Received at ambient temperature, placed on ice for transport by Courier	
Ambient Temperature: □ Air □ Filter	Checked by: <u>&amp; Ø Z</u>
CUSTODY SEALS INTACT:	
□ Cooler □ □ No (Not Intact) Not Present □	N/A Checked by: 802
□ Sample □ □ No (Not Intact) ☑ Not Present	Checked by: 862
SAMPLE CONDITION: Yes	No N/A
Chain-Of-Custody (COC) document(s) received with samples	
COC document(s) received complete	<b>Z</b> -
☑ Collection date/time, matrix, and/or # of containers logged in based on sample labels.	<b>7</b> : — :
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.	:
Sampler's name indicated on COC	ø 🗆
Sample container label(s) consistent with COC	
Sample container(s) intact and good condition	
Proper containers and sufficient volume for analyses requested	
Analyses received within holding time	
Aqueous samples received within 15-minute holding time	
□ pH □ Residual Chlorine □ Dissolved Sulfides □ Dissolved Oxygen □	
Proper preservation noted on COC or sample container	
☐ Unpreserved vials received for Volatiles analysis	
Volatile analysis container(s) free of headspace □	□ <b>p</b>
Tedlar bag(s) free of condensation	
Solid: 🗆4ozCGJ 🗹8ozCGJ 🗆16ozCGJ 🗆 Sleeve () 🗆 EnCores® 🖂	「erraCores <sup>®</sup> □
Aqueous: □VOA □VOAh □VOAna₂ □125AGB □125AGBh □125AGBp □1AG	GB □1AGBna₂ □1AGBs
□500AGB □500AGJ □500AGJs □250AGB □250CGB □250CGBs □1	PB □1PBna □500PB
□250PB □250PBn □125PB □125PBznna □100PJ □100PJna₂ □	
Air: Tedlar Canister Other: Trip Blank Lot#: Lat Container: C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope	peled/Checked by: <u>をし</u> Reviewed by: アプル

Preservative: h: HCL n: HNO3 na2:Na2S2O3 na: NaOH p: H3PO4 s: H2SO4 u: Ultra-pure znna: ZnAc2+NaOH f: Filtered

