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15 August, 2011

Mr. Jerry Wickham
Hazardous Materials Specialist
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Subject: **Second Quarter 2011 Status Report**
1619 1st Street, Livermore, California
Tesoro No. 67076 (Former Beacon 3604); ACEH Case No. RO0434

Dear Mr. Wickham:

Enclosed please find a copy of the quarterly status report for the subject site located at 1619 1st Street in Livermore, California. This report is submitted by Arctos Environmental on behalf of Tesoro Environmental Resources Company.

Based on my inquiry of the person or persons directly responsible for gathering the information contained in this report, I believe the information was prepared by qualified personnel who properly gathered and evaluated the information, and that the information submitted is, to the best of my knowledge and belief, true, correct, and complete. Please feel free to call me at 253/896-8708 or Matthew Nelson of Arctos Environmental at 562/988-2755 with questions.

Sincerely,

Jeffrey M. Baker, P.E.
Supervisor, Environmental
Compliance & Remediation
Tesoro Companies, Inc.

Attachments

CC: Arctos – Matthew Nelson

ARCTOS

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15 August 2011
Project No. 01LV

Jerry Wickham
Hazardous Materials Specialist
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Subject: Second Quarter 2011 Status Report
1619 1st Street, Livermore, California
Tesoro No. 67076 (Former Beacon 3604); ACEH Case No. RO0434

Dear Mr. Wickham:

Arctos Environmental (Arctos), on behalf of Tesoro Environmental Resources Company (Tesoro), has prepared this letter report summarizing project tasks completed during the second quarter 2011 at the subject site (Figure 1).

Executive Summary

Arctos installed a downgradient deep monitoring well in April 2011 in accordance with a work plan dated 11 March 2011 and approved in an 18 April 2011 letter from Alameda County Environmental Health (ACEH). Baseline sampling of the deep monitoring well occurred during the quarterly monitoring event in April 2011.

During the second quarter 2011, the soil vapor extraction (SVE) system operated at 100 percent uptime. During operation, 175 pounds of petroleum hydrocarbons were removed through volatilization and an estimated 1,920 pounds were removed through biodegradation. The mass removal of the SVE system was limited during the quarter due to high water levels.

The oxygen injection system operated at 65 percent uptime during the second quarter 2011 due to repairs. While the system was operating at full capacity, dissolved oxygen (DO) averaged above 13 milligrams per liter (mg/l) at the injection wells and above 12 mg/l at the monitoring wells located within 10 feet of active injection wells.

Quarterly groundwater monitoring was conducted from 25 to 28 April 2011. There was an average 5-foot increase in water levels since the first quarter 2011. Concentrations of

total petroleum hydrocarbons as gasoline (TPHg) and benzene in wells MW-11, VW-2, TP-1, and TP-2 have decreased between approximately 55 and 98 percent since the second quarter 2010. Concentrations of TPHg, benzene, and methyl tert-butyl ether (MTBE) have decreased in all oxygen injection wells since the second quarter 2010.

Site Background

The site description and background are included in Arctos's Interim Remedial Action Plan (IRAP) dated 21 March 2008 (Arctos, 2008).

Groundwater Monitoring Activities

Arctos's subcontractor, Environmental Field Services, LLC, of Patterson, California, performed groundwater monitoring from 25 to 28 April 2011. Samples were collected from wells MW-1 through MW-11, DW-1 through DW-8, TP-1, TP-2, VW-2, VW-3, and IP-1 through IP-10 (Figure 2) in accordance with the site monitoring plan (Attachment A). Groundwater monitoring was performed in accordance with the guidelines of the California Underground Storage Tank Regulations, Title 23, Division 3, Chapter 16, California Code of Regulations. Groundwater sampling quality assurance/quality control (QA/QC) procedures are in Attachment A. Field data sheets are in Attachment B.

Analytical Program

Groundwater and vapor samples were analyzed in accordance with the analytical plans in Attachments A and C, respectively.

Groundwater Results

Groundwater elevations were approximately 438 to 447 feet above mean sea level (27 to 31 feet below ground surface). Water levels increased an average of 5 feet compared to the first quarter 2011 (Table 1). The water level data indicate that the general direction of water flow is toward the northwest with an estimated gradient of 0.016 (1 foot/64 feet; Figure 2). The gradient is consistent with historical data collected since 1993 (Attachment D).

The highest TPHg and benzene concentrations of 72,000 and 5,200 micrograms per liter (µg/l), respectively, were at the new deep well DW-8, located in P Street, downgradient of the underground storage tanks (USTs). The highest MTBE and tert-butyl alcohol (TBA) concentrations of 2,600 and 1,400 µg/l, respectively, were at well TP-1, located in the northwest portion of the site, downgradient of the current dispenser islands.

In April 2011, TPHg, benzene, and MTBE were detected in downgradient well DW-7 at concentrations of 1,600, 120, and 95 µg/l, respectively. TPHg and benzene concentrations in well DW-7 are approximately 80 percent less than when it was installed in November 2009. MTBE and TBA concentrations have remained stable since 2009.

TPHg, benzene, and MTBE have reduced to historically low concentrations at SVE/shallow monitoring wells MW-11, VW-2, TP-1, and TP-2. Concentrations of TPHg in wells MW-11, VW-2, TP-1, and TP-2 have decreased between approximately 56 to 98 percent since the second quarter 2010. TPHg, MTBE, and TBA concentrations remain below ESLs at onsite deep well DW-1, located approximately 5 feet downgradient of oxygen injection well IP-3 and the current dispenser islands.

Groundwater analytical results are summarized in Table 2. Figures 3, 4, and 5 show isoconcentration contours for TPHg, benzene, and MTBE, respectively. Historical analytical results are in Attachment E, and the laboratory reports and the chain-of-custody forms are in Attachment F.

Source Area Remediation

SVE System

Hydrocarbon-impacted soil exposed during periods of low groundwater levels is being remediated by the SVE system. This will remove hydrocarbon mass from the exposed soil and assist with groundwater remediation. During the second quarter 2011, the SVE system only operated on well VW-2 due to high water levels. The remaining SVE wells did not have enough exposed screen to operate. The SVE wells are described below.

Well	Well Location	Well Diameter (inches)	Screen Interval (feet)
MW-1	SW corner in equipment area	4	34 - 54
MW-11	SW corner adjacent to USTs	4	28 - 43
TP-1	NW corner north of dispensers	2	28 - 43
TP-2	NW corner north of dispensers	2	28 - 43
VW-2	NW corner west of dispensers	2	22 - 37

The SVE system influent was monitored frequently with a field photoionization detector (PID) and monthly by laboratory analysis of soil gas samples. The SVE system was monitored to document and optimize hydrocarbon mass removal from the soil. Table 3 summarizes the laboratory analytical results for influent SVE system samples.

Influent TPHg concentrations ranged from 46 parts per million by volume (ppmv; 12 April) to 3,608 ppmv (16 June). Influent concentrations increased during the quarter as water levels decreased by approximately 3 feet from April to June 2011. During the second

quarter 2011, the system operated at an average flow rate of 11 standard cubic feet per minute (scfm) and an average vacuum of 2.6 inches of mercury (in. Hg).

Hydrocarbon mass was removed from the subsurface through (1) volatilization caused by the SVE system and (2) in situ bioremediation from increasing oxygen levels. The daily rate of hydrocarbon mass removal by volatilization was calculated from influent soil gas sample results and field flow measurements. Mass removal by biodegradation was calculated using equations from the Environmental Protection Agency (EPA) document *Bioventing Principles and Practice, Volume II: Bioventing Design,* 1995. SVE influent soil gas analytical results and SVE system parameters used for these calculations are summarized in Tables 3 and 4, respectively. The following is a summary of the operating conditions for the system during the second quarter 2011:

Operation Period	Operating Wells	Operating Time (days)	Average Vacuum (in. Hg)	Average Mass Removal Rate (pounds/day)	Mass Removed[(a)] (pounds)
4/1 to 6/16	VW-2	76	2.4	1.7	130
6/16 to 6/30	VW-2	15	4.0	3.0	45

(a) Mass removed by volatilization only.

The vacuum applied to well VW-2 was increased on 16 June from approximately 2.4 to 4.0 in. Hg. This corresponded with an increase in the rate of air flow from the well and an increase in the rate of mass removal by volatilization.

Mass removal in the second quarter was limited by high water levels. During the second quarter 2011, approximately 175 pounds of hydrocarbons were removed by the SVE system through volatilization and up to 1,920 pounds of hydrocarbons were estimated to have been degraded by biodegradation. The total hydrocarbon mass removed by the SVE system is estimated to be 21,000 pounds or approximately 3,200 gallons (at a density of 6.5 pounds per gallon). Figures 6, 7, and 8 show soil vapor influent concentrations, mass removal by volatilization, and mass removal by biodegradation, respectively. Soil vapor sampling procedures are in Attachment C.

Oxygen Injection System

The oxygen injection system operated at 65 percent uptime during the second quarter 2011. The system delivers oxygen to the subsurface in pulsed intervals to increase oxygen levels while decreasing the potential for "pushing" dissolved hydrocarbons away from injection wells.

On 8 April, Arctos discovered that one of the two oxygen concentrators had been damaged and oxygen purity had decreased to approximately 50 percent. During April,

the system operated at a reduced flow rate for 15 days. On 28 April, the damaged concentrator was replaced. On 3 May, Arctos discovered that one of the two air compressors had been damaged, resulting in damages to the second oxygen concentrator as well as the oxygen delivery pump. The system operated at a reduced flow rate until being shut down on 25 May to replace the damaged pumps. On 16 June, the oxygen delivery pump, air compressor, and oxygen concentrator were replaced. The system was restarted at full capacity on 27 June. After the system repair, the oxygen purity was approximately 94 percent and the average flow rate was 32 standard cubic feet per hour (scfh).

During the second quarter, oxygen was injected into wells IP-1 through IP-5 and IP-8 through IP-10 for 32 minutes at a time and wells IP-6 and IP-7 for 52 minutes at a time. DO was monitored in the operating injection wells and monitoring wells DW-1, MW-1, MW-2, MW-11, TP-1, and TP-2. Within 3 days of restarting the oxygen injection system on 27 June, DO readings were observed above 7 mg/l at well TP-1 and above 20 mg/l in wells MW-11 and TP-2. While the system was operating at full capacity, DO averaged above 13 mg/l at the injection wells and above 12 mg/l at the monitoring wells located within 10 feet of active injection wells. DO readings are summarized in Table 5.

Well Installation

Arctos installed a deep offsite monitoring well during the second quarter 2011 as described in the work plan dated 11 March 2011 and approved in an 18 April 2011 letter from ACEH. The objective of the downgradient deep monitoring well is to assess the downgradient lateral and vertical extent of impacted groundwater identified during a membrane interface probe investigation in January 2011. The completed scope of work included the following tasks:

- Obtained permits from Zone 7 Water Agency for the well installation
- Installed deep offsite monitoring well, designated as DW-8 (Figure 2)
- Developed the deep monitoring well.

Well Installation

Gregg Drilling & Testing, Inc. (Gregg Drilling), of Martinez, California, drilled the soil boring for the deep monitoring well on 13 April 2010 using a hollow-stem auger rig. Soil samples were collected at 10 feet below grade and 5-foot intervals thereafter for visual logging, vapor screening, and laboratory analysis.

The deep monitoring well was designed to monitor the water quality in the lower zones of the aquifer (beneath the existing monitoring well screen intervals and above the regional aquitard). The deep monitoring well was constructed using 4-inch-diameter, flush-

threaded Schedule 40 polyvinyl chloride (PVC) casing. The well was screened from 55 to 65 feet below grade using 0.020-inch slotted screen. The boring and well construction logs are in Attachment G. Drilling and well installation QA/QC procedures are in Attachment H.

Well Development
Gregg Drilling developed well DW-8 on 19 April 2011 by surging, bailing, and pumping to (1) remove fines from the filter pack and well screen and (2) reduce sediment in the water. A minimum of 10 casing volumes of water was removed from the well. The well development log is in Attachment I.

Conclusions

Results of the groundwater sampling, SVE operation, oxygen injection system operation, and investigation activities indicate the following conclusions:

1. Groundwater concentrations have decreased at all onsite active injection wells.

2. High water levels limited mass removal of the SVE system.

Recommendations

Based on the activities completed during this quarter and the results of the groundwater monitoring and investigation activities, Arctos recommends the following tasks during the third quarter of 2011:

- Continue operation of the SVE and oxygen injection systems
- Continue to monitor water levels at the site to evaluate when additional SVE wells can be operated in an attempt to increase flow rates and mass removal
- Evaluate potential technologies and submit a work plan for remediation of the groundwater impacts observed downgradient of the USTs by new deep well DW-8.

If you have questions or comments, please call Mike Purchase at 510/525-2180 or Matthew Nelson at 562/988-2755.

Very truly yours,

ARCTOS ENVIRONMENTAL

Matthew J. Nelson, P.E.
Project Engineer

Michael P. Purchase, P.E.
Senior Project Manager

Copy: Jeffrey M. Baker, P.E. – Tesoro Companies, Inc.
Colleen Winey – Zone 7 Water Agency

Attachments: Table 1 – Well and Groundwater Elevations
Table 2 – Groundwater Analytical Results
Table 3 – SVE Influent Analytical Results
Table 4 – SVE System Parameters
Table 5 – Oxygen System Monitoring Results
Figure 1 – Site Location Map
Figure 2 – Groundwater Elevation Contours
Figure 3 – TPHg Concentration Contours
Figure 4 – Benzene Concentration Contours
Figure 5 – MTBE Concentration Contours
Figure 6 – Soil Vapor Influent Concentrations
Figure 7 – Mass Removal by Volatilization
Figure 8 – Mass Removal by Biodegradation
Attachment A – Groundwater Sampling Quality Assurance/Quality Control (QA/QC) Procedures
Attachment B – Field Data Sheets
Attachment C – Soil Vapor Sampling QA/QC Procedures
Attachment D – Historical Well and Groundwater Elevations
Attachment E – Historical Groundwater Analytical Results
Attachment F – Laboratory Analytical Reports and Chain-of-Custody Forms
Attachment G – Boring and Well Construction Logs
Attachment H – Drilling and Well Installation QA/QC Procedures
Attachment I – Well Development Log
Attachment J – Waste Manifests

References

Arctos Environmental, 2008. *Interim Remedial Action Plan for Groundwater, 1619 1st Street, Livermore, California, Tesoro Station No. 67076, Former Beacon Station No. 3604, ACEH Case No. RO0434*, 21 March.

Arctos Environmental, 2011. *Membrane Interface Probe Investigation Results and Work Plan for Deep Monitoring Well Installation, 1619 1st Street, Livermore, California, Tesoro No. 67076 (Former Beacon Station No. 3604); ACEH Case No. RO0000434*, 11 March.

TABLE 1

WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
MW-1	5/3/10	31.23	474.29	443.06
	8/2/10	34.56	474.21[(c)]	439.65
	11/2/10	37.04		437.17
	2/1/11	32.51		441.70
	4/25/11	27.73		446.48
MW-2	5/3/10	32.44	472.98	440.54
	8/2/10	35.34		437.64
	11/2/10	38.15		434.83
	2/1/11	33.40		439.58
	4/25/11	28.49		444.49
MW-3	5/3/10	31.39	473.37	441.98
	8/2/10	34.61		438.76
	11/2/10	37.20		436.17
	2/1/11	32.59		440.78
	4/25/11	27.60		445.77
MW-4	5/3/10	31.55	473.64	442.09
	8/2/10	35.15		438.49
	11/2/10	37.55		436.09
	2/1/11	32.86		440.78
	4/25/11	28.69		444.95
MW-5	5/3/10	32.89	472.67	439.78
	8/2/10	36.16		436.51
	11/2/10	38.75		433.92
	2/1/11	32.77		439.90
	4/25/11	29.03		443.64
MW-6	5/3/10	34.56	471.93	437.37
	8/2/10	37.87		434.06
	11/2/10	40.45		431.48
	2/1/11	35.73		436.20
	4/25/11	30.72		441.21
MW-7	5/3/10	31.80	472.33	440.53
	8/2/10	34.31		438.02
	11/2/10	36.68		435.65

TABLE 1

WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
MW-7	2/1/11	32.66	472.33	439.67
(cont.)	4/25/11	27.75		444.58
MW-8	5/3/10	32.81	471.18	438.37
	8/2/10	36.08		435.10
	11/2/10	38.44		432.74
	2/1/11	34.11		437.07
	4/25/11	28.72		442.46
MW-9	5/3/10	34.96	470.78	435.82
	8/2/10	38.00		432.78
	11/2/10	40.30		430.48
	2/1/11	35.97		434.81
	4/25/11	30.64		440.14
MW-10	5/3/10	33.97	471.63	437.66
	8/2/10	36.12		435.51
	11/2/10	38.30		433.33
	2/1/11	34.63		437.00
	4/25/11	29.63		442.00
MW-11	5/3/10	31.36	473.26	441.90
	8/2/10	31.94	472.96[(c)]	441.02
	11/2/10	36.98		435.98
	2/1/11	32.30		440.66
	4/25/11	27.31		445.65
VW-2	5/3/10	31.84	473.28	441.44
	8/2/10	33.15	472.57[(c)]	439.42
	11/2/10	DRY[(d)]		--
	2/1/11	32.80		439.77
	4/25/11	25.43		447.14
VW-3	5/3/10	31.85	474.38	442.53
	8/2/10	34.72		439.66
	11/2/10	DRY		--
	2/1/11	32.56		441.82
	4/25/11	27.81		446.57

TABLE 1

WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
TP-1	5/3/10	32.32	472.82	440.50
	8/2/10	33.96	472.64[(c)]	438.68
	11/2/10	37.46		435.18
	2/1/11	33.01		439.63
	4/25/11	28.23		444.41
TP-2	5/3/10	31.85	472.93	441.08
	8/2/10	33.57	472.78[(c)]	439.21
	11/2/10	37.35		435.43
	2/1/11	32.79		439.99
	4/25/11	28.30		444.48
DW-1	5/3/10	31.70	472.85	441.15
	8/2/10	34.76		438.09
	11/2/10	37.49		435.36
	2/1/11	32.83		440.02
	4/25/11	27.96		444.89
DW-2	5/3/10	34.46	471.61	437.15
	8/2/10	37.72		433.89
	11/2/10	40.50		431.11
	2/1/11	35.66		435.95
	4/25/11	30.69		440.92
DW-3	5/3/10	34.51	470.33	435.82
	8/2/10	35.59		434.74
	11/2/10	40.00		430.33
	2/1/11	35.50		434.83
	4/25/11	30.45		439.88
DW-4	5/3/10	34.04	468.48	434.44
	8/2/10	36.94		431.54
	11/2/10	39.50		428.98
	2/1/11	35.11		433.37
	4/25/11	30.12		438.36
DW-5	5/3/10	34.55	471.86	437.31
	8/2/10	37.56		434.30
	11/2/10	40.00		431.86

TABLE 1

WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
DW-5	2/1/11	35.57	471.86	436.29
(cont.)	4/25/11	30.59		441.27
DW-6	5/3/10	35.15	471.77	436.62
	8/2/10	38.35		433.42
	11/2/10	40.09		431.68
	2/1/11	36.35		435.42
	4/25/11	31.32		440.45
DW-7	5/3/10	34.64	470.07	435.43
	8/2/10	37.82		432.25
	11/2/10	40.42		429.65
	2/1/11	35.76		434.31
	4/25/11	30.82		439.25
DW-8	4/25/11	27.23	472.31	445.08

(a) Elevation of PVC well casing (north edge) surveyed relative to mean sea level (MSL).
Wells were surveyed by Cross Land Surveying, Inc., per AB 2886 requirements.
Benchmark K2-741, elevation is 467.835 feet above MSL.

(b) Water Table Elevation = (Casing Elevation - Depth to Water)

(c) Wells were resurveyed by Cross Land Surveying, Inc., per AB 2886 requirements, on 19 October 2010 after remediation system construction.
Benchmark K2-741, elevation is 467.835 feet above MSL.

(d) Depth of groundwater assumed to be below screened interval; well had 6 inches or less of water.

TABLE 2

GROUNDWATER ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date	TPHg[a] (µg/l)	Benzene[a] (µg/l)	Toluene[a] (µg/l)	Ethylbenzene[a] (µg/l)	Total Xylenes[a] (µg/l)	MTBE[a] (µg/l)	DIPE[a] (µg/l)	ETBE[a] (µg/l)	TAME[a] (µg/l)	TBA[a] (µg/l)	Methanol[a] (µg/l)	Ethanol[a] (µg/l)	1,2-DCA[a] (µg/l)	EDB[a] (µg/l)
MW-1	5/5/10	710	2.2	0.92	5.9	2.8	ND<0.5[b]	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/3/10	1,200	2.4	3.7	22	23	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/3/10	1,100	7.3	34	18	67	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/1/11	200	ND<0.5	ND<0.5	0.81	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	4/25/11	130	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-2	5/3/10	26,000	3,100	870	1,100	2,200	530	ND<7	ND<7	8.0	370	ND<700	ND<70	ND<7	ND<7
	8/3/10	19,000	2,000	150	840	730	280	ND<4	ND<4	4.4	200	ND<400	ND<40	ND<4	ND<4
	11/4/10	13,000	2,000	160	420	390	540	ND<4	ND<4	5.7	510	ND<400	ND<40	ND<4	ND<4
	2/2/11	10,000	1,600	130	320	410	410	ND<4	ND<4	4.2	410	ND<400	ND<40	ND<4	ND<4
	4/28/11	13,000	1,400	100	470	670	450	ND<2.5	ND<2.5	4.6	200	ND<250	ND<50	ND<2.5	ND<2.5
MW-3	5/6/10	ND<50	ND<0.5	1.0	ND<0.5	0.95	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/3/10	74	2.4	5.5	0.96	8.8	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/3/10	ND<50	ND<0.5	2.5	ND<0.5	3.8	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/1/11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	4/25/11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-4	5/4/10	ND<50	2.4	1.8	2.3	4.8	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/2/10	NS[c]	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/3/10	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/1/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/26/11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-5	5/6/10	220	ND<0.5	ND<0.5	2.2	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/2/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/3/10	100	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/1/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/25/11	190	ND<0.5	ND<0.5	0.80	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-6	5/4/10	17,000	2,100	120	780	260	820	ND<5	ND<5	8.6	450	ND<500	ND<50	ND<5	ND<5
	8/3/10	21,000	2,700	120	690	250	730	ND<5	ND<5	7.4	480	ND<500	ND<50	ND<5	ND<5

TABLE 2

GROUNDWATER ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date	TPHg[(a)] (µg/l)	Benzene[(a)] (µg/l)	Toluene[(a)] (µg/l)	Ethylbenzene[(a)] (µg/l)	Total Xylenes[(a)] (µg/l)	MTBE[(a)] (µg/l)	DIPE[(a)] (µg/l)	ETBE[(a)] (µg/l)	TAME[(a)] (µg/l)	TBA[(a)] (µg/l)	Methanol[(a)] (µg/l)	Ethanol[(a)] (µg/l)	1,2-DCA[(a)] (µg/l)	EDB[(a)] (µg/l)
MW-6	11/2/10	12,000	1,600	57	410	120	240	ND<2.5	ND<2.5	2.7	160	ND<250	ND<25	ND<2.5	ND<2.5
(cont.)	2/2/11	15,000	1,600	89	460	150	350	ND<2.5	ND<2.5	3.7	310	ND<250	ND<25	ND<2.5	ND<2.5
	4/27/11	8,500	870	28	180	67	1,200	ND<2.5	ND<2.5	10	1,100	ND<250	ND<25	ND<2.5	ND<2.5
MW-7	5/6/10	3,600	7.9	3.6	14	6.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<8	ND<0.5	ND<0.5
	8/2/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/3/10	2,100	4.6	1.3	16	3.3	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/1/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/26/11	1,200	3.3	0.59	1.6	1.3	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-8	5/6/10	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/2/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/3/10	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/1/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/25/11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-9	5/4/10	2,700	120	7.0	35	14	44	ND<0.5	ND<0.5	0.52	31	ND<200	ND<5	ND<0.5	ND<0.5
	8/2/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/3/10	430	1.1	ND<0.5	ND<0.5	ND<0.5	4.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/1/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/26/11	1,300	14	ND<0.5	2.8	0.71	23	ND<0.5	ND<0.5	ND<0.5	26	ND<50	ND<5	ND<0.5	ND<0.5
MW-10	5/6/10	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/2/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/2/10	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/1/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/25/11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-11	5/3/10	62,000	3,600	5,900	2,600	12,000	ND<15	ND<15	ND<15	ND<15	ND<70	ND<1,500	ND<150	ND<15	ND<15
	8/3/10	53,000	2,800	3,800	2,100	10,000	ND<15	ND<15	ND<15	ND<15	ND<70	ND<1,500	ND<150	ND<15	ND<15
	11/4/10	59,000	2,100	5,400	1,400	12,000	ND<15	ND<15	ND<15	ND<15	ND<70	ND<1,500	ND<150	ND<15	ND<15

TABLE 2

GROUNDWATER ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date	TPHg[(a)] (µg/l)	Benzene[(a)] (µg/l)	Toluene[(a)] (µg/l)	Ethylbenzene[(a)] (µg/l)	Total Xylenes[(a)] (µg/l)	MTBE[(a)] (µg/l)	DIPE[(a)] (µg/l)	ETBE[(a)] (µg/l)	TAME[(a)] (µg/l)	TBA[(a)] (µg/l)	Methanol[(a)] (µg/l)	Ethanol[(a)] (µg/l)	1,2-DCA[(a)] (µg/l)	EDB[(a)] (µg/l)
MW-11	2/2/11	20,000	210	610	560	3,600	ND<5	ND<5	ND<5	ND<5	38	ND<500	ND<50	ND<5	ND<5
(cont.)	4/28/11	20,000	300	920	450	4,300	ND<5	ND<5	ND<5	ND<5	ND<25	ND<500	ND<50	ND<5	ND<5
VW-2	5/5/10	2,800	130	6.1	170	130	1,300	ND<2.5	ND<2.5	12	1,700	ND<250	ND<25	ND<2.5	ND<2.5
	8/2/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/4/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/1/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/28/11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
VW-3	5/6/10	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/2/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/4/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/1/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/25/11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
TP-1	5/5/10	15,000	2,100	360	1,100	620	3,400	ND<8	ND<8	27	4,500	ND<800	ND<80	ND<8	ND<8
	8/2/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/3/10	14,000	1,000	270	280	1,600	4,500	ND<8	ND<8	28	4,800	ND<800	ND<80	ND<8	ND<8
	2/1/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/28/11	6,600	350	64	170	730	2,600	ND<5	ND<5	15	1,400	ND<500	ND<50	ND<5	ND<5
TP-2	5/6/10	6,400	740	ND<25	450	130	14,000	ND<25	ND<25	130	9,900	ND<2,500	ND<250	ND<25	ND<25
	8/2/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/4/10	4,900	230	82	150	630	980	ND<5	ND<5	6.3	14,000	ND<500	ND<50	ND<5	ND<5
	2/1/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/28/11	130	1.6	ND<0.5	1.5	5.2	350	ND<0.5	ND<0.5	1.3	630	ND<50	ND<5	ND<0.5	ND<0.5
DW-1	5/4/10	1,800	160	27	110	140	21	ND<0.5	ND<0.5	ND<0.5	41	ND<100	ND<5	ND<0.5	ND<0.5
	8/2/10	1,400	53	11	67	78	8.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/4/10	ND<50	0.9	ND<0.5	0.7	1.3	0.54	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/2/11	58	1.9	ND<0.5	2.0	2.5	0.52	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	4/28/11	72	2.2	5.7	2.0	9.3	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5

TABLE 2

GROUNDWATER ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date	TPHg[(a)] (µg/l)	Benzene[(a)] (µg/l)	Toluene[(a)] (µg/l)	Ethylbenzene[(a)] (µg/l)	Total Xylenes[(a)] (µg/l)	MTBE[(a)] (µg/l)	DIPE[(a)] (µg/l)	ETBE[(a)] (µg/l)	TAME[(a)] (µg/l)	TBA[(a)] (µg/l)	Methanol[(a)] (µg/l)	Ethanol[(a)] (µg/l)	1,2-DCA[(a)] (µg/l)	EDB[(a)] (µg/l)
DW-2	5/4/10	2,300	110	7.1	17	16	350	ND<0.9	ND<0.9	4.1	550	ND<200	ND<9	ND<0.9	ND<0.9
	8/2/10	3,800	420	22	21	28	300	ND<0.9	ND<0.9	3.5	600	ND<300	ND<20	ND<0.9	ND<0.9
	11/2/10	2,600	230	7.0	11	4.0	300	ND<0.5	ND<0.5	3.3	660	ND<300	ND<8	ND<0.5	ND<0.5
	2/1/11	3,300	220	6.8	18	10	210	ND<0.5	ND<0.5	2.7	620	ND<300	ND<5	ND<0.5	ND<0.5
	4/27/11	1,900	78	2.6	2.6	5.6	200	ND<0.5	ND<0.5	2.2	590	ND<300	ND<5	ND<0.5	ND<0.5
DW-3	5/4/10	420	5.5	0.93	8.8	3.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<80	ND<5	ND<0.5	ND<0.5
	8/2/10	640	4.0	ND<0.5	5.3	3.9	0.59	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/3/10	170	0.85	ND<0.5	ND<0.5	0.59	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/1/11	60	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	4/27/11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
DW-4	5/6/10	180	3.3	3.7	13	20	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/2/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/3/10	ND<50	0.7	4.0	0.59	5.9	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/1/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/26/11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
DW-5	5/4/10	2,100	69	2.9	41	18	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<80	ND<8	ND<0.5	ND<0.5
	8/2/10	12,000	240	9.4	350	280	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<10	ND<0.5	ND<0.5
	11/2/10	5,000	120	3.6	68	35	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<8	ND<0.5	ND<0.5
	2/1/11	3,800	70	2.5	37	18	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	4/27/11	710	8.0	ND<0.5	4.3	2.1	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
DW-6	5/4/10	4,600	13	3.5	29	17	5.6	ND<0.5	ND<0.5	ND<0.5	7.2	ND<80	ND<8	ND<0.5	ND<0.5
	8/2/10	4,500	13	4.4	54	14	5.9	ND<0.5	ND<0.5	ND<0.5	12	ND<50	ND<8	ND<0.5	ND<0.5
	11/2/10	5,200	20	4.2	47	13	8.9	ND<0.9	ND<0.9	ND<0.9	26	ND<90	ND<9	ND<0.9	ND<0.9
	2/1/11	4,000	11	2.9	32	11	6.0	ND<0.5	ND<0.5	ND<0.5	16	ND<50	ND<5	ND<0.5	ND<0.5
	4/27/11	3,100	8.8	2.4	12	8.2	6.2	ND<0.5	ND<0.5	ND<0.5	19	ND<50	ND<8	ND<0.5	ND<0.5
DW-7	5/4/10	4,100	250	15	89	32	97	ND<0.5	ND<0.5	1.0	160	ND<80	ND<5	ND<0.5	ND<0.5
	8/3/10	3,500	280	13	49	30	130	ND<0.5	ND<0.5	1.3	220	ND<50	ND<5	ND<0.5	ND<0.5

TABLE 2

GROUNDWATER ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date	TPHg[(a)] (µg/l)	Benzene[(a)] (µg/l)	Toluene[(a)] (µg/l)	Ethylbenzene[(a)] (µg/l)	Total Xylenes[(a)] (µg/l)	MTBE[(a)] (µg/l)	DIPE[(a)] (µg/l)	ETBE[(a)] (µg/l)	TAME[(a)] (µg/l)	TBA[(a)] (µg/l)	Methanol[(a)] (µg/l)	Ethanol[(a)] (µg/l)	1,2-DCA[(a)] (µg/l)	EDB[(a)] (µg/l)
DW-7	11/4/10	660	30	1.2	5.0	3.3	130	ND<0.5	ND<0.5	1.2	220	ND<50	ND<5	ND<0.5	ND<0.5
(cont.)	2/2/11	760	43	1.8	9.4	4.0	91	ND<0.5	ND<0.5	0.76	160	ND<50	ND<5	ND<0.5	ND<0.5
	4/27/11	1,600	120	4.6	4.2	6.7	95	ND<0.5	ND<0.5	1.0	170	ND<200	ND<5	ND<0.5	ND<0.5
DW-8	4/28/11	72,000	5,200	10,000	1,900	12,000	ND<10	ND<10	ND<10	ND<10	56	ND<1,000	ND<100	ND<10	ND<10

(a) Total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, xylenes, methyl tert-butyl ether (MTBE), di-isopropyl ether (DIPE), ethyl tert-butyl ether (ETBE), tert-amyl methyl ether (TAME), tert-butyl alcohol (TBA), methanol, ethanol, 1,2-dichloroethane (1,2-DCA), and 1,2-dibromoethane (EDB) analyzed by EPA Method 8260; reported in micrograms per liter (µg/l).

(b) ND - Not detected at the reporting limit listed.

(c) NS - Not sampled.

TABLE 3

SVE INFLUENT ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Sample ID	Date	TPHg[a] (ppmv)	Benzene[a] (ppmv)	Toluene[a] (ppmv)	Ethylbenzene[a] (ppmv)	Xylenes[a] (ppmv)	MTBE[a] (ppmv)	Methane[b] (%)	Carbon Dioxide[b] (%)	Carbon Monoxide[b] (%)	Oxygen[b] (%)	Nitrogen[b] (%)
SVE-Influent-0	6/29/10	5,300	16	20	45	110	75	--[c]	--	--	--	--
SVE-Influent-1	6/29/10	4,700	15	12	36	90	58	0.58	3.6	ND<0.5[d]	16.4	79.4
SVE-Influent	6/30/10	3,200	12	20	30	76	60	--	--	--	--	--
SVE-Influent	7/1/10	3,400	12	22	34	84	68	ND<0.5	4.0	ND<0.5	15.9	80.1
SVE-Influent	7/6/10	4,000	9.4	24	36	92	87	ND<0.5	4.3	ND<0.5	16.1	79.5
SVE-Influent	7/8/10	7,500	14	25	44	110	87	ND<0.5	5.3	ND<0.5	13.5	81.0
SVE-Influent	7/14/10	4,200	7.0	22	29	82	50	ND<0.5	5.5	ND<0.5	15.5	78.9
SVE-Influent	7/28/10	3,000	3.5	15	20	64	34	ND<0.5	4.0	ND<0.5	17.4	78.6
SVE-Manifold	8/5/10	4,800	4.4	12	20	66	28	ND<0.5	5.3	ND<0.5	12.1	82.4
SVE-Manifold	8/18/10	4,300	4.3	12	19	72	29	ND<0.5	5.2	ND<0.5	13.2	81.5
SVE-Manifold	9/7/10	1,100	2.2	6.2	4.8	26	10	ND<0.5	4.1	ND<0.5	17.6	78.3
SVE-Manifold	9/16/10	1,600	3.2	8.3	7.6	44	13	ND<0.5	4.0	ND<0.5	17.6	78.4
SVE-Manifold	9/29/10	1,800	2.8	5.6	6.1	34	12	ND<0.5	3.6	ND<0.5	15.4	81.0
SVE-Manifold	10/7/10	2,100	6.1	8.8	7.3	36	11	ND<0.5	3.6	ND<0.5	18.1	78.2
SVE-Manifold	10/13/10	2,100	7.8	10	6.1	32	8.9	ND<0.5	3.4	ND<0.5	16.8	79.7
SVE-Manifold	12/8/10	2,500	2.6	6.4	4.8	28	5.4	ND<0.5	4.7	ND<0.5	23.8	71.4
SVE-Manifold	12/14/10	1,700	2.1	5.4	5.2	30	4.9	ND<0.5	4.1	ND<0.5	18.3	77.6
SVE-Manifold	12/21/10	640	0.9	4.1	3.9	26	3.8	ND<0.5	2.2	ND<0.5	20.1	77.7
SVE-Manifold	12/29/10	150	ND<0.05	ND<0.05	ND<0.05	0.09	ND<0.05	ND<0.5	2.3	ND<0.5	19.2	78.4
SVE-Manifold	1/12/11	280	ND<0.05	ND<0.05	ND<0.05	0.09	--	ND<0.5	3.5	ND<0.5	18.5	77.9
SVE-Manifold	3/4/11	620	ND<0.1	ND<0.09	ND<0.08	0.1	--	ND<0.5	5.1	ND<0.5	46.6	48.3
SVE-Manifold	3/9/11	440	ND<0.1	ND<0.09	ND<0.08	ND<0.08	ND<0.1	ND<0.5	4.2	ND<0.5	24.6	71.2

TABLE 3

SVE INFLUENT ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Sample ID	Date	TPHg[(a)] (ppmv)	Benzene[(a)] (ppmv)	Toluene[(a)] (ppmv)	Ethylbenzene[(a)] (ppmv)	Xylenes[(a)] (ppmv)	MTBE[(a)] (ppmv)	Methane[(b)] (%)	Carbon Dioxide[(b)] (%)	Carbon Monoxide[(b)] (%)	Oxygen[(b)] (%)	Nitrogen[(b)] (%)
SVE-Manifold	3/30/11	5.2	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.1	ND<0.5	3.3	ND<0.5	22.9	73.8
SVE-Manifold	4/19/11	38	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.1	ND<0.5	4.6	ND<0.5	18.9	76.5
SVE-Manifold	4/28/11	150	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.1	ND<0.5	4.8	ND<0.5	17.5	77.6
SVE-Manifold	5/12/11	280	ND<0.06	ND<0.05	ND<0.05	ND<0.05	ND<0.1	ND<0.5	4.7	ND<0.5	17.2	78.1
SVE-Manifold	5/25/11	330	0.2	0.1	ND<0.05	0.10	ND<0.1	ND<0.5	5.1	ND<0.5	16.4	78.5
SVE-Manifold	6/8/11	340	0.1	ND<0.05	ND<0.05	0.084	ND<0.1	ND<0.5	4.5	ND<0.5	15.9	79.6
SVE-Manifold	6/16/11	370	0.1	0.1	0.1	0.15	ND<0.1	ND<0.5	5.3	ND<0.5	15.0	79.7
SVE-Manifold	6/16/11	360	0.2	ND<0.07	ND<0.06	0.13	ND<0.1	ND<0.5	5.3	ND<0.5	15.0	79.7
SVE-Manifold	6/16/11	370	0.2	0.1	0.1	0.18	ND<0.1	ND<0.5	4.8	ND<0.5	15.6	79.6
SVE-Manifold	6/27/11	310	0.2	0.1	ND<0.05	0.18	ND<0.1	ND<0.5	4.7	ND<0.5	16.5	78.9

(a) Total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, xylenes, and methyl tert-butyl ether (MTBE), analyzed by EPA Method 8260; reported in parts per million by volume (ppmv).

(b) Fixed gases analyzed by Method ASTM D-1946; reported in percent (%)

(c) "--" - Not analyzed.

(d) ND - Not detected at the reporting limit listed.

TABLE 4

SVE SYSTEM PARAMETERS
TESORO - LIVERMORE, 67076

Influent Sample Number	Sample Date	Hours of Operation (hours)	Days of Operation (Days)	TPHg Concentration (ppmv)	Differential Pressure (in. wc)	Temp (^oF)	Vacuum (in. Hg)	Standard Flow (scfm)	Volatilization	Biological	
									Mass Removal Rate (lbs/day)	Concentration of Oxygen (%)	Mass Removal Rate (lbs/day)
1	6/29/10	8.7	0.4	5,300	--[a]	--	1.5	63[b]	124	--	NA[c]
2	6/29/10	12.9	0.5	4,700	--	--	1.25	63[b]	110	16.4	119
3	6/30/10	31	1	3,200	0.03	71	1.5	63[b]	75	--	NA
4	7/1/10	56	2	3,400	0.05	72	1.5	63[b]	80	15.9	130
5	7/6/10	175	7	4,000	0.04	69	1.5	63[b]	94	16.1	126
6	7/8/10	200	8	7,500	0.03	73	1.5	63[b]	176	13.5	182
7	7/14/10	343	14	4,200	1.25	90.0	1.5	81	127	15.5	179
8	7/28/10	625	26	3,000	0.62	68.0	1.5	59	65	17.4	91
9	8/5/10	793	33	4,800	0.73	68	1.0	65	115	12.1	218
10	8/18/10	985	41	4,300	0.64	71	1.0	60	97	13.2	181
11	9/7/10	1,309	55	1,100	2.05	75	1.6	106	43	17.6	156
12	9/16/10	1,473	61	1,600	0.81	76	1.4	67	40	17.6	99
13	9/29/10	1,628	68	1,800	0.08	89	1.5	21	14	15.4	46
14	10/7/10	1,821	76	2,100	0.26	69	1.5	38	30	18.1	50
15	10/13/10	1,866	78	2,100	0.09	76	3.3	21	16	16.8	36
16	12/8/10	1,912	80	2,500	1.02	53	2.4	74	69	23.8	0
17	12/14/10	2,051	85	1,700	1.45	58	2.1	89	56	18.3	110
18	12/21/10	2,221	93	640	0.78	59	2.1	65	15	20.1	40
19	12/29/10[d]	2,412	101	150	0.35	49	4.1	41	2.3	19.2	38
20	1/12/11	2,748	115	280	--	54	4.2	14[e]	1.5	18.5	16
21	3/4/11	2,922	122	620	--	63	5.9	15	3.5	46.6	0
22	3/9/11	3,040	127	440	--	68	2.4	13	2.1	24.6	0

TABLE 4

SVE SYSTEM PARAMETERS
TESORO - LIVERMORE, 67076

Influent Sample Number	Sample Date	Hours of Operation (hours)	Days of Operation (Days)	TPHg Concentration (ppmv)	Differential Pressure (in. wc)	Temp (^oF)	Vacuum (in. Hg)	Standard Flow (scfm)	Volatilization	Biological	
									Mass Removal Rate (lbs/day)	Concentration of Oxygen (%)	Mass Removal Rate (lbs/day)
23	3/30/11	3,539	147	5.2	--	55	2.4	12	0.02	22.9	0
24	4/19/11	4,020	168	38	--	63	2.3	12	0.2	18.9	14
25	4/28/11	4,238	177	150	--	65	2.3	15	0.9	17.5	21
26	5/12/11	4,570	190	280	--	60	2.4	14	1.5	17.2	23
27	5/25/11	4,885	204	330	--	66	2.4	11	1.4	16.4	27
28	6/8/11	5,219	217	340	--	64	2.4	9	1.2	15.9	29
29	6/16/11	5,410	225	370	--	68	2.4	9	1.2	15.0	33
30	6/16/11	5,412	225	360	--	73	4.1	15	2.0	15.0	33
31	6/16/11	5,416	226	370	--	83	4.0	13	1.7	15.6	30
32	6/27/11	5,676	237	310	--	71	4.0	16	1.8	16.5	26

(a) "--" not sampled, analyzed, or collected.

(b) An average flow rate was used due to inaccurate system parameter readings.

(c) NA - not applicable.

TABLE 5

OXYGEN SYSTEM MONITORING RESULTS
TESORO - LIVERMORE, 67076

Well	Date	Dissolved Oxygen[(a)] (mg/l)	Oxygen Purity[(b)] (%)
IP-1	10/15/2010	0.03	NM[(c)]
	10/18/2010	NM	NM
	10/22/2010	9.96	NM
	10/25/2010	41.75	82.2
	11/1/2010	51.19	77.7
	12/9/2010	24.66	51.3
	12/14/2010	23.67	53.3
	12/23/2010	28.27	58.1
	1/5/2011	29.06	52.0
	1/18/2011	0	0.0
	2/1/2011	0.25	88.9
	3/4/2011	15.02	90.4
	4/8/2011	0.12	49.8
	5/3/2011	0.01	88.0
	6/27/2011	0.01	0.0
	6/28/2011	0.24	91.3
	6/30/2011	0.08	94.3
	7/5/2011	0.13	94.5
	7/7/2011	0.01	94.2
IP-2	10/15/2010	0.03	NM
	10/18/2010	NM	NM
	10/22/2010	0.05	NM
	10/25/2010	0.29	82.2
	11/1/2010	0.02	77.7
	12/9/2010	0.46	51.3
	12/14/2010	0.84	53.3
	12/23/2010	0.41	58.1
	1/5/2011	NM	52.0
	1/18/2011	2.01	0.0
	2/1/2011	2.09	88.9
	3/4/2011	1.45	90.4
	4/8/2011	3.38	49.8
	5/3/2011	0.47	88.0
	6/27/2011	0.01	0.0

TABLE 5

OXYGEN SYSTEM MONITORING RESULTS
TESORO - LIVERMORE, 67076

Well	Date	Dissolved Oxygen[(a)] (mg/l)	Oxygen Purity[(b)] (%)
IP-2	6/28/2011	25.05	91.3
(cont.)	6/30/2011	NM	94.3
	7/5/2011	NM	94.5
	7/7/2011	NM	94.2
IP-3	10/15/2010	0.06	NM
	10/18/2010	NM	NM
	10/22/2010	NM	NM
	10/25/2010	NM	82.2
	11/1/2010	0.12	77.7
	12/9/2010	0.15	51.3
	12/14/2010	0.19	53.3
	12/23/2010	0.33	58.1
	1/5/2011	0.66	52.0
	1/18/2011	0.08	0.0
	2/1/2011	15.12	88.9
	3/4/2011	14.61	90.4
	4/8/2011	20.46	49.8
	5/3/2011	5.59	88.0
	6/27/2011	0.01	0.0
	6/28/2011	0.96	91.3
	6/30/2011	0.67	94.3
	7/5/2011	0.55	94.5
	7/7/2011	1.32	94.2
IP-4	10/15/2010	0.01	NM
	10/18/2010	NM	NM
	10/22/2010	0.04	NM
	10/25/2010	0.14	82.2
	11/1/2010	0.15	77.7
	12/9/2010	0.09	51.3
	12/14/2010	0.01	53.3
	12/23/2010	0.03	58.1
	1/5/2011	0.02	52.0
	1/18/2011	1.04	0.0
	2/1/2011	1.25	88.9
	3/4/2011	0.18	90.4

TABLE 5

OXYGEN SYSTEM MONITORING RESULTS
TESORO - LIVERMORE, 67076

Well	Date	Dissolved Oxygen[(a)] (mg/l)	Oxygen Purity[(b)] (%)
IP-4	4/8/2011	1.02	49.8
(cont.)	5/3/2011	13.77	88.0
	6/27/2011	1.33	0.0
	6/28/2011	7.11	91.3
	6/30/2011	NM	94.3
	7/5/2011	NM	94.5
	7/7/2011	NM	94.2
IP-5	10/15/2010	0.02	NM
	10/18/2010	NM	NM
	10/22/2010	0.04	NM
	10/25/2010	0.09	82.2
	11/1/2010	0.02	77.7
	12/9/2010	0.21	51.3
	12/14/2010	0.01	53.3
	12/23/2010	0.07	58.1
	1/5/2011	NM	52.0
	1/18/2011	0.72	0.0
	2/1/2011	0.77	88.9
	3/4/2011	50.28	90.4
	4/8/2011	25.82	49.8
	5/3/2011	19.23	88.0
	6/27/2011	0.03	0.0
	6/28/2011	38.65	91.3
	6/30/2011	30.79	94.3
	7/5/2011	41.81	94.5
	7/7/2011	42.53	94.2
IP-6	10/15/2010	0.25	NM
	10/18/2010	NM	NM
	10/22/2010	0.27	NM
	10/25/2010	0.44	82.2
	11/1/2010	11.22	77.7
	12/9/2010	12.55	51.3
	12/14/2010	12.79	53.3

TABLE 5

OXYGEN SYSTEM MONITORING RESULTS
TESORO - LIVERMORE, 67076

Well	Date	Dissolved Oxygen[(a)] (mg/l)	Oxygen Purity[(b)] (%)
IP-6	12/23/2010	12.82	58.1
(cont.)	1/5/2011	14.3	52
	1/18/2011	5.19	0.0
	2/1/2011	15.94	88.9
	3/4/2011	10.31	90.4
	4/8/2011	13.22	49.8
	5/3/2011	9.97	88.0
	6/27/2011	4.88	0.0
	6/28/2011	3.65	91.3
	6/30/2011	NM	94.3
	7/5/2011	NM	94.5
	7/7/2011	NM	94.2
IP-7	10/15/2010	0.01	NM
	10/18/2010	NM	NM
	10/22/2010	0.13	NM
	10/25/2010	0.17	82.2
	11/1/2010	0.34	77.7
	12/9/2010	5.75	51.3
	12/14/2010	4.72	53.3
	12/23/2010	6.29	58.1
	1/5/2011	5.75	52.0
	1/18/2011	0.14	0.0
	2/1/2011	32.69	88.9
	3/4/2011	10.22	90.4
	4/8/2011	2.58	49.8
	5/3/2011	0.75	88.0
	6/27/2011	0.26	0.0
	6/28/2011	0.26	91.3
	6/30/2011	NM	94.3
	7/5/2011	NM	94.5
	7/7/2011	NM	94.2
IP-8	10/15/2010	0.02	NM
	10/18/2010	NM	NM
	10/22/2010	0.27	NM
	10/25/2010	0.21	82.2

TABLE 5

OXYGEN SYSTEM MONITORING RESULTS
TESORO - LIVERMORE, 67076

Well	Date	Dissolved Oxygen[(a)] (mg/l)	Oxygen Purity[(b)] (%)
IP-8	11/1/2010	NM	77.7
(cont.)	12/9/2010	NM	51.3
	12/14/2010	NM	53.3
	12/23/2010	NM	58.1
	1/5/2011	NM	52.0
	1/18/2011	NM	0.0
	2/1/2011	NM	88.9
	3/4/2011	NM	90.4
	4/8/2011	24.74	49.8
	5/3/2011	5.15	88.0
	6/27/2011	0.01	0.0
	6/28/2011	21.98	91.3
	6/30/2011	NM	94.3
	7/5/2011	NM	94.5
	7/7/2011	NM	94.2
IP-9	10/15/2010	0.01	NM
	10/18/2010	NM	NM
	10/22/2010	11.27	NM
	10/25/2010	18.36	82.2
	11/1/2010	18.96	77.7
	12/9/2010	31.42	51.3
	12/14/2010	33.16	53.3
	12/23/2010	31.77	58.1
	1/5/2011	35.3	52.0
	1/18/2011	0	0.0
	2/1/2011	0.65	88.9
	3/4/2011	0.45	90.4
	4/8/2011	0.42	49.8
	5/3/2011	0.55	88.0
	6/27/2011	0.01	0.0
	6/28/2011	NM	91.3
	6/30/2011	27.14	94.3

TABLE 5

OXYGEN SYSTEM MONITORING RESULTS
TESORO - LIVERMORE, 67076

Well	Date	Dissolved Oxygen[(a)] (mg/l)	Oxygen Purity[(b)] (%)
IP-9	7/5/2011	23.48	94.5
(cont.)	7/7/2011	22.62	94.2
IP-10	10/15/2010	0.11	NM
	10/18/2010	NM	NM
	10/22/2010	0.07	NM
	10/25/2010	5.33	82.2
	11/1/2010	8.48	77.7
	12/9/2010	0.25	51.3
	12/14/2010	0.3	53.3
	12/23/2010	0.04	58.1
	1/5/2011	0.01	52.0
	1/18/2011	0	0.0
	2/1/2011	0.18	88.9
	3/4/2011	0.04	90.4
	4/8/2011	26.54	49.8
	5/3/2011	4.45	88.0
	6/27/2011	0.04	0.0
	6/28/2011	10.08	91.3
	6/30/2011	NM	94.3
	7/5/2011	NM	94.5
	7/7/2011	NM	94.2
MW-1	10/15/2010	0.11	NM
	10/18/2010	NM	NM
	10/22/2010	0.31	NM
	10/25/2010	0.35	82.2
	11/1/2010	1.79	77.7
	12/9/2010	0.21	51.3
	12/14/2010	0.01	53.3
	12/23/2010	0.01	58.1
	1/5/2011	0	52.0
	1/18/2011	0	0.0
	2/1/2011	0.66	88.9
	3/4/2011	NM	90.4
	4/8/2011	10.53	49.8

TABLE 5

OXYGEN SYSTEM MONITORING RESULTS
TESORO - LIVERMORE, 67076

Well	Date	Dissolved Oxygen[(a)] (mg/l)	Oxygen Purity[(b)] (%)
MW-1	5/3/2011	10.43	88
(cont.)	6/27/2011	0.71	0.0
	6/28/2011	NM	91.3
	6/30/2011	NM	94.3
	7/5/2011	NM	94.5
	7/7/2011	NM	94.2
MW-2	10/15/2010	0.02	NM
	10/18/2010	NM	NM
	10/22/2010	0.15	NM
	10/25/2010	0.04	82.2
	11/1/2010	0.08	77.7
	12/9/2010	0.03	51.3
	12/14/2010	0.21	53.3
	12/23/2010	0.01	58.1
	1/5/2011	0.06	52.0
	1/18/2011	0	0.0
	2/1/2011	0.15	88.9
	3/4/2011	0.44	90.4
	4/8/2011	0.06	49.8
	5/3/2011	0.01	88.0
	6/27/2011	0.02	0.0
	6/28/2011	NM	91.3
	6/30/2011	0.04	94.3
	7/5/2011	0.01	94.5
	7/7/2011	0.07	94.2
MW-11	10/15/2010	0.04	NM
	10/18/2010	NM	NM
	10/22/2010	29.48	NM
	10/25/2010	29.78	82.2
	11/1/2010	32.42	77.7
	12/9/2010	5.07	51.3
	12/14/2010	13.39	53.3
	12/23/2010	11.87	58.1
	1/5/2011	11.42	52.0
	1/18/2011	0	0.0

TABLE 5

OXYGEN SYSTEM MONITORING RESULTS
TESORO - LIVERMORE, 67076

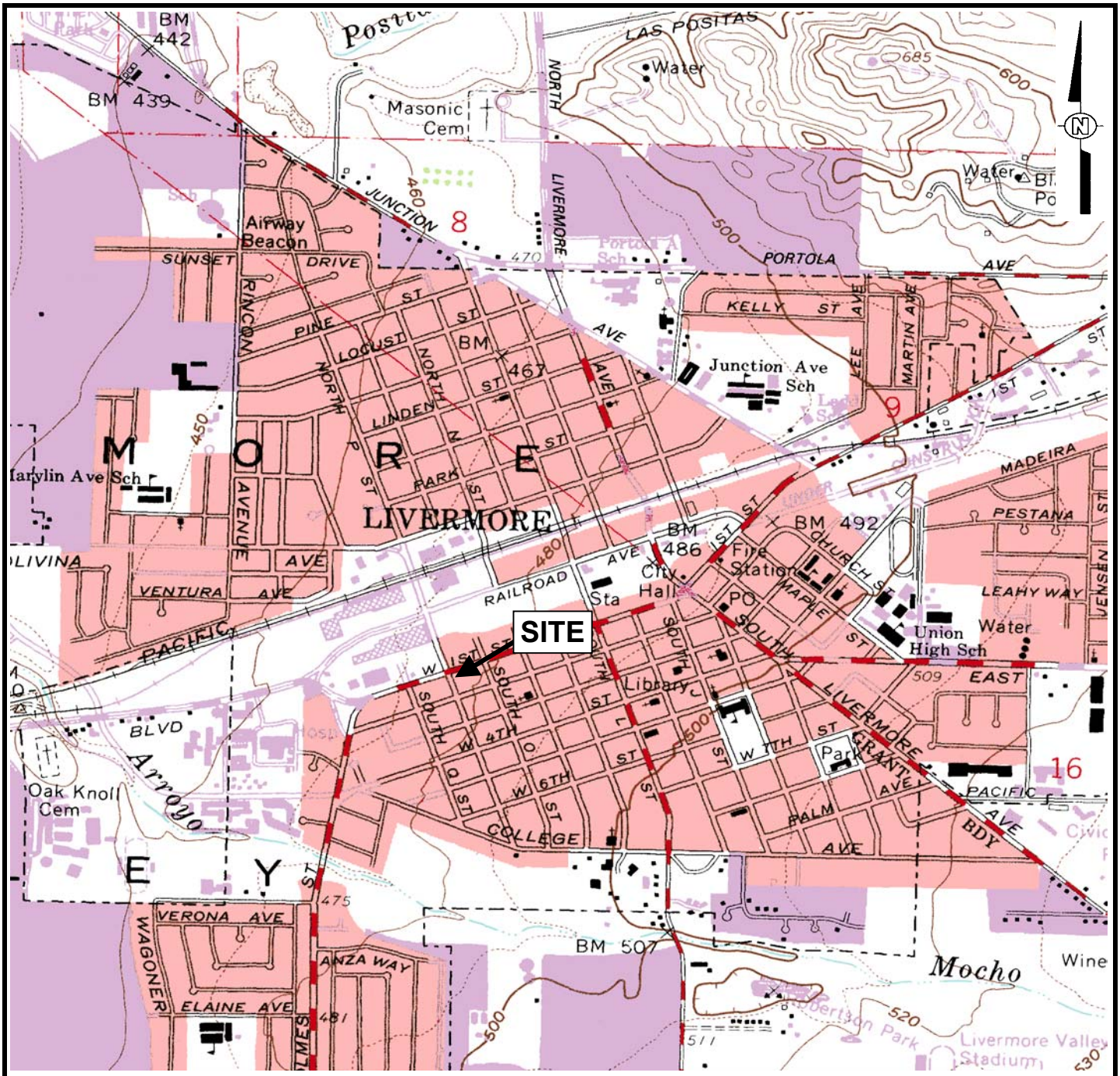
Well	Date	Dissolved Oxygen[(a)] (mg/l)	Oxygen Purity[(b)] (%)
MW-11	2/1/2011	1.18	88.9
(cont.)	3/4/2011	0.23	90.4
	4/8/2011	16.87	49.8
	5/3/2011	12.14	88.0
	6/27/2011	0.01	0.0
	6/28/2011	36.72	91.3
	6/30/2011	32.83	94.3
	7/5/2011	33.76	94.5
	7/7/2011	33.91	94.2
DW-1	10/15/2010	0.03	NM
	10/18/2010	NM	NM
	10/22/2010	NM	NM
	10/25/2010	NM	82.2
	11/1/2010	0.03	77.7
	12/9/2010	10.38	51.3
	12/14/2010	9.93	53.3
	12/23/2010	7.14	58.1
	1/5/2011	15.77	52.0
	1/18/2011	11.58	0.0
	2/1/2011	24.42	88.9
	3/4/2011	28.71	90.4
	4/8/2011	19.81	49.8
	5/3/2011	0.01	88.0
	6/27/2011	0.02	0.0
	6/28/2011	0.24	91.3
	6/30/2011	0.05	94.3
	7/5/2011	0.08	94.5
	7/7/2011	0.16	94.2
TP-1	10/15/2010	0.12	NM
	10/18/2010	NM	NM
	10/22/2010	2.11	NM
	10/25/2010	16.11	82.2
	11/1/2010	5.15	77.7

TABLE 5

OXYGEN SYSTEM MONITORING RESULTS
TESORO - LIVERMORE, 67076

Well	Date	Dissolved Oxygen[(a)] (mg/l)	Oxygen Purity[(b)] (%)
TP-1	12/9/2010	0.01	51.3
(cont.)	12/14/2010	0.33	53.3
	12/23/2010	0.16	58.1
	1/5/2011	0	52.0
	1/18/2011	0	0.0
	2/1/2011	27.22	88.9
	3/4/2011	12.11	90.4
	4/8/2011	15.61	49.8
	5/3/2011	1.25	88.0
	6/27/2011	0.01	0.0
	6/28/2011	7.49	91.3
	6/30/2011	0.02	94.3
	7/5/2011	0.19	94.5
	7/7/2011	8.43	94.2
TP-2	10/15/2010	0.05	NM
	10/18/2010	NM	NM
	10/22/2010	25.44	NM
	10/25/2010	24.9	82.2
	11/1/2010	25.83	77.7
	12/9/2010	6.03	51.3
	12/14/2010	5.12	53.3
	12/23/2010	0.63	58.1
	1/5/2011	0.43	52.0
	1/18/2011	0	0.0
	2/1/2011	33.44	88.9
	3/4/2011	34.15	90.4
	4/8/2011	19.31	49.8
	5/3/2011	11.95	88
	6/27/2011	0.01	0.0
	6/28/2011	24.27	91.3
	6/30/2011	23.57	94.3
	7/5/2011	31.33	94.5
	7/7/2011	33.74	94.2

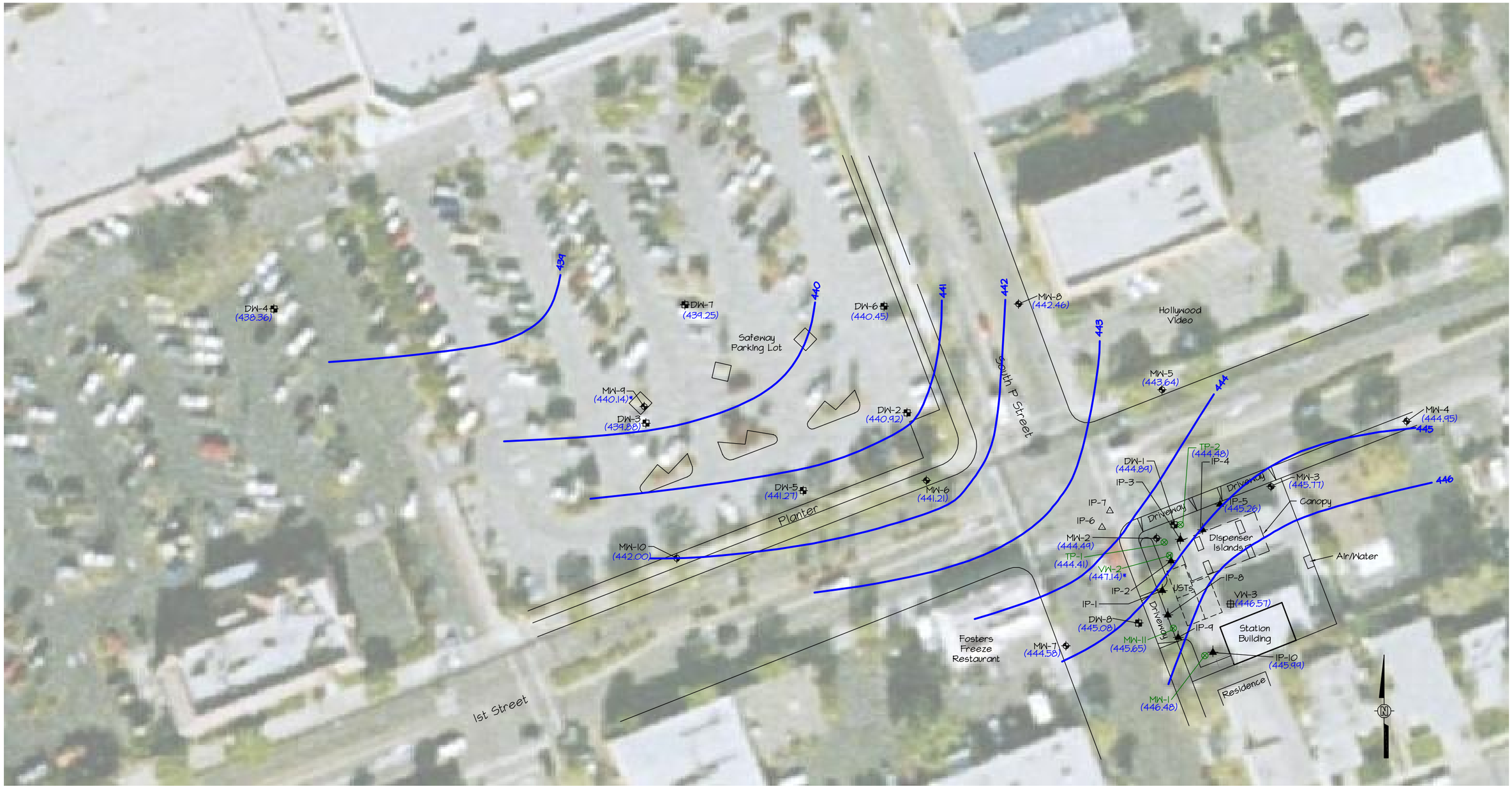
(a) Dissolved oxygen measured in milligrams per liter (mg/l).
(b) Oxygen purity measured at injection manifold (same for all wells) in percent (%).
(c) Not measured.



REFERENCE

7.5 MINUTE USGS TOPOGRAPHIC MAP OF
LIVERMORE, CALIFORNIA QUADRANGLE
DATE: 1961, PHOTOREVISED 1980
SCALE = 1:24,000

ARCTOS ENVIRONMENTAL			
TESORO - LIVERMORE			
SITE LOCATION MAP			
PROJECT NO. 01LV	DRAWN BY MP	CHECKED BY MP	APPROVED BY JG
FILE NO. Site Map.xls		**FIGURE 1**	



Legend

MW-7 ⊕ Groundwater Monitoring Well With Groundwater Elevation (Feet, MSL) Measured 25 April 2011

DW-1 ⊞ Deep Groundwater Monitoring Well with Groundwater Elevation (Feet, MSL) Measured 25 April 2011

IP-1 ▲ Injection Well

IP-6 △ Angled Injection Well Screen Location

VW-2 ⊞ Vapor Extraction Well with Groundwater Elevation (Feet, MSL) Measured 25 April 2011

TP-2 ⊗ Monitoring Well/Vapor Extraction Well with Groundwater Elevation (Feet, MSL) Measured 25 April 2011

439 Groundwater Elevation Contour

* Groundwater Elevation Not Used for Contours

0 30' 60'
SCALE

REVISION	NO.	BY	DATE	DESCRIPTION
12	7	MY	5/19/10	First Quarter 2010 Monitoring Report
	8	MY	8/19/10	Second Quarter 2010 Monitoring Report
	9	MY	11/19/10	Third Quarter 2010 Monitoring Report
	10	MY	3/11/11	Fourth Quarter 2010 Monitoring Report
	11	MY	5/13/11	First Quarter 2011 Monitoring Report
	12	MY	8/15/11	Second Quarter 2011 Monitoring Report

ARCTOS ENVIRONMENTAL

TESORO - LIVERMORE

GROUNDWATER ELEVATION CONTOURS

PROJECT NO.	DRAWN BY	CHECKED BY	APPROVED BY
01LV	MY	MP	JPG

FILE NO. 01LV11B-20412.DWG

FIGURE 2

6/7/2011 3:48PM 01LV11B-20412.dwg

Legend

- MW-7 — Groundwater Monitoring Well with 1 and 2 February and 26 to 28 April 2011 Total Petroleum Hydrocarbons as Gasoline (TPHg) Results in µg/L
- DW-1 — Deep Groundwater Monitoring Well with 1 and 2 February and 26 to 28 April 2011 TPHg Results in µg/L
- IP-1 — Injection Well
- IP-6 △ — Angled Injection Well Screen Location
- VW-2 — Vapor Extraction Well with 1 and 2 February and 26 to 28 April 2011 TPHg Results in µg/L
- TP-2 ⊗ — Monitoring Well/Vapor Extraction Well with 1 and 2 February and 26 to 28 April 2011 TPHg Results in µg/L
- 1,000 — TPHg Concentration Contour (µg/L), Queried Where Uncertain
- ND — Not Detected
- NS — Not Sampled
- (200/130) — Previous Quarter/Current Quarter TPHg Results in µg/L

0 30' 60'
SCALE

REVISION	NO.	BY	DATE	DESCRIPTION
12	8	MY	8/19/10	Second Quarter 2010 Monitoring Report
	9	MY	11/19/10	Third Quarter 2010 Monitoring Report
	10	MY	3/11/11	Fourth Quarter 2010 Monitoring Report
	11	MY	5/13/11	First Quarter 2011 Monitoring Report
	12	MY	8/15/11	Second Quarter 2011 Monitoring Report

ARCTOS ENVIRONMENTAL

TESORO - LIVERMORE

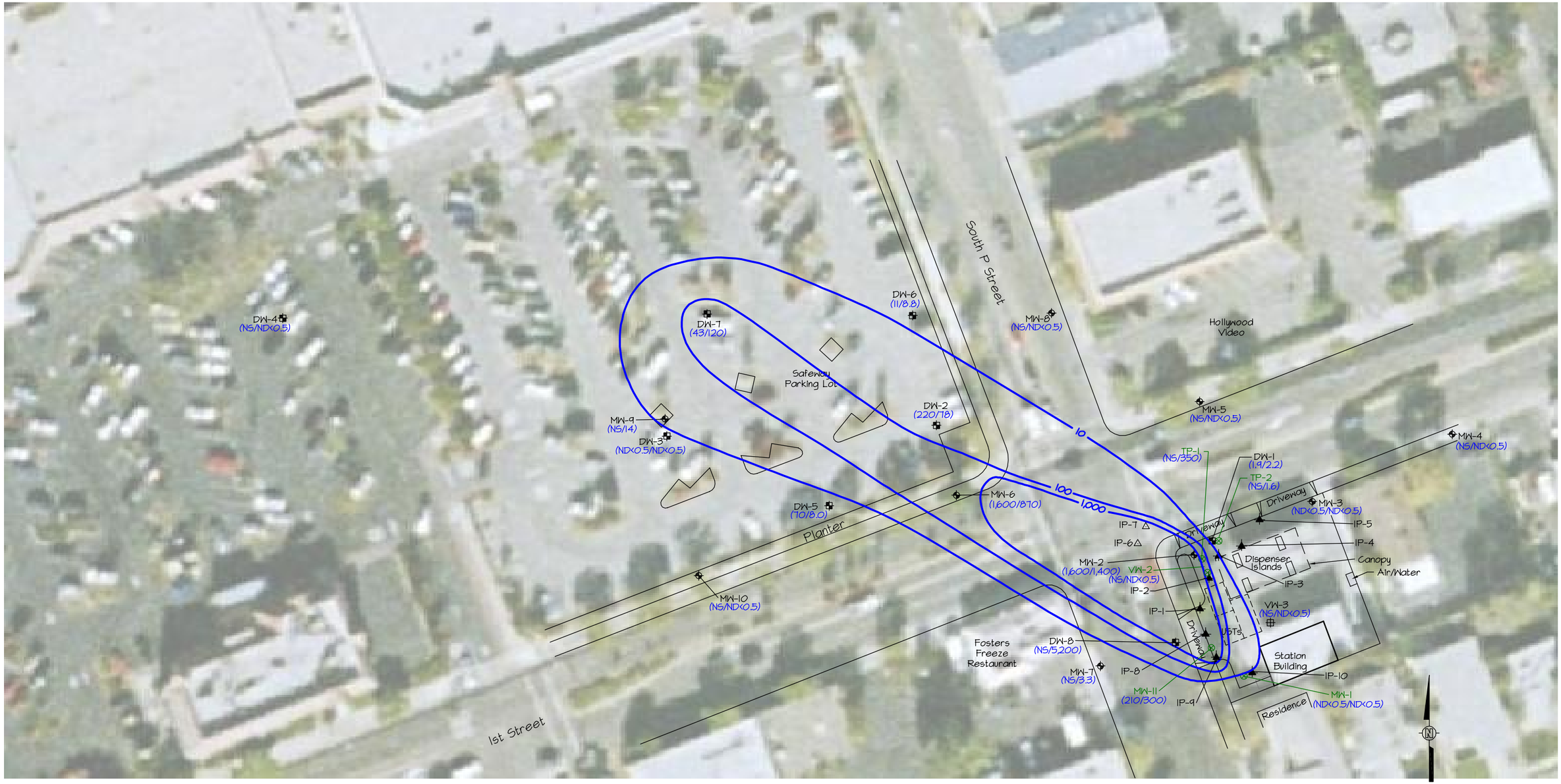
TPHg CONCENTRATION CONTOURS

PROJECT NO.	DRAWN BY	CHECKED BY	APPROVED BY
01LV	MY	MP	JPG

FILE NO. 01LV11B-20512.DWG

FIGURE 3

6/7/2011 3:54PM 01LV11B-20512.dwg



Legend

MW-7 ⊕ Groundwater Monitoring Well with 1 and 2 February and 26 to 28 April 2011 Benzene Results in µg/L

DW-1 ⊕ Deep Groundwater Monitoring Well with 1 and 2 February and 26 to 28 April 2011 Benzene Results in µg/L

IP-1 ▲ Injection Well

IP-6 △ Angled Injection Well Screen Location

VW-2 ⊞ Vapor Extraction Well with 1 and 2 February and 26 to 28 April 2011 Benzene Results in µg/L

TP-2 ⊗ Monitoring Well/Vapor Extraction Well with 1 and 2 February and 26 to 28 April 2011 Benzene Results in µg/L

1,000 Benzene Concentration Contour (µg/L), Queried Where Uncertain

ND Not Detected

NS Not Sampled

(ND<0.5/ND<0.5) Previous Quarter/Current Quarter Benzene Results in µg/L

0 30' 60'
SCALE

REVISION	NO.	BY	DATE	DESCRIPTION
12	8	MY	8/19/10	Second Quarter 2010 Monitoring Report
	9	MY	11/19/10	Third Quarter 2010 Monitoring Report
	10	MY	3/11/11	Fourth Quarter 2010 Monitoring Report
	11	MY	5/13/11	First Quarter 2011 Monitoring Report
	12	MY	8/15/11	Second Quarter 2011 Monitoring Report

ARCTOS ENVIRONMENTAL

TESORO - LIVERMORE

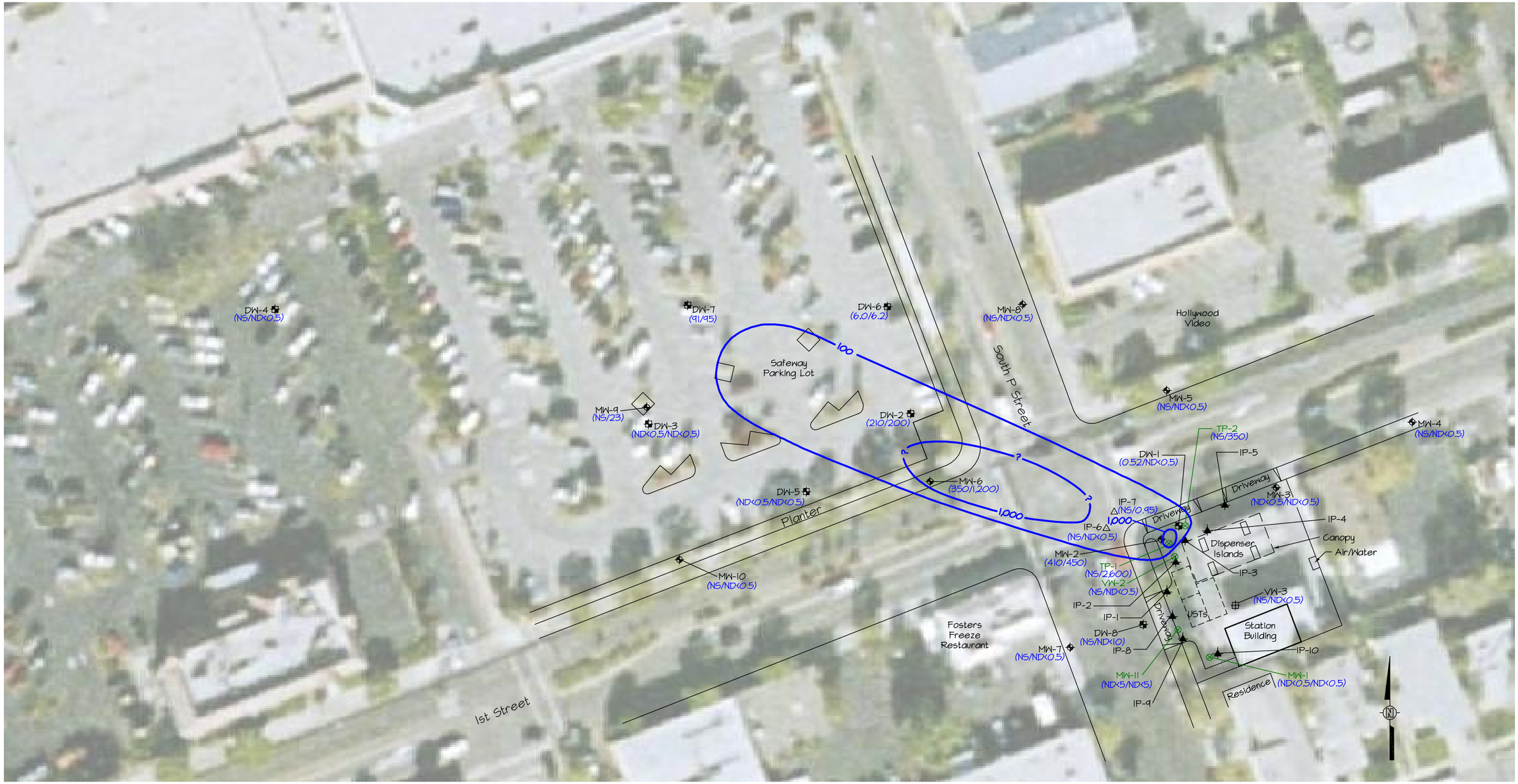
BENZENE CONCENTRATION CONTOURS

PROJECT NO.	DRAWN BY	CHECKED BY	APPROVED BY
01LV	MY	MP	JPG

FILE NO. 01LV11B-20612.DWG

FIGURE 4

6/7/2011 4:01PM 01LV11B-20612.dwg



Legend

MW-7 ⊕ Groundwater Monitoring Well with 1 and 2 February and 26 to 28 April 2011 Methyl Tert-Butyl Ether (MTBE) Results in µg/L

DW-1 ⊞ Deep Groundwater Monitoring Well with 1 and 2 February and 26 to 28 April 2011 MTBE Results in µg/L

IP-1 ▲ Injection Well

IP-6 △ Angled Injection Well Screen Location

VW-2 ⊞ Vapor Extraction Well with 1 and 2 February and 26 to 28 April 2011 MTBE Results in µg/L

TP-2 ⊗ Monitoring Well/Vapor Extraction Well with 1 and 2 February and 26 to 28 April 2011 MTBE Results in µg/L

1000 — MTBE Concentration Contour (µg/L), Queried Where Uncertain

ND Not Detected

NS Not Sampled

(ND<0.5/ND<0.5) Previous Quarter/Current Quarter MTBE Results in µg/L

0 30' 60'
SCALE

REVISION	NO.	BY	DATE	DESCRIPTION
12	7	MY	5/19/10	First Quarter 2010 Monitoring Report
	8	MY	8/19/10	Second Quarter 2010 Monitoring Report
	9	MY	11/19/10	Third Quarter 2010 Monitoring Report
	11	MY	5/13/11	First Quarter 2011 Monitoring Report
	12	MY	8/15/11	Second Quarter 2011 Monitoring Report

ARCTOS ENVIRONMENTAL

TESORO - LIVERMORE

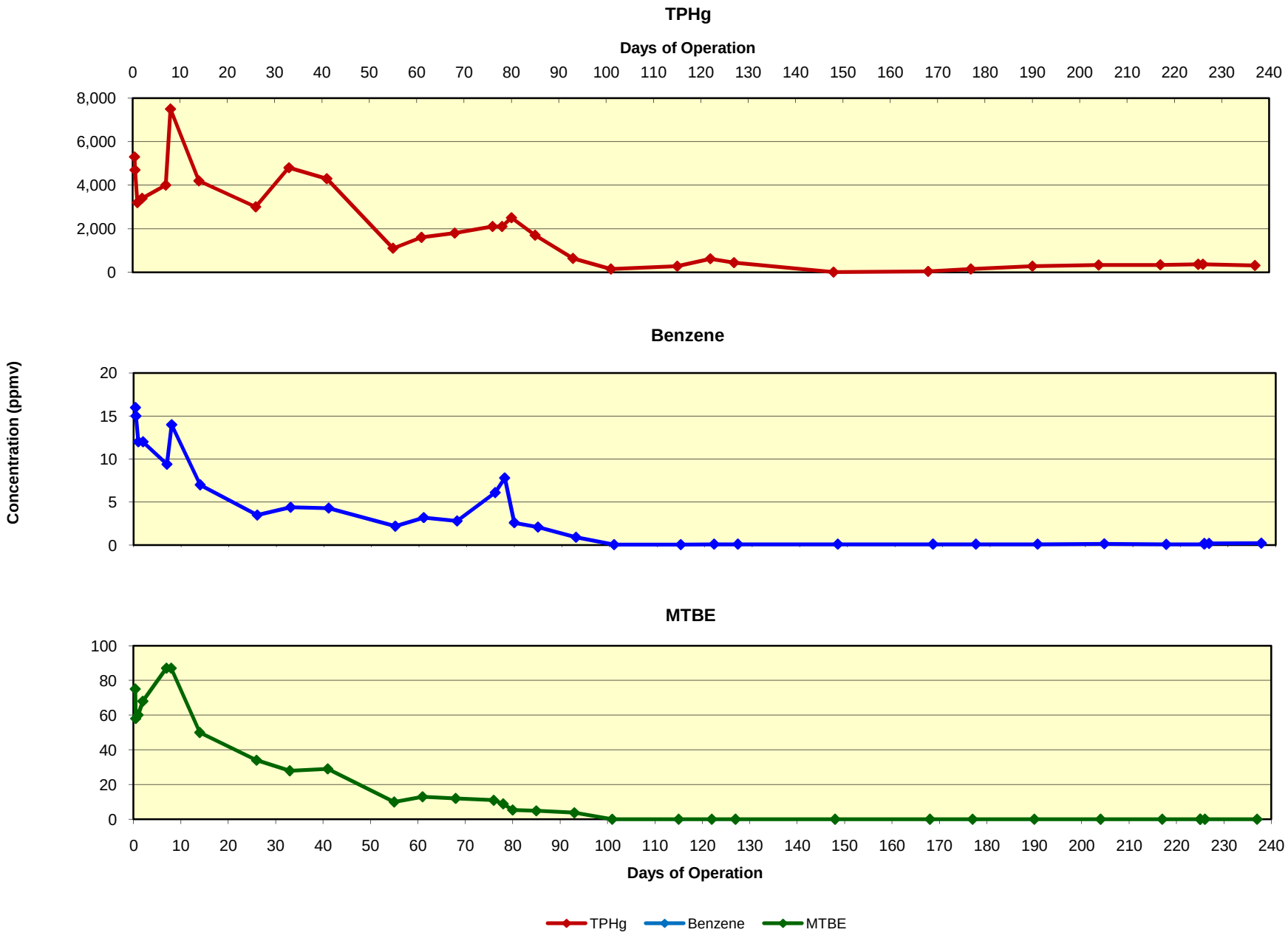
MTBE CONCENTRATION CONTOURS

PROJECT NO.	DRAWN BY	CHECKED BY	APPROVED BY
01LV	MY	MP	JPG

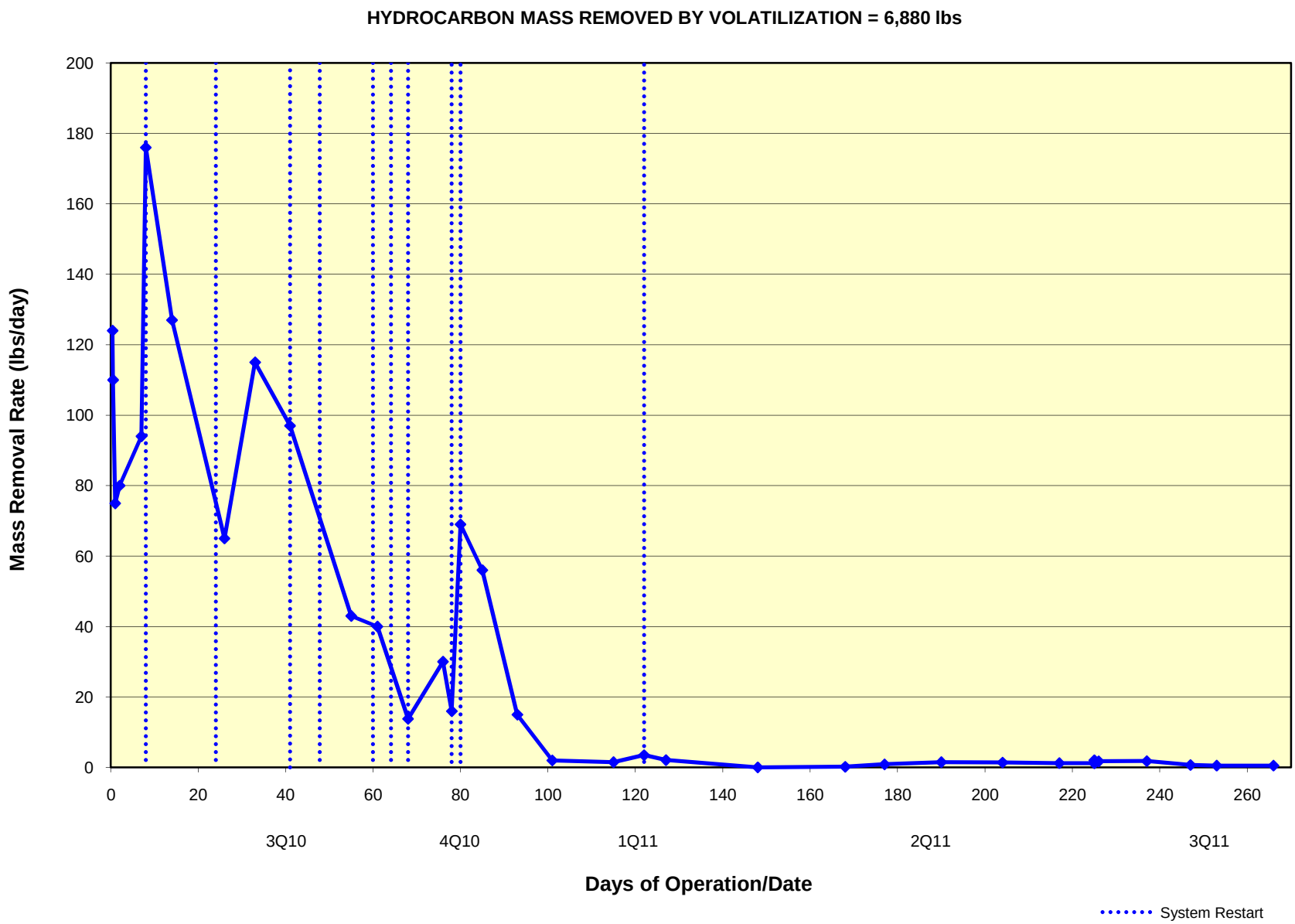
FILE NO. 01LV11B-20712.DWG

FIGURE 5

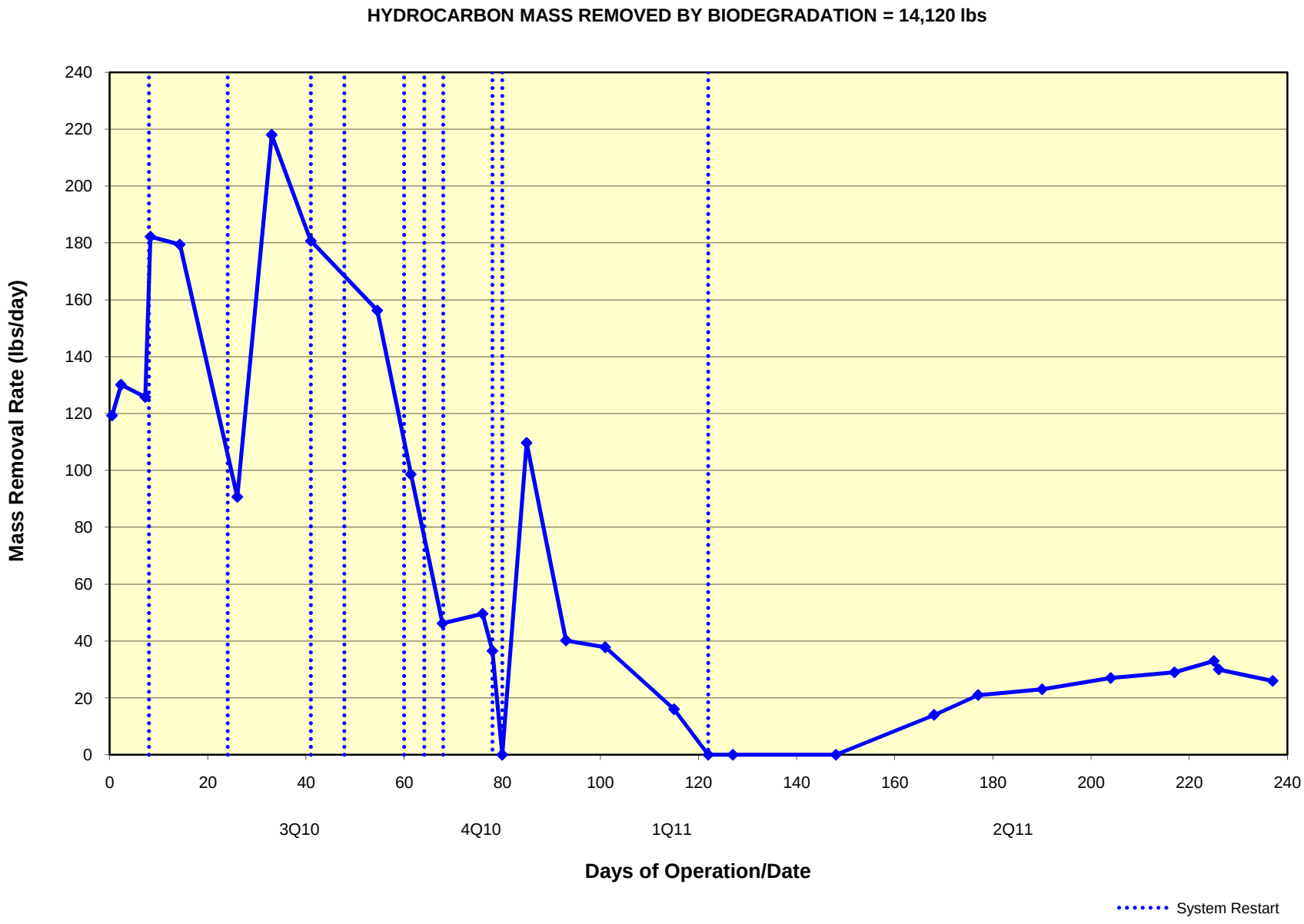
6/7/2011 4:09PM 01LV11B-20712.dwg



ARCTOS Arctos Environmental		Tesoro - Livermore	SOIL VAPOR INFLUENT CONCENTRATIONS	Figure 6
2Q11 System Graphs.xlsx	8/15/2011			



ARCTOS Arctos Environmental	Tesoro - Livermore	MASS REMOVAL BY VOLATILIZATION	Figure 7
3Q11 System Graphs.xlsx | 11/15/2011			



ARCTOS Arctos Environmental	Tesoro - Livermore	MASS REMOVAL BY BIODEGRADATION	Figure 8
2Q11 System Graphs.xlsx | 8/15/2011			

ATTACHMENT A

GROUNDWATER SAMPLING QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) PROCEDURES

ATTACHMENT A
GROUNDWATER SAMPLING QA/QC PROCEDURES

Monitoring Plan

In accordance with the California State Water Resources Control Board's (SWRCB) Resolution No. 2009-0042, referenced in Alameda Environmental Health's (ACEH) 23 July 2009 letter to Tesoro, Arctos proposed to reduce the monitoring and sampling frequency to semiannually in the second quarter 2009 status report. Select wells will continue to be monitored quarterly to assess the effectiveness of the planned groundwater remediation system according to the following groundwater monitoring plan:

Well Designation	Location	Sampling Frequency
MW-1, MW-3, and MW-11	Upgradient	Quarterly
MW-2 and DW-1	Source area	
MW-6, DW-2, DW-3, DW-5, DW-6, and DW-7	Downgradient	
MW-4 and VW-3	Upgradient	Semiannually (2nd and 4th quarters)
TP-1, TP-2, and VW-2	Source area	
MW-5 and MW-7	Cross gradient	
MW-8, MW-9, MW-10, and DW-4	Downgradient	

Analytical Plan

The groundwater samples were analyzed by Kiff Analytical LLC (Kiff), a State-certified laboratory in Davis, California, for total petroleum hydrocarbons as gasoline (TPHg); benzene, toluene, ethylbenzene, and total xylenes (BTEX); methyl tert-butyl ether (MTBE); and other oxygenates using Environmental Protection Agency (EPA) Method 8260B.

Arctos, as Tesoro's Authorized Responsible Party for the site, also electronically submitted the groundwater monitoring results to the State Water Resources Control Board (SWRCB). The data were submitted in the State-mandated Electronic Data Format (EDF), in accordance with Assembly Bill 2886 requirements for underground storage tank (UST) sites in California.

Purge-and-Bail Sampling Procedures

The depth to groundwater and total well depth were measured before sampling using an electronic water well sounder. The sequence of well sampling depended on the level of contamination in each well, if known, and was determined before sampling. Sampling occurred beginning at the well with the lowest contaminant concentration and ending at the well with the highest contaminant concentration. Before sampling, at least 3 casing volumes were purged from each monitoring well using a submersible pump. Throughout

purging, pH, conductivity, turbidity, and temperature were measured and recorded for the evacuated groundwater. These measurements were used to confirm that the well was purged sufficiently. Water samples were generally collected after the measurements of pH, conductivity, and temperature had stabilized to within 10 percent of the previous readings. Copies of the well purging and sampling logs are provided in Attachment B.

Sampling was performed with a new 1-1/2-inch-diameter disposable polyethylene bailer suspended from new nylon line. The bailer was equipped with a bottom-release device. Groundwater was collected with the bailer from just below the water surface in each monitoring well. Water samples were collected from the bailers in new 40-milliliter glass bottles provided by the analytical laboratory. The samples were collected so that no headspace was present in each bottle. The preservatives necessary for the analyses performed were provided in the glass bottles by the analytical laboratory.

The collected water samples were placed in sealable plastic bags and packed on ice in a portable ice chest immediately after collection. Samples were delivered within 24 to 48 hours to the analytical laboratory. Additional QA/QC procedures, including the use of sample identification labels and chain-of-custody forms, were followed to track sample collection and delivery.

General Field QA/QC Procedures

Chain-of-Custody Records

Chain-of-custody records were completed before samples were packaged for shipment. One copy of these records was placed in the project file. A second copy accompanied samples during transportation to the laboratory. The individual in the analytical laboratory who accepted responsibility for samples signed and dated the chain-of-custody record.

Equipment Decontamination Procedures

Field equipment was decontaminated between sampling events using the following procedures:

1. Rinsed with water using a brush to remove soil and mud.
2. Washed with non-phosphate detergent and water using a brush.
3. Rinsed with deionized or distilled water.
4. Rinsed again with deionized or distilled water.
5. Air dried.

Personal Decontamination Procedures
At a minimum, field personnel followed the following decontamination procedures:

1. Wore appropriate gloves.

2. Washed hands thoroughly with soap and water.

3. Avoided unnecessary contact with groundwater.

The site health and safety plan was reviewed for site-specific personal decontamination procedures.

Wastewater and Solid Waste Storage and Disposal
Small volumes of used wash and rinse solutions were collected during field work and transported to a central decontamination area. This wastewater was stored in a holding tank. The Project Manager determined the appropriate disposal method for this wastewater. Waste manifests for this quarter are in Attachment J.

Solid wastes such as used personal protective equipment, paper towels, trash bags, and any other solid debris were collected for disposal. Because the sampled groundwater was not a hazardous waste, the solid wastes were disposed with the onsite trash.

Field Investigation Documentation Procedures
Field personnel followed documentation procedures developed for site investigation work. The procedures served to (1) provide a record of the activities performed in the field and (2) permit identification of samples and tracking of their status in the field, during shipment, and at the laboratory. All documentation was recorded with waterproof ink. Groundwater sampling activities were documented on daily field reports and on well purge and sample logs.

Health and Safety
Arctos used a site-specific health and safety plan (HSP) with procedures that were followed by field personnel for equipment safety, medical surveillance, personal protection, air quality monitoring, exposure control, emergency response, and general work practices during field activities. Before beginning work at the site, a site safety meeting was conducted. Field personnel reviewed the HSP and signed the accompanying acknowledgment form before initiating field activities. Field personnel were required to comply with the HSP throughout performance of site assessment activities.

Analytical QA/QC Procedures
Laboratory analytical QA/QC procedures included (1) preparing and analyzing laboratory samples to assess the performance of the analytical laboratory and (2) conducting data validation in accordance with the protocols described below. QC samples prepared by the laboratory included method blanks, matrix spike and matrix spike duplicates, and laboratory control samples.

The laboratory results were reviewed in general accordance with EPA guidelines for data validation. The data validation process included reviewing laboratory results for the following parameters:

- ☐ Completeness of the data package
- ☐ Compliance with EPA-required holding times
- ☐ Agreement of dilution factors with reported detection limits
- ☐ Presence or absence of analytes in the method blanks
- ☐ Agreement of duplicate samples
- ☐ Percent recovery and relative percent difference results for matrix spike and matrix spike duplicate analyses
- ☐ Percent recovery results for laboratory control samples.

ATTACHMENT B

FIELD DATA SHEETS

Field Data Sheet

Date: 4/25/2011 Project Name: Tesoro #67076 Project Number: 01LV

Technician: A.Pantoja/C.Arroyo Location: Livermore, CA Global ID : T0600101410

Well ID	Casing Diameter	Total Depth	DTP	DTW	Thickness	Comments
MW-1	4"	54.55	-	27.73	-	
MW-2	4"	54.1	-	28.49	-	
MW-3	4"	52.9	-	27.6	-	
MW-4	2"	46.8	-	28.69	-	
MW-5	2"	46.27	-	29.03	-	
MW-6	2"	47.65	-	30.72	-	
MW-7	2"	46.8	-	27.75	-	
MW-8	2"	44.5	-	28.72	-	
MW-9	2"	44.58	-	30.64	-	
MW-10	2"	45.1	-	29.63	-	
MW-11	4"	42.85	-	27.31	-	
DW-1	4"	64.75	-	27.96	-	
DW-2	4"	59.84	-	30.69	-	
DW-3	4"	59.74	-	30.45	-	
DW-4	4"	70.04	-	30.12	-	
DW-5	4"	59.8	-	30.59	-	
DW-6	4"	60.15	-	31.32	-	
DW-7	4"	65.2	-	30.82	-	
DW-8	4"	64.65		27.23		
TP-1	2"	43.22	-	28.23	-	
TP-2	2"	41.21	-	28.3	-	
VW-2	2"	36.78	-	25.43	-	
VW-3	2"	36.34	-	27.81	-	

Field Data Sheet

Date: 4-25-11 **Project Name:** Tesoro #67076 **Project Number:** 01LV

Technician: C.Arroyo/A.Pantoja **Location:** Livermore, CA **Global ID :** T0600101410

Well ID	Casing Diameter	Total Depth	DTP	DTW	Thickness	Comments
IP-1	2"	-	-	27.97	-	
IP-2	2"	-	-	28.04	-	
IP-3	2"	-	-	28.07	-	
IP-4	2"	-	-	27.93	-	
IP-5	2"	-	-	27.8	-	
IP-6	2"	-	-	30.6	-	
IP-7	2"	-	-	31.51	-	
IP-8	2"	-		28.07		
IP-9	2"	-	-	27.84	-	
IP-10	2"	-	-	27.79	-	

Groundwater Sampling Form

Project Name:	Tesoro #67076	Project Number:	01LV
Location:	Livermore, Ca	Date:	4/25/11
Well Number:	MW-1	Well Integrity:	Good
Technician:	A. Pantoja / C. Arroyo	Ambient Conditions:	Cloudy

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW	Gallons Per Linear Foot		1 Well Volume (gal.)
2					X	0.17	=	
3	-		=		X	0.38	=	
4	**54.55**		**27.73**		**26.82**	**0.66**	=	**17.7**
4.5	-		=		X	0.83	=	
6	-		=		X	1.5	=	

Groundwater Surface Inspection

Floating Product (ft)(in.): None Sheen/Iridescence: No Odor: No

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(◦F)
0	Int.	10:00	949	475	-15.3	37.5	6.9	66.04
1	18	10:10	976	488	18.2	39.7	7.08	67.02
2	36	10:30	968	484	43	22.4	7.44	67.38
3	54	10:40	988	494	43.2	28.8	7.4	67.17
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	27.73	
(P) After Purging	32.36	
P- 0.8(P-I) =	28.65	80% Recovery
(S) Before Sampling	28.13	
Sampled 80% - 100%	Yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass		
125 ml polypropylene		

Sample Date : 4/25/11 Time: 12:45 Turbidity (NTU): 1.76

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	Project Number:	01LV
Location:	Livermore, CA	Date:	4/28/11
Well Number:	MW-2	Well Integrity:	Good
Technician:	A. Pantoja / C. Arroyo	Ambient Conditions:	Sunny

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth	Depth To Ground-water (GW)	Linear Feet of GW	Gallons Per Linear Foot	1 Well Volume (gal.)
2				0.17	
3	-		X	0.38	=
4	54.1	28.49	25.61	0.66	16.9
4.5	-	=	X	0.83	=
6	-	=	X	1.5	=

Groundwater Surface Inspection

Floating Product (ft)(in.): None Sheen/Iridescence: No Odor: No

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(◦F)
0	Int.	9:50	956	497	-231	29.3	7.21	67.22
1	17	9:59	1.012	506	-210	20.7	7.08	68.61
2	34	10:06	1.015	508	-202.8	18	7.05	68.53
3	51	10:09	1.04	520	-197.4	16.2	7.02	66.09
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	28.49	
(P) After Purging	33.2	
P- 0.8(P-I) =	29.43	80% Recovery
(S) Before Sampling	28.61	
Sampled 80% - 100%	Yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene	1	None
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass	1	H2504
250 ml polypropylene	2	None

Sample Date : 4/28/11 Time: 11:40 Turbidity (NTU): 34.9

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, Ca	**Date:**	4/25/11
Well Number:	MW-3	**Well Integrity:**	Good
Technician:	A. Pantoja / C. Arroyo	**Ambient Conditions:**	Cloudy/Windy

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW	Gallons Per Linear Foot	1 Well Volume (gal.)
2				X		0.17	=
3	-		=	X		0.38	=
4	52.9		27.6		25.3	0.66	16.69
4.5	-		=	X		0.83	=
6	-		=	X		1.5	=

Groundwater Surface Inspection

Floating Product (ft)(in.): None **Sheen/Iridescence:** No **Odor:** No

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(◦F)
0	Int.	12:37	732	365	19.5	57.8	6.84	66.27
1	17	12:48	694	482	34.7	12.8	6.41	68.25
2	34	13:00	1.004	502	34.5	12.9	7.04	66.52
3	51	13:12	993	497	-38	14.6	7.04	67.37
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	27.6	
(P) After Purging	29.06	
P- 0.8(P-I) =	27.89	80% Recovery
(S) Before Sampling	27.83	
Sampled 80% - 100%	Yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass		
125 ml polypropylene		

Sample Date : 4/25/11 **Time:** 13:30 **Turbidity (NTU):** 18.9

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	Project Number:	01LV
Location:	Livermore, Ca	Date:	4/26/11
Well Number:	MW-4	Well Integrity:	Good
Technician:	A. Pantoja / C. Arroyo	Ambient Conditions:	Cloudy

Well Volume Calculation

Well Casing Diameter (in.)		Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW	Gallons Per Linear Foot		1 Well Volume (gal.)
2		46.8		28.69		18.11	0.17		3.07
3		-		=		X	0.38		=
4							0.66		
4.5		-		=		X	0.83		=
6		-		=		X	1.5		=

Groundwater Surface Inspection

Floating Product (ft)(in.): None Sheen/Iridescence: No Odor: No

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(°F)
0	Int.	11:25	1.038	519	-51.9	22	6.44	68.69
1	3	11:29	1.052	526	-30.4	19.8	6.97	68.62
2	6	11:32	1.057	529	-17.3	23.9	6.92	68.76
3	9	11:36	1.065	532	-2.1	20.7	7.12	68.77
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	28.69	
(P) After Purging	30.04	
P- 0.8(P-I) =	28.96.	80% Recovery
(S) Before Sampling	27.91	
Sampled 80% - 100%	yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene	1	None
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass	1	H2504
125 ml polypropylene	2	None

Sample Date : 4/26/11 Time: 13:05 Turbidity (NTU): 102

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	Project Number:	01LV
Location:	Livermore, Ca	Date:	4/25/11
Well Number:	MW-5	Well Integrity:	Good
Technician:	A. Pantoja / C. Arroyo	Ambient Conditions:	Sunny/Windy

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth	Depth To Ground-water (GW)	Linear Feet of GW	Gallons Per Linear Foot	1 Well Volume (gal.)
2	46.27	29.03	17.24	0.17	2.93
3	-	=	X	0.38	=
4				0.66	
4.5	-	=	X	0.83	=
6	-	=	X	1.5	=

Groundwater Surface Inspection

Floating Product (ft)(in.): None Sheen/Iridescence: No Odor: No

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(◦F)
0	Int.	15:40	1.199	600	26.8	21.9	6.47	68.86
1	3	15:44	1.243	622	-28.1	12.6	7.21	69.59
2	6	15:46	1.311	656	-91.8	16.3	7.22	66.42
3	9	15:50	1.285	643	-106.7	12.5	7.2	69.42
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	29.03	
(P) After Purging	30.78	
P- 0.8(P-I) =	29.38	80% Recovery
(S) Before Sampling	29.34	
Sampled 80% - 100%	Yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass		
125 ml polypropylene		

Sample Date : 4/25/11 Time: 16:20 Turbidity (NTU): 62.4

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, CA	**Date:**	4/27/11
Well Number:	MW-6	**Well Integrity:**	Good
Technician:	A. Pantoja / C. Arroyo	**Ambient Conditions:**	Sunny

Well Volume Calculation

Well Casing Diameter (in.)		Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW	Gallons Per Linear Foot		1 Well Volume (gal.)
2		47.65		30.72		16.93	0.17		2.87
3		-		=		X	0.38		=
4							0.66		
4.5		-		=		X	0.83		=
6		-		=		X	1.5		=

Groundwater Surface Inspection

Floating Product (ft)(in.): None **Sheen/Iridescence:** No **Odor:** Yes

Groundwater Purging Purge Method

Submersible Pump Honda Pump **Hand Bail** Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(°F)
0	Int.	12:28	1.313	657	-159	8.5	6.2	71.44
1	3	12:34	1.357	678	-181.8	14.9	6.15	70.36
2	6	12:43	1.397	692	-193	15.9	6.39	71.51
3	9	12:51						
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	30.72	
(P) After Purging	31.32	
P- 0.8(P-I) =	30.84	80% Recovery
(S) Before Sampling	30.79	
Sampled 80% - 100%	Yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene	1	None
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass	1	H2504
250 ml polypropylene	2	None

Sample Date : 4/27/11 **Time:** 13:00 **Turbidity (NTU):** 733

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, CA	**Date:**	4/26/11
Well Number:	MW-7	**Well Integrity:**	Good
Technician:	A. Pantoja / C. Arroyo	**Ambient Conditions:**	Sunny/Windy

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth	Depth To Ground-water (GW)	Linear Feet of GW	Gallons Per Linear Foot	1 Well Volume (gal.)
2	46.77	27.75	19.02	0.17	3.23
3	-		X	0.38	=
4				0.66	
4.5	-	=	X	0.83	=
6	-	=	X	1.5	=

Groundwater Surface Inspection

Floating Product (ft)(in.): None **Sheen/Iridescence:** No **Odor:** No

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(°F)
0	Int.	16:05	982	491	-276.9	20.3	7.05	70.38
1	3	14:08	987	493	-255.2	18.6	7.02	70.21
2	6	14:11	991	495	-224.4	15.4	7	70.48
3	9	14:14	1.005	503	-211.8	13.2	7.07	70.2
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	27.75	
(P) After Purging	28.9	
P- 0.8(P-I) =	27.98	80% Recovery
(S) Before Sampling	27.81	
Sampled 80% - 100%	Yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass		
125 ml polypropylene		

Sample Date : 4/28/11 **Time:** 16:40 **Turbidity (NTU):** 64

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, Ca	**Date:**	4/25/11
Well Number:	MW-8	**Well Integrity:**	Good
Technician:	A. Pantoja / C. Arroyo	**Ambient Conditions:**	Cloudy/Windy

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW	Gallons Per Linear Foot	1 Well Volume (gal.)
2	44.52	-	28.72	=	15.8	X 0.17	= 2.68
3		-		=		X 0.38	=
4						0.66	
4.5		-		=		X 0.83	=
6		-		=		X 1.5	=

Groundwater Surface Inspection

Floating Product (ft)(in.): None **Sheen/Iridescence:** No **Odor:** No

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(◦F)
0	Int.	11:59	1.038	519	-1.4	30.6	7.15	69.53
1	3	12:01	1.015	508	7.9	16	7.25	69.49
2	6	12:05	1.072	536	13.4	12.7	6.69	68.48
3	9	12:07	1.162	581	15.1	13	6.95	64.44
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	28.72	
(P) After Purging	31.3	
P- 0.8(P-I) =	29.23	80% Recovery
(S) Before Sampling	29.08	
Sampled 80% - 100%	Yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass		
125 ml polypropylene		

Sample Date : 4/25/11 **Time:** 13:45 **Turbidity (NTU):** 10.8

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, Ca	**Date:**	4/26/11
Well Number:	MW-9	**Well Integrity:**	Good
Technician:	A. Pantoja / C. Arroyo	**Ambient Conditions:**	Sunny

Well Volume Calculation

Well Casing Diameter (in.)		Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW	Gallons Per Linear Foot		1 Well Volume (gal.)
2		44.58		60.34		13.94	0.17		2.36
3	-		=		X		0.38	=	
4							0.66		
4.5	-		=		X		0.83	=	
6	-		=		X		1.5	=	

Groundwater Surface Inspection

Floating Product (ft)(in.): None **Sheen/Iridescence:** No **Odor:** Yes

Groundwater Purging Purge Method

Submersible Pump | Honda Pump | **Hand Bail** | Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(°F)
0	Int.	14:03	1.286	643	-187.6	20.3	6.18	72.77
1	2	14:09	1.376	688	-195.7	20.8	6.23	71.67
2	4	14:12	1.402	701	-187.9	10	6.23	71.35
3	6	14:15	1.395	698	-172.9	17.8		70.4
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	30.64	
(P) After Purging	32.92	
P- 0.8(P-I) =	31.09	80% Recovery
(S) Before Sampling	31.01	
Sampled 80% - 100%		

Sample Containers:

	No.	Preservation
500 ml polypropylene	1	None
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass	1	H2504
250 ml polypropylene	2	None

Sample Date : 4/26/11 **Time:** 14:50 **Turbidity (NTU):** 199

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	Project Number:	01LV
Location:	Livermore, Ca	Date:	4/25/11
Well Number:	MW-10	Well Integrity:	Good
Technician:	A. Pantoja / C. Arroyo	Ambient Conditions:	Sunny/Windy

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth	Depth To Ground-water (GW)	Linear Feet of GW	Gallons Per Linear Foot	1 Well Volume (gal.)
2	45.1	29.63	15.47	0.17	2.62
3	-	=	X	0.38	=
4				0.66	
4.5	-	=	X	0.83	=
6	-	=	X	1.5	=

Groundwater Surface Inspection

Floating Product (ft)(in.): None Sheen/Iridescence: No Odor: No

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(°F)
0	Int.	14:37	1.362	681	46.1	38.1	6.63	69.81
1	3	14:41	1.385	692	47.3	28.2	6.48	70.4
2	6	14:45	1.406	704	46.5	24.1	6.46	69.93
3	9	14:49	1.442	721	45.4	23.1	6.51	66.54
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	29.63	
(P) After Purging	37.49	
P- 0.8(P-I) =	31.2	80% Recovery
(S) Before Sampling	33.26	
Sampled 80% - 100%	No	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass		
125 ml polypropylene		

Sample Date : 4/25/11 Time: 16:50 Turbidity (NTU): 13.5

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments: well did not recover to 80% ir

Groundwater Sampling Form

Project Name:	Tesoro #67076	Project Number:	01LV
Location:	Livermore, CA	Date:	4/28/11
Well Number:	MW-11	Well Integrity:	Good
Technician:	A. Pantoja / C. Arroyo	Ambient Conditions:	Sunny

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth	Depth To Ground-water (GW)	Linear Feet of GW	Gallons Per Linear Foot	1 Well Volume (gal.)
2				0.17	
3	-		X	0.38	=
4	40.72	27.31	13.41	0.66	8.85
4.5	-	=	X	0.83	=
6	-	=	X	1.5	=

Groundwater Surface Inspection

Floating Product (ft)(in.): None Sheen/Iridescence: No Odor: No

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(°F)
0	Int.	7:47	1.496	748	-30.9	243.8	7.03	67.53
1	9	7:50	1.508	754	-12.6	254.1	6.96	68.47
2	18	7:54	1.536	768	23.8	210.5	6.9	67.78
3	27	7:58	1.519	759	48	187.9	6.95	67.45
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	27.31	
(P) After Purging	37.68	
P- 0.8(P-I) =	29.38	80% Recovery
(S) Before Sampling	28.07	
Sampled 80% - 100%	Yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene	1	None
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass	1	H2504
250 ml polypropylene	2	None

Sample Date : 4/28/11 Time: 10:10 Turbidity (NTU): 471

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, CA	**Date:**	4/28/11
Well Number:	DW-1	**Well Integrity:**	Good
Technician:	A. Pantoja / C. Arroyo	**Ambient Conditions:**	Sunny

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth	Depth To Ground-water (GW)	Linear Feet of GW	Gallons Per Linear Foot	1 Well Volume (gal.)
2				0.17	
3	-		X	0.38	=
4	64.75	27.96	36.79	0.66	24.28
4.5	-	=	X	0.83	=
6	-	=	X	1.5	=

Groundwater Surface Inspection

Floating Product (ft)(in.): None **Sheen/Iridescence:** No **Odor:** No

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(◦F)
0	Int.	9:05	947	473	16.3	104.8	7.72	67.64
1	24	9:15	950	475	30	54	7.57	67.45
2	48	9:25	961	481	24.7	56.1	7.41	65.23
3	72	9:35	958	479	24.7	46.4	7.38	67.28
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	27.96	
(P) After Purging	31	
P- 0.8(P-I) =	28.56	80% Recovery
(S) Before Sampling	27.98	
Sampled 80% - 100%	Yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene	1	None
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass	1	H2504
250 ml polypropylene	2	None

Sample Date : 4/28/11 **Time:** 11:00 **Turbidity (NTU):** 8.83

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, Ca	**Date:**	4/27/11
Well Number:	DW-2	**Well Integrity:**	Good
Technician:	A. Pantoja / C. Arroyo	**Ambient Conditions:**	Sunny

Well Volume Calculation

Well Casing Diameter (in.)		Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW	Gallons Per Linear Foot		1 Well Volume (gal.)
2							0.17		
3		-		=		X	0.38		=
4		59.84		30.69		29.15	0.66		19.23
4.5		-		=		X	0.83		=
6		-		=		X	1.5		=

Groundwater Surface Inspection

Floating Product (ft)(in.): None **Sheen/Iridescence:** No **Odor:** Yes

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(°F)
0	Int.	9:49	1.042	521	-211.4	16.3	6.46	69.05
1	19	9:59	1.07	535	-199.8	10.9	6.59	69.02
2	38	10:14	1.076	538	-189.5	61.7	6.75	68.34
3	57	10:25	1.072	536	-187.3	13.4	6.53	68.84
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	30.69	
(P) After Purging	31.12	
P- 0.8(P-I) =	30.77	80% Recovery
(S) Before Sampling	30.77	
Sampled 80% - 100%	Yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene	1	None
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass	1	H2504
250 ml polypropylene	2	None

Sample Date : 4/27/11 **Time:** 10:50 **Turbidity (NTU):** 6.98

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	Project Number:	01LV
Location:	Livermore, Ca	Date:	4/27/11
Well Number:	DW-3	Well Integrity:	Good
Technician:	A. Pantoja / C. Arroyo	Ambient Conditions:	Sunny

Well Volume Calculation

Well Casing Diameter (in.)		Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW	Gallons Per Linear Foot		1 Well Volume (gal.)
2							0.17		
3		-	=		X		0.38	=	
4		59.74		30.45		29.29	0.66		19.33
4.5		-	=		X		0.83	=	
6		-	=		X		1.5	=	

Groundwater Surface Inspection

Floating Product (ft)(in.): None Sheen/Iridescence: No Odor: Yes

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(◦F)
0	Int.	7:40	382	191	-47.5	46	6.84	68.02
1	19	7:56	915	458	-159.6	16.3	6.32	69.71
2	38	8:08	1.015	507	-171.5	12.8	6.63	67.85
3	57	8:19	1.113	559	-165.5	14.8	6.6	60.94
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	30.45	
(P) After Purging	32.5	
P- 0.8(P-I) =	30.86	80% Recovery
(S) Before Sampling	30.71	
Sampled 80% - 100%	Yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass		
125 ml polypropylene		

Sample Date : 4/27/11 Time: 8:30 Turbidity (NTU): 12

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments: Only 1 bolt on well

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, Ca	**Date:**	4/26/11
Well Number:	DW-4	**Well Integrity:**	Good
Technician:	A. Pantoja / C. Arroyo	**Ambient Conditions:**	Sunny

Well Volume Calculation

Well Casing Diameter (in.)		Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW	Gallons Per Linear Foot		1 Well Volume (gal.)
2							0.17		
3		-	=		X		0.38	=	
4		70.04		30.12		39.92	0.66		26.34
4.5		-	=		X		0.83	=	
6		-	=		X		1.5	=	

Groundwater Surface Inspection

Floating Product (ft)(in.): None **Sheen/Iridescence:** No **Odor:** No

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(°F)
0	Int.	7:40	1.002	501	-55.7	42.4	6.66	47.97
1	26	8:00	0.866	433	8.8	91.1	6.84	69.47
2	52	8:18	0.874	437	-88.7	55	6..89	69.33
3	78	8:30	0.968	485	-13.8	17	6.95	62.71
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	30.12	
(P) After Purging	34.05	
P- 0.8(P-I) =	30.9	80% Recovery
(S) Before Sampling	30.19	
Sampled 80% - 100%	yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass		
125 ml polypropylene		

Sample Date : 4/26/11 **Time:** 10:15 **Turbidity (NTU):** 17.2

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, Ca	**Date:**	4/27/11
Well Number:	DW-5	**Well Integrity:**	Good
Technician:	A. Pantoja / C. Arroyo	**Ambient Conditions:**	Sunny

Well Volume Calculation

Well Casing Diameter (in.)		Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW	Gallons Per Linear Foot		1 Well Volume (gal.)
2							0.17		
3		-	=		X		0.38	=	
4		65		30.59		34.41	0.66		22.71
4.5		-	=		X		0.83	=	
6		-	=		X		1.5	=	

Groundwater Surface Inspection

Floating Product (ft)(in.): None **Sheen/Iridescence:** No **Odor:** Yes

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(°F)
0	Int.	8:48	997	499	-227.2	21	7.07	63.74
1	23	9:00	1.013	506	-220.7	12	6.87	63.8
2	46	9:14	968	483	-214.5	76.1	6.58	68.27
3	69	9:28	968	484	-216.8	10.5	6.41	69.03
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	30.59	
(P) After Purging	32.45	
P- 0.8(P-I) =	30.96	80% Recovery
(S) Before Sampling	30.84	
Sampled 80% - 100%	Yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass		
125 ml polypropylene		

Sample Date : 4/27/11 **Time:** 10:05 **Turbidity (NTU):** 8.04

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	Project Number:	01LV
Location:	Livermore, CA	Date:	4/27/11
Well Number:	DW-6	Well Integrity:	Good
Technician:	A. Pantoja / C. Arroyo	Ambient Conditions:	Sunny

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW	Gallons Per Linear Foot	1 Well Volume (gal.)
2						0.17	
3		-		=	X	0.38	=
4	65		31.32		33.68	0.66	22.8
4.5		-		=	X	0.83	=
6		-		=	X	1.5	=

Groundwater Surface Inspection

Floating Product (ft)(in.): None Sheen/Iridescence: No Odor: Yes

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(°F)
0	Int.	14:02	958	479	-223	22.2	6.76	73.33
1	22	14:12	988	494	-199	14	6.21	71.18
2	44	14:20	989	495	-180.8	15.7	6.92	70.89
3	66	14:29	987	494	-174.7	46.6	6.45	70.85
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	31.32	
(P) After Purging	32.05	
P- 0.8(P-I) =	31.46	80% Recovery
(S) Before Sampling		
Sampled 80% - 100%		

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass		
125 ml polypropylene		

Sample Date : 4/27/11 Time: 14:50 Turbidity (NTU): 84.5

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	Project Number:	01LV
Location:	Livermore, Ca	Date:	4/27/11
Well Number:	DW-7	Well Integrity:	Good
Technician:	A. Pantoja / C. Arroyo	Ambient Conditions:	Sunny

Well Volume Calculation

Well Casing Diameter (in.)		Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW	Gallons Per Linear Foot		1 Well Volume (gal.)
2							0.17		
3		-	=		X		0.38	=	
4		65		30.82		34.18	0.66		22.55
4.5		-	=		X		0.83	=	
6		-	=		X		1.5	=	

Groundwater Surface Inspection

Floating Product (ft)(in.): None Sheen/Iridescence: No Odor: Yes

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(°F)
0	Int.	11:17	1.442	720	-168.9	49.9	10.27	73.06
1	23	11:30	1.072	536	-157.8	12.8	7.09	72.21
2	46	11:43	1.091	545	-158.7	10.8	6.84	71.51
3	69	11:57	1.079	539	-148.6	8.7	6.9	7.85
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	30.82	
(P) After Purging	31.23	
P- 0.8(P-I) =	30.9	80% Recovery
(S) Before Sampling	30.83	
Sampled 80% - 100%	Yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene	1	None
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass	1	H2504
250 ml polypropylene	2	None

Sample Date : 4/27/11 Time: 12:10 Turbidity (NTU): 25.8

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, CA	**Date:**	4/28/11
Well Number:	DW-8	**Well Integrity:**	Good
Technician:	A. Pantoja / C. Arroyo	**Ambient Conditions:**	Sunny

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth	Depth To Ground-water (GW)	Linear Feet of GW	Gallons Per Linear Foot	1 Well Volume (gal.)
2				0.17	
3	-		X	0.38	=
4	64.65	27.23	37.42	0.66	24.69
4.5	-	=	X	0.83	=
6	-	=	X	1.5	=

Groundwater Surface Inspection

Floating Product (ft)(in.): None **Sheen/Iridescence:** No **Odor:** Yes

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(◦F)
0	Int.	6:51	1.055	528	-151.7	37	7.17	67.52
1	25	6:59	1.075	538	-143.1	26.4	7.21	67.74
2	50	7:09	1.088	544	-161.8	23.9	7.22	67.7
3	75	7:19	1.088	544	-17	20.9	7.15	68.15
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	27.23	
(P) After Purging	36.9	
P- 0.8(P-I) =	29.16	80% Recovery
(S) Before Sampling	27.77	
Sampled 80% - 100%	Yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene	1	None
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass	1	H2504
250 ml polypropylene	2	None

Sample Date : 4/28/11 **Time:** 8:20 **Turbidity (NTU):** 24.3

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, CA	**Date:**	4/28/11
Well Number:	TP-1	**Well Integrity:**	Good
Technician:	A. Pantoja / C. Arroyo	**Ambient Conditions:**	Sunny/Windy

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth	Depth To Ground-water (GW)	Linear Feet of GW	Gallons Per Linear Foot	1 Well Volume (gal.)
2	43.22	28.23	14.99	0.17	2.54
3	-		X	0.38	=
4				0.66	
4.5	-	=	X	0.83	=
6	-	=	X	1.5	=

Groundwater Surface Inspection

Floating Product (ft)(in.): None **Sheen/Iridescence:** No **Odor:** No

Groundwater Purging Purge Method

Submersible Pump Honda Pump **Hand Bail** Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(◦F)
0	Int.	10:34	1.441	721	-30.6	137.1	6.97	66.88
1	3	10:40	1.462	732	-2	134.2	6.85	68.6
2	6	10:45	1.47	735	4.9	116.3	6.86	68.23
3	9	10:50	1.472	736	9.7	106.9	6.87	68.24
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	28.23	
(P) After Purging	30.35	
P- 0.8(P-I) =	28.65	80% Recovery
(S) Before Sampling	28.56	
Sampled 80% - 100%	Yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass		
125 ml polypropylene		

Sample Date : 4/28/11 **Time:** 11:55 **Turbidity (NTU):** 120

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, CA	**Date:**	4/28/11
Well Number:	TP-2	**Well Integrity:**	Good
Technician:	A. Pantoja / C. Arroyo	**Ambient Conditions:**	Sunny/Windy

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth	Depth To Ground-water (GW)	Linear Feet of GW	Gallons Per Linear Foot	1 Well Volume (gal.)
2	41.21	28.3	12.91	0.17	2.19
3	-		X	0.38	=
4				0.66	
4.5	-	=	X	0.83	=
6	-	=	X	1.5	=

Groundwater Surface Inspection

Floating Product (ft)(in.): None **Sheen/Iridescence:** No **Odor:** No

Groundwater Purging Purge Method

Submersible Pump Honda Pump **Hand Bail** Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(◦F)
0	Int.	11:15	1.399	699	6.6	184.5	7.09	63.5
1	2	11:20	1.411	706	20.8	212.5	7.02	63.72
2	4	11:30	1.414	707	41.8	165.2	6.92	62.23
3	6	11:34	1.455	727	43.4	166.2	6.95	63.5
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	28.3	
(P) After Purging	29.28	
P- 0.8(P-I) =	28.49	80% Recovery
(S) Before Sampling		
Sampled 80% - 100%		

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass		
125 ml polypropylene		

Sample Date : 4/28/11 **Time:** 12:05 **Turbidity (NTU):** 706

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, CA	**Date:**	4/28/11
Well Number:	VW-2	**Well Integrity:**	Good
Technician:	A. Pantoja / C. Arroyo	**Ambient Conditions:**	Sunny

Well Volume Calculation

Well Casing Diameter (in.)		Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW	Gallons Per Linear Foot		1 Well Volume (gal.)
2		36.78		25.43		11.35	0.17		
3		-		=		X	0.38		=
4		-		=		X	0.66		=
4.5		-		=		X	0.83		=
6		-		=		X	1.5		=

Groundwater Surface Inspection

Floating Product (ft)(in.): None **Sheen/Iridescence:** No **Odor:** No

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail **Grab Sample**

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(◦F)
0	Int.							
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	25.43	
(P) After Purging		
P- 0.8(P-I) =		80% Recovery
(S) Before Sampling		
Sampled 80% - 100%		

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass		
125 ml polypropylene		

Sample Date : 4/28/11 **Time:** 8:05 **Turbidity (NTU):** 72.3

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, Ca	**Date:**	4/25/11
Well Number:	VW-3	**Well Integrity:**	Good
Technician:	A. Pantoja / C. Arroyo	**Ambient Conditions:**	Cloudy

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth	Depth To Ground-water (GW)	Linear Feet of GW	Gallons Per Linear Foot	1 Well Volume (gal.)
2	36.34	27.81	X	0.17	=
3	-	=	X	0.38	=
4	-	=	X	0.66	=
4.5	-	=	X	0.83	=
6	-	=	X	1.5	=

Groundwater Surface Inspection

Floating Product (ft)(in.): None **Sheen/Iridescence:** No **Odor:** No

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail **Grab Sample**

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(◦F)
0	Int.							
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	27.81	
(P) After Purging	-	
P- 0.8(P-I) =	-	80% Recovery
(S) Before Sampling	-	
Sampled 80% - 100%	-	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass		
125 ml polypropylene		

Sample Date : 4/25/11 **Time:** 9:20 **Turbidity (NTU):** 20

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, CA	**Date:**	4/27/11
Well Number:	IP-1	**Well Integrity:**	Good
Technician:	A. Pantoja / C. Arroyo	**Ambient Conditions:**	Sunny/Windy

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth	Depth To Ground-water (GW)	Linear Feet of GW	Gallons Per Linear Foot	1 Well Volume (gal.)
2	64.48	27.97	36.51	0.17	6.2
3	-	=	X	0.38	=
4	-	=	X	0.66	=
4.5	-	=	X	0.83	=
6	-	=	X	1.5	=

Groundwater Surface Inspection

Floating Product (ft)(in.): None **Sheen/Iridescence:** No **Odor:** No

Groundwater Purging Purge Method

Submersible Pump Honda Pump **Hand Bail** Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(°F)
0	Int.	16:09	1.064	532	-115.3	21.3	7.66	69.84
1	6	16:18	1.083	541	-103.5	140	7.31	70.12
2	12	16:23	1.092	547	-12.6	236.8	7.62	67.65
3	18	16:30	1.027	513	29.9	255.8	7.92	69.61
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	27.97	
(P) After Purging	30.81	
P- 0.8(P-I) =	28.53	80% Recovery
(S) Before Sampling	28.19	
Sampled 80% - 100%	Yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass		
125 ml polypropylene		

Sample Date : 4/27/11 **Time:** 17:25 **Turbidity (NTU):** 486

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, Ca	**Date:**	4/26/11
Well Number:	IP-2	**Well Integrity:**	Good
Technician:	A. Pantoja / C. Arroyo	**Ambient Conditions:**	Sunny

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW	Gallons Per Linear Foot		1 Well Volume (gal.)
2	64.34	-	28.04	=	36.3	X	0.17	6.17
3	-		=		X	0.38		=
4	-		=		X	0.66		=
4.5	-		=		X	0.83		=
6	-		=		X	1.5		=

Groundwater Surface Inspection

Floating Product (ft)(in.): None **Sheen/Iridescence:** No **Odor:** Yes

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(°F)
0	Int.	11:53	983	493	-3.1	63.5	6.89	68.49
1	6	11:59	981	490	5.4	23.6	7.44	68.2
2	12	12:05	984	492	-109.5	24.2	7.58	65.48
3	18	12:11	1.042	522	-179.7	14.5	7.58	63.2
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	28.04	
(P) After Purging	28.72	
P- 0.8(P-I) =	28.17	80% Recovery
(S) Before Sampling	28.12	
Sampled 80% - 100%	yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass		
125 ml polypropylene		

Sample Date : 4/26/11 **Time:** 12:50 **Turbidity (NTU):** 20.7

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, Ca	**Date:**	4/26/11
Well Number:	IP-3	**Well Integrity:**	Good
Technician:	A. Pantoja / C. Arroyo	**Ambient Conditions:**	Sunny

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW	Gallons Per Linear Foot	1 Well Volume (gal.)
2	64.63	-	28.07	=	36.56	X 0.17	= 6.21
3		-		=		X 0.38	=
4		-		=		X 0.66	=
4.5		-		=		X 0.83	=
6		-		=		X 1.5	=

Groundwater Surface Inspection

Floating Product (ft)(in.): None **Sheen/Iridescence:** No **Odor:** No

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(°F)
0	Int.	8:58	919	460	-8.9	33.5	7.1	67.81
1	6	9:03	1.009	504	4.6	21.3	6.87	61.74
2	12	9:08	1.032	517	7.1	65	6.85	60.14
3	18	9:12	953	477	20.9	85	6.79	66.68
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	28.07	
(P) After Purging	28.45	
P- 0.8(P-I) =	28.14	80% Recovery
(S) Before Sampling	28.03	
Sampled 80% - 100%	yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass		
125 ml polypropylene		

Sample Date : 4/26/11 **Time:** 9:25 **Turbidity (NTU):** 13.8

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, Ca	**Date:**	4/26/11
Well Number:	IP-4	**Well Integrity:**	Good
Technician:	A. Pantoja / C. Arroyo	**Ambient Conditions:**	Sunny

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW	Gallons Per Linear Foot	1 Well Volume (gal.)
2	64.74	-	27.93	=	36.81	X 0.17	= 6.25
3	-		=		X	0.38	=
4	-		=		X	0.66	=
4.5	-		=		X	0.83	=
6	-		=		X	1.5	=

Groundwater Surface Inspection

Floating Product (ft)(in.): None **Sheen/Iridescence:** No **Odor:** No

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(◦F)
0	Int.	9:45	974	488	2.6	169.8	7.13	59.98
1	6	9:50	929	465	37.9	70	6.85	67.55
2	12	9:56	942	471	50.9	174.8	6.82	67.32
3	18	10:02	955	477	65.9	181.4	6.77	66.51
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	27.93	
(P) After Purging	29.21	
P- 0.8(P-I) =	28.18	80% Recovery
(S) Before Sampling	28.16	
Sampled 80% - 100%	yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass		
125 ml polypropylene		

Sample Date : 4/26/11 **Time:** 10:35 **Turbidity (NTU):** 25.7

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, Ca	**Date:**	4/26/11
Well Number:	IP-5	**Well Integrity:**	Good
Technician:	A. Pantoja / C. Arroyo	**Ambient Conditions:**	Sunny

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW	Gallons Per Linear Foot	1 Well Volume (gal.)
2	64.28	-	27.8	=	34.48	0.17	6.2
3	-		=		X	0.38	=
4	-		=		X	0.66	=
4.5	-		=		X	0.83	=
6	-		=		X	1.5	=

Groundwater Surface Inspection

Floating Product (ft)(in.): None **Sheen/Iridescence:** No **Odor:** No

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(°F)
0	Int.	10:50	843	421	37.4	192.4	7.56	67.19
1	6	10:55	956	478	53.3	45.4	6.92	67.82
2	12	11:00	968	484	51.9	26.3	6.68	67.91
3	18	11:06	977	489	46.6	22	6.67	67.74
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	27.8	
(P) After Purging	28	
P- 0.8(P-I) =	27.84	80% Recovery
(S) Before Sampling	27.76	
Sampled 80% - 100%	yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass		
125 ml polypropylene		

Sample Date : 4/26/11 **Time:** 11:32 **Turbidity (NTU):** 46.6

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, CA	**Date:**	4/27/11
Well Number:	IP-6	**Well Integrity:**	Good
Technician:	A. Pantoja / C. Arroyo	**Ambient Conditions:**	Sunny

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth	Depth To Ground-water (GW)	Linear Feet of GW	Gallons Per Linear Foot	1 Well Volume (gal.)
2	71.35	30.6	40.75	0.17	6.92
3	-	=	X	0.38	=
4	-	=	X	0.66	=
4.5	-	=	X	0.83	=
6	-	=	X	1.5	=

Groundwater Surface Inspection

Floating Product (ft)(in.): None **Sheen/Iridescence:** No **Odor:** No

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(◦F)
0	Int.	15:15	968	484	-6.7	130.4	7.11	73.39
1	7	15:21	970	485	-0.2	49.2	6.91	69.66
2	14	15:26	968	483	-0.4	36.2	7.11	69.14
3	21	15:30	965	483	0.6	38.2	7.24	68.86
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	30.6	
(P) After Purging	32.5	
P- 0.8(P-I) =	30.98	80% Recovery
(S) Before Sampling	30.74	
Sampled 80% - 100%	Yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass		
125 ml polypropylene		

Sample Date : 4/27/11 **Time:** 16:55 **Turbidity (NTU):** 23.2

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, CA	**Date:**	4/27/11
Well Number:	IP-7	**Well Integrity:**	Good
Technician:	A. Pantoja / C. Arroyo	**Ambient Conditions:**	Sunny/Windy

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW	Gallons Per Linear Foot	1 Well Volume (gal.)
2	71.58	-	31.51	=	40.07	X 0.17	= 6.81
3		-		=		X 0.38	=
4		-		=		X 0.66	=
4.5		-		=		X 0.83	=
6		-		=		X 1.5	=

Groundwater Surface Inspection

Floating Product (ft)(in.): None **Sheen/Iridescence:** No **Odor:** No

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(°F)
0	Int.	15:43	1.085	545	5.1	70.6	7.27	65.11
1	7	15:46	987	493	-4.4	24.4	7.07	69.77
2	14	15:50	982	491	-5.2	14.8	6.83	69.5
3	21	15:54	978	489	-11	12.1	6.8	69.59
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	31.51	
(P) After Purging	34.15	
P- 0.8(P-I) =	32.03	80% Recovery
(S) Before Sampling	31.74	
Sampled 80% - 100%	Yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass		
125 ml polypropylene		

Sample Date : 4/27/11 **Time:** 17:10 **Turbidity (NTU):** 64

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, CA	**Date:**	4/28/11
Well Number:	IP-8	**Well Integrity:**	Good
Technician:	A. Pantoja / C. Arroyo	**Ambient Conditions:**	Sunny/Windy

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth	Depth To Ground-water (GW)	Linear Feet of GW	Gallons Per Linear Foot	1 Well Volume (gal.)
2	64.39	28.07	36.32	0.17	6.17
3	-	=	X	0.38	=
4	-	=	X	0.66	=
4.5	-	=	X	0.83	=
6	-	=	X	1.5	=

Groundwater Surface Inspection

Floating Product (ft)(in.): None **Sheen/Iridescence:** No **Odor:** No

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(°F)
0	Int.	12:28	951	474	-7.9	227.8	7.31	67.59
1	6	12:32	1.132	565	-6.9	110.4	7.24	67.07
2	12	12:36	1.085	543	-41.2	66.9	7.04	67.12
3	18	12:39	1.094	547	-51	58.7	7.03	68.5
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	28.07	
(P) After Purging	30.42	
P- 0.8(P-I) =	28.54	80% Recovery
(S) Before Sampling	28.1	
Sampled 80% - 100%	Yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass		
125 ml polypropylene		

Sample Date : 4/28/11 **Time:** 13:15 **Turbidity (NTU):** 34.2

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, CA	**Date:**	4/28/11
Well Number:	IP-9	**Well Integrity:**	Good
Technician:	A. Pantoja / C. Arroyo	**Ambient Conditions:**	Sunny/Windy

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth	Depth To Ground-water (GW)	Linear Feet of GW	Gallons Per Linear Foot	1 Well Volume (gal.)
2	58.95	27.84	31.11	0.17	5.28
3	-	=	X	0.38	=
4	-	=	X	0.66	=
4.5	-	=	X	0.83	=
6	-	=	X	1.5	=

Groundwater Surface Inspection

Floating Product (ft)(in.): None **Sheen/Iridescence:** No **Odor:** No

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(°F)
0	Int.	12:55	994	497	15.1	123.3	7.18	67.99
1	5	12:59	1.126	563	32.4	254.1	7.3	67.23
2	10	13:04	1.063	531	34.1	190.3	7.15	67.62
3	15	13:09	1.098	549	22.6	156.1	7.13	68.18
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)
(I) Initially	27.84
(P) After Purging	31.22
P- 0.8(P-I) =	80% Recovery
(S) Before Sampling	
Sampled 80% - 100%	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass		
125 ml polypropylene		

Sample Date : 4/28/11 **Time:** 13:30 **Turbidity (NTU):** 15.9

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments: took troll out @ 12:45

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, Ca	**Date:**	4/26/11
Well Number:	IP-10	**Well Integrity:**	Good
Technician:	A. Pantoja / C. Arroyo	**Ambient Conditions:**	Sunny

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth	Depth To Ground-water (GW)	Linear Feet of GW	Gallons Per Linear Foot	1 Well Volume (gal.)
2	63	27.79	35.21	0.17	5.98
3	-	=	X	0.38	=
4	-	=	X	0.66	=
4.5	-	=	X	0.83	=
6	-	=	X	1.5	=

Groundwater Surface Inspection

Floating Product (ft)(in.): None **Sheen/Iridescence:** No **Odor:** No

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Volumes Purged	Volume Purge (gal.)	Time	Conductivity (uS/cm)	tds (ppm)	ORP	DO %	pH	Temp.(°F)
0	Int.	13:07	861	430	-3.3	242.8	7.11	69.53
1	6	13:15	904	452	61.7	165.4	7.21	72.32
2	12	13:29	955	477	23.2	71.9	6.6	68.9
3	18	13:37	954	476	22.6	55.9	6.45	68.48
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	27.79	
(P) After Purging	29.9	
P- 0.8(P-I) =	28.21	80% Recovery
(S) Before Sampling	27.9	
Sampled 80% - 100%	yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	5	HCL
250 ml glass		
125 ml polypropylene		

Sample Date : 4/26/11 **Time:** 14:30 **Turbidity (NTU):** 11.3

Sampling Equipment : Disposable Bailer

Calibrate Date: 4/25/11

Comments:

Daily Field Report

Date: April 25 - 28 2011

Company: Orion Environmental

Contact: Matthew Nelson

Project Name: Tesoro #67076

Location: Livermore, Ca

Prepared by:

Environmental Field Services, LLC

Peter Arroyo

227 Palomino Way

Patterson Ca, 95363

(209) 321-6255

Fax: (209) 892-1190

www.environmentalfieldwork.com

Notes:

Arrive on-site, check in with attendant, locate & open wells, allow wells to equilibrate.

Wells were gauged using a Solonist water level meter (TD & DTW). (see Field Data Sheet)

Hanna 9828 meter was calibrated with Quick Cal solution.

All equipment was decontaminated between each use, using water & Alcanox.

Monitoring wells were purged by hand bailing or submersible pump, speeds controlled with a ball valve for minimum drawdown. Disposable tubing was used for each well & discarded after each use.

PH, Cond, Temp., DO, ORP & tds readings were taken for each volume of water purged.

Turbidity readings were taken at time of sampling.

Samples were taken using a new disposable bailer for each well. Samples were packed in bubble wrap & zip loc bags that were labeled. Samples were picked up by a Kiff Analytical courier daily.

Purge water was stored in self contained tank & was off loaded to Excel Environmental for disposal daily. A total of 850 gallons was removed from the site.

Please see groundwater sampling form for each wells data.

All wells secure, no purge water drums on-site, all trash removed before departing site.

Signature:

ATTACHMENT C

SOIL VAPOR SAMPLING QA/QC PROCEDURES

ATTACHMENT C
SOIL VAPOR SAMPLING QA/QC PROCEDURES

Vapor Sample Collection

Vapor samples were collected using a vacuum chamber with a Tedlar bag. Sample lines were ¼-inch-diameter Teflon or new vinyl tubing with a length not exceeding 10 feet. Generally, the length of tubing was the minimum necessary to connect the sample source to the sampling apparatus. Samples bags were made of Tedlar film with a minimum thickness of 0.002 inches.

An airtight rigid vacuum chamber was used when the bags were filled by applying vacuum. The chamber was opaque (to decrease sample degradation due to ultraviolet light) except for a small window that allowed the sampler to check the condition of the bag during sampling. The chamber had the necessary couplings to connect with sample bags, sample line, and vacuum line and a flow control valve to shut off the flow to the bag. The chamber was also equipped with a vacuum relief valve to protect both the bag and container. An oil-less vacuum pump with a minimum capacity of 2 liters per minute was used. If it was necessary to observe the sampling rate, a rotameter (or equivalent) flow meter was used with a range of 0.05 to 1.0 liter per minute. All connections were leak checked before collecting gas samples. To leak check the connections, a Tedlar bag was placed inside the rigid container with the valve on the bag closed. The vacuum pump was turned on and the vacuum monitored until 15 inches of water column (in. wc) was maintained.

The following procedures were followed when collecting a vapor sample for laboratory analysis:

1. Assemble the sample train and leak check the connections.
2. Place an open Tedlar bag inside the vacuum chamber and connect both the Tedlar bag and vacuum line to the sample train.
3. Turn on the vacuum pump and open the desired sample port or wellhead valve.
4. Wait for the sample line to be purged of 3 to 5 casing volumes.
5. Switch the vacuum line from the sample train to the chamber and allow the chamber vacuum to inflate the Tedlar bag.
6. Fill the Tedlar bag to approximately 80 percent capacity.
7. Close the sample port and turn off the vacuum pump.

8. Release the vacuum on the chamber by disconnecting the vacuum line.

9. Open the chamber and close the Tedlar bag.

Once collected, vapor samples were stored and shipped in an opaque container free of sharp edges, metal closures, or staples to protect the integrity of the Tedlar bag. Vapor samples collected in Tedlar bags were analyzed by a State-certified analytical laboratory within 72 hours of collection.

Analytical Plan

The vapor samples were submitted to Kiff Analytical LLC (Kiff), a State-certified laboratory in Davis, California, and analyzed for the following parameters:

- Total petroleum hydrocarbons as gasoline (TPHg); benzene, toluene, ethylbenzene, and total xylenes (BTEX); and methyl tert-butyl ether (MTBE) using Environmental Protection Agency (EPA) Method 8260B

- Fixed gases (oxygen, nitrogen, methane, and carbon dioxide) by American Society for Testing and Materials (ASTM) Method D1946 or equivalent.

Analytical QA/QC Procedures
Laboratory analytical QA/QC procedures are described in Attachment A.

ATTACHMENT D

HISTORICAL WELL AND GROUNDWATER ELEVATIONS

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
MW-1	6/1/93	37.50	474.29	436.79
	6/22/93	38.46		435.83
	10/6/93	42.22		432.07
	1/13/94	34.52		439.77
	3/30/94	31.93		442.36
	4/25/94	33.49		440.80
	8/12/94	41.03		433.26
	12/14/94	38.63		435.66
	2/10/95	30.80		443.49
	6/15/95	25.46		448.83
	9/26/95	31.05		443.24
	12/15/95	28.11		446.18
	3/21/96	17.67		456.62
	6/13/96	22.86		451.43
	9/16/96	30.04		444.25
	12/2/96	26.74		447.55
	3/7/97	20.84		453.45
	6/12/97	28.71		445.58
	9/29/97	33.91		440.38
	12/1/97	34.88		439.41
	3/19/98	19.83		454.46
	5/29/98	21.57		452.72
	9/15/98	31.68		442.61
	11/30/98	36.80		437.49
	1/17/99	30.02		444.27
	6/10/99	29.30		444.99
	9/7/99	31.41		442.88
	12/13/99	32.95		441.34
	3/13/00	25.74		448.55
	6/12/00	28.24		446.05
	11/10/00	30.56		443.73

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
MW-1	12/31/00	31.71	474.29	442.58
(cont.)	3/27/01	30.43		443.86
	6/30/01	36.61		437.68
	9/26/01	45.10		429.19
	12/18/01	39.39		434.90
	3/18/02	38.24		436.05
	8/21/02	36.71		436.05
	12/3/02	36.85		437.44
	3/4/03	33.72		440.57
	6/10/03	31.31		442.98
	9/9/03	35.05		439.24
	12/23/03	30.15		444.14
	3/23/04	26.61		447.68
	5/10/04	30.31		443.98
	8/4/04	34.77		439.52
	11/4/04	33.93		440.36
	1/12/05	27.82		446.47
	5/2/05	24.87		449.42
	7/19/05	29.26		445.03
	11/21/05	31.15		443.14
	2/9/06	26.24		448.05
	5/16/06	24.87		449.42
	8/9/06	31.64		442.65
	11/8/06	31.16		443.13
	2/14/07	30.00		444.29
	5/17/07	33.75		440.54
	8/2/07	40.00		434.29
	11/12/07	48.55		425.74
	2/14/08	34.74		439.55
	5/8/08	36.15		438.14
	7/23/08	45.76		428.53

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
MW-1	10/13/08	51.00	474.29	423.29
(cont.)	2/11/09	48.69		425.60
	4/27/09	41.90		432.39
	8/4/09	51.44		422.85
	12/8/09	39.87		434.42
	2/11/10	35.20		439.09
	5/3/10	31.23		443.06
	8/2/10	34.56	474.21[(c)]	439.65
	11/2/10	37.04		437.17
	2/1/11	32.51		441.70
	4/25/11	27.73		446.48
MW-2	6/1/93	38.02	472.98	434.96
	6/22/93	39.07		433.91
	10/6/93	43.72		429.26
	1/13/94	35.85		437.13
	3/30/94	32.82		440.16
	4/25/94	34.76		438.22
	8/12/94	44.33		428.65
	12/14/94	40.00		432.98
	2/10/95	32.16		440.82
	6/15/95	25.93		447.05
	9/26/95	32.42		440.56
	12/15/95	29.41		443.57
	3/21/96	17.47		455.51
	6/13/96	23.69		449.29
	9/16/96	31.24		441.74
	12/2/96	26.90		446.08
	3/7/97	21.33		451.65
	6/12/97	29.94		443.04
	9/29/97	34.22		438.76
	12/1/97	35.94		437.04

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
MW-2	3/19/98	20.34	472.98	452.64
(cont.)	5/29/98	22.63		450.35
	9/15/98	32.30		440.68
	11/30/98	36.90		436.08
	1/17/99	30.17		442.81
	6/10/99	29.98		443.00
	9/7/99	31.85		441.13
	12/13/99	33.72		439.26
	3/13/00	26.54		446.44
	6/12/00	28.44		444.54
	11/10/00	31.31		441.67
	12/31/00	32.68		440.30
	3/27/01	30.81		442.17
	6/30/01	37.58		435.40
	9/26/01	44.97		428.01
	12/18/01	40.67		432.31
	3/18/02	38.94		434.04
	6/5/02	36.45		436.53
	8/21/02	37.15		435.83
	12/3/02	36.76		436.22
	3/4/03	33.60		439.38
	6/10/03	32.89		440.09
	9/9/03	35.45		437.53
	12/23/03	31.79		441.19
	3/23/04	28.25		444.73
	5/10/04	30.91		442.07
	8/4/04	35.36		437.62
	11/4/04	34.92		438.06
	1/12/05	29.46		443.52
	5/2/05	25.61		447.37
	7/19/05	30.11		442.87

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
MW-2	11/21/05	32.04	472.98	440.94
(cont.)	2/9/06	27.11		445.87
	5/17/06	25.18		447.80
	8/9/06	32.69		440.29
	11/8/06	33.21		439.77
	2/14/07	31.27		441.71
	5/17/07	34.40		438.58
	8/2/07	41.23		431.75
	11/12/07	48.22		424.76
	2/14/08	36.31		436.67
	5/8/08	36.70		436.28
	7/23/08	45.78		427.20
	10/13/08	51.30		421.68
	2/11/09	48.90		424.08
	4/27/09	42.62		430.36
	8/4/09	51.83		421.15
	12/8/09	40.82		432.16
	2/11/10	36.54		436.44
	5/3/10	32.44		440.54
	8/2/10	35.34		437.64
	11/2/10	38.15		434.83
	2/1/11	33.40		439.58
	4/25/11	28.49		444.49
MW-3	6/1/93	36.18	473.37	437.19
	6/22/93	37.11		436.26
	10/6/93	41.15		432.22
	1/13/94	33.95		439.42
	3/30/94	30.97		442.40
	4/25/94	32.46		440.91
	8/12/94	41.72		431.65
	12/14/94	37.62		435.75

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
MW-3	2/10/95	29.96	473.37	443.41
(cont.)	6/15/95	23.66		449.71
	9/26/95	29.62		443.75
	12/15/95	27.10		446.27
	3/21/96	15.85		457.52
	6/13/96	21.31		452.06
	9/16/96	28.62		444.75
	12/2/96	25.55		447.82
	3/7/97	19.77		453.60
	6/12/97	27.67		445.70
	9/29/97	29.60		443.77
	12/1/97	33.37		440.00
	3/19/98	18.76		454.61
	5/29/98	20.64		452.73
	9/15/98	30.70		442.67
	11/30/98	34.96		438.41
	1/17/99	28.81		444.56
	6/10/99	28.10		445.27
	9/7/99	30.38		442.99
	12/13/99	31.46		441.91
	3/13/00	24.28		449.09
	6/12/00	26.80		446.57
	11/10/00	29.47		443.90
	12/31/00	31.38		441.99
	3/27/01	29.94		443.43
	6/30/01	37.54		435.83
	9/26/01	45.17		428.20
	12/18/01	39.41		433.96
	3/18/02	37.73		435.64
	6/5/02	35.35		438.02
	8/21/02	36.21		437.16

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
MW-3	12/3/02	35.62	473.37	437.75
(cont.)	3/4/03	32.75		440.62
	6/10/03	31.26		442.11
	9/9/03	34.72		438.65
	12/23/03	30.47		442.90
	3/23/04	26.67		446.70
	5/10/04	30.25		443.12
	8/4/04	34.70		438.67
	11/4/04	33.94		439.43
	1/12/05	28.21		445.16
	5/2/05	24.56		448.81
	7/19/05	29.39		443.98
	11/21/05	31.30		442.07
	2/9/06	26.21		447.16
	5/16/06	24.36		449.01
	8/9/06	31.90		441.47
	11/8/06	31.30		442.07
	2/14/07	30.20		443.17
	5/17/07	33.64		439.73
	8/2/07	41.74		431.63
	11/12/07	47.41		425.96
	2/14/08	34.73		438.64
	5/8/08	35.60		437.77
	7/23/08	45.00		428.37
	10/13/08	50.70		422.67
	2/11/09	47.81		425.56
	4/27/09	41.18		432.19
	8/4/09	51.89		421.48
	12/8/09	39.50		433.87
	2/11/10	35.19		438.18
	5/3/10	31.39		441.98

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
MW-3	8/2/10	34.61	473.37	438.76
(cont.)	11/2/10	37.20		436.17
	2/1/11	32.59		440.78
	4/25/11	27.60		445.77
MW-4	3/30/94	31.56	473.64	442.08
	4/25/94	32.73		440.91
	8/12/94	41.61		432.03
	12/14/94	38.11		435.53
	2/10/95	30.50		443.14
	6/15/95	23.63		450.01
	9/26/95	29.70		443.94
	12/15/95	27.56		446.08
	3/21/96	15.63		458.01
	6/13/96	21.07		452.57
	9/16/96	28.99		444.65
	12/2/96	26.04		447.60
	3/7/97	19.69		453.95
	6/12/97	28.04		445.60
	9/29/97	29.91		443.73
	12/1/97	33.88		439.76
	3/19/98	18.67		454.97
	5/29/98	20.16		453.48
	9/15/98	30.46		443.18
	11/30/98	34.50		439.14
	1/17/99	28.30		445.34
	6/10/99	27.60		446.04
	9/7/99	30.79		442.85
	12/13/99	31.60		442.04
	3/13/00	24.35		449.29
	6/12/00	26.91		446.73
	11/10/00	29.71		443.93

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
MW-4	12/31/00	31.79	473.64	441.85
(cont.)	3/27/01	29.98		443.66
	6/30/01	36.88		436.76
	9/26/01	43.87		429.77
	12/18/01	39.30		434.34
	3/18/02	37.75		435.89
	6/5/02	35.68		437.96
	8/21/02	36.58		437.06
	12/3/02	35.90		437.74
	3/4/03	32.73		440.91
	6/10/03	31.20		442.44
	9/9/03	34.64		439.00
	12/23/03	31.30		442.34
	3/23/04	26.71		446.93
	5/10/04	30.33		443.31
	8/4/04	34.87		438.77
	11/4/04	34.28		439.36
	1/12/05	28.67		444.97
	5/2/05	24.46		449.18
	7/19/05	29.36		444.28
	11/21/05	31.80		441.84
	2/9/06	26.34		447.30
	5/16/06	24.30		449.34
	8/9/06	32.05		441.59
	11/8/06	32.85		440.79
	2/14/07	30.46		443.18
	5/17/07	33.92		439.72
	8/2/07	40.68		432.96
	11/12/07	DRY[(d)]		--
	2/14/08	34.53		439.11
	5/8/08	35.55		438.09

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
MW-4	7/23/08	43.87	473.64	429.77
(cont.)	10/13/08	DRY		--
	2/11/09	DRY		--
	4/27/09	40.64		433.00
	8/4/09	DRY		--
	12/8/09	39.46		434.18
	2/11/10	35.31		438.33
	5/3/10	31.55		442.09
	8/2/10	35.15		438.49
	11/2/10	37.55		436.09
	2/1/11	32.86		440.78
	4/25/11	28.69		444.95
MW-5	3/30/94	32.07	472.67	440.60
	4/25/94	33.65		439.02
	8/12/94	42.73		429.94
	12/14/94	38.89		433.78
	2/10/95	31.44		441.23
	6/15/95	24.99		447.68
	9/26/95	30.20		442.47
	12/15/95	28.56		444.11
	3/21/96	16.82		455.85
	6/13/96	22.61		450.06
	9/16/96	29.78		442.89
	12/2/96	26.51		446.16
	3/7/97	21.91		450.76
	9/29/97	31.74		440.93
	12/1/97	34.05		438.62
	3/19/98	20.93		451.74
	5/29/98	21.30		451.37
	9/15/98	31.32		441.35
	11/30/98	35.44		437.23

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
MW-5	1/17/99	29.59	472.67	443.08
(cont.)	6/10/99	28.05		444.62
	9/7/99	31.11		441.56
	12/13/99	32.66		440.01
	3/13/00	25.87		446.80
	6/12/00	28.15		444.52
	11/10/00	30.05		442.62
	12/31/00	31.81		440.86
	3/27/01	30.57		442.10
	6/30/01	37.24		435.43
	9/26/01	44.53		428.14
	12/18/01	40.65		432.02
	3/18/02	38.75		433.92
	6/5/02	36.21		436.46
	8/21/02	36.76		435.91
	12/3/02	36.12		436.55
	3/4/03	32.90		439.77
	6/10/03	33.04		439.63
	9/9/03	34.20		438.47
	12/23/03	31.38		441.29
	3/23/04	27.51		445.16
	5/10/04	31.12		441.55
	8/4/04	35.09		437.58
	11/4/04	34.34		438.33
	1/12/05	29.19		443.48
	5/2/05	25.31		447.36
	7/19/05	30.49		442.18
	11/21/05	32.35		440.32
	2/9/06	27.19		445.48
	5/16/06	25.30		447.37
	8/9/06	32.68		439.99

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
MW-5	11/8/06	32.22	472.67	440.45
(cont.)	2/14/07	34.00		438.67
	5/17/07	34.29		438.38
	8/2/07	41.72		430.95
	11/12/07	DRY		--
	2/14/08	35.66		437.01
	5/8/08	36.60		436.07
	7/23/08	DRY		--
	10/13/08	DRY		--
	2/11/09	DRY		--
	4/27/09	42.50		430.17
	8/4/09	DRY		--
	12/8/09	39.92		432.75
	2/11/10	36.62		436.05
	5/3/10	32.89		439.78
	8/2/10	36.16		436.51
	11/2/10	38.75		433.92
	2/1/11	32.77		439.90
	4/25/11	29.03		443.64
MW-6	3/30/94	33.38	471.93	438.55
	4/25/94	35.49		436.44
	8/12/94	45.14		426.79
	12/14/94	40.99		430.94
	2/10/95	33.34		438.59
	6/15/95	26.88		445.05
	9/26/95	33.55		438.38
	12/15/95	30.32		441.61
	3/21/96	18.89		453.04
	6/13/96	24.62		447.31
	9/16/96	32.64		439.29
	12/2/96	27.42		444.51

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
MW-6	3/7/97	22.13	471.93	449.80
(cont.)	6/12/97	31.02		440.91
	9/29/97	35.77		436.16
	12/1/97	37.14		434.79
	3/19/98	21.10		450.83
	5/29/98	23.26		448.67
	9/15/98	33.50		438.43
	11/30/98	38.73		433.20
	1/17/99	32.05		439.88
	6/10/99	31.44		440.49
	9/7/99	33.94		437.99
	12/13/99	35.84		436.09
	3/13/00	28.45		443.48
	6/12/00	30.52		441.41
	11/10/00	32.99		438.94
	12/31/00	34.95		436.98
	3/27/01	32.72		439.21
	6/30/01	39.86		432.07
	9/26/01	DRY		--
	12/18/01	43.36		428.57
	3/18/02	41.29		430.64
	6/5/02	38.85		433.08
	8/21/02	39.02		432.91
	12/3/02	38.76		433.17
	3/4/03	35.13		436.80
	6/10/03	34.15		437.78
	9/9/03	37.66		434.27
	12/23/03	33.43		438.50
	3/23/04	29.96		441.97
	5/10/04	32.98		438.95
	8/4/04	37.02		434.91

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
MW-6	11/4/04	37.03	471.93	434.90
(cont.)	1/12/05	32.01		439.92
	5/2/05	27.30		444.63
	7/19/05	32.27		439.66
	11/21/05	33.23		438.70
	2/9/06	29.07		442.86
	5/17/06	27.23		444.70
	8/9/06	35.22		436.71
	11/8/06	33.41		438.52
	2/14/07	33.43		438.50
	5/17/07	36.50		435.43
	8/2/07	42.24		429.69
	11/12/07	DRY		--
	2/14/08	38.67		433.26
	5/8/08	38.50		433.43
	7/23/08	DRY		--
	10/13/08	DRY		--
	2/11/09	DRY		--
	4/27/09	44.87		427.06
	8/4/09	DRY		--
	12/8/09	43.02		428.91
	2/11/10	38.89		433.04
	5/3/10	34.56		437.37
	8/2/10	37.87		434.06
	11/2/10	40.45		431.48
	2/1/11	35.73		436.20
	4/25/11	30.72		441.21
MW-7	3/30/94	31.98	472.33	440.35
	4/25/94	33.56		438.77
	8/12/94	43.35		428.98
	12/14/94	39.34		432.99

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
MW-7	2/10/95	32.11	472.33	440.22
(cont.)	6/15/95	25.51		446.82
	9/26/95	31.43		440.90
	12/15/95	28.97		443.36
	3/21/96	17.36		454.97
	6/13/96	23.47		448.86
	9/16/96	31.35		440.98
	12/2/96	27.11		445.22
	3/7/97	21.33		451.00
	6/12/97	29.90		442.43
	9/29/97	34.37		437.96
	12/1/97	36.46		435.87
	3/19/98	20.33		452.00
	5/29/98	22.30		450.03
	9/15/98	32.54		439.79
	11/30/98	37.96		434.37
	1/17/99	31.04		441.29
	6/10/99	29.89		442.44
	9/7/99	32.38		439.95
	12/13/99	33.98		438.35
	3/13/00	27.09		445.24
	6/12/00	28.76		443.57
	11/10/00	31.54		440.79
	12/31/00	32.76		439.57
	3/27/01	30.97		441.36
	6/30/01	37.50		434.83
	9/26/01	45.11		427.22
	12/18/01	41.13		431.20
	3/18/02	39.22		433.11
	6/5/02	36.55		435.78
	8/21/02	36.81		435.52

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
MW-7	12/3/02	36.52	472.33	435.81
(cont.)	3/4/03	32.60		439.73
	6/10/03	31.33		441.00
	9/9/03	34.71		437.62
	12/23/03	30.80		441.53
	3/23/04	26.41		445.92
	5/10/04	29.86		442.47
	8/4/04	34.06		438.27
	11/4/04	34.12		438.21
	1/12/05	28.83		443.50
	5/2/05	24.66		447.67
	7/19/05	29.07		443.26
	11/21/05	30.42		441.91
	2/9/06	26.15		446.18
	5/16/06	24.44		447.89
	8/9/06	31.77		440.56
	11/8/06	31.14		441.19
	2/14/07	30.39		441.94
	5/17/07	33.31		439.02
	8/2/07	37.09		435.24
	11/12/07	DRY		--
	2/14/08	36.51		435.82
	5/8/08	36.00		436.33
	7/23/08	44.42		427.91
	10/13/08	DRY		--
	2/11/09	DRY		--
	4/27/09	41.80		430.53
	8/4/09	DRY		--
	12/17/09	39.26		433.07
	2/11/10	36.18		436.15
	5/3/10	31.80		440.53

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
MW-7 (cont.)	8/2/10	34.31	472.33	438.02
	11/2/10	36.68		435.65
	2/1/11	32.66		439.67
	4/25/11	27.75		444.58
MW-8	12/23/03	32.01	471.18	439.17
	3/23/04	28.50		442.68
	5/10/04	31.44		439.74
	8/4/04	35.11		436.07
	11/4/04	34.77		436.41
	1/12/05	29.66		441.52
	5/2/05	25.91		445.27
	7/19/05	30.56		440.62
	11/21/05	32.48		438.70
	2/9/06	27.40		443.78
	5/16/06	25.60		445.58
	8/9/06	32.77		438.41
	11/8/06	32.10		439.08
	2/14/07	30.94		440.24
	5/17/07	34.14		437.04
	8/2/07	41.24		429.94
	11/12/07	DRY		--
	2/14/08	35.55		435.63
	5/8/08	36.64		434.54
	7/23/08	DRY		--
	10/13/08	DRY		--
	2/11/09	DRY		--
	4/27/09	DRY		--
	8/4/09	DRY		--
	12/17/09	39.92		431.26
	2/11/10	36.72		434.46
	5/3/10	32.81		438.37

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
MW-8 (cont.)	8/2/10	36.08	471.18	435.10
	11/2/10	38.44		432.74
	2/1/11	34.11		437.07
	4/25/11	28.72		442.46
MW-9	12/23/03	34.03	470.78	436.75
	3/23/04	30.01		440.77
	5/10/04	33.61		437.17
	8/4/04	37.47		433.31
	11/4/04	37.44		433.34
	5/2/05	27.73		443.05
	7/19/05	32.90		437.88
	11/21/05	34.15		436.63
	2/9/06	29.44		441.34
	5/16/06	27.50		443.28
	8/9/06	35.85		434.93
	11/8/06	34.18		436.60
	2/14/07	34.00		436.78
	5/17/07	36.88		433.90
	8/2/07	44.11		426.67
	11/12/07	DRY		--
	2/14/08	39.32		431.46
	5/8/08	38.90		431.88
	7/23/08	DRY		--
	10/13/08	DRY		--
	2/11/09	DRY		--
	4/27/09	43.79		426.99
	8/4/09	DRY		--
	12/8/09	43.61		427.17
	2/11/10	39.48		431.30
	5/3/10	34.96		435.82
	8/2/10	38.00		432.78

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
MW-9 (cont.)	11/2/10	40.30	470.78	430.48
	2/1/11	35.97		434.81
	4/25/11	30.64		440.14
MW-10	12/23/03	33.80	471.63	437.83
	3/23/04	28.68		442.95
	5/10/04	32.15		439.48
	8/4/04	36.40		435.23
	11/4/04	36.21		435.42
	1/12/05	31.64		439.99
	5/2/05	27.01		444.62
	7/19/05	31.59		440.04
	11/21/05	32.96		438.67
	2/9/06	28.56		443.07
	5/16/06	26.83		444.80
	8/9/06	34.37		437.26
	11/8/06	33.41		438.22
	2/14/07	32.81		438.82
	5/17/07	35.85		435.78
	8/2/07	43.46		428.17
	11/12/07	DRY		--
	2/14/08	39.71		431.92
	5/8/08	37.55		434.08
	7/23/08	DRY		--
	10/13/08	DRY		--
	2/11/09	DRY		--
	4/27/09	45.10		426.53
	8/4/09	44.52		427.11
	12/8/09	42.80		428.83
	2/11/10	39.74		431.89
	5/3/10	33.97		437.66
	8/2/10	36.12		435.51

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
MW-10 (cont.)	11/2/10	38.30	471.63	433.33
	2/1/11	34.63		437.00
	4/25/11	29.63		442.00
MW-11	12/16/08	DRY	473.26	--
	2/11/09	DRY		--
	4/27/09	DRY		--
	8/4/09	DRY		--
	12/8/09	40.25		433.01
	2/11/10	NM[(e)]		--
	5/3/10	31.36		441.90
	8/2/10	31.94	472.96[(c)]	441.02
	11/2/10	36.98		435.98
	2/1/11	32.30		440.66
	4/25/11	27.31		445.65
VW-2	8/4/04	34.13	473.28	439.15
	11/4/04	34.75		438.53
	1/12/05	29.35		443.93
	5/2/05	25.34		447.94
	7/19/05	29.76		443.52
	11/21/05	31.81		441.47
	2/9/06	27.21		446.07
	5/17/06	25.26		448.02
	8/9/06	31.74		441.54
	11/8/06	33.52		439.76
	2/14/07	30.77		442.51
	5/17/07	33.17		440.11
	8/2/07	36.33		436.95
	11/12/07	DRY		--
	2/14/08	35.55		437.73
	5/8/08	35.31		437.97
	7/23/08	DRY		--

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
VW-2	10/13/08	DRY	473.28	--
(cont.)	2/11/09	DRY		--
	4/27/09	DRY		--
	8/4/09	DRY		--
	12/8/09	DRY		--
	2/11/10	NM		--
	5/3/10	31.84		441.44
	8/2/10	33.15	472.57[(c)]	439.42
	11/2/10	DRY		--
	2/1/11	32.80		439.77
	4/25/11	25.43		447.14
VW-3	8/4/04	32.89	474.38	441.49
	11/4/04	34.78		439.60
	1/12/05	29.51		444.87
	5/2/05	24.79		449.59
	7/19/05	28.91		445.47
	11/21/05	31.07		443.31
	2/9/06	26.60		447.78
	5/16/06	24.19		450.19
	8/9/06	30.53		443.85
	11/8/06	31.62		442.76
	2/14/07	30.48		443.90
	5/17/07	31.70		442.68
	8/2/07	35.55		438.83
	11/12/07	DRY		--
	2/14/08	DRY		--
	5/8/08	34.80		439.58
	7/23/08	DRY		--
	10/13/08	DRY		--
	2/11/09	DRY		--
	4/27/09	DRY		--

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
VW-3	8/4/09	DRY	474.38	--
(cont.)	12/8/09	DRY		--
	2/11/10	DRY		--
	5/3/10	31.85		442.53
	8/2/10	34.72		439.66
	11/2/10	DRY		--
	2/1/11	32.56		441.82
	4/25/11	27.81		446.57
TP-1	7/19/05	29.91	472.82	442.91
	11/21/05	32.28		440.54
	2/9/06	28.02		444.80
	5/17/06	25.18		447.64
	8/9/06	32.81		440.01
	11/8/06	32.02		440.80
	2/14/07	33.59		439.23
	5/17/07	33.52		439.30
	8/2/07	40.30		432.52
	11/12/07	DRY		--
	2/14/08	36.17		436.65
	5/8/08	36.17		436.65
	7/23/08	DRY		--
	10/13/08	DRY		--
	2/11/09	DRY		--
	4/27/09	DRY		--
	8/4/09	DRY		--
	12/8/09	41.39		431.43
	2/11/10	NM		--
	5/3/10	32.32		440.50
	8/2/10	33.96	472.64[(c)]	438.68
	11/2/10	37.46		435.18

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
TP-1	2/1/11	33.01	472.64	439.63
(cont.)	4/25/11	28.23		444.41
TP-2	7/19/05	29.67	472.93	443.26
	11/21/05	31.43		441.50
	2/9/06	27.27		445.66
	5/17/06	25.00		447.93
	8/9/06	31.74		441.19
	11/8/06	32.80		440.13
	2/14/07	30.32		442.61
	5/17/07	33.28		439.65
	8/2/07	39.35		433.58
	11/12/07	DRY		--
	2/14/08	35.62		437.31
	5/8/08	36.62		436.31
	7/23/08	DRY		--
	10/13/08	DRY		--
	2/11/09	DRY		--
	4/27/09	DRY		--
	8/4/09	DRY		--
	12/8/09	40.08		432.85
	2/11/10	NM		--
	5/3/10	31.85		441.08
	8/2/10	33.57	472.78[(c)]	439.21
	11/2/10	37.35		435.43
	2/1/11	32.79		439.99
	4/25/11	28.30		444.48
DW-1	5/22/08	37.30	472.85	435.55
	7/23/08	45.55		427.30
	10/13/08	51.40		421.45
	2/11/09	48.28		424.57
	4/27/09	41.74		431.11

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
DW-1	8/4/09	52.22	472.85	420.63
(cont.)	12/8/09	39.79		433.06
	2/11/10	35.57		437.28
	5/3/10	31.70		441.15
	8/2/10	34.76		438.09
	11/2/10	37.49		435.36
	2/1/11	32.83		440.02
	4/25/11	27.96		444.89
DW-2	5/22/08	39.80	471.61	431.81
	7/23/08	48.25		423.36
	10/13/08	53.40		418.21
	2/11/09	51.50		420.11
	4/27/09	44.71		426.90
	8/4/09	54.67		416.94
	12/8/09	42.88		428.73
	2/11/10	38.63		432.98
	5/3/10	34.46		437.15
	8/2/10	37.72		433.89
	11/2/10	40.50		431.11
	2/1/11	35.66		435.95
	4/25/11	30.69		440.92
DW-3	5/22/08	40.20	470.33	430.13
	7/23/08	49.09		421.24
	10/13/08	54.62		415.71
	2/11/09	51.96		418.37
	4/27/09	45.17		425.16
	8/4/09	56.32		414.01
	12/8/09	42.92		427.41
	2/11/10	38.75		431.58
	5/3/10	34.51		435.82
	8/2/10	35.59		434.74

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
DW-3 (cont.)	11/2/10	40.00	470.33	430.33
	2/1/11	35.50		434.83
	4/25/11	30.45		439.88
DW-4	5/22/08	40.20	468.48	428.28
	7/23/08	49.50		418.98
	10/13/08	54.90		413.58
	2/11/09	51.71		416.77
	4/27/09	45.10		423.38
	8/4/09	56.46		412.02
	12/8/09	42.26		426.22
	2/11/10	37.98		430.50
	5/3/10	34.04		434.44
	8/2/10	36.94		431.54
	11/2/10	39.50		428.98
	2/1/11	35.11		433.37
	4/25/11	30.12		438.36
DW-5	12/8/09	43.05	471.86	428.81
	2/11/10	38.93		432.93
	5/3/10	34.55		437.31
	8/2/10	37.56		434.30
	11/2/10	40.00		431.86
	2/1/11	35.57		436.29
	4/25/11	30.59		441.27
DW-6	12/8/09	43.50	471.77	428.27
	2/11/10	39.22		432.55
	5/3/10	35.15		436.62
	8/2/10	38.35		433.42
	11/2/10	40.09		431.68
	2/1/11	36.35		435.42
	4/25/11	31.32		440.45

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
DW-7	12/8/09	43.01	470.07	427.06
	2/11/10	38.70		431.37
	5/3/10	34.64		435.43
	8/2/10	37.82		432.25
	11/2/10	40.42		429.65
	2/1/11	35.76		434.31
	4/25/11	30.82		439.25
DW-8	4/25/11	27.23	472.31	445.08
MW-A	1/17/99	30.13	NM	--
MW-B	1/17/99	30.29	NM	--
MW-C	1/17/99	30.60	NM	--
MW-D	1/17/99	31.32	NM	--
MW-E	1/17/99	31.36	NM	--
MW-W	1/17/99	30.91	NM	--
IP-1	7/23/08	45.49	473.16	427.67
	10/13/08	51.30		421.86
	5/3/10[(f)]	33.80		439.36
	4/25/11	27.97		445.19
IP-2	7/23/08	46.83	473.21	426.38
	10/13/08	51.40		421.81
	5/3/10[(f)]	32.00		441.21
	4/25/11	28.04		445.17
IP-3	7/23/08	45.47	472.97	427.50
	10/13/08	51.11		421.86
	5/3/10[(f)]	31.68		441.29
	4/25/11	28.07		444.90

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
IP-4	7/23/08	44.55	473.02	428.47
	10/13/08	50.89		422.13
	5/3/10[(f)]	31.61		441.41
	4/25/11	27.93		445.09
IP-5	7/23/08	44.70	473.06	428.36
	10/13/08	51.06		422.00
	5/3/10[(f)]	31.60		441.46
	4/25/11	27.80		445.26
IP-6	7/23/08	49.91	472.73	422.82
	10/13/08	55.63		417.10
	5/3/10[(f)]	34.98		437.75
	4/25/11	30.60		442.13
IP-7	7/23/08	51.45	472.86	421.41
	10/13/08	57.23		415.63
	5/3/10[(f)]	35.75		437.11
	4/25/11	31.51		441.35
IP-8	12/16/08	50.48	473.13	422.65
	5/3/10[(f)]	33.34		439.79
	4/25/11	28.07		445.06
IP-9	12/16/08	52.51	473.47	420.96
	5/3/10[(f)]	31.79		441.68
	4/25/11	27.84		445.63

TABLE D-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
IP-10	2/11/09	48.77	473.78	425.01
	5/3/10[(f)]	32.23		441.55
	4/25/11	27.79		445.99

(a) Elevation of PVC well casing (north edge) surveyed relative to mean sea level (MSL).
Wells were surveyed by Cross Land Surveying, Inc., per AB 2886 requirements.
Benchmark K2-741, elevation is 467.835 feet above MSL.

(b) Water Table Elevation = (Casing Elevation - Depth to Water)

(c) Wells were resurveyed by Cross Land Surveying, Inc., per AB 2886 requirements, on 19 October 2010 after remediation system construction.
Benchmark K2-741, elevation is 467.835 feet above MSL.

(d) Depth of groundwater assumed to be below screened interval; well had 6 inches or less of water.

(e) NM - Not measured.

(f) Baseline remediation system values.

ATTACHMENT E

HISTORICAL GROUNDWATER ANALYTICAL RESULTS

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-1	6/1/93	27,000	2,200	400	ND<0.5[c]	4,900	--[d]	--	--	--	--	--	--	--	--
	6/22/93	87,000	8,000	10,000	260	10,000	--	--	--	--	--	--	--	--	--
	10/6/93	40,000	4,700	6,500	740	5,300	--	--	--	--	--	--	--	--	--
	1/13/94	9,400	1,300	9,500	110	850	--	--	--	--	--	--	--	--	--
	3/30/94	NS[e]	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/25/94	11,000	1,500	1,800	290	1,700	--	--	--	--	--	--	--	--	--
	8/12/94	11,000	550	330	260	1,400	--	--	--	--	--	--	--	--	--
	12/14/94	11,000	1,000	1,200	320	1,500	--	--	--	--	--	--	--	--	--
	2/10/95	9,300	1,200	1,500	280	1,500	--	--	--	--	--	--	--	--	--
	6/15/95	140	5.6	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	9/26/95	410	140	ND<0.5	ND<0.5	43	--	--	--	--	--	--	--	--	--
	12/15/95	740	250	ND<1.3	ND<1.3	87	--	--	--	--	--	--	--	--	--
	3/21/96	ND<50	0.52	ND<0.5	ND<0.5	0.51	--	--	--	--	--	--	--	--	--
	6/13/96	240	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	9/16/96	720	70	ND<0.5	1.0	5.1	ND<5	--	--	--	--	--	--	--	--
	12/2/96	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	3/7/97	600	6.7	ND<0.5	1.2	1.8	ND<5	--	--	--	--	--	--	--	--
	6/12/97	18,000	180	800	410	1,800	ND<5	--	--	--	--	--	--	--	--
	9/29/97	350	120	1.5	ND<0.5	12	ND<5	--	--	--	--	--	--	--	--
	12/1/97	ND<50	7.0	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	3/19/98	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	5/29/98	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	9/15/98	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	11/30/98	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	1/17/99	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	6/10/99	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	9/7/99	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-1	12/13/99	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
(cont.)	3/13/00	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	6/12/00	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	11/10/00	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--
	12/31/00	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--
	3/27/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--
	6/30/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--
	9/26/01	90	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--
	12/18/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--
	11/4/04	4,500	2.5	5.8	79	140	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/12/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/2/05	78	0.80	0.70	0.86	2.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<40	ND<5	ND<0.5	ND<0.5
	7/19/05	290	ND<0.5	ND<0.5	4.0	4.1	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/21/05	370	ND<0.5	ND<0.5	0.75	1.3	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/9/06	140	ND<0.5	ND<0.5	0.67	1.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/16/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/9/06	100	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/8/06	400	ND<0.5	ND<0.5	1.7	1.9	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/14/07	410	ND<0.5	ND<0.5	2.2	2.2	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/17/07	2,300	ND<0.5	0.66	17	21	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<8	--	--
	8/2/07	580	5.7	0.64	6.8	12	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/12/07	750	0.85	2.7	4.2	9.3	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<20	ND<0.5	ND<0.5
	2/14/08	1,700	3.3	17	38	83	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/8/08	620	1.8	ND<0.5	12	12	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/23/08	270	0.52	ND<0.5	3.9	1.8	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<80	ND<5	ND<0.5	ND<0.5
	10/13/08	730	ND<0.5	ND<0.5	0.68	0.80	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<10	ND<0.5	ND<0.5
	2/11/09	2,100	4.1	8.1	18	36	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<50	ND<0.5	ND<0.5

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-1	4/27/09	2,800	9.9	34	94	170	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<8	ND<0.5	ND<0.5
(cont.)	8/4/09	890	ND<0.5	ND<0.5	1.7	1.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<8	ND<0.5	ND<0.5
	12/8/09	3,200	16	18	81	110	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<80	ND<20	ND<0.5	ND<0.5
	2/11/10	1,300	3.7	1.7	13	6.7	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<20	ND<0.5	ND<0.5
	5/5/10	710	2.2	0.92	5.9	2.8	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/3/10	1,200	2.4	3.7	22	23	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/3/10	1,100	7.3	34	18	67	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/1/11	200	ND<0.5	ND<0.5	0.81	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	4/25/11	130	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-2	6/1/93	170,000	20,000	21,000	3,300	18,000	--	--	--	--	--	--	--	--	--
	6/22/93	160,000	19,000	22,000	3,500	18,000	--	--	--	--	--	--	--	--	--
	10/6/93	110,000	17,000	17,000	3,000	15,000	--	--	--	--	--	--	--	--	--
	1/13/94	93,000	20,000	19,000	2,300	14,000	--	--	--	--	--	--	--	--	--
	3/30/94	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/25/94	41,000	9,600	7,300	840	7,800	--	--	--	--	--	--	--	--	--
	8/12/94	59,000	11,000	11,000	2,300	11,000	--	--	--	--	--	--	--	--	--
	12/14/94	63,000	13,000	13,000	2,200	12,000	--	--	--	--	--	--	--	--	--
	2/10/95	63,000	12,000	12,000	2,200	11,000	--	--	--	--	--	--	--	--	--
	6/15/95	61,000	11,000	12,000	1,900	11,000	--	--	--	--	--	--	--	--	--
	9/26/95	61,000	9,400	11,000	2,300	12,000	--	--	--	--	--	--	--	--	--
	12/15/95	48,000	8,000	8,300	2,200	12,000	--	--	--	--	--	--	--	--	--
	3/21/96	48,000	8,000	7,700	2,400	12,000	--	--	--	--	--	--	--	--	--
	6/13/96	33,000	7,300	8,800	1,900	12,000	ND<250	--	--	--	--	--	--	--	--
	9/16/96	8,600	510	640	180	1,300	ND<250	--	--	--	--	--	--	--	--
	12/2/96	29,000	4,400	4,000	1,300	6,100	ND<130	--	--	--	--	--	--	--	--
	3/7/97	13,000	1,800	1,100	270	2,000	ND<250	--	--	--	--	--	--	--	--
	6/12/97	68,000	7,800	6,600	2,300	11,000	ND<500	--	--	--	--	--	--	--	--

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-2	9/29/97	15,000	1,500	97	740	1,800	ND<250	--	--	--	--	--	--	--	--
(cont.)	12/1/97	13,000	900	37	860	2,400	ND<250	--	--	--	--	--	--	--	--
	3/19/98	42,000	5,000	3,600	2,000	8,300	ND<250	--	--	--	--	--	--	--	--
	5/29/98	68,000	5,600	4,700	2,400	11,000	ND<250	--	--	--	--	--	--	--	--
	9/15/98	36,000	3,900	1,200	1,400	7,800	ND<250	--	--	--	--	--	--	--	--
	11/30/98	16,000	2,200	59	1,200	1,500	ND<250	--	--	--	--	--	--	--	--
	1/17/99	30,000	4,000	2,200	2,100	9,500	ND<250	--	--	--	--	--	--	--	--
	6/10/99	70,000	6,300	1,800	3,600	14,000	ND<500	--	--	--	--	--	--	--	--
	9/7/99	42,000	3,800	840	1,900	8,000	150	--	--	--	--	--	--	--	--
	12/13/99	14,000	1,400	87	690	110	34	--	--	--	--	--	--	--	--
	3/13/00	38,000	2,400	2,300	1,600	6,400	2,400	--	--	--	--	--	--	--	--
	6/12/00	56,000	4,000	950	2,300	7,200	ND<50	--	--	--	--	--	--	--	--
	11/10/00	35,000	5,100	850	1,500	3,200	230	--	--	--	--	--	--	--	--
	12/31/00	21,000	3,200	420	1,300	1,200	440	--	--	--	--	--	--	--	--
	3/27/01	3,500	420	64	16	280	120	--	--	--	--	--	--	--	--
	6/30/01	1,200	88	4.5	65	37	29	--	--	--	--	--	--	--	--
	9/26/01	53,000	8,500	1,500	2,400	4,600	270	--	--	--	--	--	--	--	--
	12/18/01	26,000	5,400	900	1,500	2,200	430	--	--	--	--	--	--	--	--
	1/22/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/18/02	4,200	240	7.3	200	53	89	--	--	--	--	--	--	--	--
	6/5/02	25,000	3,500	390	1,400	2,400	550	--	--	--	--	--	--	--	--
	8/21/02	10,000	1,200	32	620	300	160	--	--	--	--	--	--	--	--
	12/3/02	3,700	110	2.5	130	11	29	--	--	--	--	--	--	--	--
	3/4/03	8,700	1,100	77	350	540	230	ND<0.5	ND<0.5	ND<10	21	ND<150	ND<5	ND<0.5	ND<0.5
	6/10/03	6,300	660	35	190	120	410	ND<2.5	ND<2.5	ND<5	ND<25	ND<250	ND<25	ND<2.5	ND<2.5
	9/9/03	6,900	500	ND<20	360	29	9,500	ND<20	ND<20	60	ND<200	ND<2,000	ND<200	ND<20	ND<20
	12/23/03	22,000	4,900	1,300	720	2,300	1,700	ND<20	ND<20	21	ND<200	ND<2,000	ND<200	ND<20	ND<20

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-2	3/23/04	45,000	5,200	1,500	1,800	5,000	750	ND<20	ND<20	34	ND<200	ND<2,000	ND<200	ND<20	ND<20
(cont.)	5/10/04	7,300	1,000	51	240	290	1,800	ND<5	ND<5	14	ND<50	ND<500	ND<50	ND<5	ND<5
	8/4/04	45,000	7,200	1,900	1,800	5,100	2,500	ND<25	ND<25	31	ND<250	ND<2,500	ND<250	ND<25	ND<25
	11/4/04	27,000	4,400	1,100	840	2,200	3,500	ND<9	ND<9	29	ND<50	ND<900	ND<90	ND<9	ND<9
	1/12/05	16,000	1,900	640	570	1,500	1,900	ND<4	ND<4	19	28[f]	ND<400	ND<40	ND<4	ND<4
	5/2/05	44,000	5,200	1,100	1,800	4,800	2,200	ND<20	ND<20	30	ND<200	ND<2,000	ND<200	ND<20	ND<20
	7/20/05	21,000	3,000	500	1,000	1,500	4,400	ND<7	ND<7	32	74[f]	ND<700	ND<70	ND<7	ND<7
	11/22/05	33,000	4,400	880	1,200	2,600	2,200	ND<9	ND<9	19	480	ND<900	ND<90	ND<9	ND<9
	2/9/06	25,000	3,300	720	1,300	2,200	2,500	ND<7	ND<7	27	490	ND<700	ND<70	ND<7	ND<7
	5/17/06	22,000	3,200	240	1,200	2,100	4,600	ND<7	ND<7	46	1,000	ND<700	ND<70	ND<7	ND<7
	8/9/06	34,000	4,200	830	1,300	2,400	2,900	ND<9	ND<9	25	1,600	ND<900	ND<90	ND<9	ND<9
	11/8/06	27,000	3,600	300	1,200	1,800	1,500	ND<9	ND<9	15	1,100	ND<900	ND<90	ND<9	ND<9
	2/14/07	36,000	4,600	740	1,600	2,100	1,800	ND<5	ND<5	20	910	ND<700	ND<50	ND<5	ND<5
	5/17/07	37,000	7,400	680	1,900	2,400	3,000	ND<9	ND<9	24	2,600	ND<4,000	ND<90	--	--
	8/2/07	37,000	4,200	500	1,800	2,200	1,300	ND<9	ND<9	18	1,200	ND<2,000	ND<90	ND<9	ND<9
	11/12/07	25,000	5,900	120	1,700	820	1,400	ND<15	ND<15	16	720	ND<1,500	ND<150	ND<15	ND<15
	2/14/08	31,000	5,400	450	1,900	2,000	1,200	ND<15	ND<15	16	410	ND<1,500	ND<150	ND<15	ND<15
	5/8/08	29,000	3,200	620	1,400	1,700	580	ND<5	ND<5	10	210	ND<1,000	ND<50	ND<5	ND<5
	7/23/08	25,000	3,800	220	1,600	1,000	780	ND<5	ND<5	14	470	ND<900	ND<50	ND<5	ND<5
	10/13/08	31,000	7,600	160	1,800	440	1,600	ND<9	ND<9	20	710	ND<1,500	ND<90	ND<9	ND<9
	2/11/09	22,000	4,400	120	1,500	430	650	ND<9	ND<9	12	330	ND<3,000	ND<90	ND<9	ND<9
	4/28/09	28,000	3,400	600	1,500	1,700	380	ND<8	ND<8	8.1	150	ND<1,000	ND<80	ND<8	ND<8
	8/4/09	30,000	5,800	170	1,500	370	1,400	ND<9	ND<9	18	670	ND<3,000	ND<90	ND<9	ND<9
	12/8/09	24,000	3,100	200	1,200	830	520	ND<7	ND<7	8	250	ND<700	ND<70	ND<7	ND<7
	2/12/10	19,000	2,900	440	940	1,300	820	ND<7	ND<7	9.5	400	ND<700	ND<70	ND<7	ND<7
	5/3/10	26,000	3,100	870	1,100	2,200	530	ND<7	ND<7	8	370	ND<700	ND<70	ND<7	ND<7
	8/3/10	19,000	2,000	150	840	730	280	ND<4	ND<4	4.4	200	ND<400	ND<40	ND<4	ND<4

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-2	11/4/10	13,000	2,000	160	420	390	540	ND<4	ND<4	5.7	510	ND<400	ND<40	ND<4	ND<4
(cont.)	2/2/11	10,000	1,600	130	320	410	410	ND<4	ND<4	4.2	410	ND<400	ND<40	ND<4	ND<4
	4/28/11	13,000	1,400	100	470	670	450	ND<2.5	ND<2.5	4.6	200	ND<250	ND<50	ND<2.5	ND<2.5
MW-3	6/1/93	270	4.6	ND<0.5	ND<0.5	1.9	--	--	--	--	--	--	--	--	--
	6/22/93	160	8.2	ND<0.5	ND<0.5	0.72	--	--	--	--	--	--	--	--	--
	10/6/93	740	57	110	24	120	--	--	--	--	--	--	--	--	--
	1/13/94	83	2.6	0.67	0.78	4.2	--	--	--	--	--	--	--	--	--
	3/30/94	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/25/94	60	0.75	3.2	0.5	3.6	--	--	--	--	--	--	--	--	--
	8/12/94	310	7.3	14	2.6	13	--	--	--	--	--	--	--	--	--
	12/14/94	75	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	2/10/95	96	1.4	ND<0.5	ND<0.5	1.8	--	--	--	--	--	--	--	--	--
	6/15/95	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	9/26/95	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	12/15/95	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	11/4/04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	6.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/12/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	4.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/2/05	140	ND<0.5	ND<0.5	ND<0.5	0.81	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/19/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.6	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/21/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	3.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/9/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	2.9	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/16/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/9/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/8/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	0.71	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/14/07	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/17/07	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	0.54	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	--	--
	8/2/07	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-3	11/12/07	190	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
(cont.)	2/14/08	240	ND<0.5	ND<0.5	ND<0.5	ND<0.5	0.83	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/8/08	57	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/23/08	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	10/13/08	280	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	61	ND<5	ND<0.5	ND<0.5
	2/11/09	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	4/27/09	ND<50	ND<0.5	ND<0.5	ND<0.5	0.64	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/4/09	190	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	12/8/09	150	3.6	1.1	2.4	2.6	0.82	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<50	ND<0.5	ND<0.5
	2/11/10	61	ND<0.5	ND<0.5	ND<0.5	ND<0.5	0.52	ND<0.5	ND<0.5	ND<0.5	ND<5	53	ND<5	ND<0.5	ND<0.5
	5/6/10	ND<50	ND<0.5	1.0	ND<0.5	0.95	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/3/10	74	2.4	5.5	0.96	8.8	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/3/10	ND<50	ND<0.5	2.5	ND<0.5	3.8	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/1/11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	4/25/11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-4	3/30/94	120	4.2	15	2.5	26	--	--	--	--	--	--	--	--	--
	4/25/94	65	ND<0.5	1.8	ND<0.5	2.1	--	--	--	--	--	--	--	--	--
	8/12/94	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	12/14/94	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	2/10/95	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	6/15/95	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	9/26/95	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	12/15/95	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	11/4/04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/12/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/2/05	ND<50	1.8	1.1	1.4	4.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/19/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-4	11/21/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
(cont.)	2/9/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/16/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/9/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/8/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/14/07	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/17/07	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	--	--
	8/2/07	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/12/07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/14/08	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/8/08	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/23/08	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	10/13/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/11/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/27/09	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/4/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/8/09	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/11/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/4/10	ND<50	2.4	1.8	2.3	4.8	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/3/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/3/10	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/1/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/26/11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-5	3/30/94	7,500	1,300	20	ND<13	160	--	--	--	--	--	--	--	--	--
	4/25/94	6,500	1,100	41	130	740	--	--	--	--	--	--	--	--	--
	8/12/94	4,000	420	2.9	41	98	--	--	--	--	--	--	--	--	--
	12/14/94	4,800	660	ND<2.5	33	13	--	--	--	--	--	--	--	--	--

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-5	2/10/95	5,200	490	ND<13	23	19	--	--	--	--	--	--	--	--	--
(cont.)	6/15/95	460	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	9/26/95	1,400	61	ND<0.5	3.1	ND<0.5	--	--	--	--	--	--	--	--	--
	12/15/95	2,100	77	1.5	10	1.5	--	--	--	--	--	--	--	--	--
	3/21/96	930	35	2.0	2.0	18	--	--	--	--	--	--	--	--	--
	6/13/96	610	38	0.72	1.9	2.0	ND<5	--	--	--	--	--	--	--	--
	9/16/96	380	29	ND<0.5	0.95	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	12/2/96	200	1.1	0.64	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	3/7/97	520	74	ND<0.5	0.58	1.5	ND<5	--	--	--	--	--	--	--	--
	6/12/97	140	5.3	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	9/29/97	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	12/1/97	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	3/19/98	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	5/29/98	540	4.1	ND<0.5	ND<0.5	0.52	ND<5	--	--	--	--	--	--	--	--
	9/15/98	67	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	11/30/98	430	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	1/17/99	500	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	6/10/99	66	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	9/7/99	820	46	1.7	10	21	ND<5	--	--	--	--	--	--	--	--
	12/13/99	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	3/13/00	270	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	6/12/00	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	11/10/00	2,200	42	1.1	25	30	8.6	--	--	--	--	--	--	--	--
	12/31/00	1,300	21	ND<0.5	4.3	2.6	10	--	--	--	--	--	--	--	--
	3/27/01	1,200	11	ND<0.5	2.6	ND<0.5	21	--	--	--	--	--	--	--	--
	6/30/01	1,400	4.8	ND<0.5	1.5	0.56	14	--	--	--	--	--	--	--	--
	9/26/01	660	ND<0.5	ND<0.5	ND<0.5	ND<0.5	3.0	--	--	--	--	--	--	--	--

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-5	12/18/01	240	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--
(cont.)	1/22/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/18/02	890	0.65	ND<0.5	ND<0.5	ND<0.5	3.1	--	--	--	--	--	--	--	--
	6/5/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/21/02	2,100	20	ND<0.5	63	4.0	7.0	--	--	--	--	--	--	--	--
	12/3/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/4/03	490	10	ND<0.5	2.2	ND<0.5	1.0	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	6/10/03	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/9/03	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	12/23/03	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/23/04	440	2.3	ND<0.5	1.0	5.9	2.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/10/04	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/4/04	160	ND<0.5	ND<0.5	ND<0.5	0.71	0.94	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/4/04	290	0.74	ND<0.5	0.58	1.3	0.61	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/12/05	300	ND<0.5	ND<0.5	0.51	1.6	0.73	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/2/05	120	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/20/05	330	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.1	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/21/05	210	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.2	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/9/06	ND<50	ND<0.5	ND<0.5	0.63	1.0	1.0	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/16/06	140	ND<0.5	ND<0.5	ND<0.5	ND<0.5	0.79	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/9/06	220	ND<0.5	ND<0.5	ND<0.5	ND<0.5	7.8	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/8/06	120	ND<0.5	ND<0.5	ND<0.5	ND<0.5	2.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/14/07	200	ND<0.5	ND<0.5	ND<0.5	1.1	2.1	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/17/07	140	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	--	--
	8/2/07	85	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.9	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/12/07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/14/08	980	ND<0.5	ND<0.5	2.1	ND<0.5	1.0	ND<0.5	ND<0.5	ND<0.5	34	ND<50	ND<5	ND<0.5	ND<0.5

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-5	5/8/08	580	ND<0.5	ND<0.5	1.8	ND<0.5	0.60	ND<0.5	ND<0.5	ND<0.5	6.1	ND<50	ND<5	ND<0.5	ND<0.5
(cont.)	7/23/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/13/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/11/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/27/09	250	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/4/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/9/09	140	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/11/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/6/10	220	ND<0.5	ND<0.5	2.2	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/3/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/3/10	100	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/2/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/25/11	190	ND<0.5	ND<0.5	0.80	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-6	3/30/94	63,000	21,000	8,600	1,700	12,000	--	--	--	--	--	--	--	--	--
	4/25/94	77,000	22,000	12,000	2,300	16,000	--	--	--	--	--	--	--	--	--
	8/12/94	65,000	12,000	8,100	2,200	16,000	--	--	--	--	--	--	--	--	--
	12/14/94	65,000	18,000	9,500	2,200	14,000	--	--	--	--	--	--	--	--	--
	2/10/95	63,000	21,000	8,400	2,000	14,000	--	--	--	--	--	--	--	--	--
	6/15/95	75,000	20,000	11,000	2,100	15,000	--	--	--	--	--	--	--	--	--
	9/26/95	62,000	15,000	9,600	1,700	12,000	--	--	--	--	--	--	--	--	--
	12/15/95	61,000	15,000	9,000	2,300	15,000	--	--	--	--	--	--	--	--	--
	3/21/96	65,000	18,000	9,800	2,400	16,000	--	--	--	--	--	--	--	--	--
	6/13/96	29,000	8,600	3,300	2,200	12,000	ND<250	--	--	--	--	--	--	--	--
	9/16/96	42,000	6,400	1,800	2,100	11,000	ND<250	--	--	--	--	--	--	--	--
	12/2/96	28,000	3,000	1,100	970	8,300	ND<500	--	--	--	--	--	--	--	--
	3/7/97	12,000	2,000	190	520	2,300	ND<250	--	--	--	--	--	--	--	--
	6/12/97	37,000	3,900	470	1,600	6,200	ND<100	--	--	--	--	--	--	--	--

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-6	9/29/97	34,000	3,500	370	1,600	5,200	ND<100	--	--	--	--	--	--	--	--
(cont.)	12/1/97	20,000	2,100	ND<10	1,200	2,200	ND<100	--	--	--	--	--	--	--	--
	3/19/98	24,000	2,900	460	1,100	3,400	ND<100	--	--	--	--	--	--	--	--
	5/29/98	38,000	3,500	700	1,800	5,200	ND<100	--	--	--	--	--	--	--	--
	9/15/98	22,000	1,900	110	1,400	3,000	ND<100	--	--	--	--	--	--	--	--
	11/30/98	9,900	770	16	820	710	ND<100	--	--	--	--	--	--	--	--
	1/17/99	14,000	2,200	160	1,700	3,600	ND<100	--	--	--	--	--	--	--	--
	6/10/99	22,000	1,600	160	1,400	2,900	5.5	--	--	--	--	--	--	--	--
	9/7/99	17,000	1,400	33	1,300	1,800	ND<50	--	--	--	--	--	--	--	--
	12/13/99	16,000	790	9.2	840	780	ND<25	--	--	--	--	--	--	--	--
	3/13/00	16,000	790	85	780	1,600	ND<25	--	--	--	--	--	--	--	--
	6/12/00	24,000	1,100	150	1,300	2,300	5,600	--	--	--	--	--	--	--	--
	11/10/00	13,000	440	7.0	760	350	1,000	--	--	--	--	--	--	--	--
	12/31/00	12,000	680	8.0	820	190	1,400	--	--	--	--	--	--	--	--
	3/27/01	14,000	330	17	940	670	380	--	--	--	--	--	--	--	--
	6/30/01	750	45	0.93	47	14	54	--	--	--	--	--	--	--	--
	9/26/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/18/01	43,000	3,800	350	1,900	3,000	900	--	--	--	--	--	--	--	--
	1/22/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/18/02	33,000	2,600	120	1,800	2,800	740	--	--	--	--	--	--	--	--
	6/5/02	10,000	1,100	16	700	180	600	--	--	--	--	--	--	--	--
	8/21/02	10,000	1,200	23	710	290	370	--	--	--	--	--	--	--	--
	12/3/02	16,000	1,700	63	970	630	1,500	--	--	--	--	--	--	--	--
	3/4/03	16,000	1,700	25	1,200	40	7,700	ND<20	ND<20	ND<70	ND<200	ND<2,000	ND<200	ND<20	ND<20
	6/10/03	9,500	860	15	380	47	2,600	ND<5	ND<5	18	ND<50	ND<500	ND<50	ND<5	ND<5
	9/9/03	11,000	1,000	16	630	120	2,500	ND<5	ND<5	20	52	ND<500	ND<50	ND<5	ND<5
	12/23/03	18,000	2,100	41	1,100	390	4,900	ND<10	ND<10	42	ND<100	ND<1,000	ND<100	ND<10	ND<10

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-6	3/23/04	24,000	1,400	71	1,500	2,000	7,500	ND<20	ND<20	66	ND<200	ND<2,000	ND<200	ND<20	ND<20
(cont.)	5/10/04	6,500	550	ND<10	71	43	3,700	ND<10	ND<10	31	ND<100	ND<1,000	ND<100	ND<10	ND<10
	8/4/04	8,200	990	19	300	120	3,300	ND<5	ND<5	23	ND<50	ND<500	ND<50	ND<5	ND<5
	11/4/04	9,600	1,100	30	320	160	2,200	ND<4	ND<4	18	22	ND<400	ND<40	ND<4	ND<4
	1/12/05	12,000	1,100	34	600	500	3,600	ND<4	ND<4	31	30	ND<400	ND<40	ND<4	ND<4
	5/2/05	14,000	630	22	610	920	4,000	ND<10	ND<10	32	120	ND<3,000	ND<100	ND<10	ND<10
	7/20/05	9,800	1,200	21	340	150	1,800	ND<2.5	ND<2.5	14	140	ND<500	ND<25	ND<2.5	ND<2.5
	11/21/05	6,600	150	26	580	640	100	ND<1	ND<1	ND<1	13	ND<100	ND<10	ND<1	ND<1
	2/9/06	7,100	340	11	370	360	910	ND<2	ND<2	9.3	120	ND<200	ND<20	ND<2	ND<2
	5/17/06	7,100	270	5.1	320	290	930	ND<2	ND<2	8.4	260	ND<200	ND<20	ND<2	ND<2
	8/9/06	5,800	440	7.5	120	45	670	ND<2	ND<2	7.3	380	ND<2,000	ND<50	ND<2	ND<2
	11/8/06	9,200	990	37	390	140	310	ND<2	ND<2	3.2	110	ND<200	ND<20	ND<2	ND<2
	2/14/07	5,900	480	10	73	23	1,600	ND<2	ND<2	14	1,100	ND<500	ND<20	ND<2	ND<2
	5/17/07	3,700	240	3.4	30	10	770	ND<0.5	ND<0.5	9.2	800	ND<2,000	ND<5	--	--
	8/2/07	15,000	1,800	120	980	510	310	ND<2.5	ND<2.5	3.0	180	ND<250	ND<25	ND<2.5	ND<2.5
	11/12/07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/14/08	14,000	2,000	63	750	190	810	ND<2.5	ND<2.5	7.7	600	ND<250	ND<25	ND<2.5	ND<2.5
	5/8/08	15,000	1,700	59	700	130	540	ND<2.5	ND<2.5	5.9	410	ND<2,000	ND<25	ND<2.5	ND<2.5
	7/23/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/13/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/11/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/28/09	16,000	2,200	160	860	230	320	ND<2.5	ND<2.5	3.8	580	ND<1,000	ND<25	ND<2.5	ND<2.5
	8/4/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/9/09	15,000	2,100	96	800	160	340	ND<5	ND<5	ND<5	460	ND<2,000	ND<50	ND<5	ND<5
	2/12/10	21,000	2,500	140	1,000	240	540	ND<5	ND<5	6.0	460	ND<500	ND<50	ND<5	ND<5
	5/4/10	17,000	2,100	120	780	260	820	ND<5	ND<5	8.6	450	ND<500	ND<50	ND<5	ND<5
	8/3/10	21,000	2,700	120	690	250	730	ND<5	ND<5	7.4	480	ND<500	ND<50	ND<5	ND<5

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-6	11/2/10	12,000	1,600	57	410	120	240	ND<2.5	ND<2.5	2.7	160	ND<250	ND<25	ND<2.5	ND<2.5
(cont.)	2/2/11	15,000	1,600	89	460	150	350	ND<2.5	ND<2.5	3.7	310	ND<250	ND<25	ND<2.5	ND<2.5
	4/27/11	8,500	870	28	180	67	1,200	ND<2.5	ND<2.5	10	1,100	ND<250	ND<25	ND<2.5	ND<2.5
MW-7	3/30/94	43,000	7,200	2,400	1,600	11,000	--	--	--	--	--	--	--	--	--
	4/25/94	30,000	3,900	1,000	940	6,900	--	--	--	--	--	--	--	--	--
	8/12/94	30,000	3,800	1,400	1,300	7,500	--	--	--	--	--	--	--	--	--
	12/14/94	31,000	3,600	1,200	900	6,400	--	--	--	--	--	--	--	--	--
	2/10/95	27,000	4,000	900	890	5,100	--	--	--	--	--	--	--	--	--
	6/15/95	17,000	920	680	740	4,100	--	--	--	--	--	--	--	--	--
	9/26/95	7,000	200	150	170	810	--	--	--	--	--	--	--	--	--
	12/15/95	11,000	350	170	540	1,900	--	--	--	--	--	--	--	--	--
	3/21/96	12,000	320	100	730	2,500	--	--	--	--	--	--	--	--	--
	6/13/96	5,900	98	19	370	620	ND<50	--	--	--	--	--	--	--	--
	9/16/96	7,800	140	43	440	590	ND<25	--	--	--	--	--	--	--	--
	12/2/96	6,300	87	29	290	430	ND<50	--	--	--	--	--	--	--	--
	3/7/97	4,500	35	19	360	470	ND<25	--	--	--	--	--	--	--	--
	6/12/97	3,900	29	5.2	170	48	ND<5	--	--	--	--	--	--	--	--
	9/29/97	6,100	56	9.0	340	190	ND<25	--	--	--	--	--	--	--	--
	12/1/97	6,500	24	ND<2.5	400	250	ND<25	--	--	--	--	--	--	--	--
	3/19/98	2,000	20	ND<2.5	73	79	ND<25	--	--	--	--	--	--	--	--
	5/29/98	5,700	22	7.3	290	350	ND<25	--	--	--	--	--	--	--	--
	9/15/98	1,700	15	ND<2.5	44	5.1	ND<25	--	--	--	--	--	--	--	--
	11/30/98	4,800	42	12	270	640	ND<25	--	--	--	--	--	--	--	--
	1/17/99	3,400	33	ND<5	200	190	ND<50	--	--	--	--	--	--	--	--
	6/10/99	1,700	7.8	1.5	23	4.1	ND<5	--	--	--	--	--	--	--	--
	9/7/99	1,900	9.7	2.1	70	2.9	ND<5	--	--	--	--	--	--	--	--
	12/13/99	1,900	8.0	1.1	10	1.1	ND<5	--	--	--	--	--	--	--	--

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-7	3/13/00	1,500	7.5	ND<0.5	6.7	2.9	ND<5	--	--	--	--	--	--	--	--
(cont.)	6/12/00	1,200	5.4	ND<0.5	5.2	1.0	ND<5	--	--	--	--	--	--	--	--
	11/10/00	1,000	3.9	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--
	12/31/00	620	1.8	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--
	3/27/01	1,200	4.8	ND<0.5	6.7	0.94	ND<0.5	--	--	--	--	--	--	--	--
	6/30/01	2,800	10	1.7	75	170	ND<0.5	--	--	--	--	--	--	--	--
	9/26/01	1,900	16	0.89	2.3	25	ND<0.5	--	--	--	--	--	--	--	--
	12/18/01	3,000	13	0.88	3.4	3.4	ND<0.5	--	--	--	--	--	--	--	--
	1/22/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/18/02	3,100	7.3	1.5	38	110	ND<0.5	--	--	--	--	--	--	--	--
	6/5/02	1,800	7.6	1.0	39	20	ND<0.5	--	--	--	--	--	--	--	--
	8/21/02	3,300	7.6	0.70	85	36	ND<0.5	--	--	--	--	--	--	--	--
	12/3/02	1,700	5.4	ND<0.5	15	5.5	ND<0.5	--	--	--	--	--	--	--	--
	3/4/03	440	1.8	ND<0.5	0.54	2.9	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	6/10/03	550	0.80	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	9/9/03	120	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	12/23/03	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	3/23/04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/10/04	67	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/4/04	2,600	2.5	ND<0.5	36	31	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/4/04	1,600	2.0	ND<0.5	16	16	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/12/05	830	1.6	ND<0.5	15	12	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/2/05	710	ND<0.5	ND<0.5	0.75	0.52	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/20/05	1,400	1.1	ND<0.5	9.2	8.6	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/21/05	1,100	0.56	ND<0.5	3.4	23	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/9/06	270	ND<0.5	ND<0.5	1.2	0.98	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/16/06	930	0.84	ND<0.5	10	7.9	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-7	8/9/06	650	ND<0.5	ND<0.5	1.2	1.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
(cont.)	11/8/06	800	ND<0.5	ND<0.5	1.0	0.62	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/14/07	800	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/17/07	700	ND<0.5	ND<0.5	ND<0.5	0.71	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	--	--
	8/2/07	3,200	1.3	ND<0.5	50	120	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/12/07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/14/08	1,600	1.2	ND<0.5	4.5	1.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/8/08	1,400	2.2	0.74	2.8	0.93	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/23/08	2,300	3.9	1.4	8.9	5.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	10/13/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/11/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/28/09	4,500	7.4	3.8	33	7.3	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/4/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/17/09	4,500	6.7	3.4	27	8.8	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<80	ND<8	ND<0.5	ND<0.5
	2/11/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/6/10	3,600	7.9	3.6	14	6.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<8	ND<0.5	ND<0.5
	8/3/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/3/10	2,100	4.6	1.3	16	3.3	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/2/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/26/11	1,200	3.3	0.59	1.6	1.3	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-8	9/5/03	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--
	12/23/03	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	7.3	ND<0.5	ND<0.5
	3/23/04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/10/04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/4/04	ND<50	ND<0.5	ND<0.5	ND<0.5	0.86	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/4/04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/12/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-8	5/2/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
(cont.)	7/19/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/21/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/9/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	0.57	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/16/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/9/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/8/06	ND<50	1.2	1.9	ND<0.5	0.66	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/14/07	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/17/07	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	--	--
	8/2/07	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/12/07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/14/08	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/8/08	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/23/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/13/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/11/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/27/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/4/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/17/09	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/11/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/6/10	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/3/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/3/10	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/2/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/25/11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-9	9/5/03	3,400	23	1.5	110	10	10	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--
	12/23/03	1,100	2.4	ND<0.5	0.80	0.80	2.1	ND<0.5	ND<0.5	ND<0.5	5.9	ND<50	ND<5	ND<0.5	ND<0.5

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-9	3/23/04	760	8.5	ND<0.5	4.9	0.95	18	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
(cont.)	5/10/04	1,100	4.4	ND<0.5	1.3	0.67	11	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/4/04	1,200	3.4	0.59	16	7.6	6.1	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/4/04	610	0.52	ND<0.5	1.3	ND<0.5	2.0	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/12/05	1,400	1.6	0.55	5.5	1.1	2.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/2/05	1,500	10	0.55	6.7	1.1	27	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/20/05	1,800	5.5	0.69	12	1.6	10	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/21/05	1,200	0.94	ND<0.5	1.4	ND<0.5	3.3	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/9/06	1,200	2.8	0.51	6.4	0.84	4.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/16/06	1,600	3.8	0.57	12	1.8	4.9	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/9/06	760	ND<0.5	ND<0.5	1.0	ND<0.5	2.6	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/8/06	1,700	1.7	0.53	6.7	1.4	1.7	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/14/07	1,000	ND<0.5	ND<0.5	0.51	ND<0.5	0.51	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/17/07	870	ND<0.5	ND<0.5	0.54	ND<0.5	0.93	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	--	--
	8/2/07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/12/07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/14/08	3,300	68	2.1	110	7.8	16	ND<0.5	ND<0.5	ND<0.5	13	ND<50	ND<5	ND<0.5	ND<0.5
	5/8/08	1,200	8.2	0.52	4.0	0.74	5.9	ND<0.5	ND<0.5	ND<0.5	5.4	ND<50	ND<5	ND<0.5	ND<0.5
	7/23/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/13/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/11/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/27/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/4/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/9/09	1,200	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/11/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/4/10	2,700	120	7.0	35	14	44	ND<0.5	ND<0.5	0.52	31	ND<200	ND<5	ND<0.5	ND<0.5
	8/3/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-9	11/3/10	430	1.1	ND<0.5	ND<0.5	ND<0.5	4.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
(cont.)	2/2/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/26/11	1,300	14	ND<0.5	2.8	0.71	23	ND<0.5	ND<0.5	ND<0.5	26	ND<50	ND<5	ND<0.5	ND<0.5
MW-10	9/5/03	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--
	12/23/03	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	3/23/04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/10/04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/4/04	ND<50	ND<0.5	ND<0.5	ND<0.5	0.61	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/4/04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/12/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/2/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/19/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/21/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/9/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/16/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/9/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/8/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/14/07	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/17/07	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	--	--
	8/2/07	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/12/07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/14/08	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/8/08	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/23/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/13/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/11/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/27/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-10	8/4/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
(cont.)	12/9/09	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/11/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/6/10	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/3/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/2/10	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/2/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/25/11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-11	12/16/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/11/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/27/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/4/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/8/09	100,000	6,100	9,000	3,100	20,000	3.3	ND<0.5	ND<0.5	ND<0.5	25	ND<200	ND<20	ND<0.5	ND<0.5
	2/11/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/3/10	62,000	3,600	5,900	2,600	12,000	ND<15	ND<15	ND<15	ND<15	ND<70	ND<1,500	ND<150	ND<15	ND<15
	8/3/10	53,000	2,800	3,800	2,100	10,000	ND<15	ND<15	ND<15	ND<15	ND<70	ND<1,500	ND<150	ND<15	ND<15
	11/4/10	59,000	2,100	5,400	1,400	12,000	ND<15	ND<15	ND<15	ND<15	ND<70	ND<1,500	ND<150	ND<15	ND<15
	2/2/11	20,000	210	610	560	3,600	ND<5	ND<5	ND<5	ND<5	38	ND<500	ND<50	ND<5	ND<5
	4/28/11	20,000	300	920	450	4,300	ND<5	ND<5	ND<5	ND<5	ND<25	ND<500	ND<50	ND<5	ND<5
VW-2	8/4/04	5,700	480	ND<20	600	ND<20	12,000	ND<20	ND<20	110	ND<90	ND<2,000	ND<200	ND<20	ND<20
	11/4/04	5,800	340	ND<20	38	ND<20	10,000	ND<20	ND<20	120	ND<90	ND<2,000	ND<200	ND<20	ND<20
	1/12/05	3,800	210	ND<5	90	54	2,900	ND<5	ND<5	33	26[f]	ND<500	ND<50	ND<5	ND<5
	5/2/05	2,600	84	ND<2	13	7.0	960	ND<2	ND<2	12	57	ND<500	ND<20	ND<2	ND<2
	7/20/05	6,200	240	13	290	480	6,600	ND<2	ND<2	56	59[f]	ND<2,000	ND<20	ND<2	ND<2
	11/21/05	3,100	100	ND<9	22	10	5,300	ND<9	ND<9	54	76[f]	ND<900	ND<90	ND<9	ND<9
	2/9/06	3,500	140	ND<25	130	36	12,000	ND<25	ND<25	65	2,800	ND<2,500	ND<250	ND<25	ND<25
	5/17/06	1,800	90	2.6	39	11	1,200	ND<2.5	ND<2.5	12	700	ND<250	ND<25	ND<2.5	ND<2.5

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
VW-2	8/9/06	4,300	86	3.5	200	16	2,500	ND<2.5	ND<2.5	28	2,800	ND<5,000	ND<25	ND<2.5	ND<2.5
(cont.)	11/8/06	3,200	46	3.1	10	4.8	1,500	ND<3	ND<3	11	7,100	ND<800	ND<30	ND<3	ND<3
	2/14/07	3,300	75	4.6	50	82	580	ND<2	ND<2	7.0	4,100	ND<500	ND<20	ND<2	ND<2
	5/17/07	3,500	51	7.3	17	24	100	ND<2.5	ND<2.5	ND<2.5	7,100	ND<250	ND<25	--	--
	8/2/07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/12/07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/14/08	5,700	180	14	150	120	530	ND<2.5	ND<2.5	4.1	5,000	ND<250	ND<25	ND<2.5	ND<2.5
	5/8/08	3,000	40	3.8	32	34	270	ND<1.5	ND<1.5	2.7	4,500	ND<250	ND<15	ND<1.5	ND<1.5
	7/23/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/13/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/11/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/27/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/4/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/9/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/11/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/5/10	2,800	130	6.1	170	130	1,300	ND<2.5	ND<2.5	12	1,700	ND<250	ND<25	ND<2.5	ND<2.5
	8/3/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/4/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/2/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/28/11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
VW-3	8/4/04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/4/04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/12/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/2/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/20/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/21/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/9/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
VW-3	5/16/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
(cont.)	8/9/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/8/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5	1,100
	2/14/07	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/17/07	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	--	--
	8/2/07	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/12/07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/14/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/8/08	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/23/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/13/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/11/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/27/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/4/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/9/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/11/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/6/10	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/3/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/4/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/2/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/25/11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
TP-1	7/20/05	42,000	2,800	1,100	1,700	4,800	12,000	ND<20	ND<20	92	130	ND<2,000	ND<200	ND<20	ND<20
	11/22/05	36,000	2,100	290	1,400	2,600	11,000	ND<20	ND<20	70	810	ND<2,000	ND<200	ND<20	ND<20
	2/9/06	19,000	1,400	230	990	1,700	8,900	ND<15	ND<15	72	2,200	ND<1,500	ND<150	ND<15	ND<15
	5/17/06	20,000	1,400	200	920	1,800	9,200	ND<20	ND<20	37	2,500	ND<10,000	ND<200	ND<20	ND<20
	8/9/06	28,000	1,600	150	1,200	2,200	13,000	ND<15	ND<15	84	4,900	ND<2,500	ND<150	ND<15	ND<15
	11/8/06	20,000	1,100	78	990	1,600	6,800	ND<15	ND<15	47	4,400	ND<8,000	ND<150	ND<15	ND<15

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
TP-1	2/14/07	15,000	820	37	810	1,000	8,300	ND<15	ND<15	58	8,500	ND<4,000	ND<150	ND<15	ND<15
(cont.)	5/17/07	16,000	850	35	810	1,200	6,700	ND<10	ND<10	42	12,000	ND<2,000	ND<100	--	--
	8/2/07	15,000	2,000	100	970	630	3,400	ND<7	ND<7	25	4,000	ND<700	ND<70	ND<7	ND<7
	11/12/07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/14/08	18,000	1,100	49	1,200	910	7,000	ND<15	ND<15	58	4,200	ND<1,500	ND<150	ND<15	ND<15
	5/8/08	12,000	890	54	770	380	2,500	ND<5	ND<5	22	3,400	ND<2,500	ND<50	ND<5	ND<5
	7/23/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/13/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/11/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/27/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/4/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/17/09	10,000	690	19	700	45	1,000	ND<2.5	ND<2.5	8.8	2,900	ND<250	ND<25	ND<2.5	ND<2.5
	2/11/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/5/10	15,000	2,100	360	1,100	620	3,400	ND<8	ND<8	27	4,500	ND<800	ND<80	ND<8	ND<8
	8/3/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/3/10	14,000	1,000	270	280	1,600	4,500	ND<8	ND<8	28	4,800	ND<800	ND<80	ND<8	ND<8
	2/2/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/28/11	6,600	350	64	170	730	2,600	ND<5	ND<5	15	1,400	ND<500	ND<50	ND<5	ND<5
TP-2	7/20/05	26,000	1,800	1,100	1,100	2,500	63,000	ND<150	ND<150	400	ND<700	ND<15,000	ND<1,500	ND<150	ND<150
	11/22/05	16,000	1,200	140	840	820	52,000	ND<90	ND<90	340	1,200	ND<9,000	ND<900	ND<90	ND<90
	2/9/06	2,700	94	2.9	28	14	1,200	ND<2.5	ND<2.5	13	1,600	ND<250	ND<25	ND<2.5	ND<2.5
	5/17/06	31,000	2,200	1,100	1,500	3,300	87,000	ND<90	ND<90	680	4,800	ND<15,000	ND<1,500	ND<90	ND<90
	8/9/06	14,000	1,400	86	1,200	830	56,000	ND<2.5	ND<2.5	350	2,800	ND<4,000	ND<25	ND<2.5	ND<2.5
	11/8/06	16,000	1,300	ND<90	930	370	38,000	ND<90	ND<90	280	3,600	ND<40,000	ND<900	ND<90	ND<90
	2/14/07	22,000	1,900	230	1,700	1,600	53,000	ND<90	ND<90	400	2,800	ND<20,000	ND<900	ND<90	ND<90
	5/17/07	ND<25,000	2,400	51	1,500	510	69,000	ND<2	ND<0.5	550	4,300	ND<25,000	ND<5	--	--
	8/2/07	10,000	1,200	ND<25	640	140	14,000	ND<25	ND<25	110	16,000	ND<10,000	ND<250	ND<25	ND<25

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
TP-2	11/12/07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
(cont.)	2/14/08	12,000	920	28	850	740	17,000	ND<25	ND<25	120	5,900	ND<4,000	ND<250	ND<25	ND<25
	5/8/08	7,400	710	10	510	110	6,400	ND<8	ND<8	64	5,200	ND<12,000	ND<80	ND<8	ND<8
	7/23/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/13/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/11/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/27/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/4/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/17/09	7,200	950	ND<25	77	ND<25	13,000	ND<25	ND<25	130	20,000	ND<2,500	ND<250	ND<25	ND<25
	2/11/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/6/10	6,400	740	ND<25	450	130	14,000	ND<25	ND<25	130	9,900	ND<2,500	ND<250	ND<25	ND<25
	8/3/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/4/10	4,900	230	82	150	630	980	ND<5	ND<5	6.3	14,000	ND<500	ND<50	ND<5	ND<5
	2/2/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/28/11	130	1.6	ND<0.5	1.5	5.2	350	ND<0.5	ND<0.5	1.3	630	ND<50	ND<5	ND<0.5	ND<0.5
DW-1	5/22/08	5,100	470	150	210	570	100	ND<0.9	ND<0.9	0.98	76	ND<90	ND<9	ND<0.9	ND<0.9
	7/23/08	560	43	5.2	18	40	16	ND<0.5	ND<0.5	ND<0.5	21	ND<100	ND<5	ND<0.5	ND<0.5
	10/13/08	2,800	370	15	120	78	140	ND<0.5	ND<0.5	1.2	220	ND<300	ND<80	ND<0.5	ND<0.5
	2/11/09	520	45	5.3	32	31	42	ND<0.5	ND<0.5	ND<0.5	43	ND<100	ND<8	ND<0.5	ND<0.5
	4/28/09	2,700	250	36	160	190	86	ND<0.5	ND<0.5	0.84	120	ND<50	ND<5	ND<0.5	ND<0.5
	8/5/09	2,100	330	17	87	53	220	ND<0.5	ND<0.5	2.0	310	ND<50	ND<5	ND<0.5	ND<0.5
	12/8/09	6,200	560	63	400	490	140	ND<0.5	ND<0.5	1.1	200	ND<200	ND<8	ND<0.5	ND<0.5
	2/12/10	2,000	200	36	130	150	49	ND<0.5	ND<0.5	ND<0.5	58	ND<200	ND<5	ND<0.5	ND<0.5
	5/4/10	1,800	160	27	110	140	21	ND<0.5	ND<0.5	ND<0.5	41	ND<100	ND<5	ND<0.5	ND<0.5
	8/2/10	1,400	53	11	67	78	8.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/4/10	ND<50	0.9	ND<0.5	0.7	1.3	0.54	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
DW-1	2/2/11	58	1.9	ND<0.5	2.0	2.5	0.52	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
(cont.)	4/28/11	72	2.2	5.7	2.0	9.3	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
DW-2	5/22/08	11,000	1,300	170	460	230	620	ND<2.5	ND<2.5	9.6	870	ND<400	ND<25	ND<2.5	ND<2.5
	7/23/08	7,600	980	44	180	55	420	ND<2	ND<2	5.7	720	ND<200	ND<20	ND<2	ND<2
	10/13/08	7,300	910	23	120	18	280	ND<1.5	ND<1.5	3.1	650	ND<2,000	ND<50	ND<1.5	ND<1.5
	2/11/09	8,000	1,100	31	230	46	290	ND<2.5	ND<2.5	3.9	600	ND<800	ND<25	ND<2.5	ND<2.5
	4/28/09	5,800	500	27	110	55	330	ND<1	ND<1	4.4	600	ND<400	ND<10	ND<1	ND<1
	8/4/09	6,800	910	19	37	27	200	ND<1	ND<1	2.7	530	ND<200	ND<10	ND<1	ND<1
	12/9/09	6,600	450	14	55	34	210	ND<0.9	ND<0.9	2.6	410	ND<200	ND<9	ND<0.9	ND<0.9
	2/11/10	4,500	340	14	44	25	320	ND<0.9	ND<0.9	3.9	520	ND<300	ND<9	ND<0.9	ND<0.9
	5/4/10	2,300	110	7.1	17	16	350	ND<0.9	ND<0.9	4.1	550	ND<200	ND<9	ND<0.9	ND<0.9
	8/2/10	3,800	420	22	21	28	300	ND<0.9	ND<0.9	3.5	600	ND<300	ND<20	ND<0.9	ND<0.9
	11/2/10	2,600	230	7.0	11	4.0	300	ND<0.5	ND<0.5	3.3	660	ND<300	ND<8	ND<0.5	ND<0.5
	2/1/11	3,300	220	6.8	18	10	210	ND<0.5	ND<0.5	2.7	620	ND<300	ND<5	ND<0.5	ND<0.5
	4/27/11	1,900	78	2.6	2.6	5.6	200	ND<0.5	ND<0.5	2.2	590	ND<300	ND<5	ND<0.5	ND<0.5
DW-3	5/22/08	4,700	8.7	2.1	120	200	0.86	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/23/08	2,800	8.1	1.4	94	100	2.8	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	10/13/08	4,100	59	10	160	70	1.9	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<80	ND<0.5	ND<0.5
	2/11/09	1,700	21	1.7	35	21	9.8	ND<0.5	ND<0.5	ND<0.5	16	ND<50	ND<10	ND<0.5	ND<0.5
	4/27/09	1,800	16	2.3	26	10	3.0	ND<0.5	ND<0.5	ND<0.5	12	ND<50	ND<5	ND<0.5	ND<0.5
	8/4/09	1,200	6.8	0.99	4.3	3.4	18	ND<0.5	ND<0.5	ND<0.5	35	ND<50	ND<5	ND<0.5	ND<0.5
	12/9/09	2,200	24	5.9	56	29	ND<0.5	ND<0.5	ND<0.5	ND<0.5	7.2	ND<300	ND<20	ND<0.5	ND<0.5
	2/11/10	700	9.5	2.0	18	6.2	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<80	ND<8	ND<0.5	ND<0.5
	5/4/10	420	5.5	0.93	8.8	3.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<80	ND<5	ND<0.5	ND<0.5
	8/2/10	640	4.0	ND<0.5	5.3	3.9	0.59	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/3/10	170	0.85	ND<0.5	ND<0.5	0.59	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
DW-3	2/1/11	60	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
(cont.)	4/27/11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
DW-4	5/22/08	1,200	4.2	8.6	16	200	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/23/08	91	0.79	ND<0.5	6.5	7.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	10/13/08	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	43	ND<0.5	ND<0.5
	2/11/09	ND<50	0.68	ND<0.5	1.4	1.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	4/27/09	ND<50	0.5	ND<0.5	1.1	1.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/5/09	52	1.7	ND<0.5	1.4	0.83	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	12/9/09	ND<50	3.0	ND<0.5	2.0	1.2	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/11/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/6/10	180	3.3	3.7	13	20	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/3/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/3/10	ND<50	0.7	4.0	0.59	5.9	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/2/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/26/11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
DW-5	12/9/09	15,000	140	25	200	960	ND<2.5	ND<2.5	ND<2.5	ND<2.5	ND<15	ND<250	ND<25	ND<2.5	ND<2.5
	2/11/10	1,600	37	2.5	36	21	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<80	ND<5	ND<0.5	ND<0.5
	5/4/10	2,100	69	2.9	41	18	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<80	ND<8	ND<0.5	ND<0.5
	8/2/10	12,000	240	9.4	350	280	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<10	ND<0.5	ND<0.5
	11/2/10	5,000	120	3.6	68	35	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<8	ND<0.5	ND<0.5
	2/1/11	3,800	70	2.5	37	18	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	4/27/11	710	8.0	ND<0.5	4.3	2.1	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
DW-6	12/9/09	6,200	33	4.3	100	43	9.7	ND<1	ND<1	ND<1	10	ND<100	ND<10	ND<1	ND<1
	2/11/10	4,800	18	3.0	44	15	14	ND<0.5	ND<0.5	ND<0.5	9.2	ND<80	ND<10	ND<0.5	ND<0.5
	5/4/10	4,600	13	3.5	29	17	5.6	ND<0.5	ND<0.5	ND<0.5	7.2	ND<80	ND<8	ND<0.5	ND<0.5
	8/2/10	4,500	13	4.4	54	14	5.9	ND<0.5	ND<0.5	ND<0.5	12	ND<50	ND<8	ND<0.5	ND<0.5
	11/2/10	5,200	20	4.2	47	13	8.9	ND<0.9	ND<0.9	ND<0.9	26	ND<90	ND<9	ND<0.9	ND<0.9

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
DW-6	2/1/11	4,000	11	2.9	32	11	6.0	ND<0.5	ND<0.5	ND<0.5	16	ND<50	ND<5	ND<0.5	ND<0.5
(cont.)	4/27/11	3,100	8.8	2.4	12	8.2	6.2	ND<0.5	ND<0.5	ND<0.5	19	ND<50	ND<8	ND<0.5	ND<0.5
DW-7	12/9/09	10,000	500	20	310	110	160	ND<2	ND<2	ND<2	270	ND<200	ND<20	ND<2	ND<2
	2/12/10	12,000	590	23	440	120	190	ND<2	ND<2	2.4	290	ND<200	ND<20	ND<2	ND<2
	5/4/10	4,100	250	15	89	32	97	ND<0.5	ND<0.5	1.0	160	ND<80	ND<5	ND<0.5	ND<0.5
	8/3/10	3,500	280	13	49	30	130	ND<0.5	ND<0.5	1.3	220	ND<50	ND<5	ND<0.5	ND<0.5
	11/4/10	660	30	1.2	5.0	3.3	130	ND<0.5	ND<0.5	1.2	220	ND<50	ND<5	ND<0.5	ND<0.5
	2/2/11	760	43	1.8	9.4	4.0	91	ND<0.5	ND<0.5	0.76	160	ND<50	ND<5	ND<0.5	ND<0.5
	4/27/11	1,600	120	4.6	4.2	6.7	95	ND<0.5	ND<0.5	1.0	170	ND<200	ND<5	ND<0.5	ND<0.5
DW-8	4/28/11	72,000	5,200	10,000	1,900	12,000	ND<10	ND<10	ND<10	ND<10	56	ND<1,000	ND<100	ND<10	ND<10
MW-A	1/17/99	5,800	1,700	85	65	320	ND<5	--	--	--	--	--	--	--	--
MW-B	1/17/99	4,400	240	30	21	39	ND<5	--	--	--	--	--	--	--	--
MW-C	1/17/99	1,800	0.8	ND<0.5	ND<0.5	0.55	ND<5	--	--	--	--	--	--	--	--
MW-D	1/17/99	5,600	1,600	130	66	220	ND<5	--	--	--	--	--	--	--	--
MW-E	1/17/99	5,700	1,600	180	180	310	ND<50	--	--	--	--	--	--	--	--
	6/10/99	5,000	1,300	130	320	450	ND<25	--	--	--	--	--	--	--	--
MW-W	1/17/99	23,000	7,600	760	1,400	5,000	ND<50	--	--	--	--	--	--	--	--
	6/10/99	16,000	4,100	420	1,300	4,000	ND<50	--	--	--	--	--	--	--	--
IP-1	7/23/08	62,000	2,100	6,800	2,700	11,000	16	ND<15	ND<15	ND<15	ND<70	ND<1,500	ND<150	ND<15	ND<15
	10/13/08	55,000	3,100	3,300	2,300	7,700	ND<15	ND<15	ND<15	ND<15	98	ND<1,500	ND<150	ND<15	ND<15
	5/5/10[g]	33,000	900	1,500	1,400	5,000	ND<7	ND<7	ND<7	ND<7	ND<40	ND<700	ND<70	ND<7	ND<7
	4/27/11	24,000	750	2,200	420	4,800	ND<7	ND<7	ND<7	ND<7	ND<40	ND<700	ND<70	ND<7	ND<7
IP-2	7/23/08	5,500	160	43	130	350	10	ND<0.9	ND<0.9	ND<0.9	ND<5	ND<90	ND<9	ND<0.9	ND<0.9
	10/13/08	13,000	1,900	58	600	630	180	ND<0.9	ND<0.9	9.4	46	ND<90	ND<20	ND<0.9	ND<0.9
	5/5/10[g]	2,700	66	220	61	240	3.3	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	4/26/11	350	8.9	1.7	4.7	5.7	0.9	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
IP-3	7/23/08	1,100	23	14	7.5	90	32	ND<0.5	ND<0.5	ND<0.5	32	ND<50	ND<5	ND<0.5	ND<0.5
	10/13/08	1,700	83	4.7	11	54	72	ND<0.5	ND<0.5	0.84	71	ND<50	ND<8	ND<0.5	ND<0.5
	5/5/10[g]	430[h]	6.4	22	4.9	21	3.9	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<80	ND<5	ND<0.5	ND<0.5
	4/26/11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
IP-4	7/23/08	7,600	130	45	240	750	940	ND<1.5	ND<1.5	6.9	890	ND<150	ND<15	ND<1.5	ND<1.5
	10/13/08	4,200	110	11	78	310	3,700	ND<1.5	ND<1.5	7.1	15,000	ND<2,000	ND<15	ND<1.5	ND<1.5
	5/6/10[g]	190	5.4	25	6.9	29	3.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	4/26/11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.1	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
IP-5	7/23/08	2,000[h]	3.0	17	5.1	31	4.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	10/13/08	720	14	13	8.7	32	19	ND<0.5	ND<0.5	ND<0.5	26	ND<50	ND<5	ND<0.5	ND<0.5
	5/6/10[g]	270	5.7	25	5.9	29	20	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<80	ND<5	ND<0.5	ND<0.5
	4/26/11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	0.72	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
IP-6	7/23/08	4,400	260	78	98	340	180	ND<0.5	ND<0.5	1.6	190	ND<80	ND<9	ND<0.5	ND<0.5
	10/13/08	1,400	150	1.6	1.5	3.5	7.4	ND<0.5	ND<0.5	ND<0.5	10	ND<50	ND<50	ND<0.5	ND<0.5
	5/5/10[g]	8,000[h]	24	100	18	98	0.51	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<80	ND<5	ND<0.5	ND<0.5
	4/27/11	ND<50	1.1	0.66	ND<0.5	0.71	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
IP-7	7/23/08	4,200	190	12	99	190	49	ND<0.9	ND<0.9	1.1	58	ND<90	ND<9	ND<0.9	ND<0.9
	10/13/08	6,000	350	6.6	150	60	97	ND<0.9	ND<0.9	2.5	76	ND<90	ND<50	ND<0.9	ND<0.9
	5/5/10[g]	33,000	49	62	38	69	14	ND<0.9	ND<0.9	ND<0.9	20	ND<90	ND<9.0	ND<0.9	ND<0.9
	4/27/11	220	8.1	0.69	3.4	1.5	0.95	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
IP-8	12/16/08	120,000	7,800	20,000	3,500	16,000	ND<40	ND<40	ND<40	ND<40	ND<200	ND<4,000	ND<400	ND<40	ND<40
	5/5/10[g]	83,000	3,900	13,000	2,400	14,000	ND<25	ND<25	ND<25	ND<25	ND<150	ND<2,500	ND<250	ND<25	ND<25
	4/28/11	13,000	620	2,000	240	2,200	ND<3	ND<3	ND<3	ND<3	27	ND<300	ND<30	ND<3	ND<3
IP-9	12/16/08	110,000	7,800	23,000	2,800	16,000	ND<40	ND<40	ND<40	ND<40	ND<200	ND<4,000	ND<400	ND<40	ND<40
	5/5/10[g]	92,000	6,000	19,000	2,500	14,000	ND<40	ND<40	ND<40	ND<40	ND<200	ND<4,000	ND<400	ND<40	ND<40
	4/28/11	38,000	1,400	4,300	860	6,000	ND<6	ND<6	ND<6	ND<6	38	ND<600	ND<60	ND<6	ND<6

TABLE E-1

HISTOTICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - Livermore, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
IP-10	2/11/09	8,100	29	58	170	1,200	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<7	ND<150	ND<20	ND<1.5	ND<1.5
	5/3/10[g]	3,600	73	80	140	240	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<20	ND<0.5	ND<0.5
	4/26/11	4,300	28	140	110	330	ND<0.5	ND<0.5	ND<0.5	ND<0.5	10	ND<50	ND<8	ND<0.5	ND<0.5

(a) Samples collected before July 2005 collected by others; data provided by Delta Environmental Consultants, Inc., Second Quarter 2005 Groundwater Monitoring Report dated 31 July 2005.

(b) Total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, xylenes, methyl tert-butyl ether (MTBE), di-isopropyl ether (DIPE), ethyl tert-butyl ether (ETBE), tert-amyl methyl ether (TAME), tert-butyl alcohol (TBA), 1,2-dichloroethane (1,2-DCA), and 1,2-dibromoethane (EDB) analyzed by EPA Method 8260; reported in micrograms per liter (µg/l).

(c) ND - Not detected at the reporting limit listed.

(d) "--" Not analyzed.

(e) NS - Not sampled.

(f) TBA results may be biased slightly high. A fraction of MTBE (typically less than 10 percent) converts to TBA during the analysis of water samples. This conversion effect is considered to be mathematically significant in samples that contain MTBE/TBA ratios of over 20:1.

(g) Baseline remediation system values.

(h) Primarily compounds not found in typical Gasoline.

ATTACHMENT F

LABORATORY ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY FORMS

KIFF Analytical LLC

Report Number : 77231
Date : 05/02/2011

Laboratory Results

Matt Nelson
Orion Environmental
3450 East Spring Street, Suite 212
Long Beach, CA 90806

Subject : 14 Water Samples
Project Name : Tesoro-Livermore
Project Number : 01LV

Dear Mr. Nelson,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed. Testing procedures comply with the 2003 NELAC standard. All soil samples are reported on a total weight (wet weight) basis unless noted otherwise in the case narrative. Laboratory results relate only to the samples tested. This report may be freely reproduced in full, but may only be reproduced in part with the express permission of Kiff Analytical, LLC. Kiff Analytical, LLC is certified by the State of California under the National Environmental Laboratory Accreditation Program (NELAP), lab # 08263CA. If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

Joel Kiff

KIFF Analytical LLC

Report Number : 77231
Date : 05/02/2011

Subject : 14 Water Samples
Project Name : Tesoro-Livermore
Project Number : 01LV

Case Narrative

The Method Reporting Limit for Ethanol has been increased due to the presence of an interfering compound for sample IP-10.

California Laboratory Services provided analytical testing associated with these samples, but is not accredited by the National Environmental Laboratory Accreditation Program (NELAP).

Matrix Spike/Matrix Spike Duplicate results associated with samples MW-4 and MW-9 for the analyte Sulfate were calculated using data points beyond the calibration range.

KIFF Analytical LLC

Report Number : 77231
Date : 05/02/2011

Project Name : **Tesoro-Livermore**
Project Number : **01LV**

Sample : **VW-3** Matrix : Water Lab Number : 77231-01
Sample Date :04/25/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 03:04
Toluene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 03:04
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 03:04
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 03:04
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 03:04
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 03:04
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 03:04
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 03:04
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/11 03:04
Methanol	< 50	50	ug/L	EPA 8260B	04/28/11 03:04
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/11 03:04
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	04/28/11 03:04
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 03:04
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 03:04
1,2-Dichloroethane-d4 (Surr)	102		% Recovery	EPA 8260B	04/28/11 03:04
Toluene - d8 (Surr)	99.4		% Recovery	EPA 8260B	04/28/11 03:04

KIFF Analytical LLC

Report Number : 77231
Date : 05/02/2011

Project Name : **Tesoro-Livermore**
Project Number : **01LV**

Sample : **MW-1** Matrix : Water Lab Number : 77231-02
Sample Date :04/25/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 03:36
Toluene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 03:36
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 03:36
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 03:36
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 03:36
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 03:36
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 03:36
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 03:36
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/11 03:36
Methanol	< 50	50	ug/L	EPA 8260B	04/28/11 03:36
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/11 03:36
TPH as Gasoline	**130**	50	ug/L	EPA 8260B	04/28/11 03:36
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 03:36
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 03:36
1,2-Dichloroethane-d4 (Surr)	102		% Recovery	EPA 8260B	04/28/11 03:36
Toluene - d8 (Surr)	98.4		% Recovery	EPA 8260B	04/28/11 03:36

KIFF Analytical LLC

Report Number : 77231
Date : 05/02/2011

Project Name : **Tesoro-Livermore**
Project Number : **01LV**

Sample : **MW-3** Matrix : Water Lab Number : 77231-03
Sample Date :04/25/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 04:07
Toluene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 04:07
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 04:07
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 04:07
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 04:07
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 04:07
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 04:07
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 04:07
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/11 04:07
Methanol	< 50	50	ug/L	EPA 8260B	04/28/11 04:07
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/11 04:07
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	04/28/11 04:07
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 04:07
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 04:07
1,2-Dichloroethane-d4 (Surr)	102		% Recovery	EPA 8260B	04/28/11 04:07
Toluene - d8 (Surr)	97.7		% Recovery	EPA 8260B	04/28/11 04:07

KIFF Analytical LLC

Report Number : 77231
Date : 05/02/2011

Project Name : **Tesoro-Livermore**
Project Number : **01LV**

Sample : **MW-8** Matrix : Water Lab Number : 77231-04
Sample Date :04/25/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 15:26
Toluene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 15:26
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 15:26
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 15:26
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 15:26
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 15:26
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 15:26
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 15:26
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/11 15:26
Methanol	< 50	50	ug/L	EPA 8260B	04/28/11 15:26
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/11 15:26
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	04/28/11 15:26
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 15:26
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 15:26
1,2-Dichloroethane-d4 (Surr)	101		% Recovery	EPA 8260B	04/28/11 15:26
Toluene - d8 (Surr)	98.0		% Recovery	EPA 8260B	04/28/11 15:26

KIFF Analytical LLC

Report Number : 77231
Date : 05/02/2011

Project Name : **Tesoro-Livermore**
Project Number : **01LV**

Sample : **MW-5** Matrix : Water Lab Number : 77231-05
Sample Date :04/25/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 15:58
Toluene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 15:58
Ethylbenzene	**0.80**	0.50	ug/L	EPA 8260B	04/28/11 15:58
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 15:58
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 15:58
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 15:58
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 15:58
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 15:58
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/11 15:58
Methanol	< 50	50	ug/L	EPA 8260B	04/28/11 15:58
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/11 15:58
TPH as Gasoline	**190**	50	ug/L	EPA 8260B	04/28/11 15:58
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 15:58
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 15:58
1,2-Dichloroethane-d4 (Surr)	102		% Recovery	EPA 8260B	04/28/11 15:58
Toluene - d8 (Surr)	97.9		% Recovery	EPA 8260B	04/28/11 15:58

KIFF Analytical LLC

Report Number : 77231
Date : 05/02/2011

Project Name : **Tesoro-Livermore**
Project Number : **01LV**

Sample : **MW-10** Matrix : Water Lab Number : 77231-06
Sample Date :04/25/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 16:29
Toluene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 16:29
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 16:29
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 16:29
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 16:29
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 16:29
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 16:29
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 16:29
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/11 16:29
Methanol	< 50	50	ug/L	EPA 8260B	04/28/11 16:29
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/11 16:29
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	04/28/11 16:29
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 16:29
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 16:29
1,2-Dichloroethane-d4 (Surr)	102		% Recovery	EPA 8260B	04/28/11 16:29
Toluene - d8 (Surr)	97.0		% Recovery	EPA 8260B	04/28/11 16:29

KIFF Analytical LLC

Report Number : 77231
Date : 05/02/2011

Project Name : **Tesoro-Livermore**
Project Number : **01LV**

Sample : **IP-3** Matrix : Water Lab Number : 77231-07
Sample Date :04/26/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 10:06
Toluene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 10:06
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 10:06
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 10:06
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 10:06
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 10:06
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 10:06
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 10:06
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/11 10:06
Methanol	< 50	50	ug/L	EPA 8260B	04/28/11 10:06
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/11 10:06
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	04/28/11 10:06
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 10:06
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 10:06
1,2-Dichloroethane-d4 (Surr)	102		% Recovery	EPA 8260B	04/28/11 10:06
Toluene - d8 (Surr)	97.5		% Recovery	EPA 8260B	04/28/11 10:06

KIFF Analytical LLC

Report Number : 77231
Date : 05/02/2011

Project Name : **Tesoro-Livermore**
Project Number : **01LV**

Sample : **DW-4** Matrix : Water Lab Number : 77231-08
Sample Date :04/26/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:01
Toluene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:01
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:01
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:01
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:01
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:01
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:01
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:01
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/11 17:01
Methanol	< 50	50	ug/L	EPA 8260B	04/28/11 17:01
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/11 17:01
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	04/28/11 17:01
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:01
Trichloroethene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:01
Tetrachloroethene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:01
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:01
1,2-Dichloroethane-d4 (Surr)	100		% Recovery	EPA 8260B	04/28/11 17:01
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	04/28/11 17:01
Toluene - d8 (Surr)	96.9		% Recovery	EPA 8260B	04/28/11 17:01

KIFF Analytical LLC

Report Number : 77231
Date : 05/02/2011

Project Name : **Tesoro-Livermore**
Project Number : **01LV**

Sample : **IP-4** Matrix : Water Lab Number : 77231-09
Sample Date :04/26/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:32
Toluene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:32
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:32
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:32
Methyl-t-butyl ether (MTBE)	**1.1**	0.50	ug/L	EPA 8260B	04/28/11 17:32
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:32
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:32
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:32
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/11 17:32
Methanol	< 50	50	ug/L	EPA 8260B	04/28/11 17:32
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/11 17:32
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	04/28/11 17:32
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:32
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:32
1,2-Dichloroethane-d4 (Surr)	101		% Recovery	EPA 8260B	04/28/11 17:32
Toluene - d8 (Surr)	96.6		% Recovery	EPA 8260B	04/28/11 17:32

KIFF Analytical LLC

Report Number : 77231

Date : 05/02/2011

Project Name : **Tesoro-Livermore**

Project Number : **01LV**

Sample : **IP-5** Matrix : Water Lab Number : 77231-10

Sample Date :04/26/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 16:29
Toluene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 16:29
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 16:29
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 16:29
Methyl-t-butyl ether (MTBE)	**0.72**	0.50	ug/L	EPA 8260B	04/28/11 16:29
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 16:29
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 16:29
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 16:29
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/11 16:29
Methanol	< 50	50	ug/L	EPA 8260B	04/28/11 16:29
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/11 16:29
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	04/28/11 16:29
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 16:29
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 16:29
1,2-Dichloroethane-d4 (Surr)	103		% Recovery	EPA 8260B	04/28/11 16:29
Toluene - d8 (Surr)	99.8		% Recovery	EPA 8260B	04/28/11 16:29

KIFF Analytical LLC

Report Number : 77231
Date : 05/02/2011

Project Name : **Tesoro-Livermore**
Project Number : **01LV**

Sample : **IP-2** Matrix : Water Lab Number : 77231-11
Sample Date :04/26/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	**8.9**	0.50	ug/L	EPA 8260B	04/28/11 17:06
Toluene	**1.7**	0.50	ug/L	EPA 8260B	04/28/11 17:06
Ethylbenzene	**4.7**	0.50	ug/L	EPA 8260B	04/28/11 17:06
Total Xylenes	**5.7**	0.50	ug/L	EPA 8260B	04/28/11 17:06
Methyl-t-butyl ether (MTBE)	**0.90**	0.50	ug/L	EPA 8260B	04/28/11 17:06
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:06
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:06
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:06
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/11 17:06
Methanol	< 50	50	ug/L	EPA 8260B	04/28/11 17:06
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/11 17:06
TPH as Gasoline	**350**	50	ug/L	EPA 8260B	04/28/11 17:06
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:06
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:06
1,2-Dichloroethane-d4 (Surr)	97.7		% Recovery	EPA 8260B	04/28/11 17:06
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	04/28/11 17:06

KIFF Analytical LLC

Report Number : 77231
Date : 05/02/2011

Project Name : **Tesoro-Livermore**
Project Number : **01LV**

Sample : **MW-4** Matrix : Water Lab Number : 77231-12
Sample Date :04/26/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Ferrous Iron	< 0.10	0.10	mg/L	SM 3500-Fe D	04/27/11 11:21
Nitrate as N	**3.7**	0.10	mg/L	EPA 300.0	04/27/11 12:38
Sulfate	**68**	2.5	mg/L	EPA 300.0	04/27/11 15:25
Benzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 01:30
Toluene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 01:30
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 01:30
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 01:30
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 01:30
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 01:30
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 01:30
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 01:30
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/11 01:30
Methanol	< 50	50	ug/L	EPA 8260B	04/28/11 01:30
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/11 01:30
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	04/28/11 01:30
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 01:30
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 01:30
1,2-Dichloroethane-d4 (Surr)	101		% Recovery	EPA 8260B	04/28/11 01:30
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	04/28/11 01:30

KIFF Analytical LLC

Report Number : 77231
Date : 05/02/2011

Project Name : **Tesoro-Livermore**
Project Number : **01LV**

Sample : **IP-10** Matrix : Water Lab Number : 77231-13
Sample Date :04/26/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	**28**	0.50	ug/L	EPA 8260B	04/28/11 17:43
Toluene	**140**	0.50	ug/L	EPA 8260B	04/28/11 17:43
Ethylbenzene	**110**	0.50	ug/L	EPA 8260B	04/28/11 17:43
Total Xylenes	**330**	0.50	ug/L	EPA 8260B	04/28/11 17:43
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:43
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:43
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:43
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:43
Tert-Butanol	**10**	5.0	ug/L	EPA 8260B	04/28/11 17:43
Methanol	< 50	50	ug/L	EPA 8260B	04/28/11 17:43
Ethanol	< 8.0	8.0	ug/L	EPA 8260B	04/28/11 17:43
TPH as Gasoline	**4300**	50	ug/L	EPA 8260B	04/28/11 17:43
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:43
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 17:43
1,2-Dichloroethane-d4 (Surr)	100		% Recovery	EPA 8260B	04/28/11 17:43
Toluene - d8 (Surr)	98.6		% Recovery	EPA 8260B	04/28/11 17:43

KIFF Analytical LLC

Report Number : 77231
Date : 05/02/2011

Project Name : **Tesoro-Livermore**
Project Number : **01LV**

Sample : **MW-9** Matrix : Water Lab Number : 77231-14
Sample Date :04/26/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Ferrous Iron	< 0.10	0.10	mg/L	SM 3500-Fe D	04/27/11 11:20
Nitrate as N	< 0.10	0.10	mg/L	EPA 300.0	04/27/11 14:18
Sulfate	**12**	0.50	mg/L	EPA 300.0	04/27/11 14:18
Benzene	**14**	0.50	ug/L	EPA 8260B	04/28/11 00:59
Toluene	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 00:59
Ethylbenzene	**2.8**	0.50	ug/L	EPA 8260B	04/28/11 00:59
Total Xylenes	**0.71**	0.50	ug/L	EPA 8260B	04/28/11 00:59
Methyl-t-butyl ether (MTBE)	**23**	0.50	ug/L	EPA 8260B	04/28/11 00:59
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 00:59
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 00:59
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 00:59
Tert-Butanol	**26**	5.0	ug/L	EPA 8260B	04/28/11 00:59
Methanol	< 50	50	ug/L	EPA 8260B	04/28/11 00:59
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/11 00:59
TPH as Gasoline	**1300**	50	ug/L	EPA 8260B	04/28/11 00:59
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 00:59
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/11 00:59
1,2-Dichloroethane-d4 (Surr)	98.9		% Recovery	EPA 8260B	04/28/11 00:59
Toluene - d8 (Surr)	98.5		% Recovery	EPA 8260B	04/28/11 00:59

Report Number : 77231

Date : 05/02/2011

QC Report : Method Blank Data

Project Name : **Tesoro-Livermore**

Project Number : **01LV**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	04/27/2011
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	04/27/2011
Toluene	< 0.50	0.50	ug/L	EPA 8260B	04/27/2011
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	04/27/2011
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/27/2011
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	04/27/2011
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/27/2011
Methanol	< 50	50	ug/L	EPA 8260B	04/27/2011
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	04/27/2011
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	04/27/2011
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	04/27/2011
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	04/27/2011
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/27/2011
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/27/2011
1,2-Dichloroethane-d4 (Surr)	101		%	EPA 8260B	04/27/2011
Toluene - d8 (Surr)	97.8		%	EPA 8260B	04/27/2011
Benzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Toluene	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/2011
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Methanol	< 50	50	ug/L	EPA 8260B	04/28/2011
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/2011
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	04/28/2011
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Tetrachloroethene	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Trichloroethene	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
1,2-Dichloroethane-d4 (Surr)	101		%	EPA 8260B	04/28/2011
4-Bromofluorobenzene (Surr)	99.5		%	EPA 8260B	04/28/2011
Toluene - d8 (Surr)	98.8		%	EPA 8260B	04/28/2011
Benzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Toluene	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/2011
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Methanol	< 50	50	ug/L	EPA 8260B	04/28/2011
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/2011
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	04/28/2011
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
1,2-Dichloroethane-d4 (Surr)	104		%	EPA 8260B	04/28/2011
Toluene - d8 (Surr)	100		%	EPA 8260B	04/28/2011
Nitrate as N	<0.10	0.10	mg/L	EPA 300.0	04/27/2011
Sulfate	<0.50	0.50	mg/L	EPA 300.0	04/27/2011

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

Report Number : 77231

QC Report : Method Blank Data

Date : 05/02/2011

Project Name : **Tesoro-Livermore**

Project Number : **01LV**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Ferrous Iron	<0.10	0.10	mg/L	SM 3500-Fe D	04/27/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed

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QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 05/02/2011

Project Name : **Tesoro-Livermore**

Project Number : **01LV**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Nitrate as N														
	77231-12	3.7	0.500	0.500	4.22	4.22	mg/L	EPA 300.0	4/27/11	103	104	0.113	85.0-115	10
Sulfate														
	77231-12	66	2.50	2.50	68.7	68.6	mg/L	EPA 300.0	4/27/11	100	96.0	0.144	85.0-115	10
1,2-Dibromoethane														
	77239-02	<0.50	40.1	40.1	39.2	39.3	ug/L	EPA 8260B	4/27/11	97.8	98.0	0.219	80-120	25
1,2-Dichloroethane														
	77239-02	<0.50	40.0	40.0	39.4	38.5	ug/L	EPA 8260B	4/27/11	98.5	96.3	2.26	75.7-122	25
Benzene														
	77239-02	<0.50	40.0	40.0	38.6	37.0	ug/L	EPA 8260B	4/27/11	96.5	92.6	4.15	80-120	25
Diisopropyl ether														
	77239-02	<0.50	40.0	40.0	40.9	40.0	ug/L	EPA 8260B	4/27/11	102	100	2.11	80-120	25
Ethanol														
	77239-02	<5.0	100	100	89.6	96.6	ug/L	EPA 8260B	4/27/11	89.3	96.2	7.50	55.1-159	25
Ethyl-tert-butyl ether														
	77239-02	<0.50	40.0	40.0	40.6	40.0	ug/L	EPA 8260B	4/27/11	101	99.8	1.54	76.5-120	25
Ethylbenzene														
	77239-02	<0.50	40.0	40.0	40.0	38.5	ug/L	EPA 8260B	4/27/11	99.9	96.3	3.66	80-120	25

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 05/02/2011

Project Name : **Tesoro-Livermore**

Project Number : **01LV**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Methanol														
	77239-02	<50	1000	1000	920	933	ug/L	EPA 8260B	4/27/11	92.1	93.3	1.36	53.2-147	25
Methyl-t-butyl ether														
	77239-02	<0.50	39.9	39.9	39.4	39.0	ug/L	EPA 8260B	4/27/11	99.0	98.0	1.00	69.7-121	25
P + M Xylene														
	77239-02	<0.50	40.0	40.0	39.0	37.3	ug/L	EPA 8260B	4/27/11	97.4	93.3	4.26	76.8-120	25
Tert-Butanol														
	77239-02	<5.0	200	200	192	194	ug/L	EPA 8260B	4/27/11	96.2	97.1	0.934	80-120	25
Tert-amyl-methyl ether														
	77239-02	<0.50	40.0	40.0	39.8	40.0	ug/L	EPA 8260B	4/27/11	99.4	99.8	0.424	78.9-120	25
Toluene														
	77239-02	<0.50	40.0	40.0	37.9	37.0	ug/L	EPA 8260B	4/27/11	94.8	92.5	2.53	80-120	25
1,2-Dibromoethane														
	77231-07	<0.50	40.1	40.1	40.2	39.5	ug/L	EPA 8260B	4/28/11	100	98.4	1.73	80-120	25
1,2-Dichloroethane														
	77231-07	<0.50	40.0	40.0	40.0	39.6	ug/L	EPA 8260B	4/28/11	100	99.0	0.988	75.7-122	25
Benzene														
	77231-07	<0.50	40.0	40.0	39.5	38.1	ug/L	EPA 8260B	4/28/11	98.7	95.3	3.43	80-120	25

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 05/02/2011

Project Name : **Tesoro-Livermore**

Project Number : **01LV**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Diisopropyl ether														
	77231-07	<0.50	40.0	40.0	41.9	40.7	ug/L	EPA 8260B	4/28/11	105	102	2.76	80-120	25
Ethanol														
	77231-07	<5.0	100	100	98.5	103	ug/L	EPA 8260B	4/28/11	98.1	103	4.84	55.1-159	25
Ethyl-tert-butyl ether														
	77231-07	<0.50	40.0	40.0	41.5	40.5	ug/L	EPA 8260B	4/28/11	104	101	2.46	76.5-120	25
Ethylbenzene														
	77231-07	<0.50	40.0	40.0	41.1	40.0	ug/L	EPA 8260B	4/28/11	103	100	2.57	80-120	25
Methanol														
	77231-07	<50	1000	1000	1010	994	ug/L	EPA 8260B	4/28/11	101	99.4	1.52	53.2-147	25
Methyl-t-butyl ether														
	77231-07	<0.50	39.9	39.9	40.4	40.1	ug/L	EPA 8260B	4/28/11	101	101	0.798	69.7-121	25
P + M Xylene														
	77231-07	<0.50	40.0	40.0	39.8	39.2	ug/L	EPA 8260B	4/28/11	99.6	97.9	1.70	76.8-120	25
Tert-Butanol														
	77231-07	<5.0	200	200	199	198	ug/L	EPA 8260B	4/28/11	99.6	99.3	0.303	80-120	25
Tert-amyl-methyl ether														
	77231-07	<0.50	40.0	40.0	41.7	40.4	ug/L	EPA 8260B	4/28/11	104	101	3.20	78.9-120	25
Tetrachloroethene														
	77231-07	<0.50	40.0	40.0	38.9	37.1	ug/L	EPA 8260B	4/28/11	97.4	92.8	4.76	77.0-120	25

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QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 05/02/2011

Project Name : **Tesoro-Livermore**

Project Number : **01LV**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Toluene														
	77231-07	<0.50	40.0	40.0	38.7	37.6	ug/L	EPA 8260B	4/28/11	96.8	94.1	2.83	80-120	25
Trichloroethene														
	77231-07	<0.50	40.0	40.0	39.8	38.8	ug/L	EPA 8260B	4/28/11	99.5	97.0	2.57	80-120	25
1,2-Dibromoethane														
	77243-02	<0.50	40.1	40.1	42.4	41.6	ug/L	EPA 8260B	4/28/11	106	104	1.74	80-120	25
1,2-Dichloroethane														
	77243-02	<0.50	40.0	40.0	42.9	42.3	ug/L	EPA 8260B	4/28/11	107	106	1.42	75.7-122	25
Benzene														
	77243-02	<0.50	40.0	40.0	40.3	38.6	ug/L	EPA 8260B	4/28/11	101	96.6	4.22	80-120	25
Diisopropyl ether														
	77243-02	<0.50	40.0	40.0	41.9	40.7	ug/L	EPA 8260B	4/28/11	105	102	2.75	80-120	25
Ethanol														
	77243-02	<5.0	100	100	121	121	ug/L	EPA 8260B	4/28/11	120	121	0.425	55.1-159	25
Ethyl-tert-butyl ether														
	77243-02	<0.50	40.0	40.0	42.6	41.6	ug/L	EPA 8260B	4/28/11	106	104	2.28	76.5-120	25
Ethylbenzene														
	77243-02	<0.50	40.0	40.0	41.2	39.7	ug/L	EPA 8260B	4/28/11	103	99.2	3.91	80-120	25

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QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 05/02/2011

Project Name : **Tesoro-Livermore**

Project Number : **01LV**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Methanol														
	77243-02	<50	1000	1000	1140	1110	ug/L	EPA 8260B	4/28/11	114	111	2.33	53.2-147	25
Methyl-t-butyl ether														
	77243-02	1.2	39.9	39.9	40.4	40.7	ug/L	EPA 8260B	4/28/11	98.4	99.1	0.700	69.7-121	25
P + M Xylene														
	77243-02	<0.50	40.0	40.0	41.6	39.4	ug/L	EPA 8260B	4/28/11	104	98.4	5.57	76.8-120	25
Tert-Butanol														
	77243-02	<5.0	200	200	211	210	ug/L	EPA 8260B	4/28/11	106	105	0.771	80-120	25
Tert-amyl-methyl ether														
	77243-02	<0.50	40.0	40.0	41.4	40.6	ug/L	EPA 8260B	4/28/11	103	102	1.91	78.9-120	25
Toluene														
	77243-02	<0.50	40.0	40.0	41.3	39.6	ug/L	EPA 8260B	4/28/11	103	98.9	4.40	80-120	25
Ferrous Iron														
	77231-14	< 0.10	0.100	0.100	0.119	0.131	mg/L	SM 3500-Fe	4/27/11	116	128	9.60	70.0-130	25

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QC Report : Laboratory Control Sample (LCS)

Project Name : **Tesoro-Livermore**

Project Number : **01LV**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
1,2-Dibromoethane	40.0	ug/L	EPA 8260B	4/27/11	97.8	80-120
1,2-Dichloroethane	39.9	ug/L	EPA 8260B	4/27/11	98.3	75.7-122
Benzene	39.9	ug/L	EPA 8260B	4/27/11	96.9	80-120
Diisopropyl ether	39.9	ug/L	EPA 8260B	4/27/11	101	80-120
Ethanol	100	ug/L	EPA 8260B	4/27/11	101	55.1-159
Ethyl-tert-butyl ether	39.9	ug/L	EPA 8260B	4/27/11	102	76.5-120
Ethylbenzene	39.9	ug/L	EPA 8260B	4/27/11	101	80-120
Methanol	997	ug/L	EPA 8260B	4/27/11	101	53.2-147
Methyl-t-butyl ether	39.8	ug/L	EPA 8260B	4/27/11	99.9	69.7-121
P + M Xylene	39.9	ug/L	EPA 8260B	4/27/11	99.0	76.8-120
TPH as Gasoline	498	ug/L	EPA 8260B	4/27/11	93.3	70.0-130
Tert-Butanol	199	ug/L	EPA 8260B	4/27/11	98.9	80-120
Tert-amyl-methyl ether	39.9	ug/L	EPA 8260B	4/27/11	101	78.9-120
Toluene	39.9	ug/L	EPA 8260B	4/27/11	95.6	80-120
1,2-Dibromoethane	40.3	ug/L	EPA 8260B	4/28/11	98.7	80-120
1,2-Dichloroethane	40.2	ug/L	EPA 8260B	4/28/11	97.5	75.7-122
Benzene	40.2	ug/L	EPA 8260B	4/28/11	95.9	80-120
Diisopropyl ether	40.2	ug/L	EPA 8260B	4/28/11	101	80-120
Ethanol	101	ug/L	EPA 8260B	4/28/11	105	55.1-159
Ethyl-tert-butyl ether	40.2	ug/L	EPA 8260B	4/28/11	98.9	76.5-120
Ethylbenzene	40.2	ug/L	EPA 8260B	4/28/11	100	80-120
Methanol	1000	ug/L	EPA 8260B	4/28/11	110	53.2-147

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

QC Report : Laboratory Control Sample (LCS)

Project Name : **Tesoro-Livermore**

Project Number : **01LV**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Methyl-t-butyl ether	40.0	ug/L	EPA 8260B	4/28/11	96.8	69.7-121
P + M Xylene	40.2	ug/L	EPA 8260B	4/28/11	97.5	76.8-120
TPH as Gasoline	499	ug/L	EPA 8260B	4/28/11	96.9	70.0-130
Tert-Butanol	201	ug/L	EPA 8260B	4/28/11	97.2	80-120
Tert-amyl-methyl ether	40.2	ug/L	EPA 8260B	4/28/11	97.4	78.9-120
Tetrachloroethene	40.2	ug/L	EPA 8260B	4/28/11	94.7	77.0-120
Toluene	40.2	ug/L	EPA 8260B	4/28/11	95.9	80-120
Trichloroethene	40.2	ug/L	EPA 8260B	4/28/11	97.8	80-120
1,2-Dibromoethane	40.0	ug/L	EPA 8260B	4/28/11	105	80-120
1,2-Dichloroethane	39.9	ug/L	EPA 8260B	4/28/11	103	75.7-122
Benzene	39.9	ug/L	EPA 8260B	4/28/11	101	80-120
Diisopropyl ether	39.9	ug/L	EPA 8260B	4/28/11	105	80-120
Ethanol	100	ug/L	EPA 8260B	4/28/11	128	55.1-159
Ethyl-tert-butyl ether	39.9	ug/L	EPA 8260B	4/28/11	102	76.5-120
Ethylbenzene	39.9	ug/L	EPA 8260B	4/28/11	104	80-120
Methanol	997	ug/L	EPA 8260B	4/28/11	119	53.2-147
Methyl-t-butyl ether	39.8	ug/L	EPA 8260B	4/28/11	94.2	69.7-121
P + M Xylene	39.9	ug/L	EPA 8260B	4/28/11	105	76.8-120
TPH as Gasoline	500	ug/L	EPA 8260B	4/28/11	98.3	70.0-130
Tert-Butanol	199	ug/L	EPA 8260B	4/28/11	105	80-120
Tert-amyl-methyl ether	39.9	ug/L	EPA 8260B	4/28/11	98.2	78.9-120
Toluene	39.9	ug/L	EPA 8260B	4/28/11	102	80-120

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

QC Report : Laboratory Control Sample (LCS)

Project Name : **Tesoro-Livermore**

Project Number : **01LV**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Nitrate as N	0.500	mg/L	EPA 300.0	4/27/11	97.6	85.0-115
Sulfate	2.50	mg/L	EPA 300.0	4/27/11	101	85.0-115
Ferrous Iron	0.502	mg/L	SM 3500-Fe	4/27/11	106	70.0-130

KIFF ANALYTICAL, LLC
2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

KIFF Analytical LLC

2795 2nd Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4802

SRG # / Lab No. 77231

Page 1 of 2

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To): Matthew Nelson
Company / Address: Orion environmental
3450 E.Spring St. Suite 212, Long Beach, CA
Phone Number: 562-988-2755
Fax Number: 562-988-2759
Project #: 01LV
P.O. #:
Project Name: Tesoro-Livermore

California EDF Report? ☒ Yes ☐ No
Sampling Company Log Code: EFSP
Global ID: T0600101410
EDF Deliverable To (Email Address): mnelson@orionenv.com
Bill to: Jeff Baker
Sampler Print Name: Chris Arroyo
Sampler Signature:

Project Address: 1614 1st Street Livermore, CA

Sample Designation	Sampling: Date	Sampling: Time	Container: 40 ml VOA	Container: Sleeve	Container: Poly	Container: Glass	Container: Tedlar	Container:	Preservative: HCl	Preservative: HNO_3	Preservative: None	Preservative:	Preservative:	Matrix: Water	Matrix: Soil	Matrix: Air	Matrix:
VW-3	4-25-11	0920	5						5					X			
MW-1	4-25-11	1245	5						5					X			
MW-3	4-25-11	1330	5						5					X			
MW-8	4-25-11	1345	5						5					X			
MW-5	4-25-11	1620	5						5					X			
MW-10	4-25-11	1650	5						5					X			
IP-3	4-26-11	0925	5						5					X			
DW-4	4-26-11	1015	5						5					X			
IP-4	4-26-11	1035	5						5					X			
IP-5	4-26-11	1132	5						5					X			

Analysis Request

MTBE @ 0.5 ppb (EPA 8260B)	BTEX (EPA 8260B)	TPH Gas (EPA 8260B)	5 Oxygenates (MTBE, DIPE, ETBE, TAME, TBA) (EPA 8260B)	7 Oxygenates (5 oxy + EtOH, MeOH) (EPA 8260B)	Lead Scav. (1,2 DCA & 1,2 EDB) (EPA 8260B)	Volatile Halocarbons (EPA 8260B)	Volatile Organics Full List (EPA 8260B)	Volatile Organics (EPA 524.2 Drinking Water)	TPH as Diesel (EPA 8015M)	TPH as Motor Oil (EPA 8015M)	CAM 17 Metals (EPA 200.7 / 6010)	5 Waste Oil Metals (Cd,Cr,Ni,Pb,Zn) (EPA 200.7 / 6010)	Mercury (EPA 245.1 / 7470 / 7471)	Total Lead (EPA 200.7 / 6010)	W.E.T. Lead (STLC)	TCE & PCE (EPA 8260B)				
	X	X		X	X											X				
	X	X		X	X															
	X	X		X	X															
	X	X		X	X															
	X	X		X	X															
	X	X		X	X															
	X	X		X	X															
	X	X		X	X											X				
	X	X		X	X															
	X	X		X	X															

CIRCLE METHOD

TAT: ☐ 12 hr ☐ 24 hr ☐ 48hr ☐ 72hr ☒ 1 wk

For Lab Use Only

Relinquished by:	Date	Time	Received by:
	4-26-11	1515	
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory:
	4-26-11	1515	Kiff Analytical

Remarks:

Distribution: White - Lab; Pink - Originator
Rev: 060409

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KIFF Analytical LLC

2795 2nd Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4802

SRG # / Lab No. 77231

Page 2 of 2

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To): Matthew Nelson
Company / Address: Orion Environmental
3450 E. Spring St. Suite 212, Long Beach, CA
Phone Number: 562-988-2755
Fax Number: 562-988-2759
Project #: 01LV
P.O. #:
Project Name: Tesoro-Livermore

California EDF Report? [X] Yes [ ] No
Sampling Company Log Code: EFSP
Global ID: T0600101410
EDF Deliverable To (Email Address): mnelson@orionenv.com
Bill to: Jeff Baker
Sampler Print Name: Chris Arroyo
Sampler Signature:

Project Address: 1619 1st Street Livermore, CA

Sample Designation	Date	Time	Sampling	Container: 40 ml VOA	Container: Sleeve	Container: Poly	Container: Glass	Container: Tedlar	Container:	Preservative: HCl	Preservative: HNO_3	Preservative: None	Preservative: H_2SO_4	Preservative:	Matrix: Water	Matrix: Soil	Matrix: Air	Matrix:	MTBE @ 0.5 ppb (EPA 8260B)	BTEX (EPA 8260B)	TPH Gas (EPA 8260B)	5 Oxygenates (MTBE, DIPE, ETBE, TAME, TBA) (EPA 8260B)	7 Oxygenates (5 oxy + EtOH, MeOH) (EPA 8260B)	Lead Scav. (1,2 DCA & 1,2 EDB) (EPA 8260B)	Volatile Halocarbons (EPA 8260B)	Volatile Organics Full List (EPA 8260B)	Volatile Organics (EPA 524.2 Drinking Water)	TPH as Diesel (EPA 8015M)	TPH as Motor Oil (EPA 8015M)	CAM 17 Metals (EPA 200.7 / 6010)	5 Waste Oil Metals (Cd,Cr,Ni,Pb,Zn) (EPA 200.7 / 6010)	~~Mercury (EPA 245.1 / 7470 / 7471)~~ BOD	~~Total Lead (EPA 200.7 / 6010)~~ COD	~~Ethanol (8260)~~ Methane	Ferrous Iron (SM 3500-Fe-D)	Nitrate, Sulfate (EPA 300.0)	Total Alkalinity (SM 2320B)	Total Organic Carbon	TAT	For Lab Use Only
IP-2	4-26-11	1250		5						5					X					X	X		X	X												Std.	
MW-4	4-26-11	1305		5		3	1			5		3	1		X					X	X		X	X							X	X	X	X	X	X	X	24hr Rush	Hold time
IP-10	4-26-11	1430		5						5					X					X	X		X	X												Std.	
MW-9	4-26-11	1450		5		3	1			5		3	1		X					X	X		X	X							X	X	X	X	X	X	X	24hr Rush	hold time

TAT: [ ] 12 hr [ ] 24 hr [ ] 48hr [ ] 72hr [X] 1 wk

Relinquished by:	Date	Time	Received by:
Chris Arroyo	4-26-11	1515	
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory:
	042611	1515	Kiff Analytical

Remarks:
MW-4 - 24 hour hold time
MW-9 - 24 hour hold time

Distribution: White - Lab; Pink - Originator
Rev: 060409

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KIFF Analytical LLC

SAMPLE RECEIPT CHECKLIST

RECEIVER Initials: AZF

SRG#: 72231 Date: 042611

Project ID: Tesoro - Livermore

Method of Receipt: ☒ Courier ☐ Over-the-counter ☐ Shipper

COC Inspection

Is COC present?	☒ Yes	☐ No		
Custody seals on shipping container?	☐ Intact	☐ Broken	☐ Not present	☒ N/A
Is COC Signed by Relinquisher? ☒ Yes ☐ No Dated?	☒ Yes	☐ No		
Is sampler name legibly indicated on COC?	☒ Yes	☐ No		
Is analysis or hold requested for all samples	☒ Yes	☐ No		
Is the turnaround time indicated on COC?	☒ Yes	☐ No		
Is COC free of whiteout and uninitialed cross-outs?	☒ Yes	☐ No, Whiteout	☐ No, Cross-outs	

Sample Inspection

Coolant Present: ☒ Yes ☐ No (includes water)

Temperature °C 5.4 Therm. ID# IR 5 Initial AZF Date/Time 042611 / 1735 ☐ N/A

Are there custody seals on sample containers?	☐ Intact	☐ Broken	☒ Not present	
Do containers match COC? ☒ Yes ☐ No ☐ No, COC lists absent sample(s)	☐ No, Extra sample(s) present			
Are there samples matrices other than soil, water, air or carbon?	☐ Yes	☒ No		
Are any sample containers broken, leaking or damaged?	☐ Yes	☒ No		
Are preservatives indicated? ☐ Yes, on sample containers	☒ Yes, on COC	☐ Not indicated	☐ N/A	
Are preservatives correct for analyses requested?	☒ Yes	☐ No	☐ N/A	
Are samples within holding time for analyses requested?	☒ Yes	☐ No		
Are the correct sample containers used for the analyses requested?	☒ Yes	☐ No		
Is there sufficient sample to perform testing?	☒ Yes	☐ No		
Does any sample contain product, have strong odor or are otherwise suspected to be hot?	☐ Yes	☒ No		

Receipt Details WA 4 x 250g Glass 2

Matrix WA Container type 40z VOA # of containers received 7U

Matrix WA Container type 250 P/F # of containers received 4

Matrix WG Container type 500 P/F # of containers received 2

Date and Time Sample Put into Temp Storage Date: 042611 Time: 1740

Quicklog

Are the Sample ID's indicated:	☐ On COC	☐ On sample container(s)	☒ On Both	☐ Not indicated
If Sample ID's are listed on both COC and containers, do they all match?	☒ Yes	☐ No	☐ N/A	
Is the Project ID indicated:	☐ On COC	☐ On sample container(s)	☒ On Both	☐ Not indicated
If project ID is listed on both COC and containers, do they all match?	☒ Yes	☐ No	☐ N/A	
Are the sample collection dates indicated:	☐ On COC	☐ On sample container(s)	☒ On Both	☐ Not indicated
If collection dates are listed on both COC and containers, do they all match?	☒ Yes	☐ No	☐ N/A	
Are the sample collection times indicated:	☐ On COC	☐ On sample container(s)	☒ On Both	☐ Not indicated
If collection times are listed on both COC and containers, do they all match?	☒ Yes	☐ No	☐ N/A	

COMMENTS:

Leaders in Analytical Science and Service

KIFF Analytical LLC

Subcontract Laboratory Report Attachments

2795 Second Street, Suite 300 Davis, CA 95618
tel 530.297.4800 fax 530.297.4808
www.kiffanalytical.com

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

May 04, 2011

CLS Work Order #: CUD1201
COC #: 77231

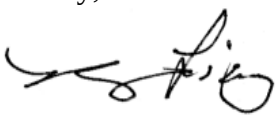
Scott Forbes
KIFF Analytical
2795 Second St. Suite 300
Davis, CA 95616

Project Name: Tesoro-Livermore

Enclosed are the results of analyses for samples received by the laboratory on 04/27/11 09:46. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,



James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

KIFF Analytical
2795 Second St. Suite 300
Davis, CA 95616

Project: Tesoro-Livermore
Project Number: 01LV
Project Manager: Scott Forbes

CLS Work Order #: CUD1201
COC #: 77231

CUD1201

KIFF Analytical LLC

2795 Second Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4808

California Laboratory Services
3249 Fitzgerald Road
Rancho Cordova, CA 95742
916-638-7301

COC No. **77231** Page 1 of 1

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF to): Scott Forbes
Company/Address: Kiff Analytical
Phone No.: 530-297-4800
FAX No.: 530-297-4808
Project Number: 01LV
P.O. No.: 77231
Project Name: Tesoro-Livermore
Project Address:

EDF Report? YES

Recommended but not mandatory to complete this section:
Sampling Company Log Code: EFSP
Global ID: T0600101410
Deliverables to (Email Address): inbox@kiffanalytical.com

Sample Designation	Sampling Date	Sampling Time	Container / Preservative: 500 ml Poly None	Matrix: Water	Analysis Request: Biochemical Oxygen Demand	TAT: Standard	For Lab Use Only
MW-4	04/26/11	13:05	1	X	X	X	
MW-9	04/26/11	14:50	1	X	X	X	

Relinquished by: KIFF Analytical — Date 4/27/11 — Time 0946 — Received by:
Relinquished by: — Date — Time — Received by:
Relinquished by: — Date — Time — Received by Laboratory: Jon R 4-27-11 9:46

Remarks: 3.3°C
Bill to: Accounts Payable

KIFF Analytical
2795 Second St. Suite 300
Davis, CA 95616

Project: Tesoro-Livermore
Project Number: 01LV
Project Manager: Scott Forbes

CLS Work Order #: CUD1201
COC #: 77231

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-4 (CUD1201-01) Water	**Sampled: 04/26/11 13:05**	**Received: 04/27/11 09:46**							
Biochemical Oxygen Demand	ND	3.0	mg/L	1	CU02899	04/28/11	05/03/11	SM5210B	
MW-9 (CUD1201-02) Water	**Sampled: 04/26/11 14:50**	**Received: 04/27/11 09:46**							
Biochemical Oxygen Demand	ND	3.0	mg/L	1	CU02899	04/28/11	05/03/11	SM5210B	

KIFF Analytical
2795 Second St. Suite 300
Davis, CA 95616

Project: Tesoro-Livermore
Project Number: 01LV
Project Manager: Scott Forbes

CLS Work Order #: CUD1201
COC #: 77231

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CU02899 - General										
Blank (CU02899-BLK1)				Prepared: 04/28/11	Analyzed: 05/03/11					
Biochemical Oxygen Demand	ND	3.0	mg/L							
LCS (CU02899-BS1)				Prepared: 04/28/11	Analyzed: 05/03/11					
Biochemical Oxygen Demand	195	3.0	mg/L	167		117	83-138			
LCS Dup (CU02899-BSD1)				Prepared: 04/28/11	Analyzed: 05/03/11					
Biochemical Oxygen Demand	168	3.0	mg/L	167		101	83-138	15	21	

KIFF Analytical	Project: Tesoro-Livermore	
2795 Second St. Suite 300	Project Number: 01LV	**CLS Work Order #: CUD1201**
Davis, CA 95616	Project Manager: Scott Forbes	COC #: 77231

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Calscience
Environmental
Laboratories, Inc.

May 03, 2011

Joel Kiff
Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95616-6593

Subject: **Calscience Work Order No.: 11-04-1684**
Client Reference: Tesoro - Livermore

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 4/27/2011 and analyzed in accordance with the attached chain-of-custody.

Calscience Environmental Laboratories certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Amanda Porter

Calscience Environmental
Laboratories, Inc.
Amanda Porter
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical		Date Received:	04/27/11
2795 2nd Street, Suite 300		Work Order No:	11-04-1684
Davis, CA 95616-6593		Preparation:	N/A
		Method:	RSK-175M

Project: Tesoro - Livermore

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-4	**11-04-1684-1-A**	**04/26/11 13:05**	**Aqueous**	**GC 33**	**N/A**	**04/27/11 20:50**	**110427L01**

Parameter	Result	RL	DF	Qual	Units
Methane	ND	1.00	1		ug/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-9	**11-04-1684-2-A**	**04/26/11 14:50**	**Aqueous**	**GC 33**	**N/A**	**04/27/11 22:16**	**110427L01**

Parameter	Result	RL	DF	Qual	Units
Methane	385	4.00	4		ug/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-663-1,294**	**N/A**	**Aqueous**	**GC 33**	**N/A**	**04/27/11 10:25**	**110427L01**

Parameter	Result	RL	DF	Qual	Units
Methane	ND	1.00	1		ug/L

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95616-6593

Date Received: 04/27/11
Work Order No: 11-04-1684

Project: Tesoro - Livermore

Client Sample Number	Lab Sample Number	Date Collected	Matrix
MW-4	**11-04-1684-1**	**04/26/11**	**Aqueous**

Parameter	Results	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chemical Oxygen Demand	ND	5.0	1		mg/L	04/28/11	04/28/11	EPA 410.4
Alkalinity, Total (as CaCO3)	426	5.00	1		mg/L	N/A	04/29/11	SM 2320B
Carbon, Total Organic	0.88	0.50	1		mg/L	N/A	04/27/11	SM 5310 D

Client Sample Number	Lab Sample Number	Date Collected	Matrix
MW-9	**11-04-1684-2**	**04/26/11**	**Aqueous**

Parameter	Results	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chemical Oxygen Demand	20	5.0	1		mg/L	04/28/11	04/28/11	EPA 410.4
Alkalinity, Total (as CaCO3)	497	5.00	1		mg/L	N/A	04/29/11	SM 2320B
Carbon, Total Organic	2.2	0.50	1		mg/L	N/A	04/27/11	SM 5310 D

Client Sample Number	Lab Sample Number	Date Collected	Matrix
Method Blank		**N/A**	**Aqueous**

Parameter	Results	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chemical Oxygen Demand	ND	5.0	1		mg/L	04/28/11	04/28/11	EPA 410.4
Alkalinity, Total (as CaCO3)	ND	1.0	1		mg/L	N/A	04/29/11	SM 2320B
Carbon, Total Organic	ND	0.50	1		mg/L	N/A	04/27/11	SM 5310 D

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95616-6593

Date Received: N/A
Work Order No: 11-04-1684

Project: Tesoro - Livermore

Matrix: Aqueous or Solid

Parameter	Method	Quality Control Sample ID	Date Analyzed	Date Extracted	MS% REC	MSD % REC	%REC CL	RPD	RPD CL	Qualifiers
Carbon, Total Organic	SM 5310 D	11-04-1653-2	04/27/11	N/A	100	99	75-125	1	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95616-6593

Date Received: N/A
Work Order No: 11-04-1684

Project: Tesoro - Livermore

Matrix: Aqueous or Solid

Parameter	Method	QC Sample ID	Date Analyzed	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Chemical Oxygen Demand	EPA 410.4	11-04-1617-1	04/28/11	110	110	1	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95616-6593

Date Received: N/A
Work Order No: 11-04-1684
Preparation: N/A
Method: RSK-175M

Project: Tesoro - Livermore

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-663-1,294	**Aqueous**	**GC 33**	**N/A**	**04/27/11**	**110427L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Methane	91	92	79-109	2	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95616-6593

Date Received: N/A
Work Order No: 11-04-1684

Project: Tesoro - Livermore

Matrix: Aqueous or Solid

Parameter	Method	Quality Control Sample ID	Date Extracted	Date Analyzed	LCS % REC	LCSD % REC	%REC CL	RPD	RPD CL	Qual
Carbon, Total Organic	SM 5310 D	099-05-097-4,263	N/A	04/27/11	93	93	80-120	0	0-20	

RPD - Relative Percent Difference , CL - Control Limit

CALSCIENCE ENVIRONMENTAL LABORATORIES, INC.
Sample Analysis Summary Report

WORK ORDER #: 11-04-1684

Lab Sample Number	*Client Sample ID*	*Method*	*Extraction*	*Date Analyzed*	*Chemist ID*	*Instrument*
1-C	MW-4	SM 5310 D	N/A	04/27/2011	305	TOC 6
1-A	MW-4	RSK-175M	N/A	04/27/2011	460	GC 33
1-D	MW-4	SM 2320B	N/A	04/29/2011	650	BUR03
1-C	MW-4	EPA 410.4	N/A	04/28/2011	689	UV 5
2-C	MW-9	EPA 410.4	N/A	04/28/2011	689	UV 5
2-D	MW-9	SM 2320B	N/A	04/29/2011	650	BUR03
2-A	MW-9	RSK-175M	N/A	04/27/2011	460	GC 33
2-C	MW-9	SM 5310 D	N/A	04/27/2011	305	TOC 6

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 11-04-1684

Qualifier	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported without further clarification.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

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

KIFF Analytical LLC

2795 Second Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4808

Calscience
7440 Lincoln Way
Garden Grove, CA 92841-1427
714-895-5494

1684

COC No. **77231** Page 1 of 1

Project Contact (Hardcopy or PDF to):
Scott Forbes

EDF Report? YES

Chain-of-Custody Record and Analysis Request

Company/Address:
Kiff Analytical

Recommended but not mandatory to complete this section:

Sampling Company Log Code: EFSP

Phone No.: 530-297-4800
FAX No.: 530-297-4808

Global ID: T0600101410

Project Number: 01LV
P.O. No.: 77231

Deliverables to (Email Address):
inbox@kiffanalytical.com

Project Name:
Tesoro-Livermore

Project Address:

Sample Designation	Sampling Date	Sampling Time	Container / Preservative: 250ml Glass H2SO4	250ml Poly None	VOA 40 ml HCl	Matrix: Water	Analysis Request: Alkalinity SM 2320 (1)	Chemical Oxygen Demand	Hydrocarbons in Water by RSK 175 (1)	Total Organic Carbon	TAT: 4-Days	For Lab Use Only
MW-4	04/26/11	13:05	1	1	2	X	X	X	X	X	X	1
MW-9	04/26/11	14:50	1	1	2	X	X	X	X	X	X	2

Relinquished by	Date	Time	Received by
Kiff Analytical	042611	1900	
ONTRAC	4/27/11	10:00	Received by Laboratory:

Remarks: Please refer to attached Test Detail.

Bill to: Accounts Payable

1684

Test Detail for Kiff Work Order: 77231

Alkalinity SM 2320 (1)
Alkalinity, Total (as CaCO3)

Hydrocarbons in Water by RSK 175 (1)
Methane

1684

bOnTrac View Shipment

http://www.ontrac.com/webontrac/newshipment.aspx?repeat=

OnTrac
On Time Delivery For Less

800.334.5000
ontrac.com

Tracking#D10010373120561

Date Printed 4/26/2011

Shipped From:
KIFF ANALYTICAL
2795 2ND STREET 300
DAVIS, CA 95616

Sent By: SAMPLE RECEIVING
Phone#: (530)297-4800
wgt(lbs): 1
Reference: SUB SRG
Reference 2:

Ship To Company:
CALSCIENCE ENVIRONMENTAL
7440 LINCOLN WAY
GARDEN GROVE, CA 92841
RECEIVING (714)895-5494

B10207210772

Service: **S**
Sort Code: **ORG**

Special Services:
Signature Required

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 11-04-1684

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: KIFF DATE: 04/27/11

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 0.7 °C + 0.5 °C (CF) = 1.2 °C ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter Initial: RV

CUSTODY SEALS INTACT:

☑ Cooler ☐_____ ☐ No (Not Intact) ☐ Not Present ☐ N/A Initial: RV

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: RV

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☐	☐	☑
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
pH / Res. Chlorine / Diss. Sulfide / Diss. Oxygen received within 24 hours	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☐
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☑	☐	☐
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☑VOA**h** (2) ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☑250CGB**s** ☐1PB ☐500PB ☐500PB**na**

☑250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** RV

Container: C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope **Reviewed by:** _____

Preservative: h: HCL n: HNO_3 na$_2$: $Na_2S_2O_3$ na: NaOH p: H_3PO_4 s: H_2SO_4 znna: $ZnAc_2$+NaOH f: Field-filtered **Scanned by:** _____

KIFF Analytical LLC

Report Number : 77245
Date : 05/04/2011

Laboratory Results

Matt Nelson
Orion Environmental
3450 East Spring Street, Suite 212
Long Beach, CA 90806

Subject : 7 Water Samples
Project Name : Tesoro - Livermore
Project Number : 01LV

Dear Mr. Nelson,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed. Testing procedures comply with the 2003 NELAC standard. All soil samples are reported on a total weight (wet weight) basis unless noted otherwise in the case narrative. Laboratory results relate only to the samples tested. This report may be freely reproduced in full, but may only be reproduced in part with the express permission of Kiff Analytical, LLC. Kiff Analytical, LLC is certified by the State of California under the National Environmental Laboratory Accreditation Program (NELAP), lab # 08263CA. If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

Joel Kiff

KIFF Analytical LLC

Report Number : 77245
Date : 05/04/2011

Subject : 7 Water Samples
Project Name : Tesoro - Livermore
Project Number : 01LV

Case Narrative

The Method Reporting Limit for Methanol has been increased due to the presence of an interfering compound for samples DW-2 and DW-7.

The Method Reporting Limit for Ethanol has been increased due to the presence of an interfering compound for sample DW-6.

California Laboratory Services provided analytical testing associated with these samples, but is not accredited by the National Environmental Laboratory Accreditation Program (NELAP).

KIFF Analytical LLC

Report Number : 77245
Date : 05/04/2011

Project Name : **Tesoro - Livermore**
Project Number : **01LV**

Sample : **MW-7** Matrix : Water Lab Number : 77245-01
Sample Date :04/26/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	**3.3**	0.50	ug/L	EPA 8260B	04/29/11 01:14
Toluene	**0.59**	0.50	ug/L	EPA 8260B	04/29/11 01:14
Ethylbenzene	**1.6**	0.50	ug/L	EPA 8260B	04/29/11 01:14
Total Xylenes	**1.3**	0.50	ug/L	EPA 8260B	04/29/11 01:14
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 01:14
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 01:14
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 01:14
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 01:14
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	04/29/11 01:14
Methanol	< 50	50	ug/L	EPA 8260B	04/29/11 01:14
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	04/29/11 01:14
TPH as Gasoline	**1200**	50	ug/L	EPA 8260B	04/29/11 01:14
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 01:14
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 01:14
1,2-Dichloroethane-d4 (Surr)	99.5		% Recovery	EPA 8260B	04/29/11 01:14
Toluene - d8 (Surr)	99.6		% Recovery	EPA 8260B	04/29/11 01:14

KIFF Analytical LLC

Report Number : 77245
Date : 05/04/2011

Project Name : **Tesoro - Livermore**
Project Number : **01LV**

Sample : **DW-3** Matrix : Water Lab Number : 77245-02
Sample Date :04/27/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 01:51
Toluene	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 01:51
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 01:51
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 01:51
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 01:51
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 01:51
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 01:51
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 01:51
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	04/29/11 01:51
Methanol	< 50	50	ug/L	EPA 8260B	04/29/11 01:51
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	04/29/11 01:51
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	04/29/11 01:51
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 01:51
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 01:51
1,2-Dichloroethane-d4 (Surr)	100		% Recovery	EPA 8260B	04/29/11 01:51
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	04/29/11 01:51

KIFF Analytical LLC

Report Number : 77245
Date : 05/04/2011

Project Name : **Tesoro - Livermore**
Project Number : **01LV**

Sample : **DW-5** Matrix : Water Lab Number : 77245-03
Sample Date :04/27/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	**8.0**	0.50	ug/L	EPA 8260B	04/29/11 02:28
Toluene	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 02:28
Ethylbenzene	**4.3**	0.50	ug/L	EPA 8260B	04/29/11 02:28
Total Xylenes	**2.1**	0.50	ug/L	EPA 8260B	04/29/11 02:28
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 02:28
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 02:28
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 02:28
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 02:28
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	04/29/11 02:28
Methanol	< 50	50	ug/L	EPA 8260B	04/29/11 02:28
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	04/29/11 02:28
TPH as Gasoline	**710**	50	ug/L	EPA 8260B	04/29/11 02:28
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 02:28
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 02:28
1,2-Dichloroethane-d4 (Surr)	102		% Recovery	EPA 8260B	04/29/11 02:28
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	04/29/11 02:28

KIFF Analytical LLC

Report Number : 77245
Date : 05/04/2011

Project Name : **Tesoro - Livermore**
Project Number : **01LV**

Sample : **DW-2** Matrix : Water Lab Number : 77245-04
Sample Date :04/27/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Ferrous Iron	< 0.10	0.10	mg/L	SM 3500-Fe D	04/28/11 10:21
Nitrate as N	< 0.10	0.10	mg/L	EPA 300.0	04/28/11 14:13
Sulfate	**1.2**	0.50	mg/L	EPA 300.0	04/28/11 14:13
Benzene	**78**	0.50	ug/L	EPA 8260B	04/29/11 03:05
Toluene	**2.6**	0.50	ug/L	EPA 8260B	04/29/11 03:05
Ethylbenzene	**2.6**	0.50	ug/L	EPA 8260B	04/29/11 03:05
Total Xylenes	**5.6**	0.50	ug/L	EPA 8260B	04/29/11 03:05
Methyl-t-butyl ether (MTBE)	**200**	0.50	ug/L	EPA 8260B	04/29/11 03:05
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 03:05
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 03:05
Tert-amyl methyl ether (TAME)	**2.2**	0.50	ug/L	EPA 8260B	04/29/11 03:05
Tert-Butanol	**590**	5.0	ug/L	EPA 8260B	04/29/11 03:05
Methanol	< 300	300	ug/L	EPA 8260B	04/29/11 03:05
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	04/29/11 03:05
TPH as Gasoline	**1900**	50	ug/L	EPA 8260B	04/29/11 03:05
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 03:05
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 03:05
1,2-Dichloroethane-d4 (Surr)	100		% Recovery	EPA 8260B	04/29/11 03:05
Toluene - d8 (Surr)	99.2		% Recovery	EPA 8260B	04/29/11 03:05

KIFF Analytical LLC

Report Number : 77245
Date : 05/04/2011

Project Name : **Tesoro - Livermore**
Project Number : **01LV**

Sample : **DW-7** Matrix : Water Lab Number : 77245-05
Sample Date :04/27/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Ferrous Iron	< 0.10	0.10	mg/L	SM 3500-Fe D	04/28/11 10:56
Nitrate as N	< 0.10	0.10	mg/L	EPA 300.0	04/28/11 15:59
Sulfate	**1.9**	0.50	mg/L	EPA 300.0	04/28/11 15:59
Benzene	**120**	0.50	ug/L	EPA 8260B	04/29/11 03:42
Toluene	**4.6**	0.50	ug/L	EPA 8260B	04/29/11 03:42
Ethylbenzene	**4.2**	0.50	ug/L	EPA 8260B	04/29/11 03:42
Total Xylenes	**6.7**	0.50	ug/L	EPA 8260B	04/29/11 03:42
Methyl-t-butyl ether (MTBE)	**95**	0.50	ug/L	EPA 8260B	04/29/11 03:42
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 03:42
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 03:42
Tert-amyl methyl ether (TAME)	**1.0**	0.50	ug/L	EPA 8260B	04/29/11 03:42
Tert-Butanol	**170**	5.0	ug/L	EPA 8260B	04/29/11 03:42
Methanol	< 200	200	ug/L	EPA 8260B	04/29/11 03:42
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	04/29/11 03:42
TPH as Gasoline	**1600**	50	ug/L	EPA 8260B	04/29/11 03:42
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 03:42
Trichloroethene	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 03:42
Tetrachloroethene	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 03:42
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 03:42
1,2-Dichloroethane-d4 (Surr)	98.8		% Recovery	EPA 8260B	04/29/11 03:42
4-Bromofluorobenzene (Surr)	104		% Recovery	EPA 8260B	04/29/11 03:42
Toluene - d8 (Surr)	99.9		% Recovery	EPA 8260B	04/29/11 03:42

KIFF Analytical LLC

Report Number : 77245
Date : 05/04/2011

Project Name : **Tesoro - Livermore**
Project Number : **01LV**

Sample : **MW-6** Matrix : Water Lab Number : 77245-06
Sample Date :04/27/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Ferrous Iron	**0.36**	0.10	mg/L	SM 3500-Fe D	04/28/11 10:18
Nitrate as N	< 0.10	0.10	mg/L	EPA 300.0	04/28/11 16:34
Sulfate	**4.1**	0.50	mg/L	EPA 300.0	04/28/11 16:34
Benzene	**870**	2.5	ug/L	EPA 8260B	04/29/11 01:27
Toluene	**28**	2.5	ug/L	EPA 8260B	04/29/11 01:27
Ethylbenzene	**180**	2.5	ug/L	EPA 8260B	04/29/11 01:27
Total Xylenes	**67**	2.5	ug/L	EPA 8260B	04/29/11 01:27
Methyl-t-butyl ether (MTBE)	**1200**	2.5	ug/L	EPA 8260B	04/29/11 01:27
Diisopropyl ether (DIPE)	< 2.5	2.5	ug/L	EPA 8260B	04/29/11 01:27
Ethyl-t-butyl ether (ETBE)	< 2.5	2.5	ug/L	EPA 8260B	04/29/11 01:27
Tert-amyl methyl ether (TAME)	**10**	2.5	ug/L	EPA 8260B	04/29/11 01:27
Tert-Butanol	**1100**	15	ug/L	EPA 8260B	04/29/11 01:27
Methanol	< 250	250	ug/L	EPA 8260B	04/29/11 01:27
Ethanol	< 25	25	ug/L	EPA 8260B	04/29/11 01:27
TPH as Gasoline	**8500**	250	ug/L	EPA 8260B	04/29/11 01:27
1,2-Dichloroethane	< 2.5	2.5	ug/L	EPA 8260B	04/29/11 01:27
1,2-Dibromoethane	< 2.5	2.5	ug/L	EPA 8260B	04/29/11 01:27
1,2-Dichloroethane-d4 (Surr)	93.5		% Recovery	EPA 8260B	04/29/11 01:27
Toluene - d8 (Surr)	93.7		% Recovery	EPA 8260B	04/29/11 01:27

KIFF Analytical LLC

Report Number : 77245
Date : 05/04/2011

Project Name : **Tesoro - Livermore**
Project Number : **01LV**

Sample : **DW-6** Matrix : Water Lab Number : 77245-07
Sample Date :04/27/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	**8.8**	0.50	ug/L	EPA 8260B	04/29/11 04:19
Toluene	**2.4**	0.50	ug/L	EPA 8260B	04/29/11 04:19
Ethylbenzene	**12**	0.50	ug/L	EPA 8260B	04/29/11 04:19
Total Xylenes	**8.2**	0.50	ug/L	EPA 8260B	04/29/11 04:19
Methyl-t-butyl ether (MTBE)	**6.2**	0.50	ug/L	EPA 8260B	04/29/11 04:19
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 04:19
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 04:19
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 04:19
Tert-Butanol	**19**	5.0	ug/L	EPA 8260B	04/29/11 04:19
Methanol	< 50	50	ug/L	EPA 8260B	04/29/11 04:19
Ethanol	< 8.0	8.0	ug/L	EPA 8260B	04/29/11 04:19
TPH as Gasoline	**3100**	50	ug/L	EPA 8260B	04/29/11 04:19
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 04:19
Trichloroethene	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 04:19
Tetrachloroethene	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 04:19
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 04:19
1,2-Dichloroethane-d4 (Surr)	93.6		% Recovery	EPA 8260B	04/29/11 04:19
4-Bromofluorobenzene (Surr)	105		% Recovery	EPA 8260B	04/29/11 04:19
Toluene - d8 (Surr)	96.1		% Recovery	EPA 8260B	04/29/11 04:19

Report Number : 77245

Date : 05/04/2011

QC Report : Method Blank Data

Project Name : **Tesoro - Livermore**

Project Number : **01LV**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Toluene	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/2011
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Methanol	< 50	50	ug/L	EPA 8260B	04/28/2011
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/2011
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	04/28/2011
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
1,2-Dichloroethane-d4 (Surr)	101		%	EPA 8260B	04/28/2011
Toluene - d8 (Surr)	98.4		%	EPA 8260B	04/28/2011
Benzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Toluene	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/2011
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Methanol	< 50	50	ug/L	EPA 8260B	04/28/2011
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	04/28/2011
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	04/28/2011
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Tetrachloroethene	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011
Trichloroethene	< 0.50	0.50	ug/L	EPA 8260B	04/28/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
1,2-Dichloroethane-d4 (Surr)	97.0		%	EPA 8260B	04/28/2011
4-Bromofluorobenzene (Surr)	103		%	EPA 8260B	04/28/2011
Toluene - d8 (Surr)	100		%	EPA 8260B	04/28/2011
Ferrous Iron	<0.10	0.10	mg/L	SM 3500-Fe D	04/28/2011
Nitrate as N	<0.10	0.10	mg/L	EPA 300.0	04/28/2011
Sulfate	<0.50	0.50	mg/L	EPA 300.0	04/28/2011

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 05/04/2011

Project Name : **Tesoro - Livermore**

Project Number : **01LV**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Ferrous Iron														
	77245-06	0.36	0.251	0.251	0.645	0.650	mg/L	SM 3500-Fe	4/28/11	114	116	0.772	70.0-130	25
Nitrate as N														
	77245-04	< 0.10	0.500	0.500	0.467	0.474	mg/L	EPA 300.0	4/28/11	91.7	93.1	1.56	85.0-115	10
Sulfate														
	77245-04	1.2	2.50	2.50	3.75	3.79	mg/L	EPA 300.0	4/28/11	102	103	1.01	85.0-115	10
1,2-Dibromoethane														
	77240-15	<0.50	40.0	39.9	40.0	40.7	ug/L	EPA 8260B	4/28/11	100	102	2.02	80-120	25
1,2-Dichloroethane														
	77240-15	<0.50	39.9	39.8	38.8	38.6	ug/L	EPA 8260B	4/28/11	97.3	97.1	0.158	75.7-122	25
Benzene														
	77240-15	47	39.9	39.8	83.5	82.5	ug/L	EPA 8260B	4/28/11	92.3	90.1	2.38	80-120	25
Diisopropyl ether														
	77240-15	<0.50	39.9	39.8	43.0	42.5	ug/L	EPA 8260B	4/28/11	108	107	0.680	80-120	25
Ethanol														
	77240-15	10	100	99.8	102	99.6	ug/L	EPA 8260B	4/28/11	91.8	89.2	2.86	55.1-159	25
Ethyl-tert-butyl ether														
	77240-15	1.2	39.9	39.8	44.0	44.0	ug/L	EPA 8260B	4/28/11	107	108	0.288	76.5-120	25

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 05/04/2011

Project Name : **Tesoro - Livermore**

Project Number : **01LV**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Ethylbenzene														
	77240-15	0.61	39.9	39.8	42.8	42.1	ug/L	EPA 8260B	4/28/11	106	104	1.21	80-120	25
Methanol														
	77240-15	<50	998	994	808	810	ug/L	EPA 8260B	4/28/11	81.0	81.6	0.633	53.2-147	25
Methyl-t-butyl ether														
	77240-15	21	39.8	39.6	63.7	64.1	ug/L	EPA 8260B	4/28/11	107	109	1.41	69.7-121	25
P + M Xylene														
	77240-15	4.7	39.9	39.8	47.1	46.3	ug/L	EPA 8260B	4/28/11	106	105	1.49	76.8-120	25
Tert-Butanol														
	77240-15	130	200	199	327	326	ug/L	EPA 8260B	4/28/11	98.4	98.5	0.0725	80-120	25
Tert-amyl-methyl ether														
	77240-15	<0.50	40.0	39.8	42.9	42.5	ug/L	EPA 8260B	4/28/11	107	107	0.562	78.9-120	25
Toluene														
	77240-15	3.8	39.9	39.8	44.3	43.8	ug/L	EPA 8260B	4/28/11	101	100	0.755	80-120	25
1,2-Dibromoethane														
	77264-03	<0.50	40.1	40.1	43.1	42.8	ug/L	EPA 8260B	4/28/11	108	107	0.790	80-120	25
1,2-Dichloroethane														
	77264-03	<0.50	40.0	40.0	44.3	44.6	ug/L	EPA 8260B	4/28/11	111	112	0.700	75.7-122	25

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 05/04/2011

Project Name : **Tesoro - Livermore**

Project Number : **01LV**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Benzene														
	77264-03	<0.50	40.0	40.0	41.3	40.1	ug/L	EPA 8260B	4/28/11	103	100	2.87	80-120	25
Diisopropyl ether														
	77264-03	<0.50	40.0	40.0	43.0	43.9	ug/L	EPA 8260B	4/28/11	107	110	2.04	80-120	25
Ethanol														
	77264-03	<5.0	100	100	110	118	ug/L	EPA 8260B	4/28/11	110	118	7.42	55.1-159	25
Ethyl-tert-butyl ether														
	77264-03	<0.50	40.0	40.0	44.6	43.5	ug/L	EPA 8260B	4/28/11	111	109	2.47	76.5-120	25
Ethylbenzene														
	77264-03	<0.50	40.0	40.0	42.3	42.2	ug/L	EPA 8260B	4/28/11	106	106	0.124	80-120	25
Methanol														
	77264-03	<50	1000	1000	1140	1190	ug/L	EPA 8260B	4/28/11	114	119	4.85	53.2-147	25
Methyl-t-butyl ether														
	77264-03	<0.50	39.9	39.9	42.5	41.1	ug/L	EPA 8260B	4/28/11	106	103	3.24	69.7-121	25
P + M Xylene														
	77264-03	<0.50	40.0	40.0	42.0	42.6	ug/L	EPA 8260B	4/28/11	105	106	1.33	76.8-120	25
Tert-Butanol														
	77264-03	<5.0	200	200	215	216	ug/L	EPA 8260B	4/28/11	107	108	0.410	80-120	25
Tert-amyl-methyl ether														
	77264-03	<0.50	40.0	40.0	43.4	42.3	ug/L	EPA 8260B	4/28/11	108	106	2.53	78.9-120	25

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QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 05/04/2011

Project Name : **Tesoro - Livermore**

Project Number : **01LV**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Tetrachloroethene														
	77264-03	<0.50	40.0	40.0	44.3	44.0	ug/L	EPA 8260B	4/28/11	111	110	0.610	77.0-120	25
Toluene														
	77264-03	<0.50	40.0	40.0	42.1	41.9	ug/L	EPA 8260B	4/28/11	105	105	0.446	80-120	25
Trichloroethene														
	77264-03	<0.50	40.0	40.0	43.1	42.6	ug/L	EPA 8260B	4/28/11	108	106	1.21	80-120	25

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

QC Report : Laboratory Control Sample (LCS)

Project Name : **Tesoro - Livermore**

Project Number : **01LV**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
1,2-Dibromoethane	40.1	ug/L	EPA 8260B	4/28/11	104	80-120
1,2-Dichloroethane	40.0	ug/L	EPA 8260B	4/28/11	99.7	75.7-122
Benzene	40.0	ug/L	EPA 8260B	4/28/11	105	80-120
Diisopropyl ether	40.0	ug/L	EPA 8260B	4/28/11	108	80-120
Ethanol	100	ug/L	EPA 8260B	4/28/11	92.0	55.1-159
Ethyl-tert-butyl ether	40.0	ug/L	EPA 8260B	4/28/11	108	76.5-120
Ethylbenzene	40.0	ug/L	EPA 8260B	4/28/11	105	80-120
Methanol	1000	ug/L	EPA 8260B	4/28/11	84.5	53.2-147
Methyl-t-butyl ether	39.9	ug/L	EPA 8260B	4/28/11	111	69.7-121
P + M Xylene	40.0	ug/L	EPA 8260B	4/28/11	105	76.8-120
Tert-Butanol	200	ug/L	EPA 8260B	4/28/11	98.0	80-120
Tert-amyl-methyl ether	40.0	ug/L	EPA 8260B	4/28/11	107	78.9-120
Toluene	40.0	ug/L	EPA 8260B	4/28/11	104	80-120
1,2-Dibromoethane	40.1	ug/L	EPA 8260B	4/28/11	105	80-120
1,2-Dichloroethane	40.0	ug/L	EPA 8260B	4/28/11	109	75.7-122
Benzene	40.0	ug/L	EPA 8260B	4/28/11	101	80-120
Diisopropyl ether	40.0	ug/L	EPA 8260B	4/28/11	106	80-120
Ethanol	100	ug/L	EPA 8260B	4/28/11	108	55.1-159
Ethyl-tert-butyl ether	40.0	ug/L	EPA 8260B	4/28/11	109	76.5-120
Ethylbenzene	40.0	ug/L	EPA 8260B	4/28/11	102	80-120
Methanol	1000	ug/L	EPA 8260B	4/28/11	112	53.2-147
Methyl-t-butyl ether	39.9	ug/L	EPA 8260B	4/28/11	106	69.7-121

QC Report : Laboratory Control Sample (LCS)

Project Name : **Tesoro - Livermore**

Project Number : **01LV**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
P + M Xylene	40.0	ug/L	EPA 8260B	4/28/11	103	76.8-120
TPH as Gasoline	496	ug/L	EPA 8260B	4/28/11	94.9	70.0-130
Tert-Butanol	200	ug/L	EPA 8260B	4/28/11	104	80-120
Tert-amyl-methyl ether	40.0	ug/L	EPA 8260B	4/28/11	105	78.9-120
Tetrachloroethene	40.0	ug/L	EPA 8260B	4/28/11	108	77.0-120
Toluene	40.0	ug/L	EPA 8260B	4/28/11	103	80-120
Trichloroethene	40.0	ug/L	EPA 8260B	4/28/11	105	80-120
Ferrous Iron	0.502	mg/L	SM 3500-Fe	4/28/11	103	70.0-130
Nitrate as N	0.500	mg/L	EPA 300.0	4/28/11	99.2	85.0-115
Sulfate	2.50	mg/L	EPA 300.0	4/28/11	103	85.0-115

KIFF ANALYTICAL, LLC
2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

KIFF Analytical LLC

2795 2nd Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4802

SRG # / Lab No. 77245

Page 1 of 1

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To): Matthew Nelson
Company / Address: orion environmental 3450 E. Spring St. Suite 212, Long Beach CA
Phone Number: 562-988-2755
Fax Number: 562-988-2754
Project #: OILV
P.O. #:
Project Name: Tesoro - Livermore
Project Address: 1619 1st Street Livermore, CA

California EDF Report? ☒ Yes ☐ No
Sampling Company Log Code: EFSP
Global ID: T0600101410
EDF Deliverable To (Email Address): MNelson@orionenv.com
Bill to: Jeff Baker
Sampler Print Name: Chris Arroyo
Sampler Signature:

TAT: ☐ 12 hr ☐ 24 hr ☐ 48hr ☐ 72hr ☒ 1 wk

Sample Designation	Date	Time	Sampling	Container: 40 ml VOA	Container: Sleeve	Container: Poly	Container: Glass	Container: Tedlar	Container: Other	Preservative: HCl	Preservative: HNO_3	Preservative: None/4°C	Preservative: H_2SO_4	Preservative: Other	Matrix: Water	Matrix: Soil	Matrix: Air	Matrix: Other	Analysis Request	For Lab Use Only
MW-7	4-26-11	1640		5						5					X				MTBE @ 0.5 ppb (EPA 8260B); BTEX (EPA 8260B); TPH Gas (EPA 8260B); 7 Oxygenates (5 oxy + EtOH, MeOH) (EPA 8260B); Lead Scav. (1,2 DCA & 1,2 EDB) (EPA 8260B); Ferrous Iron (SM3500-Fe-D); Nitrate; Sulfate (EPA 300.0); Total Alkalinity (SM 2320B); Total Organic Carbon	Std.	01
DW-3	4-27-11	0830		5						5					X					Std.	02
DW-5	4-27-11	1005		5						5					X					Std.	03
DW-2	4-27-11	1050		5		3	i			5		3	1		X					24 hr hold time	04
DW-7	4-27-11	1210		5		3	i			5		3	1		X					24 hr hold time	05
MW-6	4-27-11	1300		5		3	1			5		3	1		X					24 hr hold time	06
DW-6	4-27-11	1450		5						5					X					Std.	07

Analysis Request — CIRCLE METHOD: Volatile Halocarbons (EPA 8260B) TCE ; PCE; Volatile Organics Full List (EPA 8260B); Volatile Organics (EPA 524.2 Drinking Water); TPH as Diesel (EPA 8015M); TPH as Motor Oil (EPA 8015M); CAM 17 Metals (EPA 200.7 / 6010); 5 Waste Oil Metals (Cd,Cr,Ni,Pb,Zn) (EPA 200.7 / 6010); ~~Mercury (EPA 245.1 / 7470 / 7471)~~ BOD; ~~Total Lead (EPA 200.7 / 6010)~~ COD; ~~WET Lead (STLC)~~ Methane

	Date	Time	Received by:
Relinquished by:	4-27-11	1505	
Relinquished by:			
Relinquished by:	042711	1505	Received by Laboratory: Kiff Analytical

Remarks:
DW-2, DW-7, MW-6 > 24 hour hold time

Distribution: White - Lab; Pink - Originator
Rev: 060409

Page 1 of 1

KIFF Analytical LLC

SAMPLE RECEIPT CHECKLIST

RECEIVER: ADF Initials

SRG#: 77245 Date: 042711

Project ID: Tesoro - Livermore

Method of Receipt: ☒ Courier ☐ Over-the-counter ☐ Shipper

COC Inspection

Is COC present?	☒ Yes	☐ No		
Custody seals on shipping container?	☐ Intact	☐ Broken	☐ Not present	☒ N/A
Is COC Signed by Relinquisher? ☒ Yes ☐ No	Dated? ☒ Yes	☐ No		
Is sampler name legibly indicated on COC?	☒ Yes	☐ No		
Is analysis or hold requested for all samples	☒ Yes	☐ No		
Is the turnaround time indicated on COC?	☒ Yes	☐ No		
Is COC free of whiteout and uninitialed cross-outs?	☐ Yes	☐ No, Whiteout	☒ No, Cross-outs	

Sample Inspection

Coolant Present: ☒ Yes ☐ No (includes water)

Temperature °C 3.6 Therm. ID# 2R-5 Initial MAS for ADF Date/Time 042711 1720 ☐ N/A

Are there custody seals on sample containers?	☐ Intact	☐ Broken	☒ Not present	
Do containers match COC? ☒ Yes ☐ No ☐ No, COC lists absent sample(s)	☐ No, Extra sample(s) present			
Are there samples matrices other than soil, water, air or carbon?	☐ Yes	☒ No		
Are any sample containers broken, leaking or damaged?	☐ Yes	☒ No		
Are preservatives indicated? ☐ Yes, on sample containers	☒ Yes, on COC	☐ Not indicated	☐ N/A	
Are preservatives correct for analyses requested?	☒ Yes	☐ No	☐ N/A	
Are samples within holding time for analyses requested?	☒ Yes	☐ No		
Are the correct sample containers used for the analyses requested?	☒ Yes	☐ No		
Is there sufficient sample to perform testing?	☒ Yes	☐ No		

Does any sample contain product, have strong odor or are otherwise suspected to be hot? ☐ Yes ☒ No

Receipt Details WA 4c WAS 35

Matrix WA Container type 250 ml AG # of containers received 6

Matrix WA Container type 250 ml 4oz 504 6WS # of containers received 3

Matrix WA Container type 500 ml AG # of containers received 3

Date and Time Sample Put into Temp Storage Date: 042711 Time: 1725

Quicklog

Are the Sample ID's indicated:	☐ On COC	☐ On sample container(s)	☒ On Both	☐ Not indicated
If Sample ID's are listed on both COC and containers, do they all match?	☒ Yes	☐ No	☐ N/A	
Is the Project ID indicated:	☐ On COC	☐ On sample container(s)	☒ On Both	☐ Not indicated
If project ID is listed on both COC and containers, do they all match?	☒ Yes	☐ No	☐ N/A	
Are the sample collection dates indicated:	☐ On COC	☐ On sample container(s)	☒ On Both	☐ Not indicated
If collection dates are listed on both COC and containers, do they all match?	☒ Yes	☐ No	☐ N/A	
Are the sample collection times indicated:	☐ On COC	☐ On sample container(s)	☒ On Both	☐ Not indicated
If collection times are listed on both COC and containers, do they all match?	☒ Yes	☐ No	☐ N/A	

COMMENTS:

Leaders in Analytical Science and Service

KIFF Analytical LLC

Subcontract Laboratory Report Attachments

2795 Second Street, Suite 300 Davis, CA 95618
tel 530.297.4800 fax 530.297.4808
www.kiffanalytical.com

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

May 05, 2011

CLS Work Order #: CUD1250
COC #: 77245

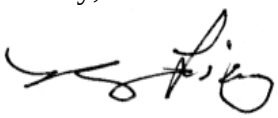
Scott Forbes
KIFF Analytical
2795 Second St. Suite 300
Davis, CA 95616

Project Name: Tesoro-Livermore

Enclosed are the results of analyses for samples received by the laboratory on 04/28/11 12:07. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,



James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

05/05/11 15:21

KIFF Analytical
2795 Second St. Suite 300
Davis, CA 95616

Project: Tesoro-Livermore
Project Number: 01LV
Project Manager: Scott Forbes

CLS Work Order #: CUD1250
COC #: 77245

CUD1250

KIFF Analytical LLC

2795 Second Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4808

California Laboratory Services
3249 Fitzgerald Road
Rancho Cordova, CA 95742
916-638-7301

COC No. 77245 Page 1 of 1

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF to): Scott Forbes
EDF Report? YES
Company/Address: Kiff Analytical
Recommended but not mandatory to complete this section:
Sampling Company Log Code: EFSP
Phone No.: 530-297-4800
FAX No.: 530-297-4808
Global ID: T0600101410
Project Number: 01LV
P.O. No.: 77245
Deliverables to (Email Address): inbox@kiffanalytical.com
Project Name: Tesoro - Livermore
Project Address:

Sample Designation	Sampling Date	Sampling Time	Container / Preservative: 500 ml Poly None	Matrix: Water	Analysis Request: Biochemical Oxygen Demand	TAT: Standard	For Lab Use Only
DW-2	04/27/11	10:50	1	X	X	X	
DW-7	04/27/11	12:10	1	X	X	X	
MW-6	04/27/11	13:00	1	X	X	X	

Relinquished by: Kiff Analytical	Date 042811	Time 1207	Received by:	Remarks:
Relinquished by:	Date	Time	Received by:	
Relinquished by: 4/28/11	Date 1207	Time	Received by Laboratory: 304	Bill to: Accounts Payable

KIFF Analytical
2795 Second St. Suite 300
Davis, CA 95616

Project: Tesoro-Livermore
Project Number: 01LV
Project Manager: Scott Forbes

CLS Work Order #: CUD1250
COC #: 77245

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
DW-2 (CUD1250-01) Water	**Sampled: 04/27/11 10:50**	**Received: 04/28/11 12:07**							
Biochemical Oxygen Demand	**6.0**	3.0	mg/L	1	CU02899	04/28/11	05/03/11	SM5210B	
DW-7 (CUD1250-02) Water	**Sampled: 04/27/11 12:10**	**Received: 04/28/11 12:07**							
Biochemical Oxygen Demand	ND	3.0	mg/L	1	CU02899	04/28/11	05/03/11	SM5210B	
MW-6 (CUD1250-03) Water	**Sampled: 04/27/11 13:00**	**Received: 04/28/11 12:07**							
Biochemical Oxygen Demand	**12**	3.0	mg/L	1	CU02899	04/28/11	05/03/11	SM5210B	

CALIFORNIA LABORATORY SERVICES

KIFF Analytical
2795 Second St. Suite 300
Davis, CA 95616

Project: Tesoro-Livermore
Project Number: 01LV
Project Manager: Scott Forbes

CLS Work Order #: CUD1250
COC #: 77245

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CU02899 - General										
Blank (CU02899-BLK1)				Prepared: 04/28/11	Analyzed: 05/03/11					
Biochemical Oxygen Demand	ND	3.0	mg/L							
LCS (CU02899-BS1)				Prepared: 04/28/11	Analyzed: 05/03/11					
Biochemical Oxygen Demand	195	3.0	mg/L	167		117	83-138			
LCS Dup (CU02899-BSD1)				Prepared: 04/28/11	Analyzed: 05/03/11					
Biochemical Oxygen Demand	168	3.0	mg/L	167		101	83-138	15	21	

KIFF Analytical	Project: Tesoro-Livermore	
2795 Second St. Suite 300	Project Number: 01LV	**CLS Work Order #: CUD1250**
Davis, CA 95616	Project Manager: Scott Forbes	COC #: 77245

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Calscience
Environmental
Laboratories, Inc.

May 04, 2011

Joel Kiff
Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95616-6593

Subject: **Calscience Work Order No.: 11-04-1759**
Client Reference: Tesoro - Livermore

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 4/28/2011 and analyzed in accordance with the attached chain-of-custody.

Calscience Environmental Laboratories certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

mike 2 for

Calscience Environmental
Laboratories, Inc.
Amanda Porter
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical		Date Received:	04/28/11
2795 2nd Street, Suite 300		Work Order No:	11-04-1759
Davis, CA 95616-6593		Preparation:	N/A
		Method:	RSK-175M

Project: Tesoro - Livermore

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
DW-2	**11-04-1759-1-A**	**04/27/11 10:50**	**Aqueous**	**GC 52**	**N/A**	**04/28/11 20:54**	**110428L01**

Parameter	Result	RL	DF	Qual	Units
Methane	778	4.00	4		ug/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
DW-7	**11-04-1759-2-A**	**04/27/11 12:10**	**Aqueous**	**GC 52**	**N/A**	**04/28/11 21:19**	**110428L01**

Parameter	Result	RL	DF	Qual	Units
Methane	931	8.00	8		ug/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-6	**11-04-1759-3-A**	**04/27/11 13:00**	**Aqueous**	**GC 52**	**N/A**	**04/28/11 22:15**	**110428L01**

Parameter	Result	RL	DF	Qual	Units
Methane	1800	8.00	8		ug/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-663-1,295-A**	**N/A**	**Aqueous**	**GC 52**	**N/A**	**04/28/11 10:34**	**110428L01**

Parameter	Result	RL	DF	Qual	Units
Methane	ND	1.00	1		ug/L

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95616-6593

Date Received: 04/28/11
Work Order No: 11-04-1759

Project: Tesoro - Livermore

Client Sample Number	Lab Sample Number	Date Collected	Matrix
DW-2	**11-04-1759-1**	**04/27/11**	**Aqueous**

Parameter	Results	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chemical Oxygen Demand	16	5.0	1		mg/L	04/29/11	04/29/11	EPA 410.4
Alkalinity, Total (as CaCO3)	449	5.00	1		mg/L	N/A	05/02/11	SM 2320B
Carbon, Total Organic	4.8	0.50	1		mg/L	N/A	04/28/11	SM 5310 D

Client Sample Number	Lab Sample Number	Date Collected	Matrix
DW-7	**11-04-1759-2**	**04/27/11**	**Aqueous**

Parameter	Results	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chemical Oxygen Demand	ND	5.0	1		mg/L	04/29/11	04/29/11	EPA 410.4
Alkalinity, Total (as CaCO3)	292	5.00	1		mg/L	N/A	05/02/11	SM 2320B
Carbon, Total Organic	3.6	0.50	1		mg/L	N/A	04/28/11	SM 5310 D

Client Sample Number	Lab Sample Number	Date Collected	Matrix
MW-6	**11-04-1759-3**	**04/27/11**	**Aqueous**

Parameter	Results	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chemical Oxygen Demand	46	5.0	1		mg/L	04/29/11	04/29/11	EPA 410.4
Alkalinity, Total (as CaCO3)	657	5.00	1		mg/L	N/A	05/02/11	SM 2320B
Carbon, Total Organic	8.4	0.50	1		mg/L	N/A	04/28/11	SM 5310 D

Client Sample Number	Lab Sample Number	Date Collected	Matrix
Method Blank		**N/A**	**Aqueous**

Parameter	Results	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chemical Oxygen Demand	ND	5.0	1		mg/L	04/29/11	04/29/11	EPA 410.4
Alkalinity, Total (as CaCO3)	ND	1.0	1		mg/L	N/A	05/02/11	SM 2320B
Carbon, Total Organic	ND	0.50	1		mg/L	N/A	04/28/11	SM 5310 D

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95616-6593

Date Received: 04/28/11
Work Order No: 11-04-1759
Preparation: N/A
Method: RSK-175M

Project: Tesoro - Livermore

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
11-04-1749-1	**Aqueous**	**GC 52**	**N/A**	**04/28/11**	**110428D01**

Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Methane	2172	2279	5	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95616-6593

Date Received: N/A
Work Order No: 11-04-1759

Project: Tesoro - Livermore

Matrix: Aqueous or Solid

Parameter	Method	Quality Control Sample ID	Date Analyzed	Date Extracted	MS% REC	MSD % REC	%REC CL	RPD	RPD CL	Qualifiers
Carbon, Total Organic	SM 5310 D	11-04-1784-1	04/28/11	N/A	100	99	75-125	1	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95616-6593

Date Received: N/A
Work Order No: 11-04-1759

Project: Tesoro - Livermore

Matrix: Aqueous or Solid

Parameter	Method	QC Sample ID	Date Analyzed	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Alkalinity, Total (as CaCO3)	SM 2320B	11-04-1753-1	05/02/11	275	274	0	0-25	
Bicarbonate (as CaCO3)	SM 2320B	11-04-1753-1	05/02/11	275	274	0	0-25	
Carbonate (as CaCO3)	SM 2320B	11-04-1753-1	05/02/11	ND	ND	NA	0-25	
Hydroxide (as CaCO3)	SM 2320B	11-04-1753-1	05/02/11	ND	ND	NA	0-25	
Chemical Oxygen Demand	EPA 410.4	DW-2	04/29/11	16	17	6	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95616-6593

Date Received: N/A
Work Order No: 11-04-1759
Preparation: N/A
Method: RSK-175M

Project: Tesoro - Livermore

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-663-1,295	**Aqueous**	**GC 52**	**N/A**	**04/28/11**	**110428L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Methane	92	93	79-109	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95616-6593

Date Received: N/A
Work Order No: 11-04-1759

Project: Tesoro - Livermore

Matrix: Aqueous or Solid

Parameter	Method	Quality Control Sample ID	Date Extracted	Date Analyzed	LCS % REC	LCSD % REC	%REC CL	RPD	RPD CL	Qual
Carbon, Total Organic	SM 5310 D	099-05-097-4,267	N/A	04/28/11	101	102	80-120	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 11-04-1759

Qualifier	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported without further clarification.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

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

KIFF Analytical LLC

2795 Second Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4808

Calscience
7440 Lincoln Way
Garden Grove, CA 92841-1427
714-895-5494

1759

COC No. **77245** Page 1 of 1

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF to): Scott Forbes

EDF Report? YES

Company/Address: Kiff Analytical

Recommended but not mandatory to complete this section:

Sampling Company Log Code: EFSP

Phone No.: 530-297-4800 | FAX No.: 530-297-4808

Global ID: T0600101410

Project Number: 01LV | P.O. No.: 77245

Deliverables to (Email Address): inbox@kiffanalytical.com

Project Name: Tesoro - Livermore

Project Address:

Sample Designation	Sampling Date	Sampling Time	Container / Preservative: 250ml Poly None	250ml Glass H2SO4	40ml VOA HCl	Matrix: Water	Analysis Request: Alkalinity SM 2320 (1)	Chemical Oxygen Demand	Hydrocarbons in Water by RSK 175 (1)	Total Organic Carbon	TAT: 4-Days	For Lab Use Only
DW-2	04/27/11	10:50	1	1	2	X	X	X	X	X	X	1
DW-7	04/27/11	12:10	1	1	2	X	X	X	X	X	X	2
MW-6	04/27/11	13:00	1	1	2	X	X	X	X	X	X	3

Relinquished by:	Date	Time	Received by:
Kiff Analytical	042711	1900	
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date 4/28/11	Time 0945	Received by Laboratory:

Remarks: Please refer to attached Test Detail.

Bill to: Accounts Payable

1759

Test Detail for Kiff Work Order: 77245

Alkalinity SM 2320 (1)
Alkalinity, Total (as CaCO3)

Hydrocarbons in Water by RSK 175 (1)
Methane

1759

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KIFF ANALYTICAL
2795 2ND STREET 300
DAVIS, CA 95616

Sent By: SAMPLE RECEIVING
Phone#: (530)297-4800
wgt(lbs): 1
Reference: SUB SRG
Reference 2:

Ship To Company:	*Service:* **S**
CALSCIENCE ENVIRONMENTAL **7440 LINCOLN WAY** **GARDEN GROVE, CA 92841** **RECEIVING (714)895-5494** **B10207210772**	*Sort Code:* **ORG** *Special Services:* **Signature Required**

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 11-04-1759

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Kiff DATE: 04/28/11

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 2.6 °C + 0.5 °C (CF) = 3.1 °C ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter Initial: JP

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Initial: JP

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: AA

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☐	☐	☑
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
pH / Res. Chlorine / Diss. Sulfide / Diss. Oxygen received within 24 hours	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☐
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☑	☐	☐
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☑3 VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☑250CGB**s** ☐1PB ☐500PB ☐500PB**na**

☑250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** AA

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** YL

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:**$Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **znna:** $ZnAc_2$+NaOH **f:** Field-filtered **Scanned by:** YL

KIFF Analytical LLC

Report Number : 77265
Date : 05/05/2011

Laboratory Results

Matt Nelson
Orion Environmental
3450 East Spring Street, Suite 212
Long Beach, CA 90806

Subject : 12 Water Samples
Project Name : Tesoro-Livermore
Project Number : 01LV

Dear Mr. Nelson,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed. Testing procedures comply with the 2003 NELAC standard. All soil samples are reported on a total weight (wet weight) basis unless noted otherwise in the case narrative. Laboratory results relate only to the samples tested. This report may be freely reproduced in full, but may only be reproduced in part with the express permission of Kiff Analytical, LLC. Kiff Analytical, LLC is certified by the State of California under the National Environmental Laboratory Accreditation Program (NELAP), lab # 08263CA. If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

Joel Kiff

KIFF Analytical LLC

Report Number : 77265
Date : 05/05/2011

Subject : 12 Water Samples
Project Name : Tesoro-Livermore
Project Number : 01LV

Case Narrative

California Laboratory Services provided analytical testing associated with these samples, but is not accredited by the National Environmental Laboratory Accreditation Program (NELAP).

The Method Reporting Limit for Ethanol has been increased due to the presence of an interfering compound for sample MW-2.

Matrix Spike/Matrix Spike Duplicate results associated with samples IP-8 and IP-9 for the analyte Ethanol were outside of control limits. This may indicate a bias for the sample that was spiked. Since the LCS recoveries were within control limits, no data are flagged.

Matrix Spike/Matrix Spike Duplicate results associated with samples IP-8 and IP-9 for the analyte Ethylbenzene were affected by the analyte concentrations already present in the un-spiked sample.

KIFF Analytical LLC

Report Number : 77265
Date : 05/05/2011

Project Name : **Tesoro-Livermore**
Project Number : **01LV**

Sample : **IP-6** Matrix : Water Lab Number : 77265-01
Sample Date :04/27/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	**1.1**	0.50	ug/L	EPA 8260B	05/04/11 03:12
Toluene	**0.66**	0.50	ug/L	EPA 8260B	05/04/11 03:12
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 03:12
Total Xylenes	**0.71**	0.50	ug/L	EPA 8260B	05/04/11 03:12
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 03:12
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 03:12
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 03:12
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 03:12
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	05/04/11 03:12
Methanol	< 50	50	ug/L	EPA 8260B	05/04/11 03:12
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	05/04/11 03:12
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	05/04/11 03:12
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 03:12
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 03:12
1,2-Dichloroethane-d4 (Surr)	99.8		% Recovery	EPA 8260B	05/04/11 03:12
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	05/04/11 03:12

KIFF Analytical LLC

Report Number : 77265
Date : 05/05/2011

Project Name : **Tesoro-Livermore**
Project Number : **01LV**

Sample : **IP-7** Matrix : Water Lab Number : 77265-02
Sample Date :04/27/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	**8.1**	0.50	ug/L	EPA 8260B	05/04/11 03:49
Toluene	**0.69**	0.50	ug/L	EPA 8260B	05/04/11 03:49
Ethylbenzene	**3.4**	0.50	ug/L	EPA 8260B	05/04/11 03:49
Total Xylenes	**1.5**	0.50	ug/L	EPA 8260B	05/04/11 03:49
Methyl-t-butyl ether (MTBE)	**0.95**	0.50	ug/L	EPA 8260B	05/04/11 03:49
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 03:49
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 03:49
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 03:49
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	05/04/11 03:49
Methanol	< 50	50	ug/L	EPA 8260B	05/04/11 03:49
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	05/04/11 03:49
TPH as Gasoline	**220**	50	ug/L	EPA 8260B	05/04/11 03:49
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 03:49
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 03:49
1,2-Dichloroethane-d4 (Surr)	101		% Recovery	EPA 8260B	05/04/11 03:49
Toluene - d8 (Surr)	99.4		% Recovery	EPA 8260B	05/04/11 03:49

KIFF Analytical LLC

Report Number : 77265
Date : 05/05/2011

Project Name : **Tesoro-Livermore**
Project Number : **01LV**

Sample : **IP-1** Matrix : Water Lab Number : 77265-03
Sample Date :04/27/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	**750**	7.0	ug/L	EPA 8260B	04/29/11 15:44
Toluene	**2200**	7.0	ug/L	EPA 8260B	04/29/11 15:44
Ethylbenzene	**420**	7.0	ug/L	EPA 8260B	04/29/11 15:44
Total Xylenes	**4800**	7.0	ug/L	EPA 8260B	04/29/11 15:44
Methyl-t-butyl ether (MTBE)	< 7.0	7.0	ug/L	EPA 8260B	04/29/11 15:44
Diisopropyl ether (DIPE)	< 7.0	7.0	ug/L	EPA 8260B	04/29/11 15:44
Ethyl-t-butyl ether (ETBE)	< 7.0	7.0	ug/L	EPA 8260B	04/29/11 15:44
Tert-amyl methyl ether (TAME)	< 7.0	7.0	ug/L	EPA 8260B	04/29/11 15:44
Tert-Butanol	< 40	40	ug/L	EPA 8260B	04/29/11 15:44
Methanol	< 700	700	ug/L	EPA 8260B	04/29/11 15:44
Ethanol	< 70	70	ug/L	EPA 8260B	04/29/11 15:44
TPH as Gasoline	**24000**	700	ug/L	EPA 8260B	04/29/11 15:44
1,2-Dichloroethane	< 7.0	7.0	ug/L	EPA 8260B	04/29/11 15:44
1,2-Dibromoethane	< 7.0	7.0	ug/L	EPA 8260B	04/29/11 15:44
1,2-Dichloroethane-d4 (Surr)	99.4		% Recovery	EPA 8260B	04/29/11 15:44
Toluene - d8 (Surr)	98.3		% Recovery	EPA 8260B	04/29/11 15:44

KIFF Analytical LLC

Report Number : 77265
Date : 05/05/2011

Project Name : **Tesoro-Livermore**
Project Number : **01LV**

Sample : **VW-2** Matrix : Water Lab Number : 77265-04
Sample Date :04/28/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 04:27
Toluene	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 04:27
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 04:27
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 04:27
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 04:27
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 04:27
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 04:27
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 04:27
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	05/04/11 04:27
Methanol	< 50	50	ug/L	EPA 8260B	05/04/11 04:27
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	05/04/11 04:27
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	05/04/11 04:27
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 04:27
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 04:27
1,2-Dichloroethane-d4 (Surr)	100		% Recovery	EPA 8260B	05/04/11 04:27
Toluene - d8 (Surr)	99.9		% Recovery	EPA 8260B	05/04/11 04:27

KIFF Analytical LLC

Report Number : 77265
Date : 05/05/2011

Project Name : **Tesoro-Livermore**
Project Number : **01LV**

Sample : **DW-8** Matrix : Water Lab Number : 77265-05
Sample Date :04/28/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Ferrous Iron	< 0.10	0.10	mg/L	SM 3500-Fe D	04/28/11 17:35
Nitrate as N	< 0.10	0.10	mg/L	EPA 300.0	04/28/11 17:47
Sulfate	**9.8**	0.50	mg/L	EPA 300.0	04/28/11 17:47
Benzene	**5200**	10	ug/L	EPA 8260B	04/29/11 16:19
Toluene	**10000**	20	ug/L	EPA 8260B	05/02/11 15:32
Ethylbenzene	**1900**	10	ug/L	EPA 8260B	04/29/11 16:19
Total Xylenes	**12000**	20	ug/L	EPA 8260B	05/02/11 15:32
Methyl-t-butyl ether (MTBE)	< 10	10	ug/L	EPA 8260B	04/29/11 16:19
Diisopropyl ether (DIPE)	< 10	10	ug/L	EPA 8260B	04/29/11 16:19
Ethyl-t-butyl ether (ETBE)	< 10	10	ug/L	EPA 8260B	04/29/11 16:19
Tert-amyl methyl ether (TAME)	< 10	10	ug/L	EPA 8260B	04/29/11 16:19
Tert-Butanol	**56**	50	ug/L	EPA 8260B	04/29/11 16:19
Methanol	< 1000	1000	ug/L	EPA 8260B	04/29/11 16:19
Ethanol	< 100	100	ug/L	EPA 8260B	04/29/11 16:19
TPH as Gasoline	**72000**	1000	ug/L	EPA 8260B	04/29/11 16:19
1,2-Dichloroethane	< 10	10	ug/L	EPA 8260B	04/29/11 16:19
1,2-Dibromoethane	< 10	10	ug/L	EPA 8260B	04/29/11 16:19
1,2-Dichloroethane-d4 (Surr)	96.6		% Recovery	EPA 8260B	04/29/11 16:19
Toluene - d8 (Surr)	95.8		% Recovery	EPA 8260B	04/29/11 16:19

KIFF Analytical LLC

Report Number : 77265
Date : 05/05/2011

Project Name : **Tesoro-Livermore**
Project Number : **01LV**

Sample : **MW-11** Matrix : Water Lab Number : 77265-06
Sample Date :04/28/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Ferrous Iron	< 0.10	0.10	mg/L	SM 3500-Fe D	04/28/11 17:43
Nitrate as N	< 0.10	0.10	mg/L	EPA 300.0	04/28/11 19:39
Sulfate	**39**	0.50	mg/L	EPA 300.0	04/28/11 19:39
Benzene	**300**	5.0	ug/L	EPA 8260B	04/29/11 15:10
Toluene	**920**	5.0	ug/L	EPA 8260B	04/29/11 15:10
Ethylbenzene	**450**	5.0	ug/L	EPA 8260B	04/29/11 15:10
Total Xylenes	**4300**	5.0	ug/L	EPA 8260B	04/29/11 15:10
Methyl-t-butyl ether (MTBE)	< 5.0	5.0	ug/L	EPA 8260B	04/29/11 15:10
Diisopropyl ether (DIPE)	< 5.0	5.0	ug/L	EPA 8260B	04/29/11 15:10
Ethyl-t-butyl ether (ETBE)	< 5.0	5.0	ug/L	EPA 8260B	04/29/11 15:10
Tert-amyl methyl ether (TAME)	< 5.0	5.0	ug/L	EPA 8260B	04/29/11 15:10
Tert-Butanol	< 25	25	ug/L	EPA 8260B	04/29/11 15:10
Methanol	< 500	500	ug/L	EPA 8260B	04/29/11 15:10
Ethanol	< 50	50	ug/L	EPA 8260B	04/29/11 15:10
TPH as Gasoline	**20000**	500	ug/L	EPA 8260B	04/29/11 15:10
1,2-Dichloroethane	< 5.0	5.0	ug/L	EPA 8260B	04/29/11 15:10
1,2-Dibromoethane	< 5.0	5.0	ug/L	EPA 8260B	04/29/11 15:10
1,2-Dichloroethane-d4 (Surr)	96.8		% Recovery	EPA 8260B	04/29/11 15:10
Toluene - d8 (Surr)	96.9		% Recovery	EPA 8260B	04/29/11 15:10

KIFF Analytical LLC

Report Number : 77265
Date : 05/05/2011

Project Name : **Tesoro-Livermore**
Project Number : **01LV**

Sample : **DW-1** Matrix : Water Lab Number : 77265-07
Sample Date :04/28/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Ferrous Iron	< 0.10	0.10	mg/L	SM 3500-Fe D	04/28/11 17:44
Nitrate as N	**1.5**	0.10	mg/L	EPA 300.0	04/28/11 20:17
Sulfate	**59**	1.0	mg/L	EPA 300.0	04/29/11 08:52
Benzene	**2.2**	0.50	ug/L	EPA 8260B	04/29/11 13:26
Toluene	**5.7**	0.50	ug/L	EPA 8260B	04/29/11 13:26
Ethylbenzene	**2.0**	0.50	ug/L	EPA 8260B	04/29/11 13:26
Total Xylenes	**9.3**	0.50	ug/L	EPA 8260B	04/29/11 13:26
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 13:26
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 13:26
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 13:26
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 13:26
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	04/29/11 13:26
Methanol	< 50	50	ug/L	EPA 8260B	04/29/11 13:26
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	04/29/11 13:26
TPH as Gasoline	**72**	50	ug/L	EPA 8260B	04/29/11 13:26
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 13:26
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/29/11 13:26
1,2-Dichloroethane-d4 (Surr)	100		% Recovery	EPA 8260B	04/29/11 13:26
Toluene - d8 (Surr)	99.3		% Recovery	EPA 8260B	04/29/11 13:26

KIFF Analytical LLC

Report Number : 77265
Date : 05/05/2011

Project Name : **Tesoro-Livermore**
Project Number : **01LV**

Sample : **MW-2** Matrix : Water Lab Number : 77265-08
Sample Date :04/28/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Ferrous Iron	**0.61**	0.10	mg/L	SM 3500-Fe D	04/28/11 17:44
Nitrate as N	< 0.10	0.10	mg/L	EPA 300.0	04/28/11 20:54
Sulfate	**9.4**	0.50	mg/L	EPA 300.0	04/28/11 20:54
Benzene	**1400**	2.5	ug/L	EPA 8260B	05/02/11 14:23
Toluene	**100**	2.5	ug/L	EPA 8260B	05/02/11 14:23
Ethylbenzene	**470**	2.5	ug/L	EPA 8260B	05/02/11 14:23
Total Xylenes	**670**	2.5	ug/L	EPA 8260B	05/02/11 14:23
Methyl-t-butyl ether (MTBE)	**450**	2.5	ug/L	EPA 8260B	05/02/11 14:23
Diisopropyl ether (DIPE)	< 2.5	2.5	ug/L	EPA 8260B	05/02/11 14:23
Ethyl-t-butyl ether (ETBE)	< 2.5	2.5	ug/L	EPA 8260B	05/02/11 14:23
Tert-amyl methyl ether (TAME)	**4.6**	2.5	ug/L	EPA 8260B	05/02/11 14:23
Tert-Butanol	**200**	15	ug/L	EPA 8260B	05/02/11 14:23
Methanol	< 250	250	ug/L	EPA 8260B	05/02/11 14:23
Ethanol	< 50	50	ug/L	EPA 8260B	05/02/11 14:23
TPH as Gasoline	**13000**	250	ug/L	EPA 8260B	05/02/11 14:23
1,2-Dichloroethane	< 2.5	2.5	ug/L	EPA 8260B	05/02/11 14:23
1,2-Dibromoethane	< 2.5	2.5	ug/L	EPA 8260B	05/02/11 14:23
1,2-Dichloroethane-d4 (Surr)	93.4		% Recovery	EPA 8260B	05/02/11 14:23
Toluene - d8 (Surr)	93.2		% Recovery	EPA 8260B	05/02/11 14:23

KIFF Analytical LLC

Report Number : 77265
Date : 05/05/2011

Project Name : **Tesoro-Livermore**
Project Number : **01LV**

Sample : **TP-1** Matrix : Water Lab Number : 77265-09
Sample Date :04/28/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	**350**	5.0	ug/L	EPA 8260B	05/02/11 14:57
Toluene	**64**	5.0	ug/L	EPA 8260B	05/02/11 14:57
Ethylbenzene	**170**	5.0	ug/L	EPA 8260B	05/02/11 14:57
Total Xylenes	**730**	5.0	ug/L	EPA 8260B	05/02/11 14:57
Methyl-t-butyl ether (MTBE)	**2600**	5.0	ug/L	EPA 8260B	05/02/11 14:57
Diisopropyl ether (DIPE)	< 5.0	5.0	ug/L	EPA 8260B	05/02/11 14:57
Ethyl-t-butyl ether (ETBE)	< 5.0	5.0	ug/L	EPA 8260B	05/02/11 14:57
Tert-amyl methyl ether (TAME)	**15**	5.0	ug/L	EPA 8260B	05/02/11 14:57
Tert-Butanol	**1400**	25	ug/L	EPA 8260B	05/02/11 14:57
Methanol	< 500	500	ug/L	EPA 8260B	05/02/11 14:57
Ethanol	< 50	50	ug/L	EPA 8260B	05/02/11 14:57
TPH as Gasoline	**6600**	500	ug/L	EPA 8260B	05/02/11 14:57
1,2-Dichloroethane	< 5.0	5.0	ug/L	EPA 8260B	05/02/11 14:57
1,2-Dibromoethane	< 5.0	5.0	ug/L	EPA 8260B	05/02/11 14:57
1,2-Dichloroethane-d4 (Surr)	99.0		% Recovery	EPA 8260B	05/02/11 14:57
Toluene - d8 (Surr)	97.5		% Recovery	EPA 8260B	05/02/11 14:57

KIFF Analytical LLC

Report Number : 77265
Date : 05/05/2011

Project Name : **Tesoro-Livermore**
Project Number : **01LV**

Sample : **TP-2** Matrix : Water Lab Number : 77265-10
Sample Date :04/28/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	**1.6**	0.50	ug/L	EPA 8260B	05/04/11 03:46
Toluene	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 03:46
Ethylbenzene	**1.5**	0.50	ug/L	EPA 8260B	05/04/11 03:46
Total Xylenes	**5.2**	0.50	ug/L	EPA 8260B	05/04/11 03:46
Methyl-t-butyl ether (MTBE)	**350**	0.50	ug/L	EPA 8260B	05/04/11 03:46
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 03:46
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 03:46
Tert-amyl methyl ether (TAME)	**1.3**	0.50	ug/L	EPA 8260B	05/04/11 03:46
Tert-Butanol	**630**	5.0	ug/L	EPA 8260B	05/04/11 03:46
Methanol	< 50	50	ug/L	EPA 8260B	05/04/11 03:46
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	05/04/11 03:46
TPH as Gasoline	**130**	50	ug/L	EPA 8260B	05/04/11 03:46
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 03:46
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	05/04/11 03:46
1,2-Dichloroethane-d4 (Surr)	100		% Recovery	EPA 8260B	05/04/11 03:46
Toluene - d8 (Surr)	94.6		% Recovery	EPA 8260B	05/04/11 03:46

KIFF Analytical LLC

Report Number : 77265
Date : 05/05/2011

Project Name : **Tesoro-Livermore**
Project Number : **01LV**

Sample : **IP-8** Matrix : Water Lab Number : 77265-11
Sample Date :04/28/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	**620**	3.0	ug/L	EPA 8260B	05/05/11 12:02
Toluene	**2000**	3.0	ug/L	EPA 8260B	05/05/11 12:02
Ethylbenzene	**240**	3.0	ug/L	EPA 8260B	05/05/11 12:02
Total Xylenes	**2200**	3.0	ug/L	EPA 8260B	05/05/11 12:02
Methyl-t-butyl ether (MTBE)	< 3.0	3.0	ug/L	EPA 8260B	05/05/11 12:02
Diisopropyl ether (DIPE)	< 3.0	3.0	ug/L	EPA 8260B	05/05/11 12:02
Ethyl-t-butyl ether (ETBE)	< 3.0	3.0	ug/L	EPA 8260B	05/05/11 12:02
Tert-amyl methyl ether (TAME)	< 3.0	3.0	ug/L	EPA 8260B	05/05/11 12:02
Tert-Butanol	**27**	15	ug/L	EPA 8260B	05/05/11 12:02
Methanol	< 300	300	ug/L	EPA 8260B	05/05/11 12:02
Ethanol	< 30	30	ug/L	EPA 8260B	05/05/11 12:02
TPH as Gasoline	**13000**	300	ug/L	EPA 8260B	05/05/11 12:02
1,2-Dichloroethane	< 3.0	3.0	ug/L	EPA 8260B	05/05/11 12:02
1,2-Dibromoethane	< 3.0	3.0	ug/L	EPA 8260B	05/05/11 12:02
1,2-Dichloroethane-d4 (Surr)	101		% Recovery	EPA 8260B	05/05/11 12:02
Toluene - d8 (Surr)	97.6		% Recovery	EPA 8260B	05/05/11 12:02

KIFF Analytical LLC

Report Number : 77265
Date : 05/05/2011

Project Name : **Tesoro-Livermore**
Project Number : **01LV**

Sample : **IP-9** Matrix : Water Lab Number : 77265-12
Sample Date :04/28/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	**1400**	6.0	ug/L	EPA 8260B	05/05/11 12:36
Toluene	**4300**	15	ug/L	EPA 8260B	05/05/11 00:23
Ethylbenzene	**860**	6.0	ug/L	EPA 8260B	05/05/11 12:36
Total Xylenes	**6000**	15	ug/L	EPA 8260B	05/05/11 00:23
Methyl-t-butyl ether (MTBE)	< 6.0	6.0	ug/L	EPA 8260B	05/05/11 12:36
Diisopropyl ether (DIPE)	< 6.0	6.0	ug/L	EPA 8260B	05/05/11 12:36
Ethyl-t-butyl ether (ETBE)	< 6.0	6.0	ug/L	EPA 8260B	05/05/11 12:36
Tert-amyl methyl ether (TAME)	< 6.0	6.0	ug/L	EPA 8260B	05/05/11 12:36
Tert-Butanol	**38**	30	ug/L	EPA 8260B	05/05/11 12:36
Methanol	< 600	600	ug/L	EPA 8260B	05/05/11 12:36
Ethanol	< 60	60	ug/L	EPA 8260B	05/05/11 12:36
TPH as Gasoline	**38000**	600	ug/L	EPA 8260B	05/05/11 12:36
1,2-Dichloroethane	< 6.0	6.0	ug/L	EPA 8260B	05/05/11 12:36
1,2-Dibromoethane	< 6.0	6.0	ug/L	EPA 8260B	05/05/11 12:36
1,2-Dichloroethane-d4 (Surr)	97.3		% Recovery	EPA 8260B	05/05/11 12:36
Toluene - d8 (Surr)	95.6		% Recovery	EPA 8260B	05/05/11 12:36

Report Number : 77265

Date : 05/05/2011

QC Report : Method Blank Data

Project Name : **Tesoro-Livermore**

Project Number : **01LV**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	04/29/2011
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	04/29/2011
Toluene	< 0.50	0.50	ug/L	EPA 8260B	04/29/2011
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	04/29/2011
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	04/29/2011
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	04/29/2011
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	04/29/2011
Methanol	< 50	50	ug/L	EPA 8260B	04/29/2011
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	04/29/2011
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	04/29/2011
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	04/29/2011
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	04/29/2011
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	04/29/2011
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	04/29/2011
1,2-Dichloroethane-d4 (Surr)	101		%	EPA 8260B	04/29/2011
Toluene - d8 (Surr)	98.7		%	EPA 8260B	04/29/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	05/05/2011
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	05/05/2011
Toluene	< 0.50	0.50	ug/L	EPA 8260B	05/05/2011
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	05/05/2011
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	05/05/2011
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	05/05/2011
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	05/05/2011
Methanol	< 50	50	ug/L	EPA 8260B	05/05/2011
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	05/05/2011
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	05/05/2011
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	05/05/2011
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	05/05/2011
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	05/05/2011
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	05/05/2011
1,2-Dichloroethane-d4 (Surr)	98.1		%	EPA 8260B	05/05/2011
Toluene - d8 (Surr)	96.6		%	EPA 8260B	05/05/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	05/02/2011
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	05/02/2011
Toluene	< 0.50	0.50	ug/L	EPA 8260B	05/02/2011
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	05/02/2011
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	05/02/2011
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	05/02/2011
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	05/02/2011
Methanol	< 50	50	ug/L	EPA 8260B	05/02/2011
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	05/02/2011
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	05/02/2011
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	05/02/2011
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	05/02/2011
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	05/02/2011
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	05/02/2011
1,2-Dichloroethane-d4 (Surr)	99.2		%	EPA 8260B	05/02/2011
Toluene - d8 (Surr)	98.4		%	EPA 8260B	05/02/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	05/03/2011
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	05/03/2011
Toluene	< 0.50	0.50	ug/L	EPA 8260B	05/03/2011
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	05/03/2011
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	05/03/2011
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	05/03/2011
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	05/03/2011
Methanol	< 50	50	ug/L	EPA 8260B	05/03/2011
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	05/03/2011
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	05/03/2011
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	05/03/2011
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	05/03/2011
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	05/03/2011
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	05/03/2011
1,2-Dichloroethane-d4 (Surr)	100		%	EPA 8260B	05/03/2011
Toluene - d8 (Surr)	95.6		%	EPA 8260B	05/03/2011

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

Report Number : 77265

Date : 05/05/2011

QC Report : Method Blank Data

Project Name : **Tesoro-Livermore**

Project Number : **01LV**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	05/03/2011
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	05/03/2011
Toluene	< 0.50	0.50	ug/L	EPA 8260B	05/03/2011
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	05/03/2011
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	05/03/2011
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	05/03/2011
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	05/03/2011
Methanol	< 50	50	ug/L	EPA 8260B	05/03/2011
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	05/03/2011
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	05/03/2011
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	05/03/2011
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	05/03/2011
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	05/03/2011
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	05/03/2011
1,2-Dichloroethane-d4 (Surr)	99.8		%	EPA 8260B	05/03/2011
Toluene - d8 (Surr)	100		%	EPA 8260B	05/03/2011
Toluene	< 0.50	0.50	ug/L	EPA 8260B	05/04/2011
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	05/04/2011
Nitrate as N	<0.10	0.10	mg/L	EPA 300.0	04/28/2011
Sulfate	<0.50	0.50	mg/L	EPA 300.0	04/28/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Ferrous Iron	<0.10	0.10	mg/L	SM 3500-Fe D	04/28/2011

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 05/05/2011

Project Name : **Tesoro-Livermore**

Project Number : **01LV**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Nitrate as N														
	77245-04	< 0.10	0.500	0.500	0.467	0.474	mg/L	EPA 300.0	4/28/11	91.7	93.1	1.56	85.0-115	10
Sulfate														
	77245-04	1.2	2.50	2.50	3.75	3.79	mg/L	EPA 300.0	4/28/11	102	103	1.01	85.0-115	10
Ferrous Iron														
	77265-05	< 0.10	0.251	0.251	0.286	0.281	mg/L	SM 3500-Fe	4/28/11	108	106	1.76	70.0-130	25
1,2-Dibromoethane														
	77242-01	<0.50	40.0	39.7	41.5	39.8	ug/L	EPA 8260B	4/29/11	104	100	3.56	80-120	25
1,2-Dichloroethane														
	77242-01	<0.50	39.8	39.6	39.8	38.9	ug/L	EPA 8260B	4/29/11	100	98.3	1.65	75.7-122	25
Benzene														
	77242-01	<0.50	39.8	39.6	41.9	41.7	ug/L	EPA 8260B	4/29/11	105	105	0.124	80-120	25
Diisopropyl ether														
	77242-01	<0.50	39.8	39.6	43.5	43.2	ug/L	EPA 8260B	4/29/11	109	109	0.0616	80-120	25
Ethanol														
	77242-01	6.3	100	99.4	102	104	ug/L	EPA 8260B	4/29/11	95.6	98.4	2.91	55.1-159	25
Ethyl-tert-butyl ether														
	77242-01	16	39.8	39.6	58.6	58.0	ug/L	EPA 8260B	4/29/11	108	107	0.955	76.5-120	25

KIFF ANALYTICAL, LLC

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QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 05/05/2011

Project Name : **Tesoro-Livermore**

Project Number : **01LV**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Ethylbenzene														
	77242-01	<0.50	39.8	39.6	41.6	42.0	ug/L	EPA 8260B	4/29/11	104	106	1.60	80-120	25
Methanol														
	77242-01	<50	996	990	900	897	ug/L	EPA 8260B	4/29/11	90.4	90.6	0.249	53.2-147	25
Methyl-t-butyl ether														
	77242-01	2.3	39.7	39.5	46.8	45.8	ug/L	EPA 8260B	4/29/11	112	110	1.48	69.7-121	25
P + M Xylene														
	77242-01	<0.50	39.8	39.6	42.0	42.1	ug/L	EPA 8260B	4/29/11	106	106	0.663	76.8-120	25
Tert-Butanol														
	77242-01	40	199	198	237	231	ug/L	EPA 8260B	4/29/11	98.8	96.4	2.43	80-120	25
Tert-amyl-methyl ether														
	77242-01	<0.50	39.9	39.6	43.2	42.8	ug/L	EPA 8260B	4/29/11	108	108	0.277	78.9-120	25
Toluene														
	77242-01	<0.50	39.8	39.6	41.2	41.1	ug/L	EPA 8260B	4/29/11	104	104	0.248	80-120	25
1,2-Dibromoethane														
	77241-02	<0.50	39.8	39.8	40.5	39.0	ug/L	EPA 8260B	5/2/11	102	97.9	3.81	80-120	25
1,2-Dichloroethane														
	77241-02	<0.50	39.7	39.7	39.5	38.2	ug/L	EPA 8260B	5/2/11	99.4	96.2	3.29	75.7-122	25

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2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 05/05/2011

Project Name : **Tesoro-Livermore**

Project Number : **01LV**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Benzene														
	77241-02	<0.50	39.7	39.7	42.2	42.2	ug/L	EPA 8260B	5/2/11	106	106	0.0174	80-120	25
Diisopropyl ether														
	77241-02	<0.50	39.7	39.7	43.0	42.7	ug/L	EPA 8260B	5/2/11	108	108	0.641	80-120	25
Ethanol														
	77241-02	5.3	99.6	99.6	101	108	ug/L	EPA 8260B	5/2/11	96.4	104	7.16	55.1-159	25
Ethyl-tert-butyl ether														
	77241-02	12	39.7	39.7	54.3	54.7	ug/L	EPA 8260B	5/2/11	106	106	0.822	76.5-120	25
Ethylbenzene														
	77241-02	<0.50	39.7	39.7	42.6	42.0	ug/L	EPA 8260B	5/2/11	107	106	1.45	80-120	25
Methanol														
	77241-02	<50	992	992	877	951	ug/L	EPA 8260B	5/2/11	88.4	95.9	8.07	53.2-147	25
Methyl-t-butyl ether														
	77241-02	12	39.5	39.5	54.6	54.5	ug/L	EPA 8260B	5/2/11	106	106	0.0872	69.7-121	25
P + M Xylene														
	77241-02	<0.50	39.7	39.7	43.3	42.7	ug/L	EPA 8260B	5/2/11	109	108	1.32	76.8-120	25
Tert-Butanol														
	77241-02	<5.0	198	198	194	201	ug/L	EPA 8260B	5/2/11	97.9	101	3.25	80-120	25
Tert-amyl-methyl ether														
	77241-02	<0.50	39.7	39.7	42.3	42.2	ug/L	EPA 8260B	5/2/11	106	106	0.329	78.9-120	25

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Project Number : **01LV**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Toluene														
	77241-02	<0.50	39.7	39.7	41.5	41.1	ug/L	EPA 8260B	5/2/11	104	104	0.890	80-120	25
1,2-Dibromoethane														
	77283-21	<0.50	39.4	39.4	41.9	40.1	ug/L	EPA 8260B	5/5/11	106	102	4.37	80-120	25
1,2-Dichloroethane														
	77283-21	<0.50	39.3	39.3	37.8	36.9	ug/L	EPA 8260B	5/5/11	96.2	94.0	2.32	75.7-122	25
Benzene														
	77283-21	<0.50	39.3	39.3	41.4	41.3	ug/L	EPA 8260B	5/5/11	105	105	0.0370	80-120	25
Diisopropyl ether														
	77283-21	<0.50	39.3	39.3	43.0	43.2	ug/L	EPA 8260B	5/5/11	109	110	0.392	80-120	25
Ethanol														
	77283-21	9.2	98.6	98.6	68.7	89.0	ug/L	EPA 8260B	5/5/11	60.4	81.0	**29.1**	55.1-159	25
Ethyl-tert-butyl ether														
	77283-21	<0.50	39.3	39.3	42.2	42.8	ug/L	EPA 8260B	5/5/11	107	109	1.41	76.5-120	25
Ethylbenzene														
	77283-21	260	39.3	39.3	262	257	ug/L	EPA 8260B	5/5/11	**2.28**	**0.00**	**200**	80-120	25
Methanol														
	77283-21	<50	982	982	663	834	ug/L	EPA 8260B	5/5/11	67.5	85.0	22.9	53.2-147	25

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QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 05/05/2011

Project Name : **Tesoro-Livermore**

Project Number : **01LV**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Methyl-t-butyl ether														
	77283-21	0.88	39.2	39.2	44.8	44.4	ug/L	EPA 8260B	5/5/11	112	111	0.817	69.7-121	25
P + M Xylene														
	77283-21	11	39.3	39.3	53.5	53.1	ug/L	EPA 8260B	5/5/11	107	106	0.959	76.8-120	25
Tert-Butanol														
	77283-21	<5.0	196	196	204	201	ug/L	EPA 8260B	5/5/11	104	102	1.32	80-120	25
Tert-amyl-methyl ether														
	77283-21	<0.50	39.3	39.3	41.9	42.3	ug/L	EPA 8260B	5/5/11	106	107	0.913	78.9-120	25
Toluene														
	77283-21	0.87	39.3	39.3	40.5	40.3	ug/L	EPA 8260B	5/5/11	101	100	0.581	80-120	25
1,2-Dibromoethane														
	77283-12	<0.50	40.1	40.1	40.1	40.0	ug/L	EPA 8260B	5/3/11	99.9	99.6	0.320	80-120	25
1,2-Dichloroethane														
	77283-12	<0.50	40.0	40.0	42.8	42.2	ug/L	EPA 8260B	5/3/11	107	106	1.34	75.7-122	25
Benzene														
	77283-12	<0.50	40.0	40.0	39.6	38.8	ug/L	EPA 8260B	5/3/11	98.9	96.9	2.04	80-120	25
Diisopropyl ether														
	77283-12	<0.50	40.0	40.0	46.1	44.8	ug/L	EPA 8260B	5/3/11	115	112	2.93	80-120	25

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Date : 05/05/2011

Project Name : **Tesoro-Livermore**

Project Number : **01LV**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Ethanol														
	77283-12	170	100	100	269	277	ug/L	EPA 8260B	5/3/11	101	109	7.54	55.1-159	25
Ethyl-tert-butyl ether														
	77283-12	<0.50	40.0	40.0	43.9	43.8	ug/L	EPA 8260B	5/3/11	110	110	0.127	76.5-120	25
Ethylbenzene														
	77283-12	<0.50	40.0	40.0	41.2	40.9	ug/L	EPA 8260B	5/3/11	103	102	0.782	80-120	25
Methanol														
	77283-12	<50	1000	1000	1080	1070	ug/L	EPA 8260B	5/3/11	108	107	0.222	53.2-147	25
Methyl-t-butyl ether														
	77283-12	<0.50	39.9	39.9	44.1	43.5	ug/L	EPA 8260B	5/3/11	111	109	1.44	69.7-121	25
P + M Xylene														
	77283-12	<0.50	40.0	40.0	39.3	39.0	ug/L	EPA 8260B	5/3/11	98.4	97.4	0.987	76.8-120	25
Tert-Butanol														
	77283-12	<5.0	200	200	202	203	ug/L	EPA 8260B	5/3/11	101	102	0.397	80-120	25
Tert-amyl-methyl ether														
	77283-12	<0.50	40.0	40.0	42.8	43.4	ug/L	EPA 8260B	5/3/11	107	108	1.30	78.9-120	25
Toluene														
	77283-12	<0.50	40.0	40.0	37.8	37.7	ug/L	EPA 8260B	5/3/11	94.5	94.2	0.340	80-120	25

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2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 05/05/2011

Project Name : **Tesoro-Livermore**

Project Number : **01LV**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
1,2-Dibromoethane														
	77283-10	<0.50	40.1	40.1	42.1	42.2	ug/L	EPA 8260B	5/3/11	105	105	0.0804	80-120	25
1,2-Dichloroethane														
	77283-10	<0.50	40.0	40.0	44.6	42.9	ug/L	EPA 8260B	5/3/11	112	107	3.93	75.7-122	25
Benzene														
	77283-10	<0.50	40.0	40.0	40.2	38.9	ug/L	EPA 8260B	5/3/11	101	97.3	3.37	80-120	25
Diisopropyl ether														
	77283-10	<0.50	40.0	40.0	43.4	42.2	ug/L	EPA 8260B	5/3/11	108	106	2.83	80-120	25
Ethanol														
	77283-10	<5.0	100	100	134	149	ug/L	EPA 8260B	5/3/11	134	148	10.4	55.1-159	25
Ethyl-tert-butyl ether														
	77283-10	<0.50	40.0	40.0	42.2	39.6	ug/L	EPA 8260B	5/3/11	105	99.0	6.20	76.5-120	25
Ethylbenzene														
	77283-10	<0.50	40.0	40.0	43.0	41.0	ug/L	EPA 8260B	5/3/11	108	102	4.79	80-120	25
Methanol														
	77283-10	<50	1000	1000	1230	1330	ug/L	EPA 8260B	5/3/11	123	133	7.33	53.2-147	25
Methyl-t-butyl ether														
	77283-10	<0.50	39.9	39.9	38.6	36.7	ug/L	EPA 8260B	5/3/11	97.0	92.0	5.20	69.7-121	25
P + M Xylene														
	77283-10	<0.50	40.0	40.0	43.3	40.8	ug/L	EPA 8260B	5/3/11	108	102	5.97	76.8-120	25

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2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 05/05/2011

Project Name : **Tesoro-Livermore**

Project Number : **01LV**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Tert-Butanol														
	77283-10	<5.0	200	200	215	216	ug/L	EPA 8260B	5/3/11	107	108	0.642	80-120	25
Tert-amyl-methyl ether														
	77283-10	<0.50	40.0	40.0	42.7	40.8	ug/L	EPA 8260B	5/3/11	107	102	4.61	78.9-120	25
Toluene														
	77283-10	<0.50	40.0	40.0	41.5	40.2	ug/L	EPA 8260B	5/3/11	104	101	2.97	80-120	25
P + M Xylene														
	77319-06	140	40.0	40.0	184	176	ug/L	EPA 8260B	5/4/11	103	84.7	19.3	76.8-120	25
Toluene														
	77319-06	5.7	40.0	40.0	44.5	43.2	ug/L	EPA 8260B	5/4/11	97.0	93.8	3.36	80-120	25

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

QC Report : Laboratory Control Sample (LCS)

Project Name : **Tesoro-Livermore**

Project Number : **01LV**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
1,2-Dibromoethane	40.1	ug/L	EPA 8260B	4/29/11	104	80-120
1,2-Dichloroethane	40.0	ug/L	EPA 8260B	4/29/11	100	75.7-122
Benzene	40.0	ug/L	EPA 8260B	4/29/11	105	80-120
Diisopropyl ether	40.0	ug/L	EPA 8260B	4/29/11	108	80-120
Ethanol	100	ug/L	EPA 8260B	4/29/11	94.3	55.1-159
Ethyl-tert-butyl ether	40.0	ug/L	EPA 8260B	4/29/11	110	76.5-120
Ethylbenzene	40.0	ug/L	EPA 8260B	4/29/11	107	80-120
Methanol	1000	ug/L	EPA 8260B	4/29/11	87.4	53.2-147
Methyl-t-butyl ether	39.9	ug/L	EPA 8260B	4/29/11	111	69.7-121
P + M Xylene	40.0	ug/L	EPA 8260B	4/29/11	107	76.8-120
Tert-Butanol	200	ug/L	EPA 8260B	4/29/11	98.4	80-120
Tert-amyl-methyl ether	40.0	ug/L	EPA 8260B	4/29/11	108	78.9-120
Toluene	40.0	ug/L	EPA 8260B	4/29/11	104	80-120
1,2-Dibromoethane	40.1	ug/L	EPA 8260B	5/2/11	103	80-120
1,2-Dichloroethane	40.0	ug/L	EPA 8260B	5/2/11	99.2	75.7-122
Benzene	40.0	ug/L	EPA 8260B	5/2/11	105	80-120
Diisopropyl ether	40.0	ug/L	EPA 8260B	5/2/11	107	80-120
Ethanol	100	ug/L	EPA 8260B	5/2/11	97.2	55.1-159
Ethyl-tert-butyl ether	40.0	ug/L	EPA 8260B	5/2/11	108	76.5-120
Ethylbenzene	40.0	ug/L	EPA 8260B	5/2/11	108	80-120
Methanol	1000	ug/L	EPA 8260B	5/2/11	84.9	53.2-147
Methyl-t-butyl ether	39.9	ug/L	EPA 8260B	5/2/11	109	69.7-121

QC Report : Laboratory Control Sample (LCS)

Project Name : **Tesoro-Livermore**

Project Number : **01LV**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
P + M Xylene	40.0	ug/L	EPA 8260B	5/2/11	108	76.8-120
Tert-Butanol	200	ug/L	EPA 8260B	5/2/11	99.7	80-120
Tert-amyl-methyl ether	40.0	ug/L	EPA 8260B	5/2/11	107	78.9-120
Toluene	40.0	ug/L	EPA 8260B	5/2/11	104	80-120
1,2-Dibromoethane	40.1	ug/L	EPA 8260B	5/4/11	102	80-120
1,2-Dichloroethane	40.0	ug/L	EPA 8260B	5/4/11	96.4	75.7-122
Benzene	40.0	ug/L	EPA 8260B	5/4/11	104	80-120
Diisopropyl ether	40.0	ug/L	EPA 8260B	5/4/11	109	80-120
Ethanol	100	ug/L	EPA 8260B	5/4/11	97.8	55.1-159
Ethyl-tert-butyl ether	40.0	ug/L	EPA 8260B	5/4/11	110	76.5-120
Ethylbenzene	40.0	ug/L	EPA 8260B	5/4/11	108	80-120
Methanol	1000	ug/L	EPA 8260B	5/4/11	85.1	53.2-147
Methyl-t-butyl ether	39.9	ug/L	EPA 8260B	5/4/11	112	69.7-121
P + M Xylene	40.0	ug/L	EPA 8260B	5/4/11	109	76.8-120
Tert-Butanol	200	ug/L	EPA 8260B	5/4/11	99.5	80-120
Tert-amyl-methyl ether	40.0	ug/L	EPA 8260B	5/4/11	108	78.9-120
Toluene	40.0	ug/L	EPA 8260B	5/4/11	102	80-120
1,2-Dibromoethane	39.9	ug/L	EPA 8260B	5/3/11	108	80-120
1,2-Dichloroethane	39.8	ug/L	EPA 8260B	5/3/11	112	75.7-122
Benzene	39.8	ug/L	EPA 8260B	5/3/11	105	80-120
Diisopropyl ether	39.8	ug/L	EPA 8260B	5/3/11	119	80-120

QC Report : Laboratory Control Sample (LCS)

Project Name : **Tesoro-Livermore**

Project Number : **01LV**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Ethanol	99.9	ug/L	EPA 8260B	5/3/11	112	55.1-159
Ethyl-tert-butyl ether	39.8	ug/L	EPA 8260B	5/3/11	116	76.5-120
Ethylbenzene	39.8	ug/L	EPA 8260B	5/3/11	109	80-120
Methanol	995	ug/L	EPA 8260B	5/3/11	118	53.2-147
Methyl-t-butyl ether	39.7	ug/L	EPA 8260B	5/3/11	116	69.7-121
P + M Xylene	39.8	ug/L	EPA 8260B	5/3/11	106	76.8-120
TPH as Gasoline	498	ug/L	EPA 8260B	5/3/11	102	70.0-130
Tert-Butanol	199	ug/L	EPA 8260B	5/3/11	107	80-120
Tert-amyl-methyl ether	39.8	ug/L	EPA 8260B	5/3/11	111	78.9-120
Toluene	39.8	ug/L	EPA 8260B	5/3/11	102	80-120
1,2-Dibromoethane	40.2	ug/L	EPA 8260B	5/3/11	101	80-120
1,2-Dichloroethane	40.1	ug/L	EPA 8260B	5/3/11	106	75.7-122
Benzene	40.1	ug/L	EPA 8260B	5/3/11	97.0	80-120
Diisopropyl ether	40.1	ug/L	EPA 8260B	5/3/11	104	80-120
Ethanol	101	ug/L	EPA 8260B	5/3/11	126	55.1-159
Ethyl-tert-butyl ether	40.1	ug/L	EPA 8260B	5/3/11	103	76.5-120
Ethylbenzene	40.1	ug/L	EPA 8260B	5/3/11	103	80-120
Methanol	1000	ug/L	EPA 8260B	5/3/11	117	53.2-147
Methyl-t-butyl ether	40.0	ug/L	EPA 8260B	5/3/11	93.4	69.7-121
P + M Xylene	40.1	ug/L	EPA 8260B	5/3/11	104	76.8-120
TPH as Gasoline	501	ug/L	EPA 8260B	5/3/11	95.1	70.0-130
Tert-Butanol	200	ug/L	EPA 8260B	5/3/11	102	80-120

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

QC Report : Laboratory Control Sample (LCS)

Project Name : **Tesoro-Livermore**

Project Number : **01LV**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Tert-amyl-methyl ether	40.1	ug/L	EPA 8260B	5/3/11	101	78.9-120
Toluene	40.1	ug/L	EPA 8260B	5/3/11	100	80-120
P + M Xylene	40.0	ug/L	EPA 8260B	5/4/11	106	76.8-120
Toluene	40.0	ug/L	EPA 8260B	5/4/11	100	80-120
Nitrate as N	0.500	mg/L	EPA 300.0	4/28/11	99.2	85.0-115
Sulfate	2.50	mg/L	EPA 300.0	4/28/11	103	85.0-115
Ferrous Iron	0.502	mg/L	SM 3500-Fe	4/28/11	106	70.0-130

KIFF ANALYTICAL, LLC
2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

KIFF Analytical LLC

2795 2nd Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4802

SRG # / Lab No. 77265

Page 1 of 2

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To): Matthew Nelson
Company / Address: orion environmental 3450 E. Spring St Suite 212, Long Beach, CA
Phone Number: 562-988-2755
Fax Number: 562-988-2759
Project #: 01LV
P.O. #:
Project Name: Tesoro - Livermore
Project Address: 1619 1st Street Livermore, CA

California EDF Report? ☒ Yes ☐ No
Sampling Company Log Code: EFSP
Global ID: T0600101410
EDF Deliverable To (Email Address): mnelson@orionenv.com
Bill to: Jeff Baker
Sampler Print Name: Chris Arroyo
Sampler Signature:

Sample Designation	Sampling Date	Sampling Time	Container: 40 ml VOA	Container: Sleeve	Container: Poly	Container: Glass	Container: Tedlar	Preservative: HCl	Preservative: HNO_3	Preservative: None	Preservative: H_2SO_4	Matrix: Water	Matrix: Soil	Matrix: Air	MTBE @ 0.5 ppb (EPA 8260B)	BTEX (EPA 8260B)	TPH Gas (EPA 8260B)	5 Oxygenates (MTBE, DIPE, ETBE, TAME, TBA) (EPA 8260B)	7 Oxygenates (5 oxy + EtOH, MeOH) (EPA 8260B)	Lead Scav. (1,2 DCA & 1,2 EDB) (EPA 8260B)	Volatile Halocarbons (EPA 8260B)	Volatile Organics Full List (EPA 8260B)	Volatile Organics (EPA 524.2 Drinking Water)	TPH as Diesel (EPA 8015M)	TPH as Motor Oil (EPA 8015M)	CAM 17 Metals (EPA 200.7 / 6010)	5 Waste Oil Metals (Cd,Cr,Ni,Pb,Zn) (EPA 200.7 / 6010)	~~Mercury (EPA 245.1 / 7470 / 7471)~~ BOD	~~Total Lead (EPA 200.7 / 6010)~~ COD	~~W.E.T. Lead (STLC)~~ Methane	Ferrous Iron (SM3500-Fe-D)	Nitrate, Sulfate (EPA 300.0)	Total Alkalinity (SM2320B)	Total Organic Carbon	TAT	For Lab Use Only
IP-6	4-27-11	1655	5					5				X				X	X		X	X															Stnd.	01
IP-7	4-27-11	1710	5					5				X				X	X		X	X															Stnd.	02
IP-1	4-27-11	1725	5					5				X				X	X		X	X															Stnd.	03
VW-2	4-28-11	0805	5					5				X				X	X		X	X															Stnd.	04
DW-8	4-28-11	0820	5		3	1		5		3	1	X				X	X		X	X									X	X	X	X	X	X	X	24hr holdtime	05
MW-11	4-28-11	1010	5		3	1		5		3	1	X				X	X		X	X									X	X	X	X	X	X	X	24hr holdtime	06
DW-1	4-28-11	1100	5		3	1		5		3	1	X				X	X		X	X									X	X	X	X	X	X	X	24 hr holdtime	07
MW-2	4-28-11	1140	5		3	1		5		3	1	X				X	X		X	X									X	X	X	X	X	X	X	24 hr holdtime	08
TP-1	4-28-11	1155	5					5				X				X	X		X	X																Stnd.	09
TP-2	4-28-11	1205	5					5				X				X	X		X	X																Stnd.	10

Relinquished by:	Date	Time	Received by:
	4-28-11	1345	
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory:
	042811	1345	Krystal

Remarks:
DW-8
MW-11
DW-1
MW-2
} 24 hour hold time

Distribution: White - Lab; Pink - Originator
Rev: 060409

KIFF Analytical LLC

2795 2nd Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4802

SRG # / Lab No. 77265

Page 2 of 2

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To): Matthew Nelson	California EDF Report? ☒ Yes ☐ No
Company / Address: Orion Environmental 3450 E. Spring St. Suite 212, Long Beach, CA	Sampling Company Log Code: EFSP
Phone Number: 562-988-2755	Global ID: T0600101410
Fax Number: 562-988-2759	EDF Deliverable To (Email Address): MNelson@OrionenV.com
Project #: OILV / P.O. #:	Bill to: Jeff Baker
Project Name: Tesoro - Livermore	Sampler Print Name: Chris Arroyo
	Sampler Signature:
Project Address: 1619 1st Street Livermore, CA	

Sample Designation	Sampling: Date	Sampling: Time	Container: 40 ml VOA	Container: Sleeve	Container: Poly	Container: Glass	Container: Tedlar	Container:	Preservative: HCl	Preservative: HNO_3	Preservative: None	Preservative:	Matrix: Water	Matrix: Soil	Matrix: Air	Matrix:
IP-8	4-28-11	1315	5						5				X			
IP-9	4-28-11	1330	5						5				X			

Analysis Request — CIRCLE METHOD

MTBE @ 0.5 ppb (EPA 8260B)	BTEX (EPA 8260B)	TPH Gas (EPA 8260B)	5 Oxygenates (MTBE, DIPE, ETBE, TAME, TBA) (EPA 8260B)	7 Oxygenates (5 oxy + EtOH, MeOH) (EPA 8260B)	Lead Scav. (1,2 DCA & 1,2 EDB) (EPA 8260B)	Volatile Halocarbons (EPA 8260B)	Volatile Organics Full List (EPA 8260B)	Volatile Organics (EPA 524.2 Drinking Water)	TPH as Diesel (EPA 8015M)	TPH as Motor Oil (EPA 8015M)	CAM 17 Metals (EPA 200.7 / 6010)	5 Waste Oil Metals (Cd,Cr,Ni,Pb,Zn) (EPA 200.7 / 6010)	Mercury (EPA 245.1 / 7470 / 7471)	Total Lead (EPA 200.7 / 6010)	W.E.T. Lead (STLC)					
	X	X		X	X															
	X	X		X	X															

TAT: ☐ 12 hr ☐ 24 hr ☐ 48hr ☐ 72hr ☒ 1 wk

TAT	For Lab Use Only
Std.	11
Std.	12

Relinquished by:	Date	Time	Received by:
Chris Arroyo	4-28-11	1345	
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory:
	042811	1345	Eric Analyst

Remarks:

Page 30 of 31

Distribution: White - Lab; Pink - Originator
Rev: 060409

KIFF Analytical LLC

SAMPLE RECEIPT CHECKLIST

RECEIVER: AJC (Initials)

SRG#: 77265 Date: 042811

Project ID: Tesoro - Livermore

Method of Receipt: ☒ Courier ☐ Over-the-counter ☐ Shipper

COC Inspection

Is COC present?	☒ Yes	☐ No		
Custody seals on shipping container?	☐ Intact	☐ Broken	☐ Not present	☒ N/A
Is COC Signed by Relinquisher? ☒ Yes ☐ No	Dated? ☒ Yes	☐ No		
Is sampler name legibly indicated on COC?	☒ Yes	☐ No		
Is analysis or hold requested for all samples	☒ Yes	☐ No		
Is the turnaround time indicated on COC?	☒ Yes	☐ No		
Is COC free of whiteout and uninitialed cross-outs?	☒ Yes	☐ No, Whiteout	☐ No, Cross-outs	

Sample Inspection

Coolant Present: ☒ Yes ☐ No (includes water)

Temperature °C 3.7 Therm. ID# IR 5 Initial AJC Date/Time 042811 1555 ☐ N/A

Are there custody seals on sample containers?	☐ Intact	☐ Broken	☒ Not present	
Do containers match COC? ☒ Yes ☐ No ☐ No, COC lists absent sample(s)	☐ No, Extra sample(s) present			
Are there samples matrices other than soil, water, air or carbon?	☐ Yes	☒ No		
Are any sample containers broken, leaking or damaged?	☐ Yes	☒ No		
Are preservatives indicated? ☐ Yes, on sample containers	☒ Yes, on COC	☐ Not indicated	☐ N/A	
Are preservatives correct for analyses requested?	☒ Yes	☐ No	☐ N/A	
Are samples within holding time for analyses requested?	☒ Yes	☐ No		
Are the correct sample containers used for the analyses requested?	☒ Yes	☐ No		
Is there sufficient sample to perform testing?	☒ Yes	☐ No		

Does any sample contain product, have strong odor or are otherwise suspected to be hot? ☐ Yes ☒ No

Receipt Details WA Ice Wts 6J

Matrix WA	Container type 250 N.P.Poly	# of containers received	6 of 8
Matrix WA	Container type 500 N.P.Poly	# of containers received	4
Matrix WA	Container type 250 4oz SOWGS	# of containers received	4

Date and Time Sample Put into Temp Storage Date: 042811 Time: 1615

Quicklog

Are the Sample ID's indicated:	☐ On COC	☐ On sample container(s)	☒ On Both	☐ Not indicated
If Sample ID's are listed on both COC and containers, do they all match?	☒ Yes	☐ No	☐ N/A	
Is the Project ID indicated:	☐ On COC	☐ On sample container(s)	☒ On Both	☐ Not indicated
If project ID is listed on both COC and containers, do they all match?	☒ Yes	☐ No	☐ N/A	
Are the sample collection dates indicated:	☒ On COC	☐ On sample container(s)	☐ On Both	☐ Not indicated
If collection dates are listed on both COC and containers, do they all match?	☐ Yes	☐ No	☒ N/A	
Are the sample collection times indicated:	☐ On COC	☐ On sample container(s)	☒ On Both	☐ Not indicated
If collection times are listed on both COC and containers, do they all match?	☒ Yes	☐ No	☐ N/A	

COMMENTS:

Leaders in Analytical Science and Service

KIFF Analytical LLC

Subcontract Laboratory Report Attachments

2795 Second Street, Suite 300 Davis, CA 95618
tel 530.297.4800 fax 530.297.4808
www.kiffanalytical.com

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

May 06, 2011

CLS Work Order #: CUD1292
COC #: 77265

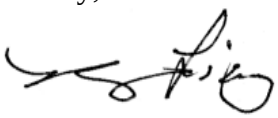
Scott Forbes
KIFF Analytical
2795 Second St. Suite 300
Davis, CA 95616

Project Name: Tesoro-Livermore

Enclosed are the results of analyses for samples received by the laboratory on 04/29/11 11:51. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,



James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

05/06/11 13:29

KIFF Analytical	Project: Tesoro-Livermore	
2795 Second St. Suite 300	Project Number: 01LV	**CLS Work Order #: CUD1292**
Davis, CA 95616	Project Manager: Scott Forbes	COC #: 77265

CUD1292

KIFF Analytical LLC

2795 Second Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4808

California Laboratory Services
3249 Fitzgerald Road
Rancho Cordova, CA 95742
916-638-7301

COC No. **77265** Page 1 of 1

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF to): Scott Forbes

EDF Report? YES

Company/Address: Kiff Analytical

Recommended but not mandatory to complete this section:

Sampling Company Log Code: EFSP

Phone No.: 530-297-4800 | FAX No.: 530-297-4808

Global ID: T0600101410

Project Number: 01LV | P.O. No.: 77265

Deliverables to (Email Address): inbox@kiffanalytical.com

Project Name: Tesoro-Livermore

Project Address:

Analysis Request | TAT | For Lab Use Only

Container / Preservative | Matrix

Sample Designation	Sampling Date	Sampling Time	500 ml Poly None	Water	Biochemical Oxygen Demand	Standard
DW-8	04/28/11	08:20	1	X	X	X
MW-11	04/28/11	10:10	1	X	X	X
DW-1	04/28/11	11:00	1	X	X	X
MW-2	04/28/11	11:40	1	X	X	X

Relinquished by: Kiff Analytical	Date 04/29/11	Time 1151	Received by:	Remarks:
Relinquished by:	Date	Time	Received by:	
Relinquished by:	Date	Time	Received by Laboratory: 1030	Bill to: Accounts Payable

CALIFORNIA LABORATORY SERVICES

KIFF Analytical
2795 Second St. Suite 300
Davis, CA 95616

Project: Tesoro-Livermore
Project Number: 01LV
Project Manager: Scott Forbes

CLS Work Order #: CUD1292
COC #: 77265

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
DW-8 (CUD1292-01) Water	**Sampled: 04/28/11 08:20**	**Received: 04/29/11 11:51**							
Biochemical Oxygen Demand	**37**	3.0	mg/L	1	CU02974	04/29/11	05/04/11	SM5210B	
MW-11 (CUD1292-02) Water	**Sampled: 04/28/11 10:10**	**Received: 04/29/11 11:51**							
Biochemical Oxygen Demand	**21**	3.0	mg/L	1	CU02974	04/29/11	05/04/11	SM5210B	
DW-1 (CUD1292-03) Water	**Sampled: 04/28/11 11:00**	**Received: 04/29/11 11:51**							
Biochemical Oxygen Demand	ND	3.0	mg/L	1	CU02974	04/29/11	05/04/11	SM5210B	
MW-2 (CUD1292-04) Water	**Sampled: 04/28/11 11:40**	**Received: 04/29/11 11:51**							
Biochemical Oxygen Demand	**22**	3.0	mg/L	1	CU02974	04/29/11	05/04/11	SM5210B	

KIFF Analytical
2795 Second St. Suite 300
Davis, CA 95616

Project: Tesoro-Livermore
Project Number: 01LV
Project Manager: Scott Forbes

CLS Work Order #: CUD1292
COC #: 77265

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CU02974 - General										
Blank (CU02974-BLK1)				Prepared: 04/29/11	Analyzed: 05/04/11					
Biochemical Oxygen Demand	ND	3.0	mg/L							
LCS (CU02974-BS1)				Prepared: 04/29/11	Analyzed: 05/04/11					
Biochemical Oxygen Demand	162	3.0	mg/L	167		97	83-138			
LCS Dup (CU02974-BSD1)				Prepared: 04/29/11	Analyzed: 05/04/11					
Biochemical Oxygen Demand	183	3.0	mg/L	167		110	83-138	12	21	

KIFF Analytical	Project: Tesoro-Livermore	
2795 Second St. Suite 300	Project Number: 01LV	**CLS Work Order #: CUD1292**
Davis, CA 95616	Project Manager: Scott Forbes	COC #: 77265

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Calscience Environmental Laboratories, Inc.

May 05, 2011

Joel Kiff
Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95616-6593

Subject: **Calscience Work Order No.: 11-04-1859**
Client Reference: Tesoro - Livermore

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 4/29/2011 and analyzed in accordance with the attached chain-of-custody.

Calscience Environmental Laboratories certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Amanda Porter

Calscience Environmental
Laboratories, Inc.
Amanda Porter
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical		Date Received:	04/29/11
2795 2nd Street, Suite 300		Work Order No:	11-04-1859
Davis, CA 95616-6593		Preparation:	N/A
		Method:	RSK-175M

Project: Tesoro - Livermore

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
DW-8	**11-04-1859-1-A**	**04/28/11 08:20**	**Aqueous**	**GC 52**	**N/A**	**04/30/11 14:15**	**110430L01**

Parameter	Result	RL	DF	Qual	Units
Methane	1060	4.00	4		ug/L

MW-11	**11-04-1859-2-A**	**04/28/11 10:10**	**Aqueous**	**GC 52**	**N/A**	**04/30/11 12:38**	**110430L01**

Parameter	Result	RL	DF	Qual	Units
Methane	60.2	1.00	1		ug/L

DW-1	**11-04-1859-3-A**	**04/28/11 11:00**	**Aqueous**	**GC 52**	**N/A**	**04/30/11 13:50**	**110430L01**

Parameter	Result	RL	DF	Qual	Units
Methane	3.16	1.00	1		ug/L

MW-2	**11-04-1859-4-A**	**04/28/11 11:40**	**Aqueous**	**GC 52**	**N/A**	**04/30/11 14:41**	**110430L01**

Parameter	Result	RL	DF	Qual	Units
Methane	3150	20.0	20		ug/L

Method Blank	**099-12-663-1,297**	**N/A**	**Aqueous**	**GC 52**	**N/A**	**04/30/11 08:48**	**110430L01**

Parameter	Result	RL	DF	Qual	Units
Methane	ND	1.00	1		ug/L

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95616-6593

Date Received: 04/29/11
Work Order No: 11-04-1859

Project: Tesoro - Livermore

Client Sample Number	Lab Sample Number	Date Collected	Matrix
DW-8	**11-04-1859-1**	**04/28/11**	**Aqueous**

Parameter	Results	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chemical Oxygen Demand	180	20	1		mg/L	04/30/11	04/30/11	EPA 410.4
Alkalinity, Total (as CaCO3)	455	5.00	1		mg/L	N/A	05/03/11	SM 2320B
Carbon, Total Organic	9.0	2.5	5		mg/L	N/A	04/29/11	SM 5310 D

Client Sample Number	Lab Sample Number	Date Collected	Matrix
MW-11	**11-04-1859-2**	**04/28/11**	**Aqueous**

Parameter	Results	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chemical Oxygen Demand	100	5.0	1		mg/L	04/29/11	04/29/11	EPA 410.4
Alkalinity, Total (as CaCO3)	660	5.00	1		mg/L	N/A	05/03/11	SM 2320B
Carbon, Total Organic	16	2.5	5		mg/L	N/A	04/29/11	SM 5310 D

Client Sample Number	Lab Sample Number	Date Collected	Matrix
DW-1	**11-04-1859-3**	**04/28/11**	**Aqueous**

Parameter	Results	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chemical Oxygen Demand	ND	5.0	1		mg/L	04/29/11	04/29/11	EPA 410.4
Alkalinity, Total (as CaCO3)	308	5.00	1		mg/L	N/A	05/03/11	SM 2320B
Carbon, Total Organic	0.81	0.50	1		mg/L	N/A	04/29/11	SM 5310 D

Client Sample Number	Lab Sample Number	Date Collected	Matrix
MW-2	**11-04-1859-4**	**04/28/11**	**Aqueous**

Parameter	Results	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chemical Oxygen Demand	45	5.0	1		mg/L	04/29/11	04/29/11	EPA 410.4
Alkalinity, Total (as CaCO3)	446	5.00	1		mg/L	N/A	05/03/11	SM 2320B
Carbon, Total Organic	5.5	0.50	1		mg/L	N/A	04/29/11	SM 5310 D

Client Sample Number	Lab Sample Number	Date Collected	Matrix
Method Blank		**N/A**	**Aqueous**

Parameter	Results	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chemical Oxygen Demand	ND	5.0	1		mg/L	04/29/11	04/29/11	EPA 410.4
Chemical Oxygen Demand	ND	20	1		mg/L	04/30/11	04/30/11	EPA 410.4
Alkalinity, Total (as CaCO3)	ND	1.0	1		mg/L	N/A	05/03/11	SM 2320B
Carbon, Total Organic	ND	0.50	1		mg/L	N/A	04/29/11	SM 5310 D

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95616-6593

Date Received: N/A
Work Order No: 11-04-1859

Project: Tesoro - Livermore

Matrix: Aqueous or Solid

Parameter	Method	Quality Control Sample ID	Date Analyzed	Date Extracted	MS% REC	MSD % REC	%REC CL	RPD	RPD CL	Qualifiers
Carbon, Total Organic	SM 5310 D	DW-1	04/29/11	N/A	100	99	75-125	1	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95616-6593

Date Received: N/A
Work Order No: 11-04-1859

Project: Tesoro - Livermore

Matrix: Aqueous or Solid

Parameter	Method	QC Sample ID	Date Analyzed	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Alkalinity, Total (as CaCO3)	SM 2320B	11-05-0137-1	05/03/11	665	666	0	0-25	
Chemical Oxygen Demand	EPA 410.4	11-04-1712-1	04/30/11	130	130	2	0-25	
Chemical Oxygen Demand	EPA 410.4	11-04-1759-1	04/29/11	16	17	6	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95616-6593

Date Received: N/A
Work Order No: 11-04-1859
Preparation: N/A
Method: RSK-175M

Project: Tesoro - Livermore

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-663-1,297	**Aqueous**	**GC 52**	**N/A**	**04/30/11**	**110430L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Methane	92	93	79-109	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95616-6593

Date Received: N/A
Work Order No: 11-04-1859

Project: Tesoro - Livermore

Matrix: Aqueous or Solid

Parameter	Method	Quality Control Sample ID	Date Extracted	Date Analyzed	LCS % REC	LCSD % REC	%REC CL	RPD	RPD CL	Qual
Carbon, Total Organic	SM 5310 D	099-05-097-4,269	N/A	04/29/11	101	100	80-120	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 11-04-1859

Qualifier	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported without further clarification.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

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

KIFF Analytical LLC

2795 Second Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4808

Calscience
7440 Lincoln Way
Garden Grove, CA 92841-1427
714-895-5494

1859

COC No. **77265** Page 1 of 1

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF to): Scott Forbes

Company/Address: Kiff Analytical

Phone No.: 530-297-4800 | FAX No.: 530-297-4808

Project Number: 01LV | P.O. No.: 77265

Project Name: Tesoro-Livermore

Project Address:

EDF Report? YES

Recommended but not mandatory to complete this section:

Sampling Company Log Code: EFSP

Global ID: T0600101410

Deliverables to (Email Address): inbox@kiffanalytical.com

Sample Designation	Sampling Date	Sampling Time	Container / Preservative: 250ml Glass H2SO4	250ml Poly None	VOA 40 ml HCl	Matrix: Water	Analysis Request: Alkalinity SM 2320 (1)	Chemical Oxygen Demand	Hydrocarbons in Water by RSK 175 (1)	Total Organic Carbon	TAT: 4-Days	For Lab Use Only
DW-8	04/28/11	08:20	1	1	2	X	X	X	X	X	X	1
MW-11	04/28/11	10:10	1	1	2	X	X	X	X	X	X	2
DW-1	04/28/11	11:00	1	1	2	X	X	X	X	X	X	3
MW-2	04/28/11	11:40	1	1	2	X	X	X	X	X	X	4

Relinquished by: KiffAnalytical	Date 042811	Time 1900	Received by:	
Relinquished by:	Date	Time	Received by:	
Relinquished by:	Date 4/29/11	Time 1000	Received by Laboratory:	

Remarks: Please refer to attached Test Detail.

Bill to: Accounts Payable

1854

Test Detail for Kiff Work Order: 77265

Alkalinity SM 2320 (1)
Alkalinity, Total (as CaCO3)

Hydrocarbons in Water by RSK 175 (1)
Methane

1859

OnTrac
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Date Printed 4/28/2011

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Shipped From:
KIFF ANALYTICAL
2795 2ND STREET 300
DAVIS, CA 95616

Sent By: SAMPLE RECEIVING
Phone#: (530)297-4800
wgt(lbs): 1
Reference: SUB SRG
Reference 2:

Ship To Company:
CALSCIENCE ENVIRONMENTAL
7440 LINCOLN WAY
GARDEN GROVE, CA 92841
RECEIVING (714)895-5494

B10207210772

Service: **S**
Sort Code: **ORG**

Special Services:
Signature Required

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 11-04-1859

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Kiff

DATE: 04/29/11

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 2.2 °C + 0.5 °C (CF) = 2.7 °C ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter Initial: JP

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Initial: JP

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: JP

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☐	☐	☑
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
pH / Res. Chlorine / Diss. Sulfide / Diss. Oxygen received within 24 hours	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☐
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☑	☐	☐
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☑2VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☑250CGB**s** ☐1PB ☐500PB ☐500PB**na**

☑250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** bc

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** DC

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:** $Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **znna:** $ZnAc_2$+NaOH **f:** Field-filtered **Scanned by:** bc

ATTACHMENT G

BORING AND WELL CONSTRUCTION LOGS

Project: Tesoro - Livermore
Project Location: 1619 1st Street, Livermore, CA
Project Number: 01LV

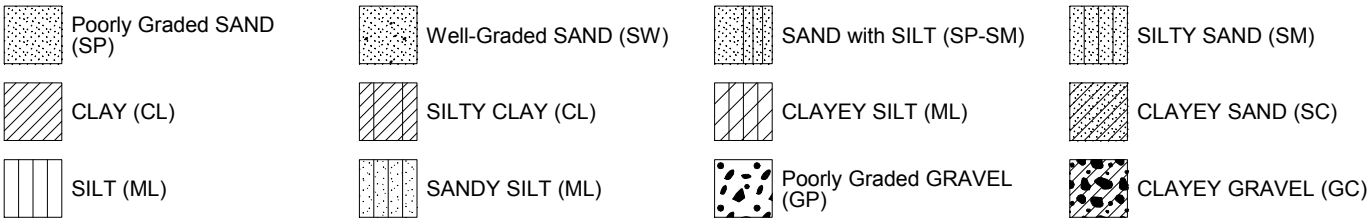
Key to Log of Boring / Well

Elevation, feet	Depth, feet	SAMPLES: Type	SAMPLES: Number	SAMPLES: Blows / 6 in.	Graphic Log	MATERIAL DESCRIPTION	Well Completion Diagram	Headspace PID, ppm	Background PID, ppm	Drilling Progress, 24-hour clock	REMARKS
1	2	3	4	5	6	7	8	9	10	11	12

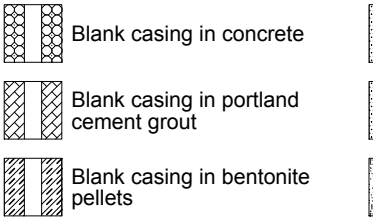
COLUMN DESCRIPTIONS

1. **Elevation:** Elevation in feet relative to mean sea level (MSL).
2. **Depth:** Depth in feet below the ground surface.
3. **Sample Type:** Type of soil sample collected at depth interval shown; sampler symbols are explained below.
4. **Sample Number:** Sample identification number.
5. **Blows / 6 in.:** Number of blows required to advance driven sampler each 6-inch drive interval, or distance noted, using a 140-lb hammer with a 30-inch drop. "-" indicates data not recorded on field log.
6. **Graphic Log:** Graphic depiction of subsurface material encountered; typical symbols are explained below.
7. **Material Description:** Description of material encountered; may include density/consistency, moisture, and color.
8. **Well Completion Diagram:** Well schematic; materials are listed in header block; graphics are explained below.
9. **Headspace PID:** Photoionization device (PID) field sample headspace reading in parts per million (ppm).
10. **Background PID:** Photoionization device (PID) background reading in parts per million (ppm).
11. **Drilling Progress:** Time (in 24-hour clock) at sampling and other events during downhole advance.
12. **Remarks:** Comments and observations regarding drilling or sampling made by driller or field personnel.

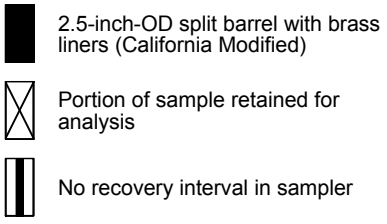
TYPICAL SOIL GRAPHIC SYMBOLS



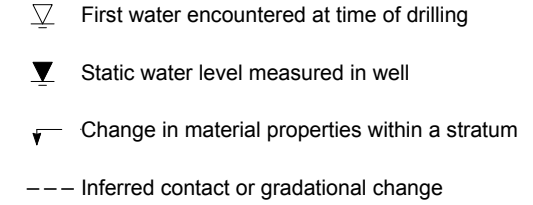
TYPICAL WELL GRAPHIC SYMBOLS



TYPICAL SAMPLER GRAPHIC SYMBOLS



OTHER GRAPHIC SYMBOLS



GENERAL NOTES

1. Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive; actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
2. Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

Project: Tesoro - Livermore
Project Location: 1619 1st Street, Livermore, CA
Project Number: 01LV

Log of Boring / Well DW-8

Date(s) Drilled	**4/13/11 (well installed 4/14/11)**			Logged By	**S. Stromberg**	Checked By	**M. Nelson**
Drilling Method	**Hollow-Stem Auger**			Drill Bit Size/Type	**6-inch-OD auger for sampling; 10-inch-OD auger for reaming**	Total Depth of Borehole	**90.0 feet**
Drill Rig Type	**Marl M5T**			Drilling Contractor	**Gregg Drilling & Testing**	Surface Elevation	**To be determined**
Groundwater Level (feet bgs)	First **30**	Completion **27.18**	Development **26.8**	Sampling Method	**California Modified split spoon**	Top of Casing Elevation	**To be determined**
Diameter of Hole (inches)	**10**	Diameter of Well (inches) **4**		Type of Well Casing	**4-inch-dia. Schedule 40 PVC**	Screen Perforation	**0.020-inch slot (55-65 ft)**
Type of Sand Pack	**#2/12 Monterey (54-70 feet)**			Type and Depth of Seal(s)	**Bentonite pellets 70-90 feet and 51-54 feet, portland cement grout 2-51 feet, concrete 0-2 feet**		
Comments	**Located on east side of P Street, west of site. Completed at surface with 12-inch-diameter flush-mount well vault set in concrete.**						

Elevation, feet / Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Blows / 6 in.	Graphic Log	MATERIAL DESCRIPTION	Well Completion Diagram	Headspace PID, ppm	Background PID, ppm	Drilling Progress, 24-hour clock	REMARKS
0					Asphalt at surface				0912	Hand auger first 5 ft.
					Subsurface material not observed or logged during hand augering to depth of 5 feet or during advance to first sample at depth of 10 feet.					
5									0916	
10					Moist, brown, well-graded SAND with GRAVEL (SW), medium- to coarse-grained sand, some gravel, trace to no fines, no odor				0918	Blows not recorded for drive samples.
15									0920	
20		DW-8-20			Moist, brown, SILT with CLAY (ML), medium plasticity, trace fine-grained sand, no odor		22	0.0	0924	DW-8-20 particle size analysis results: 5% fine sand 71% silt 24% clay
25					Moist, brown, SANDY SILT (ML), fine-grained sand, trace medium- to coarse-grained sand, gray staining, no odor		27	0.0	0928	
30										

ORION_1W; TESLVMOR.GPJ-DW-08; 5/9/11

Project: Tesoro - Livermore
Project Location: 1619 1st Street, Livermore, CA
Project Number: 01LV

Log of Boring / Well DW-8

Elevation, feet / Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Blows / 6 in.	Graphic Log	MATERIAL DESCRIPTION	Well Completion Diagram	Headspace PID, ppm	Background PID, ppm	Drilling Progress, 24-hour clock	REMARKS
30					Moist, brown, well-graded SAND with GRAVEL (SW), fine- to coarse-grained sand, trace silt, no odor		21	0.0	0930	
35		DW-8-35					49	0.0	0937	
40		DW-8-40			Odor		>15,000	0.0	0940	DW-8-40 particle size analysis results: 42% gravel, 20% coarse sand, 27% medium sand, 9% fine sand, 2% silt/clay
45		DW-8-45			Becomes gray to brown, slight odor		267	0.0	0945	
50		DW-8-50			Becomes brown, no odor		3,594	0.0	0951	
					Moist, brown, CLAYEY SILT (ML), medium plasticity, no odor					
55		DW-8-55			Wet, brown, well-graded GRAVEL with SAND (GW), fine to coarse gravel, fine- to coarse-grained sand, trace silt, odor		>15,000	0.0	0955	
60		DW-8-60					>15,000	0.0	1004	DW-8-60 particle size analysis results: 54% gravel, 13% coarse sand, 19% medium sand, 11% fine sand, 3% silt/clay
65		DW-8-65			Increasing silt content, gray staining, odor		140	0.0	1042	
70										

ORION_1W; TESLVMOR.GPJ-DW-08; 5/9/11

Project: Tesoro - Livermore
Project Location: 1619 1st Street, Livermore, CA
Project Number: 01LV

Log of Boring / Well DW-8

Elevation, feet / Depth, feet	SAMPLES Type / Number	SAMPLES Blows / 6 in.	Graphic Log	MATERIAL DESCRIPTION	Well Completion Diagram	Headspace PID, ppm	Background PID, ppm	Drilling Progress, 24-hour clock	REMARKS
70	DW-8-70			Moist, brown, well-graded SAND with GRAVEL (SW), fine- to coarse-grained sand, trace silt, slight odor		1,371	0.0	1048	DW-8-70 particle size analysis results: 46% gravel, 13% coarse sand, 24% medium sand, 13% fine sand, 4% silt/clay
75	DW-8-75			Moist, brown, well-graded SAND (SW), fine- to coarse-grained sand, trace gravel, trace silt, no odor		326	0.0	1055	
80				[No sample recovery]				1058	
				Moist, red, poorly graded SAND (SP), medium-grained sand, rounded grains, trace silt, no odor					
85	DW-8-85					36	0.0	1115	
				Moist, brown, well-graded SAND (SW), fine- to coarse-grained sand, trace angular gravel, trace silt, no odor					
90	DW-8-90					42	0.0	1128	
				Bottom of boring at 90.0 feet					
95									
100									
105									
110									

ORION_1W; TESLVMOR.GPJ-DW-08; 5/9/11

ATTACHMENT H

DRILLING AND WELL INSTALLATION QA/QC PROCEDURES

ARCTOS

ATTACHMENT H
DRILLING AND WELL INSTALLATION QA/QC PROCEDURES

Hollow-Stem Auger Drilling and Sampling

Before initiating drilling activities, Arctos marked the well locations and contacted underground service alert (USA) to clear the area of subsurface lines and utilities. Arctos also obtained a boring and well permit from Zone 7 Water Agency.

Soil borings were advanced with 6-inch-diameter, hollow-stem, continuous-flight augers. Soil samples were collected using a split-spoon sampler (California-modified or similar) containing three brass tubes, each 2 inches in diameter and 6 inches in length. The sampler was driven to the sampling depth by dropping a 140-pound hammer approximately 30 inches. Samples were collected for visual logging at various depth intervals with the objectives of observing and describing the locations of lithologic units and obtaining representative samples for physical and/or chemical analysis. Soil samples were collected at 10 feet below ground surface and at 5-foot intervals thereafter.

After the sampler was retrieved from the auger, it was placed on a portable field stand near the boring and the tubes were removed. The ends of one of the tubes was covered with Teflon sheeting, capped with PVC end caps, and placed in a sealable plastic bag. A portion of the soil from one of the tubes was extruded and placed in a sealable plastic bag, which was closed and allowed to equilibrate for approximately 10 minutes. The organic vapor levels in the headspace were measured using a field photoionization detector (PID).

The same sample was visually examined and the results of the visual observation and headspace reading were recorded on the boring logs. Soil samples were examined for staining or odors. Soils were classified following the Unified Soil Classification System (USCS).

Equipment Decontamination Procedures

Soil sampling equipment was decontaminated between sampling events using the following procedures:

- Rinse with water using a brush to remove soil and mud
- Wash with non-phosphate detergent and water using a brush
- Rinse with deionized water
- Rinse again with deionized water
- Air dry.

Brass tubes and end caps were new or cleaned using the decontamination procedures described above. Drill augers were steam-cleaned before each boring is drilled.

Management of Drill Cuttings and Wastewater

Drill cuttings were placed in 55-gallon drums that meet U.S. Department of Transportation specifications and stored on site. Each drum was labeled with the date and drum contents. The soil was transported off site by Belshire Environmental Services, Inc., (Belshire), of Lake Forest, California, for recycling as a non-hazardous waste at the TPST Soil Recyclers of California facility in Adelanto, California. Manifests for the soil disposal are included in Attachment J.

Documentation Procedures

Arctos personnel followed documentation procedures developed for site investigation work. The procedures serve to provide a record of the activities performed in the field.

Arctos field personnel were on site to observe the progress of sampling and to log the boring. The information recorded on the boring log included drilling equipment used, boring location, nature of the materials encountered, sampling depth, time of day, and other pertinent data. The boring log was drafted for presentation in this report.

Well Installation

An Arctos geologist supervised the well construction and installation. A deep monitoring well, designated as DW-8, was installed offsite in P Street (Figure 2). The deep monitoring well was designed to monitor the water quality in the lower zones of the aquifer (beneath the existing monitoring well screen intervals and above the regional aquitard). The soil boring for the installation of deep monitoring well DW-8 was drilled with a 6-inch-diameter hollow-stem continuous-flight auger to create a pilot hole, and then over drilled with a 10-inch-diameter hollow-stem continuous-flight auger.

The deep monitoring well was constructed using 4-inch-diameter, flush-threaded Schedule 40 polyvinyl chloride (PVC) casing. Well DW-8 was screened from 55 to 65 feet below grade using 0.020-inch slotted screen. A Monterey #2/12 sand pack filled the annular space around the casing to approximately 2 feet above the screened interval. A 2- to 3-foot thick bentonite seal was placed on top of the sand pack. The remaining annular space was filled with Portland cement slurry. The deep monitoring well was completed at the surface with a 12-inch-diameter traffic-rated vault set in concrete. Well construction diagrams are shown in Attachment G.

A licensed surveyor surveyed the elevation and location of the new wells on 19 April 2011 following the requirements of State Assembly Bill 2886. The locations were measured to the nearest 1/10 foot and the elevations to the nearest 1/100 foot relative to mean sea level.

Well Development

The wells were developed approximately 72 hours after installation. Well development activities were recorded on a Daily Field Report and Well Development Log (Attachment I). Immediately before well development commenced, the depth to groundwater and total well depth were measured using an electric water well sounder with an accuracy of 0.01 feet. A Smeal rig outfitted with a surge block continuously swabbed the well screen at 5-foot intervals for 15 minutes. Immediately following surging, a stainless steel bottom bailer was used to remove fines from the water column. After bailing, a stainless steel pump was lowered into the well to rapidly evacuate fines.

Field measurements of the evacuated groundwater were collected at regular intervals including pH, specific conductivity, temperature, and turbidity. Development was considered complete when pH, temperature, and specific conductivity measurements of the evacuated groundwater stabilized to within 10 percent of the previous readings and turbidity readings dropped below 50 Nephelometric Turbidity Units (NTUs).

Wastewater generated during well development was stored on site in 55-gallon drums that meet U.S. Department of Transportation specifications. Belshire transported the wastewater off site for recycling as a non-hazardous waste to the DeMenno Kerdoon facility in Los Angeles, California. Manifests for the soil disposal and wastewater recycling are included in Attachment J.

General Field Quality Assurance/Control (QA/QC) Procedures

See Attachment A for personal decontamination and health and safety procedures.

ATTACHMENT I

WELL DEVELOPMENT LOG

GREGG

MONITORING WELL DEVELOPMENT LOG

Page _____ of _____

All measurements taken from: ☒ Top of Casing ☐ Protective Casing ☐ Ground Level

Sample ID —

Qty. of Drilling Fluid Lost —

Well Number DW-8

Date 4-19-11

Time Start: 8:00 End: _____

Client ARCTOS

Project HKN 1st LIVEMODE

Job Number D20800398

Installation Date 4/3/14

Well Diameter 4"

Borehole Diameter 10"

Screen Length 10FT

Measured Depth (pre-development) 64.7

Measured Depth (post-development) 64.75

Static Water Level (ft.) 26.8

Standing Water Column (ft.) 37.95

One Well Volume (gal.) 25.047

One Annulus Vol. (gal.) —

Minimum Gal. to be Purged —

Development Method Bail-Surge-Bail-pump

Purging Equipment SS Bailer-3pump

Water Level Equipment Solinst

pH/EC Meter HORIBA U50

Turbidity Meter HORIBA U50

Other —

Time	Amount Purged (gal.)	Field Parameters Measured						GPM / W.L.	Comments	Field Tech.
		pH	EC	Turbidity	D.O.	D.O. Temp.	SAL.		W.L	
10:03	55	7.63	1.13	786	—	19.56	0.6	2	38.52 Bail-10	GoC
10:08	65	7.54	1.10	732	—	19.86	0.6	2	39.46 Surge-15MIN	
10:13	75	7.55	1.12	709	—	21.06	0.6	2	39.89 Bail-10	GoC
10:18	95	7.56	1.11	702	—	21.18	0.6	2	39.89	
10:28	125	7.54	1.13	734	—	21.21	0.6	3	47.4	
10:38	155	7.56	1.12	731	—	21.36	0.6	3	49.63	
10:48	185	7.58	1.11	735	—	21.08	0.6	3	52.53	
10:58	215	7.59	1.10	715	—	21.06	0.6	3	54.13	
11:08	245	7.58	1.13	729	—	21.06	0.6	3	54.83	
11:18	255	7.56	1.12	720	—	21.95	0.6	1	47.91	
11:28	265	7.57	1.10	733	—	22.88	0.6	1	48.33	

FINAL FIELD PARAMETER MEASUREMENTS

ATTACHMENT J

WASTE MANIFESTS

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE

GENERATOR

NON-HAZARDOUS WASTE MANIFEST	1. Generator's US EPA ID No. N/A	Manifest Document No. 18826 / 18830	2. Page 1 of 1

3. Generator's Name and Mailing Address
TESORO Environmental Resource Company
3450 S 344TH WAY Auburn, WA 98001

4. Generator's Phone ( )

TESORO #67076
1619 First STREET
Livermore, CA

5. Transporter 1 Company Name	6. US EPA ID Number	A. State Transporter's ID
EXCEL Environmental Svs.	CAL000209350	B. Transporter 1 Phone 800-376-6008
7. Transporter 2 Company Name	8. US EPA ID Number	C. State Transporter's ID
		D. Transporter 2 Phone

9. Designated Facility Name and Site Address	10. US EPA ID Number	E. State Facility's ID
ROT 5300 CLAUS RD, RiverBank, CA 95367	CAL000190816	F. Facility's Phone 209-863-8181

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS WASTE WATER	001	TI	850	G
b.				
c.				
d.				

G. Additional Descriptions for Materials Listed Above
NON HAZ WATER

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
GLOVES ERG 171

16. **GENERATOR'S CERTIFICATION:** I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name	Signature	Date Month	Day	Year
Peter ARROYO		4	28	11

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year
Tim Lovick		4	28	11

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name	Signature	Date Month	Day	Year

Rev. 3/95

Manifest

SOIL SAFE OF CA – TPST
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transport Truck #:	Facility #:	Approval Number:	Load #
/ /			A07	37208	001

Generator and/or Consultant

Generator's Name and Billing Address:
TESORO ENVIRONMENTAL
RESOURCES COMPANY
3450 S. 344TH WAY, SUITE 201
AUBURN, WA 98001

Generator's Phone #: 253-898-8708
Person to Contact:
FAX#:
Customer Account Number

Consultant's Name and Billing Address:

Consultant's Phone #:
Person to Contact:
FAX#:
Customer Account Number

Generation Site (Transport from): *(name & address)*
TESORO 67076 (FORMER)
1619 FIRST ST.
LIVERMORE, CA 94550

Site Phone #:
Person to Contact:
FAX#:

Designated Facility (Transport to): *(name & address)*
SOIL SAFE
12328 HIBISCUS AVENUE
ADELANTO, CA 92301

Facility Phone #: (800) 862-8001
Person to Contact: DELLENA JEFFREY
FAX#: (760) 246-8004

Transporter Name and Mailing Address:
BELSHIRE
25971 TOWNE CENTRE DRIVE
FOOTHILL RANCH, CA 92610
BESI: 191993

Transporter's Phone #: 949-460-5200
CAR000183913
Person to Contact: LARRY MOOTHART
450647
FAX#: 949-460-5210
Customer Account Number

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ❑ Organic ❑ Clay ❑ Other ❑	0 - 10% ❑ 10 - 20% ❑ 20% - over ❑	Gas ❑ Diesel ❑ Other ❑	10	soil	45580	40120	5460
Sand ❑ Organic ❑ Clay ❑ Other ❑	0 - 10% ❑ 10 - 20% ❑ 20% - over ❑	Gas ❑ Diesel ❑ Other ❑					273

List any exception to items listed above:
Scale Ticket # 93891

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils descried in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ❑ Consultant ❑
Larry Moothart of BESI on behalf of generator
Signature and date:
Month 5 Day 11 Year 11

Transporter

Transporter's certification: I/We acknowledge receipt of the soil referenced above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that the soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: Dorrell Park. TOM TELFER
Signature and date: DPark Tom Telfer
Month 5 Day 11 Year 11

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above.

Print or Type Name: D. JEFFREY/J. PROVANSAL
Signature and date: 6-29-11

Please print or type.

GENERATOR/CONSULTANTS COPY

NO. 692811

21

NON-HAZARDOUS WASTE DATA FORM

BESI # 191993

GENERATOR

Generator's Name and Mailing Address
TESORO ENVIRONMENTAL RESOURCES COMPANY
3450 S. 344TH WAY, SUITE 201
AUBURN, WA 98001

Generator's Site Address (if different than mailing address)
TESORO 67076 (FORMER)
1619 FIRST ST.
LIVERMORE, CA 94550

Generator's Phone: 253-896-8708

Container type removed from site:
XX ☐ Drums ☐ Vacuum Truck ☐ Roll-off Truck ☐ Dump Truck
☐ Other _____
Quantity 5

Container type transported to receiving facility:
☐ Drums XX ☐ Vacuum Truck ☐ Roll-off Truck ☐ Dump Truck
☐ Other _____
Quantity 1 Volume 275 gallons

WASTE DESCRIPTION: NON-HAZARDOUS WATER
GENERATING PROCESS: WELL PURGING / DECON WATER

COMPONENTS OF WASTE	PPM	%
1. WATER		99-100%
2. TPH		<1%
3.		
4.		

Waste Profile _____ PROPERTIES: pH 7-10 ☐ SOLID XX ☐ LIQUID ☐ SLUDGE ☐ SLURRY ☐ OTHER _____

HANDLING INSTRUCTIONS: WEAR ALL APPROPRIATE PROTECTIVE CLOTHING.

Generator Printed/Typed Name: Larry Moothart of BESI on behalf of generator
Signature:
Month 5 Day 11 Year 11

The Generator certifies that the waste as described is 100% non-hazardous

TRANSPORTER

Transporter 1 Company Name: BELSHIRE
Phone# 949-460-6200

Transporter 1 Printed/Typed Name: Darnell Park
Signature: DPark
Month 5 Day 11 Year 11

Transporter Acknowledgment of Receipt of Materials

Transporter 2 Company Name: NIETO & SONS TRUCKING, INC.
Phone# 714-990-6855

Transporter 2 Printed/Typed Name: Miguel Garcia
Signature:
Month 5 Day 16 Year 11

Transporter Acknowledgment of Receipt of Materials

RECEIVING FACILITY

Designated Facility Name and Site Address
DEMENNO KERDOON
2000 N. ALAMEDA ST.
COMPTON, CA 90222

Phone# 310-537-7100

Printed/Typed Name: Oahn Ca-Suy
Signature:
Month 5 Day 16 Year 11

Designated Facility Owner or Operator: Certification of receipt of materials covered by this data form.