Transbay Transit Center Program

Phase II Soil Investigation Report

75 Natoma and 546 Howard Streets San Francisco, California

June 2010



Transbay Transit Center

TRANSBAY TRANSIT CENTER PROGRAM

Phase II Soil Investigation Report 75 Natoma and 546 Howard Streets San Francisco, California

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Prepared for the Transbay Joint Powers Authority



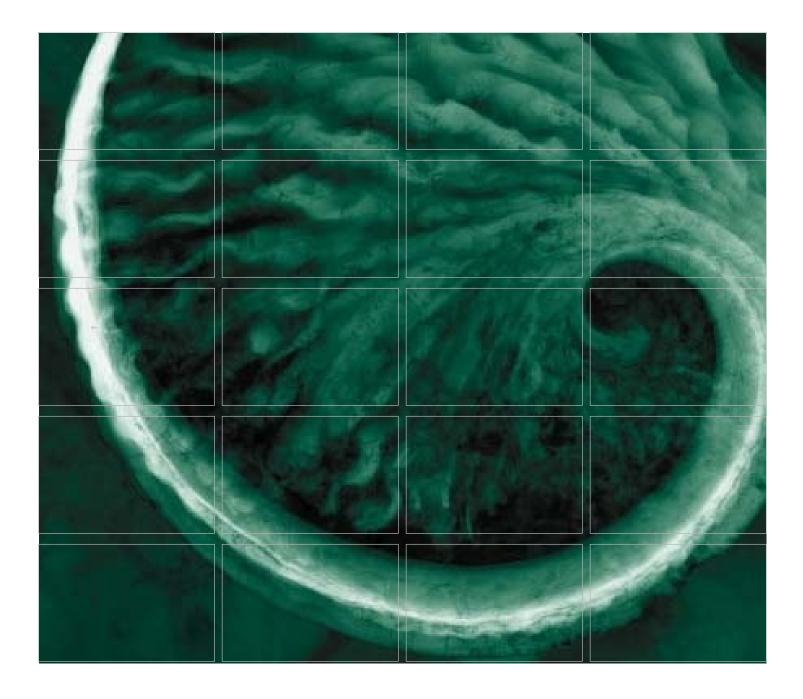
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Transbay Joint Powers Authority

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June 2010

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EXECUTIVE SUMMARY

ERM-West, Inc. (ERM) conducted a Phase II Soil Investigation in anticipation of redevelopment of 75 Natoma Street (Block 3721 Lot 31) and 546 Howard Street (Block 3721 Lot 16).

Based on the information obtained during drilling, the subject property is underlain by 1906 earthquake fill, which consists of silts and sands with gravel, brick fragments, and debris. Beneath the 75 Natoma Street lot, the earthquake fill is approximately 0.5 to 8 feet thick and is underlain by fine Colma sand. Beneath the 546 Howard Street lot, the earthquake fill is at least 8 feet thick.

Soil analytical results were compared to the San Francisco Bay Regional Water Quality Control Board (Water Board) Environmental Screening Levels (ESLs), USEPA Regional Screening Levels (RSLs), and Total Threshold Limit Concentrations (TTLCs). Phase II Soil investigation results indicate that zinc is present within deep soils underlying the subject site area at concentrations exceeding the ESL, and lead is present within shallow and deep soils at concentrations classifying the soil as hazardous waste.

The results were consistent with previous investigations conducted within the subject area. Soil and groundwater contamination within the subject site is likely the result of historical industrial operations in the area, including a manufactured gas plant that operated at Fremont and Howard Streets. Imported fill materials may be also a source of impacts.

In late 2007 and April 2008, ERM completed Phase I Environmental Site Assessments (ESA) of the subject property and several other nearby properties intended for redevelopment (Figure 1). The results of the Phase I ESA for the subject property were documented in Phase I Environmental Site Assessment Group 5 (ERM, December 2007). The results of the Phase I ESAs for the other properties were documented in Phase I Environmental Site Assessment Group 2 (ERM, November 2007), Phase I Environmental Site Assessment Group 7 (ERM, December 2007), and Phase I Environmental Site Assessment Group 4 and Group 8 (ERM, April 2008). Based on Phase I ESA findings, ERM conducted a Limited Phase II Soil and Groundwater Investigation of all of the properties in July 2008. The results of the Phase II Investigation were documented in Limited Phase II Soil and Groundwater Investigation Report (ERM, December 2008). ERM conducted this Phase II Soil Investigation for the subject property to characterize potential impacts in soil for the purpose of disposal.

The subject property is in the City of San Francisco, California on 75 Natoma Street (Block 3721 Lot 31) and 546 Howard Street (Block 3721 Lot 16) (Figure 2).

The subject property is in an area of San Francisco with known soil and groundwater impacts caused by historical backfilling with contaminated fill in the late 1800s, industrial activity subsequent to fill placement, including manufactured gas plants, such the one historically located near Fremont and Howard Streets, and the placement of earthquake fill. Environmental investigations of the subject property vicinity in the 1990s showed that soils are impacted with heavy metals, polycyclic aromatic hydrocarbons (PAHs), and petroleum hydrocarbons. The subject property is regulated under Article 22A of the City and County of San Francisco Municipal Code ("Maher Ordinance"), which was developed to address the known, widespread contamination in this area caused by contaminated fill material used to reclaim the area in the 1800s. The Maher Ordinance requires that site investigation and mitigation plans be developed if construction activities will disturb the contaminated fill material. The Maher Ordinance does not require additional remedial actions to address contamination caused by the fill material.

1

2.0 OBJECTIVES

The objective of this Phase II soil investigation was to understand material management options during excavation of the 75 Natoma Street and 546 Howard Street properties. Excavation of the properties to 10 feet below ground surface (bgs) is planned. This scope was limited to investigation of soil and groundwater that may be encountered during construction of the project. As part of the Phase II soil investigation activities, eight borings were advanced to collect soil samples for laboratory analyses. Collection of a ground water sample was attempted at one boring location. Field investigation activities and methodologies are described below.

Prior to implementing the Phase II field investigation, the following activities were completed:

- A Health and Safety Plan was prepared;
- Drilling permits were obtained from the City and County of San Francisco Department of Public Health;
- Underground Services Alert, a notification service for marking underground utilities on public rights-of-way, was notified of the proposed work; and
- A private utility-locating service was contracted to mark underground utilities in the vicinity of the drilling locations.

3.1 SOIL SAMPLING

3.0

On 20 December 2008, eight soil borings (Natoma B-1 through Natoma B-4, and Howard B-1 through Howard B-4) were advanced to facilitate the collection of soil samples for physical characterization and chemical analysis. Additionally, collection of a ground water sample was attempted at boring location Natoma B-4. Boring locations are identified on Figure 2.

All borings were hand augered to 5 feet bgs to reduce the potential for encountering underground utilities during drilling activities. The borings were advanced with a direct-push rig to approximately 10 feet bgs; one boring (Natoma B-4) was advanced to 20 feet bgs. At four borings (Natoma B-1, Howard B-1 through Howard B-3), drilling could not be advanced below 8 feet bgs due to presence of gravels and fill debris. At one boring (Howard B-4) drilling could not be advanced below 3.5 feet bgs due to the presence of a hard rock debris layer. At this location, drilling of two additional step-out borings were attempted but could not be advanced below 3 feet bgs.

Soil samples were collected continuously at each boring. As part of the soil sampling activities, the soil samples were (1) visually examined to characterize the subsurface geology according to the Unified Soil Classification System, (2) evaluated for visible evidence of contamination, and (3) field-screened with a

photoionization detector (PID) for the presence of organic vapors. Soil descriptions and results of the PID screenings are documented on the soil boring logs included in Attachment A. Soil samples were collected from each boring at depths of approximately 1, 5, and 8 or 10 feet bgs, with the following exceptions: at borings Howard B-1 and Howard B-3, the presence of brick and wood debris below approximately 6-7 feet bgs prevented the collection of deeper soil samples from the bottom of the borings.

Ground water was not encountered in boring Natoma B-4, which was advanced to 20 feet bgs; thus, no ground water samples were collected. The borehole was left open for over 2 hours and did not yield water.

The soil samples were submitted under proper chain of custody to Accutest Laboratories in Santa Clara, California. Copies of the chain-of-custody forms are provided in Attachment B. The soil samples were analyzed for the following constituents:

- Diesel- and motor-oil-range total petroleum hydrocarbons (TPH-d/ TPH-mo) by United States Environmental Protection Agency (USEPA) Method 8015;
- Gasoline-range total petroleum hydrocarbons (TPH-g); benzene, toluene, ethyl benzene and xylenes (BTEX); and methyl-tertiary-butyl-ether (MTBE); by USEPA Method 8260; and
- LUFT 5 metals (cadmium, chromium, lead, nickel, and zinc) by USEPA Method 6010B.

Upon completion of sampling activities at each location, the borings were properly backfilled with a cement-bentonite grout and completed with concrete surfacing. The soil cuttings generated from the drilling activities were contained in one 55-gallon drum. The drum was temporarily stored on the 546 Howard Street lot and subsequently disposed of at a licensed water disposal facility following the completion of fieldwork.

4.0 PHASE II INVESTIGATION RESULTS

The results of the Phase II Soil investigation are presented in the following subsections.

4.1 GEOLOGY

Borings Natoma B-1 through Natoma B-4 and Howard B-1 through Howard B-4 were advanced to depths ranging from 3.5 to 20 feet bgs. Encountered fill material, which included silty sand, and gravelly/sandy silt with brick fragments, was approximately 0.5 to 8 feet thick. Beneath the 75 Natoma Street lot, the fill was underlain by brown, fine Colma sand. Sand was not encountered beneath the 546 Howard Street lot, as the borings on this property could not be advanced below the fill material. Refusal was encountered at 3.5 feet bgs at Howard B-4 and at 8 feet bgs at Natoma B-1 and Howard B-1 through Howard B-3.

PID readings ranged from 0 to 12.6 parts per million (ppm) on the 546 Howard Street lot. All PID readings from the 75 Natoma Street lot were zero.

4.2 SOIL RESULTS

Soil analytical results are summarized on Table 1. The laboratory analytical reports and the data quality review are provided in Attachment B.

Table 1 also includes the following remediation goals and screening levels for commercial/industrial land use, for comparison purposes only:

• San Francisco Bay Regional Water Quality Control Board (Water Board) Environmental Screening Levels (ESLs) - ESLs are screening levels that the Water Board developed to accelerate the preparation of environmental risk assessments at sites with soil and groundwater impacts. ESLs for shallow soil (less than or equal to 9.8 feet bgs), deep soil (greater than 9.8 feet bgs), and direct contact exposure by a trench worker are included on Table 1. ESLs set for commercial/industrial land use where groundwater is not a current or potential drinking water resource were used for comparison. ESLs are not cleanup goals, do not establish policy or regulation, and are not intended to be used as a stand-alone tool for decision-making. As stated in the ESL documentation, the presence of a chemical above an ESL does not necessarily indicate that adverse impacts to human health or the environment are occurring.

- USEPA Regional Screening Levels for Chemical Contaminants at Superfund Sites (RSLs) - RSLs are human health risk-based concentrations that are intended to assist risk assessors and others in initial screening-level evaluations of environmental impact. RSLs are not cleanup standards. The RSLs were used for comparison purposes in the absence of ESLs.
- Total Threshold Limit Concentrations (TTLCs) and Soluble Threshold Limit Concentrations (STLCs) - TTLCs and STLCs are included on Table 1 for the purpose of determining if soils could be characterized as a hazardous waste. These criteria were established by the State of California and are outlined in Title 22 of the California Code of Regulations. Soil with concentrations of a given element or compound in excess of its TTLC is characterized as a hazardous waste. In addition, if a soil concentration of a given element or compound exceeds 10 times its STLC, it is possible that the soil could contain a soluble fraction of the element or compound in question that would be in excess of its STLC and, therefore, a hazardous waste.

4.2.1 Metals

Chromium, lead, nickel, and zinc were detected in all soil samples. Cadmium was not detected above the method detection limit in any soil sample. Detected concentrations of chromium, lead, and nickel did not exceed the shallow or deep soil ESLs, RSLs, or TTLCs.

Zinc was detected in all soil samples between 15 and 5,260 milligrams per kilogram (mg/kg). Zinc was detected in one sample, Natoma B-4 (10-11 feet bgs) at a concentration of 5,260 mg/kg, exceeding the deep soil ESL and TTLC of 5,000 mg/kg.

4.2.2 Total Petroleum Hydrocarbons

TPH-d was detected in three soil samples at concentrations ranging from 5.72 to 162 mg/kg, below the ESL of 180 mg/kg set for shallow and deep soils.

TPH-mo was detected in the majority of the soil samples at concentrations ranging from 13 to 1,650 mg/kg. There were no exceedances of the shallow and deep soil ESLs set at 2,500 and 5,000 mg/kg, respectively.

TPH-g was detected in three soil samples at concentrations ranging from 0.0619 to 0.101 mg/kg, below the ESL of 180 mg/kg set for shallow and deep soils.

4.2.3 Volatile Organic Compounds

BTEX and MTBE were not detected above the method detection limit in any soil sample.

4.3 CAM 17 METALS RESULTS

Based on the initial metals results, samples collected from Natoma B-3 (5-6 feet bgs) and Natoma B-4 (10-11 feet bgs) were analyzed for California Assessment Manual (CAM) 17 metals by USEPA Method 6010B. CAM 17 analytical results are summarized on Table 2, with TTLCs shown for comparison purposes. Several metals (antimony, arsenic, barium, chromium, cobalt, copper, lead, mercury, nickel, vanadium, and zinc) were detected in both samples, but lead (3,480 mg/kg in Natoma B-4 [10-11 feet bgs]) was the only compound detected above its TTLC of 1,000 mg/kg.

4.4 STLC RESULTS

The 75 Natoma Street and 546 Howard Street properties will be excavated to 10 feet bgs during construction activities. Therefore, based on the lead analytical results reported for samples from the 75 Natoma Street lot and chromium analytical results reported for samples from the 546 Howard Street lot, 11 samples were chosen for the STLC analysis, and 8 samples were chosen for the Toxicity Characteristic Leaching Procedure (TCLP) analysis. STLC is used when determining the hazardous waste characterization under California State regulations as outlined in Title 22 of the California Code of Regulations. TCLP is the characterization based on federal guidelines.

All samples collected from the 75 Natoma Street lot were analyzed for lead and sample Howard B-4 (2 feet bgs) was analyzed for chromium for STLC comparison. Samples collected from Natoma B-1 (1 and 5-6 feet bgs), Natoma B-2 (2 and 5-6 feet bgs), Natoma B-3 (5-6 feet bgs), and Natoma B-4 (2, 5-6, and 10-11 feet bgs) were analyzed for lead for TCLP comparison. STLC and TCLP analytical results are shown in Table 2.

Lead exceeded the STLC value of 5 milligrams per liter (mg/L) in Natoma B-1 (1 and 5-6 feet bgs), Natoma B-2-2 (2, 5-6, and 9-10 feet bgs), Natoma B-3 (5-6 feet bgs), and Natoma B-4 (2 and 5-6 feet bgs). Therefore, upon excavation, the soil will have to be treated as hazardous waste under California State regulations.

Lead exceeded the TCLP value of 5 mg/L in Natoma B-4 (10-11 feet bgs). Therefore, upon excavation, the soil will have to be treated as hazardous waste under federal guidelines.

4.5 DATA QA/QC REVIEW

ERM performed a data quality review of the analytical results in accordance with the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999, and USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004. The data quality review evaluated holding times, preservation methods, method blank and trip blank sample results, laboratory control sample recoveries, and matrix and surrogate spike recoveries. A copy of the data quality review is provided in Attachment B along with the analytical laboratory report. Based on the information obtained during drilling, the subject property is underlain by 1906 earthquake fill, which consists of silts and sands with gravel, brick fragments, and debris. Beneath the 75 Natoma Street lot, the earthquake fill is approximately 0.5 to 8 feet thick and is underlain by fine Colma sand. Beneath the 546 Howard Street lot, the earthquake fill is at least 8 feet thick.

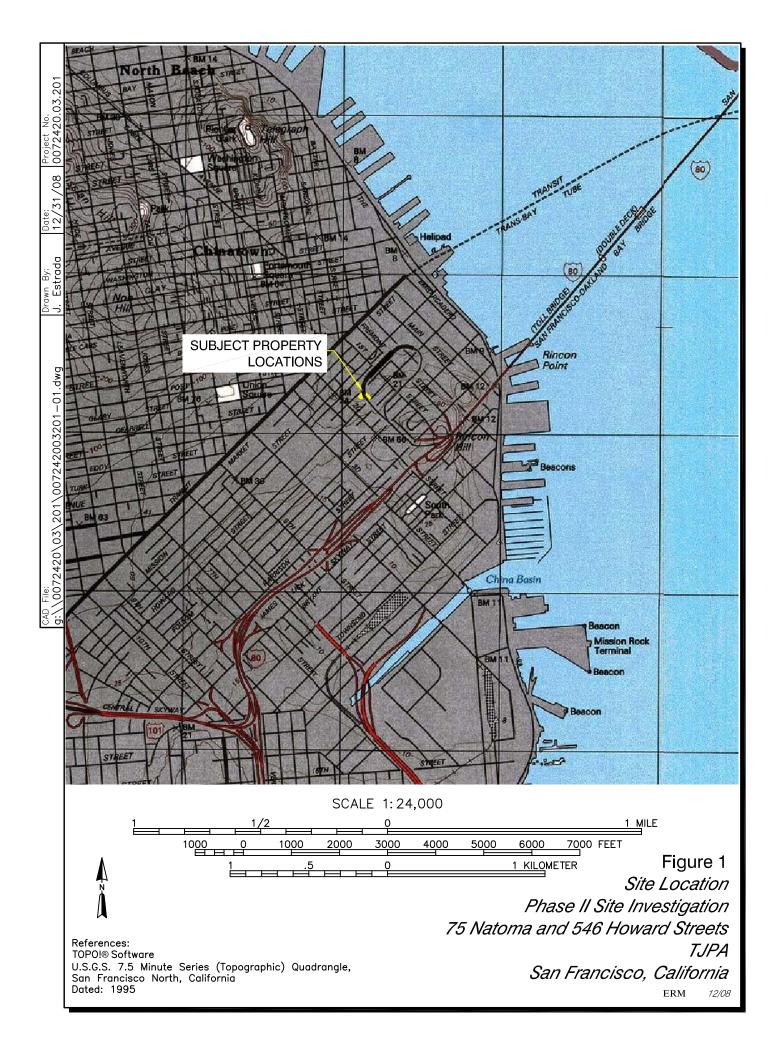
Soil analytical results were compared to Water Board ESLs, USEPA RSLs, and TTLCs. Phase II Soil investigation results indicate that zinc is present within deep soils (10-11 feet bgs) underlying the subject site area at concentrations exceeding the ESL, and lead is present within shallow and deep soils at concentrations classifying the soil as hazardous waste.

As indicated, results were consistent with previous investigations conducted within the subject area. Soil contamination within the subject site is likely the result of historical industrial operations in the area, including a manufactured gas plant at Fremont and Howard Streets. Imported fill materials may be also a source of impacts.

Due to the above findings, however, soils being excavated will need proper handling and disposal. ERM recommends a Materials Management Plan for handling and disposal of impacted soils within the subject site.

For protection of construction personnel, ERM recommends implementation of a site-specific Health and Safety Plan prior to initiation of construction activities. This plan should detail the nature and extent of potential contamination underlying the subject site, and should establish proper safety measures to be employed when performing activities within this area.

Figures





Aerial Photo Source: © 2007 Google Earth Pro Ver 4.0.2737



Soil Boring and Attempted Ground Water Sample Location

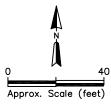


Figure 2 Soil and Ground Water Sample Locations Phase II Investigation 75 Natoma and 546 Howard Streets TJPA San Francisco, California ERM 12/08 Tables

			Total Petroleum Hydrocarbons (TPH)			LUFT 5 Metals				
Sample ID	Sample Date	Sample Depth (ft -	TPH as Diesel	TPH as Motor Oil	TPH as Gasoline	Cadmium	Chromium	Lead	Nickel	Zinc
		bgs)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
75 Natoma Street										
Natoma B-1-1	12/20/2008	1	<10	<20	< 0.099	<0.97	33	208	18.1	90.6
Natoma B-1-(5-6)	12/20/2008	5-6	<10	13 J	< 0.1	< 0.94	35	107	19.4	70.8
Natoma B-1-(7-8)	12/20/2008	7-8	<10	<20	< 0.099	< 0.98	34.3	74.4	19.2	52.1
Natoma B-2-2	12/20/2008	2	<10	54.9	<0.1	<0.96	31.9	383	18.9	374
Natoma B-2-(5-6)	12/20/2008	5-6	<10	13.9 J	< 0.1	<0.98	36.8	204	27.2	159
Natoma B-2-(9-10)	12/20/2008	9-10	28.6 ^(a) NJ	87.6 ^(b) NJ	<0.099	<0.93	29.2	55	19.6	58.3
Natoma B-3-1	12/20/2008	1	<390	1,650	< 0.099	< 0.92	19.7	27.4	30.2	63.7
Natoma B-3-(5-6)	12/20/2008	5-6	<9.8	62.4	< 0.1	<0.98	33.9	403	21	338
Natoma B-3-(9-10)	12/20/2008	9-10	162 ^(a) NJ	360 ^(b) NJ	<0.099	<0.98	19.6	46.5	12.3	15
Natoma B-4-2	12/20/2008	2	<19	25 J	< 0.099	< 0.94	27.5	243	18.1	209
Natoma B-4-(5-6)	12/20/2008	5-6	<9.9	27.2	< 0.1	< 0.97	36.4	185	17.3	84.8
Natoma B-4-(10-11)	12/20/2008	10-11	5.72 ^(a) NJ	16.5 J	<0.099	<0.95	29.8	161	18.2	5,260
546 Howard Street										
Howard B-1-1	12/20/2008	1	<100	948	0.0787 J	< 0.97	39.9	17.5	29.7	68.5
Howard B-1-(5-6)	12/20/2008	5-6	<10	32.8	< 0.1	< 0.98	35.2	30.9	26.7	197
Howard B-2-2	12/20/2008	2	<50	290	0.101 J	<0.93	44	15.1	28.6	56.6
Howard B-2-(5-6)	12/20/2008	5-6	<10	116	< 0.1	< 0.99	44.6	17.2	34.4	59
Howard B-2-(7-8)	12/20/2008	7-8	<10	38.4	< 0.1	<1.0	32.3	7.8	32	33.9
Howard B-3-1	12/20/2008	1	<100	866	0.0619 J	< 0.95	49.2	18.1	38.2	64.7
Howard B-3-(5-6)	12/20/2008	5-6	<100	701	< 0.099	< 0.95	48.1	20.2	84.5	59.6
Howard B-4-2	12/20/2008	2	<100	525	<0.099	<1.0	50.3	31	36.6	51.5
ESL (<9.8 ft bgs)			180	2,500	180	7.4	2,500	750	150	600
ESL (>9.8 ft bgs)			180	5,000	180	39	5,000	750	260	5,000
ESL (Construction/Tr	ench Worker Expo	osure Scenario)	4,200	12,000	4,200	39	-	750	260	230,000
RSL			-	-	-	810	1,400	800	20,000	310,000
TTLC (mg/kg)			-	-	-	100	2,500	1,000	2,000	5,000
STLC (mg/L)			-	-	-	1	5	5	20	250

Notes:

Only those constituents detected in at least one sample are shown.

ESL Industrial Soil - San Francisco Bay Regional Water Quality Control Board, Environmental Screening Levels for

Industrial Sites with non-drinking water source, May 2008

Results of sample IDs in Italics are compared to ESL (>9.8 ft bgs)

RSL Industrial Soil - Regional Screening Levels for Chemical Contaminants at Superfund Sites, September 2008

Shaded cells indicate exceedance of ESL

<0.5 - not detected above the detection limit indicated

- not available

Laboratory Notes:

(a) Not a typical diesel pattern

(b) Estimated value due to discrete peaks mixed with motor oil

J = Indicates an estimated value

ERM Qualifiers:

NJ = Estimated value - chromatogram did not resemble the standard hydrocarbon pattern

Table 1

Summary of Soil Analytical Results Phase II Soil Investigation 75 Natoma and 546 Howard Streets San Francisco, California

Sample ID	Sample Date	Sample Depth	Antimony	Arsenic	Barium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Vanadium	Zinc
CAM17 Analysis		ft bgs	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Natoma B-3-(5-6)	12/20/2008	5-6	<2.0	5.9	163	37.3	5.5	115	255	1.6	26	33.3	301
Natoma B-4-(10-11)	12/20/2008	10-11	4.4	7.1	608	32.8	5.5	324	3,480	0.17	23	29.3	4,990
TTLC			500	500	10,000	2,500	8,000	2,500	1,000	20	2,000	2,400	5,000
STLC Analysis			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Natoma B-1-1	12/20/2008	1							12.8				
Natoma B-1-(5-6)	12/20/2008	5-6							10.5				
Natoma B-1-(7-8)	12/20/2008	7-8							4				
Natoma B-2-2	12/20/2008	2							27.5				
Natoma B-2-(5-6)	12/20/2008	5-6							7.4				
Natoma B-2-(9-10)	12/20/2008	9-10							6.9				
Natoma B-3-(5-6)	12/20/2008	5-6							21.8				
Natoma B-4-2	12/20/2008	2							9.5				
Natoma B-4-(5-6)	12/20/2008	5-6							30.6				
Natoma B-4-(10-11)	12/20/2008	10-11							4.6				
Howard B-4-2	12/20/2008	2				0.71							
STLC	· ·		15	5	100	5	80	25	5	0.2	20		
TCLP Analysis			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Natoma B-1-1	12/20/2008	1							0.36				
Natoma B-1-(5-6)	12/20/2008	5-6							< 0.25				
Natoma B-2-2	12/20/2008	2							< 0.25				
Natoma B-2-(5-6)	12/20/2008	5-6							0.27				
Natoma B-3-(5-6)	12/20/2008	5-6							3.7				
Natoma B-4-2	12/20/2008	2							<0.25				
Natoma B-4-(5-6)	12/20/2008	5-6							0.32				
Natoma B-4-(10-11)	12/20/2008	10-11							24.8				
TCLP			-	5	100	5	-	-	5	0.2	-	-	-

Notes:

CAM17 - Metals by EPA Method 3050B/6010B

TTLC - Total Threshold Limit Concentration

STLC - Soluble Threshold Limit Concentration

TCLP - Toxicity Characteristic Leaching Procedure

TTLC and STLC are used when determining the hazardous waste characterization under California State regulations as outlined in Title 22 of the California Code of Regulations.

TCLP is the characterization based on federal guidelines.

Shaded and boxed cells indicate exceedance of TTLC

Shaded cells indicate exceedance of STLC or TCLP

ND - note detected above the detection limit indicated

-- not analyzed

- not available

Table 2

Summary of CAM 17, STLC, and TCLP Results Phase II Soil Investigation 75 Natoma and 546 Howard Streets San Francisco, California

Attachment A Soil Boring Logs

ERM

Drilling Log

TJPA Sketch Map AJTT Owner Project Project Number <u>0072420,03</u>.201 Location SF, CA Boring Number Howard B-1 Total Depth of Auger 81 Auger Diameter Surface Elevation Water Level: Initial 24-hrs % _ Total Depth of Ground Water Sampler ____ Total Depth of Soil Sampler Ground Water Sample Interval(s) Notes 0 -S' hand augend Drilling Company Gregg Drilling Method Likect push Brandon Log By___ Date Drilled 12-20-08 Driller CU Depth (Feet) Graphic Log and USCS Designation FID (ppm) PID (ppm) Soil Description and Observations Sample Interval (Color, Texture, Structures, Odor, Foreign Matter) 0. ASPHALT ~3" SANDY SILT, br, dry, soft. five to coarse sands, gravels 1/4". / Howard B-1-1 1014 12.6 ML as above. as above as above, in chuared gravels, that e brick pieces. 0,0 Howard B-1-(5-6) 1021 / GRAVELLY/SANDYSHT, Enopon, Bury, hard, gravels yp to 1". 6m 0 oznay noch pieces. Brock pieces О at the . q "repusal at 8" 9 Ŋ Page of

ERM		Drilling Log
Project	OwnerTPA	Sketch Map
LocationSF_CA	Project Number 00 72 4 20.03.20	
Boring Number	h of Auge r Auger Diameter	
Surface ElevationWater Leve	el: Initial24-hrs	
Total Depth of Soil Sampler 81 T	otal Depth of Ground Water Sampler	
Ground Water Sample Interval(s)		
Drilling Company Gruge	•	Notes 0-5' hand augued
Driller <u>Brandin</u> Log By	Date Drilled <u>/ 2 - 20 - 08</u>	
Depth (Feet) Graphic Log and USCS Designation FID (ppm) PID (ppm) Sample Interval	Soil Description and (Color, Texture, Structures,	
-0- -1-	Asphalt. ~ 3" SANDY SICT, light br, dry,	-
$\begin{bmatrix} -2 \\ -2 \\ -2 \\ -3 \\ -3 \\ -3 \\ -3 \\ -3 \\$	GANDY SILT, lishibng dry, Howard B-2-2 0942	sft, Jewgnavels.
$\begin{array}{c} - & - \\$	as above, growels up to 1/2	
	br, dry, Soft, gravel as appue	GRAVELLY/SANPYSILT, sy tol", pre-coarse send
	Howard B-2(7-8) 0958 GRAVELS/Rock, gray, Refusal at 81.	'hand, brisken up into/"" pierez
		Pageof

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Drilling Log ERM TTPA Sketch Map Proiect Project Number 0072420.03.20/ Location SF, (A Boring Number Howard 6-3 Total Depth-of Auger 81 Auger Diameter Surface Elevation Water Level: Initial -24-hrs 81 Total Depth of Soil Sampler Total Depth of Ground Water Sampler Ground Water Sample Interval(s) Notes n-5 hand augener Drilling Method_ divert push Drilling Company G NG Brandin Log By_ M Date Drilled 12-20-08 Driller **Depth** (Feet) Graphic Log and USCS Designation (mqq) FID (ppm) Soil Description and Observations Sample Interval (Color, Texture, Structures, Odor, Foreign Matter) Ē Ô ASPHALT ~3" SANDY SILT, br, dry, soft, five to coose sands. r Howard B-3-1 0905 2 ML **day** A 25 as above. (Boow as above 3 2 SANRY SILT, br, dry, sift, kw fine - coanse sants. ML u. gravels. GRAVELLY ISANDY SILT, br, dry, Soft tomed Stiff, am θ gravels up to 1", fine-coarse sands. / Hawand Brick nieros B-3 (S-6) Brick pieces 09/1/ n wood pieces. up to 2". / Refusal at 8" N 9 10. Page_ of

ERM	Drilling Log
Project <u>+ JPA</u>	Owner TJPA Sketch Map
LocationSF, CA	Project Number 0072420,03, Howard B-5 3 Cl 201 - Stepover, B fud 6/19
Boring Number <u>Howard B-4</u> Total D	epth-ofAuger_3.5' Auger Diameter Step over 8 full blog - + hand layer at 3!
	evel: Initial24-hrs
Total Depth of Soil Sampler $3.5'$	_ Total Depth of Ground Water Samplerstepwer ~ 3 th db/g.
Ground Water Sample Interval(s)	
Drilling Company Ginego	Drilling Method direct push Notes 0-5'h,a.
Driller brandan Log By	Omega_Date Drilled_12-20-08
Depth (Feet) Graphic Log and USCS Designation FID (ppm) PID (ppm) Sample	Soil Description and Observations (Color, Texture, Structures, Odor, Foreign Matter)
-0- 	Asphalt ~3" SANDY SILT, br, dry, soft/1008, asphall pieces Howard B-4-2 0940
$\begin{bmatrix} 2 \\ -2 \end{bmatrix}$ m^{L} $\begin{bmatrix} -1 \\ -2 \end{bmatrix}$ $\stackrel{\bigcirc}{\rightarrow}$	SANDY SILT, br, dry, soft/losse, trace brick preas, trace gravels.
-3-6m0-	GRAVERYSILT, br, dry, soft, with brick pieces. and gravels.
	M hand layerat 3.5' -cannot break up w/drill bit.
F' = I + I + I + I + I + I + I + I + I + I	
	-
F 41 1F 4F 41	
	Page/of/

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ERM Owner TJPA Sketch Map T.TPA Project Project Number 0072420.03.20 SF, CA Location Boring Number Nationa B-1 81 Auger Diameter Total Depth of Auger 24-hrs Water Level: Initial Surface Elevation &/ Total Depth of Ground Water Sampler Total Depth of Soil Sampler Ground Water Sample Interval(s) Notes 0-5' hand direct rush Drilling Company_ 61 regg **Drilling Method** augued Date Drilled 12-2008 Brandon CM Log By Driller Depth (Feet) Graphic Log and USCS Designation Soil Description and Observations FID (ppm) PID (ppm) Sample Interval (Color, Texture, Structures, Odor, Foreign Matter) O Concrete 6" SAND, brown, dry, loose fine cands, finsilk. Notoma B-1-11145 as above, that build piecos, damp SP ()ØØ C) as above j ØD) 0 as above, burnt wood piece. Natona B-1- (5-6) 1157 SAND, brown, dry, louse, fire sands, fin bruch pieres, trace gravels! Sp 0 0 asahwe /Natima B-1-(7-8)1159 " refusal at 81. ۰ſd Page of

ERM TJPA TJPA Sketch Map Owner Project SF, (ft Project Number 0072420.03.20/ Location Boring Number Natoma B-2 Total Depth of Auger 10 Auger Diameter Surface Elevation Water Level: Initial 24-hrs Total Depth of Soil Sampler Ground Water Sample Interval(s) Notes 0 - S' hand augered. _____ Drilling Method_ diffet push Gregg Drilling Company ___Log By___ Date Drilled 12-20-08 Grandon CU Driller Depth (Feet) Graphic Log and USCS Designation FID (ppm) PID (ppm) Soil Description and Observations Sample Interval (Color, Texture, Structures, Odor, Foreign Matter) O Asphalt ~3" Concrete ~2" (Fill) SiHY SAND, br, dry, 100 se, fine Sandsw/ silts, thace brick pieces /Natoma B-2-2 0800 Sm 0 2 SAND, br, dry, lass, fine sands, jew sitts. SP 0 O Natima B-2(5-6) 0820 / a sabore. д as above, thace clays. Natoma B-2-(9-10) 0828 ന h Page of

ERM Owner TJPA Sketch Map TJPA Project Project Number_0072420.03.20/ SF, CA Location Boring Number_<u>Natura 6-5</u>Total Depth of Auger_ (0) Auger Diameter Water Level: Initial Surface Elevation 24-hrs 101 Total Depth of Soil Sampler Total Depth of Ground Water Sampler Ground Water Sample Interval(s) Notes 0-5' hand augene Drilling Company Grugg direct push Drilling Method Date Drilled 12-20-08 brandon Log By $\mathcal{C}\mathcal{U}$ Driller Depth (Feet) Graphic Loc and USCS Designation FID (ppm) (mqq) Soil Description and Observations Sample Interval (Color, Texture, Structures, Odor, Foreign Matter)) Ol Ò Concrete ry". SANRY IGRAVIELY SILT, br, dry, soft//ase, gravels up to '/1" / Natoma 6-3-1 1118 as above Gim as above, quarels up to 1.5". as above. SILTY SAND, brown, dry, soft lase, five saids, mace bricks. I Nationa B-3-(5-6) 1131 SM 3 ∂ burnt wood piece. I gray rockes (brick. SAND, brown, dry, lovel, with brick pieces, SP 0 Nucle piecos Natoma B-3-(9-10) 1133

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ERM TJPA Sketch Map TJPA Owner Project Project Number 0072420.03.20 SF, CA Location 20'Boring Number_Natama B-4_Total Depth-of Auger_ Auger Diameter Water Level: Initial Surface Elevation 24-hrs Total Depth of Soil Sampler $\underline{20}$ Total Depth of Ground Water Sampler 15-20' Ground Water Sample Interval(s)_____ D-S'hand augere Notes Drilling Method direct push Drilling Company Ginega Brandon Date Drilled 12-20-08 CM Log By Driller Depth (Feet) Graphic Lo and USCS Designation FID (ppm) PID (ppm) Soil Description and Observations Sample Interval (Color, Texture, Structures, Odor, Foreign Matter) 0 Concrete @ 10" SILTY SAND, br, dry, louse, fine sands, **Pero** trace brick ? (Naturna B-4-2 1046 \bigcirc sm as above, Scuccourse sands, with brickpieces. as above, damp. q as about, damp. SAND, br, damp-day, five sands, fin sille, thace brich. / Natoma B-4-1052 (5-6) 5 SP 0 д Large brick piece. As above, dark brown, burnt odor live wood, Q 0 SAND, br, dry to slightly damp, Ane sounds, trace silts. / Natoma B-4-(10-11) 1100 (0 -3P a sahure. Page of

ERM

Drilling Log

Project Location					Project Number	Sketch Map
					of Auger Auger Diameter	
					: Initial24-hrs	
					al Depth of Ground Water Sampler	
						Notes
	mpany_				Drilling Method	
Driller			Log	Ву	Date Drilled	
Depth (Feet) Graphic Log	Designation	FID (ppm)	PID (ppm)	Sample Interval	Soil Description and (Color, Texture, Structures,	
 	5				0.5 above. Jamp.	
			L			Page 2_ of 2_

ER) M	Walnut	otelho D Creek, ((925) 94	0rive, Suite CA 94590 46-0455 9968	e 260 ô	LOG OF BOREHOLE: Howard B-1	
Proje Clier Loca Cont Drilli	ect N nt Na ation: tracto ng M	ime: C San F or: Gre	Trans ALTF Franc egg D : Dire	sbay, S RANS isco, C	SF/TJPA California h	Date Started: 12/20/2008 Date Completed: 12/20/2008 Total Depth: 8 feet Borehole Diameter: 2.0" Initial Water Level: NA Notes: 0-5' hand augered, refusal at 8.0'.	
Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Obser	vations	
		12.6 3.5 3.3 0.4 0.0 0.0 0.0	ML		SANDY SILT (ML): as above. SANDY SILT (ML): as above. SANDY SILT (ML): as above, ir	to coarse sand, gravel (1/4"), soft, dry. Howard B1-1 ncreased gravel, trace brick pieces. : brown, gravel up to 1.0", gray rock pieces, brick pieces, hard, dry.	/
- 15- - - - - -	-						
	-						
	-						
	-						1 of 1

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ER) M	Walnut	otelho E Creek.	Drive, Suite CA 94596 46-0455 -9968	260	LOG OF BOREHOLE: Howard B-2	
Proje Clien Loca Conti Drillir	ect N nt Na ntion: racto ng M	lame: ime: C San I or: Gre	Trans ALTF Franc egg D : Dire	RANS isco, C	F/TJPA alifornia	Date Started: 12/20/2008 Date Completed: 12/20/2008 Total Depth: 8 feet Borehole Diameter: 2.0" Initial Water Level: NA Notes: 0-5' hand augered, refusal at 8.0'.	
Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observa	ations	
-		2.4 3.2 0.3 0.3	ML		Asphalt, ~3.0". SANDY SILT (ML): light brown, a SANDY SILT (ML): light brown, fr SANDY SILT (ML): as above, gra	ew gravel, soft, dry. Howard B-2-2	
5		0.0 0.0 0.0	GM GP		GRAVELLY SANDY SILT (GM): GRAVELLY SANDY SILT (GM): GRAVEL (GP): gray, broken, 1/2		(5-
- 10 -					Total Depth - 8 feet bgs		
- 15 -							
- - 20 -							
- - 25 - -							
- 30 -							
- 35							
_						1 of	1

ERN	ERM 1777 Botelho Drive, Suite 260 Walnut Creek, CA 94596 Phone: (925) 946-0455 Fax: (925) 946-9968				LOG OF BOREHOLE: Howard B-3
Project Client N Locatio Contrac Drilling	Project Number: 0072420 Project Name: Transbay, SF/TJPA Client Name: CALTRANS Location: San Francisco, California Contractor: Gregg Drilling Drilling Method: Direct Push Logged By: C. Yi				Date Started: 12/20/2008 Date Completed: 12/20/2008 Total Depth: 8 feet Borehole Diameter: 2.0" Initial Water Level: NA Notes: 0-5' hand augered, refusal at 8.0'.
Depth (ft) Samola Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observ	ations
	3.0 3.5 3.1 3.6 0.0 0.0 0.0 0.0	ML GM		SANDY SILT (ML): as above. SANDY SILT (ML): as above. SANDY SILT (ML): brown, few f	o coarse sand, soft, dry. Howard B-3-1 ine to coarse sands, few gravel, soft, dry. brown, gravel up to 1.0" in size, fine to coarse sand, soft to medium stiff, dry.
					1 of 1

BOREHOLE TO 40 FT WC - - 01/13/09 13:36 - G:\GINT BORING LOGS\CALTRANS-SF - 0072420\CALTRANS-SF.GPJ

ERM	ERM 1777 Bo Walnut (Phone: (Fax: (92	telho D Creek. (Prive, Suit CA 9459 46-0455 9968	te 260 6	LOG OF BOREHOLE: Howard B-4	
Project N Project N Client Na Location: Contracto Drilling N Logged E	lame: ime: C San F or: Gre lethod	Trans ALTF ranc egg D : Har	sbay, S RANS isco, C rilling	California	Date Started: 12/20/2008 Date Completed: 12/20/2008 Total Depth: 3.5 feet Borehole Diameter: 2.0" Initial Water Level: NA Notes: Attempted two stepover locations and encounter refusal at 3.5.	red
Depth (ft) Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Obser	vations	
-	0.0 0.0 0.0	ML GM	• • • •		e brick pieces and gravel, soft to loose, dry. Howard B-4-2	
5		5.11		GRAVELLY SILT (GM): brown, Total Depth - 3.5 feet bgs	with brick pieces and gravel, soft, dry.	
- - 10 -						
- - 15 -						
- - 20 -						
- - 25 - -						
- - 30 - -						
35-						
_						1 of 1

Walnut Creek, CA 94596 Phone: (925) 946-0455 Fax: (925) 946-9968					LOG OF BOREHOLE: Natoma B-1				
		umbei			Date Started: 12/20/2008				
-				-	F/TJPA Date Completed: 12/20/2008				
Clier	nt Na	me: C	ALTF	RANS	Total Depth: 8 feet				
Loca	tion:	San F	ranc	isco, C	alifornia Borehole Diameter: 2.0"				
		or: Gre		-	Initial Water Level: NA				
		ethod: sy: C. `		ect Pusl	h Notes: 0-5' hand augered, refusal at 8.0'.				
Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations				
		0.0		P. N. 4. P.	Concrete, 6.0".				
_		0.0			SAND (SP): brown, fine sand, some silt, loose, dry. Natoma B-1-1 SAND (SP): as above, trace brick pieces, damp.				
-		0.0			SAND (SP): as above, trace blick pieces, damp. SAND (SP): as above.				
-		0.0	SP		SAND (SP): as above, burnt wood piece.				
5—		0.0			SAND (SP): brown, fine sand, trace gravel, few brick pieces, loose, dry. Natoma B-1-(5-6)				
_		0.0							
-		0.0			SAND (SP): as above. Natoma B-1-(7-8) Total Depth - 8 feet bgs				
-					Total Deptit - O teet bgs				
10									
_									
-									
-									
15—									
_									
-									
-									
20									
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25—									
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30—									
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35—									
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-									
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ERM		Creek, 925) 9	Drive, Suit CA 9459 46-0455 -9968		LOG OF BOREHOLE: Natoma B-2	
Project N Project N Client Na Location: Contracto Drilling N Logged B	lame: 1 ame: C/ : San F or: Gre lethod:	Frans ALTF Franc gg D Dire	sbay, S RANS sisco, C Prilling	California	Date Started: 12/20/2008 Date Completed: 12/20/2008 Total Depth: 10 feet Borehole Diameter: 2.0" Initial Water Level: NA Notes: 0-5' hand augered.	
Depth (ft) Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observ	ations	
	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	SM		Asphalt, ~3.0", and Concrete, 2. SILTY SAND (SM): brown, fine s Natoma B-2-2 SAND (SP): brown, fine sand, so SAND (SP): as above. Natoma I SAND (SP): as above, trace clay Natoma B-2-(9-10) Total Depth - 10 feet bgs	sand with silt, trace brick pieces, loose, dry (fill). ome silt, loose, dry. B-2-(5-6)	
						1 of 1



ERM
 1777 Botelho Drive, Suite 260

 Walnut Creek, CA 94596

 Phone: (925) 946-0455

 Fax: (925) 946-9968

Project Name: Transbay, SF/TJPA

Location: San Francisco, California

LOG OF BOREHOLE: Natoma B-3

Date Started: 12/20/2008 Date Completed: 12/20/2008 Total Depth: 10 feet Borehole Diameter: 2.0" Initial Water Level: NA Notes: 0-5' hand augered.

Logged By: C. Yi

BOREHOLE TO 40 FT WC - - 01/13/09 13:37 - G:/GINT BORING LOGS/CALTRANS-SF - 0072420/CALTRANS-SF.GPJ

Project Number: 0072420

Client Name: CALTRANS

Contractor: Gregg Drilling

Drilling Method: Direct Push

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations	
		0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	GM SM		Concrete, -4.0". SANDY GRAVELLY SILT (GM): brown, gravel up to 1/2" in size, soft to loose, dry. Natoma B-3-1 SANDY GRAVELLY SILT (GM): as above. SANDY GRAVELLY SILT (GM): as above. SILTY SAND (SM): brown, fine sand, trace brick pieces, loose, dry. Natoma B-3-(5-6) SILTY SAND (SM): as above, burnt wood piece, gray rocks, brick. SAND (SM): as above, burnt wood pieces, loose, dry. Natoma B-3-(9-10) Total Depth - 10 feet bgs	
						1 of 1

E) ZM	Walnut	otelho E Creek, (925) 9	Drive, Suite CA 94596 946-0455 -9968	LOG OF BOREHOLE: Natoma B-4	
Proj	ect N	lumbe	r: 007	72420	Date Started: 12/20/2008	
Proj	ect N	lame:	Trans	sbay, S	F/TJPA Date Completed: 12/20/2008	
Clie	nt Na	ime: C	ALTI	RANS	Total Depth: 20 feet	
Loca	ation:	San F	Franc	cisco, C	California Borehole Diameter: 2.0"	
		or: Gre		-	Initial Water Level: NA	
	-			ect Pus	h Notes: 0-5' hand augered.	
Log	ged E	By: C.	Yi	, ,		
Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations	
		0.0			Concrete, 10".	
	-	0.0	SM		SILTY SAND (SM): brown, fine sand, trace brick, loose, dry. SILTY SAND (SM): as above. Natoma B-4-2 SILTY SAND (SM): as above, few coarse sand, with brick pieces. SILTY SAND (SM): as above, damp.	
5-		0.0			SAND (SP): brown, fine sand, some silt, trace brick, damp to dry. Natoma B-4-(5-6)	
10-		0.0 0.0 0.0 0.0 0.0 0.0			SAND (SP): as above, large brick piece, dark brown, burnt odor like wood. SAND (SP): brown, fine sand, trace silt, dry to slightly damp. Natoma B-4-(10-11)	
	-	0.0 0.0 0.0 0.0	SP		SAND (SP): as above.	
15-	-	0.0			SAND (SP): as above, damp.	
20-				1.0.000.001	Total Depth - 20 feet bgs	
20- 25- 30- 35-						4.664
						1 of 1

Attachment B Analytical Laboratory Report and Data Quality Review



01/28/09

Technical Report for

ERM-West, Inc.

TJPA - San Francisco, CA

0072420

Accutest Job Number: C3538

Sampling Date: 12/20/08

Report to:

ERM-West, Inc. 1777 Botelho Drive Suite 260 Walnut Creek, CA 94596 mark.litzau@erm.com; chimi.yi@erm.com

ATTN: Mark Litzau

Total number of pages in report: 172



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Laurie Stor

Laurie Glantz-Murphy Laboratory Director

Client Service contact: Diane Theesen 408-588-0200

Certifications: CA (08258CA) This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.



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Sample Summary

ERM-West, Inc.

Job No: C3538

TJPA - San Francisco, CA Project No: 0072420

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
C3538-1	12/20/08	11:45 CY	12/23/08	SO	Soil	NATOMA B-1-1
C3538-1T	12/20/08	11:45 CY	12/23/08	SO	Soil	NATOMA B-1-1
C3538-1W	12/20/08	11:45 CY	12/23/08	SO	Soil	NATOMA B-1-1
C3538-2	12/20/08	11:57 CY	12/23/08	SO	Soil	NATOMA B-1-(5-6)
C3538-2T	12/20/08	11:57 CY	12/23/08	SO	Soil	NATOMA B-1-(5-6)
C3538-2W	12/20/08	11:57 CY	12/23/08	SO	Soil	NATOMA B-1-(5-6)
C3538-3	12/20/08	11:59 CY	12/23/08	SO	Soil	NATOMA B-1-(7-8)
C3538-3W	12/20/08	11:59 CY	12/23/08	SO	Soil	NATOMA B-1-(7-8)
C3538-4	12/20/08	08:00 CY	12/23/08	SO	Soil	NATOMA B-2-2
C3538-4Ť	12/20/08	08:00 CY	12/23/08	SO	Soil	NATOMA B-2-2
C3538-4W	12/20/08	08:00 CY	12/23/08	SO	Soil	NATOMA B-2-2
C3538-5	12/20/08	08:20 CY	12/23/08	SO	Soil	NATOMA B-2-(5-6)
C3538-5T	12/20/08	08:20 CY	12/23/08	SO	Soil	NATOMA B-2-(5-6)

Soil samples reported on a dry weight basis unless otherwise indicated on result page.



Sample Summary (continued)

ERM-West, Inc.

Job No: C3538

TJPA - San Francisco, CA Project No: 0072420

Sample Number	Collected Date	Time By	Received	Matr Code		Client Sample ID
C3538-5W	12/20/08	08:20 CY	12/23/08	SO	Soil	NATOMA B-2-(5-6)
C3538-6	12/20/08	08:28 CY	12/23/08	SO	Soil	NATOMA B-2-(9-10)
C3538-6W	12/20/08	08:28 CY	12/23/08	SO	Soil	NATOMA B-2-(9-10)
C3538-7	12/20/08	11:18 CY	12/23/08	SO	Soil	NATOMA B-3-1
C3538-8	12/20/08	11:31 CY	12/23/08	SO	Soil	NATOMA B-3-(5-6)
C3538-8A	12/20/08	11:31 CY	12/23/08	SO	Soil	NATOMA B-3-(5-6)
C3538-8T	12/20/08	11:31 CY	12/23/08	SO	Soil	NATOMA B-3-(5-6)
C3538-8W	12/20/08	11:31 CY	12/23/08	SO	Soil	NATOMA B-3-(5-6)
C3538-9	12/20/08	11:33 CY	12/23/08	SO	Soil	NATOMA B-3-(9-10)
C3538-10	12/20/08	10:46 CY	12/23/08	SO	Soil	NATOMA B-4-2
C3538-10T	12/20/08	10:46 CY	12/23/08	SO	Soil	NATOMA B-4-2
C3538-10W	12/20/08	10:46 CY	12/23/08	SO	Soil	NATOMA B-4-2
C3538-11	12/20/08	10:52 CY	12/23/08	SO	Soil	NATOMA B-4-(5-6)

Soil samples reported on a dry weight basis unless otherwise indicated on result page.



Sample Summary (continued)

ERM-West, Inc.

TJPA - San Francisco, CA Project No: 0072420

Sample Number	Collected Date Time		Matr Code		Client Sample ID
C3538-11T	12/20/08 10:52	CY 12/23/08	SO	Soil	NATOMA B-4-(5-6)
C3538-11W	12/20/08 10:52	CY 12/23/08	SO	Soil	NATOMA B-4-(5-6)
C3538-12	12/20/08 11:00	CY 12/23/08	SO	Soil	NATOMA B-4-(10-11)
C3538-12A	12/20/08 11:00	CY 12/23/08	SO	Soil	NATOMA B-4-(10-11)
C3538-12T	12/20/08 11:00	CY 12/23/08	SO	Soil	NATOMA B-4-(10-11)
C3538-12W	12/20/08 11:00	CY 12/23/08	SO	Soil	NATOMA B-4-(10-11)
C3538-13	12/20/08 10:14	CY 12/23/08	SO	Soil	HOWARD B-1-1
C3538-14	12/20/08 10:21	CY 12/23/08	SO	Soil	HOWARD B-1-(5-6)
C3538-15	12/20/08 09:42	CY 12/23/08	SO	Soil	HOWARD B-2-2
C3538-16	12/20/08 09:50	CY 12/23/08	SO	Soil	HOWARD B-2-(5-6)
C3538-17	12/20/08 09:58	CY 12/23/08	SO	Soil	HOWARD B-2-(7-8)
C3538-18	12/20/08 09:05	CY 12/23/08	SO	Soil	HOWARD B-3-1
C3538-19	12/20/08 09:14	CY 12/23/08	SO	Soil	HOWARD B-3-(5-6)

Soil samples reported on a dry weight basis unless otherwise indicated on result page.



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C3538

Job No:

Sample Summary (continued)

ERM-West, Inc.

Job No: C3538

TJPA - San Francisco, CA Project No: 0072420

Sample Number	Collected Date	l Time By	Received	Matr Code		Client Sample ID
C3538-20	12/20/08	08:40 CY	12/23/08	SO	Soil	HOWARD B-4-2
C3538-20W	12/20/08	08:40 CY	12/23/08	SO	Soil	HOWARD B-4-2
C3538-21	12/20/08	14:00 CY	12/23/08	SO	Soil	
C3538-21W	12/20/08	14:00 CY	12/23/08	SO	Soil	DRUM
C3538-22	12/20/08	00:00 CY	12/23/08	AQ	Trip Blank Water	TRIP BLANK

Soil samples reported on a dry weight basis unless otherwise indicated on result page.





Sample Results

Report of Analysis



	Report of Analysis											
Client Sam Lab Samp Matrix: Method: Project:		isco, CA										
Run #1 Run #2	File IDDFO03043.D1	•	By MF	Prep Date Pre n/a n/a		Prep Batch n/a	Analytical Batch VO152					
Run #1 Run #2	Initial Weight 5.05 g											
Purgeable	Aromatics, MTBE											
CAS No.	Compound	Result	RL	MDL	Units	Q						
71-43-2 108-88-3 100-41-4 1330-20-7 1634-04-4	Benzene Toluene Ethylbenzene Xylene (total) Methyl Tert Butyl Ether TPH-GRO (C6-C10)	ND ND ND ND ND ND	5.0 5.0 5.9 9.9 5.0 99	1.5 1.5 1.5 4.0 0.99 50	ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg							
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its							
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	99% 104% 98%		60-1	30% 30% 30%							

(a) All results reported on wet weight basis.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





	Report of Analysis										
Client San Lab Samp Matrix: Method: Project:	le ID: C353 SO - SW8	Soil	SW846 3545A sco, CA		Date I	Sampled: Received: nt Solids:	12/23/08				
Run #1 Run #2	File ID GG2918.D	DF 1		By JH	Prep D 12/24/0		Prep Batch OP600	Analytical Batch GGG119			
Run #1 Run #2	Initial Weigh 10.0 g	t Final Vol 1.0 ml	hume								
TPH Extra	actable										
CAS No.	Compound		Result	RL	MDL	Units	Q				
	TPH (C10-C TPH (>C28		ND ND	10 20	5.0 10	mg/kg mg/kg					
CAS No.	Surrogate R	ecoveries	Run# 1	Run# 2	Lim	its					
630-01-3	Hexacosane		79%		45-1	40%					

(a) All results reported on wet weight basis.

ND = Not detectedMDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound





1. **^**

	Page 1 of 1								
Client Samp		OMA B-1	l-1						
Lab Sample						8			
Matrix:	SO -				3 · · · · · · · · · · · · · · · · · · ·				
						Perc	ent S	Solids: n/a ^a	
Project:	TJPA	A - San Fr	ancisco, (CA					
Metals Analy Analyte	vsis Result	RL	Units	DF	Prep	Analyzed	Ву	Method	Prep Method
Cadmium	< 0.97	0.97	mg/kg	1	12/30/08	12/30/08	СТ	SW846 6010B 1	SW846 3050B 2
Chromium	33.0	0.97	mg/kg	1	12/30/08		СТ	SW846 6010B 1	SW846 3050B 2
Lead	208	0.97	mg/kg	1	12/30/08	12/30/08	СТ	SW846 6010B ¹	SW846 3050B ²
Nickel	18.1	0.97	mg/kg	1	12/30/08		СТ	SW846 6010B ¹	SW846 3050B ²
Zinc	90.6	1.9	mg/kg	1	12/30/08		CT	SW846 6010B ¹	SW846 3050B ²

Instrument QC Batch: MA438
 Prep QC Batch: MP729

(a) All results reported on wet weight basis.





Report of Analysis

Client Sample I Lab Sample ID Matrix:): C353 SO -	Soil			Date Sampled: 12/20/08 Date Received: 12/23/08 Percent Solids: n/a						
Project: Metals Analysi		- San Franci eachate SW									
Analyte	Result	HW# MO	CL RL	Units	DF	Prep	Analyzed By	Method	Prep Method		
Lead	0.36	D008 5.0	0.25	mg/l	5	01/14/09	01/15/09 CT	SW846 6010B ¹	SW3010A 2		

(1) Instrument QC Batch: MA467(2) Prep QC Batch: MP783





	Report of Analysis											
Client Sample ID:NATOMA B-1-1Lab Sample ID:C3538-1WMatrix:SO - SoilDate Received:12/23/08												
Project:	TJPA - San Francisco, CA											
Metals Anal	ysis, STLC L	eachate CAV	WET									
Analyte	Result	HW# MC	L RL	Units	DF	Prep	Analyzed By	Method	Prep Method			
Lead	12.8	D008	0.25	mg/l	5	01/14/09	01/14/09 CT	SW846 6010B ¹	SW3010A ²			

(1) Instrument QC Batch: MA464(2) Prep QC Batch: MP782

RL = Reporting Limit MCL = Maximum Contamination Level (not available)





			Page 1 of 1					
Client Sam Lab Sampl Matrix: Method: Project:	e ID: C3538 SO - S SW846				Date 1 Date 1 Perce	: 12/23/08		
Run #1 Run #2	File ID O03044.D	DF 1	Analyzed 12/26/08	By MF	Prep D n/a	Date	Prep Batch n/a	Analytical Batch VO152
Run #1 Run #2	Initial Weight 5.02 g							
Purgeable	Aromatics, MT	BE						
CAS No.	Compound		Result	RL	MDL	Units	Q	
71-43-2 108-88-3 100-41-4 1330-20-7 1634-04-4	Benzene Toluene Ethylbenzene Xylene (total) Methyl Tert B TPH-GRO (C		ND ND ND ND ND	5.0 5.0 5.0 10 5.0 100	1.5 1.5 1.5 4.0 1.0 50	ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg		
CAS No.	Surrogate Re	coveries	Run# 1	Run# 2	Lim	its		
1868-53-7	Dibromofluor	omethane	99%		60-1	30%		

105%

101%

(a) All results reported on wet weight basis.

4-Bromofluorobenzene

Toluene-D8

2037-26-5

460-00-4

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

60-130%

60-130%

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound





		Page 1 of 1									
Client Sam Lab Samp Matrix: Method: Project:		C3538- SO - So SW846	oil	SW846 3545A	A	Date	Sampled: Received: nt Solids:	12/23/08			
Run #1 Run #2			DF 1	Analyzed 12/24/08	By JH	Prep Date Prep Batch 12/24/08 OP600		Prep Batch OP600	Analytical Batch GGG119		
Run #1 Run #2	Initial 10.0 g	Weight	Final Vol 1.0 ml	ume							
TPH Extra	ictable										
CAS No.	Comp	ound		Result	RL	MDL	Units	Q			
		(C10-C28 (> C28-C		ND 13.0	10 20	5.0 10	mg/kg mg/kg	J			
CAS No.	Surro	gate Rec	overies	Run# 1	Run#2	2 Lim	its				
630-01-3	Hexac	osane		75%		45-1	40%				

(a) All results reported on wet weight basis.

(b) Motor Oil Pattern.

ND = Not detectedMDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



2.4



Report of Analysis

Client Sample Lab Sample I Matrix:	D: C3538- SO - So	2 bil				Date San Date Rec Percent S	eived: 12/23/08	
Project:	TJPA -	San Fra	ancisco, (CA				
Metals Analys	sis					NAME (STOLUTION) OF STATE OF STATE OF STATE		
Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	< 0.94	0.94	mg/kg	1	12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²
Chromium	35.0	0.94	mg/kg	1	12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²
Lead	107	0.94	mg/kg	1	12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²
Nickel	19.4	0.94	mg/kg	1	12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²
Zinc	70.8	1.9	mg/kg	1	12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA438

(2) Prep QC Batch: MP729

(a) All results reported on wet weight basis.



C3538



	Report of Analysis											
Client Samp Lab Sample Matrix:		08 08										
Project:												
Metals Analy	ysis, TCLP L	eachate	SW846	5 1311								
Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed By	Method	Prep Method		
Lead	< 0.25	D008	5.0	0.25	mg/l	5	01/14/09	01/15/09 ст	SW846 6010B 1	SW3010A ²		
(1) 7												

Instrument QC Batch: MA467
 Prep QC Batch: MP783



2.5

Report of Analysis

Client Sample II Lab Sample ID: Matrix:			l - (5-6)				Date Sa Date Re Percent	1	0/08 3/08	
Project:	TJPA -	San Fr	ancisco	, CA				bonds. Ibu		
Metals Analysis,	, STLC Le	achate	CA W	ET						
Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	10.5	D008		0.25	mg/l	5	01/14/09	01/14/09 ст	SW846 6010B ¹	SW3010A ²
	0 D . I I									

(1) Instrument QC Batch: MA464(2) Prep QC Batch: MP782





	Report of Analysis										
Client Sam Lab Samp Matrix: Method: Project:		12/20/08 : 12/23/08 : n/a ^a									
Run #1 Run #2	File IDDFO03045.D1	Analyzed 12/26/08	By MF	Prep D n/a	vate	Prep Batch n/a	Analytical Batch VO152				
Run #1 Run #2	Initial Weight 5.05 g				-						
Purgeable	Aromatics, MTBE										
CAS No.	Compound	Result	RL	MDL	Units	Q					
71-43-2 108-88-3 100-41-4 1330-20-7 1634-04-4	Benzene Toluene Ethylbenzene Xylene (total) Methyl Tert Butyl Ether TPH-GRO (C6-C10)	ND ND ND ND ND	5.0 5.0 5.0 9.9 5.0 99	1.5 1.5 1.5 4.0 0.99 50	ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg						
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its						
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	100% 104% 101%		60-1 60-1 60-1	30%						

(a) All results reported on wet weight basis.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

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B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound





4

	Report of Analysis											
Client San Lab Samp Matrix: Method: Project:	le ID: C3538 SO - S SW840	oil	SW846 3545A	,	Date I	Sampled: Received: ht Solids:	12/23/08					
Run #1 Run #2	File ID GG2919.D	DF 1	Analyzed 12/24/08	By JH	Prep D 12/24/0		Prep Batch OP600	Analytical Batch GGG119				
Run #1 Run #2	Initial Weight 10.0 g	Final Vol 1.0 ml	lume									
TPH Extra	actable											
CAS No.	Compound		Result	RL	MDL	Units	Q					
	TPH (C10-C2 TPH (>C28-		ND ND	10 20	5.0 10	mg/kg mg/kg						
CAS No.	Surrogate Re	coveries	Run# 1	Run# 2	Lim	its						
630-01-3	Hexacosane	70%		45-1	40%							

(a) All results reported on wet weight basis.

ND = Not detected MDL - Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range
- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



2.7

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				Re	port of .	Analysis		Page 1			
Client Sample Lab Sample I Matrix:		-	l-(7-8)			Date Rec	Date Sampled: 12/20/08 Date Received: 12/23/08 Percent Solids: n/a ^a				
Project:	TJPA	· San Fr	ancisco, (CA		Percent	Solids: n/a ^a				
Metals Analy	sis										
Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method			
Cadmium Chromium Lead Nickel Zinc	<0.98 34.3 74.4 19.2 52.1	0.98 0.98 0.98 0.98 2.0	mg/kg mg/kg mg/kg mg/kg mg/kg	1 1	12/30/08 12/30/08 12/30/08 12/30/08 12/30/08	12/30/08 CT 12/30/08 CT 12/30/08 CT 12/30/08 CT 12/30/08 CT	SW846 6010B ¹ SW846 6010B ¹ SW846 6010B ¹ SW846 6010B ¹ SW846 6010B ¹	SW846 3050B ² SW846 3050B ² SW846 3050B ² SW846 3050B ² SW846 3050B ²			
(1) 7											

(1) Instrument QC Batch: MA438
 (2) Prep QC Batch: MP729

(a) All results reported on wet weight basis.



7

Report of Analysis

Client Sample I Lab Sample ID Matrix:		8-3W)				mpled: 12/ cceived: 12/ Solids: n/a	20/08 23/08	
Project:	TJPA	- San Francis	co, CA						· .
Metals Analysis	s, STLC L	eachate CA	VET						· · · · · · · · · · · · · · · · · · ·
Analyte	Result	HW# MC	LRL	Units _.	DF	Prep	Analyzed B	y Method	Prep Method
Lead	4.0	D008	0.25	mg/l	5	01/14/09	01/14/09 c	T SW846 6010	B ¹ SW3010A ²

Instrument QC Batch: MA464
 Prep QC Batch: MP782

RL = Reporting Limit MCL = Maximum Contamination Level (not available)



	Report of Analysis											
Client Sam Lab Samp Matrix: Method: Project:		isco, CA	Date Sampled: 12/20/08 Date Received: 12/23/08 Percent Solids: n/a ^a									
Run #1 Run #2	File ID DF O03046.D 1	Analyzed 12/26/08	By MF	Prep D n/a	Date	Prep Batch n/a	Analytical Batch VO152					
Run #1 Run #2	Initial Weight 5.01 g											
Purgeable	Aromatics, MTBE				*****							
CAS No.	Compound	Result	RL	MDL	Units	Q						
71-43-2 108-88-3 100-41-4 1330-20-7 1634-04-4	Benzene Toluene Ethylbenzene Xylene (total) Methyl Tert Butyl Ether TPH-GRO (C6-C10)	ND ND ND ND ND	5.0 5.0 5.0 10 5.0 100	1.5 1.5 1.5 4.0 1.0 50	ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg							
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its							
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	98% 108% 101%		60-1	30% 30% 30%							

(a) All results reported on wet weight basis.

MDL - Method Detection Limit ND = Not detectedRL = Reporting Limit

- E = Indicates value exceeds calibration range
- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound





		Page 1 of 1						
Client Sar Lab Samp Matrix: Method: Project:	ole ID: C3538 SO - S SW846	oil	SW846 3545A sco, CA		Date I	Sampled: Received: nt Solids:	12/23/08	
Run #1 Run #2	File ID GG2979.D	DF 1		By JH	Ргер D 12/24/0		Prep Batch OP600	Analytical Batch GGG121
Run #1 Run #2	Initial Weight 10.0 g	Final Vo 1.0 ml	lume					
TPH Extr	actable							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (C10-C2 TPH (>C28-0	· · · · · · · · · · · · · · · · · · ·	ND 54.9	10 20	5.0 10	mg/kg mg/kg		
CAS No.	Surrogate Re	coveries	Run# 1	Run# 2	Lim	its		
630-01-3	Hexacosane		86%		45-1	40%		

(a) All results reported on wet weight basis.

(b) Motor Oil Pattern.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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	Report of Analysis											
Client Sample Lab Sample I Matrix:			2-2					npled: 12/20/08 eived: 12/23/08				
Project: TJPA - San Francisco, CA												
Metals Analy	sis				*****			********				
Analyte	Result	RL	Units	DF	Prep	Analyzed	Ву	Method	Prep Method			
Cadmium	< 0.96	0.96	mg/kg	1	12/30/08	12/30/08	СТ	SW846 6010B 1	SW846 3050B ²			
Chromium	31.9	0.96	mg/kg	1	12/30/08		СТ	SW846 6010B ¹	SW846 3050B ²			
Lead	383	0.96	mg/kg	1	12/30/08	12/30/08	СТ	SW846 6010B ¹	SW846 3050B ²			
Nickel	18.9	0.96	mg/kg	1	12/30/08	12/30/08	СТ	SW846 6010B 1	SW846 3050B ²			
Zinc	374	1.9	mg/kg	1	12/30/08	12/30/08	СТ	SW846 6010B 1	SW846 3050B ²			
(1) Instrument	QC Batch: M	A438										

(2) Prep QC Batch: MP729

(a) All results reported on wet weight basis.





Report of Analysis

C3538 SO - S	-4T oil		CA			Date Re	ceived: 12/23/		
CLP Le	achate	SW846	1311						
esult	HW#	MCL	RL	Units	DF	Ргер	Analyzed By	Method	Prep Method
0.25	D008	5.0	0.25	mg/l	5	01/14/09	01/15/09 ст	SW846 6010B ¹	SW3010A ²
	C3538 SO - S TJPA	C3538-4T SO - Soil TJPA - San Fra TCLP Leachate esult HW#	C3538-4T SO - Soil TJPA - San Francisco, CCLP Leachate SW846 esult HW# MCL	C3538-4T SO - Soil TJPA - San Francisco, CA TCLP Leachate SW846 1311 esult HW# MCL RL	C3538-4T SO - Soil TJPA - San Francisco, CA TCLP Leachate SW846 1311 esult HW# MCL RL Units	C3538-4T SO - Soil TJPA - San Francisco, CA TCLP Leachate SW846 1311 esult HW# MCL RL Units DF	C3538-4T Date San SO - Soil Date Re Percent TJPA - San Francisco, CA TCLP Leachate SW846 1311 esult HW# MCL RL Units DF Prep	C3538-4T Date Sampled: 12/20// SO - Soil Date Received: 12/23// Percent Solids: n/a TJPA - San Francisco, CA TCLP Leachate SW846 1311 esult HW# MCL RL Units DF Prep Analyzed By	C3538-4T Date Sampled: 12/20/08 SO - Soil Date Received: 12/23/08 Percent Solids: n/a TJPA - San Francisco, CA TCLP Leachate SW846 1311 esult HW# MCL RL Units DF Prep Analyzed By Method

(1) Instrument QC Batch: MA467
 (2) Prep QC Batch: MP783





	Report of Analysis											
Client Samp Lab Sample Matrix:	08 08											
Project:		- San Francis			-	Percent	Solids: n/a					
Metals Ana	lysis, STLC L	eachate CA	WET									
Analyte	Result	HW# MC	L RL	Units	DF	Prep	Analyzed By	Method	Prep Method			
Lead	27.5	D008	0.25	mg/l	5	01/14/09	01/14/09 CT	SW846 6010B ¹	SW3010A ²			

Instrument QC Batch: MA464
 Prep QC Batch: MP782





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Client Sam Lab Sampl Matrix: Method: Project:	-	~		Date I	Sampled: Received: nt Solids:	: 12/23/08	
Run #1 Run #2	File IDDFO03047.D1	Analyzed 12/26/08	By MF	Prep D n/a	Pate	Prep Batch n/a	Analytical Batch VO152
Run #1 Run #2	Initial Weight 5.00 g				<u></u>		
Purgeable	Aromatics, MTBE						
CAS No.	Compound	Result	RL	MDL	Units	Q	
71-43-2 108-88-3 100-41-4 1330-20-7 1634-04-4	Benzene Toluene Ethylbenzene Xylene (total) Methyl Tert Butyl Ether TPH-GRO (C6-C10)	ND ND ND ND ND	5.0 5.0 10 5.0 100	$ \begin{array}{r} 1.5 \\ 1.5 \\ 4.0 \\ 1.0 \\ 50 \\ \end{array} $	ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg		

CAS No. Surrogate Recoveries Run#1 Run#2 Limits 1868-53-7 Dibromofluoromethane 101% 60-130% 2037-26-5 Toluene-D8 108% 60-130% 460-00-4 4-Bromofluorobenzene 102% 60-130%

(a) All results reported on wet weight basis.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



	Report of Analysis										
Client Sam Lab Sampl Matrix: Method: Project:	le ID: C35 SO SW	TOMA B-2-(5- 538-5 - Soil 846 8015B M 'A - San Franci	SW846 3545A		Date	Sampled: Received: nt Solids:	12/23/08				
Run #1 Run #2	File ID GG2920.D	DF 1		By JH	Prep D 12/24/(Prep Batch OP600	Analytical Batch GGG119			
Run #1 Run #2	Initial Weig 10.0 g	ht Final Vo 1.0 ml	lume								
TPH Extra	ctable										
CAS No.	Compound	l	Result	RL	MDL	Units	Q				
	TPH (C10- TPH (>C2		ND 13.9	10 20	5.0 10	mg/kg mg/kg	J				
CAS No.	Surrogate	Recoveries	Run# 1	Run# 2	Lim	its					
630-01-3	Hexacosane		78%		45-1	40%					

(a) All results reported on wet weight basis.

(b) Motor Oil Pattern.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



2.12 2

Report of Analysis

Client Sampl Lab Sample		OMA B-2 8-5	2-(5-6)			Date San	npled: 12/20/08	
Matrix:	- SO -	Soil				Date Rec	eived: 12/23/08	;
Project:	TJPA	- San Fr	ancisco, (CA		Percent	Solids: n/a ^a	
Metals Analy	ysis							
Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	< 0.98	0.98	mg/kg	1	12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B 2
Chromium	36.8	0.98	mg/kg	1	12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B 2
Lead	204	0.98	mg/kg	1	12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²
Nickel	27.2	0.98	mg/kg	1	12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²
Zinc	159	2.0	mg/kg	1	12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B 2

(1) Instrument QC Batch: MA438
 (2) Prep QC Batch: MP729

(a) All results reported on wet weight basis.





	Report of Analysis											
Client Samp Lab Sample	E ID: C353))			Date Sa	*					
Matrix:SO - SoilDate Received:12/23/08Project:TJPA - San Francisco, CAPercent Solids:n/a												
Metals Ana	lysis, TCLP I	eachate SW8	46 1311						J			
Analyte	Result	HW# MC	L RL	Units	DF	Prep	Analyzed By	Method	Prep Method			
Lead	0.27	D008 5.0	0.25	mg/l	5	01/14/09	01/15/09 CT	SW846 6010B ¹	SW3010A ²			
(1) 1												

(1) Instrument QC Batch: MA467(2) Prep QC Batch: MP783





Report of Analysis

Client Sample Lab Sample I Matrix:		mpled: 12/20/ cceived: 12/23/ Solids: n/a							
Project: TJPA - San Francisco, CA Metals Analysis, STLC Leachate CA WET									
Metals Analy	sis, STLC L	eachate CA	VET						
Analyte	Result	HW# MC	L RL	Units	DF	Ргер	Analyzed By	Method	Prep Method
Lead	7.4	D008	0.25	mg/l	5	01/14/09	01/14/09 CT	SW846 6010B ¹	SW3010A ²
(1) Instrument	OC Batch:	MA464							

(1) Instrument QC Batch: MA464(2) Prep QC Batch: MP782





			Page 1 of 1			
Client Sam Lab Sampl Matrix: Method: Project:		- - -				
Run #1 Run #2	File IDDFO03048.D1	Analyzed By 12/26/08 MI		Prep Date n/a	Prep Batch n/a	Analytical Batch VO152
Run #1 Run #2	Initial Weight 5.04 g					
Purgeable	Aromatics, MTBE					
CAS No.	Compound	Result I	RL :	MDL Units	Q	
71-43-2 108-88-3 100-41-4 1330-20-7 1634-04-4	Benzene Toluene Ethylbenzene Xylene (total) Methyl Tert Butyl Ether TPH-GRO (C6-C10)	ND 5 ND 5 ND 6 ND 5	5.0 5.0 9.9 5.0	1.5 ug/kg 1.5 ug/kg 1.5 ug/kg 4.0 ug/kg 0.99 ug/kg 50 ug/kg	• •	
CAS No.	Surrogate Recoveries	Run# 1 I	Run# 2	Limits		
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	104% 104% 102%		60-130% 60-130% 60-130%		

(a) All results reported on wet weight basis.

ND = Not detected MDL - Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range
- J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



	Report of Analysis											
Client San Lab Samp Matrix: Method: Project:	le ID: C3538- SO - So SW846	bil	.SW846 3545A		Date F	Sampled: Received: ht Solids:						
Run #1 Run #2	File ID GG2921.D	DF 1		B <u>y</u> JH	Prep D 12/24/0		Prep Batch OP600	Analytical Batch GGG119				
Run #1 Run #2	Initial Weight 10.2 g	Final Vol 1.0 ml	lume									
TPH Extra	actable											
CAS No.	Compound		Result	RL	MDL	Units	Q					
	TPH (C10-C28 TPH (>C28-C		28.6 87.6	9.8 20	4.9 9.8	mg/kg mg/kg						
CAS No.	Surrogate Rec	over ies	Run# 1	Run# 2	Lim	its						
630-01-3	Hexacosane		63%		45-1	40%						

(a) All results reported on wet weight basis.

(b) Not a typical Diesel pattern.

(c) Estimate value due to discrete peaks mixed with Motor Oil.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound





Report of Analysis											
Client Sample ID:NATOMA B-2-(9-10)Lab Sample ID:C3538-6Matrix:SO - SoilDate Received:12/20/08Percent Solids:n/a a											
Project:											
Metals Analysi	Metals Analysis										
Analyte	Result	RL	Units	DF	Prep	Analyzed B	y Method	Prep Method			
Cadmium	< 0.93	0.93	mg/kg	1	12/30/08	12/30/08 C	SW846 6010B ¹	SW846 3050B ²			
Chromium	29.2	0.93	mg/kg	1	12/30/08	12/30/08 C	SW846 6010B 1	SW846 3050B 2			
Lead	55.0	0.93	mg/kg	1	12/30/08	12/30/08 C		SW846 3050B ²			
Nickel	19.6	0.93	mg/kg	1	12/30/08	12/30/08 C	SW846 6010B ¹	SW846 3050B ²			
Zinc	58.3	1.9	mg/kg	1	12/30/08	12/30/08 ct	SW846 6010B ¹	SW846 3050B ²			

Instrument QC Batch: MA438
 Prep QC Batch: MP729

(a) All results reported on wet weight basis.



RL = Reporting Limit

Report of Analysis

Matrix: SO - Soil Date Received: 12/2 Percent Solids: n/a											
Project:											
Micials Analysis	s, SILC LC	achate		1 ن							
Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed B	By	Method	Prep Method
Lead	6.9	D008		0.25	mg/l	5	01/14/09	01/14/09 C	T	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA464(2) Prep QC Batch: MP782

RL = Reporting Limit MCL = Maximum Contamination Level (not available)



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		Report of A	Analysis	Page 1 of 1
Client Sam Lab Samp Matrix: Method: Project:		sco, CA		
Run #1 Run #2	File ID DF O03049.D 1	Analyzed By 12/26/08 MF	Prep Date Prep Batch n/a n/a	Analytical Batch VO152
Run #1 Run #2	Initial Weight 5.05 g			
Purgeable	Aromatics, MTBE			
CAS No.	Compound	Result RL	MDL Units Q -	-
71-43-2 108-88-3 100-41-4 1330-20-7 1634-04-4	Benzene Toluene Ethylbenzene Xylene (total) Methyl Tert Butyl Ether TPH-GRO (C6-C10)	ND 5.0 ND 5.0 ND 5.0 ND 5.0 ND 5.0 ND 5.0 ND 9.9 ND 5.0 ND 99	1.5 ug/kg 1.5 ug/kg 1.5 ug/kg 4.0 ug/kg 0.99 ug/kg 50 ug/kg	
CAS No.	Surrogate Recoveries	Run# 1 Run#	2 Limits	·
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	100% 105% 101%	60-130% 60-130% 60-130%	

(a) All results reported on wet weight basis.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



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	Report of Analysis									
Client Sam Lab Samp Matrix: Method: Project:	le ID: C3538- SO - So SW846	oil	SW846 3545A sco, CA		Date Sampled: 12/20/0 Date Received: 12/23/0 Percent Solids: n/a ^a					
Run #1 Run #2	File ID GG2998.D	DF 4	Analyzed 12/30/08	By JH	Prep D 12/24/0		Prep Batch OP600	Analytical Batch GGG122		
Run #1 Run #2	Initial Weight 5.10 g	Final Vo 5.0 ml	lume							
TPH Extr	actable									
CAS No.	Compound		Result	RL	MDL	Units	Q			
	TPH (C10-C28 TPH (>C28-C		ND 1650	390 780	200 390	mg/kg mg/kg				
CAS No.	Surrogate Rec	overies	Run# 1	Run# 2	Lim	its				
630-01-3	Hexacosane		109%		45-1	40%				

(a) All results reported on wet weight basis.

(b) Motor Oil Pattern.

ND = Not detected MDL - Method Detection Limit RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



17 2

Report of Analysis

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Report of Analysis Pa											
Client Sample ID:NATOMA B-3-1Lab Sample ID:C3538-7Matrix:SO - SoilDate Received:12/23/08Percent Solids:n/a a											
Project: TJPA - San Francisco, CA											
Metals Analysis											
Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method		
Cadmium	< 0.92	0.92	mg/kg	1	12/30/08	12/30/08	СТ	SW846 6010B ¹	SW846 3050B ²		
Chromium	19.7	0.92	mg/kg	1	12/30/08	12/30/08	СТ	SW846 6010B ¹	SW846 3050B ²		
Lead	27.4	0.92	mg/kg	1	12/30/08	12/30/08	СТ	SW846 6010B ¹	SW846 3050B ²		
Nickel	30.2	0.92	mg/kg	1	12/30/08	12/30/08	СТ	SW846 6010B ¹	SW846 3050B ²		
Zinc	63.7	1.8	mg/kg	1	12/30/08	12/30/08	СТ	SW846 6010B ¹	SW846 3050B ²		

Instrument QC Batch: MA438
 Prep QC Batch: MP729

(a) All results reported on wet weight basis.



RL = Reporting Limit



		1		J			0	
Client Sam Lab Sampl Matrix: Method: Project:	le ID: C3538-8 SO - Soil SW846 8260B	C3538-8 Date Sampled: 12/20/08 SO - Soil Date Received: 12/23/08						
		sto, CA						
Run #1 Run #2	File ID DF O03050.D 1	Analyzed 12/26/08	By MF	Prep D n/a	Date	Prep Batch n/a	Analytical Batch VO152	
Run #1 Run #2	Initial Weight 5.02 g							
Purgeable	Aromatics, MTBE			•				
CAS No.	Compound	Result	RL	MDL	Units	Q		
71-43-2	Benzene	ND	5.0	1.5	ug/kg		-	
108-88-3	Toluene	ND	5.0	1.5	ug/kg			
100-41-4	Ethylbenzene	ND	5.0	1.5	ug/kg			
1330-20-7	Xylene (total)	ND	10	4.0	ug/kg			
1634-04-4	Methyl Tert Butyl Ether	ND	5.0	1.0	ug/kg			
	TPH-GRO (C6-C10)	ND	100	50	ug/kg			
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its			
1868-53-7	Dibromofluoromethane	97%		60-1	.30%			
2037-26-5	Toluene-D8	105%		60-1	30%			

102%

(a) All results reported on wet weight basis.

4-Bromofluorobenzene

460-00-4

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

60-130%

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



Page 1 of 1

Report of Analysis

	Report of Analysis											
Client Sample ID:NATOMA B-3-(5-6)Lab Sample ID:C3538-8Matrix:SO - SoilMethod:SW846 8015B M S'Project:TJPA - San Francisco				SW846 3545/	A .	Date Sampled: 12/20/08 Date Received: 12/23/08 Percent Solids: n/a ^a						
Run #1 Run #2			Analyzed 12/30/08	By JH	Prep Date Prep Batch 12/24/08 OP600		Analytical Batch GGG121					
Run #1 Run #2	Initial 10.2 g	Weight	Final Vo 1.0 ml	lume								
TPH Extra	actable											
CAS No.	Comp	ound		Result	RL	MDL	Units	Q				
		C10-C28 >C28-C		ND 62.4	9.8 20	4.9 9.8	mg/kg mg/kg					
CAS No.	Surrog	gate Rec	overies	Run# 1	Run# 2	Lim	its					
630-01-3	Hexacosane		85%		45-1	40%						

(a) All results reported on wet weight basis.

(b) Motor Oil Pattern.

ND = Not detected MDL - Method Detection Limit RL = Reporting Limit

- E = Indicates value exceeds calibration range
- J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



					•	-		~
Client Sample Lab Sample I Matrix:			8-(5-6)			Date Sar Date Rec	eived: 12/23/08	
Project:	TJPA	- San Fr	ancisco, (CA		Percent	Sonds: n/a "	
Metals Analy	vsis							
Analyte	Result	RL	Units	DF	Ргер	Analyzed By	Method	Prep Method
Cadmium	< 0.98	0.98	mg/kg	1	12/30/08	12/30/08 ст	SW846 6010B ¹	SW846 3050B ²
Chromium	33.9	0.98	mg/kg	1	12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²
Lead	403	0.98	mg/kg	1	12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²
Nickel	21.0	0.98	mg/kg	1	12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²
Zinc	338	2.0	mg/kg	1	12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA438
 (2) Prep QC Batch: MP729

(a) All results reported on wet weight basis.

Report of Analysis



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Report of Analysis Pag											
Client Sample I Lab Sample ID: Matrix: Project:	: C3538 SO - S	oil	-(5-6) ancisco, (CA		Date Sam Date Rec Percent S	eived: 12/23/08	· .			
Metals Analysis	\$										
Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method			
Beryllium Cadmium Chromium Cobalt Copper Lead Mercury Molybdenum Nickel	$< 2.0 \\ 5.9 \\ 163 \\ < 0.99 \\ < 0.99 \\ 37.3 \\ 5.5 \\ 115 \\ 255 \\ 1.6 \\ < 0.99 \\ 26.0 \\ < 2.0 \\ < 0.99 \\ < 2.0 \\ < 2.0 \\ < 2.0 \\ < 2.0 \\ < 2.0 \\ < 2.0 \\ < 2.0 \\ < 2.0 \\ < 2.0 \\ < 2.0 \\ < 2.0 \\ < 2.0 \\ < 2.0 \\ < 2.0 \\ < 0.99 \\ < 2.0 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.91 \\ < 0.$	$\begin{array}{c} 2.0\\ 2.0\\ 0.99\\ 0.99\\ 0.99\\ 0.99\\ 0.99\\ 0.99\\ 0.99\\ 0.99\\ 0.082\\ 0.99\\ 0.99\\ 2.0\\ 0.99\\ 2.0\\ \end{array}$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	01/13/09 01/13/09 01/13/09 01/13/09 01/13/09 01/13/09 01/13/09 01/13/09 01/13/09 01/13/09 01/13/09 01/13/09 01/13/09 01/13/09	01/15/09 CT 01/15/09 CT	SW846 6010B ² SW846 6010B ²	SW846 3050B ³ SW846 3050B ³			

(1) Instrument QC Batch: MA463

(2) Instrument QC Batch: MA466
(3) Prep QC Batch: MP778
(4) Prep QC Batch: MP780

(a) All results reported on wet weight basis.





Report of Analysis

	Percent Solids: n/a										
	•	eachate SW84	, 								
Analyte	Result	HW# MCI	LRL	Units	DF	Prep	Analyzed By	Method	Prep Method		
Lead	3.7	D008 5.0	0.25	mg/l	5	01/14/09	01/15/09 ст	SW846 6010B ¹	SW3010A ²		
(1) Instrument	QC Batch:	MA467									

(2) Prep QC Batch: MP783



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2.20

			-	•		2			0
Client Sample II Lab Sample ID: Matrix:	D: NATO C3538 SO - S				Date Sampled: 12/20/08 Date Received: 12/23/08 Percent Solids: n/a				
Project:	TJPA -	- San Francisc	d, CA						
Metals Analysis,	STLC Le	achate CAW	ΈT						J
Analyte I	Result	HW# MCI	. RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead 2	21.8	D008	0.25	mg/l	5	01/14/09	01/14/09 CT	SW846 6010B ¹	SW3010A ²

)

Instrument QC Batch: MA464
 Prep QC Batch: MP782

RL = Reporting Limit MCL = Maximum Contamination Level (not available)





Page 1 of 1

Report of Analysis

	Report of Analysis												
Client Sam Lab Sampl Matrix: Method: Project:													
Run #1 Run #2	File IDDFO03051.D1	Analyzed By 12/26/08 MF	Prep Date n/a	Prep Batch n/a	Analytical Batch VO152								
Run #1 Run #2	Initial Weight 5.04 g												
Purgeable	Aromatics, MTBE		· ·		······································								
CAS No.	Compound	Result RI	L MDL Units	Q									
71-43-2 108-88-3 100-41-4 1330-20-7 1634-04-4	Benzene Toluene Ethylbenzene Xylene (total) Methyl Tert Butyl Ether TPH-GRO (C6-C10)	ND 5.0 ND 5.0 ND 5.0 ND 9.0 ND 5.0 ND 99) 1.5 ug/kg) 1.5 ug/kg) 4.0 ug/kg) 0.99 ug/kg										
CAS No.	Surrogate Recoveries	Run#1 Ru	n#2 Limits										
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	100% 105% 104%	60-130% 60-130% 60-130%										

(a) All results reported on wet weight basis.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound





N

	Report of Analysis											
Client Sam Lab Samp Matrix: Method: Project:	le ID: C353 SO - SW8	Soil	SW846 3545A		Date I	Sampled: Received: nt Solids:	12/23/08	Page 1 of 1 Analytical Batch GGG119				
Run #1 Run #2	File ID GG2917.D	DF 1	-	By JH	Prep D 12/24/0		Prep Batch OP600					
Run #1 Run #2	Initial Weigh 10.1 g	t Final Vo 10.0 ml	olume		-							
TPH Extra	actable					-						
CAS No.	Compound		Result	RL	MDL	Units	Q					
	TPH (C10-C TPH (>C28		162 360	99 200	50 99	mg/kg mg/kg						
CAS No.	Surrogate R	ecoveries	Run# 1	Run# 2	Lim	its						
630-01-3	Hexacosane		78%		45-1							
(a) All resu	ilts reported on	wet weight b	asis.		·							

(a) All results reported on wet weight basis.

(b) Not a typical Diesel pattern.

(c) Estimate value due to discrete peaks mixed with Motor Oil.

ND = Not detected MDL - Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range
- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



N 22



				Re	port of A	Analysis		Page 1
Client Sampl Lab Sample Matrix:	ID: C35	OMA B-3 38-9 Soil	3-(9-10)			Date Sar Date Re Percent	ceived: 12/23/08	-
Project:	TJP	A - San Fr	ancisco, (CA				
Metals Analy	vsis							
Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium Chromium Lead Nickel Zinc	< 0.98 19.6 46.5 12.3 15.0	0.98 0.98 0.98 0.98 2.0	mg/kg mg/kg mg/kg mg/kg mg/kg	1 1	12/30/08 12/30/08 12/30/08 12/30/08 12/30/08	12/30/08 CT 12/30/08 CT 12/30/08 CT	SW846 6010B ¹ SW846 6010B ¹ SW846 6010B ¹ SW846 6010B ¹ SW846 6010B ¹	SW846 3050B ² SW846 3050B ² SW846 3050B ² SW846 3050B ² SW846 3050B ²

(1) Instrument QC Batch: MA438
 (2) Prep QC Batch: MP729

(a) All results reported on wet weight basis.



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	Report of Analysis													
Client Sam Lab Samp Matrix: Method: Project:		sco, CA		Date I	Sampled: Received: nt Solids:	: 12/23/08								
Run #1 Run #2	File IDDFO03052.D1	•	Зу ⁄ЛF	Prep D n/a	ate	Prep Batch n/a	Analytical Batch VO152							
Run #1 Run #2	Initial Weight 5.04 g													
Purgeable	Aromatics, MTBE													
CAS No.	Compound	Result	RL	MDL	Units	Q								
71-43-2 108-88-3 100-41-4 1330-20-7 1634-04-4	Benzene Toluene Ethylbenzene Xylene (total) Methyl Tert Butyl Ether TPH-GRO (C6-C10)	ND ND ND ND ND ND	5.0 5.0 5.0 9.9 5.0 99	1.5 1.5 1.5 4.0 0.99 50	ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg									
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its									
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	99% 106% 103%		60-1 60-1 60-1	30%									

c

n

(a) All results reported on wet weight basis.

ND = Not detectedMDL - Method Detection Limit RL = Reporting Limit

- E = Indicates value exceeds calibration range
- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



2.23

Report of Analysis

Client Sam Lab Sampl Matrix: Method: Project:	e ID: C3538-10 SO - Soil	W846 3545A 9, CA	Date Sampled: 12/20/08 Date Received: 12/23/08 Percent Solids: n/a ^a							
Run #1 ^b Run #2		Analyzed By 12/24/08 JH	Prep Date 12/24/08	Prep Batch OP600	Analytical Batch GGG119					
Run #1 Run #2	Initial WeightFinal Volume5.20 g1.0 ml									
TPH Extra	ctable									
CAS No.	Compound	Result RL	MDL Units	Q						
	TPH (C10-C28) TPH (>C28-C40) ^c	ND 19 25.0 38	9.6 mg/kg 19 mg/kg	L						
CAS No.	Surrogate Recoveries	Run#1 Run#2	Limits							
630-01-3	Hexacosane	80% (MA)	45-140%							

(a) All results reported on wet weight basis.

(b) Reporting Limit increased due to high moisture in the sample. 5grams prepared instead of the standard 10grams.

(c) Motor Oil Pattern.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound





Report of Analysis Pa												
Client Sample ID:NATOMA B-4-2Lab Sample ID:C3538-10Matrix:SO - SoilProject:TJPA - San Francisco, CA												
Project:	TJPA	San Fr	ancisco, (CA		Perc	ent S	Solids: n/a ^a				
Metals Analy	/sis							NIII NII 241.	······································			
Analyte	Result	RL	Units	DF	Prep	Analyzed	Ву	Method	Prep Method			
Cadmium	< 0.94	0.94	mg/kg	1	12/30/08	12/30/08	СТ	SW846 6010B ¹	SW846 3050B ²			
Chromium	27.5	0.94	mg/kg	1	12/30/08	12/30/08	СТ	SW846 6010B 1	SW846 3050B ²			
Lead	243	0.94	mg/kg	1	12/30/08	12/30/08	CT	SW846 6010B 1	SW846 3050B ²			
Nickel	18.1	0.94	~_~	1	12/30/08	12/30/08	CT	SW846 6010B 1	SW846 3050B ²			
Zinc	209	1.9	mg/kg	1	12/30/08	12/30/08	СТ	SW846 6010B ¹	SW846 3050B ²			

Instrument QC Batch: MA438
 Prep QC Batch: MP729

(a) All results reported on wet weight basis.





Report of Analysis

Client Sample II Lab Sample ID: Matrix:			2			Date Sampled: 12/20/08 Date Received: 12/23/08 Percent Solids: n/a				
Project: TJPA - San Francisco, CA										
Metals Analysis	, TCLP L	eachate S	W846	1311		<u>, , , , , , , , , , , , , , , , , , , </u>				
Analyte	Result	HW# N	MCL	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	< 0.25	D008 5	5.0	0.25	mg/l	5	01/14/09	01/15/09 ст	SW846 6010B 1	SW3010A ²
	~ ~ · ·									

(1) Instrument QC Batch: MA467(2) Prep QC Batch: MP783





	Report of Analysis											
Client Samp Lab Sample Matrix:	ID: C353	NATOMA B-4-2C3538-10WDate Sampled: 12/20/08SO - SoilDate Received: 12/23/08Boreart Solidy:n/o										
Project: TJPA - San Francisco, CA												
Metals Anal	lysis, STLC L	eachate CA	WET]			
Analyte	Result	HW# MC	L RL	Units	DF	Prep	Analyzed By	Method	Prep Method			
Lead	9.5	D008	0.25	mg/l	5	01/14/09	01/14/09 CT	SW846 6010B 1	SW3010A ²			

Instrument QC Batch: MA464
 Prep QC Batch: MP782





		Repor	t of An	alysis			Page 1 of 1
Client Sam Lab Sampl Matrix: Method: Project:				Date I	Sampled: Received nt Solids	: 12/23/08	
Run #1 Run #2	File IDDFO03053.D1	Analyzed 12/26/08	By MF	Prep D n/a	ate	Prep Batch n/a	Analytical Batch VO152
Run #1 Run #2	Initial Weight 5.00 g		,				
Purgeable	Aromatics, MTBE						
CAS No.	Compound	Result	RL	MDL	Units	Q	
71-43-2 108-88-3 100-41-4 1330-20-7 1634-04-4	Benzene Toluene Ethylbenzene Xylene (total) Methyl Tert Butyl Ether TPH-GRO (C6-C10)	ND ND ND ND ND	5.0 5.0 10 5.0 100	1.5 1.5 1.5 4.0 1.0 50	ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg		
CAS No.	Surrogate Recoveries	Run#1	Run# 2	Lim	its		
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	96% 106% 102%		60-1	30% 30% 30%		Ţ

(a) All results reported on wet weight basis.

MDL - Method Detection Limit ND = Not detectedRL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



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N

	Report of Analysis													
Client Sample ID: NATOMA B-4-(5 Lab Sample ID: C3538-11 Matrix: SO - Soil Method: SW846 8015B M Project: TJPA - San France				Date Sampled:12/20/08Date Received:12/23/08SW846 3545APercent Solids:n/a a				12/23/08						
Run #1 Run #2	File ID GG2977.D	•	DF 1	Analyzed 12/29/08	Ву ЈН	Prep D 12/24/0		Prep Batch OP600	Analytical Batch GGG121					
Run #1 Run #2	Initial Wei 10.1 g	-	Final Vol 1.0 ml	ume										
TPH Extra	actable													
CAS No.	Compoun	ıd		Result	RL	MDL	Units	Q						
	TPH (C10 TPH (>C		0) ^b	ND 27.2	9.9 20	5.0 9.9	mg/kg mg/kg							
CAS No.	Surrogate	e Recov	veries	Run# 1	Run# 2	Lim	its							
630-01-3	Hexacosan	ne		70%		45-1	40%							

(a) All results reported on wet weight basis.

(b) Motor Oil Pattern.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound





Report of Analysis

Page 1

					L	5		8
Client Samp Lab Sample Matrix:			l-(5-6)			Date San Date Rec Percent S	eived: 12/23/08	
Project:	TJPA	- San Fr	ancisco, (CA		Percent a	sonus: n/a -	
Metals Analy	ysis							
Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium Chromium Lead Nickel Zinc	<0.97 36.4 185 17.3 84.8	0.97 0.97 0.97 0.97 1.9	mg/kg mg/kg mg/kg mg/kg mg/kg	1 1	12/30/08 12/30/08 12/30/08 12/30/08 12/30/08	12/30/08 CT 12/30/08 CT 12/30/08 CT	SW846 6010B ¹ SW846 6010B ¹ SW846 6010B ¹ SW846 6010B ¹ SW846 6010B ¹	SW846 3050B ² SW846 3050B ² SW846 3050B ² SW846 3050B ² SW846 3050B ²

Report of Analysis

Instrument QC Batch: MA438
 Prep QC Batch: MP729

(a) All results reported on wet weight basis.



2.26

Report of Analysis

Client Sample I Lab Sample ID: Matrix: Project:	: C3538- SO - So	-11T		, CA			Date Sa Date Re Percent	ceived: 12/23/		
Metals Analysis	, TCLP Le	achate	SW846	5 1311						J
Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	0.32	D008	5.0	0.25	mg/l	5	01/14/09	01/15/09 CT	SW846 6010B ¹	SW3010A ²

Instrument QC Batch: MA467
 Prep QC Batch: MP783





Report of Analysis

Client Sample I Lab Sample ID: Matrix:			•			Date Sa Date Re Percent	-		
Project:		- San Franciso							
Metals Analysis	, STLC Le	achate CAV	VET						
Analyte	Result	HW# MC	LRL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	30.6	D008	0.25	mg/l	5	01/14/09	01/15/09 ст	SW846 6010B ¹	SW3010A ²
(1) Instrument Q	C Batch: M	1A464							

(2) Prep QC Batch: MP782

RL = Reporting Limit MCL = Maximum Contamination Level (not available)





		Repo	rt of An	alysis			Page 1 of 1
Client Sam Lab Sampl Matrix: Method: Project:			12/20/08 12/23/08 n/a ^a				
Run #1 Run #2	File IDDFO03054.D1	Analyzed 12/26/08	By MF	Prep D n/a	ate	Prep Batch n/a	Analytical Batch VO152
Run #1 Run #2	Initial Weight 5.05 g						
Purgeable	Aromatics, MTBE						
CAS No.	Compound	Result	RL	MDL	Units	Q	
71-43-2 108-88-3 100-41-4 1330-20-7 1634-04-4	Benzene Toluene Ethylbenzene Xylene (total) Methyl Tert Butyl Ether TPH-GRO (C6-C10)	ND ND ND ND ND ND	5.0 5.0 5.0 9.9 5.0 99	1.5 1.5 1.5 4.0 0.99 50	ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg		
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its		
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	99% 105% 102%		60-1 60-1 60-1			

(a) All results reported on wet weight basis.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



	Report of Analysis													
Client Sam Lab Sampl Matrix: Method: Project:		SW846 3545A		12/20/08 12/23/08 n/a ^a										
Run #1 Run #2	File IDDFGG2924.D1	Analyzed B 12/24/08 JI	-	Prep D: 12/24/0		Prep Batch OP600	Analytical Batch GGG119							
Run #1 Run #2	Initial Weight Final V 10.1 g 1.0 ml	olume												
ГРН Extra	ctable													
CAS No.	Compound	Result	RL	MDL	Units	Q								
	TPH (C10-C28) ^b TPH (>C28-C40) ^c	5.72 16.5	9.9 20	5.0 9.9	mg/kg mg/kg	lense lense								
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its									
630-01-3	Hexacosane	75%		45-1	40%									
(b) Not a ty	lts reported on wet weight b pical Diesel pattern. Dil Pattern.	basis.												

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



2.29

]	Report of	Analysis		Page 1 of 1
Client Samp Lab Sample Matrix:		4-(10-11)		Date R	ampled: 12/20/08 eccived: 12/23/08	
Project:	TJPA - San F	rancisco, CA	Ą	Percen	t Solids: n/a ^a	
Metals Analy	ysis					
Analyte	Result RL	Units I	DF Prep	Analyzed B	y Method	Prep Method
Cadmium	< 0.95	mg/kg 1	12/30/08	12/30/08 CT	Г SW846 6010B ¹	SW846 3050B ³
Chromium	29.8 0.95	mg/kg 1	12/30/08	12/30/08 CT	F SW846 6010B ¹	SW846 3050B 3
Lead	161 0.95	mg/kg 1	12/30/08	12/30/08 CT	F SW846 6010B ¹	SW846 3050B 3
Nickel	18.2 0.95	mg/kg 1	12/30/08	12/30/08 CT	F SW846 6010B ¹	SW846 3050B ³
Zinc	5260 9.5	mg/kg 5	5 12/30/08	01/02/09 CT	Г SW846 6010B ²	SW846 3050B ³
(2) Instrumen	t QC Batch: MA438 t QC Batch: MA442 Batch: MP720					

(3) Prep QC Batch: MP729

(a) All results reported on wet weight basis.

RL = Reporting Limit





Report	of	Analysis
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1									
Client Sample Lab Sample II Matrix:			-(10-11)			Date	Sampleo Receive ant Solid	d: 12/23/08	
Project:	TJPA -	- San Fra	ncisco, (CA		F el ce	int sond	S. 17a -	
Metals Analys	is								
Analyte	Result	RL	Units	DF	Prep	Analyzed l	By M	ethod	Prep Method
Antimony	4.4	2.0	mg/kg	1	01/13/09	01/15/09 0	CT SW	/846 6010B ²	SW846 3050B 3
Arsenic	7.1	2.0	mg/kg	1	01/13/09	01/15/09 0	CT SW	/846 6010B ²	SW846 3050B ³
Barium	608	1.0	mg/kg	1	01/13/09	01/15/09 0	CT SW	/846 6010B ²	SW846 3050B ³
Beryllium	< 1.0	1.0	mg/kg	1	01/13/09	01/15/09 0	CT SW	/846 6010B ²	SW846 3050B ³
Cadmium	< 1.0	1.0	mg/kg	1	01/13/09	01/15/09 0	CT SW	/846 6010B ²	SW846 3050B ³
Chromium	32.8	1.0	mg/kg	1	01/13/09	01/15/09 0		/846 6010B ²	SW846 3050B ³
Cobalt	5.5	1.0	mg/kg	1	01/13/09	01/15/09 0	CT SW	/846 6010B ²	SW846 3050B ³
Copper	324	1.0	mg/kg	1	01/13/09	01/15/09 0	CT SW	∕846 6010B ²	SW846 3050B ³
Lead	3480	1.0	mg/kg	1	01/13/09	01/15/09 0	CT SW	/846 6010B ²	SW846 3050B 3
Mercury	0.17	0.039	mg/kg	1	01/14/09	01/14/09 H	RW SW	/846 7471A ¹	SW846 7471A ⁴
Molybdenum	< 1.0	1.0	mg/kg	1	01/13/09	01/15/09 0		7846 6010B ²	SW846 3050B ³
Nickel	23.0	1.0	mg/kg	1	01/13/09	01/15/09 0	CT SW	/846 6010B ²	SW846 3050B ³
Selenium	< 2.0	2.0	mg/kg	1	01/13/09	01/15/09 0	CT SW	V846 6010B ²	SW846 3050B ³
Silver	< 1.0	1.0	mg/kg	1	01/13/09			/846 6010B ²	SW846 3050B ³
Thallium	< 2.0	2.0	mg/kg	1	01/13/09	01/15/09 0	CT SW	/846 6010B ²	SW846 3050B ³
Vanadium	29.3	1.0	mg/kg	1	01/13/09	01/15/09 0	CT SW	/846 6010B ²	SW846 3050B ³
Zinc	4990	10	mg/kg	5	01/13/09	01/15/09 0	CT SW	√846 6010B ²	SW846 3050B ³

(1) Instrument QC Batch: MA463
 (2) Instrument QC Batch: MA466
 (3) Prep QC Batch: MP778
 (4) Prep QC Batch: MP780

(a) All results reported on wet weight basis.

C3538 62 of 172 C3538 Extension



				Re	port o	f An	alysis			Page 1 of 1		
Client Sample ID:NATOMA B-4-(10-11)Lab Sample ID:C3538-12TMatrix:SO - SoilDate Received:12/23/08Project:TIPA - San Francisco, CA												
Project: Metals Analysis				,								
Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed By	Method	Prep Metho		
Lead	24.8	D008	5.0	0.25	mg/l	5	01/14/09	01/15/09 CT	SW846 6010B ¹	SW3010A ²		
(1) Instrumont (C Ratch N	A A A G 7										

Instrument QC Batch: MA467
 Prep QC Batch: MP783





Report of Analysis

Client Sample I Lab Sample ID: Matrix:			1)				mpled: 12/20, cceived: 12/23, Solids: n/a			
Project: TJPA - San Francisco, CA										
Metals Analysis	, STLC Le	eachate CAW	/ET			·			·····	
Analyte	Result	HW# MCI	RL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Lead	4.6	D008	0.25	mg/l	5	01/14/09	01/15/09 ст	SW846 6010B ¹	SW3010A ²	
(1) Instrument O	C Batch: N	1A464								

(1) Instrument QC Batch: MA464(2) Prep QC Batch: MP782





Report of Analysis						Page 1 of 1
Client Sam Lab Sampl Matrix: Method: Project:	•	sco, CA	Date Sampled: 12/20/08 Date Received: 12/23/08 Percent Solids: n/a ^a CA			
Run #1 ^b Run #2	File ID DF O03055.D 1	Analyzed By 12/26/08 MF	Prep 1 n/a	Date	Prep Batch n/a	Analytical Batch VO152
Run #1 Run #2	Initial Weight 5.03 g					
Purgeable	Aromatics, MTBE					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
CAS No.	Compound	Result R	L MDL	Units	Q	
71-43-2 108-88-3 100-41-4 1330-20-7 1634-04-4	Benzene Toluene Ethylbenzene Xylene (total) Methyl Tert Butyl Ether TPH-GRO (C6-C10)	ND 5 ND 5 ND 9	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	J	
CAS No.	Surrogate Recoveries	Run#1 R	un#2 Lir	nits		
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	48% ^c 104% 105%	60-	130% 130% 130%		

(a) All results reported on wet weight basis.

(b) Sample was not preserved to a pH < 2.

(c) Outside control limits due to matrix interference.

ND = Not detected MDL - Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range
- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound







				Repor	t of An	alysis			Page 1 of 1
Client San Lab Samp Matrix: Method: Project:	ole ID: C S S	3538-1 O - So W846	il	SW846 3545A co, CA		Date I	Sampled: Received: nt Solids:	12/23/08	
Run #1 Run #2	File ID GG2975.1	D	DF 10		By JH	Prep D 12/24/0		Prep Batch OP600	Analytical Batch GGG121
Run #1 Run #2	Initial Wo 10.0 g	eight	Final Volu 1.0 ml	ıme					
TPH Extra	actable								
CAS No.	Compou TPH (C1 TPH (>	.0-C28)		Result ND 948	RL 100 200	MDL 50 100	Units mg/kg mg/kg	Q	
CAS No.	Surroga	te Reco	overies	Run# 1	Run# 2	Lim	its		
630-01-3	Hexacosa	ane		86%		45-1	40%		
(a) All resu	ilts reported	on we	t weight bas	is.					

(b) Motor Oil Pattern.

ND = Not detectedMDL - Method Detection Limit RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound





				Re	port of .	Analysis	5		Page 1 of 1
Client Sampl Lab Sample I			1-1		AMA AND AN			npled: 12/20/08	
Matrix: Project:		ancisco, (CA				eived: 12/23/08 Solids: n/a ^a	3	
Metals Analy	rsis								
Analyte	Result	RL	Units	DF	Ргер	Analyzed	Ву	Method	Prep Method
Cadmium Chromium Lead Nickel Zinc	< 0.97 39.9 17.5 29.7 68.5	0.97 0.97 0.97 0.97 1.9	mg/kg mg/kg mg/kg mg/kg mg/kg	1 1 1 1	12/30/08 12/30/08 12/30/08 12/30/08 12/30/08	12/30/08 12/30/08	CT CT CT CT CT	SW846 6010B ¹ SW846 6010B ¹ SW846 6010B ¹ SW846 6010B ¹ SW846 6010B ¹	SW846 3050B ² SW846 3050B ² SW846 3050B ² SW846 3050B ² SW846 3050B ²

(1) Instrument QC Batch: MA438
 (2) Prep QC Batch: MP729

(a) All results reported on wet weight basis.





Report o	f Analysis
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Client Sam Lab Sampl Matrix: Method: Project:	e ID: C3538 SO - So SW846				Date 1	Sampled: Received nt Solids	: 12/23/08	
Run #1 Run #2	File ID 003073.D	DF 1	Analyzed 12/29/08	By MF	Prep D n/a	bate	Prep Batch n/a	Analytical Batch VO153
Run #1 Run #2	Initial Weight 5.02 g							
Purgeable	Aromatics, MTI	BE						
CAS No.	Compound		Result	RL	MDL	Units	Q	
71-43-2 108-88-3 100-41-4 1330-20-7 1634-04-4	Benzene Toluene Ethylbenzene Xylene (total) Methyl Tert B TPH-GRO (C6		ND ND ND ND ND	5.0 5.0 10 5.0 100	1.5 1.5 1.5 4.0 1.0 50	ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg		
CAS No.	Surrogate Rec	coveries	Run# 1	Run# 2	Lim	its		
1868-53-7 2037-26-5 460-00-4	Dibromofluoro Toluene-D8 4-Bromofluoro		10% ^b 101% 100%		60-1	30% 30% 30%		

(a) All results reported on wet weight basis.

(b) Outside control limits due to matrix interference.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound





				Repor	alysis		Page 1 of 1		
Client Sar Lab Samp Matrix: Method: Project:	-	C3538- SO - So SW846	oil	SW846 3545A		Date Sampled: Date Received: Percent Solids:		: 12/23/08	
Run #1 Run #2	File ID GG297		DF 1	Analyzed 12/29/08	By JH	Prep D 12/24/0		Prep Batch OP600	Analytical Batch GGG121
Run #1 Run #2	Initial 1 10.0 g	Weight	Final Vo 1.0 ml	lume					-
TPH Extr	actable								
CAS No.	Comp	ound		Result	RL	MDL	Units	Q	
		C10-C28 >C28-C		ND 32.8	10 20	5.0 10	mg/kg mg/kg		
CAS No.	Surro	gate Rec	overies	Run# 1	Run# 2	Lim	its	· .	
630-01-3	Hexac	osane		82%		45-1	40%		

(a) All results reported on wet weight basis.

(b) Motor Oil Pattern.

ND = Not detected MDL - Method Detection Limit RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



Report of Analysis

sult	RL	Units	DF	Prep	Analyzed	Ву	Method	Prep Method
0.98	0.98	mg/kg	1	12/30/08	12/30/08	СТ	SW846 6010B ¹	SW846 3050B ²
.2	0.98	mg/kg	1	12/30/08	12/30/08	СТ	SW846 6010B ¹	SW846 3050B ²
.9	0.98	mg/kg	1	12/30/08	12/30/08	СТ	SW846 6010B ¹	SW846 3050B ²
.7	0.98	mg/kg	1	12/30/08	12/30/08	СТ	SW846 6010B ¹	SW846 3050B ²
7	2.0	mg/kg	1	12/30/08	12/30/08	СТ	SW846 6010B ¹	SW846 3050B ²
•	2 9 7	2 0.98 9 0.98 7 0.98	2 0.98 mg/kg 9 0.98 mg/kg 7 0.98 mg/kg	2 0.98 mg/kg 1 9 0.98 mg/kg 1 7 0.98 mg/kg 1	2 0.98 mg/kg 1 12/30/08 9 0.98 mg/kg 1 12/30/08 7 0.98 mg/kg 1 12/30/08	2 0.98 mg/kg 1 12/30/08 12/30/08 9 0.98 mg/kg 1 12/30/08 12/30/08 7 0.98 mg/kg 1 12/30/08 12/30/08	2 0.98 mg/kg 1 12/30/08 12/30/08 CT 9 0.98 mg/kg 1 12/30/08 12/30/08 CT 7 0.98 mg/kg 1 12/30/08 12/30/08 CT	2 0.98 mg/kg 1 12/30/08 12/30/08 CT SW846 6010B 1 9 0.98 mg/kg 1 12/30/08 12/30/08 CT SW846 6010B 1 7 0.98 mg/kg 1 12/30/08 12/30/08 CT SW846 6010B 1 7 0.98 mg/kg 1 12/30/08 12/30/08 CT SW846 6010B 1

Instrument QC Batch: MA438
 Prep QC Batch: MP729

(a) All results reported on wet weight basis.





		Report of	f Analysis		Page 1 of 1
Client Sam Lab Sampl Matrix: Method: Project:		sco, CA	Date Sampled Date Received Percent Solids	: 12/23/08	
Run #1 Run #2	File IDDFO03074.D1	Analyzed By 12/29/08 MF	Prep Date n/a	Prep Batch n/a	Analytical Batch VO153
Run #1 Run #2	Initial Weight 5.05 g				
Purgeable	Aromatics, MTBE			-	
CAS No.	Compound	Result R	L MDL Units	Q	
71-43-2 108-88-3 100-41-4 1330-20-7 1634-04-4	Benzene Toluene Ethylbenzene Xylene (total) Methyl Tert Butyl Ether TPH-GRO (C6-C10)	ND 5. ND 5. ND 5. ND 9. ND 5. 101 99.	0 1.5 ug/kg 0 1.5 ug/kg 9 4.0 ug/kg 0 0.99 ug/kg		
CAS No.	Surrogate Recoveries	Run#1 R	un#2 Limits		
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	30% ^b 103% 105%	60-130% 60-130% 60-130%		

(a) All results reported on wet weight basis.

(b) Outside control limits due to matrix interference.

ND = Not detected MDL - Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range
- J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound





			Report	t of An	alysis		Page 1 of 1		
Client San Lab Samp Matrix: Method: Project:	le ID: C3538- SO - So SW846	bil	SW846 3545A seo, CA		Date S Date I Perce				
Run #1 Run #2	File ID GG2957.D	DF 5	v	By JH	Prep D 12/24/0		Prep Batch OP600	Analytical GGG121	Batch
Run #1 Run #2	Initial Weight 10.1 g	Final Vol 1.0 ml	ume						
TPH Extra	actable								
CAS No.	Compound		Result	RL	MDL	Units	Q		
	TPH (C10-C28 TPH (>C28-C		ND 290	50 99	25 50	mg/kg mg/kg			
CAS No.	Surrogate Rec	overies	Run# 1	Run# 2	Lim	its			
630-01-3	Hexacosane		79%		45-140%				

(a) All results reported on wet weight basis.

(b) Motor Oil Pattern.

ND = Not detectedMDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



2.35

Report	of Ana	lysis	

Client Sample Lab Sample I Matrix: Project:	D: C3538 SO - S	oil	2-2 ancisco, (CA		Date San Date Rec Percent S	eived: 12/23/08	
	· - J •							
Metals Analys	sis							
Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	< 0.93	0.93	mg/kg	1	12/30/08	12/30/08 ст	SW846 6010B ¹	SW846 3050B 2
Chromium	44.0	0.93	mg/kg	1	12/30/08		SW846 6010B ¹	SW846 3050B 2
Lead	15.1	0.93	mg/kg	1	12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²
Nickel	28.6	0.93	mg/kg	1	12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²
Zinc	56.6	1.9	mg/kg	1	12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²
(1) Instrument	QC Batch: M	A438						

(2) Prep QC Batch: MP729

(a) All results reported on wet weight basis.





		Repo	rt of An	alysis			Page 1 of 1
Client Sample Lab Sample Matrix: Method: Project:				12/20/08 : 12/23/08 : n/a ^a			
Run #1 Run #2	File ID DF O03075.D 1	Analyzed 12/29/08	By MF	Prep D n/a	bate	Prep Batch n/a	Analytical Batch VO153
Run #1 Run #2	Initial Weight 5.01 g						
Purgeable A	Aromatics, MTBE		~				4
CAS No.	Compound	Result	RL	MDL	Units	Q	
71-43-2 108-88-3 100-41-4 1330-20-7 1634-04-4	Benzene Toluene Ethylbenzene Xylene (total) Methyl Tert Butyl Ether TPH-GRO (C6-C10)	ND ND ND ND ND	5.0 5.0 5.0 10 5.0 100	1.5 1.5 1.5 4.0 1.0 50	ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg		
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	uits		
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	67% 104% 106%		60-1	30% 30% 30%	*	

(a) All results reported on wet weight basis.

MDL - Method Detection Limit ND = Not detected RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



2.36

		Report of Analysis										
Client San Lab Sam Matrix: Method: Project:	ole ID: C353 SO - S SW84	Soil	SW846 35454	Ą	Date	Sampled: Received: nt Solids:	12/23/08					
Run #1 Run #2	File ID GG2980.D	DF 1	Analyzed 12/29/08	By JH	Prep Date Prep Batch 12/24/08 OP600		Analytical Batch GGG121					
Run #1 Run #2	Initial Weigh 10.0 g	t Final Vo 1.0 ml	lume									
TPH Extr	actable											
CAS No.	Compound		Result	RL	MDL	Units	Q					
	TPH (C10-C TPH (>C28		ND 116	10 20	5.0 10	mg/kg mg/kg						
CAS No.	Surrogate R	ecoveries	Run# 1	Run# 2	Lim	its						
630-01-3	Hexacosane		72%		45-140%							
() 411	1 , , 1											

(a) All results reported on wet weight basis.(b) Motor Oil Pattern.

ND = Not detected MDL - Method Detection Limit RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



2.36 2

		Report of Analysis										
Client Sampl Lab Sample		ARD B-2	2-(5-6)			Date San	npled: 12/20/08	· · · · · · · · · · · · · · · · · · ·				
Matrix:	SO - S					Date Rec	eived: 12/23/08					
Project:	TJPA	- San Fr	ancisco, (CA		Percent S	Solids: n/a ^a					
Metals Analy	/sis											
Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method				
Cadmium	< 0.99	0.99	mg/kg	1	12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²				
Chromium	44.6	0.99	mg/kg	1	12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²				
Lead	17.2	0.99	mg/kg		12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²				
Nickel	34.4	0.99	mg/kg		12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²				
Zinc	59.0	2.0	mg/kg	1	12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²				

(1) Instrument QC Batch: MA438

(2) Prep QC Batch: MP729

(a) All results reported on wet weight basis.



2.36

	Report of Analysis											
Client San Lab Samp Matrix: Method: Project:		,		Date	Sampled Received nt Solids	: 12/23/08						
Run #1 Run #2	File IDDFO03076.D1	-	By MF	Prep D n/a	Date	Prep Batch n/a	Analytical Batch VO153					
Run #1 Run #2	Initial Weight 5.02 g		-									
Purgeable	Aromatics, MTBE			-								
CAS No.	Compound	Result	RL	MDL	Units	Q						
71-43-2 108-88-3 100-41-4 1330-20-7 1634-04-4	Benzene Toluene Ethylbenzene Xylene (total) Methyl Tert Butyl Ether TPH-GRO (C6-C10)	ND ND ND ND ND ND	5.0 5.0 5.0 10 5.0 100	1.5 1.5 1.5 4.0 1.0 50	ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg							
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its							
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	16% ^b 103% 105%		60-1 60-1 60-1								

(a) All results reported on wet weight basis.

(b) Outside control limits due to matrix interference.

ND = Not detectedMDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



		Report of Analysis										
Client Sam Lab Samp Matrix: Method: Project:												
Run #1 Run #2	File ID GG2981.D	DF 1	Analyzed 12/29/08	By JH	Prep I 12/24/		Prep Batch OP600	Analytical Batch GGG121				
Run #1 Run #2	Initial Weight 10.0 g	Final Vol 1.0 ml	ume									
TPH Extra	actable											
CAS No.	Compound		Result	RL	MDL	Units	Q					
	TPH (C10-C2 TPH (>C28-0		ND 38.4	10 20	5.0 10	mg/kg mg/kg						
CAS No.	Surrogate Re	coveries	Run# 1	Run# 2	Lin	nits						
630-01-3	Hexacosane		66%	66% 45-140%								

(a) All results reported on wet weight basis.

(b) Motor Oil Pattern.

ND = Not detected MDL - Method Detection Limit RL = Reporting Limit E = Indicates value exceeds calibration range J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



37 2

				Re	port of .	Analysi	S		Page 1
Client Sampl Lab Sample Matrix:			2-(7-8)			Date	e Rec	npled: 12/20/08 every 12/23/08	
Project:	TJPA	- San Fi	rancisco,	CA		Perc	ent S	Solids: n/a ^a	
Metals Analy	vsis								
Analyte	Result	RL	Units	DF	Prep	Analyzed	Ву	Method	Prep Method
Cadmium Chromium Lead Nickel Zinc	<1.0 32.3 7.8 32.0 33.9	$ 1.0 \\ 1.0 \\ 1.0 \\ 1.0 \\ 2.0 $	mg/kg mg/kg mg/kg mg/kg mg/kg	1 1 1	12/30/08 12/30/08 12/30/08 12/30/08 12/30/08	12/30/08	CT CT CT	SW846 6010B ¹ SW846 6010B ¹ SW846 6010B ¹ SW846 6010B ¹ SW846 6010B ¹	SW846 3050B ² SW846 3050B ² SW846 3050B ² SW846 3050B ² SW846 3050B ²
(1) 1 .									

(1) Instrument QC Batch: MA438
 (2) Prep QC Batch: MP729

(a) All results reported on wet weight basis.



2.37

		Ropor	1 age 1 01 1				
Client Sam Lab Sampl Matrix: Method: Project:		sco, CA		Date I	Sampled: Received at Solids	: 12/23/08	
Run #1 Run #2	File ID DF O03077.D 1	Analyzed 12/29/08	By MF	Prep D n/a	ate	Prep Batch n/a	Analytical Batch VO153
Run #1 Run #2	Initial Weight 5.03 g						
Purgeable	Aromatics, MTBE						
CAS No.	Compound	Result	RL	MDL	Units	Q	
71-43-2 108-88-3	Benzene Toluene	ND ND	$5.0 \\ 5.0$	1.5 1.5	ug/kg ug/kg		
100-41-4	Ethylbenzene	ND	5.0 5.0	1.5	ug/kg		
1330-20-7	Xylene (total)	ND	9.9	4.0	ug/kg		
1634-04-4	Methyl Tert Butyl Ether	ND	5.0	0.99	ug/kg		
	TPH-GRO (C6-C10)	61.9	99	50	ug/kg	J	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its		• *
1868-53-7	Dibromofluoromethane	51% ^b			30%		
2037-26-5	Toluene-D8	103%		60-1	.30%		

107%

(a) All results reported on wet weight basis.

460-00-4

(b) Outside control limits due to matrix interference.

4-Bromofluorobenzene

ND = Not detected MDL - Method Detection Limit RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

60-130%

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



2.38 2

Report of Analysis

	Report of Analysis											
Client San Lab Samp Matrix: Method: Project:	le ID: C3538 SO - S SW84	Soil	SW846 35454 co, CA	A	Date 1	Sampled: Received nt Solids:	12/23/08					
Run #1 Run #2	File ID GG2976.D	DF 10	Analyzed 12/29/08	By JH	Prep D 12/24/0		Prep Batch OP600	Analytical Batch GGG121				
Run #1 Run #2	Initial Weight 10.0 g	Final Volu 1.0 ml	ume									
TPH Extra	actable											
CAS No.	Compound		Result	RL	MDL	Units	Q					
	TPH (C10-C2 TPH (>C28-		ND 866	100 200	50 100	mg/kg mg/kg						
CAS No.	Surrogate Re	coveries	Run# 1	Run# 2	Lim	its						
630-01-3	Hexacosane		83%	33% 45		40%						

0

(a) All results reported on wet weight basis. (b) Motor Oil Pattern.

ND = Not detectedMDL - Method Detection Limit RL = Reporting Limit

- E = Indicates value exceeds calibration range
- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound





Client Sampl Lab Sample I Matrix:			3-1			Date Sar Date Rec	eived: 12/23/08	
Project:	TJPA -	San Fr	ancisco, (CA		Percent	Solids: n/a ^a	
Metals Analy	/sis					****		
Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	< 0.95	0.95	mg/kg	1	12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²
Chromium	49.2	0.95	mg/kg	1	12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²
Lead	18.1	0.95	mg/kg		12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²
Nickel	38.2	0.95	mg/kg		12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²
Zinc	64.7	1.9		1	12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²

Report of Analysis

(1) Instrument QC Batch: MA438
 (2) Prep QC Batch: MP729

(a) All results reported on wet weight basis.

Page 1 of 1

2.38



	Report of Analysis										
Client Sam Lab Sampl Matrix: Method: Project:				Date	Sampled: Received nt Solids	: 12/23/08					
Run #1 Run #2	File ID DF O03078.D 1	Analyzed 12/29/08	By MF	Prep D n/a	Date	Prep Batch n/a	Analytical Batch VO153				
Run #1 Run #2	Initial Weight 5.03 g										
Purgeable .	Aromatics, MTBE		-				· · · · · · · · · · · · · · · · · · ·				
CAS No.	Compound	Result	RL	MDL	Units	Q					
71-43-2 108-88-3 100-41-4 1330-20-7 1634-04-4	Benzene Toluene Ethylbenzene Xylene (total) Methyl Tert Butyl Ether TPH-GRO (C6-C10)	ND ND ND ND ND ND	5.0 5.0 5.0 9.9 5.0 99	1.5 1.5 1.5 4.0 0.99 50	ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg						
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its						
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	71% 103% 106%		60-1	30% 30% 30%						

(a) All results reported on wet weight basis.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



2.39 2

		Page 1 of 1						
Client Sam Lab Samp Matrix: Method: Project:	le ID: C3538 SO - S SW846	oil	SW846 3545A		Date I	Sampled: Received: nt Solids:	12/23/08	
Run #1 Run #2	File ID GG2973.D	DF 10		By IH	Prep D 12/24/0		Prep Batch OP600	Analytical Batch GGG121
Run #1 Run #2	Initial Weight 10.0 g	Final Volu 1.0 ml	ume					
TPH Extra	actable							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (C10-C2 TPH (>C28-0		ND 701	100 200	50 100	mg/kg mg/kg		
CAS No.	Surrogate Recoveries Run# 1 Ru				Lim	its		
630-01-3	Hexacosane		79%		45-1	40%		

(a) All results reported on wet weight basis.

(b) Motor Oil Pattern.

ND = Not detected MDL - Method Detection Limit RL = Reporting Limit E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound





Report of Analysis

			Re	port of .	Analysis			Page	1 of
D: C3538	8-19	3-(5-6)			Date R	Received	: 12/23/08		
TJPA	- San Fr	ancisco, (CA		Percen	it Solids	n/aª		
sis									
Result	RL	Units	DF	Prep	Analyzed B	By Me	thod	Prep Method	
< 0.95 48.1 20.2 84.5 59.6	0.95 0.95 0.95 0.95 1.9	mg/kg mg/kg	1 1 1	12/30/08 12/30/08 12/30/08	12/30/08 C [*] 12/30/08 C [*]	T SW8 T SW8 T SW8	46 6010B ¹ 46 6010B ¹	SW846 3050B ² SW846 3050B ² SW846 3050B ² SW846 3050B ² SW846 3050B ² SW846 3050B ²	
	D: C3538 SO - S TJPA is Result < 0.95 48.1 20.2 84.5	D: C3538-19 SO - Soil TJPA - San Fr sis Result RL < 0.95 0.95 48.1 0.95 20.2 0.95 84.5 0.95	D: C3538-19 SO - Soil TJPA - San Francisco, (sis Result RL Units <0.95 0.95 mg/kg 48.1 0.95 mg/kg 20.2 0.95 mg/kg 84.5 0.95 mg/kg	E ID: HOWARD B-3-(5-6) D: C3538-19 SO - Soil TJPA - San Francisco, CA sis Result RL Units DF <0.95 0.95 mg/kg 1 48.1 0.95 mg/kg 1 20.2 0.95 mg/kg 1 84.5 0.95 mg/kg 1	a ID: HOWARD B-3-(5-6) D: C3538-19 SO - Soil TJPA - San Francisco, CA sis Result RL Units DF Prep < 0.95	D: C3538-19 Date S SO - Soil Date H Per cer TJPA - San Francisco, CA sis Result RL Units DF Prep Analyzed E <0.95 0.95 mg/kg 1 12/30/08 12/30/08 C 48.1 0.95 mg/kg 1 12/30/08 12/30/08 C 20.2 0.95 mg/kg 1 12/30/08 12/30/08 C 84.5 0.95 mg/kg 1 12/30/08 12/30/08 C	a ID: HOWARD B-3-(5-6) D: C3538-19 SO - Soil Date Sampled: TJPA - San Francisco, CA Percent Solids: riss Result RL Vnits DF Prep Analyzed By Met < 0.95	a ID: HOWARD B-3-(5-6) Date Sampled: 12/20/08 D: C3538-19 Date Received: 12/23/08 SO - Soil Date Received: 12/23/08 Percent Solids: n/a a TJPA - San Francisco, CA Percent Solids: Result RL Units DF Prep Analyzed By Method < 0.95	a ID: HOWARD B-3-(5-6) Date Sampled: 12/20/08 D: C3538-19 Date Sampled: 12/23/08 SO - Soil Date Received: 12/23/08 Percent Solids: n/a a TJPA - San Francisco, CA Percent Solids: Result RL Units DF Prep Analyzed By Method Prep 0.95 ng/kg 1 12/30/08 CT 48.1 0.95 mg/kg 1 12/30/08 CT SW846 6010B ¹ SW846 3050B ² 20.2 0.95 mg/kg 1 12/30/08 L2/30/08 CT SW846 6010B ¹ SW846 3050B ² 84.5 0.95 mg/kg 1 12/30/08 CT SW846 6010B ¹ SW846 3050B ² 84.5 0.95 mg/kg 1 12/30/08 CT SW846 6010B ¹ SW846 3050B ²

(1) Instrument QC Batch: MA438
 (2) Prep QC Batch: MP729

(a) All results reported on wet weight basis.



		Repor	t of An	alysis			Page 1 of 1
Client Sample Lab Sample Matrix: Method: Project:		sco, CA		Date I	Sampled: Received nt Solids	: 12/23/08	
Run #1 Run #2	File ID DF O03079.D 1	Analyzed 12/29/08	By MF	Prep D n/a	bate	Prep Batch n/a	Analytical Batch VO153
Run #1 Run #2	Initial Weight 5.03 g						
Purgeable A	Aromatics, MTBE						
CAS No.	Compound	Result	RL	MDL	Units	Q	
71-43-2 108-88-3 100-41-4 1330-20-7 1634-04-4	Benzene Toluene Ethylbenzene Xylene (total) Methyl Tert Butyl Ether TPH-GRO (C6-C10)	ND ND ND ND ND	5.0 5.0 9.9 5.0 99	1.5 1.5 1.5 4.0 0.99 50	ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg		
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its		
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	84% 104% 107%		60-1	30% 30% 30%		

(a) All results reported on wet weight basis.

ND = Not detected MDL - Method Detection Limit RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound





	Report of Analysis										
Client San Lab Samp Matrix: Method: Project:		C3538- SO - So SW846	oil	SW846 3545A co, CA		Date I	Sampled: Received: nt Solids:	12/23/08			
Run #1 Run #2	File ID GG299		DF 10	-	By JH	Prep D 12/29/0		Prep Batch OP610	Analytical Batch GGG122		
Run #1 Run #2	Initial 10.0 g	Weight	Final Vol 1.0 ml	ume							
TPH Extra	actable						1 october 1990				
CAS No.	Comp	ound		Result	RL	MDL	Units	Q			
		C10-C28 >C28-C		ND 525	100 200	50 100	mg/kg mg/kg				
CAS No.	Surro	gate Rec	overies	Run# 1	Run# 2	Lim	its				
630-01-3	Hexac	osane		80%		45-1	40%				
(a) All rosu	ilte ropor	tod on w	at waight ba	sic							

(a) All results reported on wet weight basis.(b) Motor Oil Pattern.

ND = Not detected MDL - Method Detection Limit RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



2.40 2

2.40
N

Page 1 of 1

Report of Analysis

Client Sample ID: HOWARD B-4-2 Lab Sample ID: C3538-20 Matrix: SO - Soil						Date Sampled: 12/20/08 Date Received: 12/23/08 Percent Solids: n/a ^a							
Project: TJPA - San Francisco, CA													
Metals Analy	vsis				<u> </u>								
Analyte	Result	RL	Units	DF	Ргер	Analyzed By	Method	Prep Method					
Cadmium	<1.0	1.0	mg/kg	1	12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²					
Chromium	50.3	1.0	mg/kg	1	12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²					
Lead	31.0	1.0	mg/kg	1	12/30/08	12/30/08 CT	SW846 6010B ¹	SW846 3050B ²					
Nickel	36.6	1.0		1	12/30/08	12/30/08 ст	SW846 6010B ¹	SW846 3050B ²					
Zinc	51.5	2.0	mg/kg	1	12/30/08	12/30/08 CT	SW846 6010B 1	SW846 3050B ²					

Instrument QC Batch: MA438
 Prep QC Batch: MP729

(a) All results reported on wet weight basis.

RL = Reporting Limit



Report of Analysis

Client Sample I Lab Sample ID Matrix: Project:): C3538 SO - S		isco, CA		Date Sampled: 12/20/08 Date Received: 12/23/08 Percent Solids: n/a				
Metals Analysis	s, STLC Le	achate CA	WET]
Analyte	Result	HW# MO	CL RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Chromium	0.71	D007	0.10	mg/l	5	01/14/09	01/15/09 ст	SW846 6010B ¹	SW3010A 2

Instrument QC Batch: MA464
 Prep QC Batch: MP782

RL = Reporting Limit MCL = Maximum Contamination Level (not available)





		P •					1466 1 01 1
Client Sam Lab Sampl Matrix: Method: Project:	-	isco, CA		Date 1	Sampled: Received nt Solids	: 12/23/08	
Run #1 Run #2	File IDDFO03117.D1	Analyzed 12/31/08	By MF	Prep D n/a	Date	Prep Batch n/a	Analytical Batch VO156
Run #1 Run #2	Initial Weight 5.01 g						
Purgeable	Aromatics			-			
CAS No.	Compound	Result	RL	MDL	Units	Q	
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total) TPH-GRO (C6-C10)	ND ND ND ND	5.0 5.0 5.0 10 100	1.5 1.5 1.5 4.0 50	ug/kg ug/kg ug/kg ug/kg ug/kg		
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its		
1868-53-7	Dibromofluoromethane	101%		60-1	30%		

102%

98%

(a) All results reported on wet weight basis.

4-Bromofluorobenzene

Toluene-D8

2037-26-5

460-00-4

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

60-130%

60 - 130%

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound





Page 1 of 1

Report of Analysis

	Report of Analysis											
Client Sam Lab Samp Matrix: Method: Project:	le ID: C3538 SO - S SW846	-21 oil		A	Date	Sampled: Received: nt Solids:	: 12/23/08					
Run #1 ^b Run #2	File ID GG3052.D	DF 10	Analyzed 01/06/09	By JH	Ргер D 01/05/0		Prep Batch OP621	Analytical Batch GGG124				
Run #1 Run #2	Initial Weight 10.0 g	Final Vo 1.0 ml	lume									
TPH Extra	actable			a.								
CAS No.	Compound		Result	RL	MDL	Units	Q					
	TPH (C10-C2 TPH (>C28-0		ND 505	100 200	50 100	mg/kg mg/kg						
CAS No.	Surrogate Re	coveries	Run# 1	Run# 2	Lim	its						
630-01-3	Hexacosane		82%		45-1	40%						

(a) All results reported on wet weight basis.

(b) Sample extracted beyond hold time(1 day)due to schedule error. Motor Oil hit confirmed by MS/MSD. (c) Motor Oil Pattern.

ND = Not detectedMDL - Method Detection Limit RL = Reporting Limit

- E = Indicates value exceeds calibration range
- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound





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Report of Analysi	IS
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Client Sample I Lab Sample ID: Matrix:		21				Date San Date Rec Percent S	eived: 12/23/08	
Project:	TJPA -	San Fra	ancisco, (CA		i ci cent i	5011 4 3. 194	
Metals Analysis	3							anna a suite ann an an ann ann ann ann ann ann ann
Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	< 0.93	0.93	mg/kg	1	01/05/09	01/05/09 ст	SW846 6010B ¹	SW846 3050B ²
Chromium	33.7	0.93	mg/kg	1	01/05/09	01/05/09 CT	SW846 6010B ¹	SW846 3050B ²
Lead	204	0.93	mg/kg	1	01/05/09	01/05/09 CT	SW846 6010B ¹	SW846 3050B ²
Nickel	21.4	0.93	mg/kg	1	01/05/09	01/05/09 CT	SW846 6010B ¹	SW846 3050B ²
Zinc	1140	1.9	mg/kg	1	01/05/09	01/05/09 CT	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA445(2) Prep QC Batch: MP741

(a) All results reported on wet weight basis.

C3538



Report of Analysis

Client Sample Lab Sample ID Matrix: Project:	1 -21W oil - San Francisco	o, CA		Date Sampled: 12/20/08 Date Received: 12/23/08 Percent Solids: n/a						
Metals Analysi	s, STLC Le	achate CA W	ΈT						······	
Analyte	Result	HW# MCL	RL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Lead	15.6	D008	0.25	mg/l	5	01/26/09	01/27/09 ст	SW846 6010B ¹	SW3010A ²	

Instrument QC Batch: MA487
 Prep QC Batch: MP831





	Client Sample ID: TRIP BLANK												
Client Sam Lab Sampl Matrix: Method: Project:	er , CA		12/20/08 12/23/08 n/a										
Run #1 Run #2		Analyzed 2/26/08	By XB	Prep D n/a	ate	Prep Batch n/a	Analytical Batch VM114						
Run #1 Run #2	Purge Volume 10.0 ml			-									
VOA 8260	List												
CAS No.	Compound	Result	RL	MDL	Units	Q							
67-64-1 71-43-2 108-86-1 74-97-5 75-27-4 75-25-2 104-51-8 135-98-8 98-06-6 108-90-7 75-00-3 67-66-3 95-49-8 106-43-4 56-23-5 75-34-3	Acetone Benzene Bromobenzene Bromochloromethane Bromodichloromethane Bromoform n-Butylbenzene sec-Butylbenzene tert-Butylbenzene Chlorobenzene Chlorobenzene Chlorotethane Chloroform o-Chlorotoluene p-Chlorotoluene Carbon tetrachloride 1,1-Dichloroethane	ND ND ND ND ND ND ND ND ND ND ND ND ND N	$\begin{array}{c} 20\\ 1.0\\ 1.0\\ 1.0\\ 5.0\\ 5.0\\ 5.0\\ 1.0\\ 1.0\\ 1.0\\ 5.0\\ 5.0\\ 1.0\\ 1.0\\ 1.0\\ 1.0\\ 1.0\\ 1.0\\ 1.0\\ 1$	$\begin{array}{c} 10\\ 0.30\\ 0.30\\ 0.50\\ 0.50\\ 0.50\\ 0.50\\ 0.50\\ 0.50\\ 0.30\\ 0.30\\ 0.30\\ 0.50\\ 0.50\\ 0.50\\ 0.50\\ 0.20\\ 0.30\\ \end{array}$	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l								
75-35-4 75-35-4 563-58-6 96-12-8 106-93-4 107-06-2 78-87-5 142-28-9 108-20-3 594-20-7 124-48-1 75-71-8 156-59-2 10061-01-5 541-73-1	1,1-Dichloroethane 1,1-Dichloroethylene 1,2-Dibromo-3-chloropropane 1,2-Dibromoethane 1,2-Dichloroethane 1,2-Dichloropropane 1,3-Dichloropropane Di-Isopropyl ether 2,2-Dichloropropane Dibromochloromethane Dichlorodifluoromethane cis-1,2-Dichloropropene m-Dichlorobenzene	ND ND	$ \begin{array}{c} 1.0\\ 1.0\\ 1.0\\ 1.0\\ 1.0\\ 1.0\\ 1.0\\ 1.0\\$	0.30 0.20 0.30 5.0 0.20 0.30 0.30 0.30 0.50 0.30 0.20 0.30 0.20 0.30 0.20 0.30 0.50 0.30	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l								

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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C3538



			Repor	t of An	alysis			Pag
Client Sam Lab Sampl Matrix: Method: Project:	-	TRIP BLANK C3538-22 AQ - Trip Blank Wat SW846 8260B TJPA - San Francisco			Date	Sampled: Received: nt Solids:	12/20/08 12/23/08 n/a	
VOA 8260	List							
CAS No.	Comp	ound	Result	RL	MDL	Units	Q	
156-60-5	trans-1	,2-Dichloroethylene	ND	1.0	0.30	ug/l		
10061-02-6		,3-Dichloropropene	ND	1.0	0.20	ug/l		
100-41-4		enzene	ND	1.0	0.30			
637-92-3		Tert Butyl Ether	ND	5.0	0.50	ug/l		
591-78-6	2-Hexa		ND	20	10	ug/l		
87-68-3		hlorobutadiene	ND	5.0	0.50	ug/l		
98-82-8		pylbenzene	ND	1.0	0.30	ug/l		
99-87-6		ropyltoluene	ND .	5.0		ug/l		
108-10-1		yl-2-pentanone	ND	3.0 20	0.50	ug/l		
74-83-9		l bromide	ND		5.0	ug/l		
74-87-3		l chloride	ND	5.0 1.0	1.5	ug/l		
74-95-3		lene bromide	ND		0.30	ug/l		
75-09-2		lene chloride		1.0	0.20	ug/l		
78-93-3		l ethyl ketone	ND	20	5.0	ug/l		
1634-04-4		l Tert Butyl Ether	ND ND	20	5.0	ug/l		
91-20-3	Naphth		ND	1.0	0.50	ug/l		
103-65-1		ylbenzene	ND	5.0	0.50	ug/l		
100-42-5	Styren		ND	5.0	0.50	ug/l		
994-05-8			ND	1.0	0.20	ug/l		
75-65-0		myl Methyl Ether	ND	5.0	0.50	ug/l		
630-20-6		utyl Alcohol	ND	10	5.0	ug/l		
71-55-6		2-Tetrachloroethane	ND	1.0	0.20	ug/l		
79-34-5		Frichloroethane	ND	1.0	0.20	ug/l		
		2-Tetrachloroethane	ND	1.0	0.20	ug/l		
79-00-5		frichloroethane	ND	1.0	0.20	ug/l		
87-61-6		Frichlorobenzene	ND	5.0	0.50	ug/l		
96-18-4		Frichloropropane	ND	5.0	0.50	ug/l		
120-82-1		Frichlorobenzene	ND	5.0	0.50	ug/l		
95-63-6		Frimethylbenzene	ND	5.0	0.50	ug/l		
108-67-8		Frimethylbenzene	ND	5.0	0.50	ug/l		
127-18-4		loroethylene	ND	1.0	0.20	ug/l		
108-88-3	Toluen		ND	1.0	0.50	ug/l		
79-01-6		roethylene	ND	1.0	0.30	ug/l		
75-69-4		rofluoromethane	ND	1.0	0.30	ug/l		
75-01-4		chloride	ND	1.0	0.30	ug/l		
1330-20-7	Xylene	(total)	ND	2.0	0.70	ug/l		
CAS No.	Surrog	ate Recoveries	Run# 1	Run# 2	Limi	ts		
868-53-7	Dibron	ofluoromethane	105%		60-13	30%		
2037-26-5	Toluen	e-D8	106%		60-13			

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound





Page 3 of 3 Client Sample ID: TRIP BLANK Lab Sample ID: C3538-22 Date Sampled: 12/20/08 Matrix: AQ - Trip Blank Water Date Received: 12/23/08 Method: SW846 8260B Percent Solids: n/a Project: TJPA - San Francisco, CA VOA 8260 List CAS No. Surrogate Recoveries Run#1 Run# 2 Limits 460-00-4 4-Bromofluorobenzene 98% 60-130%

ND = Not detected MDL - Method Detection Limit RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound





Report of Analysis



Section 3

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

Chain of Custody



Environmental Resources

Management

CHAIN OF CUSTODY RECORD

NO: 5802

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777 Botelho Drive, Suite 260 e Wal			0455 • FAX (925)			C3538	Page	<u> </u>	of	5
			MATRIX	100		REQUES	FED PARAM	ETERS		
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Vatoma B-H (5-6) 1157	direct	1 2"×6"	2 X	\sim	$\overline{\mathbf{A}}$	2-2				-
latima B-1-(7-8) 1159	push U	11	18X	$\overline{\mathbf{X}}$	\bigotimes	<-3 only (1	Acetate	Tube R	ecvid.	
Vatoma B-2-2 0800	hand	402	3 X	$\overrightarrow{\times}$	$\overline{\times}$	<-4	<u></u>			-
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lating B-2-(9-10) 0828	11	1	2 x	$\overline{\mathbf{x}}$	5	<-6	20	Am	rlass 7	
Vatana B-3-1 1118	hand	402	$3 \times$	Ŕ	$\times \!$	<17		X Aceta		
Jatoma B-3-(5-6) [113]	direct	2"x6"	2 X	\mathbf{x}	$\times \!$	<-8	TP		10-1916	<u>ح</u> ه
Vatoma B-3-(9-10) 1133	11	11	2X	\times	$\overline{\langle} \rangle$	<-9	3 1	als with	a)	- .
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RELINQUISHED BY (SIGNATURE)	DATE TIME		RECEIVED BY		DATE	ME	ÿ			957
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REMARKS ON SAMPLE			ERM REMARKS		1	SEND RE	PORT TO:	O Dawa	1.2	
BOTTLE INTACT CUSTODY SE PRESERVED SEALS INTACT		s			-	Mark	Litzaul	E KANI	com	

C3538: Chain of Custody Page 1 of 4



Environmental Resources CHAIN OF CUSTODY RECORD Management NOA 5803 1777 Botelho Drive, Suite 260 o Walnut Creek, CA o 94596 o (925) 946-0455 o FAX (925) 946-9968 C3538 Page of PROJECT # PROJECT NAME # **REQUESTED PARAMETERS** MATRIX 0072420, 3, 201 TIPA OF SAMPLER: (PRINT NAME) (SIGNATURE) CONTAINES Chimi Yi l Metal with s o L WATER RECEIVING LABORATORY G A S H 44 4 Accutert SAMPLING METHOD PRESER-SAMPLING VOLUME OMP. GRAB SAMPLE I.D. DATE TIME üξ direct (atoma B-4- (5-6) 12-20-03 1052 đ 2"×6" 2 -11 u< 11 2 11 1100 Natoma Bythen) 12 hand 3 402 Howard B-H-1 1014 13 direct Howard B-1-(5-6) 1021 2 X X 4 2 14 2 Havard 8+ (7-5) e4-瀫 hand 402 3 Havand B-2-2 0942 +15 divect 2"×6" 2 Howard B-2-(5-6) -16 0950 2 Howard B-2-(7-8) 0958 11 11 17 11 3 Howard B-3-1 rand 402 0905 18 2 dinegish 2"126" -20 Howard 8-3-(5-6) 0914 Ų, \mathbf{V} V 19 \succ RELINQUISHED BY (SIGNATURE) DATE TIME RECEIVED BY DATE TIME FIELD REMARKS will ERMWC Office 12-20-08 12-22-08 09:00 CAD see page 1 RELINQUISHED BY (SIGNATURE) RECEIVED BY DATE TIME DATE TIME AMBonaer Mene office 13/2 OSZ 12/22/08 022 RELINQUISHED BY (SIGNATURE) TIME DATE RECEIVE WX BONS 2 23 08 13:05 Whis REMARKS ON SAMPLE RECEIPT SEND REPORT TO: ERM REMAI BOTTLE INTACT CUSTODY SEALS CHILLED C PRESERVED SEALS INTACT SEE REMARKS PINK - DATABASE

WHITE - LABORATORY COPY

CANARY - FIELD COPY

GOLD - PROJECT FILE

C3538: Chain of Custody Page 2 of 4



Environmental Resources Management

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CHAIN OF CUSTODY RECORD

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Botelho Drive, Suite	e 260 o Walnut Creek, CA o 9459	6 🛭 (925) 946-0	455 o FAX (925) 946-9968	C353B	Page _	3	_ of	3
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2420.3,201	OF TJPA						<u> </u>	- <u>225</u>

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C3538: Chain of Custody Page 3 of 4



	TEST	ple Receiving	Checklist	Job #	<u>C3538</u>
Review Chair	n of Custody: The (Chain of Custody is to b	e completely and legibly	filed out by Clien	ŧ
Are these	e regulatory (NPDES) sa	mples? Yes / No		requested? Yes	
			No circle one If yes, did	they consent to c	ontinue?
D Are sam	ple within one-half hold-ti	me? Yes / No circle of	one If no, was the lab int	formed?	
	o info is complete and leg			-	····
œ(²Τγ	pe of Deliverable needed	l poname)⊯addres	s pophone peremail		
Bill to inference	o is complete and legible	, including: DPO# ~	b Credit card ́o contact	□ address □ r	ohone 🛛 email
🗴 Contact a	and/or Project Mgr identif	ied, including; 🔊 pho	ne yæmail		
of Project n	ame / number o Specia	I requirements? ' (res	J No circle one		
G Sample I	Ds / date & time of collect	tion provided? (es) I	No circle one		
	ted and correct? (Ves /				
V Analyses	listed are those we do o	r client has authorized	a subcontract? Mes / I	No circle one	
Chain is:	signed / dated by both cli	ent and sample custod	ian? (res) / No circle one		
	ested available? Appro	ved by <u>EK</u>	\bigcirc		
Review Coole		->2 Coolers	· •		
	Coolers are at 0-6°C?	If sampled v	/ithin 4hrs, then "on ice" is	s acceptable.	
If a cooler i	is outside the 0-6°C range	e; note below the bottle	s in that cooler below.		
Note that A	NC does NOT accept ev	identiary samples. (We	do not lock refrigerators))	
Shipment N	the second se				
Custody Se	als Present:	Yes / No circle one	Un-broken: Yes	/ No circle one	
Review of Sar	mple Bottles: If you ansy	ver no, explain below			
	le number / Date / Time o		C?		
· ,		D circle one			
	ontainers and volumes?	Yes) / No circle one			
Proper pr VOAs rec	eservatives? Check pH o	on preserved samples a	except 1664, 625, 8270, a	and VOAs and lis	i below.
	·	i les / No circle of	le		
Lab #	Client Sample ID	pII Check:	Other	Comments / Issu	es
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<u> </u>					
			"Hold So	il Sample	s" For
			Farther	analysic	

Project Mgr needs to contact Client for issues

C3538: Chain of Custody Page 4 of 4

:T:\Laboratory\Forms\SampleControl\Form_SampleReceiving_2008-04-12.doc

D Client informed of irregularities at receiving

Comments:



Section 4

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

Method Blank Summaries

Blank Spike Summaries

Matrix Spike and Duplicate Summaries



Job Number: Account: Project:	C3538 ERMCAW TJPA - San		,				
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VM114-MB	M3574.D	1	12/26/08	XB	n/a	n/a	VM114

The QC reported here applies to the following samples:

Method: SW846 8260B

C3538-22

CAS No.	Compound	Result	RL	MDL	Units Q
67-64-1	Acetone	ND	20	10	ug/l
71-43-2	Benzene	ND	1.0	0.30	ug/l
108-86-1	Bromobenzene	ND	1.0	0.30	ug/l
74-97-5	Bromochloromethane	ND	1.0	0.50	ug/l
75-27-4	Bromodichloromethane	ND	1.0	0.30	ug/l
75-25-2	Bromoform	ND	1.0	0.50	ug/l
104-51-8	n-Butylbenzene	ND	5.0	0.50	ug/l
135-98-8	sec-Butylbenzene	ND	5.0	0.50	ug/l
98-06-6	tert-Butylbenzene	ND	5.0	0.50	ug/l
108-90-7	Chlorobenzene	ND	1.0	0.30	ug/l
75-00-3	Chloroethane	ND	1.0	0.30	ug/l
67-66-3	Chloroform	ND	1.0	0.30	ug/l
95-49-8	o-Chlorotoluene	ND	5.0	0.50	ug/l
106-43-4	p-Chlorotoluene	ND	5.0	0.50	ug/l
56-23-5	Carbon tetrachloride	ND	1.0	0.20	ug/l
75-34-3	1,1-Dichloroethane	ND	1.0	0.30	ug/l
75-35-4	1,1-Dichloroethylene	ND	1.0	0.20	ug/l
563-58-6	1,1-Dichloropropene	ND	1.0	0.30	ug/l
96-12-8	1,2-Dibromo-3-chloropropane	ND	10	5.0	ug/l
106-93-4	1,2-Dibromoethane	ND	1.0	0.20	ug/l
107-06-2	1,2-Dichloroethane	ND	1.0	0.30	ug/l
78-87-5	1,2-Dichloropropane	ND	1.0	0.30	ug/l
142-28-9	1,3-Dichloropropane	ND	1.0	0.30	ug/l
108-20-3	Di-Isopropyl ether	ND	5.0	0.50	ug/l
594-20-7	2,2-Dichloropropane	ND	1.0	0.30	ug/l
124-48-1	Dibromochloromethane	ND	1.0	0.20	ug/l
75-71-8	Dichlorodifluoromethane	ND	1.0	0.30	ug/l
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.30	ug/l
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.50	ug/l
541-73-1	m-Dichlorobenzene	ND	1.0	0.30	ug/l
95-50-1	o-Dichlorobenzene	ND	1.0	0.30	ug/l
106-46-7	p-Dichlorobenzene	ND	1.0	0.30	ug/l
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.30	ug/l
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.20	ug/l
100-41-4	Ethylbenzene	ND and	1.0	0.30	ug/l
637-92-3	Ethyl Tert Butyl Ether	ND	5.0	0.50	ug/l
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Job Number: Account: Project:	C3538 ERMCAW TJPA - San		,					
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch	4.1
VM114-MB	M3574.D	1	12/26/08	XB	n/a	n/a	VM114	

The QC reported here applies to the following samples:

Method: SW846 8260B

C3538-22

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	20	10	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	0.50	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.20	ug/l	
99-87-6	p-Isopropyltoluene	ND	5.0	0.50	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	20	5.0	ug/l	
74-83-9	Methyl bromide	ND	5.0	1.5	ug/l	
74-87-3	Methyl chloride	ND	1.0	0.30	ug/l	
74-95-3	Methylene bromide	ND	1.0	0.20	ug/l	
75-09-2	Methylene chloride	ND	20	5.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	20	5.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
91-20-3	Naphthalene	ND	5.0	0.50	ug/l	
103-65-1	n-Propylbenzene	ND	5.0	0.50	ug/l	
100-42-5	Styrene	ND	1.0	0.20	ug/l	
994-05-8	Tert-Amyl Methyl Ether	ND	5.0	0.50	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	10	5.0	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.20	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.20	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.20	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.50	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.50	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.50	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.20	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.30	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.30	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.30	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.70	ug/l	
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CAS No.	Surrogate Recoveries		Limits			
1868-53-7	Dibromofluoromethane	101%	60-130	%		



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Method Blank Summary Job Number: C3538

Account: Project:	ERMCAW TJPA - San						
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VM114-MB	M3574.D	1	12/26/08	XB	n/a	n/a	VM114

The QC reported here applies to the following samples:

Method: SW846 8260B

C3538-22

CAS No.	Surrogate Recoveries	Limits	
	Toluene-D8 4-Bromofluorobenzene	105% 99%	

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Job Number: C3538 Account: ERMCAWC ERM-West, Inc. Project: TJPA - San Francisco, CA							-
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VO152-MB	003040.D	1	12/26/08	MF	n/a	n/a	VO152

The QC reported here applies to the following samples:

Method: SW846 8260B

C3538-1, C3538-2, C3538-3, C3538-4, C3538-5, C3538-6, C3538-7, C3538-8, C3538-9, C3538-10, C3538-11, C3538-12, C3538-13

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2 100-41-4 1634-04-4 108-88-3 1330-20-7	Benzene Ethylbenzene Methyl Tert Butyl Ether Toluene Xylene (total) TPH-GRO (C6-C10)	ND ND ND ND ND ND	5.0 5.0 5.0 5.0 10 100	$1.5 \\ 1.5 \\ 1.0 \\ 1.5 \\ 4.0 \\ 50$	ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg
CAS No.	Surrogate Recoveries		Limits		

1868-53-7	Dibromofluoromethane	105% 60-130%
2037-26-5	Toluene-D8	103% 60-130%
460-00-4	4-Bromofluorobenzene	100% 60-130%



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Account: Project:	ERMCAWO TJPA - San						
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VO153-MB	O03070.D	1	12/29/08	MF	n/a	n/a	VO153

The QC reported here applies to the following samples:

Method: SW846 8260B

C3538-14, C3538-15, C3538-16, C3538-17, C3538-18, C3538-19, C3538-20

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2 100-41-4 1634-04-4 108-88-3 1330-20-7	Benzene Ethylbenzene Methyl Tert Butyl Ether Toluene Xylene (total) TPH-GRO (C6-C10)	ND ND ND ND ND ND	5.0 5.0 5.0 5.0 10 100	1.5 1.5 1.0 1.5 4.0 50	ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg
CAS No.	Surrogate Recoveries		Limits		
1000 50 7					

1868-53-7	Dibromofluoromethane	99%	60-130%
2037-26-5	Toluene-D8	101%	
460-00-4	4-Bromofluorobenzene	99%	60-130%



Job Numbe Account: Project:	2						
Sample VO156-MB	File ID DF O03114.D 1	Analyzed 12/31/08	By MF	Prep 1 n/a	Date	Prep Batch n/a	Analytical Batch VO156
The QC re	ported here applies to the	following samp	ples:			Method: SW	/846 8260B
C3538-21							
						•	
CAS No.	Compound	Result	RL	MDL	Units	Q	1
71-43-2	Benzene	ND	5.0	1.5	ug/kg		
100-41-4	Ethylbenzene	ND	5.0	1.5	ug/kg		
108-88-3	Toluene	ND	5.0	1.5	ug/kg		
1330-20-7	Xylene (total)	ND ND	10	4.0 50	ug/kg		
	TPH-GRO (C6-C10)	IND	100	50	ug/kg		
CAS No.	Surrogate Recoveries		Limi	ts			
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	101% 101% 100%	60-13 60-13 60-13	0%			



Blank Spike Summary Job Number: C3538

Account: Project:	ERMCAW TJPA - San		,				
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VM114-BS	M3571.D	1	12/26/08	XB	n/a	n/a	VM114

The QC reported here applies to the following samples:

Method: SW846 8260B

C3538-22

67-64-1Acetone8068.78660-13071-43-2Benzene2018.29160-130108-86-1Bromobenzene2019.19660-13074-97-5Bromodichloromethane2019.19660-13074-97-5Bromodichloromethane2019.19660-13075-27-4Bromodichloromethane2018.89460-13075-25-2Bromoform2018.69360-130104-51-8n-Butylbenzene2020.310260-13098-06-6tert-Butylbenzene2019.79960-13098-06-7Chlorobenzene2019.09560-13075-00-3Chlorobenzene2019.29660-13067-66-3Chlorotoluene2018.29160-13066-23-5Carbon tetrachloride2018.79460-13056-23-5Carbon tetrachloride2018.79460-13056-35-61,1-Dichloroethane2018.79460-13066-13017.28660-13017.28660-130563-58-61,2-Dichloroptopane2018.39260-130107-06-21,2-Dichloroptopane2018.29160-130107-06-21,2-Dichloroptopane2018.29160-130108-92-3Di-Isopropyl ether2020.010060-130108-20-3Di-Isopr			Spike	BSP	BSP	
71-43-2Benzene20 18.2 91 $60-130$ $108-86-1$ Bromobenzene20 18.9 95 $60-130$ $74-97-5$ Bromochloromethane20 19.1 96 $60-130$ $75-27-4$ Bromodichloromethane20 18.8 94 $60-130$ $75-27-4$ Bromodichloromethane20 18.6 93 $60-130$ $104-51-8$ n-Butylbenzene20 20.8 104 $60-130$ $135-98-8$ sec-Butylbenzene20 20.3 102 $60-130$ $98-06-6$ tert-Butylbenzene20 19.7 99 $60-130$ $98-06-6$ tert-Butylbenzene20 19.7 99 $60-130$ $98-06-6$ tert-Butylbenzene20 19.2 96 $60-130$ $56-63$ Chlorothane20 18.2 91 $60-130$ $56-43-5$ Carbon tetrachloride20 18.2 91 $60-130$ $56-23-5$ Carbon tetrachloride20 18.7 94 $60-130$ $56-38-6$ $1,1$ -Dichloroptopene20 17.2 86 $60-130$ $56-38-6$ $1,2$ -Dibromo-3-chloropropane20 18.3 92 $60-130$ $106-93-4$ $1,2$ -Dibromo-3-chloropropane20 18.2 91 $60-130$ $107-6-2$ $1,2$ -Dichloroptopane20 18.2 91 $60-130$ $107-6-2$ $1,2$ -Dichloroptopane20 18.2 91 $60-130$ $107-6-2$ $1,2$ -Dichloroptopane20<	CAS No.	Compound	ug/l	ug/l	%	Limits
71-43-2Benzene 20 18.2 91 $60-130$ $108-86-1$ Bromobenzene 20 18.9 95 $60-130$ $74-97-5$ Bromochloromethane 20 18.8 94 $60-130$ $75-27-4$ Bromodichloromethane 20 18.8 94 $60-130$ $75-25-2$ Bromodichloromethane 20 18.6 93 $60-130$ $104-51-8$ n -Butylbenzene 20 20.8 104 $60-130$ $135-98-8$ sec-Butylbenzene 20 20.3 102 $60-130$ $98-06-6$ tert-Butylbenzene 20 19.7 99 $60-130$ $98-06-6$ tert-Butylbenzene 20 19.7 99 $60-130$ $75-00-3$ Chlorobenzene 20 19.2 96 $60-130$ $95-49-8$ o-Chlorotoluene 20 18.2 91 $60-130$ $95-49-8$ o-Chlorotoluene 20 18.2 91 $60-130$ $95-49-8$ o-Chlorotoluene 20 18.7 94 $60-130$ $106-43-4$ p-Chlorotoluene 20 18.7 94 $60-130$ $106-43-4$ p-Chlorotoluene 20 18.5 93 $60-130$ $563-58-6$ $1,1$ -Dichloropropene 20 18.1 91 $60-130$ $106-93-4$ $1,2$ -Dibromo-3-chloropropane 20 18.2 91 $60-130$ $107-6-2$ $1,2$ -Dibromo-3-chloropropane 20 18.5 93 $60-130$ $107-6-2$	67-64-1	Acetone	80	68.7	86	60-130
74-97-5Bromochloromethane2019.19660-13075-27-4Bromodichloromethane2018.89460-13075-25-2Bromoform2018.69360-130104-51-8n-Butylbenzene2020.810460-130135-98-8sec-Butylbenzene2020.310260-13098-06-6tert-Butylbenzene2019.79960-130108-90-7Chlorobenzene2019.79960-13075-00-3Chlorothane2020.310260-13067-66-3Chlorotoluene2018.29160-13095-49-8o-Chlorotoluene2018.29160-130106-43-4p-Chlorotoluene2018.79460-13056-23-5Carbon tetrachloride2018.79460-13075-35-41,1-Dichloroethane2017.99060-13063-58-61,1-Dichloropropane2017.99060-130106-93-41,2-Dibromo-3-chloropropane2018.39260-130107-06-21,2-Dichloropropane2018.59360-130107-06-21,2-Dichloropropane2018.59360-130107-06-21,2-Dichloropropane2018.59360-130107-06-21,2-Dichloropropane2018.59360-130124-48-1Dibromochlaromethane2019.59860-130 <tr< td=""><td>71-43-2</td><td>Benzene</td><td>20</td><td>18.2</td><td>91</td><td></td></tr<>	71-43-2	Benzene	20	18.2	91	
74-97-5Bromochloromethane2019.19660-13075-27-4Bromodichloromethane2018.89460-13075-25-2Bromoform2018.69360-130104-51-8n-Butylbenzene2020.310460-130135-98-8sec-Butylbenzene2020.310260-13098-06-6tert-Butylbenzene2019.79960-130108-90-7Chlorobenzene2019.29660-13075-00-3Chlorotoluene2018.29160-13067-66-3Chlorotoluene2018.29160-13056-23-5Carbon tetrachloride2018.79460-13056-23-5Carbon tetrachloride2018.59360-13056-35-61,1-Dichloroethylene2017.28660-130563-58-61,1-Dichloropropene2018.19160-130106-93-41,2-Dibromo-3-chloropropane2018.39260-130107-06-21,2-Dichloroptpane2018.29160-130107-06-21,2-Dichloroptpane2018.29160-130108-20-3Di-lsopropyl ether2020.010660-130124-28-91,3-Dichloroptpane2018.29160-130108-20-72,2-Dichloroptopane2018.29160-130124-28-91,3-Dichloroptopane2018.29160-130 <td>108-86-1</td> <td>Bromobenzene</td> <td>20</td> <td></td> <td></td> <td></td>	108-86-1	Bromobenzene	20			
75-27-4Bromodichloromethane 20 18.8 94 $60-130$ $75-25-2$ Bromoform 20 18.6 93 $60-130$ $104-51-8$ n-Butylbenzene 20 20.8 104 $60-130$ $135-98-8$ sec-Butylbenzene 20 20.3 102 $60-130$ $98-06-6$ tert-Butylbenzene 20 19.7 99 $60-130$ $108-90-7$ Chlorobenzene 20 19.7 99 $60-130$ $5-00-3$ Chlorobenzene 20 19.2 96 $60-130$ $57-00-3$ Chloroform 20 19.2 96 $60-130$ $57-03-3$ Chlorotoluene 20 18.2 91 $60-130$ $56-43-4$ p-Chlorotoluene 20 22.1 111 $60-130$ $56-23-5$ Carbon tetrachloride 20 18.7 94 $60-130$ $56-35-4$ $1,1$ -Dichloroethane 20 18.5 93 $60-130$ $56-35-6$ $1,1$ -Dichloropropane 20 18.1 91 $60-130$ $56-358-6$ $1,2$ -Dibromo-3-chloropropane 20 18.3 92 $60-130$ $107-06-2$ $1,2$ -Dichloroethane 20 18.2 91 $60-130$ $107-66-2$ $1,2$ -Dichloropropane 20 18.2 91 $60-130$ $108-20-3$ Di-Isopropyl ether 20 18.2 91 $60-130$ $124-48-1$ Dibromochloromethane 20 18.2 91 $60-130$ $108-20-3$ <td< td=""><td>74-97-5</td><td>Bromochloromethane</td><td>20</td><td></td><td></td><td></td></td<>	74-97-5	Bromochloromethane	20			
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	75-27-4	Bromodichloromethane	20		94	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	75-25-2	Bromoform	20	18.6		60-130
135-98-8sec-Butylbenzene2020.310260-13098-06-6tert-Butylbenzene2019.79960-130108-90-7Chlorobenzene2019.09560-13075-00-3Chloroethane2020.310260-13067-66-3Chlorotoluene2018.29160-13095-49-8o-Chlorotoluene2022.111160-130106-43-4p-Chlorotoluene2022.111160-13056-23-5Carbon tetrachloride2018.79460-13075-34-31,1-Dichloroethane2017.28660-130563-58-61,1-Dichloroethylene2017.99060-13096-12-81,2-Dibromo-3-chloropropane2018.19160-13096-12-81,2-Dibromoethane2018.29160-130107-06-21,2-Dichloroptopane2018.29160-130108-20-3Di-lsopropyle ther2020.010060-130108-20-3Di-lsopropyle ther2020.010060-130124-48-1Dibromochloromethane2019.59860-130124-48-1Dichlorodifluoromethane2019.79960-130124-48-1Dichlorodifluoromethane2019.79960-130124-48-1Dichlorodifluoromethane2019.59860-130124-48-1Dichlorodifluoromethane2019.5	104-51-8	n-Butylbenzene	20	20.8	104	60-130
98-06-6 tert-Butylbenzene 20 19.7 99 60-130 108-90-7 Chlorobenzene 20 19.0 95 60-130 75-00-3 Chlorothane 20 20.3 102 60-130 67-66-3 Chlorotone 20 18.2 91 60-130 95-49-8 o-Chlorotoluene 20 22.1 111 60-130 106-43-4 p-Chlorotoluene 20 22.1 111 60-130 56-23-5 Carbon tetrachloride 20 18.7 94 60-130 75-34-3 1,1-Dichloroethane 20 17.2 86 60-130 563-58-6 1,1-Dichloropropene 20 17.9 90 60-130 96-12-8 1,2-Dibromo-3-chloropropane 20 18.3 92 60-130 107-06-2 1,2-Dichloropropane 20 18.2 91 60-130 142-28-9 1,3-Dichloropropane 20 18.2 91 60-130 194-20-7 2,2-Dichlo	135-98-8		20			
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	98-06-6	tert-Butylbenzene	20	19.7	99	
75-00-3Chloroethane 20 20.3 102 $60-130$ $67-66-3$ Chloroform 20 19.2 96 $60-130$ $95-49-8$ o -Chlorotoluene 20 18.2 91 $60-130$ $106-43-4$ p -Chlorotoluene 20 22.1 111 $60-130$ $56-23-5$ Carbon tetrachloride 20 18.7 94 $60-130$ $56-23-5$ Carbon tetrachloride 20 18.7 94 $60-130$ $75-34-3$ $1,1$ -Dichloroethane 20 18.5 93 $60-130$ $563-58-6$ $1,1$ -Dichloropropene 20 18.1 91 $60-130$ $96-12-8$ $1,2$ -Dibromo-3-chloropropane 20 18.3 92 $60-130$ $106-93-4$ $1,2$ -Dibromoethane 20 18.3 92 $60-130$ $107-06-2$ $1,2$ -Dichloropenpane 20 18.2 91 $60-130$ $142-28-9$ $1,3$ -Dichloropropane 20 18.2 91 $60-130$ $142-28-9$ $1,3$ -Dichloropropane 20 18.2 91 $60-130$ $198-20-3$ Di-Isopropyl ether 20 19.5 98 $60-130$ $124-48-1$ Dibromochloromethane 20 19.7 99 $60-130$ $124-48-1$ Dibromochloromethane 20 19.7 99 $60-130$ $124-48-1$ Dibromochloromethane 20 19.7 99 $60-130$ $10061-01-5$ cis- $1,2$ -Dichloropenpene 20 19.5 98 <	108-90-7		20	19.0	95	
95-49-8o-Chlorotoluene20 18.2 91 $60-130$ $106-43-4$ p-Chlorotoluene20 22.1 1111 $60-130$ $56-23-5$ Carbon tetrachloride20 18.7 94 $60-130$ $75-34-3$ $1,1$ -Dichloroethane20 18.5 93 $60-130$ $75-35-4$ $1,1$ -Dichloroethylene20 17.2 86 $60-130$ $563-58-6$ $1,1$ -Dichloropropene20 17.9 90 $60-130$ $96-12-8$ $1,2$ -Dibromo-3-chloropropane20 18.3 92 $60-130$ $106-93-4$ $1,2$ -Dibromoethane20 18.3 92 $60-130$ $107-06-2$ $1,2$ -Dichloroptopane20 18.2 91 $60-130$ $142-28-9$ $1,3$ -Dichloroptopane20 18.5 93 $60-130$ $142-28-9$ $1,3$ -Dichloroptopane20 18.2 91 $60-130$ $194-20-7$ $2,2$ -Dichloroptopane20 18.2 91 $60-130$ $194-20-7$ $2,2$ -Dichloroptopane20 19.5 98 $60-130$ $124-48-1$ Dibromochloromethane20 19.7 99 $60-130$ $156-59-2$ cis- $1,2$ -Dichloroptopene20 18.9 95 $60-130$ $10061-01-5$ cis- $1,3$ -Dichloroptopene20 19.3 97 $60-130$ $156-59-2$ cis- $1,3$ -Dichloroptopene20 19.5 98 $60-130$ $10061-01-5$ cis- $1,3$ -Dichlorobenzene20 19.5 98	75-00-3	Chloroethane	20	20.3	102	60-130
95-49-8o-Chlorotoluene2018.29160-130106-43-4p-Chlorotoluene2022.111160-13056-23-5Carbon tetrachloride2018.79460-13075-34-31,1-Dichloroethane2018.59360-13075-35-41,1-Dichloroethylene2017.28660-130563-58-61,1-Dichloropropene2018.19160-13096-12-81,2-Dibromo-3-chloropropane2017.99060-130106-93-41,2-Dibromoethane2018.39260-130107-06-21,2-Dichloropropane2018.59360-130107-06-21,2-Dichloropropane2018.59360-130142-28-91,3-Dichloropropane2018.29160-130108-20-3Di-Isopropyl ether2020.010060-130124-48-1Dibromochloromethane2019.59860-130124-48-1Dibromochloromethane2019.79960-130156-59-2cis-1,2-Dichloropropane2019.79960-13010061-01-5cis-1,3-Dichloropropene2019.39760-130541-73-1m-Dichlorobenzene2019.59860-13010061-01-5cis-1,3-Dichloropropene2019.59860-130550-1o-Dichlorobenzene2019.59860-130106-46-7p-Dichlorobenzene20 <td>67-66-3</td> <td>Chloroform</td> <td>20</td> <td>19.2</td> <td>96</td> <td>60-130</td>	67-66-3	Chloroform	20	19.2	96	60-130
56-23-5Carbon tetrachloride2018.79460-13075-34-31,1-Dichloroethane2018.59360-13075-35-41,1-Dichloroethylene2017.28660-130563-58-61,1-Dichloropropene2018.19160-13096-12-81,2-Dibromo-3-chloropropane2017.99060-130106-93-41,2-Dibromoethane2018.39260-130107-06-21,2-Dichloroethane2018.29160-130107-06-21,2-Dichloropropane2018.59360-130107-06-21,2-Dichloropropane2018.29160-130142-28-91,3-Dichloropropane2018.29160-130108-20-3Di-Isopropyl ether2020.010060-130108-20-72,2-Dichloropropane2019.59860-130124-48-1Dibromochloromethane2019.79960-130124-48-1Dichlorodifluoromethane2019.79960-130156-59-2cis-1,3-Dichloropropene2019.29660-130541-73-1m-Dichlorobenzene2019.39760-13055-50-1o-Dichlorobenzene2019.59860-13056-60-5trans-1,2-Dichloroethylene2018.19160-13010061-02-6trans-1,3-Dichloropropene2019.39760-13010061-02-6trans-1,3-Dichl	95-49-8	o-Chlorotoluene	20	18.2	91	
75-34-31,1-Dichloroethane2018.59360-130 $75-35-4$ 1,1-Dichloroethylene2017.28660-130 $563-58-6$ 1,1-Dichloropropene2018.19160-130 $96-12-8$ 1,2-Dibromo-3-chloropropane2017.99060-130 $106-93-4$ 1,2-Dibromoethane2018.39260-130 $107-06-2$ 1,2-Dichloroethane2018.29160-130 $107-06-2$ 1,2-Dichloropropane2018.59360-130 $142-28-9$ 1,3-Dichloropropane2018.29160-130 $142-28-9$ 1,3-Dichloropropane2018.29160-130 $108-20-3$ Di-Isopropyl ether2020.010060-130 $194-20-7$ 2,2-Dichloropropane2019.59860-130 $124-48-1$ Dibromochloromethane2019.79960-130 $124-48-1$ Dichlorodifluoromethane2019.79960-130 $1061-01-5$ cis-1,3-Dichloropropene2019.29660-130 $10061-01-5$ cis-1,3-Dichloropropene2019.39760-130 $95-50-1$ o-Dichlorobenzene2019.59860-130 $106-46-7$ p-Dichlorobenzene2019.69860-130 $106-46-7$ p-Dichlorobenzene2019.39760-130 $106-102-6$ trans-1,2-Dichloroethylene2018.19160-130 <tr<< td=""><td>106-43-4</td><td>p-Chlorotoluene</td><td>20</td><td>22.1</td><td>111</td><td>60-130</td></tr<<>	106-43-4	p-Chlorotoluene	20	22.1	111	60-130
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	56-23-5	Carbon tetrachloride	20	18.7	94	60-130
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	75-34-3	1,1-Dichloroethane	20	18.5	93	
96-12-81,2-Dibromo-3-chloropropane2017.99060-130106-93-41,2-Dibromoethane2018.39260-130107-06-21,2-Dichloroethane2018.29160-130107-06-21,2-Dichloroethane2018.29160-13078-87-51,2-Dichloropropane2018.59360-130142-28-91,3-Dichloropropane2018.29160-130108-20-3Di-Isopropyl ether2020.010060-130594-20-72,2-Dichloropropane2019.59860-130124-48-1Dibromochloromethane2019.79960-130124-48-1Dichlorodifluoromethane2018.99560-130156-59-2cis-1,2-Dichloropropane2018.99560-1301061-01-5cis-1,3-Dichloropropene2019.29660-130541-73-1m-Dichlorobenzene2019.39760-13095-50-1o-Dichlorobenzene2019.59860-130106-46-7p-Dichlorobenzene2019.69860-130156-60-5trans-1,2-Dichloroethylene2018.19160-13010061-02-6trans-1,3-Dichloropropene2019.39760-13010061-02-6trans-1,3-Dichloropropene2019.39760-13010061-02-6trans-1,3-Dichloropropene2019.39760-130100-41-4<	75-35-4	1,1-Dichloroethylene	20	17.2	86	60-130
96-12-81,2-Dibromo-3-chloropropane2017.99060-130106-93-41,2-Dibromoethane2018.39260-130107-06-21,2-Dichloroethane2018.29160-13078-87-51,2-Dichloropropane2018.59360-130142-28-91,3-Dichloropropane2018.29160-130108-20-3Di-Isopropyl ether2020.010060-130594-20-72,2-Dichloropropane2019.59860-130124-48-1Dibromochloromethane2019.79960-13075-71-8Dichlorodifluoromethane2018.99560-130156-59-2cis-1,2-Dichloropropane2018.99560-13010061-01-5cis-1,3-Dichloropropene2019.39760-130541-73-1m-Dichlorobenzene2019.59860-13095-50-1o-Dichlorobenzene2019.59860-130106-46-7p-Dichlorobenzene2019.59860-130106-46-7p-Dichlorobenzene2019.69860-130156-60-5trans-1,2-Dichloroethylene2018.19160-13010061-02-6trans-1,3-Dichloropropene2019.39760-13010061-02-6trans-1,3-Dichloropropene2019.39760-13010061-02-6trans-1,3-Dichloropropene2019.39760-130100-41-4 <t< td=""><td>563-58-6</td><td>1,1-Dichloropropene</td><td>20</td><td>18.1</td><td>91</td><td>60-130</td></t<>	563-58-6	1,1-Dichloropropene	20	18.1	91	60-130
107-06-21,2-Dichloroethane2018.29160-13078-87-51,2-Dichloropropane2018.59360-130142-28-91,3-Dichloropropane2018.29160-130108-20-3Di-Isopropyl ether2020.010060-130594-20-72,2-Dichloropropane2019.59860-130124-48-1Dibromochloromethane2019.79960-13075-71-8Dichlorodifluoromethane2018.99560-130156-59-2cis-1,2-Dichloropropane2018.99560-1301061-01-5cis-1,3-Dichloropropene2019.29660-130541-73-1m-Dichlorobenzene2019.39760-13095-50-1o-Dichlorobenzene2019.59860-130106-46-7p-Dichlorobenzene2019.69860-130156-60-5trans-1,2-Dichloroethylene2018.19160-13010061-02-6trans-1,3-Dichloropropene2019.39760-13010061-02-6trans-1,3-Dichloropropene2019.39760-13010061-02-6trans-1,3-Dichloropropene2019.39760-130100-41-4Ethylbenzene2019.19660-130	96-12-8	1,2-Dibromo-3-chloropropane	20	17.9	90	60-130
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	106-93-4	1,2-Dibromoethane	20	18.3	92	60-130
142-28-91,3-Dichloropropane2018.29160-130108-20-3Di-Isopropyl ether2020.010060-130594-20-72,2-Dichloropropane2019.59860-130124-48-1Dibromochloromethane2019.79960-13075-71-8Dichlorodifluoromethane2024.312260-130156-59-2cis-1,2-Dichloroethylene2018.99560-13010061-01-5cis-1,3-Dichloropropene2019.29660-130541-73-1m-Dichlorobenzene2019.39760-13095-50-1o-Dichlorobenzene2019.59860-130106-46-7p-Dichlorobenzene2019.69860-130156-60-5trans-1,2-Dichloroethylene2018.19160-13010061-02-6trans-1,3-Dichloropropene2019.39760-13010061-02-6trans-1,3-Dichloropropene2019.19660-130	107-06-2	1,2-Dichloroethane	20		91	60-130
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	78-87-5	1,2-Dichloropropane	20	18.5	93	60-130
108-20-3Di-Isopropyl ether2020.010060-130594-20-72,2-Dichloropropane2019.59860-130124-48-1Dibromochloromethane2019.79960-13075-71-8Dichlorodifluoromethane2024.312260-130156-59-2cis-1,2-Dichloroethylene2018.99560-13010061-01-5cis-1,3-Dichloropropene2019.29660-130541-73-1m-Dichlorobenzene2019.39760-13095-50-1o-Dichlorobenzene2019.59860-130106-46-7p-Dichlorobenzene2019.69860-130156-60-5trans-1,2-Dichloroethylene2018.19160-13010061-02-6trans-1,3-Dichloropropene2019.39760-13010061-02-6trans-1,3-Dichloropropene2019.19660-130	142-28-9	1,3-Dichloropropane	20	18.2	91	
124-48-1Dibromochloromethane2019.79960-13075-71-8Dichlorodifluoromethane2024.312260-130156-59-2cis-1,2-Dichloroethylene2018.99560-13010061-01-5cis-1,3-Dichloropropene2019.29660-130541-73-1m-Dichlorobenzene2019.39760-13095-50-1o-Dichlorobenzene2019.59860-130106-46-7p-Dichlorobenzene2019.69860-130156-60-5trans-1,2-Dichloroethylene2018.19160-13010061-02-6trans-1,3-Dichloropropene2019.39760-130100-41-4Ethylbenzene2019.19660-130	108-20-3		20	20.0	100	60-130
124-48-1Dibromochloromethane2019.79960-13075-71-8Dichlorodifluoromethane2024.312260-130156-59-2cis-1,2-Dichloroethylene2018.99560-13010061-01-5cis-1,3-Dichloropropene2019.29660-130541-73-1m-Dichlorobenzene2019.39760-13095-50-1o-Dichlorobenzene2019.59860-130106-46-7p-Dichlorobenzene2019.69860-130156-60-5trans-1,2-Dichloroethylene2018.19160-13010061-02-6trans-1,3-Dichloropropene2019.39760-130100-41-4Ethylbenzene2019.19660-130	594-20-7	2,2-Dichloropropane	20	19.5	98	60-130
75-71-8Dichlorodifluoromethane2024.312260-130156-59-2cis-1,2-Dichloroethylene2018.99560-13010061-01-5cis-1,3-Dichloropropene2019.29660-130541-73-1m-Dichlorobenzene2019.39760-13095-50-1o-Dichlorobenzene2019.59860-130106-46-7p-Dichlorobenzene2019.69860-130156-60-5trans-1,2-Dichloroethylene2018.19160-13010061-02-6trans-1,3-Dichloropropene2019.39760-130100-41-4Ethylbenzene2019.19660-130	124-48-1		20	19.7	99	60-130
156-59-2cis-1,2-Dichloroethylene2018.99560-13010061-01-5cis-1,3-Dichloropropene2019.29660-130541-73-1m-Dichlorobenzene2019.39760-13095-50-1o-Dichlorobenzene2019.59860-130106-46-7p-Dichlorobenzene2019.69860-130156-60-5trans-1,2-Dichloroethylene2018.19160-13010061-02-6trans-1,3-Dichloropropene2019.39760-130100-41-4Ethylbenzene2019.19660-130	75-71-8	Dichlorodifluoromethane	20	24.3	122	
10061-01-5cis-1,3-Dichloropropene2019.29660-130541-73-1m-Dichlorobenzene2019.39760-13095-50-1o-Dichlorobenzene2019.59860-130106-46-7p-Dichlorobenzene2019.69860-130156-60-5trans-1,2-Dichloroethylene2018.19160-13010061-02-6trans-1,3-Dichloropropene2019.39760-130100-41-4Ethylbenzene2019.19660-130	156-59-2	cis-1,2-Dichloroethylene	20	18.9	95	
95-50-1o-Dichlorobenzene2019.59860-130106-46-7p-Dichlorobenzene2019.69860-130156-60-5trans-1,2-Dichloroethylene2018.19160-13010061-02-6trans-1,3-Dichloropropene2019.39760-130100-41-4Ethylbenzene2019.19660-130	10061-01-5		20	19.2	96	60-130
106-46-7p-Dichlorobenzene2019.69860-130156-60-5trans-1,2-Dichloroethylene2018.19160-13010061-02-6trans-1,3-Dichloropropene2019.39760-130100-41-4Ethylbenzene2019.19660-130	541-73-1	m-Dichlorobenzene	20	19.3	97	60-130
156-60-5trans-1,2-Dichloroethylene2018.19160-13010061-02-6trans-1,3-Dichloropropene2019.39760-130100-41-4Ethylbenzene2019.19660-130	95-50-1	o-Dichlorobenzene	20	19.5	98	60-130
156-60-5trans-1,2-Dichloroethylene2018.19160-13010061-02-6trans-1,3-Dichloropropene2019.39760-130100-41-4Ethylbenzene2019.19660-130	106-46-7	p-Dichlorobenzene	20	19.6	98	60-130
10061-02-6trans-1,3-Dichloropropene2019.39760-130100-41-4Ethylbenzene2019.19660-130	156-60-5		20	18.1	91	
100-41-4 Ethylbenzene 20 19.1 96 60-130	10061-02-6					
	100-41-4			19.1	96	
637-92-3 Euryl left Buryl Ether 20 19.2 96 60-130	637-92-3	Ethyl Tert Butyl Ether	20	19.2	96	60-130



Page 1 of 3

Job Number: Account: Project:		C3538 ERMCAWC ERM-West, Inc. TJPA - San Francisco, CA									
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch				
VM114-BS	M3571.D	1	12/26/08	XB	n/a	n/a	VM114				

The QC reported here applies to the following samples:

Method: SW846 8260B

C3538-22

		Spike	BSP	BSP	
CAS No.	Compound	ug/l	ug/l	%	Limits
591-78-6	2-Hexanone	80	71.0	89	60-130
87-68-3	Hexachlorobutadiene	20	23.1	116	60-130 60-130
98-82-8	Isopropylbenzene	20	19.4	97	60-130 60-130
99-87-6	p-Isopropyltoluene	20	20.3	102	60-130 60-130
108-10-1	4-Methyl-2-pentanone	80	71.1	102 89	60-130 60-130
74-83-9	Methyl bromide	20	21.0	105	60-130 60-130
74-87-3	Methyl chloride	20	20.3	103	60-130 60-130
74-95-3	Methylene bromide	20	20.3 18.4	92	60-130 60-130
74-99-3	Methylene chloride	20	18.4	92 92	
					60-130
78-93-3	Methyl ethyl ketone Methyl Test Butsl Ether	80	70.6	88	60-130
1634-04-4	Methyl Tert Butyl Ether	20	19.2	96 90	60-130
91-20-3	Naphthalene	20	17.5	88	60-130
103-65-1	n-Propylbenzene	20	20.2	101	60-130
100-42-5	Styrene	20	19.5	.98	60-130
994-05-8	Tert-Amyl Methyl Ether	20	20.1	101	60-130
75-65-0	Tert-Butyl Alcohol	100	91.3	91	60-130
630-20-6	1,1,1,2-Tetrachloroethane	20	18.6	93	60-130
71-55-6	1,1,1-Trichloroethane	20	19.0	95	60-130
79-34-5	1,1,2,2-Tetrachloroethane	20	18.5	93	60-130
79-00-5	1,1,2-Trichloroethane	20	18.5	93	60-130
87-61-6	1,2,3-Trichlorobenzene	20	18.5	93	60-130
96-18-4	1,2,3-Trichloropropane	20	18.0	90	60-130
120-82-1	1,2,4-Trichlorobenzene	20	19.3	97	60-130
95-63-6	1,2,4-Trimethylbenzene	20	19.9	100	60-130
108-67-8	1,3,5-Trimethylbenzene	20	20.1	101	60-130
127-18-4	Tetrachloroethylene	20	17.8	89	60-130
108-88-3	Toluene	20	17.8	89	60-130
79-01-6	Trichloroethylene	20	18.5	93	60-130
75-69-4	Trichlorofluoromethane	20	20.8	104	60-130
75-01-4	Vinyl chloride	20	19.9	100	60-130
1330-20-7	Xylene (total)	60	56.5	94	60-130
CAS No.	Surrogate Recoveries	BSP	Lin	nits	
1868-53-7	Dibromofluoromethane	103%	60-	130%	



Job Number:	Der: C3538									
Account:	ERMCAWC ERM-West, Inc.									
Project:	TJPA - San Francisco, CA									
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch			
VM114-BS	M3571.D	1	12/26/08	XB	n/a	n/a	VM114			
The QC report	ted here app	lies to the	e following sam	ples:		Method: SW	/846 8260B			

C3538-22

CAS No.	Surrogate Recoveries	BSP	Limits	
	Toluene-D8 4-Bromofluorobenzene	100% 99%		



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Job Number:	C3538									
Account:	ERMCAWC ERM-West, Inc.									
Project:	TJPA - San Francisco, CA									
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch			
VO152-BS	003041.D	1	12/26/08	MF	n/a	n/a	VO152			

The QC reported here applies to the following samples:

Method: SW846 8260B

C3538-1, C3538-2, C3538-3, C3538-4, C3538-5, C3538-6, C3538-7, C3538-8, C3538-9, C3538-10, C3538-11, C3538-12, C3538-13

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	40	41.7	104	60-130
100-41-4	Ethylbenzene	40	41.6	104	60-130
1634-04-4	Methyl Tert Butyl Ether	40	42.9	107	60-130
108-88-3	Toluene	40	39.7	99	60-130
1330-20-7	Xylene (total)	120	123	103	60-130
CAS No.	Surrogate Recoveries	BSP	Lin	nits	
1868-53-7	Dibromofluoromethane	103%	60-	130%	
2037-26-5	Toluene-D8	99%	60-	130%	
460-00-4	4-Bromofluorobenzene	99%	60-	130%	



Page 1 of 1

Blank Spike Summary Job Number: C3538

Account: Project:		ERMCAWC ERM-West, Inc. TJPA - San Francisco, CA									
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch				
VO152-BS	003042.D	1	12/26/08	MF	n/a	n/a	VO152				

The QC reported here applies to the following samples:

Method: SW846 8260B

C3538-1, C3538-2, C3538-3, C3538-4, C3538-5, C3538-6, C3538-7, C3538-8, C3538-9, C3538-10, C3538-11, C3538-12, C3538-13

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
	TPH-GRO (C6-C10)	250	281	112	60-130
CAS No.	Surrogate Recoveries	BSP	Lin	nits	
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	99% 102% 102%	60-1	130% 130% 130%	





Account: Project:	C3538 ERMCAWC ERM-West, Inc. TJPA - San Francisco, CA									
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch			
VO153-BS	003071.D	1	12/29/08	MF	n/a	n/a	VO153			

The QC reported here applies to the following samples:

Method: SW846 8260B

C3538-14, C3538-15, C3538-16, C3538-17, C3538-18, C3538-19, C3538-20

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2 100-41-4 1634-04-4 108-88-3 1330-20-7	Benzene Ethylbenzene Methyl Tert Butyl Ether Toluene Xylene (total)	40 40 40 40 120	37.6 36.7 40.0 37.3 110	94 92 100 93 92	60-130 60-130 60-130 60-130 60-130
CAS No.	Surrogate Recoveries	BSP	Lin	nits	
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	101% 96% 99%	60-	130% 130% 130%	



Page 1 of 1

Account: Project:		ERMCAWC ERM-West, Inc. TJPA - San Francisco, CA										
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch					
VO153-BS	003072.D	1	12/29/08	MF	n/a	n/a	VO153					

The QC reported here applies to the following samples:

Method: SW846 8260B

 $C3538\text{-}14,\ C3538\text{-}15,\ C3538\text{-}16,\ C3538\text{-}17,\ C3538\text{-}18,\ C3538\text{-}19,\ C3538\text{-}20$

CAS No.	Compound TPH-GRO (C6-C10)	Spike ug/kg 250	BSP ug/kg 295	BSP % 118	Limits 60-130
CAS No.	Surrogate Recoveries	BSP	Lin	iits	
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	103% 102% 101%	60-130% 60-130% 60-130%		



108-88-3

1330-20-7

CAS No.

1868-53-7

2037-26-5

460-00-4

Toluene

Xylene (total)

Toluene-D8

Surrogate Recoveries

Dibromofluoromethane

4-Bromofluorobenzene

Job Number Account: Project:	: C3538 ERMCAWO TJPA - San							
Sample VO156-BS	File ID O03115.D	DF 1	Analyzed 12/31/08	By MF	Pı n/	ep Date a	Prep Batch n/a	Analytical Batch VO156
Тhe QC герс C3538-21	orted here appl	ies to the f	following san	nples:			Method: SW	/846 8260B
CAS No. (Compound		Spike ug/kg	BSP ug/kg	BSP %	Limits		х
	Benzene Ethylbenzene		40 40	42.7 43.3	107 108	60-130 60-130		

40

120

BSP

105%

96%

100%

41.5

128

104

107

Limits

60-130%

60-130%

60-130%

60-130

60 - 130

4.2

Job Number: Account: Project:	C3538 ERMCAW(TJPA - San						
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VO156-BS	003116.D	1	12/31/08	MF	n/a	n/a	VO156

The QC reported here applies to the following samples:

Method: SW846 8260B

C3538-21

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
	TPH-GRO (C6-C10)	250	281	112	60-130
CAS No.	Surrogate Recoveries	BSP Lir		its	
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	99% 102% 102%	60-1	30% 30% 30%	



Page 1 of 1

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: Account: Project:	C3538 ERMCAW TJPA - San						
Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
C3542-1MS	M3585.D	1	12/26/08	XB	n/a	n/a *	VM114
C3542-1MSD	M3586.D	1	12/26/08	XB	n/a	n/a	VM114
C3542-1	M3576.D	1	12/26/08	XB	n/a	n/a	VM114

The QC reported here applies to the following samples:

Method: SW846 8260B

C3538-22

CAS No.	Compound	C3542-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
	o omp o one	-8-	*	-8-			-8-			
67-64-1	Acetone	ND		80	51.8	65	51.1	64	1.	60-130/25
71-43-2	Benzene	ND		20	18.3	92	18.7	94	2	60-130/25
108-86-1	Bromobenzene	ND		20	18.6	93	19.1	96	3	60-130/25
74-97-5	Bromochloromethane	ND		20	18.5	93	18.6	93	1	60-130/25
75-27-4	Bromodichloromethane	ND		20	18.5	93	18.9	95	2	60-130/25
75-25-2	Bromoform	ND		20	16.2	81	17.3	87	7	60-130/25
104-51-8	n-Butylbenzene	ND		20	21.8	109	21.6	108	1	60-130/25
135-98-8	sec-Butylbenzene	ND		20	20.5	103	20.9	105	2	60-130/25
98-06-6	tert-Butylbenzene	ND		20	20.1	101	20.5	103	2	60-130/25
108-90-7	Chlorobenzene	ND		20	18.7	94	19.3	97	3	60-130/25
75-00-3	Chloroethane	ND		20	21.6	108	20.9	105	3	60-130/25
67-66-3	Chloroform	ND		20	19.7	99	19.9	100	1	60-130/25
95-49-8	o-Chlorotoluene	ND		20	19.7	99	19.4	97	2	60-130/25
106-43-4	p-Chlorotoluene	ND		20	20.7	104	22.0	110	6	60-130/25
56-23-5	Carbon tetrachloride	ND		20	18.9	95	18.7	94	1	60-130/25
75-34-3	1,1-Dichloroethane	0.44	J	20	19.3	94	19.2	94	1	60-130/25
75-35-4	1,1-Dichloroethylene	ND	-	20	16.7	84	16.7	84	0	60-130/25
563-58-6	1,1-Dichloropropene	ND		20	18.3	92	18.4	92	1	60-130/25
96-12-8	1,2-Dibromo-3-chloropropane	ND		20	15.0	75	16.4	82	9	60-130/25
106-93-4	1,2-Dibromoethane	ND		20	16.6	83	17.1	86	3	60-130/25
107-06-2	1,2-Dichloroethane	ND		20	17.8	89	18.0	90	1	60-130/25
78-87-5	1,2-Dichloropropane	ND		20	18.6	93	19.1	96	3	60-130/25
142-28-9	1,3-Dichloropropane	ND		20	17.3	87	17.8	89	3	60-130/25
108-20-3	Di-Isopropyl ether	ND		20	19.4	97	19.9	100	3	60-130/25
594-20-7	2,2-Dichloropropane	ND		20	20.0	100	19.7	99	2	60-130/25
124-48-1	Dibromochloromethane	ND		20	18.0	90	18.6	93	3	60-130/25
75-71-8	Dichlorodifluoromethane	ND		20	26.0	130	25.4	127	2	60-130/25
156-59-2	cis-1,2-Dichloroethylene	10.7		20	29.8	96	29.7	95	0	60-130/25
10061-01-5		ND		20	18.9	95	19.1	96	1	60-130/25
541-73-1	m-Dichlorobenzene	ND		20	19.4	97	20.1	101	4	60-130/25
95-50-1	o-Dichlorobenzene	ND		20	18.9	95	20.0	100	6	60-130/25
106-46-7	p-Dichlorobenzene	ND		20	19.5	98	20.4	102	5	60-130/25
156-60-5	trans-1,2-Dichloroethylene	ND		20	18.3	92	18.2	91	1	60-130/25
	trans-1,3-Dichloropropene	ND		20	18.6	93	19.1	96	3	60-130/25
100-41-4	Ethylbenzene	ND		20	19.3	97	19.9	100	3	60-130/25
637-92-3	Ethyl Tert Butyl Ether	ND		20	19.2	96	19.2	96	0	60-130/25
201 02 0	Surge Fort Burge Euror			20	20.0		2010	50	2	



JOD Number:	U33
Account:	ERN
Project:	TJP.

	00000
count:	ERMCAWC ERM-West, Inc.
oject:	TJPA - San Francisco, CA

C3542-1MS M C3542-1MSD M) 1 ·	2-1MS M 2-1MSD M	Analyzed 12/26/08 12/26/08 12/26/08	By XB XB XB	Prep Date n/a n/a n/a	Prep Batch n/a n/a n/a	Analytical Batch VM114 VM114 VM114 VM114
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The QC reported here applies to the following samples:

Method: SW846 8260B

C3538-22

		C3542-1	Spike	MS	MS	MSD	MSD		Limits
CAS No.	Compound	ug/l Q	ug/l	ug/l	%	ug/l	%	RPD	Rec/RPD
				-					
591-78-6	2-Hexanone	ND	80	60.4	76	64.5	81	7	60-130/25
87-68-3	Hexachlorobutadiene	ND	20	24.2	121	24.6	123	2	60-130/25
98-82-8	Isopropylbenzene	ND	20	19.5	98	20.3	102	4	60-130/25
99-87-6	p-Isopropyltoluene	ND	20	20.7	104	21.1	106	2	60-130/25
108-10-1	4-Methyl-2-pentanone	ND	80	62.4	78	65.1	81	4	60-130/25
74-83-9	Methyl bromide	ND	20	23.9	120	23.0	115	4	60-130/25
74-87-3	Methyl chloride	ND	20	24.3	122	22.4	112	8	60-130/25
74-95-3	Methylene bromide	ND	20	17.5	88	17.9	90	2	60-130/25
75-09-2	Methylene chloride	ND	20	18.1	91	18.0	90	1	60-130/25
78-93-3	Methyl ethyl ketone	ND	80	58.3	73	59.6	75	2	60-130/25
1634-04-4	Methyl Tert Butyl Ether	ND	20	18.2	91	18.1	91	1	60-130/25
91-20-3	Naphthalene	ND	20	16.6	83	18.0	90	8	60-130/25
103-65-1	n-Propylbenzene	ND	20	20.5	103	20.9	105	2.	60-130/25
100-42-5	Styrene	ND	20	18.8	94	18.9	95	1	60-130/25
994-05-8	Tert-Amyl Methyl Ether	ND	20	19.3	97	19.4	97	1	60-130/25
75-65-0	Tert-Butyl Alcohol	ND	100	76.8	77	78.2	78	2	60-130/25
630-20-6	1,1,1,2-Tetrachloroethane	ND	20	18.3	92	19.1	96	4	60-130/25
71-55-6	1,1,1-Trichloroethane	4.9	20	23.7	94	23.7	94	0	60-130/25
79-34-5	1,1,2,2-Tetrachloroethane	ND	20	16.4	82	17.8	89	8	60-130/25
79-00-5	1,1,2-Trichloroethane	ND	20	17.3	87	18.0	90	4	60-130/25
87-61-6	1,2,3-Trichlorobenzene	ND	20	18.7	94	20.3	102	8	60-130/25
96-18-4	1,2,3-Trichloropropane	ND	20	15.9	80	16.7	84	5	60-130/25
120-82-1	1,2,4-Trichlorobenzene	ND	20	19.7	99	20.6	103	4	60-130/25
95-63-6	1,2,4-Trimethylbenzene	ND	20	19.9	100	20.2	101	1	60-130/25
108-67-8	1,3,5-Trimethylbenzene	ND	20	20.0	100	20.4	102	2	60-130/25
127-18-4	Tetrachloroethylene	21.5	20	37.0	78	37.8	82	2	60-130/25
108-88-3	Toluene	ND	20	17.8	89	18.3	92	3	60-130/25
79-01-6	Trichloroethylene	4.0	20	22.2	91	22.7	9 <u>4</u>	2	60-130/25
75-69-4	Trichlorofluoromethane	ND	20	21.7	109	21.1	106	3	60-130/25
75-01-4	Vinyl chloride	ND	20	22.5	113	21.5	108	5	60-130/25
1330-20-7	Xylene (total)	ND	60	56.4	94	58.0	97	3	60-130/25
					•••	00.0	01	J	00 100/20
CAS No.	Surrogate Recoveries	MS	MSD	C3:	542-1	Limits			
1868-53-7	Dibromofluoromethane	1010/	000/	100		00 0000			
1000-30-1	Dibioinoffuoromethane	101%	99%	103	%	60-130%	>		



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119 of 172 ACCUTEST. C3538 Laborator

Account: ERMCAWC ERM-West, Inc. Project: TJPA - San Francisco, CA										
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch			
C3542-1MS	M3585.D	1	12/26/08	XB	n/a	n/a	VM114			
C3542-1MSD	M3586.D	1	12/26/08	XB	n/a	n/a	VM114			
C3542-1	M3576.D	1	12/26/08	XB	n/a	n/a	VM114			

The QC reported here applies to the following samples:

Method: SW846 8260B

C3538-22

CAS No.	Surrogate Recoveries	MS	MSD	C3542-1	Limits
	Toluene-D8 4-Bromofluorobenzene		100% 99%		60-130% 60-130%

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 ACCUTEST

 C3538

Account: Project:	ERMCAWO TJPA - San						,
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C3538-2MS	003086.D	1	12/30/08	MF	n/a	n/a	V0152
C3538-2MSD	003087.D	1	12/30/08	MF	n/a	n/a	V0152
C3538-2	003044.D	1	12/26/08	MF	n/a	n/a	V0152

The QC reported here applies to the following samples:

Method: SW846 8260B

C3538-1, C3538-2, C3538-3, C3538-4, C3538-5, C3538-6, C3538-7, C3538-8, C3538-9, C3538-10, C3538-11, C3538-12, C3538-13

CAS No.	Compound	C3538-2 ug/kg Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2 100-41-4 1634-04-4 108-88-3 1330-20-7	Benzene Ethylbenzene Methyl Tert Butyl Ether Toluene Xylene (total)	ND ND ND ND	40 40 40 40 120	35.5 34.9 35.7 35.0 98.9	89 87 89 88 82	37.1 35.2 38.2 35.5 101	93 88 96 89 84	4 1 7 1 2	60-130/30 60-130/30 60-130/30 60-130/30 60-130/30
CAS No.	Surrogate Recoveries	MS	MSD	C3	538-2	Limits			
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	98% 99% 101%	101% 98% 102%		% 5% 1%	60-1309 60-1309 60-1309	6		



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Matrix Spike/Matrix Spike Duplicate Summary

Job Number: Account: Project:		C ERM-Wes Francisco, C	,								
Sample C3538-21MS C3538-21MSD C3538-21	File ID 003118.D 003119.D 003117.D	DF 1 1 1	Analyzed 12/31/08 12/31/08 12/31/08]]	By MF MF MF	Prep D n/a n/a n/a	ate	Prep Bato n/a n/a n/a	V(V(nalytical 0156 0156 0156 0156	Batch
The QC report	ted here appl	ies to the fo	llowing san	nple	:8:			Method:	SW846	8260B	
CAS No. Co	ompound		C3538-2 ug/kg	21 Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2 Be	nzene		ND		39.8	38.9	98	37.5	94	4	60-130/30

		C3538-21	Spike	MS	MS	MSD	MSD		Limits
CAS No.	Compound	ug/kg Q	ug/kg	ug/kg	%	ug/kg	%	RPD	Rec/RPD
71-43-2	Benzene	ND	39.8	38.9	98	37.5	94	4	60-130/30
100-41-4	Ethylbenzene	ND	39.8	30.9	78	26.1	65	17	60-130/30
108-88-3	Toluene	ND	39.8	33.8	85	31.2	78	8	60-130/30
1330-20-7	Xylene (total)	ND	120	88.8	74	75.4	63	16	60-130/30
	- 								
CAS No.	Surrogate Recoveries	MS	MSD	C3:	538-21	Limits			
1868-53-7	Dibromofluoromethane	100%	97%	101	%	60-130%	,)		
2037-26-5	Toluene-D8	96%	98%	102	%	60-130%	, >		
460-00-4	4-Bromofluorobenzene	96%	99%	989	%	60-130%	Ś		







Section 5

QC Data Summaries

GC Semi-volatiles

Includes the following where applicable:

• Method Blank Summaries

• Blank Spike Summaries

Matrix Spike and Duplicate Summaries



Job Number:	C3538										
Account:	ERMCAWC ERM-West, Inc.										
Project:	TJPA - San Francisco, CA										
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch				
OP600-MB	GG2899.D	1	12/23/08	JH	12/23/08	OP600	GGG118				
The OC repor	ted here appl	ion to the	following com	n]00:		Mathad: SW	1946 9015D M				

The QC reported here applies to the following samples:

Method: SW846 8015B M

C3538-1, C3538-2, C3538-3, C3538-4, C3538-5, C3538-6, C3538-7, C3538-8, C3538-9, C3538-10, C3538-11, C3538-12, C3538-13, C3538-14, C3538-15, C3538-16, C3538-17, C3538-18, C3538-19

CAS No.	Compound	Result	RL	MDL	Units Q
	TPH (C10-C28) TPH (>C28-C40)	ND ND	10 20	5.0 10	mg/kg mg/kg
CAS No.	Surrogate Recoveries		Limits		
630-01-3	Hexacosane	69%	45-140	%	



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							0
File ID GG2953.D	DF 1	Analyzed 12/29/08	By JH	*		Prep Batch OP610	Analytical Batch GGG121
ted here appl	ies to the fol	lowing samj	ples:			Method: SW	/846 8015B M
ompound PH (C10-C28)		Result	RL 10	MDL 5.0		-	
	ERMCAWC TJPA - San File ID GG2953.D ted here appl	ERMCAWC ERM-West TJPA - San Francisco, C File ID DF GG2953.D 1 ted here applies to the fol	ERMCAWC ERM-West, Inc. TJPA - San Francisco, CA File ID DF Analyzed GG2953.D 1 12/29/08 ted here applies to the following samp mpound Result	ERMCAWC ERM-West, Inc. TJPA - San Francisco, CA File ID DF Analyzed By GG2953.D 1 12/29/08 JH ted here applies to the following samples: performance of the following samples:	ERMCAWC ERM-West, Inc. TJPA - San Francisco, CA File ID DF Analyzed By Prep I GG2953.D 1 12/29/08 JH 12/29/ ted here applies to the following samples: perpound Result RL MDL	ERMCAWC ERM-West, Inc. TJPA - San Francisco, CA File ID DF Analyzed By Prep Date GG2953.D 1 12/29/08 JH 12/29/08 ted here applies to the following samples: pompound Result RL MDL Units	ERMCAWC ERM-West, Inc. TJPA - San Francisco, CA File ID DF Analyzed By Prep Date Prep Batch GG2953.D 1 12/29/08 JH 12/29/08 OP610 ted here applies to the following samples: Method: SW ompound Result RL MDL Units Q

CAS No.	Surrogate Recoveries		Limits	
630-01-3	Hexacosane	70%	45-140%	

125 of 172 **ACCUTEST.** C3538

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Job Number Account: Project:	: C3538 ERMCAWC ERM-' TJPA - San Francisc						U U
Sample OP621-MB	File ID DF HH1722.D 1	Analyzed 01/06/09	By JH	Prep 1 01/05/		Prep Batch OP621	Analytical Batch GHH96
The QC гер C3538-21	orted here applies to th	e following samp	oles:			Method: SW	/846 8015B M
	Compound TPH (C10-C28) TPH (>C28-C40)	Result ND ND	RL 10 20	MDL 5.0 10	Units mg/kg mg/kg		
CAS No.	Surrogate Recoveries		Limi	ts			
630-01-3	Hexacosane	79%	45-14	40%			



Blank Spike/Blank Spike Duplicate Summary

Job Number: Account: Project:	C3538 ERMCAWC TJPA - San		· · · · · · · · · · · · · · · · · · ·				
Sample OP600-BS OP600-BSD	File ID GG2900.D GG2901.D	DF 1	Analyzed 12/23/08 12/23/08	By JH JH	Prep Date 12/23/08 12/23/08	Prep Batch OP600 OP600	Analytical Batch GGG118
	002001.D	1	12/23/00		12/23/08	01000	GGG118

The QC reported here applies to the following samples:

Method: SW846 8015B M

C3538-1, C3538-2, C3538-3, C3538-4, C3538-5, C3538-6, C3538-7, C3538-8, C3538-9, C3538-10, C3538-11, C3538-12, C3538-13, C3538-14, C3538-15, C3538-16, C3538-17, C3538-18, C3538-19

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	BSD mg/kg	BSD %	RPD	Limits Rec/RPD
	TPH (C10-C28) TPH (>C28-C40)	100 100	66.1 77.6	66 78	66.2 80.0	66 80	0 3	45-140/30 45-140/30
CAS No.	Surrogate Recoveries	BSP	BSI)	Limits			
630-01-3	Hexacosane	77%	80%	6	45-1409	6		

5.2



Blank Spike/Blank Spike Duplicate Summary

630-01-3

Hexacosane

Job Numb Account: Project:	er: C3538 ERMCAWC E TJPA - San Fra								
Sample OP610-BS OP610-BS	GG2954.D 1	DF Analyz 12/29/0 12/29/0	8 JH	. 12	rep Date 2/29/08 2/29/08	Prep I OP610 OP610)	Analytical I GGG121 GGG121	Batch
The QC re C3538-20	ported here applies	to the following s	samples:			Metho	od: SW	/846 8015B M	
CAS No.	Compound TPH (C10-C28) TPH (> C28-C40)	Spike mg/k 100 100		BSP % 103 115	BSD mg/kg 94.5 108		RPD 9	Limits Rec/RPD 45-140/30 45-140/30	
CAS No.	Surrogate Recover		BS		Limits	100	0	43-140/30	

75%

45-140%

82%

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5.2

J



Blank Spike/Blank Spike Duplicate Summary Job Number: C3538

Account: Project:		ERMCAWC ERM-West, Inc. TJPA - San Francisco, CA										
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch					
OP621-BS	HH1723.D	1	01/06/09	JH	01/05/09	OP621	GHH96					
OP621-BSD	HH1724.D	1	01/06/09	JH	01/05/09	OP621	GHH96					

The QC reported here applies to the following samples:

Method: SW846 8015B M

C3538-21

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	BSD mg/kg	BSD %	RPD	Limits Rec/RPD
	TPH (C10-C28) TPH (>C28-C40)	100 100	81.3 74.8	81 75		85 78		45-140/30 45-140/30
CAS No.	Surrogate Recoveries	BSP	BSI)	Limits			
630-01-3	Hexacosane	82%	85%	6 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	45-140%	, >		



5.2

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Account: Project:	ERMCAWO TJPA - San		-				
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP600-MS	GG2915.D	10	12/24/08	JH	12/23/08	OP600	GGG119
OP600-MSD	GG2916.D	10	12/24/08	JH	12/23/08	OP600	GGG119
C3466-1	GG2894.D	10	12/23/08	JH	12/23/08	OP600	GGG118

The QC reported here applies to the following samples:

Method: SW846 8015B M

C3538-1, C3538-2, C3538-3, C3538-4, C3538-5, C3538-6, C3538-7, C3538-8, C3538-9, C3538-10, C3538-11, C3538-12, C3538-13, C3538-14, C3538-15, C3538-16, C3538-17, C3538-18, C3538-19

CAS No.	Compound	C3466-1 mg/kg Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH (C10-C28) TPH (>C28-C40)	ND 979	100 100	97.7 1040	98 61	88.9 996	89 17* ^a	9 4	45-140/30 45-140/30
CAS No.	Surrogate Recoveries	MS	MSD	C34	466-1	Limits			
630-01-3	Hexacosane	66%	58%	629	ó	45-140%	6		

(a) Outside control limits due to high level in sample relative to spike amount.





Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP610-MS	GG2989.D	40	12/30/08	JĤ	12/29/08	OP610	GGG121
OP610-MSD	GG2990.D	40	12/30/08	JH	12/29/08	OP610	GGG121
C3547-3	GG2958.D	50	12/29/08	JH	12/29/08	OP610	GGG121

C3538-20

CAS No.	Compound	C3547-3 mg/kg Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
e e marine	TPH (C10-C28) TPH (>C28-C40)	48100 ND	99 99	68400 ND	20503* 0* ^b	59400 ND	11413* 0* ^b	al 4 nc	45-140/30 45-140/30
CAS No.	Surrogate Recoveries	MS	MSD	C3	547-3	Limits			
630-01-3	Hexacosane	209%* c	177%*	^c 157	′%* c	45-140%	, >		

(a) Outside control limits due to high level in sample relative to spike amount.

(b) Not recoverable due to dilution required (high levels of Diesel in the sample).

(c) Outside control limits due to dilution.





Account: Project:	ERMCAWO TJPA - San		,				
Sample	File ID	DF	Analyzed	Ву	Prep Dat	e Prep Batch	Analytical Batch
OP621-MS	GG3053.D	10	01/06/09	JH	01/05/09	OP621	GGG124
OP621-MSD	GG3054.D	10	01/06/09	JH	01/05/09	OP621	GGG124
C3538-21 ^a	GG3052.D	10	01/06/09	JH	01/05/09	OP621	GGG124
The QC repor	ted here appl	ies to the	following sam	ples:		Method: S	W846 8015B M
C3538-21							
CAR M- O			C3538-21	Spike			MSD Limits

CAS No.	Compound	mg/kg Q	mg/kg	mg/kg	%	mg/kg	%	RPD	Rec/RPD	
	TPH (C10-C28) TPH (>C28-C40)	ND 505	100 100	88.5 861	89 356 ^{* b}	88.9 726	89 221* ^b		45-140/30 45-140/30	
CAS No.	Surrogate Recoveries	MS	MSD	C35	38-21	Limits				
630-01-3	Hexacosane	82%	86%	82%	S ^{ra} nda S	45-140%	, >			

(a) Sample extracted beyond hold time(1 day)due to schedule error. Motor Oil hit confirmed by MS/MSD.

(b) Outside control limits due to high level in sample relative to spike amount.







Section 6

Metals Analysis

QC Data Summaries

Includes the following where applicable:

Method Blank Summaries

- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries



BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP729 Matrix Type: SOLID Methods: SW846 6010B Units: mg/kg

Prep Date:				12/30/08	,		
Metal	RL	IDL	MB raw	final			
Aluminum	10	1.3					
Antimony	2.0	.67					
Arsenic	2.0	.96					
Barium	1.0	.02					
Beryllium	1.0	.04					
Boron	1.0	.7					
Cadmium	1.0	.03	0.020	<1.0			
Calcium	10	.52					
Chromium	1.0	.05	0.15	<1.0			
Cobalt	1.0	.04					
Copper	1.0	.07					
Iron	10	.33					
Lead	1.0	.24	0.080	<1.0			
Lithium	1.0	.19					
Magnesium	10	1.3					
Manganese	1.0	.12					
Molybdenum	1.0	.13	~~,				
Nickel	1.0	.09	0.020	<1.0			
Potassium	20	5.1					
Selenium	2.0	.98					
Silicon	10	1.4					
Silver	1.0	.08					
Sodium	200	1.6					
Strontium	1.0	.02					
Thallium	2.0	. 4					
Tin	5.0	.26					
Titanium	1.0	.02					
Vanadium	1.0	.02					
Zinc	2.0	.35	0.070	<2.0			

Associated samples MP729: C3538-1, C3538-2, C3538-3, C3538-4, C3538-5, C3538-6, C3538-7, C3538-8, C3538-9, C3538-10, C3538-11, C3538-12, C3538-13, C3538-14, C3538-15, C3538-16, C3538-17, C3538-18, C3538-19, C3538-20

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested

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C3538

6.1.1

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP729 Matrix Type: SOLID Methods: SW846 6010B Units: mg/kg

Prep Date:				12/30/08			
Metal	C3538-1 Original	MS	Spikelot MPIR1	% Rec	QC Limits		
Aluminum						•	· · · · · · · · · · · · · · · · · · ·
Antimony							
Arsenic							
Barium							
Beryllium							
Boron							
Cadmium	0.15	47.1	49.5	94.8	80-120		
Calcium				an faith an Ara- Ar An Ann Ar			
Chromium	33.0	81.2	49.5	97.4	80-120		
Cobalt							
Copper							
Iron							
Lead	208	206	49.5	-4.0 (a)	80-120		
Lithium							
Magnesium							
Manganese							
Molybdenum							
Nickel	18.1	66.5	49.5	97.8	80-120		
Potassium							
Selenium							
Silicon							
Silver							
Sodium							
Strontium							
Thallium							
Tin							
Titanium							
Vanadium							
Zinc	90.6	133	49.5	85.6	80-120		

Associated samples MP729: C3538-1, C3538-2, C3538-3, C3538-4, C3538-5, C3538-6, C3538-7, C3538-8, C3538-9, C3538-10, C3538-11, C3538-12, C3538-13, C3538-14, C3538-15, C3538-16, C3538-17, C3538-18, C3538-19, C3538-20

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (N) Matrix Spike Rec. outside of QC limits (anr) Analyte not requested

6.1.2

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP729 Matrix Type: SOLID

Methods: SW846 6010B Units: mg/kg

Prep Date:

Metal

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

 QC Batch ID: MP729
 Methods: SW846 6010B

 Matrix Type: SOLID
 Units: mg/kg

Prep Date:					12/30/08		
Metal	C3538-1 Origina		Spikelot MPIR1	% Rec	MSD RPD	QC Limit	
Aluminum							
Antimony							
Arsenic							
Barium							
Beryllium							
Boron							
Cadmium	0.15	48.4	50 -	96.5	2.7	20	
Calcium							
Chromium	33.0	81.1	50	96.2	0.1	20	
Cobaļt							
Copper							
Iron							
Lead	208	186	50	-44.0(a)	10.2	20	
Lithium							
Magnesium							
Manganese							
Molybdenum							
Nickel	18.1	67.0	50	97.8	0.7	20	
Potassium							
Selenium							
Silicon							
Silver							
Sodium							
Strontium							
Thallium							
Tin							
Titanium							
Vanadium							
Zinc	90.6	164	50	146.8N(b	20.9 (c)	20	
Associated sam 9, C3538-10, d C3538-20	uples MP72 C3538-11,	9: C3538 C3538-12	-1, C3538-2 2, C3538-13,	2, C3538	3, C3536-4	4, C3538-5, C3538-6, C3538-7, C3538-8, C3538- 15, C3538-16, C3538-17, C3538-18, C3538-19,	

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested</pre>



6.1.2

Page 3

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP729 Matrix Type: SOLID Methods: SW846 6010B Units: mg/kg

Prep Date:

Metal

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

(b) Spike recovery indicates possible matrix interference.

(c) RPD acceptable due to low duplicate and sample concentrations.



SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: Matrix Type:					Methods: SW846 6010B Units: mg/kg						
Prep Date:			12/30/08	3				12/30/08			
Metal	BSP Result	Spikelo MPIR1	t % Rec	QC Limits	BSD Result	Spikelot MPIR1	% Rec	BSD RPD	QC Limit		
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Boron											
Cadmium	46.7	50	93.4	80-120	48.0	50	96.0	2.7			
Calcium											
Chromium	48.1	50	96.2	80-120	49.5	50	99.0	2.9			
Cobalt											
Copper											
Iron											
Lead	47.8	50	95.6	80-120	49.1	50	98.2	2.7			
Lithium											
Magnesium											
Manganese											
Molybdenum											
Nickel	47.7	50	95.4	80-120	48.8	50	97.6	2.3			
Potassium											
Selenium											
Silicon											
Silver											
Sodium											
Strontium											
Thallium											
Tin											
Titanium				٤							
Vanadium											
Zinc	46.5	50	93.0	80-120	48.2	50	96.4	3.6			
Associated sam	nles MP72	9+ 03538-	1 03538-1	2 03530-	3 03630	4 03530 5	C 25 2 0	C 000000 0			

Associated samples MP729: C3538-1, C3538-2, C3538-3, C3538-4, C3538-5, C3538-6, C3538-7, C3538-8, C3538-9, C3538-10, C3538-11, C3538-12, C3538-13, C3538-14, C3538-15, C3538-16, C3538-17, C3538-18, C3538-19, C3538-20

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested



SERIAL DILUTION RESULTS SUMMARY

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP729 Matrix Type: SOLID Methods: SW846 6010B Units: ug/1

Prep Date:			12/30/08	
Metal	C3538-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium	1.50	2.50	66.7 (a)	. 0-10
Calcium				
Chromium	340	341	0.1	0-10
Cobalt				
Copper				
Iron				
Lead	2140	2170	1.1	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	187	189	1.3	0-10
Potassium				
Selenium				
Silicon				
Silver				
Sodium		,		
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	933	945	1.3	0-10

Associated samples MP729: C3538-1, C3538-2, C3538-3, C3538-4, C3538-5, C3538-6, C3538-7, C3538-8, C3538-9, C3538-10, C3538-11, C3538-12, C3538-13, C3538-14, C3538-15, C3538-16, C3538-17, C3538-18, C3538-19, C3538-20

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested (a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).



6.1.4

BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP741 Matrix Type: SOLID

Methods: SW846 6010B Units: mg/kg

Prep Date:				01/05/09	
Metal	RL	IDL	MB raw	final	
Aluminum	10	1.3			
Antimony	2.0	.67	anr		
Arsenic	2.0	.96	anr		
Barium	1.0	.02	anr		
Beryllium	1.0	.04	anr		
Boron	1.0	.7			
Cadmium	1.0	.03	0.0	<1.0	
Calcium	10	.52		 A part of a second se 	
Chromium	1.0	.05	0.14	<1.0	
Cobalt	1.0	.04	anr		
Copper	1.0	.07	anr	**************************************	
Iron	10	.33			
Lead	1.0	.24	0.14	<1.0	
Lithium	1.0	.19			
Magnesium	10	1.3			
Manganese	1.0	.12			
Molybdenum	1.0	.13	anr		
Nickel	1.0	.09	0.030	<1.0	
Potassium	20	5.1			
Selenium	2.0	.98	anr		
Silicon	10	1.4			
Silver	1.0	.08	anr		
Sodium	200	1.6			
Strontium	1.0	.02			
Thallium	2.0	. 4	anr		
Tin	5.0	.26			
Titanium	1.0	.02			
Vanadium	1.0	.02	anr		
Zinc	2.0	.35	0.36	<2.0	

Associated samples MP741: C3538-21

.

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested



6.2.1

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP741 Matrix Type: SOLID Methods: SW846 6010B Units: mg/kg

Prep Date:				01/05/09	
Metal	C3599-1 Original	. MS	Spikelo MPIR1	t % Rec	QC Limits
Aluminum					
Antimony	anr				
Arsenic	anr				
Barium	anr				
Beryllium	anr				
Boron					
Cadmium	0.58	45.5	50	89.8	80-120
Calcium					
Chromium	40.5	82.8	50	84.6	80-120
Cobalt	anr				
Copper	anr				
Iron					
Lead	474	81.9	50	-784.2(a	80-120
Lithium					
Magnesium			,		
Manganese					
Molybdenum	anr				
Nickel	46.3	88.4	50	84.2	80-120
Potassium					
Selenium	anr				
Silicon					
Silver	anr				
Sodium					
Strontium					
Thallium	anr				
Tin					
Titanium					
Vanadium	anr				
Zinc	98.4	141	50	85.2	80-120
Associated s					

Associated samples MP741: C3538-21

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery
</pre> information.



6.2.2

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP741 Matrix Type: SOLID

Methods: SW846 6010B Units: mg/kg

Metal	C3599-1 Original	MSD	Spikelot MPIR1	% Rec	MSD RPD	QC . Limit
Aluminum						
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Boron						
Cadmium	0.58	45.4	50	89.6	0.2	20
Calcium						
Chromium	40.5	82.8	50	84.6	0.0	20
Cobalt	anr					
Copper	anr					
Iron						
Lead	474	87.2	50	-773.6(a	. 6 3	20
lithium						
lagnesium						
Manganese						
Jolybdenum	anr					
Vickel	46.3	88.0	50	83.4	0.5	
otassium	10.5	00.0	50	03.4	0.3	20
elenium	anr					
Silicon	ant					
Silver	anr					
Sodium	ant					
trontium						
'hallium						
	anr					
in (
itanium						
anadium	anr					
inc		141		85.2	0.0	20
ssociated sam	ples MP741	: C3538-	-21			

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP741 Matrix Type: SOLID

Methods: SW846 6010B Units: mg/kg

Prep Date:			01/05/09	э		01/05/09	01/05/09		
Metal	BSP Result	Spikelot MPIR1	% Rec	QC Limits	BSD Result	Spikelot MPIR1	% Rec	BSD RPD	QC Limit
Aluminum									
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								,
Boron									
Cadmium	46.9	50	93.8	80-120	47.3	50	94.6	0.8	
Calcium									
Chromium	48.3	50	96.6	80-120	48.6	50	97.2	0.6	
Cobalt	anr								
Copper	anr								
Iron									
Lead	48.0	50	96.0	80-120	48.1	50	96.2	0.2	
Lithium									
Magnesium									
Manganese									
Molybdenum	anr								
Nickel	47.5	50	95.0	80-120	48.0	50	96.0	1.0	
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Strontium									
Thallium	anr					-			
Tin									
Titanium					,			* .	
Vanadium	anr								
Zinc	46.9	50	93.8	80-120	47.2	50	94.4	0.6	

Associated samples MP741: C3538-21

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested

6.2.3

SERIAL DILUTION RESULTS SUMMARY

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP741 Matrix Type: SOLID Methods: SW846 6010B Units: ug/l

	00560 -				 	 		
Metal	C3599-1 Original	SDL 1:5	%DIF	QC Limits				
Aluminum					 	 		
Antimony	anr							
Arsenic	anr							
Barium	anr							
Beryllium	anr	*						
Boron								
Cadmium	6.00	6.00	0.0	0-10				
Calcium								
Chromium	421	448	6.4	0-10				
Cobalt	anr							
Copper	anr							
Iron								
Lead	4930	5370	8.9	0-10				
Lithium								
Magnesium								
Manganese								
Molybdenum	anr							
Nickel	481	528	9.7	0-10				
Potassium								
Selenium	anr							
Silicon								
Silver	anr							
Sodium							,	
Strontium								
Phallium	anr							
lin								
fitanium								
/anadium	anr							
linc								

Associated samples MP741: C3538-21

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested

POST DIGESTATE SPIKE SUMMARY

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: Matrix Type:							ds: SW846 ts: ug/l	6010B		
Prep Date:									01/05/0	9
Metal	Sample ml	Final ml	C3599-1 Raw	Corr.**	PS ug/l	Spike ml	Spike ug/ml	Spike ug/l	§ Rec	QC Limits
Aluminum	:									
Antimony										
Arsenic										
Barium										
Beryllium										
Boron										
Cadmium										
Calcium										
Chromium										
Cobalt									an tan 1910 Alama ang ang ang ang ang ang ang ang ang an	
Copper										
Iron										
Lead										
Lithium										
Magnesium										
Manganese										
Molybdenum										
Nickel										
Potassíum										
Selenium										
Silicon										
Silver					÷					
Sodium										
Strontium										
Thallium										
Tin										
Titanium										

Vanadium

Zinc

Associated samples MP741: C3538-21

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(**) Corr. sample result = Raw * (sample volume / final volume)
(anr) Analyte not requested</pre>

6.2.5

BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP778 Matrix Type: SOLID

Methods: SW846 6010B Units: mg/kg

Prep Date:					
rtep bate:				01/13/09	
Metal	RL	IDL	MB raw	final	
Aluminum	10	1.3			
Antimony	2.0	.67	0.050	<2.0	
Arsenic	2.0	.96	0.060	<2.0	
Barium	1.0	.02	0.060	<1.0	
Beryllium	1.0	.04	0.010	<1.0	
Boron	1.0	.7			
Cadmium	1.0	.03	0.010	<1.0	
Calcium	10	.52			
Chromium	1.0	.05	0.15	<1.0	
Cobalt	1.0	.04	-0.020	<1.0	
Copper	1.0	.07	0.28	<1.0	
Iron	10	.33			
Lead	1.0	.24	0.27	<1.0	
Lithium	1.0	.19			
Magnesium	10	1.3			
Manganese	1.0	.12			
Molybdenum	1.0	.13	-0.050	<1.0	
Vickel	1.0	.09	0.020	<1.0	
Potassium	20	5.1			
Selenium	2.0	.98	-0.25	<2.0	
Silicon	10	1.4			
Silver	1.0	.08	-0.11	<1.0	
Sodium	200	1.6			
trontium	1.0	.02			
'hallium	2.0	. 4	0.17	<2.0	
'in	5.0	.26			
itanium	1.0	.02			
anadium	1.0	.02	0.010	<1.0	
linc	2.0	.35	0.16	<2.0	

Associated samples MP778: C3538-8A, C3538-12A

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP778 Matrix Type: SOLID Methods: SW846 6010B Units: mg/kg

Prep Date:				01/13/09	
Metal	C3673-27 Original		Spikelot MPIR1	% Rec	QC Limits
Aluminum					
Antimony	0.0	16.8	50	33.6N(a)	80-120
Arsenic	2.5	51.1	50	97.2	80-120
Barium	134	190	50	112.0	80-120
Beryllium	0.97	49.0	50	96.1	80-120
Boron					
Cadmium	0.0	48.8	50	97.6	80-120
Calcium					
Chromium	25.9	75.8	50	99.8	80-120
Cobalt	8.0	56.1	50	96.2	80-120
Copper	26.0	78.2	50	104.4	80-120
Iron					
Lead	7.3	57.1	50	99.6	80-120
Lithium			•		
Magnesium					
Manganese					
Molybdenum	0.36	45.0	50	89.3	80-120
Nickel	28.5	79.5	50	102.0	80-120
Potassium					
Selenium	3.0	53.0	50	100.0	80-120
Silicon					
Silver	0.0	45.8	50	91.6	80-120
Sodium					
Strontium					×
Thallium	0.0	46.6	50	93.2	80-120
Tin					
Titanium					
Vanadium	42.9	96.0	50	106.2	80-120
Zinc	66.4	122	50	111.2	80-120

Associated samples MP778: C3538-8A, C3538-12A

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (N) Matrix Spike Rec. outside of QC limits (anr) Analyte not requested (a) Spike recovery indicates possible matrix interference.

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP778 Matrix Type: SOLID Methods: SW846 6010B Units: mg/kg

Prep Date:				01/13/09				
Metal	C3673-27 Original		Spikelot MPIR1	% Rec	MSD RPD	QC Limit		
Aluminum								
Antimony	0.0	17.8	50	35.6N(a)	5.8	20		
Arsenic	2.5	49.4	50	93.8	3.4	20		
Barium	134	183	50	98.0	3.8	20		
Beryllium	0.97	48.4	50	94.9	1.2	20		
Boron								
Cadmium	0.0	48.0	50	96.0	1.7	20		
Calcium					. •			
Chromium	25.9	75.1	50	98.4	0.9	20		
Cobalt	8.0	55.0	50	94.0	2.0	20		
Copper	26.0	76.9	50	101.8	1.7	20		
Iron						4		
Lead	7.3	55.1	50	95.6	3.6	20		
Lithium								
Magnesium								
Manganese								
Molybdenum	0.36	44.1	50	87.5	2.0	20		
Nickel	28.5	77.2	50	97.4	2.9	20		
Potassium								
Selenium	3.0	51.6	50	97.2	2.7	20		
Silicon								
Silver	0.0	45.5	50	91.0	0.7	20		
Sodium								
Strontium								
Thallium	0.0	45.2	50	90.4	3.1	20		
Tin								
Titanium								
Vanadium	42.9	92.2	50	98.6	4.0	20		
Zinc	66.4	117	50	101.2	4.2	20		

Associated samples MP778: C3538-8A, C3538-12A

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (N) Matrix Spike Rec. outside of QC limits (anr) Analyte not requested (a) Spike recovery indicates possible matrix interference.



G

6.3.2

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP778 Matrix Type: SOLID

Methods: SW846 6010B Units: mg/kg

Prep Date:			01/13/09			01/13/09			
Metal	BSP Result	Spikelot MPIR1	% Rec	QC Limits	BSD Result	Spikelot MPIR1	% Rec	BSD RPD	QC Limit
Aluminum									
Antimony	47.0	50	94.0	80-120	48.6	50	97.2	3.3	
Arseníc	51.2	50	102.4	80-120	52.2	50	104.4	1.9	
Barium	45.4	50	90.8	80-120	46.4	50	92.8	2.2	
Beryllium	48.0	50	96.0	80-120	48.3	50	96.6	0.6	
Boron									
Cadmium	48.8	50	97.6	80-120	49.2	50	98.4	0.8	
Calcium									
Chromium	50.2	50	100.4	80-120	49.5	50	99.0	1.4	
Cobalt	49.0	50	98.0	80-120	49.2	50	98.4	0.4	
Copper	48.6	50	97.2	80-120	48.7	50	97.4	0.2	· · · ·
Iron									
Lead	51.1	50	102.2	80-120	51.5	50	103.0	0.8	
Lithium									•
Magnesium									
Manganese									
Molybdenum	48.9	50	97.8	80-120	49.6	50	99.2	1.4	
Nickel	49.4	50	98.8	80-120	50.1	50	100.2	1.4	
Potassium									
Selenium	50.5	50	101.0	80-120	50.8	50	101.6	0.6	
Silicon									
Silver	47.8	50	95.6	80-120	48.1	50	96.2	0.6	
Sodium									
Strontium									
Thallium	47.7	50	95.4	80-120	48.6	50	97.2	1.9	
Tin									
Titanium									
Vanadium	48.2	50	96.4	80-120	48.5	50	97.0	0.6	
Zinc	49.2	50	98.4	80-120	49.8	50	99.6	1.2	

Associated samples MP778: C3538-8A, C3538-12A

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested

6,3,3

SERIAL DILUTION RESULTS SUMMARY

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP778 Matrix Type: SOLID

Methods: SW846 6010B Units: ug/l

Prep Date:			01/13/09	
Metal	C3673-27 Original	SDL 1:5	%DIF	QC Limits
Aluminum			1.44 21 - 22	
Antimony	0.00	0.00	NC	0-10
Arsenic	25.5	0.00	100.0(a)	0-10
Barium	1370	1380	0.3	0-10
Beryllium	9.90	10.5	6.1	0-10
Boron				
Cadmium	0.00	1.50		0-10
Calcium				
Chromium	264	268	1.6	0-10
Cobalt	82.1	84.0	2.3	0-10
Copper	265	256	3.7	0-10
Iron	205	200		0-10
Lead	74 0	95.0	13 6 (-)	0.10
	74.8	85.0	13.6 (a)	01-0
Lithium				
Magnesium				
Manganese				
Molybdenum	3.70	0.00	100.0(a)	0-10
Nickel	291	303	4.1	0-10
Potassium				
Selenium	30.7	0.00	100.0(a)	0-10
Silicon				
Silver	0.00	0.00	NC	0-10
Sodium				
Strontium				
Thallium	0.00	0.00	NC	0-10
rin				
fitanium				
Vanadium	438	442	0.8	0-10
Zinc	677	683	0.8	0-10
issociated sa				

Associated samples MP778: C3538-8A, C3538-12A

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested

(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).



6.3.4

POST DIGESTATE SPIKE SUMMARY

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP778 Matrix Type: SOLID Methods: SW846 6010B Units: ug/l

					5.0			- 1		
Metal	Sample ml	Final ml	C3673-27 Raw	Corr.**	PS ug∕l	Spike ml	Spike ug/ml	Spike ug/l	% Rec	QC Limits
Aluminum										
Antimony	10	10.05	0	0	488.4	0.05	100	497.5124	98.2	-
Arsenic										
Barium										
Beryllium										
Boron										
admium										
Calcium										
Chromium										
Cobalt										
Copper										
Iron										
.ead										
ithium										
lagnesium										
langanese										
lolybdenum										
lickel										
otassium										
elenium										
ilicon										
Silver										
Sodium										
Strontium										
hallium										
'in										
itanium										
anadium										
inc										

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(**) Corr. sample result = Raw * (sample volume / final volume)
(anr) Analyte not requested</pre>



BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP780 Matrix Type: SOLID

Methods: SW846 7471A Units: mg/kg

Prep Date:				01/14/09		
Metal	RL	IDL.	MB raw	final]
Mercury	0.042	.0017	-0.0021	<0.042	 	 L

Associated samples MP780: C3538-8A, C3538-12A

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP780 Matrix Type: SOLID Methods: SW846 7471A Units: mg/kg

Prep Date:				01/14/09)			
Metal	C3707-1 Origina		Spikelot HGPWS1		QC Limits		 	
Mercury	0.15	0.48	0.328	100.7	75-125	 	 	

Associated samples MP780: C3538-8A, C3538-12A

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (N) Matrix Spike Rec. outside of QC limits (anr) Analyte not requested



6.4.2

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP780 Matrix Type: SOLID

Methods: SW846 7471A Units: mg/kg

Prep Date:

01/14/09

Metal	C3707- Origina	-	Spikelo HGPWS1	t % Rec	MSD RPD	QC Limit	· · · · · · · · · · · · · · · · · · ·
Mercury	0.15	0.50	0.333	105.0	4.1	20	

Associated samples MP780: C3538-8A, C3538-12A

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (N) Matrix Spike Rec. outside of QC limits (anr) Analyte not requested



SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP780 Matrix Type: SOLID

Methods: SW846 7471A Units: mg/kg

Prep Date:			01/14/0	19				01/14/	09	
Metal	BSP Result	Spikelo HGPWS1	t % Rec	QC Limits	BSD Result	Spikelot HGPWS1	: % Rec	BSD RPD	QC Limit	
Mercury	0.17	0.167	102.0	80-120	0.19	0.167	114.0	. 11.1		······································

Associated samples MP780: C3538-8A, C3538-12A

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested



6,4,3

BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP782 Matrix Type: LEACHATE

Methods: SW846 6010B Units: mg/l

-aw final	Prep Date:				01/14/09
	Metal	RL	IDL	MB raw	final
	Aluminum	0.50	.063		
	Antimony	0.25	.034		
	Arsenic	0.25	.048		
	Barium	0.10	.001		
	Beryllium	0.10	.002		
	Boron	0.25	.035		
	Cadmium	0.10	.0015		
	Calcium	25	.026		
.026 <0.25	Chromium	0.10	.0025	0.0035	<0.10
.026 <0.25	Cobalt	0.10	.002		
.026	Copper	0.10	.0035		
.026 <0.25	Iron	0.50	.017		
	Lead	0.25	.012	0.026	<0.25
	Lithium	0.10	.0095		
	Magnesium	0.50	.066		
	Manganese	0.10	.006		
	4olybdenum	0.10	.0065		
	Nickel	0.10	.0045		
	Potassium	25	.25		
	Selenium	0.25	.049		
	Silicon	0.25	.071		
	Silver	0.10	.004		
	Sodium	25	.081		
	trontium	0.10	.001		
	'hallium	0.25	.02		
	ìn	0.25	.013		
	'itanium	0.10	.001		
	anadium	0.10	.001		
	inc	0.25	.018		

Associated samples MP782: C3538-1W, C3538-2W, C3538-3W, C3538-4W, C3538-5W, C3538-6W, C3538-8W, C3538-10W, C3538-11W, C3538-12W, C3538-20W

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested

6,5.1

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP782 Matrix Type: LEACHATE Methods: SW846 6010B Units: mg/l

Prep Date:				01/14/09	
Metal	C3538-1W Original		Spikelot MPIR1	3 Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium	0.14	2.6	2.5	98.4	80-120
Cobalt					
Copper				-	
Iron					
Lead	12.8	15.7	2.50	116.0	80-120
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Potassium					
Selenium					
Silicon					
Silver					
Sodìum					
Strontium					
Thallium					
Tin					
Titanium					
Vanadium					3
Zinc					

Associated samples MP782: C3538-1W, C3538-2W, C3538-3W, C3538-4W, C3538-5W, C3538-6W, C3538-8W, C3538-10W, C3538-11W, C3538-12W, C3538-20W

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (N) Matrix Spike Rec. outside of QC limits (anr) Analyte not requested



Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP782 Matrix Type: LEACHATE

4

Methods: SW846 6010B Units: mg/l

Metal	C3538-1 Origina		Spikelo MPIR1	>t % Rec	MSD RPD	QC Limit		
Aluminum					and a		 	
Antimony								
Arsenic								
Barium								
Beryllium								
Boron								
Cadmium								
Calcium								
Chromium	0.14	2.6	2.5	98.4	0.0	20		
Cobalt								
Copper								
Iron		*						
Lead	12.8	16.1	2.50	132.0(a) 2.5	20		
Lithium								
lagnesium								
langanese								
lolybdenum								
Vickel								
Potassium								
Selenium								
Silicon								
Silver								
Sodium								
Strontium								
Phallium								
'in								
'ítanium								
/anadium								
Zinc								

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (N) Matrix Spike Rec. outside of QC limits (anr) Analyte not requested (a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery 6.5.2

Login Number: C3538 Account: ERNCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP782 Matrix Type: LEACHATE Methods: SW846 6010B Units: mg/l

Prep Date:

Metal

information.



SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: Matrix Type:							ls: SW84 s: mg/1	6 6010B	
Prep Date:			01/14/09)				01/14/09	•
Metal	BSP Result	Spikelot MPIR1	% Rec	QC Limits	BSD Result	Spikelot MPIR1	% Rec	BSD RPD	QC Limit
Aluminum			· · ·						
Antimony									
Arsenic									
Barium									
Beryllium									
Boron									
Cadmium									
Calcium									
Chromium	2.6	2.5	104.0	80-120	2.5	2.5	100.0	3.9	
Cobalt									
Copper									
Iron									
Lead	2.7	2.5	108.0	80-120	2.7	2.5	108.0	0.0	
Lithium									
Magnesium									
Manganese									
Molybdenum									
Nickel									
Potassium									
Selenium									
Silicon									
Silver									
Sodium									
Strontium									
Fhallium									
fin									,
fitanium									
/anadium									
Zinc									

Associated samples MP782: C3538-1W, C3538-2W, C3538-3W, C3538-4W, C3538-5W, C3538-6W, C3538-8W, C3538-10W, C3538-11W, C3538-12W, C3538-20W

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested



+

SERIAL DILUTION RESULTS SUMMARY

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP782 Matrix Type: LEACHATE Methods: SW846 6010B Units: ug/l

Prep Date:			01/14/09					
Metal	C3538-1W Original	SDL 5:15	%DIF	QC Limits				
Aluminum			and a				 	
Antimony								
Arsenic								
Barium								
Beryllium								
Boron								
Cadmium								
Calcium								
Chromium	141	144	2.5	0-10		,		
Cobalt								
Copper								
Iron								
Lead	12800	13000	1.4	0-10				
Lithium								
Magnesium					* -			
Manganese								
Molybdenum								
Nickel								
Potassium								
Selenium						1		
Silicon								
Silver								
Sodium								
Strontium								
Thallium								
Tin								
Titanium								
Vanadium								
Zinc								

Associated samples MP782: C3538-1W, C3538-2W, C3538-3W, C3538-4W, C3538-5W, C3538-6W, C3538-8W, C3538-10W, C3538-11W, C3538-12W, C3538-20W

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested

6.5.4

BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP783 Matrix Type: LEACHATE

Methods: SW846 6010B Units: mg/l

Prep Date:				01/14/09
Metal	RL	I DL	MB raw	final
Aluminum	0.50	.063		
Antimony	0.25	.034		
Arsenic	0.25	.048		
Barium	0.10	.001		
Beryllium	0.10	.002		
Boron	0.25	.035		
Cadmium	0.10	.0015		
Calcium	25	.026		
Chromium	0.10	.0025		
Cobalt	0.10	.002		
Copper	0.10	.0035		
Iron	0.50	.017		
Lead	0.25	.012	0.0025	<0.25
Lithium	0.10	.0095		
Magnesium	0.50	.066		
Manganese	0.10	.006		
Molybdenum	0.10	.0065		
Nickel	0.10	.0045		
Potassium	25	.25		
Selenium	0.25	.049		
Silicon	0.25	.071		
Silver	0.10	.004		
Sodium	25	.081		
Strontium	0.10	.001		
Phallium	0.25	.02		
ľin	0.25	.013		
fitanium	0.10	.001		
Vanadium	0.10	.001		
linc	0.25	.018		

Associated samples MP783: C3538-1T, C3538-2T, C3538-4T, C3538-5T, C3538-8T, C3538-10T, C3538-11T, C3538-12T

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested



6,6,1

02



Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP783 Matrix Type: LEACHATE Methods: SW846 6010B .Units: mg/l

Prep Date:			01/14/09	
Metal	C3538-1T Original MS		.kelot Rl % Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	0.36 2.	9 2.5	101.6	80-120
	0.30 2.	2 4	, 101.0	00-120
Lithium				
Magnesium				
4anganese				
Holybdenum				
Nickel				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Fhallium				
ſin				
Fitanium				
Vanadium				
Zinc				
	mples MP783:	С3538-1Т,	C3538-2T, C353	8-4T, C3538-5T, C3538-8T, C3538-10T, C3538-11T, C3538



6.6.2

32

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP783 Matrix Type: LEACHATE

Methods: SW846 6010B Units: mg/l

Prep Date:				01/14/09	
Metal	C3538-1T Original MSD	Spikelot MPIR1 3	Rec	MSD RPD	QC Limit
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead	0.36 2.9	2.5 1	01 6	0.0	
Lithium	0.50 2.5	2 1	01.6	0.0	20
Magnesium					· ·
-					
Manganese					
Molybdenum					
Nickel					
Potassium					
Selenium					
Silicon					
Silver					
Sodium					
Strontium					
Thallium					
Tin			-		
Titanium					
Vanadium					
Zinc					
Associated sa 12T	mples MP783: C35	38-1T, C3538-21	r, c35	38-4T, C353	8-5T, C3538-8T, C3538-10T, C3538-11T, C3538-

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (N) Matrix Spike Rec. outside of QC limits (anr) Analyte not requested 6.6.2

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP783 Matrix Type: LEACHATE

Methods: SW846 6010B Units: mg/l

Prep Date:			01/14/09			01/14/09			
Metal	BSP Result	Spikelot MPIR1	% Rec	QC Limits	BSD Result	Spikelot MPIR1	% Rec	BSD RPD	QC Limit
Aluminum			R galaa						· · · · · · · · · · · · · · · · · · ·
Antimony									
Arsenic									
Barium									
Beryllium									
Boron									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	2.7	2.5	108.0	80-120	2.6	0.5	104.0	3.8	
	2 • 1	2.0	105.0	80-120	2.0	2.5	104.0	3.8	
Lithium									
Magnesium									
Manganese									
Molybdenum									
Nickel									
Potassium									
Selenium									
Silicon									
Silver			an an taon an t Taon an taon an t						
Sodium									
Strontium						*			
Thallium									
Tin									
Titanium									
Vanadium									
Zinc									

Associated samples MP783: C3538-1T, C3538-2T, C3538-4T, C3538-5T, C3538-8T, C3538-10T, C3538-11T, C3538-12T

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP783 Matrix Type: LEACHATE Methods: SW846 6010B Units: ug/l

Prep Date:			01/14/09	39
Metal	C3538-1 Original		:15 %DIF	QC Limits
Aluminum	······			
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	362	326	10.1 (a)	0 0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Phallium				
fin				
fitanium				
Vanadium				
		. *		
linc		-		
ssociated sa .2T	mples MP78:	3: C353	8-1T, C3538-	8-2T, C3538-4T, C3538-5T, C3538-8T, C3538-10T, C3538-11T, C3538-

12T

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested (a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL). 6.6.4

BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP831 Matrix Type: LEACHATE Methods: SW846 6010B Units: mg/l

Prep Date:				01/26/09	
Metal	RL	IDL	MB raw	final	
Aluminum	0.50	.063		···· •	
Antimony	0.25	.034			
Arsenic	0.25	.048	anr		
Barium	0.10	.001			
Beryllium	0.10	.002			
Boron	0.25	.035			
Cadmium	0.10	.0015			
Calcium	25	.026			
Chromium	0.10	.0025			
Cobalt	0.10	.002			
Copper	0.10	.0035			
Iron	0.50	.017			
Lead	0.25	.012	0.0090	<0.25	
Lithium	0.10	.0095			
Magnesium	0.50	.066			
Manganese	0.10	.006			
Molybdenum	0.10	.0065			
Nickel	0.10	.0045			
Potassium	25	.25			
Selenium	0.25	.049			
Silicon	0.25	.071			
Silver	0.10	.004			
Sodium	25	.081			
Strontium	0.10	.001			
Thallium	0.25	.02			
Tin	0.25	.013			
Titanium	0.10	.001			
Vanadium	0.10	.001			
Zinc	0.25	.018			

Associated samples MP831: C3538-21W

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested

6.7.1

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP831 Matrix Type: LEACHATE

Methods: SW846 6010B Units: mg/l

Metal	C3131-7 Origina		Spikelo MPIR1	>t % Rec	QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead	1.3	3.7	2.5	96.0	80-120
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Potassium					
Selenium					
Silicon					
Silver					
Sodium					
Strontium					
"hallium					
ſin					
litanium					
'anadium					
linc					

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (N) Matrix Spike Rec. outside of QC limits (anr) Analyte not requested



6.7.2

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP831 Matrix Type: LEACHATE

Methods: SW846 6010B Units: mg/l

4etal	C3131-7W Original MSI	Spikel MPIR1	ot % Rec	MSD RPD	QC Limit
Aluminum					
ntimony					
rsenic	anr				
arium					
eryllium					
loron					
Cadmium					
Calcium					
hromium					
Cobalt					
Copper					
íron					
lead	1.3 3.1	2.5	96.0	0.0	20
ithium					
lagnesium					
langanese					
lolybdenum					
lickel					
Potassium					
Selenium					
Silicon					
Silver					
Sodium					
trontium					
hallium					
'in					
'itanium					~
anadium					
linc					

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (N) Matrix Spike Rec. outside of QC limits (anr) Analyte not requested 6.7.2

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC Batch ID: MP831 Matrix Type: LEACHATE

Methods: SW846 6010B Units: mg/l

Prep Date:			01/26/09	1	01/26/09				
Metal	BSP Result	Spikelot MPIR1	% Rec	QC Limits	BSD Result	Spikelot MPIR1	% Rec	BSD RPD	QC Limit
Aluminum			a serie de la compañía de la compañía La compañía de la comp					n an the	
Antimony									
Arsenic	anr								
Barium									
Beryllium									
Boron ·									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper						•			
Iron									
ead	2.5	2.5	100.0	80-120	2.6	2.5	104.0	3.9	
ithium									
lagnesium									
langanese									
lolybdenum									
lickel									
otassium									
elenium									
ilicon			litera Valla en la						
ilver									
odium									
trontium									
hallium									
in									
itanium									
anadium									
inc									

Associated samples MP831: C3538-21W

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested



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6.7.3

SERIAL DILUTION RESULTS SUMMARY

Login Number: C3538 Account: ERMCAWC - ERM-West, Inc. Project: TJPA - San Francisco, CA

QC.Batch ID: MP831 Matrix Type: LEACHATE Methods: SW846 6010B Units: ug/l

Prep Date:			01/26/09		 		
Metal	C3131-7W Original		%DIF	QC Límits	 		
Aluminum			en en terre Entre grange			·	
Antimony							
Arsenic	anr				•		
Barium							
Beryllium							
				ı			
Boron							
Cadmium							
Calcium							
Chromium							
Cobalt							
Copper							
Iron							
Lead	1280	1280	0.3	0-10			
Lithium							
Magnesium							
Manganese							
Molybdenum							
Nickel							
Potassium							
Selenium							
Silicon							
Silver							
Sodium							
Strontium							
Thallium							
Tin							
Titanium							
Vanadium							
Zinc							

Associated samples MP831: C3538-21W

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested



Memorandum

То:	Chimi Yi	28 St
From:	Irene Lavigne	Ir (9
Date:	16 January 2009	(9
Subject:	Data Review of TJPA, San Francisco - Soil Samples Collected 20 December 2008	
Project Number:	0072420.03.201	F
Data Package:	Accutest Laboratories Data Package C3538	

Environmental Resources Management

2875 Michelle Drive Suite 200 Irvine, CA 92606 (949) 623-4700 (949) 623-2940 (fax)



The quality of the data was assessed and any necessary qualifiers were applied following the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, June 2008 and USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004.

HOLDING TIME AND PRESERVATION EVALUATION

The sample shipments were received at the laboratory within the method prescribed temperature and pH preservation requirements with one exception. The laboratory noted that one sample was not preserved at a pH below 2, as required; however, since the sample was analyzed within the 7-day holding time requirement for unpreserved samples, qualification of sample data was not required. The sample that exceeded preservation requirements is shown in Table 1.

The samples were prepared and analyzed within the method prescribed time period from the date of collection with one exception. One sample was analyzed for total petroleum hydrocarbons three days beyond the acceptable holding time. Detected and nondetected results for this sample were qualified as estimated (J/UJ), as shown in Table 2.

BLANK EVALUATION

The method blank sample results were nondetected for each of the target analytes. No sample data were qualified on the basis of blank detections.

BLANK SPIKE EVALUATION

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries were within the laboratory's limits of acceptance. No sample data were qualified as a result of LCS recoveries. The LCS recoveries indicate acceptable laboratory accuracy and precision.

MATRIX SPIKE EVALUATION

The matrix spike (MS)/matrix spike duplicate (MSD) recoveries were within the laboratory's limits of acceptance with limited exceptions; however, no sample data were qualified as a result of MS outliers. Data were not qualified if the sample used to prepare the spike sample was not a client sample, if the sample data could be verified by an associated incontrol LCS recovery, or if only one recovery in a MS/MSD pair was outside control limits. Also, if the amount of a given compound in the spiked sample was greater than four times the spiked amount, or if the spike sample was diluted by a factor of 10 times or more, then sample data were not qualified. Outlying MS recoveries are presented in Table 3.

SURROGATE SPIKE EVALUATION

The surrogate recoveries were within acceptable limits with limited exceptions. Sample data for five samples were qualified as estimated (J and/or UJ) due to low surrogate recoveries. Outlying surrogate recoveries are presented in Table 4.

TPH EVALUATION

The laboratory noted that the sample chromatograms for five TPH analyses either did not resemble the typical patterns for the respective compounds or were representative of a mixture of TPH compounds. ERM qualified the affected samples as tentatively identified and estimated (NJ) as shown in Table 3.

The laboratory also noted that results for TPH analyses in the >C28 – C40 carbon range resembled a motor oil pattern. These samples are listed in Table 3; however, no qualifications were made to the data as a result of this information.

OVERALL ASSESSMENT

No data were determined to be unusable. All of the data, including qualified data, can be used for decision-making purposes; however, the limitations indicated by the applied qualifiers should be considered when using the data. The quality of the data generated during this investigation is acceptable for the preparation of technically defensible documents.

Lab Package	Sample ID	Analysis Method	Sample pH (pH units)	pH Limits	ERM Qualifier
C3538	HOWARD B-1-1	BTEX	> 2	< 2	HT

Data package reviewed: C3538

Key:

BTEX = Benzene, toluene, ethylbenzene and xylenes

HT = No qualification required; sample was analyzed within holding time for unpreserved samples

Table 2 Samples with Exceeded Holding Times TJPA - Soil Investigation San Francisco, CA

Lab Package	Sample ID	Method	Holding Time (days)	# of Days Exceeded	ERM Qualifier
C3538	DRUM	TPH (C10-C28), TPH (>C28-C40)	14	3	J/UJ

Data package reviewed: C3538

Key:

TPH (C10-C28) = Total petroleum hydrocarbons (C10-C28 carbon range)

TPH (>C28-C40) = Total petroleum hydrocarbons (greater than 28 carbons in range)

J = Detected results qualified as estimated

UJ = Nondetected results qualified as estimated

Table 3 Spike Recoveries Outside of Acceptable Limits TJPA - Soil Investigation San Francisco, CA

Lab	Spike	Associated		Recovery	Limit		RPD	Sample	ERM
Package	Sample ID	Sample	Compound	(%)	(%)	RPD	Limit	Result	Qualifier
	MS/MSD								
C3538	Batch MS/MSD	NA	Benzene	27/44	60-130	48	30	NA	
C3538	Batch MS/MSD	NA	Ethylbenzene	17/34	60-130	67	30	NA	
C3538	Batch MS/MSD	NA	Toluene	23/42	60-130	58	30	NA	
C3538	Batch MS/MSD	NA	Xylene	18/32	60-130	58	30	NA	
C3538	Batch MS/MSD	NA	TPH (>C28-C40)	61/17	45-140	4	30	NA	
C3538	Batch MS/MSD	NA	TPH (C10-C28)	20503/11413	45-140	14	30	NA	4X
C3538	Batch MS/MSD	NA	TPH (>C28-C40)	0/0	45-140	NR	30	NA	SDO
C3538	DRUM MS/MSD	NA	TPH (>C28-C40)	356/221	45-140	17	30	NA	
C3538	NATOMA B-1-1 MS/MSD	NA	Lead	-4/-44	80-120	10	20	NA	4X
C3538	NATOMA B-1-1 MS/MSD	NA	Zinc	86/147	80-120	21	20	NA	
C3538	Batch MS/MSD	NA	Lead	-784/-773	80-120	6	20	NA	

Data package reviewed: C3538

Key:

MS/MSD = Matrix spike/matrix spike duplicate

RPD = Relative percent difference

Batch = Spike sample was prepared using a non-client sample

NA = Not applicable; qualification of sample data not required

TPH (>C28-C40) = Total petroleum hydrocarbons (greater than 28 carbons in range)

TPH (C10-C28) = Total petroleum hydrocarbons (C10-C28 carbon range)

NR = Not reported

4X = The concentration of the unspiked sample was greater than 4 times the amount spiked; no qualifications necessary

SDO = No qualification required; spiked compound diluted out of sample due to dilution factor > 10

Table 4 Surrogate Recovery Results out of Acceptable Limits TJPA - Soil Investigation San Francisco, CA

Lab				Recovery	Limit	ERM
Package	Sample ID	Method	Surrogate	(%)	(%)	Qualifier
C3538	HOWARD B-1-1	BTEX, TPH-GRO	Dibromofluoromethane	48	60-130	J/UJ
C3538	HOWARD B-1-(5-6)	BTEX, TPH-GRO	Dibromofluoromethane	10	60-130	UJ
C3538	HOWARD B-2-2	BTEX, TPH-GRO	Dibromofluoromethane	30	60-130	J/UJ
C3538	HOWARD B-2-(7-8)	BTEX, TPH-GRO	Dibromofluoromethane	16	60-130	UJ
C3538	HOWARD B-3-1	BTEX, TPH-GRO	Dibromofluoromethane	51	60-130	J/UJ

Data package reviewed: C3538

Key:

BTEX = Benzene, toluene, ethylbenzene and xylenes

TPH-GRO = Total petroleum hydrocarbons - gasoline range organics (C6 - C10 carbon range)

J = Detected result is estimated

UJ = Nondetected result is estimated

Table 5 TPH Results TJPA - Soil Investigation San Francisco, CA

Lab			Reported		ERM	
Package	Sample ID	Compound	Concentration	Units	Qualifier	Notes
C3538	NATOMA B-1-(5-6)	TPH (>C28-C40)	13.0	mg/kg		Motor oil pattern
C3538	NATOMA B-2-2	TPH (>C28-C40)	54.9	mg/kg		Motor oil pattern
C3538	NATOMA B-2-(5-6)	TPH (>C28-C40)	13.9	mg/kg		Motor oil pattern
C3538	NATOMA B-2-(9-10)	TPH (C10-C28)	28.6	mg/kg	NJ	Not a typical diesel pattern
C3538	NATOMA B-2-(9-10)	TPH (>C28-C40)	87.6	mg/kg	NJ	Discrete peaks mixed with motor oil
C3538	NATOMA B-3-1	TPH (>C28-C40)	1650	mg/kg		Motor oil pattern
C3538	NATOMA B-3-(5-6)	TPH (>C28-C40)	62.4	mg/kg		Motor oil pattern
C3538	NATOMA B-3-(9-10)	TPH (C10-C28)	162	mg/kg	NJ	Not a typical diesel pattern
C3538	NATOMA B-3-(9-10)	TPH (>C28-C40)	360	mg/kg	NJ	Discrete peaks mixed with motor oil
C3538	NATOMA B-4-2	TPH (>C28-C40)	25.0	mg/kg		Motor oil pattern
C3538	NATOMA B-4-(5-6)	TPH (>C28-C40)	27.2	mg/kg		Motor oil pattern
C3538	NATOMA B-4-(10-11)	TPH (C10-C28)	5.72	mg/kg	NJ	Not a typical diesel pattern
C3538	NATOMA B-4-(10-11)	TPH (>C28-C40)	16.5	mg/kg		Motor oil pattern
C3538	HOWARD B-1-1	TPH (>C28-C40)	948	mg/kg		Motor oil pattern
C3538	HOWARD B-1-(5-6)	TPH (>C28-C40)	32.8	mg/kg		Motor oil pattern
C3538	HOWARD B-2-2	TPH (>C28-C40)	290	mg/kg		Motor oil pattern
C3538	HOWARD B-2-(5-6)	TPH (>C28-C40)	116	mg/kg		Motor oil pattern
C3538	HOWARD B-2-(7-8)	TPH (>C28-C40)	38.4	mg/kg		Motor oil pattern
C3538	HOWARD B-3-1	TPH (>C28-C40)	866	mg/kg		Motor oil pattern
C3538	HOWARD B-3-(5-6)	TPH (>C28-C40)	701	mg/kg		Motor oil pattern
C3538	HOWARD B-4-2	TPH (>C28-C40)	525	mg/kg		Motor oil pattern
C3538	DRUM	TPH (>C28-C40)	505	mg/kg		Motor oil pattern

Data package reviewed: C3538

Key:

TPH (>C28-C40) = Total petroleum hydrocarbons (greater than 28 carbons in range)

TPH (C10-C28) = Total petroleum hydrocarbons (C10-C28 carbon range)

mg/kg = Milligrams per kilogram

NJ = Estimated value - chromatogram did not resemble the standard hydrocarbon pattern