TESORO

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May 14, 2012

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

Subject: **First Quarter 2012 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 253/896-8700 or Matthew Nelson of Arctos Environmental at 562/988-2755 with questions.

Sincerely,

Jeffrey M. Baker, P.E.
Supervisor, Environmental
Compliance & Remediation
Tesoro Environmental Resources Company

Attachments

CC: Arctos – Matthew Nelson

ARCTOS

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15 May 2012
Project No. 01LV

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

Subject: First Quarter 2012 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 first quarter 2012 at the subject site (Figure 1).

Executive Summary

Quarterly groundwater monitoring was conducted on 31 January and 1 February 2012. There was an average 4-foot decrease in water levels since the fourth quarter 2011. In general, petroleum hydrocarbon concentrations decreased in shallow monitoring wells and increased in deep monitoring wells, except for deep well DW-8.

The soil vapor extraction (SVE) system operated at 100 percent uptime. During operation, 650 pounds of petroleum hydrocarbons were removed through volatilization and up to 2,400 pounds of hydrocarbons were estimated to have been degraded by biodegradation. Mass removal by the SVE system improved as water levels decreased and after opening up two additional monitoring wells.

The oxygen injection system operated at 100 percent uptime. The average dissolved oxygen (DO) concentration at the injection wells decreased from 15 milligrams per liter (mg/l) in January and February 2012 to 3.0 mg/l in March 2012. The injection wells were redeveloped in April 2012 to remove fine-grained material that had accumulated in the well casings.

During the second quarter 2012, Tesoro will (1) continue operation of the SVE and oxygen injection systems, (2) continue to monitor groundwater wells in the vicinity of an in situ chemical oxidation pilot test, and (3) install two offsite monitoring wells.

Site Background

The site description and background are included in Arctos's "In Situ Chemical Oxidation (ISCO) Pilot Test Report" dated 16 March 2012 (Arctos, 2012).

Groundwater Monitoring

Arctos's subcontractor, Environmental Field Services, LLC, of Patterson, California, performed quarterly groundwater monitoring from 31 January to 1 February 2012. Samples were collected from wells MW-1 through MW-3, MW-6, MW-11, DW-1 through DW-3, and DW-5 through DW-8 (Figure 2) in accordance with the site monitoring plan (Attachment A). In addition, samples were collected from wells MW-7, IP-1, and IP-8 through IP-10 in accordance with the ISCO pilot test work plan (Arctos, 2011). 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 426 to 435 feet above mean sea level (39 to 43 feet below ground surface [bgs]). Water levels decreased an average of 4 feet compared to the fourth quarter 2011 and were an average of 6 feet below water levels in 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 0.018 (1 foot/55 feet; Figure 2). The gradient is consistent with historical data collected since 1993 (Attachment D).

During the first quarter 2012, the highest total petroleum hydrocarbons as gasoline (TPHg) and benzene concentrations of 67,000 and 2,900 micrograms per liter (µg/l), respectively, were at well IP-8, located downgradient of the underground storage tanks (USTs). The highest methyl tert-butyl ether (MTBE) concentration of 340 µg/l was at well MW-2, located in the northwest portion of the site downgradient of the current dispenser islands.

The highest tert-butyl alcohol (TBA) concentration 1,500 µg/l was at well MW-6, located off site downgradient of the current dispenser islands. TPHg concentrations increased in all deep monitoring wells, except well DW-8, and decreased in all shallow monitoring wells, except well MW-2.

During the first quarter 2012, TPHg, benzene, MTBE, and TBA were detected in the farthest downgradient well DW-7 at concentrations of 7,800, 380, 120, and 300 µg/l, respectively. TPHg, benzene, MTBE, and TBA concentrations increased at well DW-7 compared to fourth quarter 2011 corresponding with decreasing water levels.

During the fourth quarter 2011, Arctos conducted an ISCO pilot test in well IP-9. The oxidant caused an increase in hexavalent chromium concentrations in groundwater in well IP-9. From the fourth quarter 2011 to the first quarter 2012, hexavalent chromium concentrations in well IP-9 decreased from 90 to 79 µg/l.

Groundwater analytical results are summarized in Tables 2 and 3. ISCO pilot test groundwater monitoring results are summarized in Table 4. 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

From 1 to 26 January 2012, the SVE system operated on wells TP-1, TP-2, and VW-2. On 26 January, water levels had decreased and exposed enough screen to turn on well MW-1. Well MW-11, which had been shut down because of the ISCO pilot test, was also opened on 26 January. The SVE wells are described below.

Well	Well Location	Well Diameter (inches)	Screen Interval (feet bgs)
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 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 5 summarizes the laboratory analytical results for influent SVE system samples.

Influent TPHg concentrations ranged from 250 parts per million by volume (ppmv; 14 March) to 800 ppmv (26 January). On 26 January 2012, after opening wells MW-1 and MW-11, influent concentrations increased from 530 to 800 ppmv and the flow rate increased from approximately 30 to 52 standard cubic feet per minute (scfm). During February 2012, water levels decreased to their lowest elevations since the system was started up in June 2010. Water levels began increasing in March 2012 and are expected to continue increasing during the second quarter 2012. During the first quarter 2012, the SVE system operated at an average flow rate of 43 scfm and an average vacuum of 3.5 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 adapted from a U.S. Environmental Protection Agency guidance document (EPA, 1995). SVE influent soil gas analytical results and SVE system parameters used for these calculations are summarized in Tables 5 and 6, respectively. The following is a summary of the operating conditions for the system during the first quarter 2012.

Operation Period	Operating Wells	Operating Time (days)	Average Vacuum (in. Hg)	Average Mass Removal Rate (pounds/day)	Mass Removed[(a)] (pounds)
1/1 to 1/26	VW-2, TP-1, TP-2	25	3.5	4.8	120
1/26 to 3/31	MW-1, MW-11, VW-2, TP-1, TP-2	65	3.5	8.2	530

(a) Mass removed by volatilization only.

During the first quarter 2012, approximately 650 pounds of hydrocarbons were removed by the SVE system through volatilization and up to 2,400 pounds of hydrocarbons were estimated to have been degraded by biodegradation. The equation used to estimate hydrocarbon mass removal by biodegradation was revised during the first quarter 2012, resulting in an increase in the estimate of the total hydrocarbon mass removed to date. The total hydrocarbon mass removed by the SVE system to date is estimated to be 34,720 pounds or approximately 5,340 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 100 percent uptime during the first quarter 2012. The system delivered oxygen to the subsurface in pulsed intervals to increase oxygen levels while decreasing the potential for "pushing" dissolved hydrocarbons away from injection wells. The oxygen purity was approximately 93 percent and the average flow rate was 35 standard cubic feet per hour (scfh).

During the first quarter 2012, oxygen was injected into wells IP-2 through IP-5 for 32 minutes at a time and wells IP-6 and IP-7 for 52 minutes at a time. Wells IP-1 and IP-8 through IP-10 remained shut down because of the ISCO pilot test and will be restarted following an evaluation of the second quarter 2012 groundwater monitoring results. During the first quarter 2012, DO was monitored in the operating injection wells and monitoring wells DW-1, MW-1, MW-2, MW-11, TP-1, TP-2, and VW-2. Average DO was approximately 15 mg/l at the injection wells and approximately 7 mg/l at the monitoring wells located within 10 feet of active injection wells during January and February 2012. Average DO decreased to approximately 3 mg/l at the injection wells and monitoring wells during March 2012. The injection wells were redeveloped during April 2012 to remove fine material that had built up in the casings. DO will continue to be monitored during the second quarter 2012. DO readings are summarized in Table 7.

Well Installation

On 6 April 2012, Arctos submitted a work plan for installation of two offsite, downgradient monitoring wells that was approved in a 16 April 2012 letter from Alameda County Environmental Health. The wells will be installed adjacent to each other and screened in deep and shallow intervals. Arctos will evaluate the field and analytical data and incorporate the results into the next quarterly status report. The report will include the following:

- ☐ Field activities and sampling procedures (including boring/well construction log, development log, sampling log, and a figure showing the well location)
- ☐ Laboratory analytical results presented in tables.

Conclusions

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

1. Mass removal by the SVE system improved as water levels decreased and after opening up wells MW-1 and MW-11. Mass removal rates decreased during March 2012 as water levels increased.

2. Oxygen demand was not met at oxygen injection wells during the quarter due to buildup of fine material in the well casings.

Recommendations

Based on the activities completed during this quarter, Arctos recommends the following tasks during the second quarter of 2012:

- ☐ Continue operation of the SVE and oxygen injection systems
- ☐ Install two downgradient, offsite monitoring wells in accordance with the approved 6 April 2012 work plan
- ☐ Continue to monitor ISCO pilot test groundwater monitoring wells in accordance with the work plan.

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

REGISTERED PROFESSIONAL ENGINEER
MATTHEW J. NELSON
NO. C74689
Exp. 12/31/13
CIVIL
STATE OF CALIFORNIA

Matthew J. Nelson, P.E.
Project Engineer

Michael P. Purchase, P.E.
Principal Engineer

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 – Groundwater Analytical Results – Injection Wells
Table 4 – ISCO Pilot Test General Chemistry Concentrations
Table 5 – SVE Influent Analytical Results
Table 6 – SVE System Parameters
Table 7 – 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 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 – Waste Manifests

References

Arctos Environmental, 2011. *Work Plan for ISCO Pilot Test, 1619 1st Street, Livermore, California, Tesoro No. 67076 (Former Beacon 3604); ACEH Case No. RO0000434*, 9 September.

Arctos Environmental, 2012. *In Situ Chemical Oxidation (ISCO) Pilot Test Report, Tesoro Site No. 67076 (Former Beacon 3604), 1619 1st Street, Livermore, California*, 16 March.

U.S. Environmental Protection Agency, 1995. *Bioventing Principles and Practice, Volume II: Bioventing Design*.

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	2/1/11	32.51	474.21[(c)]	441.70
	4/25/11	27.73		446.48
	8/3/11	31.57		442.64
	10/10/11	33.12		441.09
	1/31/12	36.11		438.10
MW-2	2/1/11	33.40	472.98	439.58
	4/25/11	28.49		444.49
	8/3/11	32.40		440.58
	10/10/11	33.51		439.47
	1/31/12	39.52		433.46
MW-3	2/1/11	32.59	473.37	440.78
	4/25/11	27.60		445.77
	8/3/11	31.69		441.68
	10/10/11	33.96		439.41
	1/31/12	39.05		434.32
MW-4	2/1/11	32.86	473.64	440.78
	4/25/11	28.69		444.95
	8/3/11	32.01		441.63
	10/10/11	34.49		439.15
	1/31/12	38.91		434.73
MW-5	2/1/11	32.77	472.67	439.90
	4/25/11	29.03		443.64
	8/3/11	33.18		439.49
	10/10/11	35.58		437.09
	1/31/12	39.80		432.87
MW-6	2/1/11	35.73	471.93	436.20
	4/25/11	30.72		441.21
	8/3/11	34.95		436.98
	10/10/11	37.45		434.48
	1/31/12	42.15		429.78
MW-7	2/1/11	32.66	472.33	439.67
	4/25/11	27.75		444.58
	8/3/11	31.36		440.97

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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	10/10/11	33.63	472.33	438.70
(cont.)	1/31/12	38.74		433.59
MW-8	2/1/11	34.11	471.18	437.07
	4/25/11	28.72		442.46
	8/3/11	33.09		438.09
	10/10/11	35.69		435.49
	1/31/12	40.08		431.10
MW-9	2/1/11	35.97	470.78	434.81
	4/25/11	30.64		440.14
	8/3/11	35.17		435.61
	10/10/11	37.64		433.14
	1/31/12	42.06		428.72
MW-10	2/1/11	34.63	471.63	437.00
	4/25/11	29.63		442.00
	8/3/11	33.26		438.37
	10/10/11	35.62		436.01
	1/31/12	39.67		431.96
MW-11	2/1/11	32.30	472.96[(c)]	440.66
	4/25/11	27.31		445.65
	8/3/11	31.11		441.85
	10/10/11	33.27		439.69
	1/31/12	34.36		438.60
VW-2	2/1/11	32.80	472.57[(c)]	439.77
	4/25/11	25.43		447.14
	8/3/11	26.82		445.75
	10/10/11	33.29		439.28
	1/31/12	32.19		440.38
VW-3	2/1/11	32.56	474.38	441.82
	4/25/11	27.81		446.57
	8/3/11	28.93		445.45
	10/10/11	33.66		440.72
	1/31/12	DRY[(d)]		--

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	2/1/11	33.01	472.64[(c)]	439.63
	4/25/11	28.23		444.41
	8/3/11	31.85		440.79
	10/10/11	31.60		441.04
	1/31/12	35.43		437.21
TP-2	2/1/11	32.79	472.78[(c)]	439.99
	4/25/11	28.30		444.48
	8/3/11	31.59		441.19
	10/10/11	32.14		440.64
	1/31/12	34.32		438.46
DW-1	2/1/11	32.83	472.85	440.02
	4/25/11	27.96		444.89
	8/3/11	31.96		440.89
	10/10/11	34.40		438.45
	1/31/12	39.39		433.46
DW-2	2/1/11	35.66	471.61	435.95
	4/25/11	30.69		440.92
	8/3/11	35.00		436.61
	10/10/11	37.44		434.17
	1/31/12	42.19		429.42
DW-3	2/1/11	35.50	470.33	434.83
	4/25/11	30.45		439.88
	8/3/11	34.71		435.62
	10/10/11	37.00		433.33
	1/31/12	42.10		428.23
DW-4	2/1/11	35.11	468.48	433.37
	4/25/11	30.12		438.36
	8/3/11	34.54		433.94
	10/10/11	36.60		431.88
	1/31/12	42.10		426.38
DW-5	2/1/11	35.57	471.86	436.29
	4/25/11	30.59		441.27
	8/3/11	34.64		437.22

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	10/10/11	37.00	471.86	434.86
(cont.)	1/31/12	42.31		429.55
DW-6	2/1/11	36.35	471.77	435.42
	4/25/11	31.32		440.45
	8/3/11	35.63		436.14
	10/10/11	38.09		433.68
	1/31/12	42.69		429.08
DW-7	2/1/11	35.76	470.07	434.31
	4/25/11	30.82		439.25
	8/3/11	35.19		434.88
	10/10/11	37.55		432.52
	1/31/12	42.35		427.72
DW-8	4/25/11	27.23	472.31	445.08
	8/3/11	31.14		441.17
	10/10/11	33.41		438.90
	1/31/12	38.69		433.62

(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	2/1/11	200	ND<0.5[b]	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
	8/3/11	1,500	2.0	15	44	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
	10/11/11	2,300	6.0	30	15	64	ND<0.5	ND<0.5	ND<0.5	ND<0.5	10	ND<50	ND<8	ND<0.5	ND<0.5
	1/31/12	1,700	1.6	11	26	89	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<100	ND<0.5	ND<0.5
MW-2	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
	8/4/11	16,000	1,900	200	430	820	660	ND<3	ND<3	5.7	420	ND<1,500	ND<30	ND<3	ND<3
	10/11/11	7,000	810	110	200	430	370	ND<1.5	ND<1.5	3.3	170	ND<250	ND<15	ND<1.5	ND<1.5
	2/1/12	14,000	1,200	130	440	650	340	ND<2.5	ND<2.5	5.4	170	ND<800	ND<25	ND<2.5	ND<2.5
MW-3	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
	8/4/11	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
	10/10/11	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
	1/31/12	ND<50	ND<0.5	0.67	7.1	3.5	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	2/1/11	NS[c]	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
	8/4/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/11/11	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
	1/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-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
	8/4/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/10/11	160	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
	1/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-6	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

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	8/4/11	6,300	600	17	58	16	650	ND<1.5	ND<1.5	7.8	1,000	ND<600	ND<15	ND<1.5	ND<1.5
(cont.)	10/11/11	10,000	1,000	60	160	66	370	ND<2.5	ND<2.5	3.1	860	ND<250	ND<25	ND<2.5	ND<2.5
	1/31/12	5,200	370	6.7	5.1	12	84	ND<0.9	ND<0.9	ND<0.9	1,500	ND<90	ND<10	ND<0.9	ND<0.9
MW-7	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
	8/4/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/10/11	1,900	3.5	1.2	0.79	1.6	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/31/12	1,700	1.5	0.55	6.0	1.1	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-8	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
	8/4/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/10/11	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
	1/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-9	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
	8/4/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/11/11	470	ND<0.5	ND<0.5	ND<0.5	ND<0.5	3.0	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-10	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
	8/4/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/10/11	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
	1/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
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
	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
	8/4/11	15,000	96	370	240	2,800	ND<4	ND<4	ND<4	ND<4	ND<20	ND<400	ND<40	ND<4	ND<4

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	10/25/11	18,000	130	500	319	2,900	ND<0.5	ND<0.5	ND<0.5	ND<0.5	18	ND<50	ND<10	ND<0.5	ND<0.5
(cont.)	2/1/12	13,000	380	710	83	2,400	ND<2.5	ND<2.5	ND<2.5	ND<2.5	ND<15	ND<250	ND<50	ND<2.5	ND<2.5
VW-2	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
	8/4/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/10/11	ND<50	ND<0.5	ND<0.5	ND<0.5	0.51	0.79	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
VW-3	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
	8/4/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/10/11	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
	1/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
TP-1	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
	8/4/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/11/11	2,000	32	4.3	49	220	1,500	ND<3	ND<3	9.7	1,000	ND<800	ND<30	ND<3	ND<3
	1/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
TP-2	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
	8/4/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/11/11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	120	ND<0.5	ND<0.5	ND<0.5	380	ND<50	ND<5	ND<0.5	ND<0.5
	1/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
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
	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
	8/4/11	55	0.57	ND<0.5	0.92	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
	10/11/11	180	3.0	1.0	5.1	10	0.77	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/1/12	2,500	23	6.4	85	190	3.6	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	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
	8/4/11	4,400	420	10	24	13	160	ND<0.5	ND<0.5	2.1	500	ND<100	ND<10	ND<0.5	ND<0.5
	10/11/11	2,700	110	5.0	4.0	11	170	ND<0.5	ND<0.5	1.9	440	ND<100	ND<5	ND<0.5	ND<0.5
	1/31/12	4,400	220	7.0	15	8.9	130	ND<0.5	ND<0.5	1.2	400	ND<50	ND<5	ND<0.5	ND<0.5
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
	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
	8/4/11	310	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
	10/10/11	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
	1/31/12	1,300	1.0	ND<0.5	19	15	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	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
	8/4/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/10/11	ND<50	ND<0.5	0.67	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
	1/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DW-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
	8/4/11	6,100	76	3.7	110	97	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<20	ND<0.5	ND<0.5
	10/10/11	6,800	59	4.7	140	150	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<7	ND<150	ND<15	ND<1.5	ND<1.5
	1/31/12	8,200	130	5.9	170	180	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<7	ND<150	ND<200	ND<1.5	ND<1.5
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
	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
	8/4/11	2,900	4.2	0.95	6.0	4.9	6.5	ND<0.5	ND<0.5	ND<0.5	24	ND<50	ND<8	ND<0.5	ND<0.5
	10/10/11	1,500	4.1	3.3	3.0	3.3	4.9	ND<0.5	ND<0.5	ND<0.5	20	ND<50	ND<5	ND<0.5	ND<0.5
	1/31/12	4,700	13	2.4	51	12	8.1	ND<0.5	ND<0.5	ND<0.5	28	ND<50	ND<80	ND<0.5	ND<0.5
DW-7	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

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	8/4/11	1,400	83	2.5	4.4	5.2	97	ND<0.5	ND<0.5	1.0	160	ND<80	ND<5	ND<0.5	ND<0.5
(cont.)	10/11/11	400	45	1.1	0.80	1.6	90	ND<0.5	ND<0.5	0.89	180	ND<50	ND<5	ND<0.5	ND<0.5
	1/31/12	7,800	380	14	170	59	120	ND<0.5	ND<0.5	1.3	300	ND<150	ND<50	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
	8/4/11	65,000	2,900	8,100	650	10,000	ND<20	ND<20	ND<20	ND<20	ND<90	ND<2,000	ND<200	ND<20	ND<20
	10/25/11	82,000	4,300	10,000	1,900	12,000	ND<4	ND<4	ND<4	ND<4	58	ND<400	ND<40	ND<4	ND<4
	2/1/12	52,000	2,500	5,200	1,900	8,200	ND<9	ND<9	ND<9	ND<9	ND<50	ND<900	ND<90	ND<9	ND<9

(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

GROUNDWATER ANALYTICAL RESULTS - INJECTION WELLS
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)
IP-1	7/23/08	62,000	2,100	6,800	2,700	11,000	16	ND<15[b]	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[c]	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
	2/1/12	15,000	370	350	600	1,300	ND<2	ND<2	ND<2	ND<2	16	ND<200	ND<20	NS[d]	NS
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[c]	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
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[c]	430[e]	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[c]	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[e]	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[c]	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[c]	8,000[e]	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

TABLE 3

GROUNDWATER ANALYTICAL RESULTS - INJECTION WELLS
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)
IP-7	5/5/10[(c)]	33,000	49	62	38	69	14	ND<0.9	ND<0.9	ND<0.9	20	ND<90	ND<9	ND<0.9	ND<0.9
(cont.)	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[(c)]	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
	2/1/12	67,000	2,900	7,300	1,400	11,000	ND<15	ND<15	ND<15	ND<15	ND<70	ND<1,500	ND<150	NS	NS
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[(c)]	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
	2/1/12	19,000	180	1,200	640	3,100	ND<3	ND<3	ND<3	ND<3	ND<15	ND<300	ND<30	NS	NS
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[(c)]	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
	2/1/12	3,200	8.2	4.6	93	2.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<20	NS	NS

(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), 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) Baseline remediation system values.

(d) NS - Not sampled.

(e) Primarily compounds not found in typical Gasoline.

TABLE 4

ISCO PILOT TEST GENERAL CHEMISTRY CONCENTRATIONS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date	Nitrate[a] (mg/l)	Sulfate[a] (mg/l)	Arsenic[b] (mg/l)	Chromium[b] (mg/l)	Iron[b] (mg/l)	Manganese[b] (mg/l)	Sodium[b] (mg/l)	Hex Chrome[c] (µg/l)	Fe(2+)[d] (mg/l)	CO_2[e] (µg/l)	CH_4[e] (µg/l)	Alk[f] (mg/l)	TDS[g] (mg/l)
MW-11	9/20/11	ND<0.1[h]	30	ND<0.015	0.0056	1.8	3.6	67	ND<1	ND<0.1	90,300	36.0	702	840
	10/25/11	ND<0.5	85	ND<0.015	0.011	3.2	2.8	290	ND<1	ND<0.1	60,100	55.1	1,200	1,520
	11/17/11	ND<0.1	170	0.030	0.010	2.9	1.2	740	ND<1	ND<0.15	1,870	6.52	1,630	2,340
	12/14/11	0.12	140	0.021	0.034	9.6	0.84	540	2.6	ND<0.1	29,200	10.1	316	2,270
	2/1/12	ND<0.1	76	0.14	1.6	680	36	470	ND<1	ND<0.1	170[i]	27.4	1,430	1,640
MW-2	12/15/11	ND<0.1	23	ND<0.015	0.026	7.4	2.2	51	ND<1	ND<0.1	64,200	2,040	574	540
	2/1/12	ND<0.1	7.6	0.030	0.18	55	5.9	52	ND<1	ND<0.1	100[i]	3,080	562	655
MW-7	12/15/11	ND<0.1	6.5	ND<0.015	0.32	88	5.4	58	ND<1	ND<0.1	28,100	1,080	433	515
IP-1	9/20/11	ND<0.1	3.9	ND<0.015	ND<0.005	1.3	2.6	34	ND<1	ND<0.1	24,000	474	369	483
	10/25/11	ND<0.5	11	ND<0.015	0.018	2.6	2.4	64	ND<1	ND<0.1	20,600	311	378	557
	11/17/11	ND<0.1	24	0.02	0.012	3.9	3.8	93	ND<1	ND<0.1	34,300	1,180	576	660
	12/15/11	0.20	26	0.015	0.017	5.5	3.3	110	ND<1	0.11	12,800	916	580	620
	2/1/12	ND<0.1	1.2	ND<0.015	ND<0.005	2.0	3.6	73	ND<1	ND<0.1	72[i]	1,130	542	635
IP-8	9/20/11	0.17	10	ND<0.015	ND<0.005	0.54	2.0	35	ND<1	ND<0.1	6,930	49.6	229	350
	10/25/11	ND<0.5	44	ND<0.015	ND<0.005	1.6	3.8	140	ND<1	ND<0.1	12,300	109	692	1,020
	11/17/11	ND<0.1	69	ND<0.015	0.011	3.2	3.3	160	ND<1	ND<0.1	4,470	184	7,950	960
	11/22/11	0.31	34	ND<0.015	0.011	2.9	2.4	81	ND<1	ND<0.1	32,800	1,150	562	715
	12/14/11	0.24	52	ND<0.015	0.023	6.2	3.7	110	ND<1	ND<0.1	11,800	80.6	650	920
	2/1/12	ND<0.1	42	ND<0.015	0.036	11	3.0	110	ND<1	ND<0.1	48[i]	262	688	890
IP-9	9/20/11	ND<0.1	11	ND<0.015	ND<0.005	0.34	1.1	41	ND<1	ND<0.1	10,100	64.6	305	413
	10/25/11	ND<2.5	630	0.24	0.21	50	0.92	4,700	84	ND<0.1	935	7.51	9,770	12,200
	11/17/11	2.5	710	0.16	0.15	34	0.54	8,500	79	ND<0.15	14,500	3.88	18,700	21,300
	11/22/11	ND<0.5	300	0.049	0.017	1.8	0.10	1,500	12	ND<0.1	1,080	302	3,010	3,960
	12/14/11	ND<2	1,400	0.42	0.15	30	0.65	18,000	90	ND<0.1	5,130	5.12	35,100	44,300
	2/1/12	0.76	850	0.56	0.074	9.2	0.14	7,200	79	ND<0.1	ND<5[i]	54.0	14,000	20,400

TABLE 4

ISCO PILOT TEST GENERAL CHEMISTRY CONCENTRATIONS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date	Nitrate[a] (mg/l)	Sulfate[a] (mg/l)	Arsenic[b] (mg/l)	Chromium[b] (mg/l)	Iron[b] (mg/l)	Manganese[b] (mg/l)	Sodium[b] (mg/l)	Hex Chrome[c] (µg/l)	Fe(2+)[d] (mg/l)	CO_2[e] (µg/l)	CH_4[e] (µg/l)	Alk[f] (mg/l)	TDS[g] (mg/l)
IP-10	9/20/11	ND<0.1	26	ND<0.015	ND<0.005	0.46	1.4	48	ND<1	ND<0.1	5,530	39.0	290	483
	10/25/11	ND<0.5	37	ND<0.015	ND<0.005	0.79	4.2	74	ND<1	ND<0.1	15,500	139	390	625
	11/17/11	ND<0.1	34	ND<0.015	0.015	4.2	2.8	96	ND<1	ND<0.1	26,700	711	458	510
	12/14/11	ND<0.1	31	ND<0.015	ND<0.01	3.2	3.5	92	ND<1	ND<0.1	14,000	644	455	640
	2/1/12	ND<0.1	21	ND<0.015	ND<0.005	0.54	2.8	64	ND<1	ND<0.1	36[i]	237	353	505
DW-8	9/20/11	ND<0.1	6.7	ND<0.015	ND<0.005	1.9	2.8	45	ND<1	ND<0.1	27,600	1,110	502	615
	10/25/11	ND<0.5	85	ND<0.015	ND<0.005	1.4	1.2	100	ND<1	ND<0.1	16,000	519	564	780
	11/17/11	ND<0.1	48	ND<0.015	ND<0.005	0.76	1.5	92	ND<1	ND<0.1	19,100	140	591	610
	11/22/11	ND<0.1	24	ND<0.015	0.031	9.1	2.4	64	ND<1	0.16	23,200	1,480	498	560
	12/15/11	ND<0.1	36	ND<0.015	ND<0.005	0.88	2.4	78	ND<1	ND<0.1	19,100	1,210	510	560
	2/1/12	ND<0.1	37	ND<0.015	0.0055	1.9	3.0	90	ND<1	ND<0.1	51[i]	1,170	598	795

(a) Nitrate and sulfate analyzed by EPA Method 300.0; reported in milligrams per liter (mg/l).
(b) Arsenic, chromium, iron, manganese, and sodium analyzed by EPA Method 6010B; reported in mg/l.
(c) Hexavalent chromium (Hex Chrome) analyzed by EPA Method 7199; reported in micrograms per liter (µg/l).
(d) Ferrous Iron (Fe (2+)) analyzed by Standard Method 3500-Fe D; reported in mg/l.
(e) Carbon dioxide (CO_2) and methane (CH_4) analyzed by RSK-175M; reported in µg/l.
(f) Total alkalinity as CaCO3 analyzed by Standard Method 2320B; reported in mg/l.
(g) Total dissolved solids (TDS) analyzed by Standard Method 2540 C; reported in mg/l.
(h) ND - Not detected at the reporting limit listed.
(i) CO_2 analyzed by Standard Method 4500 C; reported in mg/l.

TABLE 5

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	0.91	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	0.093	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	0.091	--	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	0.13	--	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 5

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	0.15	0.13	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	0.082	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	0.12	0.052	0.059	0.15	ND<0.1	ND<0.5	5.3	ND<0.5	15.0	79.7
SVE-Manifold	6/16/11	360	0.19	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	0.20	0.083	0.056	0.18	ND<0.1	ND<0.5	4.8	ND<0.5	15.6	79.6
SVE-Manifold	6/27/11	310	0.22	0.11	ND<0.05	0.18	ND<0.1	ND<0.5	4.7	ND<0.5	16.5	78.9
SVE-Manifold	7/711	130	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.1	ND<0.5	4.5	ND<0.5	18.3	77.2
SVE-Manifold	7/13/11	78	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.1	ND<0.5	4.9	ND<0.5	18.4	76.7
SVE-Manifold	7/27/11	88	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.1	ND<0.5	4.4	ND<0.5	19.0	76.6
SVE-Manifold	8/9/11	87	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.1	ND<0.5	4.2	ND<0.5	19.6	76.2
SVE-Manifold	8/23/11	92	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.1	ND<0.5	4.3	ND<0.5	19.7	76.0
SVE-Manifold	9/1/11	140	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.1	ND<0.5	4.2	ND<0.5	19.5	76.3
SVE-Manifold	9/1/11	310	0.086	0.29	0.14	1.5	ND<0.1	ND<0.5	3.6	ND<0.5	22.9	73.5
SVE-Manifold	9/15/11	310	0.32	1.2	0.16	4.3	ND<0.1	ND<0.5	2.8	ND<0.5	20.1	77.1
SVE-Manifold	9/27/11	360	0.24	0.94	0.16	3.4	ND<0.1	ND<0.5	2.7	ND<0.5	20.3	77.1
SVE-Manifold	10/20/11	130	ND<0.05	0.15	0.085	1.3	0.11	ND<0.5	2.7	ND<0.5	21.8	75.5
SVE-Catox Influent[e]	11/10/11	110	ND<0.05	0.10	ND<0.05	0.83	ND<0.1	ND<0.5	2.7	ND<0.5	21.3	76.1
SVE-Manifold	11/21/11	190	ND<0.05	0.071	ND<0.05	0.75	0.10	ND<0.5	2.7	ND<0.5	20.4	76.9

TABLE 5

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	12/7/11	170	ND<0.05	ND<0.05	ND<0.05	0.42	ND<0.1	ND<0.5	2.5	ND<0.5	20.8	76.7
SVE-Manifold	12/19/11	250	ND<0.05	ND<0.05	ND<0.05	0.57	0.12	ND<0.5	2.6	ND<0.5	21.6	75.7
SVE-Manifold	1/5/12	450	0.082	0.063	0.063	1.1	0.23	ND<0.5	2.5	ND<0.5	21.5	76.0
SVE-Manifold	1/23/12	490	0.074	0.051	0.062	1.0	0.36	ND<0.5	2.0	ND<0.5	22.0	75.9
SVE-Manifold	1/26/12	530	0.067	ND<0.05	0.052	0.87	0.34	ND<0.5	1.8	ND<0.5	21.6	76.7
SVE-Manifold	1/26/12	800	0.78	2.0	0.35	3.6	ND<0.1	ND<0.5	1.6	ND<0.5	22.3	76.1
SVE-Manifold	2/2/12	440	0.90	1.9	0.16	4.4	ND<0.1	ND<0.5	0.99	ND<0.5	22.6	76.4
SVE-Manifold	2/16/12	430	0.29	1.2	0.16	4.0	ND<0.1	ND<0.5	0.93	ND<0.5	22.5	76.5
SVE-Manifold	2/28/12	380	0.11	0.60	0.10	2.7	ND<0.07	ND<0.5	0.96	ND<0.5	22.4	76.6
SVE-Manifold	3/14/12	250	0.056	0.48	0.086	1.8	ND<0.1	ND<0.5	0.82	ND<0.5	22.6	76.6

(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.

(e) SVE manifold influent vapor sample damaged during shipping to lab. Results of total well inlet and recirculation air used for data analysis.

TABLE 6

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 Carbon Dioxide (%)	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	13	0.5	4,700	--	--	1.3	63[b]	110	3.6	117
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	4.0	130
5	7/6/10	175	7	4,000	0.04	69	1.5	63[b]	94	4.3	139
6	7/8/10	200	8	7,500	0.03	73	1.5	63[b]	176	5.3	171
7	7/14/10	343	14	4,200	1.25	90	1.5	81	127	5.5	230
8	7/28/10	625	26	3,000	0.62	68	1.5	59	65	4.0	122
9	8/5/10	793	33	4,800	0.73	68	1.0	65	115	5.3	177
10	8/18/10	985	41	4,300	0.64	71	1.0	60	97	5.2	162
11	9/7/10	1,309	55	1,100	2.05	75	1.6	106	43	4.1	222
12	9/16/10	1,473	61	1,600	0.81	76	1.4	67	40	4.0	136
13	9/29/10	1,628	68	1,800	0.08	89	1.5	21	14	3.6	38
14	10/7/10	1,821	76	2,100	0.26	69	1.5	38	30	3.6	70
15	10/13/10	1,866	78	2,100	0.09	76	3.3	21	16	3.4	36
16	12/8/10	1,912	80	2,500	1.02	53	2.4	74	69	4.7	178
17	12/14/10	2,051	85	1,700	1.45	58	2.1	89	56	4.1	187
18	12/21/10	2,221	93	640	0.78	59	2.1	65	15	2.2	72
19	12/29/10[d]	2,412	101	150	0.35	49	4.1	41	2.3	2.3	48
20	1/12/11	2,748	115	280	--	54	4.2	14[e]	1.5	3.5	26
21	3/4/11	2,922	122	620	--	63	5.9	15	3.5	5.1	40
22	3/9/11	3,040	127	440	--	68	2.4	13	2.1	4.2	28

TABLE 6

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 Carbon Dioxide (%)	Mass Removal Rate (lbs/day)
23	3/30/11	3,539	147	5.2	--	55	2.4	12	0.02	3.3	20
24	4/19/11	4,020	168	38	--	63	2.3	12	0.2	4.6	29
25	4/28/11	4,238	177	150	--	65	2.3	15	0.9	4.8	38
26	5/12/11	4,570	190	280	--	60	2.4	14	1.5	4.7	34
27	5/25/11	4,885	204	330	--	66	2.4	11	1.4	5.1	29
28	6/8/11	5,219	217	340	--	64	2.4	9	1.2	4.5	21
29	6/16/11	5,410	225	370	--	68	2.4	9	1.2	5.3	24
30	6/16/11	5,412	225	360	--	73	4.1	15	2.0	5.3	42
31	6/16/11	5,416	226	370	--	83	4.0	13	1.7	4.8	32
32	6/27/11	5,676	237	310	--	71	4.0	16	1.8	4.7	38
33	7/7/11	5,918	247	130	--	91	4.0	15	0.7	4.5	35
34	7/13/11	6,062	253	78	--	72	4.1	16	0.5	4.9	41
35	7/27/11	6,395	266	88	--	74	4.0	16	0.5	4.4	35
36	8/9/11	6,709	280	87	--	75	4.0	16	0.5	4.2	35
37	8/23/11	7,015	292	92	--	83	4.0	15	0.5	4.3	33
38	9/1/11	7,227	301	140	--	66	4.0	20	1.0	4.2	43
39	9/1/11	7,231	301	310	--	74	3.6	14	1.6	3.6	25
40	9/15/11	7,566	315	310	--	70	3.6	17	2.0	2.8	25
41	9/27/11	7,857	327	360	--	81	3.5	13	1.7	2.7	17
42	10/20/11	8,379	349	130	--	74	3.6	20	1.0	2.7	28
43	11/10/11	8,867	369	110	--	60	3.7	11	0.5	2.7	16
44	11/21/11	9,131	380	190	--	57	3.7	17	1.2	2.7	23
45	12/7/11	9,513	396	170	--	54	3.7	16	1.0	2.5	21

TABLE 6

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 Carbon Dioxide (%)	Mass Removal Rate (lbs/day)
46	12/19/11	9,798	408	250	--	51	3.7	--	--	2.6	26
47	1/5/12	10,208	425	450	--	53	3.6	22	3.6	2.5	28
48	1/23/12	10,638	443	490	--	51	3.4	33	5.9	2.0	34
49	1/26/12	10,710	446	530	--	55	3.6	30	6.0	1.8	27
50	1/26/12	10,711	446	800	--	56	3.6	52	15	1.6	43
51	2/2/12	10,878	453	440	--	52	3.6	51	8.4	1.0	25
52	2/16/12	11,215	467	430	--	56	3.5	54	8.6	0.9	25
53	2/28/12	11,501	479	380	--	56	3.3	54	7.6	1.0	26
54	3/14/12	11,862	494	250	--	60	3.4	51	4.7	0.8	21

(a) "--" - Not sampled, analyzed, or collected.
(b) An average flow rate was used due to inaccurate system parameter readings.
(c) NA - Not applicable.
(d) Only operating on well VW-2 due to high water levels.
(e) Flow measurements taken with a TSI anemometer for better accuracy at low flow rates.

TABLE 7

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	0.0
	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
	7/13/2011	0.01	95.3
	7/22/2011	0.01	94.5
	8/9/2011	0.01	94.5
	9/1/2011	0.05	92.9
	11/29/2011	NM	0.0
	1/5/2012	NM	93.6
	2/2/2012	0.01	91.0
	3/20/2012	0.02	93.0
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

TABLE 7

OXYGEN SYSTEM MONITORING RESULTS
TESORO - LIVERMORE, 67076

Well	Date	Dissolved Oxygen[(a)] (mg/l)	Oxygen Purity[(b)] (%)
IP-2	12/23/2010	0.41	58.1
(cont.)	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
	6/28/2011	25.05	91.3
	6/30/2011	NM	94.3
	7/5/2011	NM	94.5
	7/7/2011	NM	94.2
	7/13/2011	NM	95.3
	7/22/2011	9.31	94.5
	8/9/2011	17.38	94.5
	9/1/2011	24.79	92.9
	11/29/2011	1.14	0.0
	1/5/2012	44.72	93.6
	2/2/2012	36.25	91.0
	3/20/2012	7.40	93.0
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

TABLE 7

OXYGEN SYSTEM MONITORING RESULTS
TESORO - LIVERMORE, 67076

Well	Date	Dissolved Oxygen[(a)] (mg/l)	Oxygen Purity[(b)] (%)
IP-3	6/28/2011	0.96	91.3
(cont.)	6/30/2011	0.67	94.3
	7/5/2011	0.55	94.5
	7/7/2011	1.32	94.2
	7/13/2011	0.26	95.3
	7/22/2011	0.30	94.5
	8/9/2011	0.49	94.5
	9/1/2011	3.63	92.9
	11/29/2011	2.11	0.0
	1/5/2012	11.85	93.6
	2/2/2012	8.91	91.0
	3/20/2012	2.97	93.0
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
	4/8/2011	1.02	49.8
	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
	7/13/2011	NM	95.3
	7/22/2011	9.74	94.5

TABLE 7

OXYGEN SYSTEM MONITORING RESULTS
TESORO - LIVERMORE, 67076

Well	Date	Dissolved Oxygen[(a)] (mg/l)	Oxygen Purity[(b)] (%)
IP-4	8/9/2011	15.48	94.5
(cont.)	9/1/2011	16.45	92.9
	11/29/2011	0.91	0.0
	1/5/2012	15.56	93.6
	2/2/2012	26.26	91.0
	3/20/2012	0.58	93.0
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
	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
	7/13/2011	38.87	95.3
	7/22/2011	31.29	94.5
	8/9/2011	32.78	94.5
	9/1/2011	40.51	92.9
	11/29/2011	13.76	0.0
	1/5/2012	16.42	93.6
	2/2/2012	16.21	91.0
	3/20/2012	4.49	93.0
IP-6	10/15/2010	0.25	NM
	10/18/2010	NM	NM

TABLE 7

OXYGEN SYSTEM MONITORING RESULTS
TESORO - LIVERMORE, 67076

Well	Date	Dissolved Oxygen[(a)] (mg/l)	Oxygen Purity[(b)] (%)
IP-6	10/22/2010	0.27	NM
(cont.)	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
	12/23/2010	12.82	58.1
	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
	7/13/2011	NM	95.3
	7/22/2011	2.69	94.5
	8/9/2011	2.40	94.5
	9/1/2011	2.79	92.9
	11/29/2011	1.17	0.0
	1/5/2012	3.30	93.6
	2/2/2012	2.72	91.0
	3/20/2012	2.43	93.0
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

TABLE 7

OXYGEN SYSTEM MONITORING RESULTS
TESORO - LIVERMORE, 67076

Well	Date	Dissolved Oxygen[(a)] (mg/l)	Oxygen Purity[(b)] (%)
IP-7	2/1/2011	32.69	88.9
(cont.)	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
	7/13/2011	NM	95.3
	7/22/2011	0.15	94.5
	8/9/2011	0.10	94.5
	9/1/2011	0.24	92.9
	11/29/2011	0.74	0.0
	1/5/2012	1.17	93.6
	2/2/2012	0.17	91.0
	3/20/2012	0.12	93.0
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
	11/1/2010	NM	77.7
	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
	6/27/2011	0.01	0
	6/28/2011	21.98	91.3
	6/30/2011	NM	94.3
	7/5/2011	NM	94.5

TABLE 7

OXYGEN SYSTEM MONITORING RESULTS
TESORO - LIVERMORE, 67076

Well	Date	Dissolved Oxygen[(a)] (mg/l)	Oxygen Purity[(b)] (%)
IP-8	7/7/2011	NM	94.2
(cont.)	7/13/2011	NM	95.3
	7/22/2011	11.34	94.5
	8/9/2011	12.88	94.5
	9/1/2011	16.02	92.9
	11/29/2011	NM	0.0
	1/5/2012	NM	93.6
	2/2/2012	26.83	91.0
	3/20/2012	1.94	93.0
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	0.0
	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
	7/5/2011	23.48	94.5
	7/7/2011	22.62	94.2
	7/13/2011	21.37	95.3
	7/22/2011	20.65	94.5
	8/9/2011	16.24	94.5
	9/1/2011	36.38	92.9
	11/29/2011	NM	0.0
	1/5/2012	NM	93.6

TABLE 7

OXYGEN SYSTEM MONITORING RESULTS
TESORO - LIVERMORE, 67076

Well	Date	Dissolved Oxygen[(a)] (mg/l)	Oxygen Purity[(b)] (%)
IP-9	2/2/2012	46.40	91.0
(cont.)	3/20/2012	33.17	93.0
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	0.30	53.3
	12/23/2010	0.04	58.1
	1/5/2011	0.01	52.0
	1/18/2011	0.0	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
	7/13/2011	NM	95.3
	7/22/2011	29.15	94.5
	8/9/2011	11.44	94.5
	9/1/2011	37.28	92.9
	11/29/2011	NM	0.0
	1/5/2012	NM	93.6
	2/2/2012	0.14	91.0
	3/20/2012	0.01	93.0
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

TABLE 7

OXYGEN SYSTEM MONITORING RESULTS
TESORO - LIVERMORE, 67076

Well	Date	Dissolved Oxygen[(a)] (mg/l)	Oxygen Purity[(b)] (%)
MW-1	12/14/2010	0.01	53.3
(cont.)	12/23/2010	0.01	58.1
	1/5/2011	0.0	52.0
	1/18/2011	0.0	0.0
	2/1/2011	0.66	88.9
	3/4/2011	NM	90.4
	4/8/2011	10.53	49.8
	5/3/2011	10.43	88.0
	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
	7/13/2011	11.42	95.3
	7/22/2011	16.04	94.5
	8/9/2011	27.72	94.5
	9/1/2011	32.16	92.9
	11/29/2011	NM	0.0
	1/5/2012	0.97	93.6
	2/2/2012	1.73	91.0
	3/20/2012	0.32	93.0
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	0.0
	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

TABLE 7

OXYGEN SYSTEM MONITORING RESULTS
TESORO - LIVERMORE, 67076

Well	Date	Dissolved Oxygen[(a)] (mg/l)	Oxygen Purity[(b)] (%)
MW-2	6/27/2011	0.02	0.0
(cont.)	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
	7/13/2011	0.04	95.3
	7/22/2011	0.11	94.5
	8/9/2011	1.14	94.5
	9/1/2011	0.24	92.9
	11/29/2011	0.71	0.0
	1/5/2012	1.92	93.6
	2/2/2012	0.17	91.0
	3/20/2012	0.02	93.0
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	0.0
	2/1/2011	1.18	88.9
	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
	7/13/2011	35.42	95.3
	7/22/2011	33.97	94.5
	8/9/2011	34.22	94.5

TABLE 7

OXYGEN SYSTEM MONITORING RESULTS
TESORO - LIVERMORE, 67076

Well	Date	Dissolved Oxygen[(a)] (mg/l)	Oxygen Purity[(b)] (%)
MW-11	9/1/2011	27.88	92.9
(cont.)	11/29/2011	NM	0.0
	1/5/2012	NM	93.6
	2/2/2012	0.04	91.0
	3/20/2012	0.01	93.0
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
	7/13/2011	0.04	95.3
	7/22/2011	0.08	94.5
	8/9/2011	0.46	94.5
	9/1/2011	0.09	92.9
	11/29/2011	0.94	0.0
	1/5/2012	3.25	93.6
	2/2/2012	15.07	91.0
	3/20/2012	0.17	93.0
TP-1	10/15/2010	0.12	NM
	10/18/2010	NM	NM
	10/22/2010	2.11	NM

TABLE 7

OXYGEN SYSTEM MONITORING RESULTS
TESORO - LIVERMORE, 67076

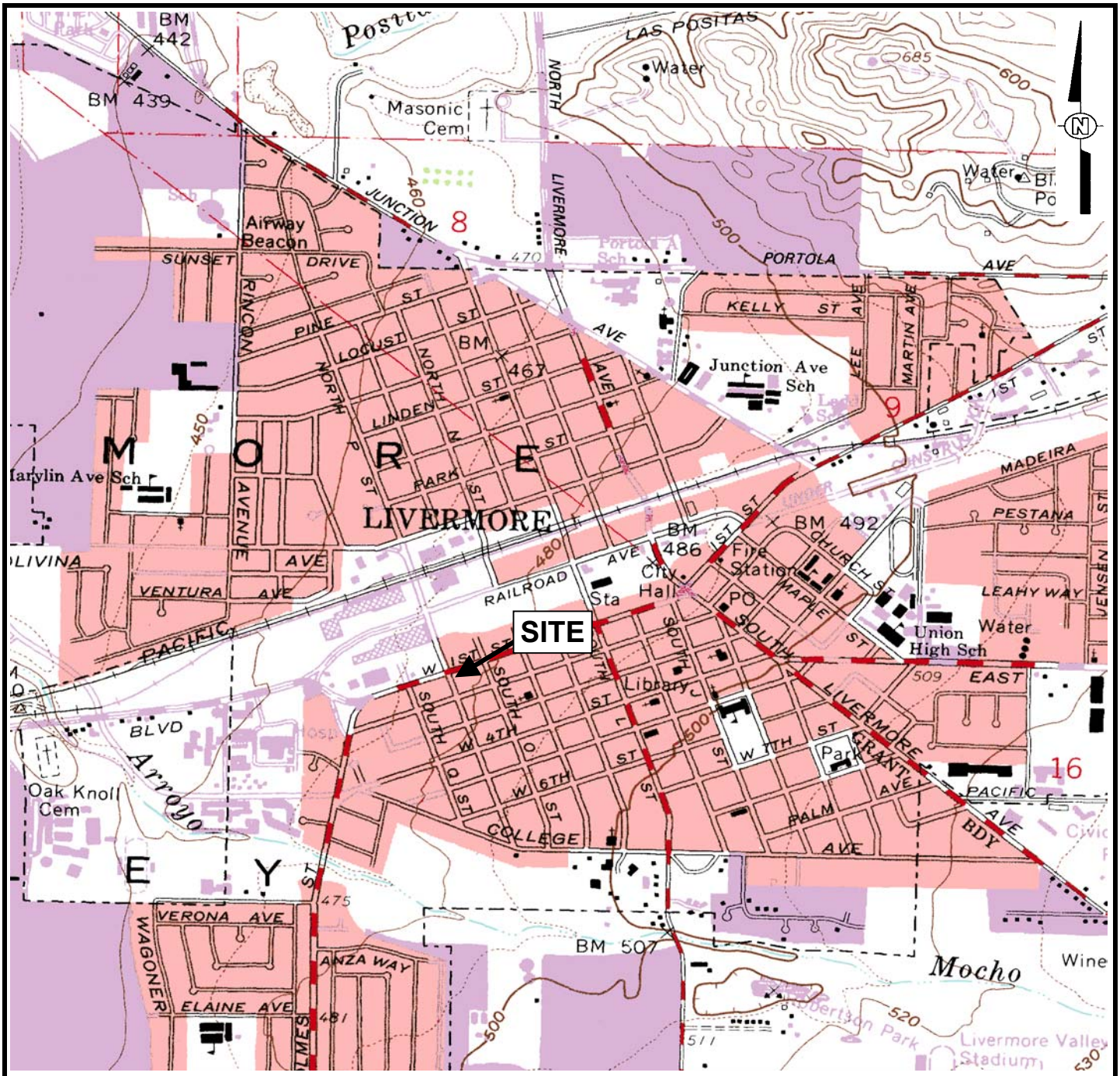
Well	Date	Dissolved Oxygen[(a)] (mg/l)	Oxygen Purity[(b)] (%)
TP-1	10/25/2010	16.11	82.2
(cont.)	11/1/2010	5.15	77.7
	12/9/2010	0.01	51.3
	12/14/2010	0.33	53.3
	12/23/2010	0.16	58.1
	1/5/2011	0.0	52.0
	1/18/2011	0.0	0.0
	2/1/2011	27.22	88.9
	3/4/2011	12.11	90.4
	4/8/2011	15.61	49.8
	5/3/2011	1.25	88.0
	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
	7/13/2011	0.02	95.3
	7/22/2011	11.89	94.5
	8/9/2011	18.19	94.5
	9/1/2011	10.35	92.9
	11/29/2011	0.67	0.0
	1/5/2012	12.64	93.6
	2/2/2012	2.75	91.0
	3/20/2012	0.03	93.0
TP-2	10/15/2010	0.05	NM
	10/18/2010	NM	NM
	10/22/2010	25.44	NM
	10/25/2010	24.90	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	0.0
	2/1/2011	33.44	88.9

TABLE 7

OXYGEN SYSTEM MONITORING RESULTS
TESORO - LIVERMORE, 67076

Well	Date	Dissolved Oxygen[(a)] (mg/l)	Oxygen Purity[(b)] (%)
TP-2	3/4/2011	34.15	90.4
(cont.)	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
	7/13/2011	33.16	95.3
	7/22/2011	33.72	94.5
	8/9/2011	35.64	94.5
	9/1/2011	26.08	92.9
	11/29/2011	0.69	0.0
	1/5/2012	14.77	93.6
	2/2/2012	21.95	91.0
	3/20/2012	16.32	93.0
VW-2	1/5/2012	13.24	93.6
	2/2/2012	5.56	91.0
	3/20/2012	6.11	93.0

(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 31 January 2012
- DW-1 — Deep Groundwater Monitoring Well with Groundwater Elevation (Feet, MSL) Measured 31 January 2012
- IP-1 — Injection Well
- IP-6 △ — Angled Injection Well Screen Location
- VW-2 — Vapor Extraction Well with Groundwater Elevation (Feet, MSL) Measured 31 January 2012
- TP-2 ⊗ — Monitoring Well/Vapor Extraction Well with Groundwater Elevation (Feet, MSL) Measured 31 January 2012
- 427 — Groundwater Elevation Contour
- * — Groundwater Elevation Not Used for Contours
- NM — Groundwater Elevation Not Measured

0 30' 60'
SCALE

REVISION	NO.	BY	DATE	DESCRIPTION
15	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
	13	MY	11/15/11	Third Quarter 2011 Monitoring Report
	14	MY	2/15/12	Fourth Quarter 2011 Monitoring Report
	15	MY	5/15/12	First Quarter 2012 Monitoring Report

ARCTOS ENVIRONMENTAL

TESORO - LIVERMORE

GROUNDWATER ELEVATION CONTOURS

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

FILE NO. 01LV11B-20415.DWG

FIGURE 2

4/19/2012 1:34PM 01LV11B-20415.dwg

Legend

- MW-7 ⊕ Groundwater Monitoring Well with 10, 11 and 25 October 2011 and 31 January and 1 February 2012 Total Petroleum Hydrocarbons as Gasoline (TPHg) Results in µg/L
- DW-1 ⊕ Deep Groundwater Monitoring Well with 10, 11 and 25 October 2011 and 31 January and 1 February 2012 TPHg Results in µg/L
- IP-1 ▲ Injection Well
- IP-6 △ Angled Injection Well Screen Location
- VW-2 ⊞ Vapor Extraction Well with 10, 11 and 25 October 2011 and 31 January and 1 February 2012 TPHg Results in µg/L
- TP-2 ⊗ Monitoring Well/Vapor Extraction Well with 10, 11 and 25 October 2011 and 31 January and 1 February 2012 TPHg Results in µg/L
- 1,000 TPHg Concentration Contour (µg/L), Queried Where Uncertain
- ND Not Detected
- NS Not Sampled
- (2,300/1,700) Previous Quarter/Current Quarter TPHg Results in µg/L

0 30' 60'
SCALE

REVISION	NO.	BY	DATE	DESCRIPTION
15	11	MY	5/13/11	First Quarter 2011 Monitoring Report
	12	MY	8/15/11	Second Quarter 2011 Monitoring Report
	13	MY	11/15/11	Third Quarter 2011 Monitoring Report
	14	MY	2/15/12	Fourth Quarter 2011 Monitoring Report
	15	MY	5/15/12	First Quarter 2012 Monitoring Report

ARCTOS ENVIRONMENTAL

TESORO - LIVERMORE

TPHg CONCENTRATION CONTOURS

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

FILE NO. 01LV11B-20515.DWG

FIGURE 3

4/3/2012 3:58PM 01LV11B-20515.dwg

Legend

MW-7 ⊕ Groundwater Monitoring Well with 10, 11 and 25 October 2011 and 31 January and 1 February 2012 Benzene Results in µg/L

DW-1 ⊕ Deep Groundwater Monitoring Well with 10, 11 and 25 October 2011 and 31 January and 1 February 2012 Benzene Results in µg/L

IP-1 ▲ Injection Well

IP-6 △ Angled Injection Well Screen Location

VW-2 ⊞ Vapor Extraction Well with 10, 11 and 25 October 2011 and 31 January and 1 February 2012 Benzene Results in µg/L

TP-2 ⊗ Monitoring Well/Vapor Extraction Well with 10, 11 and 25 October 2011 and 31 January and 1 February 2012 Benzene Results in µg/L

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

ND Not Detected

NS Not Sampled

(6.0/1.6) Previous Quarter/Current Quarter Benzene Results in µg/L

0 30' 60'
SCALE

REVISION	NO.	BY	DATE	DESCRIPTION
15	11	MY	5/13/11	First Quarter 2011 Monitoring Report
	12	MY	8/15/11	Second Quarter 2011 Monitoring Report
	13	MY	11/15/11	Third Quarter 2011 Monitoring Report
	14	MY	2/15/12	Fourth Quarter 2011 Monitoring Report
	15	MY	5/15/12	First Quarter 2012 Monitoring Report

ARCTOS ENVIRONMENTAL

TESORO - LIVERMORE

BENZENE CONCENTRATION CONTOURS

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

FILE NO. 01LV11B-20615.DWG

FIGURE 4

01LV11B-20615.dwg 3/8/2012 6:36PM

DW-4 (ND<0.5/NS)
DW-7 (90/120)
DW-6 (4.9/8.1)
MW-8 (ND<0.5/NS)
Hollywood Video
100
Safeway Parking Lot
South P Street
MW-9 (3.0/NS)
DW-3 (ND<0.5/ND<0.5)
DW-2 (170/130)
MW-5 (ND<0.5/NS)
TP-2 (120/NS)
MW-4 (ND<0.5/NS)
DW-1 (0.77/3.6)
IP-5
Driveway
MW-3 (ND<0.5/ND<0.5)
DW-5 (ND<1.5/ND<1.5)
MW-6 (370/84)
IP-7△
IP-6△
1,000
Driveway
IP-4
Canopy
Air/Water
MW-2 (370/340)
Dispenser Islands
IP-3
TP-1 (1,500/NS)
VW-2 (0.79/NS)
VW-3 (ND<0.5/NS)
IP-2
IP-1
Driveway
USTs
Station Building
DW-8 (ND<4/ND<9)
Fosters Freeze Restaurant
MW-7 (ND<0.5/ND<0.5)
IP-8
IP-10
MW-11 (ND<0.5/ND<2.5)
IP-9
MW-1 (ND<0.5/ND<0.5)
Residence
Planter
MW-10 (ND<0.5/NS)
1st Street
N

Legend

MW-7 ⊕ Groundwater Monitoring Well with 10, 11 and 25 October 2011 and 31 January and 1 February 2012 Methyl Tert-Butyl Ether (MTBE) Results in µg/L

DW-1 ✚ Deep Groundwater Monitoring Well with 10, 11 and 25 October 2011 and 31 January and 1 February 2012 MTBE Results in µg/L

IP-1 ▲ Injection Well

IP-6 △ Angled Injection Well Screen Location

VW-2 ⊞ Vapor Extraction Well with 10, 11 and 25 October 2011 and 31 January and 1 February 2012 MTBE Results in µg/L

TP-2 ⊗ Monitoring Well/Vapor Extraction Well with 10, 11 and 25 October 2011 and 31 January and 1 February 2012 MTBE Results in µg/L

1,000 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 15

REVISIONS			
NO.	BY	DATE	DESCRIPTION
11	MY	5/13/11	First Quarter 2011 Monitoring Report
12	MY	8/15/11	Second Quarter 2011 Monitoring Report
13	MY	11/15/11	Third Quarter 2011 Monitoring Report
14	MY	2/15/12	Fourth Quarter 2011 Monitoring Report
15	MY	5/15/12	First Quarter 2012 Monitoring Report

ARCTOS ENVIRONMENTAL

TESORO - LIVERMORE

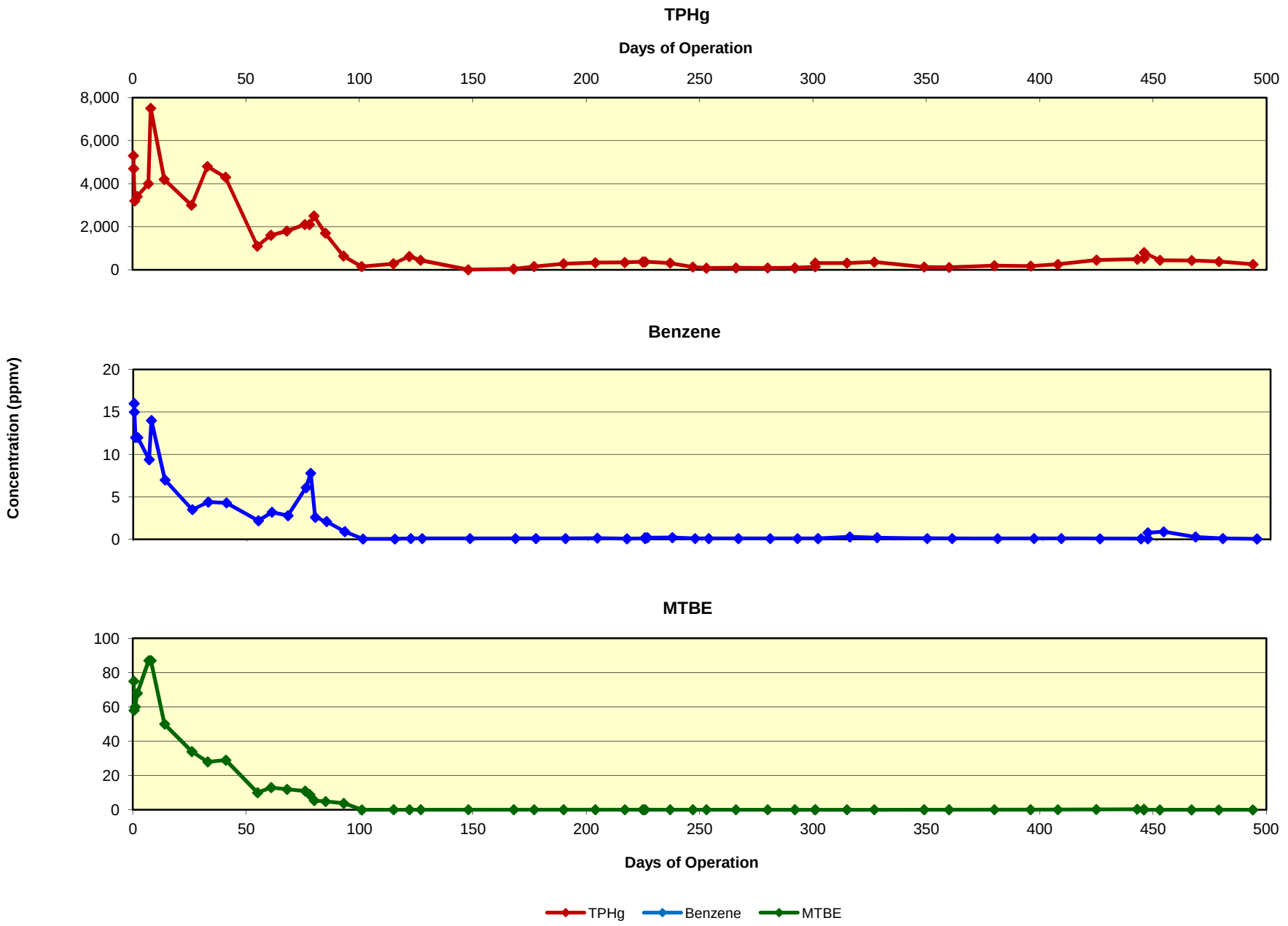
MTBE CONCENTRATION CONTOURS

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

FILE NO. 01LV11B-20715.DWG

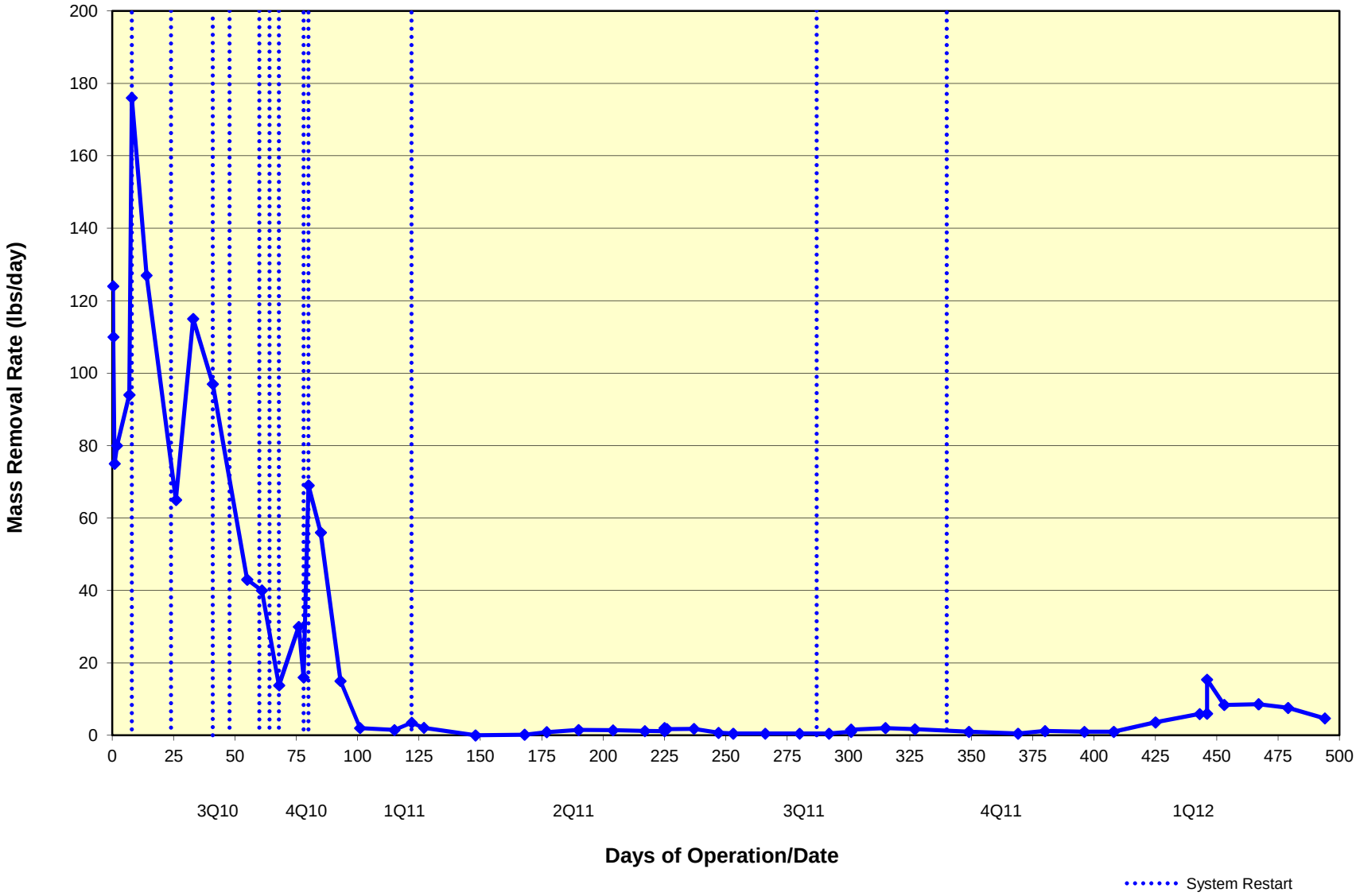
FIGURE 5

01LV11B-20715.dwg 3/8/2012 6:41PM



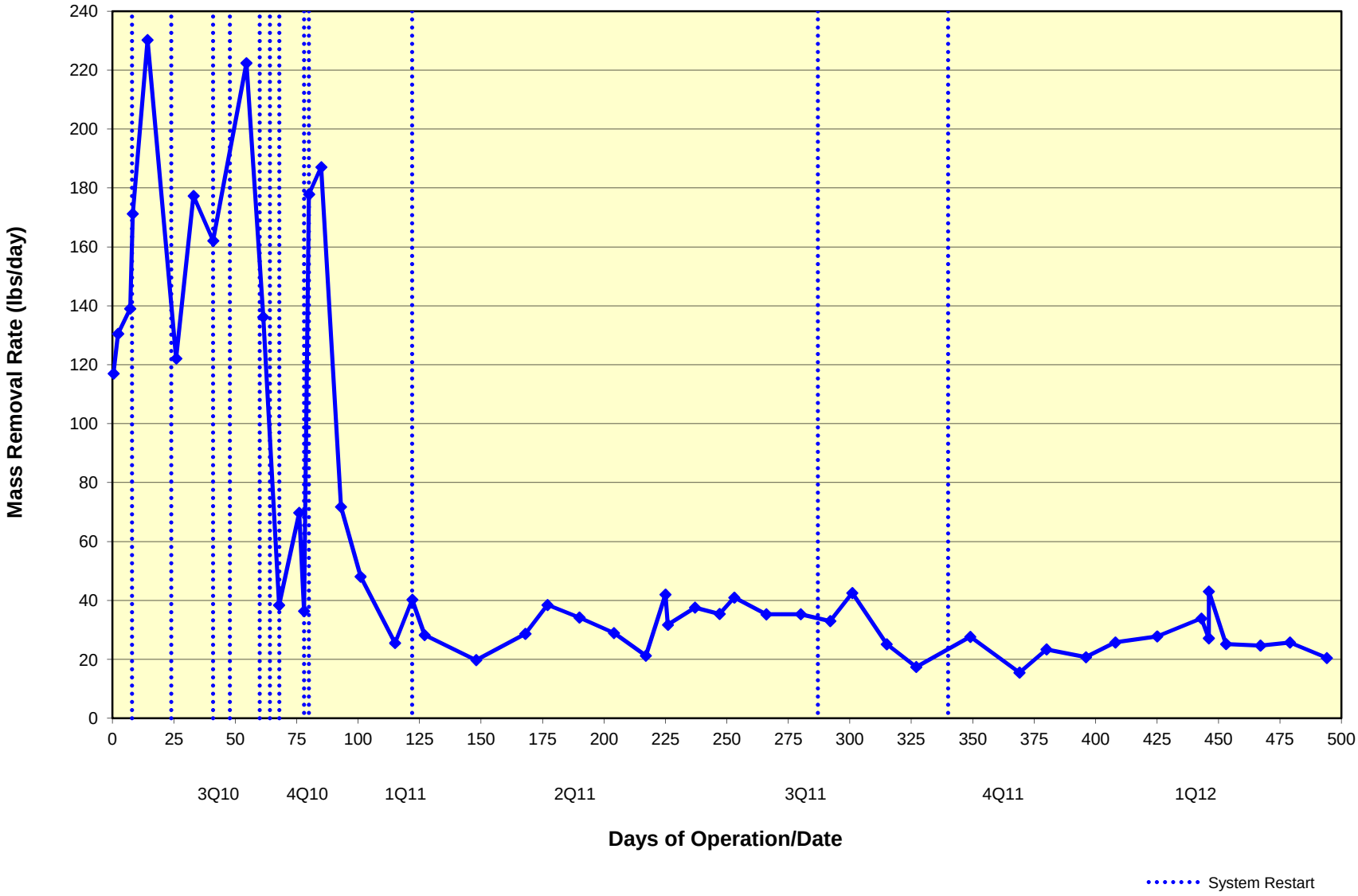
ARCTOS Arctos Environmental	Tesoro - Livermore	SOIL VAPOR INFLUENT CONCENTRATIONS	Figure 6
1Q12 System Graphs.xlsx | 5/15/2012			

HYDROCARBON MASS REMOVED BY VOLATILIZATION = 7,710 lbs



ARCTOS Arctos Environmental	Tesoro - Livermore	MASS REMOVAL BY VOLATILIZATION	Figure 7
1Q12 System Graphs.xlsx | 5/15/2012			

HYDROCARBON MASS REMOVED BY BIODEGRADATION = 27,010 lbs



ARCTOS Arctos Environmental	Tesoro - Livermore	MASS REMOVAL BY BIODEGRADATION	Figure 8
1Q12 System Graphs.xlsx | 5/15/2012			

ATTACHMENT A

GROUNDWATER SAMPLING 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 23 July 2009 letter to Tesoro Environmental Resources Company (Tesoro), Arctos Environmental (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 groundwater remediation system according to the following groundwater monitoring plan:

Well Designation	Location	Sampling Frequency
MW-1 and MW-3	Upgradient	Quarterly
MW-2, MW-11, and DW-1	Source area	
MW-6, DW-2, DW-3, DW-5, DW-6, DW-7, and DW-8	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, a State-certified laboratory in Davis, California, for total petroleum hydrocarbons as gasoline; benzene, toluene, ethylbenzene, and total xylenes; methyl tert-butyl ether; 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 SWRCB. The data were submitted in the State-mandated Electronic Data Format, in accordance with Assembly Bill 2886 requirements for underground storage tank 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 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 quality assurance/quality control (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 (HSP) 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 G.

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 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: 1/31/2012 Project Name: Tesoro #67076 Project Number: 01LV

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

Well ID	Casing Diameter	Total Depth	DTP	DTW	Thickness	Comments
MW-1	4"	54.55	-	36.11	-	
MW-2	4"	54.1	-	39.52	-	
MW-3	4"	52.9	-	39.05	-	
MW-4	2"	46.8	-	38.91	-	not sampled this quarter
MW-5	2"	46.27	-	39.8	-	not sampled this quarter
MW-6	2"	47.65	-	42.15	-	
MW-7	2"	46.8	-	38.74	-	
MW-8	2"	44.5	-	40.08	-	not sampled this quarter
MW-9	2"	44.58	-	42.06	-	not sampled this quarter
MW-10	2"	45.1	-	39.67	-	not sampled this quarter
MW-11	4"	42.85	-	34.36	-	
DW-1	4"	64.75	-	39.39	-	
DW-2	4"	59.84	-	42.19	-	
DW-3	4"	59.74	-	42.1	-	
DW-4	4"	70.04	-	42.1	-	not sampled this quarter
DW-5	4"	59.8	-	42.31	-	
DW-6	4"	60.15	-	42.69	-	
DW-7	4"	65.2	-	42.35	-	
DW-8	4"	64.65		38.69		
TP-1	2"	43.22	-	35.43	-	not sampled this quarter
TP-2	2"	41.21	-	34.32	-	not sampled this quarter
VW-2	2"	36.78	-	32.19	-	not sampled this quarter
VW-3	2"	36.34	-	36.03	Dry-	not sampled this quarter

Field Data Sheet

Date: 1-31-12 Project Name: Tesoro #67076 Project Number: 01LV

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

Well ID	Casing Diameter	Total Depth	DTP	DTW	Thickness	Comments
IP-1	2"	-	-	39.26	-	
IP-8	2"	-	-	39.45	-	
IP-9	2"	-	-	39.37	-	
IP-10	2"	-	-	39.24	-	

Groundwater Sampling Form

Project Name:	Tesoro #67076	Project Number:	01LV
Location:	Livermore, CA	Date:	1/31/12
Well Number:	MW-1	Well Integrity:	Good
Technician:	A.Pantoja	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		-	=		X		0.17	=	
3		-	=		X		0.38	=	
4		54.55		36.11		18.44	0.66		12.17
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 mg/l	pH	Temp.(°C)
0	Int.	10:15	970	0.704	29.2	6.49	6.29	19.58
1	12	10:19	984	0.711	37.8	3.25	6.37	19.72
2	24	10:23	996	0.72	8.4	1.29	6.49	19.7
3	36	10:28	993	0.719	28.4	1.85	6.52	19.54
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	36.11	
(P) After Purging	39.23	
P- 0.8(P-I) =	36.73	80% Recovery
(S) Before Sampling	36.66	
Sampled 80% - 100%	yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	3	HCL
250 ml glass		
250 ml polypropylene		

Sample Date : 1/31/12 Time: 10:39 Turbidity (NTU): 17.6

Sampling Equipment : Disposable Bailer

Calibrate Date: 1/31/12

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	Project Number:	01LV
Location:	Livermore, CA	Date:	2/1/12
Well Number:	MW-2	Well Integrity:	Good
Technician:	A.Pantoja	Ambient Conditions:	rain

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	54.1		39.52		14.58	0.66	9.62
4.5	-	=		X		0.83	=
6	-	=		X		1.5	=

Groundwater Surface Inspection

Floating Product (ft)(in.): None Sheen/Iridescence: Yes 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 mg/l	pH	Temp.(°C)
0	Int.	9:48	1130	0.809	-39	18.45	6.55	20.38
1	10	9:52	1164	0.823	-53.9	10.09	6.42	20.89
2	20	9:56	1214	0.856	-88.6	1.33	6.4	20.92
3	30	10:00	1198	0.846	-103.6	0.31	6.43	20.8
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	39.52	
(P) After Purging	45.21	
P- 0.8(P-I) =	40.65	80% Recovery
(S) Before Sampling	40.36	
Sampled 80% - 100%	yes	

Sample Containers:

	No.	Preservation
250 ml polypropylene		
1 liter(L), poly	1	None
40ml VOA	5	HCL
250 ml glass	1	HN03
250 ml polypropylene	3	None

Sample Date : 2/1/12 Time: 10:20 Turbidity (NTU): 21.3

Sampling Equipment : Disposable Bailer

Calibrate Date: 1/31/12

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	Project Number:	01LV
Location:	Livermore, CA	Date:	1/31/12
Well Number:	MW-3	Well Integrity:	Good
Technician:	A.Pantoja	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	-		=		X		0.17	=	
3	-		=		X		0.38	=	
4		52.9		39.05		13.85	0.66		9.14
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 mg/l	pH	Temp.(°C)
0	Int.	10:56	1073	0.777	66.4	3.56	6.63	19.81
1	9	10:59	1075	0.772	61.3	1.16	6.58	20.01
2	18	11:02	1065	0.765	60.5	0.91	6.57	20.01
3	27	11:06	1047	0.751	59.8	0.79	6.58	20.05
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	39.05	
(P) After Purging	43.16	
P- 0.8(P-I) =	39.87	80% Recovery
(S) Before Sampling	39.52	
Sampled 80% - 100%	yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	3	HCL
250 ml glass		
250 ml polypropylene		

Sample Date : 1/31/12 Time: 11:15 Turbidity (NTU): 13.6

Sampling Equipment : Disposable Bailer

Calibrate Date: 1/31/12

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	Project Number:	01LV
Location:	Livermore, CA	Date:	1/31/12
Well Number:	MW-6	Well Integrity:	Good
Technician:	A.Pantoja	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	47.65	42.15	5.5	0.17	0.93
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 mg/l	pH	Temp.(°C)
0	Int.	15:53	1222	0.875	-96.1	0.85	6.45	20.18
1	1	15:55	1238	0.883	-95.1	0.67	6.4	20.39
2	2	15:58	1248	0.89	-94	0.43	6.39	20.36
3	3	16:01	1247	0.89	-93.9	0.43	6.39	20.39
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	42.15	
(P) After Purging	43.36	
P- 0.8(P-I) =	42.39	80% Recovery
(S) Before Sampling	42.39	
Sampled 80% - 100%	yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	3	HCL
250 ml glass		
250 ml polypropylene		

Sample Date : 1/31/12 Time: 16:08 Turbidity (NTU): 21.3

Sampling Equipment : Disposable Bailer

Calibrate Date: 1/31/12

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	Project Number:	01LV
Location:	Livermore, CA	Date:	1/31/12
Well Number:	MW-7	Well Integrity:	Good
Technician:	A.Pantoja	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	46.8	38.74	8.06	0.17	1.37
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 mg/l	pH	Temp.(°C)
0	Int.	11:36	1091	0.773	-92.1	2.94	6.66	20.68
1	1	11:38	1097	0.778	-95.1	1.83	6.58	20.63
2	2	11:40	1095	0.781	-88.2	1.76	6.57	20.58
3	3	11:43	1102	0.779	-91.3	1.04	6.57	20.82
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	38.74	
(P) After Purging	39.26	
P- 0.8(P-I) =	38.84	80% Recovery
(S) Before Sampling	38.84	
Sampled 80% - 100%	yes	

Sample Containers:

	No.	Preservation
250 ml polypropylene		
1 liter(L), poly	1	None
40ml VOA	5	HCL
250 ml poly	1	HN03
250 ml polypropylene	3	None

Sample Date : 1/31/12 Time: 11:48 Turbidity (NTU): 33.6

Sampling Equipment : Disposable Bailer

Calibrate Date: 1/31/12

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	Project Number:	01LV
Location:	Livermore, CA	Date:	2/1/12
Well Number:	MW-11	Well Integrity:	Good
Technician:	A.Pantoja	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	42.85	=	34.36	X	8.49	0.66	5.6
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 mg/l	pH	Temp.(°C)
0	Int.	8:55	23.67	1.679	-18.3	3.45	6.57	20.45
1	6	8:58	23.58	1.677	-21.4	2.14	6.59	20.45
2	12							
3	18							
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	34.36	
(P) After Purging	42.85 (dry)	
P- 0.8(P-I) =	36.05	80% Recovery
(S) Before Sampling	35.39	
Sampled 80% - 100%	yes	

Sample Containers:

	No.	Preservation
250 ml polypropylene		
1 liter(L), poly	1	None
40ml VOA	5	HCL
250 ml glass	1	HN03
250 ml polypropylene	3	None

Sample Date : 2/1/12 Time: 9:15 Turbidity (NTU): 17.6

Sampling Equipment : Disposable Bailer

Calibrate Date: 1/31/12

Comments:

well dry @ 8 gallons

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, CA	**Date:**	2/1/12
Well Number:	DW-1	**Well Integrity:**	Good
Technician:	A.Pantoja	**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	**64.75**		**39.39**		**25.36**		**0.66**	=	**16.73**
4.5	-	=		X		0.83	=		
6	-	=		X		1.5	=		

Groundwater Surface Inspection

Floating Product (ft)(in.): None **Sheen/Iridescence:** Yes **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 mg/l	pH	Temp.(°C)
0	Int.	7:24	890	0.644	70.5	10.23	6.57	19.87
1	17	7:30	903	0.645	47.4	10.18	6.94	20.25
2	34	7:36	900	0.644	48.4	5.96	6.92	20.25
3	51	7:41	906	0.647	49.2	6.49	6.94	20.3
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	39.39	
(P) After Purging	42.13	
P- 0.8(P-I) =	39.93	80% Recovery
(S) Before Sampling	39.81	
Sampled 80% - 100%	yes	

Sample Containers:

	No.	Preservation
250 ml polypropylene		
1 liter(L), poly		
40ml VOA	3	HCL
250 ml glass		
250 ml polypropylene		

Sample Date : 2/1/12 **Time:** 7:49 **Turbidity (NTU):** 29.6

Sampling Equipment : Disposable Bailer

Calibrate Date: 1/31/12

Comments:

Groundwater Sampling Form

Project Name:	*Tesoro #67076*	*Project Number:*	*01LV*
Location:	Livermore, CA	Date:	1/31/12
Well Number:	DW-2	Well Integrity:	Good
Technician:	A.Pantoja	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	-	=		X		0.17	=		
3	-	=		X		0.38	=		
4	59.84		42.19		17.65	0.66		11.64	
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 mg/l	pH	Temp.(°C)
0	Int.	12:55	1061	0.75	-108.4	7.1	6.73	20.75
1	12	12:59	1062	0.748	-118.6	0.5	6.46	20.93
2	24	13:03	1062	0.749	-122	0.25	6.45	20.9
3	36	13:07	1065	0.75	-123.1	0.18	6.45	20.95
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	42.19	
(P) After Purging	44.62	
P- 0.8(P-I) =	42.67	80% Recovery
(S) Before Sampling	42.66	
Sampled 80% - 100%	yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	3	HCL
250 ml glass		
250 ml polypropylene		

Sample Date : 1/31/12 Time: 13:14 Turbidity (NTU): 13.6

Sampling Equipment : Disposable Bailer

Calibrate Date: 1/31/12

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, CA	**Date:**	1/31/12
Well Number:	DW-3	**Well Integrity:**	Good
Technician:	A.Pantoja	**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	-	=		X		0.17		=	
3	-	=		X		0.38		=	
4	**59.74**		**42.1**		**17.64**		**0.66**		**11.64**
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 mg/l	pH	Temp.(◦C)
0	Int.	12:20	1016	0.709	105.4	0.97	6.77	21.51
1	12	12:24	1018	0.706	-75.5	0.3	6.77	21.67
2	24	12:28	1016	0.705	-81.9	0.24	6.66	21.74
3	36	12:32	1019	0.705	-80.5	0.23	6.65	21.76
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	42.1	
(P) After Purging	44.55	
P- 0.8(P-I) =	42.59	80% Recovery
(S) Before Sampling	42.51	
Sampled 80% - 100%	yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	3	HCL
250 ml glass		
250 ml polypropylene		

Sample Date : 1/31/12 **Time:** 12:42 **Turbidity (NTU):** 16.2

Sampling Equipment : Disposable Bailer

Calibrate Date: 1/31/12

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, CA	**Date:**	1/31/12
Well Number:	DW-5	**Well Integrity:**	Good
Technician:	A.Pantoja	**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	-		=		X		0.17		=	
3	-		=		X		0.38		=	
4		59.8		42.31		17.49		0.66		11.54
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 mg/l	pH	Temp.(°C)
0	Int.	13:42	904	0.637	-83.1	0.83	6.79	20.96
1	12	13:46	913	0.643	-99.3	0.3	6.66	21.07
2	24	13:50	927	0.652	-111.4	0.2	6.59	21.09
3	36	13:54	930	0.653	-114.7	0.17	6.57	21.07
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	42.31	
(P) After Purging	46.15	
P- 0.8(P-I) =	43.07	80% Recovery
(S) Before Sampling	42.91	
Sampled 80% - 100%	yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	3	HCL
250 ml glass		
250 ml polypropylene		

Sample Date : 1/31/12 **Time:** 14:05 **Turbidity (NTU):** 17.3

Sampling Equipment : Disposable Bailer

Calibrate Date: 1/31/12

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	Project Number:	01LV
Location:	Livermore, CA	Date:	1/31/12
Well Number:	DW-6	Well Integrity:	Good
Technician:	A.Pantoja	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	-		=		X		0.17	=	
3	-		=		X		0.38	=	
4		60.15		42.69		17.46	0.66		11.52
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 mg/l	pH	Temp.(°C)
0	Int.	14:20	937	0.666	-101.6	1.44	6.71	20.75
1	12	14:26	961	0.674	-144.1	0.21	6.71	21.18
2	24	14:32	971	0.681	-143.2	0.14	6.53	21.2
3	36	14:38	970	0.68	-140.7	0.12	6.52	21.27
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	42.69	
(P) After Purging	46.21	
P- 0.8(P-I) =	43.39	80% Recovery
(S) Before Sampling	43.38	
Sampled 80% - 100%	yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	3	HCL
250 ml glass		
250 ml polypropylene		

Sample Date : 1/31/12 Time: 14:45 Turbidity (NTU): 19.6

Sampling Equipment : Disposable Bailer

Calibrate Date: 1/31/12

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, CA	**Date:**	1/31/12
Well Number:	DW-7	**Well Integrity:**	Good
Technician:	A.Pantoja	**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	-		=		X		0.17	=
3	-		=		X		0.38	=
4		65.2		42.35		22.85	0.66	15.08
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 mg/l	pH	Temp.(°C)
0	Int.	15:03	1034	0.722	-116.2	0.92	7.04	21.46
1	15	15:09	1000	0.696	-150.1	0.58	6.85	21.6
2	30	15:15	1022	0.71	-121.7	0.26	6.59	21.62
3	45	15:21	1031	0.716	-116.4	0.14	6.5	21.61
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	42.35	
(P) After Purging	46.09	
P- 0.8(P-I) =	43.09	80% Recovery
(S) Before Sampling	42.95	
Sampled 80% - 100%	yes	

Sample Containers:

	No.	Preservation
500 ml polypropylene		
1 liter(L), amber glass		
40ml VOA	3	HCL
250 ml glass		
250 ml polypropylene		

Sample Date : 1/31/12 **Time:** 15:33 **Turbidity (NTU):** 23.1

Sampling Equipment : Disposable Bailer

Calibrate Date: 1/31/12

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, CA	**Date:**	2/1/12
Well Number:	DW-8	**Well Integrity:**	Good
Technician:	A.Pantoja	**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	65		38.69		26.31	0.66		17.36
4.5	-	=		X		0.83	=	
6	-	=		X		1.5	=	

Groundwater Surface Inspection

Floating Product (ft)(in.): None **Sheen/Iridescence:** Yes **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 mg/l	pH	Temp.(◦C)
0	Int.	8:04	1382	0.99	-113.6	1.36	6.7	20.16
1	17	8:10	1337	0.953	-140.7	0.48	6.79	20.4
2	34	8:16	1357	0.966	-138.3	0.29	6.8	20.42
3	51	8:22	1363	0.972	-136.4	0.19	6.8	20.37
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	38.69	
(P) After Purging	42.32	
P- 0.8(P-I) =	39.41	80% Recovery
(S) Before Sampling	38.72	
Sampled 80% - 100%	yes	

Sample Containers:

	No.	Preservation
250 ml polypropylene		
1 liter(L), poly	1	None
40ml VOA	5	HCL
250 ml glass	1	HN03
250 ml polypropylene	3	None

Sample Date : 2/1/12 **Time:** 9:00 **Turbidity (NTU):** 22.3

Sampling Equipment : Disposable Bailer

Calibrate Date: 1/31/12

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	Project Number:	01LV
Location:	Livermore, CA	Date:	2/1/12
Well Number:	IP-1	Well Integrity:	Good
Technician:	A.Pantoja	Ambient Conditions:	rain

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	64.52	39.26	25.26	0.17	4.29
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 mg/l	pH	Temp.(°C)
0	Int.	11:23	1104	0.803	-85.3	2.92	6.59	19.46
1	4	11:25	1127	0.805	-104.3	1.4	6.68	20.22
2	8	11:27	1129	0.804	-110.5	1.19	6.69	20.39
3	12							
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	39.26	
(P) After Purging	64.52 (dry)	
P- 0.8(P-I) =	44.31	80% Recovery
(S) Before Sampling	43.13	
Sampled 80% - 100%	yes	

Sample Containers:

	No.	Preservation
250 ml polypropylene		
1 liter(L), poly	1	None
40ml VOA	5	HCL
250 ml glass	1	HN03
250 ml polypropylene	3	None

Sample Date : 2/1/12 Time: 11:45 Turbidity (NTU): 26.2

Sampling Equipment : Disposable Bailer

Calibrate Date: 1/31/12

Comments:

well dry @ 9 gallons

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, CA	**Date:**	2/1/12
Well Number:	IP-8	**Well Integrity:**	Good
Technician:	A.Pantoja	**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	64.39	-	39.45	=	24.94	X 0.17	= 4.23
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 mg/l	pH	Temp.(°C)
0	Int.	12:20	1238	0.916	-28.3	20.35	6.67	19.41
1	4	12:22	1312	0.943	-22.7	15.11	6.8	20.11
2	8	12:24	1384	0.992	-23.7	9.19	6.86	20.18
3	12	12:26	1394	0.999	-51.6	3.71	6.83	20.18
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	39.45	
(P) After Purging	43.16	
P- 0.8(P-I) =	40.19	80% Recovery
(S) Before Sampling	40.05	
Sampled 80% - 100%	yes	

Sample Containers:

	No.	Preservation
250 ml polypropylene		
1 liter(L), poly	1	None
40ml VOA	5	HCL
250 ml glass	1	HN03
250 ml polypropylene	3	None

Sample Date : 2/1/12 **Time:** 12:35 **Turbidity (NTU):** 16.3

Sampling Equipment : Disposable Bailer

Calibrate Date: 1/31/12

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	Project Number:	01LV
Location:	Livermore, CA	Date:	2/1/12
Well Number:	IP-9	Well Integrity:	Good
Technician:	A.Pantoja	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	64.81	39.37	25.44	0.17	4.32
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 mg/l	pH	Temp.(◦C)
0	Int.	12:57	1753	12.73	4.4	13.64	8.3	19.54
1	4	12:59	1744	12.58	-4.4	16.49	8.3	19.97
2	8	13:01	1809	13.04	-1.2	18.32	8.35	20.07
3	12	13:03	1804	13.19	2.6	17.95	8.38	20.06
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	39.37	
(P) After Purging	44.81	
P- 0.8(P-I) =	40.45	80% Recovery
(S) Before Sampling	40.23	
Sampled 80% - 100%	yes	

Sample Containers:

	No.	Preservation
250 ml polypropylene		
1 liter(L), poly	1	None
40ml VOA	5	HCL
250 ml glass	1	HN03
250 ml polypropylene	3	None

Sample Date : 2/1/12 Time: 13:30 Turbidity (NTU): 21.3

Sampling Equipment : Disposable Bailer

Calibrate Date: 1/31/12

Comments:

Groundwater Sampling Form

Project Name:	Tesoro #67076	**Project Number:**	01LV
Location:	Livermore, CA	**Date:**	2/1/12
Well Number:	IP-10	**Well Integrity:**	Good
Technician:	A.Pantoja	**Ambient Conditions:**	rain

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	62.91	-	39.24	=	23.67	X 0.17	= 4.02
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 mg/l	pH	Temp.(◦C)
0	Int.	10:45	858	0.634	-53.3	1.65	6.94	18.63
1	4	10:48	866	0.634	-74.4	1.61	6.88	19.13
2	8	10:51	869	0.636	-87.3	1.59	6.81	19.15
3	12	10:54	869	0.635	-90.6	1.75	6.82	19.2
4								
5								
6								
7								
8								
9								
10								

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	39.27	
(P) After Purging	40.21	
P- 0.8(P-I) =	39.43	80% Recovery
(S) Before Sampling	39.41	
Sampled 80% - 100%	yes	

Sample Containers:

	No.	Preservation
250 ml polypropylene		
1 liter(L), poly	1	None
40ml VOA	5	HCL
250 ml glass	1	HN03
250 ml polypropylene	3	None

Sample Date : 2/1/12 **Time:** 11:10 **Turbidity (NTU):** 13.2

Sampling Equipment : Disposable Bailer

Calibrate Date: 1/31/12

Comments:

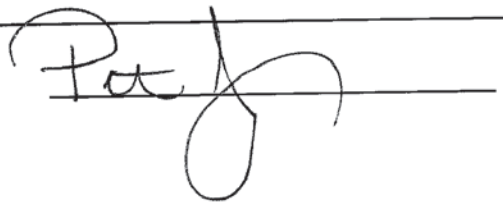
Daily Field Report

Date: January 31 - February 1 2012
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 with a submersible pump, speeds controlled with a ball valve for minimum drawdown. Disposable tubing was used for each well & discarded after each use.
Wells were purged in sampling sequence.
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 each day of sampling.
Purge water was stored in self contained tank & was off loaded to Excel Environmental for disposal daily. A total of 445 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.
MW-4,5,8,9,10, DW-4, TP-1,2, VW-2,3, were not sampled this quarter.

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) flowmeter 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 was maintained.

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

1. Assemble the sample train and check the connections for leaks.
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, a State-certified laboratory in Davis, California, and analyzed for the following parameters:

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

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

Analytical Quality Assurance Quality Control (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
	8/3/11	31.57		442.64
	10/10/11	33.12		441.09
	1/31/12	36.11		438.10
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

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	6/12/97	29.94	472.98	443.04
(cont.)	9/29/97	34.22		438.76
	12/1/97	35.94		437.04
	3/19/98	20.34		452.64
	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

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	1/12/05	29.46	472.98	443.52
(cont.)	5/2/05	25.61		447.37
	7/19/05	30.11		442.87
	11/21/05	32.04		440.94
	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
	8/3/11	32.40		440.58
	10/10/11	33.51		439.47
	1/31/12	39.52		433.46
MW-3	6/1/93	36.18	473.37	437.19
	6/22/93	37.11		436.26

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	10/6/93	41.15	473.37	432.22
(cont.)	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
	2/10/95	29.96		443.41
	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

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	6/30/01	37.54	473.37	435.83
(cont.)	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
	12/3/02	35.62		437.75
	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

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	2/11/09	47.81	473.37	425.56
(cont.)	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
	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
	8/3/11	31.69		441.68
	10/10/11	33.96		439.41
	1/31/12	39.05		434.32
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

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	9/15/98	30.46	473.64	443.18
(cont.)	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
	12/31/00	31.79		441.85
	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

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	5/16/06	24.30	473.64	449.34
(cont.)	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
	7/23/08	43.87		429.77
	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
	8/3/11	32.01		441.63
	10/10/11	34.49		439.15
	1/31/12	38.91		434.73
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

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	12/15/95	28.56	472.67	444.11
(cont.)	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
	1/17/99	29.59		443.08
	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

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	12/23/03	31.38	472.67	441.29
(cont.)	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
	11/8/06	32.22		440.45
	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

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	8/3/11	33.18	472.67	439.49
(cont.)	10/10/11	35.58		437.09
	1/31/12	39.80		432.87
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
	3/7/97	22.13		449.80
	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

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	3/27/01	32.72	471.93	439.21
(cont.)	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
	11/4/04	37.03		434.90
	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		--

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	10/13/08	DRY	471.93	--
(cont.)	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
	8/3/11	34.95		436.98
	10/10/11	37.45		434.48
	1/31/12	42.15		429.78
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
	2/10/95	32.11		440.22
	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

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	5/29/98	22.30	472.33	450.03
(cont.)	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
	12/3/02	36.52		435.81
	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

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	2/9/06	26.15	472.33	446.18
(cont.)	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
	8/2/10	34.31		438.02
	11/2/10	36.68		435.65
	2/1/11	32.66		439.67
	4/25/11	27.75		444.58
	8/3/11	31.36		440.97
	10/10/11	33.63		438.70
	1/31/12	38.74		433.59
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

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	5/2/05	25.91	471.18	445.27
(cont.)	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
	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
	8/3/11	33.09		438.09
	10/10/11	35.69		435.49
	1/31/12	40.08		431.10
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

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	8/4/04	37.47	470.78	433.31
(cont.)	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
	11/2/10	40.30		430.48
	2/1/11	35.97		434.81
	4/25/11	30.64		440.14
	8/3/11	35.17		435.61
	10/10/11	37.64		433.14
	1/31/12	42.06		428.72

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	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
	11/2/10	38.30		433.33
	2/1/11	34.63		437.00
	4/25/11	29.63		442.00

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	8/3/11	33.26	471.63	438.37
(cont.)	10/10/11	35.62		436.01
	1/31/12	39.67		431.96
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
	8/3/11	31.11		441.85
	10/10/11	33.27		439.69
	1/31/12	34.36		438.60
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		--

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	2/14/08	35.55	473.28	437.73
(cont.)	5/8/08	35.31		437.97
	7/23/08	DRY		--
	10/13/08	DRY		--
	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
	8/3/11	26.82		445.75
	10/10/11	33.29		439.28
	1/31/12	32.19		440.38
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		--

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	2/14/08	DRY	474.38	--
(cont.)	5/8/08	34.80		439.58
	7/23/08	DRY		--
	10/13/08	DRY		--
	2/11/09	DRY		--
	4/27/09	DRY		--
	8/4/09	DRY		--
	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
	8/3/11	28.93		445.45
	10/10/11	33.66		440.72
	1/31/12	DRY		--
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		--

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	2/11/09	DRY	472.82	--
(cont.)	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
	2/1/11	33.01		439.63
	4/25/11	28.23		444.41
	8/3/11	31.85		440.79
	10/10/11	31.60		441.04
	1/31/12	35.43		437.21
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

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-2	2/11/10	NM	472.93	--
(cont.)	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
	8/3/11	31.59		441.19
	10/10/11	32.14		440.64
	1/31/12	34.32		438.46
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
	8/4/09	52.22		420.63
	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
	8/3/11	31.96		440.89
	10/10/11	34.40		438.45
	1/31/12	39.39		433.46
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

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-2	12/8/09	42.88	471.61	428.73
(cont.)	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
	8/3/11	35.00		436.61
	10/10/11	37.44		434.17
	1/31/12	42.19		429.42
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
	11/2/10	40.00		430.33
	2/1/11	35.50		434.83
	4/25/11	30.45		439.88
	8/3/11	34.71		435.62
	10/10/11	37.00		433.33
	1/31/12	42.10		428.23
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

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-4	8/4/09	56.46	468.48	412.02
(cont.)	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
	8/3/11	34.54		433.94
	10/10/11	36.60		431.88
	1/31/12	42.10		426.38
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
	8/3/11	34.64		437.22
	10/10/11	37.00		434.86
	1/31/12	42.31		429.55
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
	8/3/11	35.63		436.14
	10/10/11	38.09		433.68
	1/31/12	42.69		429.08

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
	8/3/11	35.19		434.88
	10/10/11	37.55		432.52
	1/31/12	42.35		427.72
DW-8	4/25/11	27.23	472.31	445.08
	8/3/11	31.14		441.17
	10/10/11	33.41		438.90
	1/31/12	38.69		433.62
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	473.06[(c)]	445.09
	1/31/12	39.26		433.80
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	473.06[(c)]	445.02
IP-3	7/23/08	45.47	472.97	427.50
	10/13/08	51.11		421.86

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-3	5/3/10[f]	31.68	472.97	441.29
(cont.)	4/25/11	28.07	473.05[c]	444.98
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	473.10[c]	445.17
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	473.05[c]	445.25
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	472.43[c]	441.83
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	472.43[c]	440.92
IP-8	12/16/08	50.48	473.13	422.65
	5/3/10[f]	33.34		439.79
	4/25/11	28.07	473.22[c]	445.15
	1/31/12	39.45		433.77
IP-9	12/16/08	52.51	473.47	420.96
	5/3/10[f]	31.79		441.68
	4/25/11	27.84	473.35[c]	445.51
	1/31/12	39.37		433.98
IP-10	2/11/09	48.77	473.78	425.01
	5/3/10[f]	32.23		441.55

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	4/25/11	27.79	473.88[(c)]	446.09
(cont.)	1/31/12	39.24		434.64

(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

HISTORICAL 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

HISTORICAL 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

HISTORICAL 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
	8/3/11	1,500	2.0	15	44	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
	10/11/11	2,300	6.0	30	15	64	ND<0.5	ND<0.5	ND<0.5	ND<0.5	10	ND<50	ND<8	ND<0.5	ND<0.5
	1/31/12	1,700	1.6	11	26	89	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<100	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	--	--	--	--	--	--	--	--

TABLE E-1

HISTORICAL 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	3/7/97	13,000	1,800	1,100	270	2,000	ND<250	--	--	--	--	--	--	--	--
(cont.)	6/12/97	68,000	7,800	6,600	2,300	11,000	ND<500	--	--	--	--	--	--	--	--
	9/29/97	15,000	1,500	97	740	1,800	ND<250	--	--	--	--	--	--	--	--
	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

TABLE E-1

HISTORICAL 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	9/9/03	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
(cont.)	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
	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
	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	8.0	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

TABLE E-1

HISTORICAL 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	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
(cont.)	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
	8/4/11	16,000	1,900	200	430	820	660	ND<3	ND<3	5.7	420	ND<1,500	ND<30	ND<3	ND<3
	10/11/11	7,000	810	110	200	430	370	ND<1.5	ND<1.5	3.3	170	ND<250	ND<15	ND<1.5	ND<1.5
	2/1/12	14,000	1,200	130	440	650	340	ND<2.5	ND<2.5	5.4	170	ND<800	ND<25	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	0.50	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

TABLE E-1

HISTORICAL 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	11/8/06	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
(cont.)	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
	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
	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
	8/4/11	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
	10/10/11	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
	1/31/12	ND<50	ND<0.5	0.67	7.1	3.5	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	--	--	--	--	--	--	--	--	--

TABLE E-1

HISTORICAL 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	9/26/95	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
(cont.)	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
	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	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

TABLE E-1

HISTORICAL 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	2/1/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
(cont.)	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
	8/4/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/11/11	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
	1/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
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	--	--	--	--	--	--	--	--	--
	2/10/95	5,200	490	ND<13	23	19	--	--	--	--	--	--	--	--	--
	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	--	--	--	--	--	--	--	--

TABLE E-1

HISTORICAL 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	12/13/99	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
(cont.)	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	--	--	--	--	--	--	--	--
	12/18/01	240	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--
	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

TABLE E-1

HISTORICAL 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	5/16/06	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
(cont.)	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
	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
	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
	8/4/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/10/11	160	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
	1/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
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	--	--	--	--	--	--	--	--	--

TABLE E-1

HISTORICAL 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	2/10/95	63,000	21,000	8,400	2,000	14,000	--	--	--	--	--	--	--	--	--
(cont.)	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	--	--	--	--	--	--	--	--
	9/29/97	34,000	3,500	370	1,600	5,200	ND<100	--	--	--	--	--	--	--	--
	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

TABLE E-1

HISTORICAL 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	12/18/01	43,000	3,800	350	1,900	3,000	900	--	--	--	--	--	--	--	--
(cont.)	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
	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
	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

TABLE E-1

HISTORICAL 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	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
(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
	4/28/09	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
	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
	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
	8/4/11	6,300	600	17	58	16	650	ND<1.5	ND<1.5	7.8	1,000	ND<600	ND<15	ND<1.5	ND<1.5
	10/11/11	10,000	1,000	60	160	66	370	ND<2.5	ND<2.5	3.1	860	ND<250	ND<25	ND<2.5	ND<2.5
	1/31/12	5,200	370	6.7	5.1	12	84	ND<0.9	ND<0.9	ND<0.9	1,500	ND<90	ND<10	ND<0.9	ND<0.9
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	--	--	--	--	--	--	--	--

TABLE E-1

HISTORICAL 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	3/7/97	4,500	35	19	360	470	ND<25	--	--	--	--	--	--	--	--
(cont.)	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	--	--	--	--	--	--	--	--
	3/13/00	1,500	7.5	ND<0.5	6.7	2.9	ND<5	--	--	--	--	--	--	--	--
	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

TABLE E-1

HISTORICAL 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	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
(cont.)	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
	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
	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

TABLE E-1

HISTORICAL 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	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
(cont.)	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
	8/4/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/10/11	1,900	3.5	1.2	0.79	1.6	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/31/12	1,700	1.5	0.55	6.0	1.1	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
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
	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	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

TABLE E-1

HISTORICAL 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	7/23/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
(cont.)	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
	8/4/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/10/11	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
	1/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
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
	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
	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

TABLE E-1

HISTORICAL 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	11/8/06	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
(cont.)	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
	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
	2/2/11	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
	8/4/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/11/11	470	ND<0.5	ND<0.5	ND<0.5	ND<0.5	3.0	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
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

TABLE E-1

HISTORICAL 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	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
(cont.)	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
	8/4/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	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

TABLE E-1

HISTORICAL 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	8/4/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
(cont.)	10/10/11	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
	1/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
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
	8/4/11	15,000	96	370	240	2,800	ND<4	ND<4	ND<4	ND<4	ND<20	ND<400	ND<40	ND<4	ND<4
	10/25/11	18,000	130	500	319	2,900	ND<0.5	ND<0.5	ND<0.5	ND<0.5	18	ND<50	ND<10	ND<0.5	ND<0.5
	2/1/12	13,000	380	710	83	2,400	ND<2.5	ND<2.5	ND<2.5	ND<2.5	ND<15	ND<250	ND<50	ND<2.5	ND<2.5
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
	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
	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

TABLE E-1

HISTORICAL 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	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	--	--
(cont.)	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
	8/4/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/10/11	ND<50	ND<0.5	ND<0.5	ND<0.5	0.51	0.79	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
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
	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

TABLE E-1

HISTORICAL 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	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
(cont.)	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
	8/4/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/10/11	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
	1/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
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

TABLE E-1

HISTORICAL 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	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
(cont.)	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
	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
	8/4/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/11/11	2,000	32	4.3	49	220	1,500	ND<3	ND<3	9.7	1,000	ND<800	ND<30	ND<3	ND<3
	1/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
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

TABLE E-1

HISTORICAL 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	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
(cont.)	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
	11/12/07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	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
	8/4/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/11/11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	120	ND<0.5	ND<0.5	ND<0.5	380	ND<50	ND<5	ND<0.5	ND<0.5
	1/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
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

TABLE E-1

HISTORICAL 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	2/12/10	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
(cont.)	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	0.90	ND<0.5	0.70	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
	8/4/11	55	0.57	ND<0.5	0.92	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
	10/11/11	180	3.0	1.0	5.1	10	0.77	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/1/12	2,500	23	6.4	85	190	3.6	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
	8/4/11	4,400	420	10	24	13	160	ND<0.5	ND<0.5	2.1	500	ND<100	ND<10	ND<0.5	ND<0.5
	10/11/11	2,700	110	5.0	4.0	11	170	ND<0.5	ND<0.5	1.9	440	ND<100	ND<5	ND<0.5	ND<0.5
	1/31/12	4,400	220	7.0	15	8.9	130	ND<0.5	ND<0.5	1.2	400	ND<50	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

TABLE E-1

HISTORICAL 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	2/11/09	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
(cont.)	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
	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
	8/4/11	310	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
	10/10/11	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
	1/31/12	1,300	1.0	ND<0.5	19	15	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	0.50	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	0.70	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
	8/4/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

TABLE E-1

HISTORICAL 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-4	10/10/11	ND<50	ND<0.5	0.67	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.)	1/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
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
	8/4/11	6,100	76	3.7	110	97	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<20	ND<0.5	ND<0.5
	10/10/11	6,800	59	4.7	140	150	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<7	ND<150	ND<15	ND<1.5	ND<1.5
	1/31/12	8,200	130	5.9	170	180	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<7	ND<150	ND<200	ND<1.5	ND<1.5
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
	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
	8/4/11	2,900	4.2	0.95	6.0	4.9	6.5	ND<0.5	ND<0.5	ND<0.5	24	ND<50	ND<8	ND<0.5	ND<0.5
	10/10/11	1,500	4.1	3.3	3.0	3.3	4.9	ND<0.5	ND<0.5	ND<0.5	20	ND<50	ND<5	ND<0.5	ND<0.5
	1/31/12	4,700	13	2.4	51	12	8.1	ND<0.5	ND<0.5	ND<0.5	28	ND<50	ND<80	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

TABLE E-1

HISTORICAL 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-7	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
(cont.)	8/4/11	1,400	83	2.5	4.4	5.2	97	ND<0.5	ND<0.5	0.96	160	ND<80	ND<5	ND<0.5	ND<0.5
	10/11/11	400	45	1.1	0.80	1.6	90	ND<0.5	ND<0.5	0.89	180	ND<50	ND<5	ND<0.5	ND<0.5
	1/31/12	7,800	380	14	170	59	120	ND<0.5	ND<0.5	1.3	300	ND<150	ND<50	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
	8/4/11	65,000	2,900	8,100	650	10,000	ND<20	ND<20	ND<20	ND<20	ND<90	ND<2,000	ND<200	ND<20	ND<20
	10/25/11	82,000	4,300	10,000	1,900	12,000	ND<4	ND<4	ND<4	ND<4	58	ND<400	ND<40	ND<4	ND<4
	2/1/12	52,000	2,500	5,200	1,900	8,200	ND<9	ND<9	ND<9	ND<9	ND<50	ND<900	ND<90	ND<9	ND<9
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	0.80	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
	2/1/12	15,000	370	350	600	1,300	ND<2	ND<2	ND<2	ND<2	16	ND<200	ND<20	NS	NS
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	0.90	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
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

TABLE E-1

HISTORICAL 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	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
(cont.)	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	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
	2/1/12	67,000	2900	7,300	1400	11,000	ND<15	ND<15	ND<15	ND<15	ND<70	ND<1,500	ND<150	NS	NS
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
	2/1/12	19,000	180	1,200	640	3,100	ND<3	ND<3	ND<3	ND<3	ND<15	ND<300	ND<30	NS	NS
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

TABLE E-1

HISTORICAL 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	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
(cont.)	2/1/12	3,200	8.2	4.6	93	2.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<20	NS	NS

(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 : 80205
Date : 02/07/2012

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 and TNI 2009 standards. 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,

Troy G. Turpen

Troy Turpen

KIFF Analytical LLC

Report Number : 80205
Date : 02/07/2012

Subject : 7 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). Please refer to the attached subcontract report for a list of this laboratory's current certifications.

The Method Reporting Limit for Ethanol has been increased due to the presence of an interfering compound for samples MW-1, DW-5 and DW-6.

Matrix Spike/Matrix Spike Duplicate results associated with samples MW-1 and DW-5 for the analyte Ethanol were affected by the analyte concentrations already present in the un-spiked sample.

Matrix Spike/Matrix Spike Duplicate results associated with sample MW-7 for the analyte Nitrate as N were affected by the analyte concentration present in the un-spiked sample.

Matrix Spike/Matrix Spike Duplicate results associated with sample MW-7 for the analyte Sulfate were affected by the analyte concentration present in the un-spiked sample. Recoveries were calculated using data points beyond the calibration range.

Matrix Spike/Matrix Spike Duplicate results associated with sample MW-7 for the analytes Iron, Manganese, and Sodium were affected by the analyte concentrations already present in the un-spiked sample.

KIFF Analytical LLC

Report Number : 80205
Date : 02/07/2012

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

Sample : **MW-1** Matrix : Water Lab Number : 80205-01
Sample Date :01/31/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	**1.6**	0.50	ug/L	EPA 8260B	02/01/12 10:40
Toluene	**11**	0.50	ug/L	EPA 8260B	02/01/12 10:40
Ethylbenzene	**26**	0.50	ug/L	EPA 8260B	02/01/12 10:40
Total Xylenes	**89**	0.50	ug/L	EPA 8260B	02/01/12 10:40
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 10:40
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 10:40
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 10:40
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 10:40
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	02/01/12 10:40
Methanol	< 50	50	ug/L	EPA 8260B	02/01/12 10:40
Ethanol	< 100	100	ug/L	EPA 8260B	02/01/12 10:40
TPH as Gasoline	**1700**	50	ug/L	EPA 8260B	02/01/12 10:40
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 10:40
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 10:40
1,2-Dichloroethane-d4 (Surr)	97.8		% Recovery	EPA 8260B	02/01/12 10:40
Toluene - d8 (Surr)	99.3		% Recovery	EPA 8260B	02/01/12 10:40

KIFF Analytical LLC

Report Number : 80205
Date : 02/07/2012

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

Sample : **MW-3** Matrix : Water Lab Number : 80205-02
Sample Date :01/31/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 10:43
Toluene	**0.67**	0.50	ug/L	EPA 8260B	02/01/12 10:43
Ethylbenzene	**7.1**	0.50	ug/L	EPA 8260B	02/01/12 10:43
Total Xylenes	**3.5**	0.50	ug/L	EPA 8260B	02/01/12 10:43
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 10:43
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 10:43
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 10:43
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 10:43
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	02/01/12 10:43
Methanol	< 50	50	ug/L	EPA 8260B	02/01/12 10:43
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	02/01/12 10:43
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	02/01/12 10:43
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 10:43
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 10:43
1,2-Dichloroethane-d4 (Surr)	102		% Recovery	EPA 8260B	02/01/12 10:43
Toluene - d8 (Surr)	94.7		% Recovery	EPA 8260B	02/01/12 10:43

KIFF Analytical LLC

Report Number : 80205
Date : 02/07/2012

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

Sample : **MW-7** Matrix : Water Lab Number : 80205-03
Sample Date :01/31/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Ferrous Iron	< 0.10	0.10	mg/L	SM 3500-Fe D	02/01/12 11:16
Nitrate as N	< 0.10	0.10	mg/L	EPA 300.0	01/31/12 21:52
Sulfate	**5.1**	0.50	mg/L	EPA 300.0	01/31/12 20:19
Hexavalent Chromium	< 1.0	1.0	ug/L	EPA 7199	02/01/12 11:15
Arsenic	< 0.015	0.015	mg/L	EPA 6010B	02/07/12 11:16
Chromium	**0.065**	0.0050	mg/L	EPA 6010B	02/07/12 11:16
Iron	**19**	0.10	mg/L	EPA 6010B	02/07/12 11:16
Manganese	**3.1**	0.0050	mg/L	EPA 6010B	02/07/12 11:16
Sodium	**61**	0.50	mg/L	EPA 6010B	02/07/12 11:16
Benzene	**1.5**	0.50	ug/L	EPA 8260B	02/01/12 12:49
Toluene	**0.55**	0.50	ug/L	EPA 8260B	02/01/12 12:49
Ethylbenzene	**6.0**	0.50	ug/L	EPA 8260B	02/01/12 12:49
Total Xylenes	**1.1**	0.50	ug/L	EPA 8260B	02/01/12 12:49
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 12:49
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 12:49
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 12:49
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 12:49
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	02/01/12 12:49
Methanol	< 50	50	ug/L	EPA 8260B	02/01/12 12:49
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	02/01/12 12:49
TPH as Gasoline	**1700**	50	ug/L	EPA 8260B	02/01/12 12:49
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 12:49
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 12:49
1,2-Dichloroethane-d4 (Surr)	99.1		% Recovery	EPA 8260B	02/01/12 12:49
Toluene - d8 (Surr)	93.2		% Recovery	EPA 8260B	02/01/12 12:49

KIFF Analytical LLC

Report Number : 80205
Date : 02/07/2012

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

Sample : **DW-3** Matrix : Water Lab Number : 80205-04
Sample Date :01/31/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	**1.0**	0.50	ug/L	EPA 8260B	02/01/12 13:20
Toluene	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 13:20
Ethylbenzene	**19**	0.50	ug/L	EPA 8260B	02/01/12 13:20
Total Xylenes	**15**	0.50	ug/L	EPA 8260B	02/01/12 13:20
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 13:20
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 13:20
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 13:20
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 13:20
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	02/01/12 13:20
Methanol	< 50	50	ug/L	EPA 8260B	02/01/12 13:20
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	02/01/12 13:20
TPH as Gasoline	**1300**	50	ug/L	EPA 8260B	02/01/12 13:20
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 13:20
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 13:20
1,2-Dichloroethane-d4 (Surr)	99.7		% Recovery	EPA 8260B	02/01/12 13:20
Toluene - d8 (Surr)	93.3		% Recovery	EPA 8260B	02/01/12 13:20

KIFF Analytical LLC

Report Number : 80205
Date : 02/07/2012

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

Sample : **DW-2** Matrix : Water Lab Number : 80205-05
Sample Date :01/31/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	**220**	0.50	ug/L	EPA 8260B	02/01/12 13:51
Toluene	**7.0**	0.50	ug/L	EPA 8260B	02/01/12 13:51
Ethylbenzene	**15**	0.50	ug/L	EPA 8260B	02/01/12 13:51
Total Xylenes	**8.9**	0.50	ug/L	EPA 8260B	02/01/12 13:51
Methyl-t-butyl ether (MTBE)	**130**	0.50	ug/L	EPA 8260B	02/01/12 13:51
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 13:51
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 13:51
Tert-amyl methyl ether (TAME)	**1.2**	0.50	ug/L	EPA 8260B	02/01/12 13:51
Tert-Butanol	**400**	5.0	ug/L	EPA 8260B	02/01/12 13:51
Methanol	< 50	50	ug/L	EPA 8260B	02/01/12 13:51
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	02/01/12 13:51
TPH as Gasoline	**4400**	50	ug/L	EPA 8260B	02/01/12 13:51
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 13:51
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 13:51
1,2-Dichloroethane-d4 (Surr)	92.4		% Recovery	EPA 8260B	02/01/12 13:51
Toluene - d8 (Surr)	87.3		% Recovery	EPA 8260B	02/01/12 13:51

KIFF Analytical LLC

Report Number : 80205
Date : 02/07/2012

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

Sample : **DW-5** Matrix : Water Lab Number : 80205-06
Sample Date :01/31/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	**130**	1.5	ug/L	EPA 8260B	02/01/12 16:58
Toluene	**5.9**	1.5	ug/L	EPA 8260B	02/01/12 16:58
Ethylbenzene	**170**	1.5	ug/L	EPA 8260B	02/01/12 16:58
Total Xylenes	**180**	1.5	ug/L	EPA 8260B	02/01/12 16:58
Methyl-t-butyl ether (MTBE)	< 1.5	1.5	ug/L	EPA 8260B	02/01/12 16:58
Diisopropyl ether (DIPE)	< 1.5	1.5	ug/L	EPA 8260B	02/01/12 16:58
Ethyl-t-butyl ether (ETBE)	< 1.5	1.5	ug/L	EPA 8260B	02/01/12 16:58
Tert-amyl methyl ether (TAME)	< 1.5	1.5	ug/L	EPA 8260B	02/01/12 16:58
Tert-Butanol	< 7.0	7.0	ug/L	EPA 8260B	02/01/12 16:58
Methanol	< 150	150	ug/L	EPA 8260B	02/01/12 16:58
Ethanol	< 200	200	ug/L	EPA 8260B	02/01/12 16:58
TPH as Gasoline	**8200**	150	ug/L	EPA 8260B	02/01/12 16:58
1,2-Dichloroethane	< 1.5	1.5	ug/L	EPA 8260B	02/01/12 16:58
1,2-Dibromoethane	< 1.5	1.5	ug/L	EPA 8260B	02/01/12 16:58
1,2-Dichloroethane-d4 (Surr)	95.6		% Recovery	EPA 8260B	02/01/12 16:58
Toluene - d8 (Surr)	96.4		% Recovery	EPA 8260B	02/01/12 16:58

KIFF Analytical LLC

Report Number : 80205
Date : 02/07/2012

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

Sample : **DW-6** Matrix : Water Lab Number : 80205-07
Sample Date :01/31/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	**13**	0.50	ug/L	EPA 8260B	02/01/12 14:23
Toluene	**2.4**	0.50	ug/L	EPA 8260B	02/01/12 14:23
Ethylbenzene	**51**	0.50	ug/L	EPA 8260B	02/01/12 14:23
Total Xylenes	**12**	0.50	ug/L	EPA 8260B	02/01/12 14:23
Methyl-t-butyl ether (MTBE)	**8.1**	0.50	ug/L	EPA 8260B	02/01/12 14:23
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 14:23
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 14:23
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 14:23
Tert-Butanol	**28**	5.0	ug/L	EPA 8260B	02/01/12 14:23
Methanol	< 50	50	ug/L	EPA 8260B	02/01/12 14:23
Ethanol	< 80	80	ug/L	EPA 8260B	02/01/12 14:23
TPH as Gasoline	**4700**	100	ug/L	EPA 8260B	02/02/12 00:55
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 14:23
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	02/01/12 14:23
1,2-Dichloroethane-d4 (Surr)	85.7		% Recovery	EPA 8260B	02/01/12 14:23
Toluene - d8 (Surr)	82.0		% Recovery	EPA 8260B	02/01/12 14:23

Report Number : 80205

Date : 02/07/2012

QC Report : Method Blank Data

Project Name : **Tesoro - Livermore**

Project Number : **01LV**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Arsenic	< 0.015	0.015	mg/L	EPA 6010B	02/07/2012
Chromium	< 0.0050	0.0050	mg/L	EPA 6010B	02/07/2012
Iron	< 0.10	0.10	mg/L	EPA 6010B	02/07/2012
Manganese	< 0.0050	0.0050	mg/L	EPA 6010B	02/07/2012
Sodium	< 0.50	0.50	mg/L	EPA 6010B	02/07/2012
Benzene	< 0.50	0.50	ug/L	EPA 8260B	02/01/2012
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	02/01/2012
Toluene	< 0.50	0.50	ug/L	EPA 8260B	02/01/2012
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	02/01/2012
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	02/01/2012
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	02/01/2012
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	02/01/2012
Methanol	< 50	50	ug/L	EPA 8260B	02/01/2012
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	02/01/2012
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	02/01/2012
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	02/01/2012
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	02/01/2012
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	02/01/2012
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	02/01/2012
1,2-Dichloroethane-d4 (Surr)	100		%	EPA 8260B	02/01/2012
Toluene - d8 (Surr)	95.4		%	EPA 8260B	02/01/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	02/01/2012
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	02/01/2012
Toluene	< 0.50	0.50	ug/L	EPA 8260B	02/01/2012
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	02/01/2012
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	02/01/2012
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	02/01/2012
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	02/01/2012
Methanol	< 50	50	ug/L	EPA 8260B	02/01/2012
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	02/01/2012
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	02/01/2012
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	02/01/2012
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	02/01/2012
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	02/01/2012
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	02/01/2012
1,2-Dichloroethane-d4 (Surr)	98.8		%	EPA 8260B	02/01/2012
Toluene - d8 (Surr)	101		%	EPA 8260B	02/01/2012
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	02/01/2012
Nitrate as N	<0.10	0.10	mg/L	EPA 300.0	01/31/2012
Sulfate	<0.50	0.50	mg/L	EPA 300.0	01/31/2012

KIFF ANALYTICAL, LLC

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

Report Number : 80205

Date : 02/07/2012

QC Report : Method Blank Data

Project Name : **Tesoro - Livermore**

Project Number : **01LV**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Hexavalent Chromium	<1.0	1.0	ug/L	EPA 7199	02/01/2012
Ferrous Iron	<0.10	0.10	mg/L	SM 3500-Fe D	02/01/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed

KIFF ANALYTICAL, LLC

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

Report Number : 80205

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 02/07/2012

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														
	80205-02	<0.50	40.2	40.2	41.6	41.0	ug/L	EPA 8260B	2/1/12	104	102	1.62	80-120	25
1,2-Dichloroethane														
	80205-02	<0.50	40.0	40.0	36.1	35.4	ug/L	EPA 8260B	2/1/12	90.4	88.6	1.97	75.7-122	25
Benzene														
	80205-02	<0.50	40.0	40.0	38.6	37.5	ug/L	EPA 8260B	2/1/12	96.5	93.8	2.83	80-120	25
Diisopropyl ether														
	80205-02	<0.50	39.5	39.5	43.2	42.9	ug/L	EPA 8260B	2/1/12	109	108	0.576	80-120	25
Ethanol														
	80205-02	<5.0	100	100	81.6	89.3	ug/L	EPA 8260B	2/1/12	81.5	89.1	8.91	55.1-159	25
Ethyl-tert-butyl ether														
	80205-02	<0.50	40.0	40.0	45.4	45.3	ug/L	EPA 8260B	2/1/12	114	113	0.332	76.5-120	25
Ethylbenzene														
	80205-02	7.1	40.0	40.0	42.5	40.7	ug/L	EPA 8260B	2/1/12	88.4	83.8	5.23	80-120	25
Methanol														
	80205-02	<50	1000	1000	910	927	ug/L	EPA 8260B	2/1/12	91.1	92.7	1.77	53.2-147	25
Methyl-t-butyl ether														
	80205-02	<0.50	40.4	40.4	48.5	48.8	ug/L	EPA 8260B	2/1/12	120	121	0.485	69.7-121	25
P + M Xylene														
	80205-02	2.5	40.0	40.0	45.0	43.2	ug/L	EPA 8260B	2/1/12	106	102	4.28	76.8-120	25

KIFF ANALYTICAL, LLC

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

Report Number : 80205

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 02/07/2012

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														
	80205-02	<5.0	201	201	199	200	ug/L	EPA 8260B	2/1/12	99.1	99.7	0.634	80-120	25
Tert-amyl-methyl ether														
	80205-02	<0.50	39.4	39.4	42.7	42.7	ug/L	EPA 8260B	2/1/12	108	108	0.0869	78.9-120	25
Toluene														
	80205-02	0.67	40.0	40.0	38.5	37.2	ug/L	EPA 8260B	2/1/12	94.6	91.2	3.66	80-120	25
1,2-Dibromoethane														
	80205-01	<0.50	40.2	40.2	41.9	42.5	ug/L	EPA 8260B	2/1/12	104	106	1.42	80-120	25
1,2-Dichloroethane														
	80205-01	<0.50	40.0	40.0	38.1	38.7	ug/L	EPA 8260B	2/1/12	95.2	96.8	1.62	75.7-122	25
Benzene														
	80205-01	1.6	40.0	40.0	39.8	39.9	ug/L	EPA 8260B	2/1/12	95.5	95.9	0.344	80-120	25
Diisopropyl ether														
	80205-01	<0.50	39.5	39.5	40.5	41.5	ug/L	EPA 8260B	2/1/12	102	105	2.56	80-120	25
Ethanol														
	80205-01	82	100	100	117	123	ug/L	EPA 8260B	2/1/12	**35.0**	**40.6**	15.0	55.1-159	25
Ethyl-tert-butyl ether														
	80205-01	<0.50	40.0	40.0	41.9	42.2	ug/L	EPA 8260B	2/1/12	105	105	0.800	76.5-120	25

KIFF ANALYTICAL, LLC

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

Report Number : 80205

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 02/07/2012

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														
	80205-01	26	40.0	40.0	63.7	62.9	ug/L	EPA 8260B	2/1/12	94.7	92.6	2.22	80-120	25
Methanol														
	80205-01	<50	1000	1000	1010	1040	ug/L	EPA 8260B	2/1/12	101	104	2.79	53.2-147	25
Methyl-t-butyl ether														
	80205-01	<0.50	40.4	40.4	42.4	43.3	ug/L	EPA 8260B	2/1/12	105	107	2.05	69.7-121	25
P + M Xylene														
	80205-01	66	40.0	40.0	105	104	ug/L	EPA 8260B	2/1/12	96.6	92.9	3.91	76.8-120	25
Tert-Butanol														
	80205-01	<5.0	201	201	195	199	ug/L	EPA 8260B	2/1/12	96.9	99.2	2.32	80-120	25
Tert-amyl-methyl ether														
	80205-01	<0.50	39.4	39.4	41.3	42.0	ug/L	EPA 8260B	2/1/12	105	106	1.74	78.9-120	25
Toluene														
	80205-01	11	40.0	40.0	49.5	49.4	ug/L	EPA 8260B	2/1/12	95.0	94.8	0.172	80-120	25
Toluene														
	80210-01	<0.50	40.0	40.0	39.7	37.9	ug/L	EPA 8260B	2/1/12	99.3	94.7	4.72	80-120	25
Nitrate as N														
	80107-01	3.2	0.500	0.500	3.78	3.59	mg/L	EPA 300.0	1/31/12	**124**	86.7	5.12	85.0-115	10

KIFF ANALYTICAL, LLC

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

Report Number : 80205

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 02/07/2012

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
Sulfate														
	80107-01	68	2.50	2.50	69.5	68.7	mg/L	EPA 300.0	1/31/12	**76.0**	**45.1**	1.12	85.0-115	10
Hexavalent Chromium														
	80206-01	12	5.00	5.00	17.4	17.4	ug/L	EPA 7199	2/1/12	109	109	0.113	90.0-110	10
Ferrous Iron														
	80205-03	< 0.10	0.251	0.251	0.291	0.279	mg/L	SM 3500-Fe D	2/1/12	102	97.4	4.21	70.0-130	25
Arsenic														
	80221-04	< 0.015	0.400	0.400	0.426	0.421	mg/L	EPA 6010B	2/7/12	105	104	1.06	75-125	20
Chromium														
	80221-04	0.0055	0.400	0.400	0.407	0.405	mg/L	EPA 6010B	2/7/12	100	99.8	0.468	75-125	20
Iron														
	80221-04	1.9	0.400	0.400	2.17	2.19	mg/L	EPA 6010B	2/7/12	**69.2**	**73.2**	0.734	75-125	20
Manganese														
	80221-04	3.0	0.400	0.400	3.28	3.44	mg/L	EPA 6010B	2/7/12	**62.2**	100	4.55	75-125	20
Sodium														
	80221-04	90	0.400	0.400	89.1	92.8	mg/L	EPA 6010B	2/7/12	**0.00**	**582**	4.02	75-125	20

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
Arsenic	0.400	mg/L	EPA 6010B	2/7/12	98.9	85-115
Chromium	0.400	mg/L	EPA 6010B	2/7/12	99.3	85-115
Iron	0.400	mg/L	EPA 6010B	2/7/12	91.8	85-115
Manganese	0.400	mg/L	EPA 6010B	2/7/12	95.0	85-115
Sodium	0.400	mg/L	EPA 6010B	2/7/12	95.2	85-115
1,2-Dibromoethane	40.2	ug/L	EPA 8260B	2/1/12	101	80-120
1,2-Dichloroethane	40.0	ug/L	EPA 8260B	2/1/12	90.0	75.7-122
Benzene	40.0	ug/L	EPA 8260B	2/1/12	96.5	80-120
Diisopropyl ether	39.5	ug/L	EPA 8260B	2/1/12	109	80-120
Ethanol	100	ug/L	EPA 8260B	2/1/12	87.7	55.1-159
Ethyl-tert-butyl ether	40.0	ug/L	EPA 8260B	2/1/12	111	76.5-120
Ethylbenzene	40.0	ug/L	EPA 8260B	2/1/12	103	80-120
Methanol	1000	ug/L	EPA 8260B	2/1/12	94.5	53.2-147
Methyl-t-butyl ether	40.4	ug/L	EPA 8260B	2/1/12	117	69.7-121
P + M Xylene	40.0	ug/L	EPA 8260B	2/1/12	105	76.8-120
TPH as Gasoline	502	ug/L	EPA 8260B	2/1/12	94.3	70.0-130
Tert-Butanol	201	ug/L	EPA 8260B	2/1/12	100	80-120
Tert-amyl-methyl ether	39.4	ug/L	EPA 8260B	2/1/12	106	78.9-120
Toluene	40.0	ug/L	EPA 8260B	2/1/12	94.8	80-120
1,2-Dibromoethane	40.3	ug/L	EPA 8260B	2/1/12	108	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
1,2-Dichloroethane	40.1	ug/L	EPA 8260B	2/1/12	98.9	75.7-122
Benzene	40.1	ug/L	EPA 8260B	2/1/12	99.0	80-120
Diisopropyl ether	39.6	ug/L	EPA 8260B	2/1/12	108	80-120
Ethanol	100	ug/L	EPA 8260B	2/1/12	104	55.1-159
Ethyl-tert-butyl ether	40.1	ug/L	EPA 8260B	2/1/12	109	76.5-120
Ethylbenzene	40.1	ug/L	EPA 8260B	2/1/12	95.1	80-120
Methanol	1000	ug/L	EPA 8260B	2/1/12	98.5	53.2-147
Methyl-t-butyl ether	40.5	ug/L	EPA 8260B	2/1/12	110	69.7-121
P + M Xylene	40.1	ug/L	EPA 8260B	2/1/12	97.8	76.8-120
TPH as Gasoline	501	ug/L	EPA 8260B	2/1/12	95.5	70.0-130
Tert-Butanol	202	ug/L	EPA 8260B	2/1/12	97.2	80-120
Tert-amyl-methyl ether	39.5	ug/L	EPA 8260B	2/1/12	110	78.9-120
Toluene	40.1	ug/L	EPA 8260B	2/1/12	99.2	80-120
TPH as Gasoline	502	ug/L	EPA 8260B	2/1/12	97.2	70.0-130
Nitrate as N	0.500	mg/L	EPA 300.0	1/31/12	97.0	85.0-115
Sulfate	2.50	mg/L	EPA 300.0	1/31/12	103	85.0-115
Hexavalent Chromium	5.00	ug/L	EPA 7199	2/1/12	100	90.0-110
Ferrous Iron	0.251	mg/L	SM 3500-Fe D	2/1/12	98.2	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. 80205

Page __ of __

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 East Spring Street, Suite 212, Long Beach, CA 90806	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 #: 01LV / P.O. #:	Bill to: Jeff Baker
Project Name: Tesoro - Livermore	Sampler Signature: ALBARO PANTOJA
Project Address: 1619 1st Street, Livermore, CA	

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

Sample Designation	Date	Time	Container: 40 ml VOA	Sleeve	Poly	Glass	Tedlar	Preservative: HCl	HNO_3	None	H_2SO_4	Matrix: Water	Soil	Air	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)	TCE & PCE (EPA 8260B)	Ferrous iron (SM 3500-Fe-D)	Nitrate & Sulfate (EPA 300.0)	Total Alkalinity (SM 2320B)	Total Dissolved Solids (SM 2540C)	Methane and Carbone Dioxide by RSK 175M	Hexavalent Chromium (EPA 7199)	Total Metals bye EPA 6010 (As, Cr, Fe, Mn, Na)	TAT	For Lab Use Only
MW-1	1-31-12	1039	3					3				X			X	X	X	X									Stnd.	01
MW-3	1-31-12	1115	3					3				X			X	X	X	X									Stnd.	02
MW-7	1-31-12	1148	5		5			5	1	4		X			X	X	X	X		X	X	X	X	X	X	X	Stnd.	03
DW-3	1-31-12	1242	3					3				X			X	X	X	X									Stnd.	04
DW-2	1-31-12	1314	3					3				X			X	X	X	X									Stnd.	05
DW-5	1-31-12	1405	3					3				X			X	X	X	X									Stnd.	06
DW-6	1-31-12	1445	3					3				X			X	X	X	X									Stnd.	07
~~DW-7~~			3					3				X			X	X	X	X									Stnd.	
~~MW-8~~			3					3				X			X	X	X	X									Stnd.	
~~DW-1~~			3					3				X			X	X	X	X									Stnd.	

Relinquished by: ALBARO PANTOJA	Date 01-31-12	Time 3:15	Received by:	Remarks:
Relinquished by:	Date	Time	Received by:	
Relinquished by:	Date 013112	Time 1525	Received by Laboratory: Kiff Analytical LLC	

For Lab Use Only: Sample Receipt

Temp °C	Initials	Date	Time	Therm. ID #	Coolant Present
					Yes / No

Distribution: White - Lab; Pink - Originator
Rev: 031306

Page 8 of 19

KIFF Analytical LLC

SAMPLE RECEIPT CHECKLIST

RECEIVER: TJB (Initials)

SRG#: 80205 Date: 013112

Project ID: Tesoro - Livermore

Method of Receipt: [X] Courier [ ] Over-the-counter [ ] Shipper

COC Inspection

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

Sample Inspection

Coolant Present: [X] Yes [ ] No (includes water)

Temperature °C 4.7 Therm. ID# IR-4 Initial TJB Date/Time 013112/1730 [ ] N/A

Are there custody seals on sample containers?	[ ] Intact	[ ] Broken	[X] Not present	
Do containers match COC? [X] 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	[X] No		
Are any sample containers broken, leaking or damaged?	[ ] Yes	[X] No		
Are preservatives indicated? [ ] Yes, on sample containers	[X] Yes, on COC	[ ] Not indicated	[ ] N/A	
Are preservatives correct for analyses requested?	[X] Yes	[ ] No	[ ] N/A	
Are samples within holding time for analyses requested?	[X] Yes	[ ] No		
Are the correct sample containers used for the analyses requested?	[X] Yes	[ ] No		
Is there sufficient sample to perform testing?	[X] Yes	[ ] No		

Does any sample contain product, have strong odor or are otherwise suspected to be hot? [ ] Yes [X] No

Receipt Details

Matrix WA	Container type VOA	# of containers received 23
Matrix WA	Container type Poly	# of containers received 5
Matrix	Container type	# of containers received

Date and Time Sample Put into Temp Storage Date: 013112 Time: 1736

Quicklog

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

February 06, 2012

CLS Work Order #: CVB0121
COC #: 80205

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 02/03/12 10:22. 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 #: CVB0121
COC #: 80205

CVB0121

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. 80205 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.: 80205
Deliverables to (Email Address): inbox@kiffanalytical.com
Project Name: Tesoro - Livermore
Project Address:

Sample Designation	Sampling Date	Sampling Time	Container / Preservative: 250ml Poly None	Matrix: Water	Analysis Request: Carbon Dioxide	TAT: 72 hour TAT: Due 2/7/12	For Lab Use Only
MW-7	01/31/12	11:48	1	X	X	X	

Relinquished by: Kiff Analytical	Date: 020312	Time: 1022	Received by:	Remarks:
Relinquished by:	Date:	Time:	Received by:	
Relinquished by:	Date: 2/3/12	Time: 1022	Received by Laboratory: 2.3°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 #: CVB0121
COC #: 80205

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-7 (CVB0121-01) Water	**Sampled: 01/31/12 11:48**	**Received: 02/03/12 10:22**							
Carbon Dioxide as CO2	**62**	5.0	mg/L	1	CV00725	02/03/12	02/03/12	SM 4500C	

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

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

CLS Work Order #: CVB0121
COC #: 80205

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 CV00725 - General Preparation										
Blank (CV00725-BLK1)				Prepared & Analyzed: 02/03/12						
Carbon Dioxide as CO2	ND	5.0	mg/L							

CALIFORNIA LABORATORY SERVICES

02/06/12 08:40

KIFF Analytical	Project: Tesoro Livermore	
2795 Second St. Suite 300	Project Number: 01LV	**CLS Work Order #: CVB0121**
Davis, CA 95616	Project Manager: Scott Forbes	COC #: 80205

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.

CALSCIENCE

WORK ORDER NUMBER: 12-02-0009

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Kiff Analytical

Client Project Name: Tesoro - Livermore

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

Amanda Porter

Approved for release on 02/8/2012 by:
Amanda Porter
Project Manager

ResultLink

Email your PM

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 analyses, 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. Note that the Chain-of-Custody Record and Sample Receipt Form are integral parts of this report.

Calscience Environmental Laboratories, Inc.

Contents

Client Project Name: Tesoro - Livermore
Work Order Number: 12-02-0009

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

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

Date Received: 02/01/12
Work Order No: 12-02-0009
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-7	**12-02-0009-1-A**	**01/31/12 11:48**	**Aqueous**	**GC 33**	**N/A**	**02/02/12 23:39**	**120202L01**

Parameter	Result	RL	DF	Qual	Units
Methane	1930	20.0	20		ug/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-663-1,501**	**N/A**	**Aqueous**	**GC 33**	**N/A**	**02/02/12 12:27**	**120202L01**

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

Return to Contents

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

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

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

Date Received: 02/01/12
Work Order No: 12-02-0009

Project: Tesoro - Livermore

Client Sample Number	Lab Sample Number	Date Collected	Matrix
MW-7	**12-02-0009-1**	**01/31/12**	**Aqueous**

Parameter	Results	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Alkalinity, Total (as CaCO3)	525	5.00	1		mg/L	N/A	02/07/12	SM 2320B
Solids, Total Dissolved	645	1.00	1		mg/L	02/01/12	02/01/12	SM 2540 C

Method Blank					**N/A**	**Aqueous**		

Parameter	Results	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Alkalinity, Total (as CaCO3)	ND	1.0	1		mg/L	N/A	02/07/12	SM 2320B
Solids, Total Dissolved	ND	1.0	1		mg/L	02/01/12	02/01/12	SM 2540 C

Return to Contents

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

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

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

Date Received: N/A
Work Order No: 12-02-0009

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	12-01-1712-1	02/07/12	233	232	0	0-25	
Bicarbonate (as CaCO3)	SM 2320B	12-01-1712-1	02/07/12	233	232	0	0-25	
Carbonate (as CaCO3)	SM 2320B	12-01-1712-1	02/07/12	ND	ND	NA	0-25	
Hydroxide (as CaCO3)	SM 2320B	12-01-1712-1	02/07/12	ND	ND	NA	0-25	
Solids, Total Dissolved	SM 2540 C	MW-7	02/01/12	645	650	1	0-10	

Return to Contents

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

Kiff Analytical		Date Received:	N/A
2795 2nd Street, Suite 300		Work Order No:	12-02-0009
Davis, CA 95616-6593		Preparation:	N/A
		Method:	RSK-175M

Project: Tesoro - Livermore

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-663-1,501	**Aqueous**	**GC 33**	**N/A**	**02/02/12**	**120202L01**

Parameter	SPIKE ADDED	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Methane	100.0	102	102	79-109	0	0-20	

Return to Contents

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

ACCREDITED IN ACCORDANCE WITH nelac

Work Order Number: 12-02-0009

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.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
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.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS/LCSD Recovery Percentage is within Marginal Exceedance (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.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

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

Return to Contents

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

12-02-0009

COC No. **80205** 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.: 80205

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: 1-L Poly None	250ml Poly None	VOA 40 ml HCl	Matrix: Water	Analysis Request: Alkalinity SM 2320 (1)	Carbon Dioxide by RSK 175 (1)	Hydrocarbons in Water by RSK 175 (1)	Total Dissolved Solids	TAT: 4-Days	For Lab Use Only
MW-7	01/31/12	11:48	1	1	2	X	X	X	X	X	X	1

Relinquished by	Date	Time	Received by
Kiff Analytical	013112	1900	
	2/1/12	0932	

Remarks: Please refer to attached Test Detail.

Bill to: Accounts Payable

Return to Contents

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 12-02-0009

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Kiff

DATE: 02/01/12

TEMPERATURE: Thermometer ID: SC3 (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 4.4 °C - 0.3 °C (CF) = 4.1 °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: SH

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	☑ YL 2/1/12	☑	☐
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 ☑VOAh 2 ☐VOAna_2 ☐125AGB ☐125AGBh ☐125AGBp ☐1AGB ☐1AGBna_2 ☐1AGBs

☐500AGB ☐500AGJ ☐500AGJs ☐250AGB ☐250CGB ☐250CGBs ☑1PB ☐1PBna ☐500PB

☑250PB ☐250PBn ☐125PB ☐125PBznna ☐100PJ ☐100PJna_2 ☐_____ ☐_____ ☐_____

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

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

Preservative: h: HCL n: HNO_3 na_2:$Na_2S_2O_3$ na: NaOH p: H_3PO_4 s: H_2SO_4 u: Ultra-pure znna: $ZnAc_2$+NaOH f: Filtered **Scanned by:** YC

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 12-02-0 0 0 9

SAMPLE ANOMALY FORM

SAMPLES - CONTAINERS & LABELS:

Comments:

- ☐ Sample(s) NOT RECEIVED but listed on COC
- ☐ Sample(s) received but NOT LISTED on COC
- ☐ Holding time expired – list sample ID(s) and test
- ☑ Insufficient quantities for analysis – list test — Container for CO_2 (RSK) not received
- ☐ Improper container(s) used – list test
- ☐ Improper preservative used – list test
- ☐ No preservative noted on COC or label – list test & notify lab
- ☐ Sample labels illegible – note test/container type
- ☐ Sample label(s) do not match COC – Note in comments
  - ☐ Sample ID
  - ☐ Date and/or Time Collected
  - ☐ Project Information
  - ☐ # of Container(s)
  - ☐ Analysis
- ☐ Sample container(s) compromised – Note in comments
  - ☐ Water present in sample container
  - ☐ Broken
- ☐ Sample container(s) not labeled
- ☐ Air sample container(s) compromised – Note in comments
  - ☐ Flat
  - ☐ Very low in volume
  - ☐ Leaking (Not transferred - duplicate bag submitted)
  - ☐ Leaking (transferred into Calscience Tedlar® Bag*)
  - ☐ Leaking (transferred into Client's Tedlar® Bag*)
- ☐ Other: _____

HEADSPACE – Containers with Bubble > 6mm or ¼ inch:

Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Cont. received	Analysis

Comments: _____

*Transferred at Client's request.

Initial / Date: YC 02 / /12

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KIFF Analytical LLC

Report Number : 80221
Date : 02/08/2012

Laboratory Results

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

Subject : 10 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 and TNI 2009 standards. 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,

Troy G. Turpen

Troy Turpen

KIFF Analytical LLC

Report Number : 80221
Date : 02/08/2012

Subject : 10 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). Please refer to the attached subcontract report for a list of this laboratory's current certifications.

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

The Method Reporting Limit for Ethanol has been increased due to the presence of an interfering compound for samples DW-7, MW-6, MW-11, IP-10 and IP-1.

Matrix Spike/Matrix Spike Duplicate results associated with samples IP-9 and MW-11 for the analyte Sulfate were affected by the analyte concentration present in the un-spiked sample.

Matrix Spike/Matrix Spike Duplicate results associated with samples DW-8, MW-2, IP-10, IP-1, and IP-8 for the analytes Iron, Manganese, and Sodium were affected by the analyte concentrations already present in the un-spiked sample.

Matrix Spike/Matrix Spike Duplicate results associated with samples MW-11 and IP-9 for the analytes Iron and Sodium were affected by the analyte concentrations already present in the un-spiked sample.

KIFF Analytical LLC

Report Number : 80221
Date : 02/08/2012

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

Sample : **DW-7** Matrix : Water Lab Number : 80221-01
Sample Date :01/31/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	**380**	1.5	ug/L	EPA 8260B	02/06/12 17:03
Toluene	**14**	0.50	ug/L	EPA 8260B	02/03/12 02:44
Ethylbenzene	**170**	0.50	ug/L	EPA 8260B	02/03/12 02:44
Total Xylenes	**59**	0.50	ug/L	EPA 8260B	02/03/12 02:44
Methyl-t-butyl ether (MTBE)	**120**	0.50	ug/L	EPA 8260B	02/03/12 02:44
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	02/03/12 02:44
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	02/03/12 02:44
Tert-amyl methyl ether (TAME)	**1.3**	0.50	ug/L	EPA 8260B	02/03/12 02:44
Tert-Butanol	**300**	7.0	ug/L	EPA 8260B	02/06/12 17:03
Methanol	< 150	150	ug/L	EPA 8260B	02/06/12 17:03
Ethanol	< 50	50	ug/L	EPA 8260B	02/06/12 17:03
TPH as Gasoline	**7800**	150	ug/L	EPA 8260B	02/06/12 17:03
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	02/03/12 02:44
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	02/03/12 02:44
1,2-Dichloroethane-d4 (Surr)	92.7		% Recovery	EPA 8260B	02/03/12 02:44
Toluene - d8 (Surr)	93.7		% Recovery	EPA 8260B	02/03/12 02:44

KIFF Analytical LLC

Report Number : 80221
Date : 02/08/2012

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

Sample : **MW-6** Matrix : Water Lab Number : 80221-02
Sample Date :01/31/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	**370**	0.90	ug/L	EPA 8260B	02/06/12 17:40
Toluene	**6.7**	0.90	ug/L	EPA 8260B	02/06/12 17:40
Ethylbenzene	**5.1**	0.90	ug/L	EPA 8260B	02/06/12 17:40
Total Xylenes	**12**	0.90	ug/L	EPA 8260B	02/06/12 17:40
Methyl-t-butyl ether (MTBE)	**84**	0.90	ug/L	EPA 8260B	02/06/12 17:40
Diisopropyl ether (DIPE)	< 0.90	0.90	ug/L	EPA 8260B	02/06/12 17:40
Ethyl-t-butyl ether (ETBE)	< 0.90	0.90	ug/L	EPA 8260B	02/06/12 17:40
Tert-amyl methyl ether (TAME)	< 0.90	0.90	ug/L	EPA 8260B	02/06/12 17:40
Tert-Butanol	**1500**	5.0	ug/L	EPA 8260B	02/06/12 17:40
Methanol	< 90	90	ug/L	EPA 8260B	02/06/12 17:40
Ethanol	< 10	10	ug/L	EPA 8260B	02/06/12 17:40
TPH as Gasoline	**5200**	90	ug/L	EPA 8260B	02/06/12 17:40
1,2-Dichloroethane	< 0.90	0.90	ug/L	EPA 8260B	02/06/12 17:40
1,2-Dibromoethane	< 0.90	0.90	ug/L	EPA 8260B	02/06/12 17:40
1,2-Dichloroethane-d4 (Surr)	92.4		% Recovery	EPA 8260B	02/06/12 17:40
Toluene - d8 (Surr)	93.0		% Recovery	EPA 8260B	02/06/12 17:40

KIFF Analytical LLC

Report Number : 80221
Date : 02/08/2012

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

Sample : **DW-1** Matrix : Water Lab Number : 80221-03
Sample Date :02/01/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	**23**	0.50	ug/L	EPA 8260B	02/03/12 02:09
Toluene	**6.4**	0.50	ug/L	EPA 8260B	02/03/12 02:09
Ethylbenzene	**85**	0.50	ug/L	EPA 8260B	02/03/12 02:09
Total Xylenes	**190**	0.50	ug/L	EPA 8260B	02/03/12 02:09
Methyl-t-butyl ether (MTBE)	**3.6**	0.50	ug/L	EPA 8260B	02/03/12 02:09
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	02/03/12 02:09
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	02/03/12 02:09
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	02/03/12 02:09
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	02/03/12 02:09
Methanol	< 50	50	ug/L	EPA 8260B	02/03/12 02:09
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	02/03/12 02:09
TPH as Gasoline	**2500**	50	ug/L	EPA 8260B	02/03/12 02:09
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	02/03/12 02:09
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	02/03/12 02:09
1,2-Dichloroethane-d4 (Surr)	100		% Recovery	EPA 8260B	02/03/12 02:09
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	02/03/12 02:09

KIFF Analytical LLC

Report Number : 80221
Date : 02/08/2012

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

Sample : **DW-8** Matrix : Water Lab Number : 80221-04
Sample Date :02/01/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	< 0.10	0.10	mg/L	EPA 300.0	02/02/12 23:47
Sulfate	**37**	0.50	mg/L	EPA 300.0	02/03/12 16:08
Hexavalent Chromium	< 1.0	1.0	ug/L	EPA 7199	02/01/12 21:52
Ferrous Iron	< 0.10	0.10	mg/L	SM 3500-Fe D	02/02/12 07:56
Arsenic	< 0.015	0.015	mg/L	EPA 6010B	02/07/12 10:40
Chromium	**0.0055**	0.0050	mg/L	EPA 6010B	02/07/12 10:40
Iron	**1.9**	0.10	mg/L	EPA 6010B	02/07/12 10:40
Manganese	**3.0**	0.0050	mg/L	EPA 6010B	02/07/12 10:40
Sodium	**90**	0.50	mg/L	EPA 6010B	02/07/12 10:40
Benzene	**2500**	9.0	ug/L	EPA 8260B	02/06/12 22:47
Toluene	**5200**	9.0	ug/L	EPA 8260B	02/06/12 22:47
Ethylbenzene	**1900**	9.0	ug/L	EPA 8260B	02/06/12 22:47
Total Xylenes	**8200**	9.0	ug/L	EPA 8260B	02/06/12 22:47
Methyl-t-butyl ether (MTBE)	< 9.0	9.0	ug/L	EPA 8260B	02/06/12 22:47
Diisopropyl ether (DIPE)	< 9.0	9.0	ug/L	EPA 8260B	02/06/12 22:47
Ethyl-t-butyl ether (ETBE)	< 9.0	9.0	ug/L	EPA 8260B	02/06/12 22:47
Tert-amyl methyl ether (TAME)	< 9.0	9.0	ug/L	EPA 8260B	02/06/12 22:47
Tert-Butanol	< 50	50	ug/L	EPA 8260B	02/06/12 22:47
Methanol	< 900	900	ug/L	EPA 8260B	02/06/12 22:47
Ethanol	< 90	90	ug/L	EPA 8260B	02/06/12 22:47
TPH as Gasoline	**52000**	900	ug/L	EPA 8260B	02/06/12 22:47
1,2-Dichloroethane	< 9.0	9.0	ug/L	EPA 8260B	02/06/12 22:47
1,2-Dibromoethane	< 9.0	9.0	ug/L	EPA 8260B	02/06/12 22:47
1,2-Dichloroethane-d4 (Surr)	100		% Recovery	EPA 8260B	02/06/12 22:47
Toluene - d8 (Surr)	98.1		% Recovery	EPA 8260B	02/06/12 22:47

KIFF Analytical LLC

Report Number : 80221
Date : 02/08/2012

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

Sample : **MW-11** Matrix : Water Lab Number : 80221-05
Sample Date :02/01/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	< 0.10	0.10	mg/L	EPA 300.0	02/03/12 00:15
Sulfate	**76**	5.0	mg/L	EPA 300.0	02/02/12 21:25
Hexavalent Chromium	< 1.0	1.0	ug/L	EPA 7199	02/01/12 22:20
Ferrous Iron	< 0.10	0.10	mg/L	SM 3500-Fe D	02/02/12 08:04
Arsenic	**0.14**	0.015	mg/L	EPA 6010B	02/08/12 11:25
Chromium	**1.6**	0.0050	mg/L	EPA 6010B	02/08/12 11:25
Iron	**680**	0.20	mg/L	EPA 6010B	02/08/12 13:49
Manganese	**36**	0.0050	mg/L	EPA 6010B	02/08/12 11:25
Sodium	**470**	5.0	mg/L	EPA 6010B	02/08/12 13:49
Benzene	**380**	2.5	ug/L	EPA 8260B	02/06/12 21:29
Toluene	**710**	2.5	ug/L	EPA 8260B	02/06/12 21:29
Ethylbenzene	**83**	2.5	ug/L	EPA 8260B	02/06/12 21:29
Total Xylenes	**2400**	2.5	ug/L	EPA 8260B	02/06/12 21:29
Methyl-t-butyl ether (MTBE)	< 2.5	2.5	ug/L	EPA 8260B	02/06/12 21:29
Diisopropyl ether (DIPE)	< 2.5	2.5	ug/L	EPA 8260B	02/06/12 21:29
Ethyl-t-butyl ether (ETBE)	< 2.5	2.5	ug/L	EPA 8260B	02/06/12 21:29
Tert-amyl methyl ether (TAME)	< 2.5	2.5	ug/L	EPA 8260B	02/06/12 21:29
Tert-Butanol	< 15	15	ug/L	EPA 8260B	02/06/12 21:29
Methanol	< 250	250	ug/L	EPA 8260B	02/06/12 21:29
Ethanol	< 50	50	ug/L	EPA 8260B	02/06/12 21:29
TPH as Gasoline	**13000**	250	ug/L	EPA 8260B	02/06/12 21:29
1,2-Dichloroethane	< 2.5	2.5	ug/L	EPA 8260B	02/06/12 21:29
1,2-Dibromoethane	< 2.5	2.5	ug/L	EPA 8260B	02/06/12 21:29
1,2-Dichloroethane-d4 (Surr)	98.9		% Recovery	EPA 8260B	02/06/12 21:29
Toluene - d8 (Surr)	96.1		% Recovery	EPA 8260B	02/06/12 21:29

KIFF Analytical LLC

Report Number : 80221
Date : 02/08/2012

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

Sample : **MW-2** Matrix : Water Lab Number : 80221-06
Sample Date :02/01/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	< 0.10	0.10	mg/L	EPA 300.0	02/03/12 00:44
Sulfate	**7.6**	0.50	mg/L	EPA 300.0	02/03/12 16:37
Hexavalent Chromium	< 1.0	1.0	ug/L	EPA 7199	02/01/12 22:02
Ferrous Iron	< 0.10	0.10	mg/L	SM 3500-Fe D	02/02/12 08:16
Arsenic	**0.030**	0.015	mg/L	EPA 6010B	02/07/12 10:52
Chromium	**0.18**	0.0050	mg/L	EPA 6010B	02/07/12 10:52
Iron	**55**	0.10	mg/L	EPA 6010B	02/07/12 10:52
Manganese	**5.9**	0.0050	mg/L	EPA 6010B	02/07/12 10:52
Sodium	**52**	0.50	mg/L	EPA 6010B	02/07/12 10:52
Benzene	**1200**	2.5	ug/L	EPA 8260B	02/04/12 05:08
Toluene	**130**	2.5	ug/L	EPA 8260B	02/04/12 05:08
Ethylbenzene	**440**	2.5	ug/L	EPA 8260B	02/04/12 05:08
Total Xylenes	**650**	2.5	ug/L	EPA 8260B	02/04/12 05:08
Methyl-t-butyl ether (MTBE)	**340**	2.5	ug/L	EPA 8260B	02/04/12 05:08
Diisopropyl ether (DIPE)	< 2.5	2.5	ug/L	EPA 8260B	02/04/12 05:08
Ethyl-t-butyl ether (ETBE)	< 2.5	2.5	ug/L	EPA 8260B	02/04/12 05:08
Tert-amyl methyl ether (TAME)	**5.4**	2.5	ug/L	EPA 8260B	02/04/12 05:08
Tert-Butanol	**170**	15	ug/L	EPA 8260B	02/04/12 05:08
Methanol	< 800	800	ug/L	EPA 8260B	02/04/12 05:08
Ethanol	< 25	25	ug/L	EPA 8260B	02/04/12 05:08
TPH as Gasoline	**14000**	250	ug/L	EPA 8260B	02/04/12 05:08
1,2-Dichloroethane	< 2.5	2.5	ug/L	EPA 8260B	02/04/12 05:08
1,2-Dibromoethane	< 2.5	2.5	ug/L	EPA 8260B	02/04/12 05:08
1,2-Dichloroethane-d4 (Surr)	99.2		% Recovery	EPA 8260B	02/04/12 05:08
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	02/04/12 05:08

KIFF Analytical LLC

Report Number : 80221
Date : 02/08/2012

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

Sample : **IP-10** Matrix : Water Lab Number : 80221-07
Sample Date :02/01/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	< 0.10	0.10	mg/L	EPA 300.0	02/02/12 14:19
Sulfate	**21**	0.50	mg/L	EPA 300.0	02/03/12 17:05
Hexavalent Chromium	< 1.0	1.0	ug/L	EPA 7199	02/01/12 22:11
Ferrous Iron	< 0.10	0.10	mg/L	SM 3500-Fe D	02/02/12 08:18
Arsenic	< 0.015	0.015	mg/L	EPA 6010B	02/07/12 10:56
Chromium	< 0.0050	0.0050	mg/L	EPA 6010B	02/07/12 10:56
Iron	**0.54**	0.10	mg/L	EPA 6010B	02/07/12 10:56
Manganese	**2.8**	0.0050	mg/L	EPA 6010B	02/07/12 10:56
Sodium	**64**	0.50	mg/L	EPA 6010B	02/07/12 10:56
Benzene	**8.2**	0.50	ug/L	EPA 8260B	02/03/12 03:52
Toluene	**4.6**	0.50	ug/L	EPA 8260B	02/03/12 03:52
Ethylbenzene	**93**	0.50	ug/L	EPA 8260B	02/03/12 03:52
Total Xylenes	**2.0**	0.50	ug/L	EPA 8260B	02/03/12 03:52
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	02/03/12 03:52
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	02/03/12 03:52
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	02/03/12 03:52
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	02/03/12 03:52
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	02/03/12 03:52
Methanol	< 50	50	ug/L	EPA 8260B	02/03/12 03:52
Ethanol	< 20	20	ug/L	EPA 8260B	02/03/12 03:52
TPH as Gasoline	**3200**	50	ug/L	EPA 8260B	02/03/12 03:52
1,2-Dichloroethane-d4 (Surr)	95.8		% Recovery	EPA 8260B	02/03/12 03:52
Toluene - d8 (Surr)	96.0		% Recovery	EPA 8260B	02/03/12 03:52

KIFF Analytical LLC

Report Number : 80221
Date : 02/08/2012

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

Sample : **IP-1** Matrix : Water Lab Number : 80221-08
Sample Date :02/01/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	< 0.10	0.10	mg/L	EPA 300.0	02/03/12 01:12
Sulfate	**1.2**	0.50	mg/L	EPA 300.0	02/03/12 17:33
Hexavalent Chromium	< 1.0	1.0	ug/L	EPA 7199	02/01/12 22:30
Ferrous Iron	< 0.10	0.10	mg/L	SM 3500-Fe D	02/02/12 08:20
Arsenic	< 0.015	0.015	mg/L	EPA 6010B	02/07/12 11:00
Chromium	< 0.0050	0.0050	mg/L	EPA 6010B	02/07/12 11:00
Iron	**2.0**	0.10	mg/L	EPA 6010B	02/07/12 11:00
Manganese	**3.6**	0.0050	mg/L	EPA 6010B	02/07/12 11:00
Sodium	**73**	0.50	mg/L	EPA 6010B	02/07/12 11:00
Benzene	**370**	2.0	ug/L	EPA 8260B	02/03/12 15:38
Toluene	**350**	2.0	ug/L	EPA 8260B	02/03/12 15:38
Ethylbenzene	**600**	2.0	ug/L	EPA 8260B	02/03/12 15:38
Total Xylenes	**1300**	2.0	ug/L	EPA 8260B	02/03/12 15:38
Methyl-t-butyl ether (MTBE)	< 2.0	2.0	ug/L	EPA 8260B	02/03/12 15:38
Diisopropyl ether (DIPE)	< 2.0	2.0	ug/L	EPA 8260B	02/03/12 15:38
Ethyl-t-butyl ether (ETBE)	< 2.0	2.0	ug/L	EPA 8260B	02/03/12 15:38
Tert-amyl methyl ether (TAME)	< 2.0	2.0	ug/L	EPA 8260B	02/03/12 15:38
Tert-Butanol	**16**	9.0	ug/L	EPA 8260B	02/03/12 15:38
Methanol	< 200	200	ug/L	EPA 8260B	02/03/12 15:38
Ethanol	< 20	20	ug/L	EPA 8260B	02/03/12 15:38
TPH as Gasoline	**15000**	200	ug/L	EPA 8260B	02/03/12 15:38
1,2-Dichloroethane-d4 (Surr)	96.1		% Recovery	EPA 8260B	02/03/12 15:38
Toluene - d8 (Surr)	97.9		% Recovery	EPA 8260B	02/03/12 15:38

KIFF Analytical LLC

Report Number : 80221
Date : 02/08/2012

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

Sample : **IP-8** Matrix : Water Lab Number : 80221-09
Sample Date :02/01/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	< 0.10	0.10	mg/L	EPA 300.0	02/03/12 01:41
Sulfate	**42**	0.50	mg/L	EPA 300.0	02/03/12 18:02
Hexavalent Chromium	< 1.0	1.0	ug/L	EPA 7199	02/01/12 22:58
Ferrous Iron	< 0.10	0.10	mg/L	SM 3500-Fe D	02/02/12 08:24
Arsenic	< 0.015	0.015	mg/L	EPA 6010B	02/07/12 11:05
Chromium	**0.036**	0.0050	mg/L	EPA 6010B	02/07/12 11:05
Iron	**11**	0.10	mg/L	EPA 6010B	02/07/12 11:05
Manganese	**3.0**	0.0050	mg/L	EPA 6010B	02/07/12 11:05
Sodium	**110**	0.50	mg/L	EPA 6010B	02/07/12 11:05
Benzene	**2900**	15	ug/L	EPA 8260B	02/06/12 23:26
Toluene	**7300**	15	ug/L	EPA 8260B	02/06/12 23:26
Ethylbenzene	**1400**	15	ug/L	EPA 8260B	02/06/12 23:26
Total Xylenes	**11000**	15	ug/L	EPA 8260B	02/06/12 23:26
Methyl-t-butyl ether (MTBE)	< 15	15	ug/L	EPA 8260B	02/06/12 23:26
Diisopropyl ether (DIPE)	< 15	15	ug/L	EPA 8260B	02/06/12 23:26
Ethyl-t-butyl ether (ETBE)	< 15	15	ug/L	EPA 8260B	02/06/12 23:26
Tert-amyl methyl ether (TAME)	< 15	15	ug/L	EPA 8260B	02/06/12 23:26
Tert-Butanol	< 70	70	ug/L	EPA 8260B	02/06/12 23:26
Methanol	< 1500	1500	ug/L	EPA 8260B	02/06/12 23:26
Ethanol	< 150	150	ug/L	EPA 8260B	02/06/12 23:26
TPH as Gasoline	**67000**	1500	ug/L	EPA 8260B	02/06/12 23:26
1,2-Dichloroethane-d4 (Surr)	101		% Recovery	EPA 8260B	02/06/12 23:26
Toluene - d8 (Surr)	97.7		% Recovery	EPA 8260B	02/06/12 23:26

KIFF Analytical LLC

Report Number : 80221
Date : 02/08/2012

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

Sample : **IP-9** Matrix : Water Lab Number : 80221-10
Sample Date :02/01/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	**0.76**	0.50	mg/L	EPA 300.0	02/02/12 21:53
Sulfate	**850**	25	mg/L	EPA 300.0	02/02/12 22:22
Hexavalent Chromium	**79**	5.0	ug/L	EPA 7199	02/02/12 00:00
Ferrous Iron	< 0.10	0.10	mg/L	SM 3500-Fe D	02/02/12 08:25
Arsenic	**0.56**	0.015	mg/L	EPA 6010B	02/08/12 11:30
Chromium	**0.074**	0.0050	mg/L	EPA 6010B	02/08/12 11:30
Iron	**9.2**	0.10	mg/L	EPA 6010B	02/08/12 11:30
Manganese	**0.14**	0.0050	mg/L	EPA 6010B	02/08/12 11:30
Sodium	**7200**	50	mg/L	EPA 6010B	02/08/12 13:57
Benzene	**180**	3.0	ug/L	EPA 8260B	02/06/12 22:08
Toluene	**1200**	3.0	ug/L	EPA 8260B	02/06/12 22:08
Ethylbenzene	**640**	3.0	ug/L	EPA 8260B	02/06/12 22:08
Total Xylenes	**3100**	3.0	ug/L	EPA 8260B	02/06/12 22:08
Methyl-t-butyl ether (MTBE)	< 3.0	3.0	ug/L	EPA 8260B	02/06/12 22:08
Diisopropyl ether (DIPE)	< 3.0	3.0	ug/L	EPA 8260B	02/06/12 22:08
Ethyl-t-butyl ether (ETBE)	< 3.0	3.0	ug/L	EPA 8260B	02/06/12 22:08
Tert-amyl methyl ether (TAME)	< 3.0	3.0	ug/L	EPA 8260B	02/06/12 22:08
Tert-Butanol	< 15	15	ug/L	EPA 8260B	02/06/12 22:08
Methanol	< 300	300	ug/L	EPA 8260B	02/06/12 22:08
Ethanol	< 30	30	ug/L	EPA 8260B	02/06/12 22:08
TPH as Gasoline	**19000**	300	ug/L	EPA 8260B	02/06/12 22:08
1,2-Dichloroethane-d4 (Surr)	98.3		% Recovery	EPA 8260B	02/06/12 22:08
Toluene - d8 (Surr)	95.1		% Recovery	EPA 8260B	02/06/12 22:08

Report Number : 80221

Date : 02/08/2012

QC Report : Method Blank Data

Project Name : **Tesoro - Livermore**

Project Number : **01LV**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Arsenic	< 0.015	0.015	mg/L	EPA 6010B	02/07/2012
Chromium	< 0.0050	0.0050	mg/L	EPA 6010B	02/07/2012
Iron	< 0.10	0.10	mg/L	EPA 6010B	02/07/2012
Manganese	< 0.0050	0.0050	mg/L	EPA 6010B	02/07/2012
Sodium	< 0.50	0.50	mg/L	EPA 6010B	02/07/2012
Arsenic	< 0.015	0.015	mg/L	EPA 6010B	02/08/2012
Chromium	< 0.0050	0.0050	mg/L	EPA 6010B	02/08/2012
Iron	< 0.10	0.10	mg/L	EPA 6010B	02/08/2012
Manganese	< 0.0050	0.0050	mg/L	EPA 6010B	02/08/2012
Sodium	< 0.50	0.50	mg/L	EPA 6010B	02/08/2012
Benzene	< 0.50	0.50	ug/L	EPA 8260B	02/06/2012
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	02/06/2012
Toluene	< 0.50	0.50	ug/L	EPA 8260B	02/06/2012
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	02/06/2012
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	02/06/2012
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	02/06/2012
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	02/06/2012
Methanol	< 50	50	ug/L	EPA 8260B	02/06/2012
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	02/06/2012
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	02/06/2012
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	02/06/2012
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	02/06/2012
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	02/06/2012
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	02/06/2012
1,2-Dichloroethane-d4 (Surr)	101		%	EPA 8260B	02/06/2012
Toluene - d8 (Surr)	99.0		%	EPA 8260B	02/06/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	02/02/2012
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	02/02/2012
Toluene	< 0.50	0.50	ug/L	EPA 8260B	02/02/2012
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	02/02/2012
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	02/02/2012
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	02/02/2012
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	02/02/2012
Methanol	< 50	50	ug/L	EPA 8260B	02/02/2012
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	02/02/2012
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	02/02/2012
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	02/02/2012
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	02/02/2012
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	02/02/2012
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	02/02/2012
1,2-Dichloroethane-d4 (Surr)	99.8		%	EPA 8260B	02/02/2012
Toluene - d8 (Surr)	101		%	EPA 8260B	02/02/2012
Benzene	< 0.50	0.50	ug/L	EPA 8260B	02/03/2012
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	02/03/2012
Toluene	< 0.50	0.50	ug/L	EPA 8260B	02/03/2012
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	02/03/2012
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	02/03/2012
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	02/03/2012
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	02/03/2012
Methanol	< 50	50	ug/L	EPA 8260B	02/03/2012
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	02/03/2012
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	02/03/2012
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	02/03/2012
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	02/03/2012
1,2-Dichloroethane-d4 (Surr)	99.9		%	EPA 8260B	02/03/2012
Toluene - d8 (Surr)	101		%	EPA 8260B	02/03/2012

KIFF ANALYTICAL, LLC

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

Report Number : 80221

Date : 02/08/2012

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	02/03/2012
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	02/03/2012
Toluene	< 0.50	0.50	ug/L	EPA 8260B	02/03/2012
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	02/03/2012
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	02/03/2012
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	02/03/2012
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	02/03/2012
Methanol	< 50	50	ug/L	EPA 8260B	02/03/2012
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	02/03/2012
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	02/03/2012
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	02/03/2012
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	02/03/2012
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	02/03/2012
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	02/03/2012
1,2-Dichloroethane-d4 (Surr)	101		%	EPA 8260B	02/03/2012
Toluene - d8 (Surr)	101		%	EPA 8260B	02/03/2012
Hexavalent Chromium	<1.0	1.0	ug/L	EPA 7199	02/01/2012
Ferrous Iron	<0.10	0.10	mg/L	SM 3500-Fe D	02/02/2012
Nitrate as N	<0.10	0.10	mg/L	EPA 300.0	02/02/2012
Sulfate	<0.50	0.50	mg/L	EPA 300.0	02/02/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Sulfate	<0.50	0.50	mg/L	EPA 300.0	02/03/2012

KIFF ANALYTICAL, LLC

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

Report Number : 80221

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 02/08/2012

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
Hexavalent Chromium														
	80206-01	12	5.00	5.00	17.4	17.4	ug/L	EPA 7199	2/1/12	109	109	0.113	90.0-110	10
Ferrous Iron														
	80221-04	< 0.10	0.251	0.251	0.270	0.260	mg/L	SM 3500-Fe D	2/2/12	81.5	77.6	3.77	70.0-130	25
Nitrate as N														
	80221-04	< 0.10	0.500	0.500	0.562	0.568	mg/L	EPA 300.0	2/2/12	112	114	1.09	85.0-115	10
Sulfate														
	80221-04	36	2.50	2.50	38.7	38.9	mg/L	EPA 300.0	2/2/12	108	**117**	0.602	85.0-115	10
Sulfate														
	80227-01	22	2.50	2.50	24.6	24.6	mg/L	EPA 300.0	2/3/12	100	99.9	0.0224	85.0-115	10
Arsenic														
	80221-04	< 0.015	0.400	0.400	0.426	0.421	mg/L	EPA 6010B	2/7/12	105	104	1.06	75-125	20
Chromium														
	80221-04	0.0055	0.400	0.400	0.407	0.405	mg/L	EPA 6010B	2/7/12	100	99.8	0.468	75-125	20
Iron														
	80221-04	1.9	0.400	0.400	2.17	2.19	mg/L	EPA 6010B	2/7/12	**69.2**	**73.2**	0.734	75-125	20

KIFF ANALYTICAL, LLC

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

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 02/08/2012

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
Manganese														
	80221-04	3.0	0.400	0.400	3.28	3.44	mg/L	EPA 6010B	2/7/12	**62.2**	100	4.55	75-125	20
Sodium														
	80221-04	90	0.400	0.400	89.1	92.8	mg/L	EPA 6010B	2/7/12	**0.00**	**582**	4.02	75-125	20
1,2-Dibromoethane														
	80229-01	<0.50	39.8	39.9	39.0	40.7	ug/L	EPA 8260B	2/6/12	98.0	102	4.07	80-120	25
1,2-Dichloroethane														
	80229-01	<0.50	39.6	39.7	38.7	39.7	ug/L	EPA 8260B	2/6/12	97.8	100	2.35	75.7-122	25
Benzene														
	80229-01	<0.50	39.6	39.7	38.8	39.1	ug/L	EPA 8260B	2/6/12	97.8	98.5	0.685	80-120	25
Diisopropyl ether														
	80229-01	<0.50	39.1	39.2	39.3	39.9	ug/L	EPA 8260B	2/6/12	100	102	1.35	80-120	25
Ethanol														
	80229-01	<5.0	99.2	99.4	80.6	85.8	ug/L	EPA 8260B	2/6/12	81.2	86.4	6.14	55.1-159	25
Ethyl-tert-butyl ether														
	80229-01	<0.50	39.6	39.7	43.6	43.9	ug/L	EPA 8260B	2/6/12	110	110	0.307	76.5-120	25
Ethylbenzene														
	80229-01	<0.50	39.6	39.7	41.5	42.0	ug/L	EPA 8260B	2/6/12	105	106	1.05	80-120	25

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 02/08/2012

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														
	80229-01	<50	990	992	901	860	ug/L	EPA 8260B	2/6/12	91.0	86.7	4.86	53.2-147	25
Methyl-t-butyl ether														
	80229-01	<0.50	40.0	40.1	42.7	43.8	ug/L	EPA 8260B	2/6/12	107	109	2.15	69.7-121	25
P + M Xylene														
	80229-01	<0.50	39.6	39.7	40.4	40.9	ug/L	EPA 8260B	2/6/12	102	103	0.957	76.8-120	25
Tert-Butanol														
	80229-01	<5.0	199	199	199	198	ug/L	EPA 8260B	2/6/12	99.8	99.1	0.684	80-120	25
Tert-amyl-methyl ether														
	80229-01	<0.50	39.1	39.1	43.2	43.6	ug/L	EPA 8260B	2/6/12	111	111	0.732	78.9-120	25
Toluene														
	80229-01	<0.50	39.6	39.7	38.8	39.2	ug/L	EPA 8260B	2/6/12	98.0	98.9	0.930	80-120	25
1,2-Dibromoethane														
	80227-02	<0.50	40.2	40.2	43.2	42.4	ug/L	EPA 8260B	2/2/12	107	105	1.96	80-120	25
1,2-Dichloroethane														
	80227-02	<0.50	40.0	40.0	39.8	38.9	ug/L	EPA 8260B	2/2/12	99.5	97.4	2.19	75.7-122	25
Benzene														
	80227-02	<0.50	40.0	40.0	39.5	37.6	ug/L	EPA 8260B	2/2/12	98.7	94.0	4.86	80-120	25

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

Report Number : 80221

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 02/08/2012

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														
	80227-02	<0.50	39.5	39.5	41.9	41.2	ug/L	EPA 8260B	2/2/12	106	104	1.74	80-120	25
Ethanol														
	80227-02	<5.0	100	100	103	106	ug/L	EPA 8260B	2/2/12	102	105	2.90	55.1-159	25
Ethyl-tert-butyl ether														
	80227-02	<0.50	40.0	40.0	43.8	43.0	ug/L	EPA 8260B	2/2/12	110	108	1.82	76.5-120	25
Ethylbenzene														
	80227-02	<0.50	40.0	40.0	37.8	35.8	ug/L	EPA 8260B	2/2/12	94.5	89.4	5.55	80-120	25
Methanol														
	80227-02	<50	1000	1000	984	981	ug/L	EPA 8260B	2/2/12	98.5	98.1	0.392	53.2-147	25
Methyl-t-butyl ether														
	80227-02	9.5	40.4	40.4	54.1	53.2	ug/L	EPA 8260B	2/2/12	110	108	1.99	69.7-121	25
P + M Xylene														
	80227-02	<0.50	40.0	40.0	39.4	37.3	ug/L	EPA 8260B	2/2/12	98.4	93.2	5.46	76.8-120	25
Tert-Butanol														
	80227-02	38	201	201	233	234	ug/L	EPA 8260B	2/2/12	96.9	97.6	0.677	80-120	25
Tert-amyl-methyl ether														
	80227-02	<0.50	39.4	39.4	43.8	42.6	ug/L	EPA 8260B	2/2/12	111	108	2.76	78.9-120	25
Toluene														
	80227-02	<0.50	40.0	40.0	39.5	37.6	ug/L	EPA 8260B	2/2/12	98.8	94.1	4.84	80-120	25

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

Report Number : 80221

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 02/08/2012

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														
	80217-02	<0.50	40.0	40.0	40.2	38.9	ug/L	EPA 8260B	2/3/12	100	97.3	3.11	80-120	25
Diisopropyl ether														
	80217-02	<0.50	39.5	39.5	43.2	42.1	ug/L	EPA 8260B	2/3/12	109	106	2.67	80-120	25
Ethanol														
	80217-02	<5.0	100	100	118	116	ug/L	EPA 8260B	2/3/12	118	116	1.30	55.1-159	25
Ethyl-tert-butyl ether														
	80217-02	<0.50	40.0	40.0	44.7	43.9	ug/L	EPA 8260B	2/3/12	112	110	1.70	76.5-120	25
Ethylbenzene														
	80217-02	<0.50	40.0	40.0	37.9	36.8	ug/L	EPA 8260B	2/3/12	94.8	92.0	2.96	80-120	25
Methanol														
	80217-02	<50	1000	1000	1090	989	ug/L	EPA 8260B	2/3/12	109	98.9	9.59	53.2-147	25
Methyl-t-butyl ether														
	80217-02	<0.50	40.4	40.4	45.3	45.1	ug/L	EPA 8260B	2/3/12	112	112	0.495	69.7-121	25
P + M Xylene														
	80217-02	<0.50	40.0	40.0	39.1	38.1	ug/L	EPA 8260B	2/3/12	97.7	95.3	2.51	76.8-120	25
Tert-Butanol														
	80217-02	<5.0	201	201	200	201	ug/L	EPA 8260B	2/3/12	99.5	99.9	0.430	80-120	25

KIFF ANALYTICAL, LLC

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

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 02/08/2012

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-amyl-methyl ether														
	80217-02	<0.50	39.4	39.4	44.6	43.6	ug/L	EPA 8260B	2/3/12	113	110	2.11	78.9-120	25
Toluene														
	80217-02	<0.50	40.0	40.0	40.2	39.1	ug/L	EPA 8260B	2/3/12	100	97.8	2.81	80-120	25
1,2-Dibromoethane														
	80235-02	<0.50	40.2	40.2	43.1	42.5	ug/L	EPA 8260B	2/3/12	107	106	1.34	80-120	25
1,2-Dichloroethane														
	80235-02	<0.50	40.0	40.0	40.3	39.2	ug/L	EPA 8260B	2/3/12	101	97.9	2.88	75.7-122	25
Benzene														
	80235-02	<0.50	40.0	40.0	39.5	38.0	ug/L	EPA 8260B	2/3/12	98.7	95.0	3.87	80-120	25
Diisopropyl ether														
	80235-02	<0.50	39.5	39.5	42.4	41.6	ug/L	EPA 8260B	2/3/12	107	105	1.72	80-120	25
Ethanol														
	80235-02	<5.0	100	100	117	121	ug/L	EPA 8260B	2/3/12	117	121	3.07	55.1-159	25
Ethyl-tert-butyl ether														
	80235-02	<0.50	40.0	40.0	44.2	43.3	ug/L	EPA 8260B	2/3/12	110	108	2.13	76.5-120	25
Ethylbenzene														
	80235-02	0.64	40.0	40.0	38.6	36.9	ug/L	EPA 8260B	2/3/12	95.0	90.6	4.78	80-120	25

Report Number : 80221

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 02/08/2012

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														
	80235-02	<50	1000	1000	1090	1070	ug/L	EPA 8260B	2/3/12	109	107	1.93	53.2-147	25
Methyl-t-butyl ether														
	80235-02	<0.50	40.4	40.4	44.5	44.3	ug/L	EPA 8260B	2/3/12	110	110	0.459	69.7-121	25
P + M Xylene														
	80235-02	<0.50	40.0	40.0	39.2	37.7	ug/L	EPA 8260B	2/3/12	97.9	94.2	3.83	76.8-120	25
Tert-Butanol														
	80235-02	<5.0	201	201	200	200	ug/L	EPA 8260B	2/3/12	99.3	99.6	0.241	80-120	25
Tert-amyl-methyl ether														
	80235-02	<0.50	39.4	39.4	43.7	43.1	ug/L	EPA 8260B	2/3/12	111	109	1.36	78.9-120	25
Toluene														
	80235-02	<0.50	40.0	40.0	39.7	38.2	ug/L	EPA 8260B	2/3/12	99.3	95.4	3.90	80-120	25
Arsenic														
	80251-02	< 0.015	0.800	0.800	0.825	0.801	mg/L	EPA 6010B	2/8/12	102	99.5	2.88	75-125	20
Chromium														
	80251-02	0.0090	0.800	0.800	0.804	0.781	mg/L	EPA 6010B	2/8/12	99.3	96.6	2.79	75-125	20
Iron														
	80251-02	4.3	0.800	0.800	4.91	4.76	mg/L	EPA 6010B	2/8/12	**73.4**	**54.5**	3.12	75-125	20

KIFF ANALYTICAL, LLC

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

Report Number : 80221

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 02/08/2012

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
Manganese														
	80251-02	0.42	0.800	0.800	1.21	1.18	mg/L	EPA 6010B	2/8/12	98.6	94.7	2.59	75-125	20
Sodium														
	80251-02	38	0.800	0.800	40.2	38.7	mg/L	EPA 6010B	2/8/12	**212**	**13.8**	4.03	75-125	20

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
Arsenic	0.400	mg/L	EPA 6010B	2/7/12	98.9	85-115
Chromium	0.400	mg/L	EPA 6010B	2/7/12	99.3	85-115
Iron	0.400	mg/L	EPA 6010B	2/7/12	91.8	85-115
Manganese	0.400	mg/L	EPA 6010B	2/7/12	95.0	85-115
Sodium	0.400	mg/L	EPA 6010B	2/7/12	95.2	85-115
Arsenic	0.800	mg/L	EPA 6010B	2/8/12	98.8	85-115
Chromium	0.800	mg/L	EPA 6010B	2/8/12	99.4	85-115
Iron	0.800	mg/L	EPA 6010B	2/8/12	96.5	85-115
Manganese	0.800	mg/L	EPA 6010B	2/8/12	96.3	85-115
Sodium	0.800	mg/L	EPA 6010B	2/8/12	98.9	85-115
1,2-Dibromoethane	40.2	ug/L	EPA 8260B	2/6/12	101	80-120
1,2-Dichloroethane	40.0	ug/L	EPA 8260B	2/6/12	99.7	75.7-122
Benzene	40.0	ug/L	EPA 8260B	2/6/12	101	80-120
Diisopropyl ether	39.5	ug/L	EPA 8260B	2/6/12	104	80-120
Ethanol	100	ug/L	EPA 8260B	2/6/12	82.6	55.1-159
Ethyl-tert-butyl ether	40.0	ug/L	EPA 8260B	2/6/12	112	76.5-120
Ethylbenzene	40.0	ug/L	EPA 8260B	2/6/12	108	80-120
Methanol	1000	ug/L	EPA 8260B	2/6/12	89.0	53.2-147
Methyl-t-butyl ether	40.4	ug/L	EPA 8260B	2/6/12	108	69.7-121
P + M Xylene	40.0	ug/L	EPA 8260B	2/6/12	105	76.8-120

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-Butanol	201	ug/L	EPA 8260B	2/6/12	101	80-120
Tert-amyl-methyl ether	39.4	ug/L	EPA 8260B	2/6/12	112	78.9-120
Toluene	40.0	ug/L	EPA 8260B	2/6/12	101	80-120
1,2-Dibromoethane	40.4	ug/L	EPA 8260B	2/2/12	107	80-120
1,2-Dichloroethane	40.2	ug/L	EPA 8260B	2/2/12	99.5	75.7-122
Benzene	40.2	ug/L	EPA 8260B	2/2/12	98.4	80-120
Diisopropyl ether	39.7	ug/L	EPA 8260B	2/2/12	107	80-120
Ethanol	101	ug/L	EPA 8260B	2/2/12	106	55.1-159
Ethyl-tert-butyl ether	40.2	ug/L	EPA 8260B	2/2/12	109	76.5-120
Ethylbenzene	40.2	ug/L	EPA 8260B	2/2/12	93.9	80-120
Methanol	1000	ug/L	EPA 8260B	2/2/12	101	53.2-147
Methyl-t-butyl ether	40.6	ug/L	EPA 8260B	2/2/12	110	69.7-121
P + M Xylene	40.2	ug/L	EPA 8260B	2/2/12	96.7	76.8-120
TPH as Gasoline	500	ug/L	EPA 8260B	2/2/12	98.3	70.0-130
Tert-Butanol	202	ug/L	EPA 8260B	2/2/12	97.3	80-120
Tert-amyl-methyl ether	39.6	ug/L	EPA 8260B	2/2/12	110	78.9-120
Toluene	40.2	ug/L	EPA 8260B	2/2/12	98.4	80-120
Benzene	39.8	ug/L	EPA 8260B	2/3/12	100	80-120
Diisopropyl ether	39.4	ug/L	EPA 8260B	2/3/12	109	80-120
Ethanol	99.7	ug/L	EPA 8260B	2/3/12	133	55.1-159
Ethyl-tert-butyl ether	39.8	ug/L	EPA 8260B	2/3/12	112	76.5-120

KIFF ANALYTICAL, LLC

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

QC Report : Laboratory Control Sample (LCS)

Date : 02/08/2012

Project Name : **Tesoro - Livermore**

Project Number : **01LV**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Ethylbenzene	39.8	ug/L	EPA 8260B	2/3/12	95.8	80-120
Methanol	995	ug/L	EPA 8260B	2/3/12	118	53.2-147
Methyl-t-butyl ether	40.2	ug/L	EPA 8260B	2/3/12	111	69.7-121
P + M Xylene	39.8	ug/L	EPA 8260B	2/3/12	98.6	76.8-120
TPH as Gasoline	502	ug/L	EPA 8260B	2/3/12	98.9	70.0-130
Tert-Butanol	200	ug/L	EPA 8260B	2/3/12	100	80-120
Tert-amyl-methyl ether	39.3	ug/L	EPA 8260B	2/3/12	113	78.9-120
Toluene	39.8	ug/L	EPA 8260B	2/3/12	100	80-120
1,2-Dibromoethane	40.3	ug/L	EPA 8260B	2/3/12	108	80-120
1,2-Dichloroethane	40.1	ug/L	EPA 8260B	2/3/12	102	75.7-122
Benzene	40.1	ug/L	EPA 8260B	2/3/12	100	80-120
Diisopropyl ether	39.6	ug/L	EPA 8260B	2/3/12	109	80-120
Ethanol	100	ug/L	EPA 8260B	2/3/12	112	55.1-159
Ethyl-tert-butyl ether	40.1	ug/L	EPA 8260B	2/3/12	113	76.5-120
Ethylbenzene	40.1	ug/L	EPA 8260B	2/3/12	95.6	80-120
Methanol	1000	ug/L	EPA 8260B	2/3/12	105	53.2-147
Methyl-t-butyl ether	40.5	ug/L	EPA 8260B	2/3/12	115	69.7-121
P + M Xylene	40.1	ug/L	EPA 8260B	2/3/12	98.5	76.8-120
TPH as Gasoline	501	ug/L	EPA 8260B	2/3/12	97.3	70.0-130
Tert-Butanol	202	ug/L	EPA 8260B	2/3/12	99.9	80-120
Tert-amyl-methyl ether	39.5	ug/L	EPA 8260B	2/3/12	113	78.9-120
Toluene	40.1	ug/L	EPA 8260B	2/3/12	100	80-120

KIFF ANALYTICAL, LLC

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

Report Number : 80221

QC Report : Laboratory Control Sample (LCS)

Date : 02/08/2012

Project Name : **Tesoro - Livermore**

Project Number : **01LV**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Hexavalent Chromium	5.00	ug/L	EPA 7199	2/1/12	100	90.0-110
Ferrous Iron	0.251	mg/L	SM 3500-Fe D	2/2/12	97.4	70.0-130
Nitrate as N	0.500	mg/L	EPA 300.0	2/2/12	92.6	85.0-115
Sulfate	2.50	mg/L	EPA 300.0	2/2/12	100	85.0-115
Sulfate	2.50	mg/L	EPA 300.0	2/3/12	99.4	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. 180221

Page 1 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 East Spring Street, Suite 212, Long Beach, CA 90806	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 #: 01LV / P.O. #:	Bill to: Jeff Baker
Project Name: Tesoro - Livermore	Sampler Signature: ALDARO PANTOJA
Project Address: 1619 1st Street, Livermore, CA	

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

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	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)	TCE & PCE (EPA 8260B)	Ferrous Iron (SM 3500-Fe-D)	Nitrate & Sulfate (EPA 300.0)	Total Alkalinity (SM 2320B)	Total Dissolved Solids (SM 2540C)	Methane and Carbone Dioxide by RSK 175M	Hexavalent Chromium (EPA 7199)	Total Metals bye EPA 6010 (As, Cr, Fe, Mn, Na)	TAT	For Lab Use Only
~~MW-1~~			~~3~~					~~3~~				~~X~~			~~X~~	~~X~~	~~X~~	~~X~~									~~Stnd.~~	
~~MW-2~~			~~3~~					~~3~~				~~X~~			~~X~~	~~X~~	~~X~~	~~X~~									~~Stnd.~~	
~~MW-7~~			~~5~~		~~5~~			~~3~~	~~1~~	~~4~~		~~X~~			~~X~~	~~X~~	~~X~~	~~X~~		~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~		~~Stnd.~~	
~~DW-3~~			~~3~~					~~3~~				~~X~~			~~X~~	~~X~~	~~X~~	~~X~~									~~Stnd.~~	
~~DW-2~~			~~3~~					~~3~~				~~X~~			~~X~~	~~X~~	~~X~~	~~X~~									~~Stnd.~~	
~~DW-5~~			~~3~~					~~3~~				~~X~~			~~X~~	~~X~~	~~X~~	~~X~~									~~Stnd.~~	
~~DW-8~~			~~3~~					~~3~~				~~X~~			~~X~~	~~X~~	~~X~~	~~X~~									~~Stnd.~~	
DW-7	1-31-12	1533	3					3				X			X	X	X	X									Stnd.	01
MW-6	1-31-12	1608	3					3				X			X	X	X	X									Stnd.	02
DW-1	2-1-12	749	3					3				X			X	X	X	X									Stnd.	03

Relinquished by:	Date	Time	Received by:
AP	02-01-12		
	020112	1411	Kiff Analytical

Remarks:

For Lab Use Only: Sample Receipt

Temp °C	Initials	Date	Time	Therm. ID #	Coolant Present
					Yes / No

Distribution: White - Lab; Pink - Originator
Rev: 031308

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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. 80221

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 East Spring Street, Suite 212, Long Beach, CA 90806	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 #: 01LV / P.O. #:	Bill to: Jeff Baker
Project Name: Tesoro - Livermore	Sampler Signature: ALVARO PANTOJA
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: H_2SO_4	Preservative:	Matrix: Water	Matrix: Soil	Matrix: Air	Matrix:	Analysis Request: 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)	TCE & PCE (EPA 8260B)	Ferrous Iron (SM 3500-Fe-D)	Nitrate & Sulfate (EPA 300.0)	Total Alkalinity (SM 2320B)	Total Dissolved Solids (SM 2540C)	Methane and Carbone Dioxide by RSK 175M	Hexavalent Chromium (EPA 7199)	Total Metals bye EPA 6010 (As, Cr, Fe, Mn, Na)								TAT	For Lab Use Only
																																				☐ 12 hr ☐ 24 hr ☐ 48hr ☐ 72hr ☑ 1 wk	
DW-8	2-1-12	900	5		5				5	1	4			X				X	X	X	X		X	X	X	X	X	X	X								Stnd.	04
MW-11	2-1-12	915	5		5				5	1	4			X				X	X	X	X		X	X	X	X	X	X	X								Stnd.	05
MW-2	2-1-12	1020	5		5				5	1	4			X				X	X	X	X		X	X	X	X	X	X	X								Stnd.	06
IP-10	2-1-12	1110	5		5				5	1	4			X				X	X	X			X	X	X	X	X	X	X								Stnd.	07
IP-1	2-1-12	1145	5		5				5	1	4			X				X	X	X			X	X	X	X	X	X	X								Stnd.	08
IP-8	2-1-12	1235	5		5				5	1	4			X				X	X	X			X	X	X	X	X	X	X								Stnd.	09
IP-9	2-1-12	1330	5		5				5	1	4			X				X	X	X			X	X	X	X	X	X	X								Stnd.	10
																																					Stnd.	
																																					Stnd.	
																																					Stnd.	

Relinquished by:	Date	Time	Received by:
A.P.	02-01-12		
	020112	1411	Kiff Analytical

Remarks:

For Lab Use Only: Sample Receipt

Temp °C	Initials	Date	Time	Therm. ID #	Coolant Present
					Yes / No

Distribution: White - Lab; Pink - Originator
Rev: 031308

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KIFF Analytical LLC

SAMPLE RECEIPT CHECKLIST

RECEIVER LJR Initials

SRG#: 80221 Date: 020112

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: 5.7 ☒ Yes ☐ No (includes water)

Temperature °C 5.7 Therm. ID# FR-4 Initial LJR Date/Time 020112/ 1828 ☐ 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

Matrix WA	Container type VOA	# of containers received 44
Matrix WA	Container type poly	# of containers received 35
Matrix	Container type	# of containers received

Date and Time Sample Put into Temp Storage Date: 020112 Time: 1833

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: Time on -01 labels is 1535 - LJR 020112 - 1844

O:\old_ed\samprec\Forms\Sample Receipt Checklist rev 051409.doc

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

February 06, 2012

CLS Work Order #: CVB0120
COC #: 80221

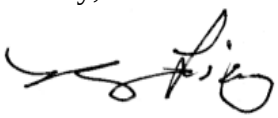
Scott Forbes
KIFF Analytical
2795 Second St. Suite 300
Davis, CA 95616

Project Name: Tesoro Livermore

Enclosed are the results of analyses for samples received by the laboratory on 02/03/12 10:22. 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

02/06/12 10:13

KIFF Analytical	Project: Tesoro Livermore	
2795 Second St. Suite 300	Project Number: 01LV	**CLS Work Order #: CVB0120**
Davis, CA 95616	Project Manager: Scott Forbes	COC #: 80221

CVB0120

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. 80221 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.: 80221
Deliverables to (Email Address): inbox@kiffanalytical.com
Project Name: Tesoro - Livermore
Project Address:

Analysis Request

TAT: 4-day TAT: Due 2/8/12

For Lab Use Only

Sample Designation	Sampling Date	Sampling Time	Container / Preservative: 250ml Poly None	Matrix: Water	Analysis Request: Carbon Dioxide
DW-8	02/01/12	09:00	1	X	X
MW-11	02/01/12	09:15	1	X	X
MW-2	02/01/12	10:20	1	X	X
IP-10	02/01/12	11:10	1	X	X
IP-1	02/01/12	11:45	1	X	X
IP-8	02/01/12	12:35	1	X	X
IP-9	02/01/12	13:30	1	X	X

Relinquished by: Kiff Analytical	Date 02/03/12	Time 1022	Received by:	Remarks:
Relinquished by:	Date	Time	Received by:	
Relinquished by: 2/3/12	Date	Time 1022	Received by Laboratory: 1°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 #: CVB0120
COC #: 80221

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
DW-8 (CVB0120-01) Water Sampled: 02/01/12 09:00 Received: 02/03/12 10:22									
Carbon Dioxide as CO2	**51**	5.0	mg/L	1	CV00725	02/03/12	02/03/12	SM 4500C	
MW-11 (CVB0120-02) Water Sampled: 02/01/12 09:15 Received: 02/03/12 10:22									
Carbon Dioxide as CO2	**170**	5.0	mg/L	1	CV00725	02/03/12	02/03/12	SM 4500C	
MW-2 (CVB0120-03) Water Sampled: 02/01/12 10:20 Received: 02/03/12 10:22									
Carbon Dioxide as CO2	**100**	5.0	mg/L	1	CV00725	02/03/12	02/03/12	SM 4500C	
IP-10 (CVB0120-04) Water Sampled: 02/01/12 11:10 Received: 02/03/12 10:22									
Carbon Dioxide as CO2	**36**	5.0	mg/L	1	CV00725	02/03/12	02/03/12	SM 4500C	
IP-1 (CVB0120-05) Water Sampled: 02/01/12 11:45 Received: 02/03/12 10:22									
Carbon Dioxide as CO2	**72**	5.0	mg/L	1	CV00725	02/03/12	02/03/12	SM 4500C	
IP-8 (CVB0120-06) Water Sampled: 02/01/12 12:35 Received: 02/03/12 10:22									
Carbon Dioxide as CO2	**48**	5.0	mg/L	1	CV00725	02/03/12	02/03/12	SM 4500C	
IP-9 (CVB0120-07) Water Sampled: 02/01/12 13:30 Received: 02/03/12 10:22									
Carbon Dioxide as CO2	ND	5.0	mg/L	1	CV00725	02/03/12	02/03/12	SM 4500C	

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

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

CLS Work Order #: CVB0120
COC #: 80221

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 CV00725 - General Preparation										
Blank (CV00725-BLK1)				Prepared & Analyzed: 02/03/12						
Carbon Dioxide as CO2	ND	5.0	mg/L							

KIFF Analytical	Project: Tesoro Livermore	
2795 Second St. Suite 300	Project Number: 01LV	**CLS Work Order #: CVB0120**
Davis, CA 95616	Project Manager: Scott Forbes	COC #: 80221

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.

CALSCIENCE

WORK ORDER NUMBER: 12-02-0091

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Kiff Analytical

Client Project Name: Tesoro - Livermore

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

Amanda Porter

Approved for release on 02/10/2012 by:
Amanda Porter
Project Manager

ResultLink

Email your PM

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 analyses, 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. Note that the Chain-of-Custody Record and Sample Receipt Form are integral parts of this report.

Calscience Environmental Laboratories, Inc.

Contents

Client Project Name: Tesoro - Livermore
Work Order Number: 12-02-0091

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

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

Date Received: 02/02/12
Work Order No: 12-02-0091
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	**12-02-0091-1-A**	**02/01/12 09:00**	**Aqueous**	**GC 52**	**N/A**	**02/04/12 20:18**	**120204L01**

Parameter	Result	RL	DF	Qual	Units
Methane	1170	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-11	**12-02-0091-2-A**	**02/01/12 09:15**	**Aqueous**	**GC 52**	**N/A**	**02/04/12 16:07**	**120204L01**

Parameter	Result	RL	DF	Qual	Units
Methane	27.4	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-2	**12-02-0091-3-A**	**02/01/12 10:20**	**Aqueous**	**GC 52**	**N/A**	**02/04/12 22:16**	**120204L01**

Parameter	Result	RL	DF	Qual	Units
Methane	3080	20.0	20		ug/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IP-10	**12-02-0091-4-A**	**02/01/12 11:10**	**Aqueous**	**GC 52**	**N/A**	**02/04/12 17:47**	**120204L01**

Parameter	Result	RL	DF	Qual	Units
Methane	237	1.00	1		ug/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IP-1	**12-02-0091-5-A**	**02/01/12 11:45**	**Aqueous**	**GC 52**	**N/A**	**02/04/12 20:54**	**120204L01**

Parameter	Result	RL	DF	Qual	Units
Methane	1130	8.00	8		ug/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IP-8	**12-02-0091-6-A**	**02/01/12 12:35**	**Aqueous**	**GC 52**	**N/A**	**02/04/12 18:50**	**120204L01**

Parameter	Result	RL	DF	Qual	Units
Methane	262	1.00	1		ug/L

Return to Contents

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

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Kiff Analytical		Date Received:	02/02/12
2795 2nd Street, Suite 300		Work Order No:	12-02-0091
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
IP-9	**12-02-0091-7-A**	**02/01/12 13:30**	**Aqueous**	**GC 52**	**N/A**	**02/04/12 19:33**	**120204L01**

Parameter	Result	RL	DF	Qual	Units
Methane	54.0	1.00	1		ug/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-663-1,502**	**N/A**	**Aqueous**	**GC 52**	**N/A**	**02/04/12 11:04**	**120204L01**

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

Return to Contents

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 02/02/12
Work Order No: 12-02-0091
Preparation: N/A
Method: SM 2320B

Project: Tesoro - Livermore

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
DW-8	**12-02-0091-1-D**	**02/01/12 09:00**	**Aqueous**	**PH1/BUR13**	**N/A**	**02/08/12 13:00**	**C0208ALKB1**

Parameter	Result	RL	DF	Qual	Units
Alkalinity, Total (as CaCO3)	598	5.00	1		mg/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-11	**12-02-0091-2-D**	**02/01/12 09:15**	**Aqueous**	**PH1/BUR13**	**N/A**	**02/08/12 13:00**	**C0208ALKB1**

Parameter	Result	RL	DF	Qual	Units
Alkalinity, Total (as CaCO3)	1430	10.0	1		mg/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-2	**12-02-0091-3-D**	**02/01/12 10:20**	**Aqueous**	**PH1/BUR13**	**N/A**	**02/08/12 13:00**	**C0208ALKB1**

Parameter	Result	RL	DF	Qual	Units
Alkalinity, Total (as CaCO3)	562	5.00	1		mg/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IP-10	**12-02-0091-4-D**	**02/01/12 11:10**	**Aqueous**	**PH1/BUR13**	**N/A**	**02/08/12 13:00**	**C0208ALKB1**

Parameter	Result	RL	DF	Qual	Units
Alkalinity, Total (as CaCO3)	353	5.00	1		mg/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IP-1	**12-02-0091-5-D**	**02/01/12 11:45**	**Aqueous**	**PH1/BUR13**	**N/A**	**02/08/12 13:00**	**C0208ALKB1**

Parameter	Result	RL	DF	Qual	Units
Alkalinity, Total (as CaCO3)	542	5.00	1		mg/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IP-8	**12-02-0091-6-D**	**02/01/12 12:35**	**Aqueous**	**PH1/BUR13**	**N/A**	**02/08/12 13:00**	**C0208ALKB1**

Parameter	Result	RL	DF	Qual	Units
Alkalinity, Total (as CaCO3)	688	5.00	1		mg/L

Return to Contents

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

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Kiff Analytical		Date Received:	02/02/12
2795 2nd Street, Suite 300		Work Order No:	12-02-0091
Davis, CA 95616-6593		Preparation:	N/A
		Method:	SM 2320B

Project: Tesoro - Livermore

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IP-9	**12-02-0091-7-D**	**02/01/12 13:30**	**Aqueous**	**PH1/BUR13**	**N/A**	**02/08/12 13:00**	**C0208ALKB1**

Parameter	Result	RL	DF	Qual	Units
Alkalinity, Total (as CaCO3)	14000	100	1		mg/L

Return to Contents

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

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

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

Date Received: 02/02/12
Work Order No: 12-02-0091
Preparation: N/A
Method: SM 2540 C

Project: Tesoro - Livermore

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
DW-8	**12-02-0091-1-D**	**02/01/12 09:00**	**Aqueous**	**N/A**	**02/02/12**	**02/02/12 20:00**	**C0202TDSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total Dissolved	795	1.00	1		mg/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-11	**12-02-0091-2-D**	**02/01/12 09:15**	**Aqueous**	**N/A**	**02/02/12**	**02/02/12 20:00**	**C0202TDSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total Dissolved	1640	10.0	1		mg/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-2	**12-02-0091-3-D**	**02/01/12 10:20**	**Aqueous**	**N/A**	**02/02/12**	**02/02/12 20:00**	**C0202TDSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total Dissolved	655	1.00	1		mg/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IP-10	**12-02-0091-4-D**	**02/01/12 11:10**	**Aqueous**	**N/A**	**02/02/12**	**02/02/12 20:00**	**C0202TDSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total Dissolved	505	1.00	1		mg/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IP-1	**12-02-0091-5-D**	**02/01/12 11:45**	**Aqueous**	**N/A**	**02/02/12**	**02/02/12 20:00**	**C0202TDSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total Dissolved	635	1.00	1		mg/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IP-8	**12-02-0091-6-D**	**02/01/12 12:35**	**Aqueous**	**N/A**	**02/02/12**	**02/02/12 20:00**	**C0202TDSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total Dissolved	890	1.00	1		mg/L

Return to Contents

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

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Kiff Analytical		Date Received:	02/02/12
2795 2nd Street, Suite 300		Work Order No:	12-02-0091
Davis, CA 95616-6593		Preparation:	N/A
		Method:	SM 2540 C

Project: Tesoro - Livermore

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IP-9	**12-02-0091-7-D**	**02/01/12 13:30**	**Aqueous**	**N/A**	**02/02/12**	**02/02/12 20:00**	**C0202TDSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total Dissolved	20400	100	1		mg/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-180-3,030**	**N/A**	**Aqueous**	**N/A**	**02/02/12**	**02/02/12 20:00**	**C0202TDSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total Dissolved	ND	1.0	1		mg/L

Return to Contents

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

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

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

Date Received: 02/02/12
Work Order No: 12-02-0091
Preparation: N/A
Method: SM 2320B

Project: Tesoro - Livermore

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
12-01-1814-7	**Aqueous**	**PH1/BUR13**	**N/A**	**02/08/12**	**C0208ALKD1**

Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Alkalinity, Total (as CaCO3)	104	104	0	0-25	
Bicarbonate (as CaCO3)	104	104	0	0-25	
Carbonate (as CaCO3)	ND	ND	NA	0-25	
Hydroxide (as CaCO3)	ND	ND	NA	0-25	

Return to Contents

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: 02/02/12
Work Order No: 12-02-0091
Preparation: N/A
Method: SM 2540 C

Project: Tesoro - Livermore

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
DW-8	**Aqueous**	**N/A**	**02/02/12**	**02/02/12**	**C0202TDSD1**

Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Solids, Total Dissolved	795	820	3	0-10	

Return to Contents

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

Kiff Analytical		Date Received:	N/A
2795 2nd Street, Suite 300		Work Order No:	12-02-0091
Davis, CA 95616-6593		Preparation:	N/A
		Method:	RSK-175M

Project: Tesoro - Livermore

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-663-1,502	**Aqueous**	**GC 52**	**N/A**	**02/04/12**	**120204L01**

Parameter	SPIKE ADDED	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Methane	100.0	89	87	79-109	2	0-20	

Return to Contents

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

ACCREDITED IN ACCORDANCE WITH nelac

Work Order Number: 12-02-0091

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.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
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.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS/LCSD Recovery Percentage is within Marginal Exceedance (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.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

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

Return to Contents

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

12-02-0091

COC No. **80221** 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

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

Project Number: 01LV P.O. No.: 80221

Project Name: Tesoro - Livermore

Project Address:

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: 1-L Poly None	250ml Poly None	VOA 40 ml HCl	Matrix: Water	Analysis Request: Alkalinity SM 2320 (1)	Carbon Dioxide by RSK 175 (1)	Hydrocarbons in Water by RSK 175 (1)	Total Dissolved Solids	TAT: 4-Days	For Lab Use Only
DW-8	02/01/12	09:00	1	1	2	X	X	X	X	X	X	1
MW-11	02/01/12	09:15	1	1	2	X	X	X	X	X	X	2
MW-2	02/01/12	10:20	1	1	2	X	X	X	X	X	X	3
IP-10	02/01/12	11:10	1	1	2	X	X	X	X	X	X	4
IP-1	02/01/12	11:45	1	1	2	X	X	X	X	X	X	5
IP-8	02/01/12	12:35	1	1	2	X	X	X	X	X	X	6
IP-9	02/01/12	13:30	1	1	2	X	X	X	X	X	X	7

Relinquished by:	Date	Time	Received by:
Kiff Analytical	020112	1900	
ONTRAC	2/2/12	0800	Received by Laboratory:

Remarks: Please refer to attached Test Detail.

Bill to: Accounts Payable

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0091

Test Detail for Kiff Work Order: 80221

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

Carbon Dioxide by RSK 175 (1)
Carbon Dioxide

Hydrocarbons in Water by RSK 175 (1)
Methane

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OnTrac
On Time Delivery For Less

800.334.5000
ontrac.com

Date Printed 2/1/2012

Tracking#D10010447738977

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 RUSH SAMPLES
Reference 2:

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

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 12-02-0 0 9 1

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: KIFF ANALYTICAL DATE: 02/02/12

TEMPERATURE: Thermometer ID: SC3 (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 2.6 °C - 0.3 °C (CF) = 2.3 °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: WB

CUSTODY SEALS INTACT:

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

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

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 ☑VOAh 2 ☐VOA**na**$_2$ ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na**$_2$ ☐1AGB**s**

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

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

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

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 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:** YL

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 12-02-0091

SAMPLE ANOMALY FORM

SAMPLES - CONTAINERS & LABELS:

Comments:

- ☐ **Sample(s) NOT RECEIVED but listed on COC**
- ☐ **Sample(s) received but NOT LISTED on COC**
- ☐ **Holding time expired** – list sample ID(s) and test
- ☑ **Insufficient quantities for analysis** – list test
- ☐ **Improper container(s) used** – list test
- ☐ **Improper preservative used** – list test
- ☐ **No preservative noted on COC or label** – list test & notify lab
- ☐ **Sample labels illegible** – note test/container type
- ☐ **Sample label(s) do not match COC** – Note in comments
  - ☐ **Sample ID**
  - ☐ **Date and/or Time Collected**
  - ☐ **Project Information**
  - ☐ **# of Container(s)**
  - ☐ **Analysis**
- ☐ **Sample container(s) compromised** – Note in comments
  - ☐ **Water present in sample container**
  - ☐ **Broken**
- ☐ **Sample container(s) not labeled**
- ☐ **Air sample container(s) compromised** – Note in comments
  - ☐ **Flat**
  - ☐ **Very low in volume**
  - ☐ **Leaking (Not transferred - duplicate bag submitted)**
  - ☐ **Leaking (transferred into Calscience Tedlar® Bag*)**
  - ☐ **Leaking (transferred into Client's Tedlar® Bag*)**
- ☐ **Other:** _____

(1-7) CONTAINER FOR CO_2 (RSK) NOT RECEIVED.

HEADSPACE – Containers with Bubble > 6mm or ¼ inch:

Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Cont. received	Analysis

Comments: _____

*Transferred at Client's request.

Initial / Date: PS 02/02/12

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ATTACHMENT G

WASTE MANIFESTS

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: N/A

Manifest Document No.: 19484

2. Page 1 of

3. Generator's Name and Mailing Address:
Tesoro Environmental Resource Co.
3450 344th Way Auburn, WA 98001

4. Generator's Phone ( )

Tesoro #67076
1619 First Street
Livermore, CA

5. Transporter 1 Company Name: EXCEL Environmental SVS.

6. US EPA ID Number: CAL000209350

A. State Transporter's ID

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:
ROT
5300 Claus Rd.
Riverbank, CA 95367

10. US EPA ID Number: CAL000190816

E. State Facility's ID

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	TT	445	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)

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month / Day / Year)
Peter Arroyo	Peter Arroyo	2 / 1 / 12

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month / Day / Year)
Jim Light	Jim Light	2 / 1 / 12

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)

NON-HAZARDOUS WASTE

Rev. 3/95

NO. 697165

NON-HAZARDOUS WASTE DATA FORM

27

BESI # 201268

GENERATOR

Generator's Name and Mailing Address
TESORO
P.O. BOX 80730
RANCHO SANTA MARGARITA, CA 92688

Generator's Site Address (if different than mailing address)
FORMER TESORO 67076
1619 FIRST ST
LIVERMORE, CA 94550

Generator's Phone: 949-460-5200

Container type removed from site:
XX ☑ Drums ☐ Vacuum Truck ☐ Roll-off Truck ☐ Dump Truck
☐ Other _____
Quantity 10

Container type transported to receiving facility:
☐ Drums XX ☑ Vacuum Truck ☐ Roll-off Truck ☐ Dump Truck
☐ Other _____
Quantity 1 Volume 330 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: [signature]
Month 1 Day 24 Year 12

The Generator certifies that the waste as described is 100% non-hazardous

TRANSPORTER

Transporter 1 Company Name: BELSHIRE
Phone#: 949-460-5200

Transporter 1 Printed/Typed Name: Larry Moothart
Signature: [signature]
Month 1 Day 24 Year 12

Transporter Acknowledgment of Receipt of Materials

Transporter 2 Company Name: NIETO & SONS TRUCKING, INC.
Phone#: 714-990-6855

Transporter 2 Printed/Typed Name: Jaime Martinez
Signature: [signature]
Month 1 Day 31 Year 12

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: Alejandro Vargas
Signature: [signature]
Month 01 Day 31 Year 12

Designated Facility Owner or Operator: Certification of receipt of materials covered by this data form.

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
CAR000142299	1	(800) 424-9300	004643677 FLE

GENERATOR

5. Generator's Name and Mailing Address
Tesoro
P.O. Box 80730
Rancho Santa Margarita, CA 92688
Generator's Phone: (949) 460-5200

Generator's Site Address (if different than mailing address)
Former Tesoro 67076
1619 FIRST ST
LIVERMORE, CA 94550

6. Transporter 1 Company Name: BELSHIRE — U.S. EPA ID Number: CAR000183913

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address
DeMenno Kerdoon
2000 N. Alameda St.
Compton, CA 90222
Facility's Phone: (310) 537-7100

U.S. EPA ID Number: CAT080013352

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. UN1203, Gasoline Mixture, 3, PG II	1	DM	20	G	134
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
ERG#: 128
Gasoline & Water
Remediation Waste
WEAR ALL APPROPRIATE PROTECTIVE CLOTHING
BESI:201268
BELSHIRE CCN: 205892
TESORO CCN: 618330

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Larry Moothart of BESI on behalf of generator — Signature — Month: 1 — Day: 24 — Year: 12

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Darrell Parks — Signature: DParks — Month: 1 — Day: 24 — Year: 12

Transporter 2 Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month — Day — Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Armando Tscareno — Signature — Month: 01 — Day: 27 — Year: 12

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

TRANSPORTER'S COPY