Treadwell&Rollo

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20 December 2007
Project 3494.01

Mr. Steven Plunkett
Hazardous Substances Scientist
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94502

Subject: Letter Report
Groundwater Monitoring conducted 30 October 2007
Fuel Leak Case No. RO0000052
Former Peterson Manufacturing Company Facility
1600 63rd Street
Emeryville, California

Dear Mr. Plunkett:

This letter report is submitted by Treadwell & Rollo, Inc. on behalf of Wareham Property Group to document groundwater monitoring conducted in October 2007 at 1600 63rd Street, Emeryville, California (the "Site"). This report presents a summary of the groundwater monitoring conducted on 30 October 2007. A detailed background, a description of the monitoring well installation, and results of groundwater sampling were described elsewhere (Treadwell & Rollo, Inc., 2007a & 2007b).

BACKGROUND

The Site is located at 1600 63rd Street, Emeryville, California (Figure 1). The Site occupies 2.75 acres bounded by 63rd Street to the south, Overland Avenue to the west, 64th Street to the north, and the City of Emeryville Fire Station Number 2 to the east (Figure 2). The surrounding land use is primarily commercial and light industrial.

The property was originally developed as a tallow manufacturing plant by Peterson Manufacturing Company in 1914. Historical records indicate six underground storage tanks (USTs) were previously located at the Site (Figure 2).

The Site has been operated as a Fed Ex shipping facility since 1989, when the Site was redeveloped and construction of the Fed Ex facility was completed. Fed Ex currently operates one 10,000 gallon gasoline UST at the Site.

Numerous environmental investigation and remediation activities by others have occurred at the Site since 1987. Activities included: underground storage tank removal, overexcavation and disposal (or landfarming) of affected soil, numerous soil borings, collection and analysis of soil and groundwater samples, installation and sampling of monitoring wells, and cone penetrometer testing. Details of previous activities have been reported elsewhere, and are not duplicated in this report.

In September 2007, a free phase product collection system consisting of hydrophobic socks and a collection canister system were installed in well MW-2, TR-2, and TR-5. The free phase product is periodically monitored.

Groundwater at the Site has been monitored since 1989. Based on historical and current data, groundwater flows towards the west with minor northwest – southwest components.

GROUNDWATER MONITORING RESULTS

On 30 October 2007, groundwater monitoring was conducted for monitoring wells TR-1, TR-3, and TR-4. Groundwater monitoring wells TR-2, TR-5, and MW-2 were not sampled due to the presence of free product in the wells. Figure 2 shows the monitoring well locations.

Groundwater Sampling and Analytical Methods

Treadwell and Rollo used an oil/water interface meter to measure the depth to groundwater in monitoring wells TR-1, TR-2, TR-3, TR-4, TR-5 and MW-2. A sheen (<0.01 feet) of free phase product was detected in wells MW-2, TR-2, and TR-5. Groundwater elevations are summarized in Table 1. Free phase product measurements are summarized in Table 2.

Groundwater is interpreted to flow towards the west based on groundwater elevations measured on 30 October 2007. Groundwater gradient information is shown on Figure 3.

Groundwater samples from monitoring wells (TR-1, TR-3, and TR-4) were collected by purging at least three casing volumes of water from each well using a submersible purge pump. During purging, water-quality parameters (pH, temperature, conductivity, turbidity, and dissolved oxygen), were measured. Groundwater sampling forms, including the water-quality parameters measured in the field, are included in Appendix A. Stabilized groundwater quality measurements are presented in Table 3.

Purged groundwater samples were collected and placed into appropriately-preserved containers prepared by the laboratory for analysis. Each sample was immediately sealed, labeled, placed in an ice-cooled chest, and delivered to the laboratory under chain-of-custody procedures.

Groundwater samples were analyzed for:

- Total petroleum hydrocarbons quantified as diesel (TPHd) and as gasoline (TPHg) by EPA Method 8015M;
- Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) by EPA Method 8260;
- Fuel oxygenates by EPA Method 8260; and
- Total lead.

Groundwater Analytical Results

Groundwater quality parameters were measured during purging and prior to sampling. The water quality data is summarized in Table 3.

TPHg and BTEX were not detected above laboratory reporting limits in any samples. TPHd was detected in all three samples, and concentrations ranged from 0.25 mg/L to 1.00 mg/L. MTBE was detected in well TR-1 at a concentration of 0.0078 mg/L. Total lead was not detected above laboratory reporting limits in any sample.

Groundwater analytical results are presented in Table 4. Certified analytical laboratory reports are provided in Appendix B. Figure 2 shows the monitoring well locations.

The concentrations are similar to the historical groundwater data. The next round of groundwater monitoring will be conducted in late January 2008.

Free Phase Product Results

Free phase product is passively collected and removed by using hydrophobic collection socks and canisters located in wells MW-2, TR-2, and TR-5. The passive remediation system is checked approximately every three weeks. Removal volume measurements are collected and free phase product thickness measurements are performed. The free phase product data is summarized in Table 5.

The results of the monitoring suggest that the hydrophobic socks are appropriate for removal of the low viscosity free phase product in monitoring wells TR-2 and TR-5. To date, the collection canister is ineffective in removal of the higher viscosity free phase product in monitoring well MW-2. A hydrophobic sock will be installed in monitoring well MW-2 in conjunction with the collection canister to evaluate if the sock technology would be effective in well MW-2.

Feel free to contact Matthew Hall at 510/874-4500 ext. 556 with any questions or comments.

Sincerely yours,
TREADWELL & ROLLO, INC.

Matthew B. Hall
Project Scientist

David R. Kleesattel, P.G.
Senior Geologist

PROFESSIONAL GEOLOGIST
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Attachments: References
Tables
Figures
Appendices Appendix A – Monitoring Well Sampling Forms
Appendix B – Laboratory Analytical Results

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REFERENCES

Treadwell & Rollo 2007a. Letter Report: Supplemental Soil and Groundwater Investigation, Fuel Leak Case No. RO0000052, Former Peterson Manufacturing Company Facility, 1600 63rd Street, Emeryville, California. 21 March 2007.

Treadwell & Rollo 2007b. Letter Report, Groundwater Monitoring Conducted 26 July 2007, Fuel Leak Case No. RO0000052, Former Peterson Manufacturing Company Facility, 1600 63rd Street, Emeryville, California. 3 October 2007.

FIGURES

Base map: The Thomas Guide
Alameda County
1999

0 1/4 1/2 Mile

Approximate scale

1600 63RD STREET
Emeryville, California

SITE LOCATION MAP

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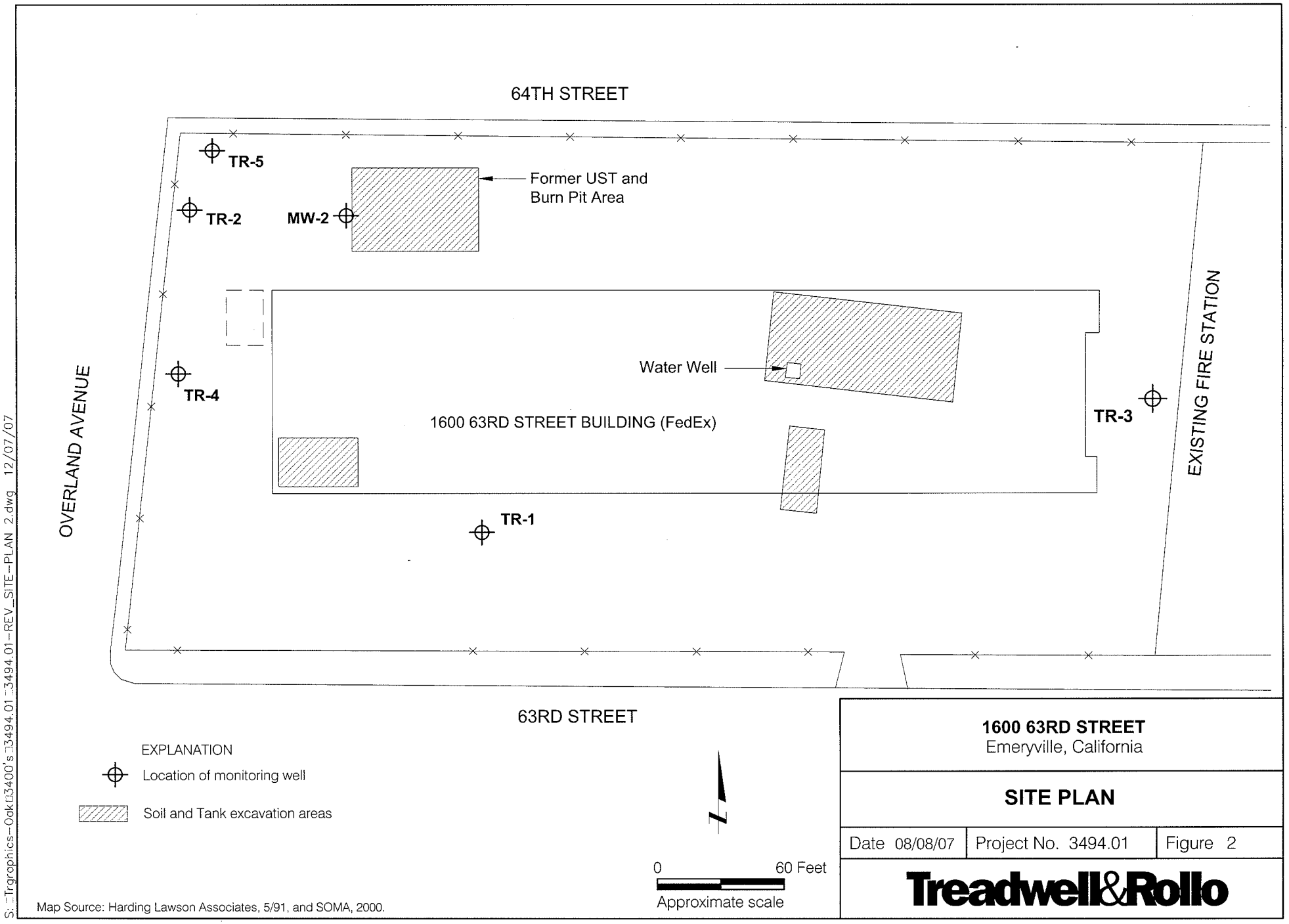
Date 08/08/07	Project No. 3494.01	Figure 1



Map Source: Harding Lawson Associates, 5/91, and SOMA, 2000.

1600 63RD STREET
Emeryville, California

SITE PLAN

Date 08/08/07	Project No. 3494.01	Figure 2

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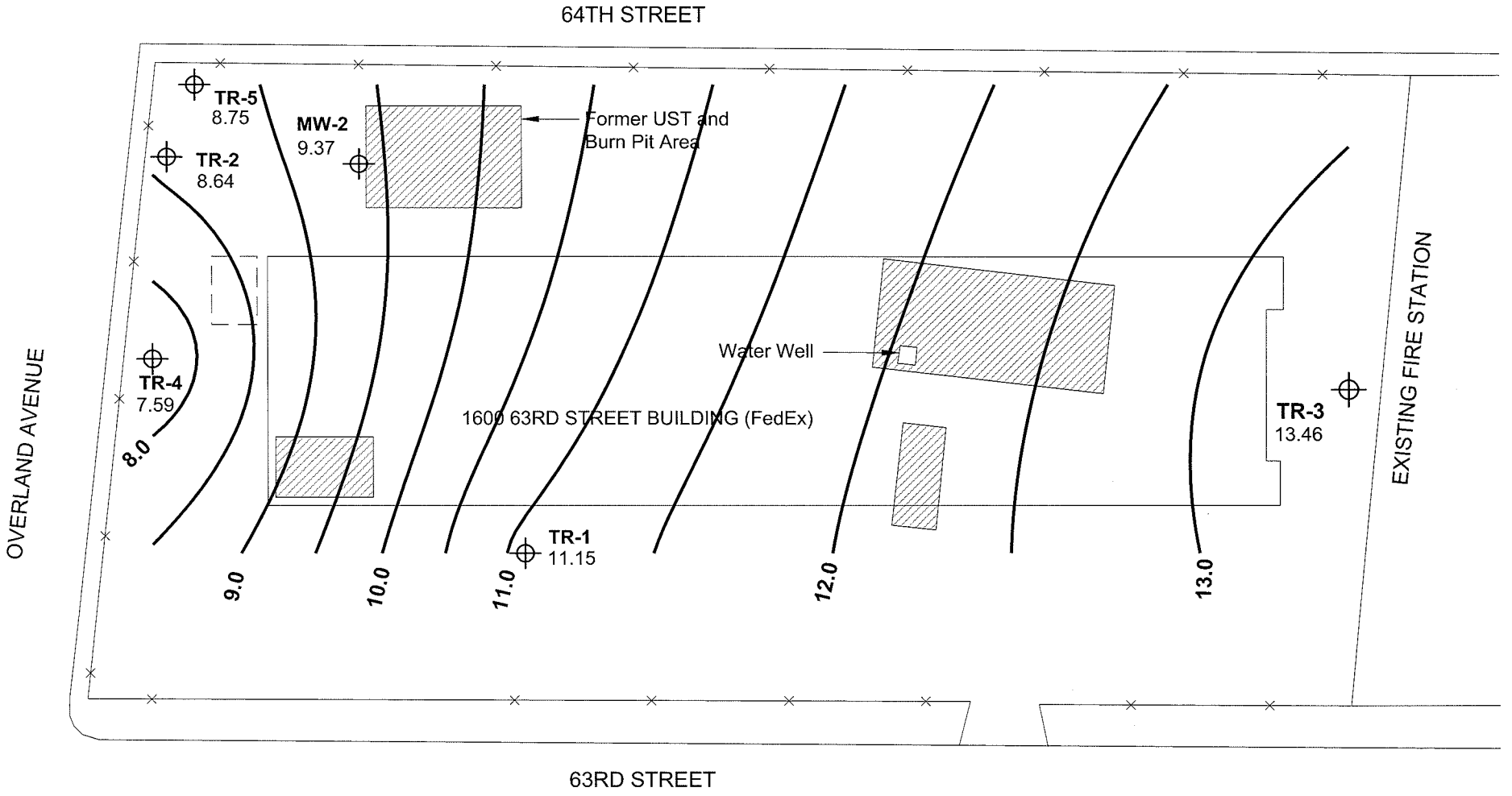

EXPLANATION

- Location of monitoring well
- Soil and Tank excavation areas
- 11.0 — Isopiezometric line

0 60 Feet

Approximate scale

Map Source: Harding Lawson Associates, 5/91, and SOMA, 2000.

1600 63RD STREET
Emeryville, California

GROUNDWATER GRADIENT
MEASURED 30 OCTOBER 2007

Date 12/19/07	Project No. 3494.01	Figure 3

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TABLES

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TABLE 1
GROUNDWATER
ELEVATION DATA
1600 63rd Street, Emeryville, CA

Well Number	Top-of-Casing Elevation (feet)	Depth of Well Screen Interval (feet)	Date Measured	Depth to Water (feet)	Water Elevation (feet)	Change in Elevation (feet)
MW-2	16.53	12.5-20.5	8/3/1989	6.66	9.87	
			9/21/1989	6.32	10.21	0.34
			10/20/1989	6.78	9.75	-0.46
			12/20/1989	7.32	9.21	-0.54
			3/20/1990	6.76	9.77	0.56
			5/11/1990	6.66*	--	--
			7/20/1990	6.74*	--	--
			11/12/1990	6.75*	--	--
			11/21/1990	7.00*	--	--
			2/7/1991	6.88*	--	--
			5/8/1991	6.92*	--	--
			5/14/1999	NM*	--	--
			11/28/2006	6.85*	--	--
			1/15/2007	6.80*	--	--
			1/30/2007	6.40*	--	--
			2/13/2007	5.83*	--	--
			2/27/2007	5.89*	--	--
			7/26/2007	6.67*	--	--
			10/30/2007	7.16	9.37	--
TR-1	17.50	5-20	1/15/2007	6.21	11.29	
			1/30/2007	6.14	11.36	0.07
			7/26/2007	6.33	11.17	-0.19
			10/30/2007	6.35	11.15	-0.02
TR-2	16.50	5-20	1/15/2007	8.11*	8.39	
			1/30/2007	7.19	7.19	-1.20
			2/13/2007	6.57*	9.93	2.74
			2/27/2007	6.59*	9.91	-0.02
			7/26/2007	7.75	8.75	-1.16
			10/30/2007	7.86	8.64	-0.11
TR-3	18.60	5-20	1/15/2007	4.85	13.75	
			1/30/2007	4.68	13.92	0.17
			7/26/2007	5.16	13.44	-0.48
			10/30/2007	5.14	13.46	0.02
TR-4	16.38	5-20	1/15/2007	8.71	7.67	
			1/30/2007	6.17	10.21	2.54
			7/26/2007	8.68	7.70	-2.51
			10/30/2007	8.79	7.59	-0.11
TR-5	16.27	5-20	1/15/2007	7.34*	8.93	
			1/30/2007	6.87	9.40	0.47
			2/13/2007	6.22	10.05	0.65
			2/27/2007	6.19	10.08	0.03
			7/26/2007	6.19	9.98	-0.10
			10/30/2007	7.52	8.75	-1.23

Notes:
* - Petroleum product measured in well (0.01- to 3-feet thick)
Survey conducted by CSS Environmental Services (Novato, CA) on 15 January 2007.
Water elevation referenced to mean sea level.
Monitoring wells MW1, MW3, MW4, and MW5 were abandoned on 15 January 2007.

TABLE 2
FREE PHASE PRODUCT MEASUREMENTS
FROM WELLS MW-2, TR-2, and TR-5 (Since January 2007)
1600 63rd Street, Emeryville, CA

Well Number	Top-of-Casing Elevation (feet)	Depth of Well Screen Interval (feet)	Date Measured	Depth to Free Phase Product (feet)	Depth to Water (feet)	Thickness of Free Phase Product (feet)	Unadjusted Water Level (feet)	Adjusted Water Level (feet)
MW-2	16.53	12.5-20.5	1/15/2007	6.72	6.80	0.08	9.73	9.79
			1/30/2007	6.33	6.40	0.07	10.13	10.19
			2/13/2007	5.81	5.83	0.02	10.70	10.72
			2/27/2007	5.78	5.89	0.11	10.64	10.73
			7/26/2007	6.65	6.67	0.02	9.86	9.88
			8/10/2007	6.89	6.91	0.02	9.62	9.64
			9/19/2007	7.05	7.07	0.02	9.46	9.48
			10/4/2007	7.36	7.36	<0.01	9.17	9.17
			10/30/2007	7.16	7.16	<0.01	9.37	9.37
TR-2	16.50	5-20	1/15/2007	7.42	8.11	0.69	8.39	8.94
			1/30/2007	7.19	7.19	<0.01	9.31	9.31
			2/13/2007	6.56	6.57	0.01	9.93	9.94
			2/27/2007	6.58	6.59	0.01	9.91	9.92
			7/26/2007	7.75	7.75	<0.01	8.75	8.75
			8/10/2007	7.87	7.87	<0.01	8.63	8.63
			9/19/2007	8.01	8.01	<0.01	8.49	8.49
			10/4/2007	8.15	8.15	<0.01	8.35	8.35
			10/30/2007	7.86	7.86	<0.01	8.64	8.64
TR-5	16.27	5-20	1/15/2007	7.14	7.34	0.20	8.93	9.09
			1/30/2007	6.87	6.87	<0.01	9.40	9.40
			2/13/2007	6.22	6.22	<0.01	10.05	10.05
			2/27/2007	6.19	6.19	<0.01	10.08	10.08
			7/26/2007	6.19	6.19	<0.01	10.08	10.08
			8/10/2007	7.56	7.56	<0.01	8.71	8.71
			9/19/2007	7.70	7.70	<0.01	8.57	8.57
			10/4/2007	7.78	7.78	<0.01	8.49	8.49
			10/30/2007	7.52	7.52	<0.01	8.75	8.75

General Notes:
Measurements collected from top of casing, north side.
Adjusted water level = unadjusted water level + (Thickness of Free Phase Product x 0.8).

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TABLE 3
WATER QUALITY MEASUREMENTS
1600 63rd Street, Emeryville, CA

Well Number	Date	Purge Method	Purge Duration (minutes)	Volume Purged (gallons)	Purged Dry? (yes/no)	Dissolved Oxygen (mg/L)	pH	Specific Conductance (µS/cm)	Temperature (C°)	ORP (mV)
TR-1	1/15/2007	SP	30	30.0	No	NM	6.62	830	NM	140
	7/26/2007	SP	10	7.5	No	1.07	7.02	910	22.7	70
	10/30/2007	SP	9	8.5	No	1.49	6.84	900	23.1	10
TR-3	1/15/2007	SP	35	20.0	Yes	NM	7.75	1,330	21.4	NM
	7/26/2007	SP	20	7.5	No	1.19	6.90	1,530	18.8	120
	10/30/2007	SP	13	10.0	No	1.21	6.88	1,420	19.1	150
TR-4	1/15/2007	SP	25	25.0	No	NM	6.76	1,780	NM	130
	7/26/2007	SP	7	7.0	No	1.59	7.00	1,800	20.4	50
	10/30/2007	SP	6	8.0	No	1.07	7.06	1,920	20.3	-10

General Notes
ORP = Oxidation Reduction Potential
mV = millivolts
mg/L = milligrams per Liter
µS/cm = microseimens per centimeter
SP = submersible pump

TABLE 4
GROUNDWATER SAMPLING RESULTS FROM MONITORING WELLS
1600 63rd Street, Emeryville, CA

Sample No.	Date Sampled	Notes	Chemical Concentrations Detected (mg/L) TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Total Xylenes	PCBs	EPA 8080 Analytes	EPA 8270 Analytes	EPA 8240 Analytes	Fuel Oxygenates (including Ethanol)	Total Lead	Motor Oil
HLA															
MW-2	6/25/1989		<0.5	0.3	<0.005	<0.005	<0.005	<0.005	<0.0005	--	(2)	<0.01	--	--	--
	9/21/1989		**1**	<0.5	<0.005	<0.005	<0.005	<0.005	<0.0005	(3)	(4)	<0.01	--	--	--
	12/20/1989		<0.5	**0.53**	<0.005	<0.005	<0.005	<0.005	<0.0005	ND	(5)	<0.01	--	--	--
	2/20/1990		**49**	0.42	<0.005	<0.005	<0.005	<0.005	<0.0005	(6)	(7)	0.044 (8)	--	--	--
	5/11/1990		**8.4**	**1.2**	<0.005	<0.005	<0.005	<0.005	--	--	--	<0.01	--	--	--
	5/11/1990		**<2.5**	<0.5	<0.01	<0.01	<0.01	<0.01	--	--	--	<0.02	--	--	--
	7/20/1990		**27**	**3.9**	<0.005	<0.005	<0.005	0.011	--	ND	--	--	--	--	--
	7/20/1990		**30**	**2.3**	<0.005	<0.0025	<0.0025	0.0033	--	ND	--	--	--	--	--
	11/12/1990		**61**	**380**	<0.005	<0.0005	<0.0005	0.0005	<0.0005	ND	--	--	--	--	--
	11/12/1990		**35**	**7**	<0.005	0.0009	0.0001	0.0079	<0.0005	ND	--	--	--	--	--
	2/7/1991		**41**	**11**	<0.005	<0.0005	<0.0005	<0.0005	<0.0005	ND	--	--	--	--	--
	2/7/1991		**27**	**13**	<0.005	<0.0005	<0.0005	0.043	<0.0005	ND	--	--	--	--	--
	5/8/1991		**43**	**88**	<0.005	<0.0005	<0.0005	<0.005	<0.0005	ND	--	--	--	--	--
	5/8/1991		**26**	**150**	<0.005	<0.0005	<0.0005	<0.005	<0.0005	ND	--	--	--	--	--
Certified															
MW-2	11/19/1992		**22**	**0.59**	<0.0003	0.0014	<0.0003	0.0015	--	--	--	--	--	--	--
	7/13/1994		**6**	<2	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--
SOMA Corporation-Monitoring Wells															
MW-2	5/14/1999	(1)	**550**	**210**	**<2.5**	**<2.5**	**<2.5**	**4.9**	<0.5	--	--	--	--	--	<3,500
Treadwell & Rollo, Inc.															
MW-2	1/10/2007	(9)	**10**	**0.6**	<0.0005	<0.0005	<0.0005	0.00053	--	--	--	--	MtBE = 0.00095 Di-isopropyl ether = 0.00097 Others <0.0005 to <0.1	<0.1	--
TR-1	1/15/2007	(9)	0.14	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	MtBE = 0.0074 Others <0.0005 to <0.1	<0.1	
	7/26/2007		0.20	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	MtBE = 0.0085 Others <0.0005 to <0.01	0.0038	--
	10/30/2007	(9)	0.25	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	MtBE = 0.0078 Others <0.0005 to <0.01	<0.0034	--
TR-2	1/10/2007	(9)	**480**	**3.4**	<0.005	<0.005	<0.005	<0.005	--	--	--	--	<0.005 to <1	<0.1	--
TR-3	1/10/2007	(9)	0.098	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	Other <0.0005 to <0.1	<0.1	--
	7/26/2007		0.37	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	Other <0.0005 to <0.01	<0.003	--
	10/30/2007	(9)	0.17	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	Other <0.0005 to <0.05	<0.0034	--
TR-4	1/10/2007	(9)	0.43	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	MtBE = 0.0022 Di-isopropyl ether = 0.001 Other <0.0005 to <0.1	<0.1	--
	7/26/2007		0.76	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	MtBE = 0.003 Di-isopropyl ether = 0.0014 Other <0.0005 to <0.01	<0.003	--
	10/30/2007	(9)	**1.00**	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	Other <0.0005 to <0.05	<0.0034	--
TR-5	1/10/2007	(9)	**31**	**12**	<0.005	<0.005	<0.005	<0.005	--	--	--	--	<0.005 to <1	<0.1	--
ESL			0.64	0.5	0.046	0.13	0.29	0.1	0.014				MtBE = 1.8		

General Notes:

mg/L = milligrams per liter
TPHd = Total Petroleum Hydrocarbons as Diesel
TPHg = Total Petroleum Hydrocarbons as Gasoline
PCBs = Polychlorinated biphenyls
MtBE = Methyl tert-Butyl Ether
< = Below Specified Reporting Limits.
-- = Not Analyzed.
ESL = Environmental Screening Level, Shallow Soil, Groundwater not a source of drinking water, Commercial/Industrial Land Use (RWQCB 2005)
1 = **Bold** values exceed the environmental screening levels.

Footnotes:

(1) Product sample collected; Chromalab (STL San Francisco) results indicate hydrocarbon reported does not match diesel standard. Friedman & Bruya results indicate "patterns displayed by these peaks are indicative of Bunker C or crude oil
(2) Trace flourene detected
(3) 0.00016 ppm heptachlor and 0.00015 ppm 4,4'-DDD detected.
(4) 0.006 ppm flourene, 0.005 ppm bis (2-ethyl-hexyl) phthalate, and 0.0061 ppm 2-methyl-napthalene detected.
(5) 0.012 ppm 2-methyl-napthalene detected.
(6) 0.00035 ppm Gamma-BHC detected.
(7) 0.0061 ppm flourene, 0.018 ppm 2-methyl-napthalene, and 0.0055 ppm phenanthrene detected.
(8) 0.044 ppm acetone detected.
(9) Laboratory reported that the TPH compounds detected in samples did not match their respective laboratory standard.

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Table 5
FREE PHASE PRODUCT MONITORING TABLE
1600 63rd Street, Emeryville, California

MW-2			TR-2			TR-5			
Date	Volume (L)	Extraction Rate (L/day)	Date	Volume (L)	Extraction Rate (L/day)	Date	Volume (L)	Extraction Rate (L/day)	Notes
8/15/2007	0	--	8/15/2007	0.00	--	8/15/2007	0.00	--	
9/19/2007	0	0	9/19/2007	0.00	0.00	9/19/2007	0.21	0.01	Sock changed out in TR-2 & TR-5
10/4/2007	0	0	10/4/2007	0.34	0.02	10/4/2007	0.13	0.01	
10/30/2007	0	0	10/30/2007	0.34	0.01	10/30/2007	0.05	0.00	
11/16/2007	0	0	11/16/2007	0.03	0.00	11/16/2007	0.37	0.02	
Total volume extracted	0		Total volume extracted	0.71		Total volume extracted	0.76		

Notes:
L - liters

APPENDIX A

Monitoring Well Sampling Forms

GROUNDWATER SAMPLING FORM

Project Name 1600 63rd St Well No. TR-1

Project Number 3494.01 Well Type [X] Monitor [ ] Extraction [ ] Other

Recorded By LMA Sampled by LMA Date 10/30/07

WELL PURGING

PURGE VOLUME

Well casing diameter

[X] 2-inch [ ] 3/8-inch [ ] Other

Well Total Depth (TD, ft. below TOC) : 19.65

Depth to Water (WL, ft. below TOC) : 6.35

Depth to free phase (FP, ft. below TOC) :

Number of casing volumes to be purged

[ ] 4 [ ] 10 [ ] Other

PURGE METHOD

[ ] Bailer \ Type

[X] Pump \ Type Submersible

[ ] Other

PUMP INTAKE

[ ] Near top Depth (ft)

[X] Near Bottom Depth (ft)

[ ] Other

PURGE VOLUME CALCULATION

Water Column Length X Multiplier X No. Vols = gals CALCULATED PURGE VOLUME

Total Purge Time

Recharge Rate

(Multiplier : 2" = 0.17, 4" = 0.66, 6" = 1.5)

Purge Rate

gals ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS

Meter :r Meter Type Horiba U22 Flow Through Cell

Time / ~~Liters~~ gal	pH	Temp °C °F	Cond. µ ~~mS~~/cm	Turbidity NTU	DO (%)	DO (mg/L)	ORP (mV)	Comments
1424 / 0	7.45	20.0	1464	opaque		2.60	72	
1425 / 3	7.07	21.6	1104	cloudy		1.33	19	
1426 / 5	6.97	23.1	1023	cloudy		0.60	9	Pause to dump H_2O
1432 / 5.5	6.77	22.2	982	Cloudy		1.40	-20	
1433 / 8.5	6.84	23.1	903	cloudy		1.49	7	
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Comments Purge water storage/disposal [X] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD

Date/Time Sampled 10/30/07 1455

Bailer - Type [ ] Sample port [ ] Other [ ]

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
TR-1-03	3 VOAs	BTEX, TPHg	HCl	Curtis & Tompkins	
		Oxys			
	1 poly	total lead	HNO_3		
	1-L Amber	TPH-d	none		

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

Treadwell&Rollo
Environmental and Geotechnical Consultant

GROUNDWATER SAMPLING FORM

Project Name 1600 63rd St | Well No. TR-3

Project Number 3494.01 | Well Type [X] Monitor [ ] Extraction [ ] Other

Recorded By LMH | Sampled by LMH | Date 10/30/07

WELL PURGING

PURGE VOLUME

Well casing diameter

[X] 2-inch [ ] 3/8-inch [ ] Other

Well Total Depth (TD, ft. below TOC) : 19.58

Depth to Water (WL, ft. below TOC) : 5.14

Depth to free phase (FP, ft. below TOC) :

Number of casing volumes to be purged

[ ] 4 [ ] 10 [X] Other 3

PURGE METHOD

[ ] Bailer \ Type

[X] Pump \ Type Submersible

[ ] Other

PUMP INTAKE

[ ] Near top Depth (ft)

[X] Near Bottom Depth (ft)

[ ] Other

PURGE VOLUME CALCULATION

Water Column Length	X	Multiplier	X	No. Vols	=	gals CALCULATED PURGE VOLUME
	X		X		=	gals ACTUAL PURGE VOLUME

Total Purge Time

Recharge Rate

(Multiplier : 2" = 0.17, 4" = 0.66, 6" = 1.5)

Purge Rate

GROUNDWATER PARAMETER MEASUREMENTS

Meter Meter Type ~~Horiba U22 Flow Through Cell~~

Time / ~~Liters~~ gal	pH	Temp °C °F	Cond. µ (~~m~~S/cm)	Turbidity NTU	DO (%)	DO (mg/L)	ORP (mV)	Comments
1314 / 0	6.94	19.0	1483	Clear		1.37	143	
1315 / 3	6.93	19.2	1392	Clear		0.83	128	
1316 / 5	6.82	19.5	1442	Clear		0.61	121	purge ending H2O
1325 / 5.5	7.15	17.9	1430	Clear		5.45	176	
1326 / 8.0	7.01	18.6	1059	Clear		1.27	166	
1327 / 10.0	6.88	19.1	1417	Clear		1.21	146	
/								
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Comments

Purge water storage/disposal [X] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD

Date/Time Sampled 10/30/07 1350

Bailer - Type [X] disposable poly | Sample port [ ] | Other [ ]

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
TR-3-03	3 VOAs	BTEX, TPHg	HCl	Curtis & Tompkins	
		oxys			
	1 poly	total lead	HNO_3		
	1-1L Amber	TPH-Dsl	none		

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

Treadwell&Rollo
Environmental and Geotechnical Consultant

GROUNDWATER SAMPLING FORM

Project Name 1600 63rd St | Well No. TR-4

Project Number 3494.01 | Well Type [X] Monitor [ ] Extraction [ ] Other

Recorded By LMA | Sampled by LMA | Date 10/30/07

WELL PURGING

PURGE VOLUME

Well casing diameter

[X] 2-inch [ ] 3/8-inch [ ] Other

Well Total Depth (TD, ft. below TOC) : 19.62

Depth to Water (WL, ft. below TOC) : 8.79

Depth to free phase (FP, ft. below TOC) :

Number of casing volumes to be purged

[ ] 4 [ ] 10 [ ] Other

PURGE METHOD

[ ] Bailer \ Type

[X] Pump \ Type Submersible

[ ] Other

PUMP INTAKE

[ ] Near top Depth (ft)

[X] Near Bottom Depth (ft)

[ ] Other

PURGE VOLUME CALCULATION

Water Column Length X Multiplier X No. Vols = gals CALCULATED PURGE VOLUME

Total Purge Time

(Multiplier : 2" = 0.17, 4" = 0.66, 6" = 1.5)

Recharge Rate Purge Rate

gals ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS

Meter Type Horiba U22 Flow Through Cell

Time	/ ~~Liters~~ gal	pH	Temp °C °F	Cond. µS/cm (mS/cm)	Turbidity NTU	DO (%)	DO (mg/L)	ORP (mV)	Comments
1520	/ 0	7.48	18.8	1914	Clear		2.50	3	
1521	/ 3	7.17	20.5	1720	Clear		0.63	-47	Purge to empty H2O
1525	/ 5	7.01	19.8	1773	Clear		3.50	-16	
1526	/ 8	7.06	20.3	1922	Clear		1.07	-8	
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Comments Purge water storage/disposal [X] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD

Date/Time Sampled 10/30/07 / 1550

Bailer - Type [X] disposable poly Sample port [ ] Other [ ]

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
TR-4-03	3 VOAs	BTEX, TPH-g, oxys	HCl	Curtis & Tompkins	
	1 poly	total lead	HNO3		
	1 1-L Amber	TPH-d	none		

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

Treadwell&Rollo
Environmental and Geotechnical Consultant

APPENDIX B

Laboratory Analytical Reports

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	198824	Location:	1600 63rd St
Client:	Treadwell & Rollo	Prep:	EPA 3520C
Project#:	3494.01	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	10/30/07
Units:	ug/L	Received:	10/30/07
Diln Fac:	1.000	Prepared:	11/02/07
Batch#:	131266	Analyzed:	11/05/07

Field ID: TR-1-03 Lab ID: 198824-001
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	250 Y	50

Surrogate	%REC	Limits
Hexacosane	90	61-133

Field ID: TR-3-03 Lab ID: 198824-002
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	170 Y	50

Surrogate	%REC	Limits
Hexacosane	85	61-133

Field ID: TR-4-03 Lab ID: 198824-003
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	1,000 Y	50

Surrogate	%REC	Limits
Hexacosane	97	61-133

Type: BLANK Lab ID: QC413529

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
Hexacosane	98	61-133

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	198824	Location:	1600 63rd St
Client:	Treadwell & Rollo	Prep:	EPA 3520C
Project#:	3494.01	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	131266
Units:	ug/L	Prepared:	11/02/07
Diln Fac:	1.000	Analyzed:	11/05/07

Type: BS
Lab ID: QC413530
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,103	84	58-128

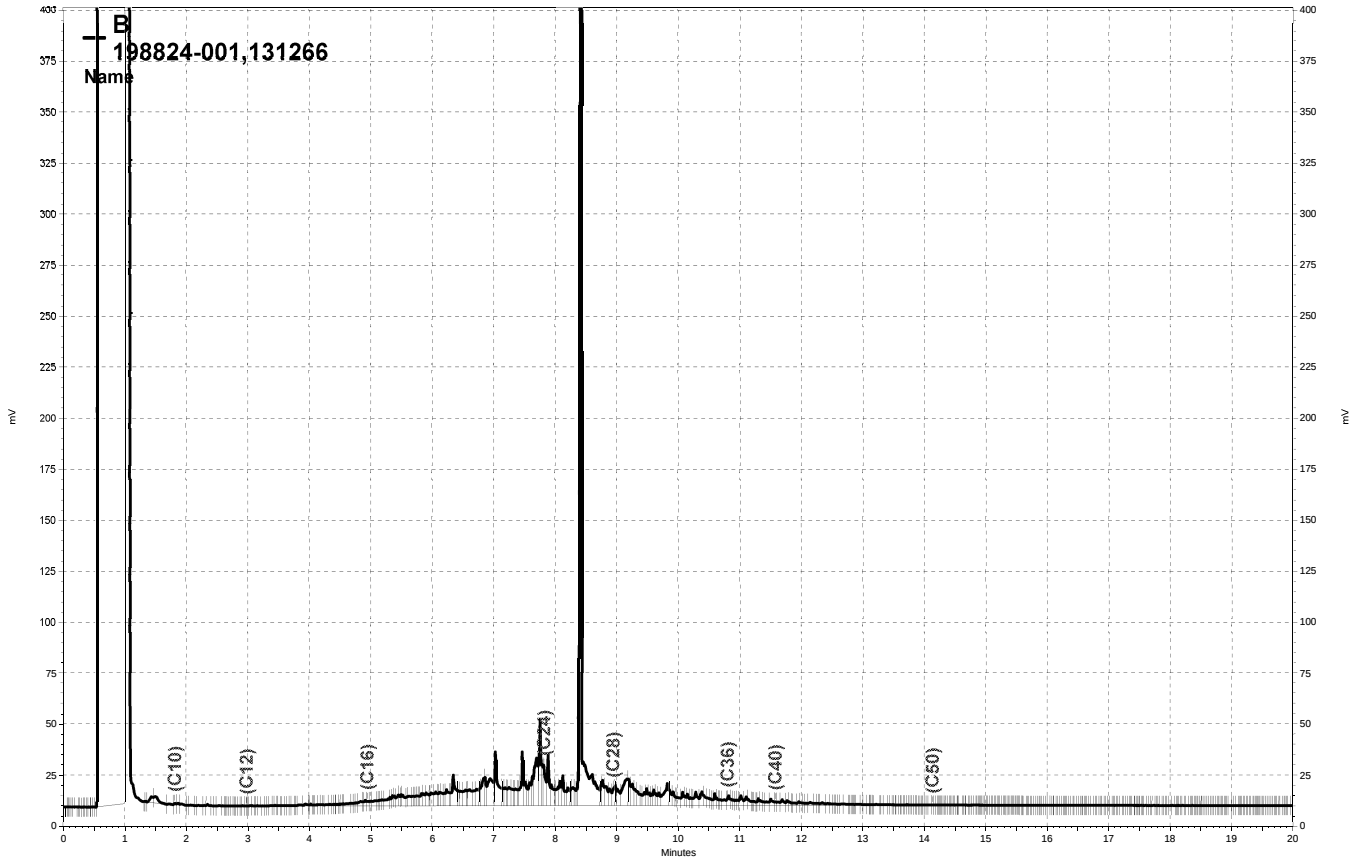
Surrogate	%REC	Limits
Hexacosane	78	61-133

Type: BSD
Lab ID: QC413531
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	1,845	74	58-128	13	29

Surrogate	%REC	Limits
Hexacosane	66	61-133

RPD= Relative Percent Difference



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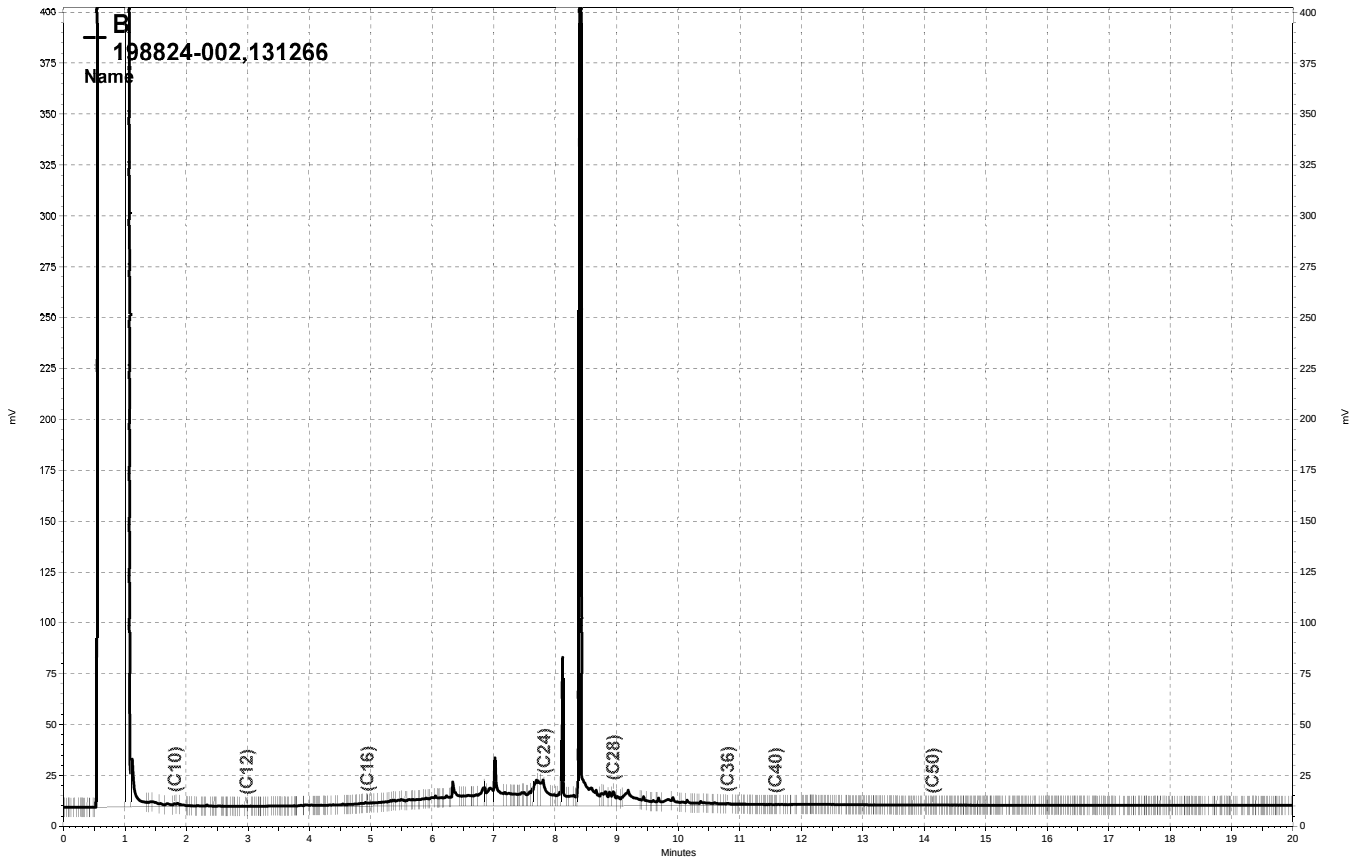

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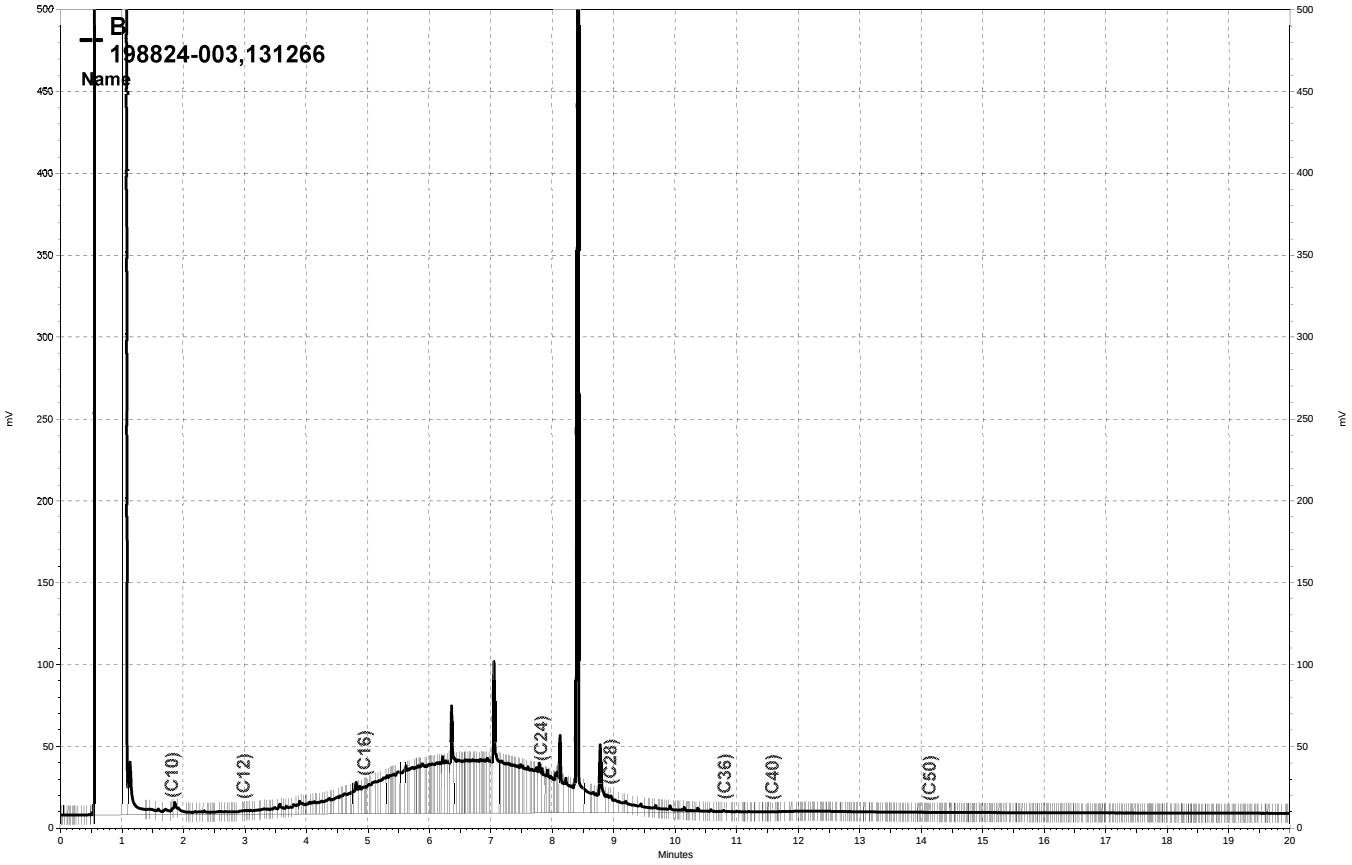

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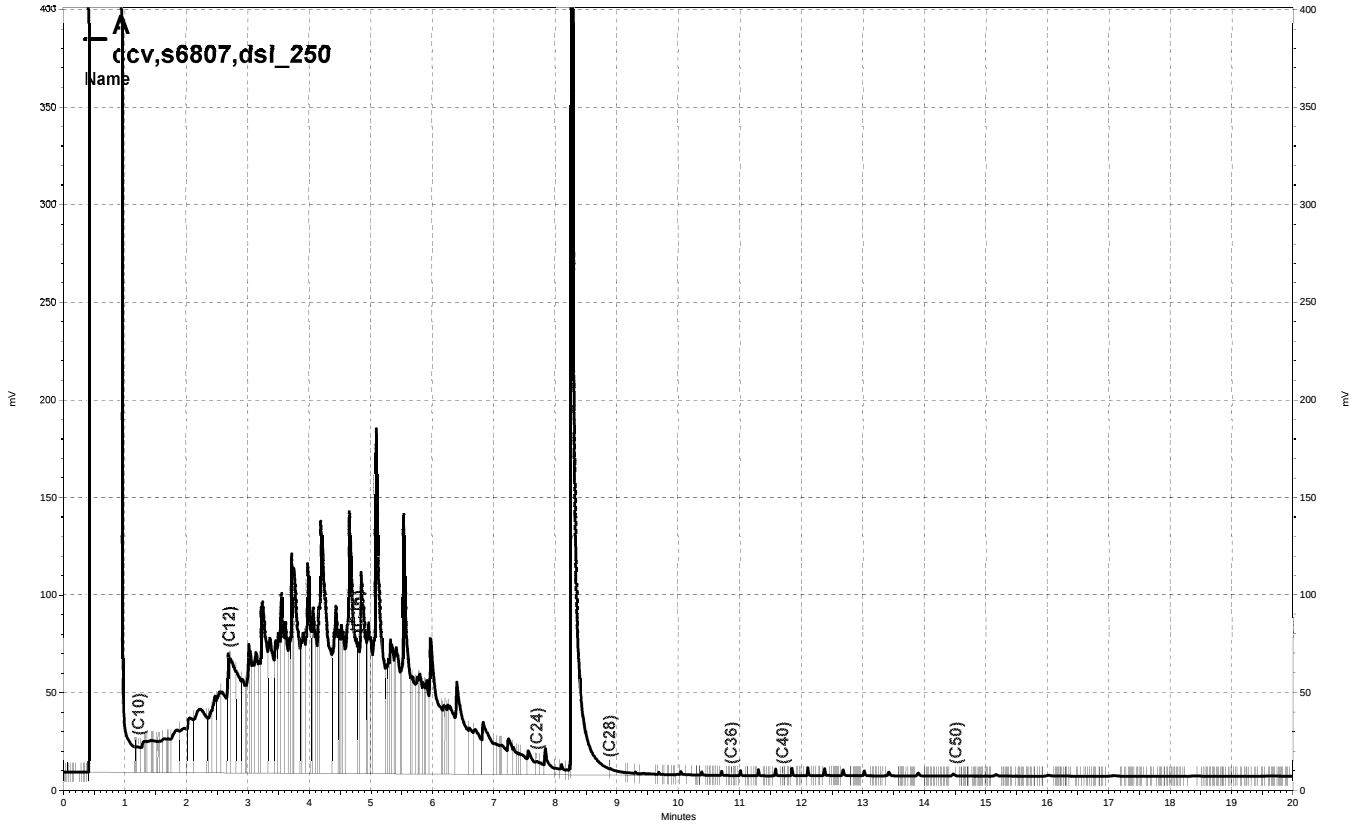

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Curtis & Tompkins, Ltd.

Gasoline by GC/MS

Lab #:	198824	Location:	1600 63rd St
Client:	Treadwell & Rollo	Prep:	EPA 5030B
Project#:	3494.01	Analysis:	EPA 8260B
Field ID:	TR-1-03	Batch#:	131302
Lab ID:	198824-001	Sampled:	10/30/07
Matrix:	Water	Received:	10/30/07
Units:	ug/L	Analyzed:	11/05/07
Diln Fac:	1.000		

Analyte	Result	RL
Gasoline C7-C12	ND	50
tert-Butyl Alcohol (TBA)	ND	10
Isopropyl Ether (DIPE)	ND	0.50
Ethyl tert-Butyl Ether (ETBE)	ND	0.50
Methyl tert-Amyl Ether (TAME)	ND	0.50
MTBE	7.8	0.50
1,2-Dichloroethane	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
1,2-Dibromoethane	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-122
1,2-Dichloroethane-d4	107	74-137
Toluene-d8	94	80-120
Bromofluorobenzene	105	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline by GC/MS

Lab #:	198824	Location:	1600 63rd St
Client:	Treadwell & Rollo	Prep:	EPA 5030B
Project#:	3494.01	Analysis:	EPA 8260B
Field ID:	TR-3-03	Batch#:	131302
Lab ID:	198824-002	Sampled:	10/30/07
Matrix:	Water	Received:	10/30/07
Units:	ug/L	Analyzed:	11/05/07
Diln Fac:	1.000		

Analyte	Result	RL
Gasoline C7-C12	ND	50
tert-Butyl Alcohol (TBA)	ND	10
Isopropyl Ether (DIPE)	ND	0.50
Ethyl tert-Butyl Ether (ETBE)	ND	0.50
Methyl tert-Amyl Ether (TAME)	ND	0.50
MTBE	ND	0.50
1,2-Dichloroethane	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
1,2-Dibromoethane	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	102	80-122
1,2-Dichloroethane-d4	107	74-137
Toluene-d8	96	80-120
Bromofluorobenzene	104	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline by GC/MS

Lab #:	198824	Location:	1600 63rd St
Client:	Treadwell & Rollo	Prep:	EPA 5030B
Project#:	3494.01	Analysis:	EPA 8260B
Field ID:	TR-4-03	Batch#:	131302
Lab ID:	198824-003	Sampled:	10/30/07
Matrix:	Water	Received:	10/30/07
Units:	ug/L	Analyzed:	11/05/07
Diln Fac:	1.000		

Analyte	Result	RL
Gasoline C7-C12	ND	50
tert-Butyl Alcohol (TBA)	ND	10
Isopropyl Ether (DIPE)	1.3	0.50
Ethyl tert-Butyl Ether (ETBE)	ND	0.50
Methyl tert-Amyl Ether (TAME)	ND	0.50
MTBE	2.8	0.50
1,2-Dichloroethane	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
1,2-Dibromoethane	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	103	80-122
1,2-Dichloroethane-d4	110	74-137
Toluene-d8	97	80-120
Bromofluorobenzene	104	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline by GC/MS

Lab #:	198824	Location:	1600 63rd St
Client:	Treadwell & Rollo	Prep:	EPA 5030B
Project#:	3494.01	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC413646	Batch#:	131302
Matrix:	Water	Analyzed:	11/05/07
Units:	ug/L		

Analyte	Result	RL
Gasoline C7-C12	ND	50
tert-Butyl Alcohol (TBA)	ND	10
Isopropyl Ether (DIPE)	ND	0.50
Ethyl tert-Butyl Ether (ETBE)	ND	0.50
Methyl tert-Amyl Ether (TAME)	ND	0.50
MTBE	ND	0.50
1,2-Dichloroethane	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
1,2-Dibromoethane	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-122
1,2-Dichloroethane-d4	103	74-137
Toluene-d8	94	80-120
Bromofluorobenzene	102	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline by GC/MS

Lab #:	198824	Location:	1600 63rd St
Client:	Treadwell & Rollo	Prep:	EPA 5030B
Project#:	3494.01	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	131302
Units:	ug/L	Analyzed:	11/05/07
Diln Fac:	1.000		

Type: BS Lab ID: QC413647

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	125.0	112.3	90	59-149
Isopropyl Ether (DIPE)	25.00	22.27	89	59-120
Ethyl tert-Butyl Ether (ETBE)	25.00	22.43	90	65-134
Methyl tert-Amyl Ether (TAME)	25.00	22.39	90	67-132
MTBE	25.00	22.93	92	60-130
1,2-Dichloroethane	25.00	23.53	94	76-121
Benzene	25.00	23.10	92	80-120
Toluene	25.00	22.82	91	80-122
1,2-Dibromoethane	25.00	23.33	93	80-120
Ethylbenzene	25.00	23.95	96	80-127
m,p-Xylenes	50.00	47.32	95	80-130
o-Xylene	25.00	22.99	92	80-126

Surrogate	%REC	Limits
Dibromofluoromethane	96	80-122
1,2-Dichloroethane-d4	100	74-137
Toluene-d8	92	80-120
Bromofluorobenzene	96	80-120

Type: BSD Lab ID: QC413648

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	125.0	120.8	97	59-149	7	20
Isopropyl Ether (DIPE)	25.00	22.42	90	59-120	1	20
Ethyl tert-Butyl Ether (ETBE)	25.00	22.29	89	65-134	1	20
Methyl tert-Amyl Ether (TAME)	25.00	22.35	89	67-132	0	20
MTBE	25.00	23.07	92	60-130	1	20
1,2-Dichloroethane	25.00	23.84	95	76-121	1	20
Benzene	25.00	23.17	93	80-120	0	20
Toluene	25.00	22.77	91	80-122	0	20
1,2-Dibromoethane	25.00	23.77	95	80-120	2	20
Ethylbenzene	25.00	24.01	96	80-127	0	20
m,p-Xylenes	50.00	46.86	94	80-130	1	20
o-Xylene	25.00	23.18	93	80-126	1	20

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-122
1,2-Dichloroethane-d4	100	74-137
Toluene-d8	94	80-120
Bromofluorobenzene	98	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline by GC/MS

Lab #:	198824	Location:	1600 63rd St
Client:	Treadwell & Rollo	Prep:	EPA 5030B
Project#:	3494.01	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	131302
Units:	ug/L	Analyzed:	11/05/07
Diln Fac:	1.000		

Type: BS Lab ID: QC413649

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,039	104	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	96	80-122
1,2-Dichloroethane-d4	102	74-137
Toluene-d8	93	80-120
Bromofluorobenzene	98	80-120

Type: BSD Lab ID: QC413650

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	1,000	1,018	102	80-120	2	20

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-122
1,2-Dichloroethane-d4	104	74-137
Toluene-d8	93	80-120
Bromofluorobenzene	98	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Lead

Lab #:	198824	Location:	1600 63rd St
Client:	Treadwell & Rollo	Prep:	EPA 3010A
Project#:	3494.01	Analysis:	EPA 6010B
Analyte:	Lead	Sampled:	10/30/07
Units:	ug/L	Received:	10/30/07
Diln Fac:	1.000	Prepared:	10/31/07
Batch#:	131151	Analyzed:	10/31/07

Field ID	Type	Lab ID	Matrix	Result	RL
TR-1-03	SAMPLE	198824-001	Water	ND	3.4
TR-3-03	SAMPLE	198824-002	Water	ND	3.4
TR-4-03	SAMPLE	198824-003	Water	ND	3.4
	BLANK	QC413087	Filtrate	ND	3.4

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Lead

Lab #:	198824	Location:	1600 63rd St
Client:	Treadwell & Rollo	Prep:	EPA 3010A
Project#:	3494.01	Analysis:	EPA 6010B
Analyte:	Lead	Diln Fac:	1.000
Field ID:	ZZZZZZZZZZ	Batch#:	131151
MSS Lab ID:	198799-001	Sampled:	10/29/07
Matrix:	Filtrate	Received:	10/30/07
Units:	ug/L	Prepared:	10/31/07

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
BS	QC413088		100.0	100.4	100	80-120			11/01/07
BSD	QC413089		100.0	101.7	102	80-120	1	20	11/01/07
MS	QC413090	<1.150	100.0	95.85	96	76-120			10/31/07
MSD	QC413091		100.0	98.04	98	76-120	2	20	10/31/07

RPD= Relative Percent Difference

198824

506850

Treadwell&Rollo
Environmental and Geotechnical Consultant

CHAIN OF CUSTODY RECORD

Page 1 of 1

☐ 555 Montgomery Street, Suite 1300, San Francisco, CA 94111 Ph: 415.955.9040/Fax: 415.955.9041
☒ 501 14th Street, Third Floor, Oakland CA 94612 Ph: 510.874.4500/Fax: 510.874.4507
☐ 777 Campus Commons Road, Suite 200, Sacramento, CA 95825 Ph: 916.565.7412/Fax: 916.565.7413
☐ 50 Airport Parkway, Suite 175, San Jose, CA 95110 Ph: 408.437.7708/Fax: 408.437.7709

Site Name: 1600 63rd St
Job Number: 3494.01
Project Manager\Contact: Matt Hall
Samplers: Louis Argüi
Recorder (Signature Required): [signature]

Turnaround Time: 5-day

Field Sample Identification No.	Date	Time	Lab Sample No.	Matrix: Soil	Matrix: Water	Matrix: Air	Matrix: Other	No. Containers & Preservative: HCL	H_2SO_4	HNO_3	Ice	Analysis Requested: BTEX	TPH-g	fuel oxygenates	total lead	TPH-d	Silica gel clean-up	Hold	Remarks
-1 TR-1-03	10/30/07	1455			X			3		1	1	X	X	X	X	X			
-2 TR-3-03	↓	1350			X			3		1	1	X	X	X	X	X			
-3 TR-4-03	↓	1550			X			3		1	1	X	X	X	X	X			

Relinquished by: (Signature) [signature]	Date 10/30/07	Time 1625	Received by: (Signature) [signature]	Date 10/30/07 Time 4:25pm
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date Time
Relinquished by: (Signature)	Date	Time	Received by Lab: (Signature)	Date Time

Sent to Laboratory (Name): Curtis + Tompkins
Laboratory Comments/Notes:

Method of Shipment: ☐ Lab courier ☐ Fed Ex ☐ Airborne ☐ UPS ☒ Hand Carried ☐ Private Courier (Co. Name)

White Copy - Original Yellow Copy - Laboratory Pink Copy - Field COC Number:

RECD ON ICE; intact