TESORO

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September 19, 2014

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

Subject: **First Quarter 2014 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 ***First Quarter 2014 Status Report*** for the subject site, dated 25 September 2014. 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 Scott Stromberg of Arctos Environmental at 510/525-2180 with questions.

Sincerely,

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

Attachments

CC: Arctos – Scott Stromberg

ARCTOS

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25 September 2014
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 2014 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 2014 at the subject site (Figure 1).

Executive Summary

A quarterly groundwater monitoring event was conducted from 21 to 22 January 2014. On average, there was an approximately 1-foot increase in water levels since the fourth quarter 2013. The highest onsite petroleum hydrocarbon concentrations were detected in wells IP-8, DW-8, and MW-2. The highest offsite petroleum hydrocarbon concentrations were detected in wells MW-6 and DW-2. The soil vapor extraction (SVE) system and oxygen injection system remained shut off during the first quarter 2014.

The expanded onsite and offsite ISCO pilot test was conducted during the second quarter 2013. A description of the expanded ISCO pilot test including the results of the pilot test will be submitted in a separate report. Results of first quarter 2014 monitoring indicate that hydrocarbon concentrations in groundwater have increased compared to periods of similar water level at source area wells. These increases are likely a result of desorption of hydrocarbon mass associated with the ISCO pilot test and are likely temporary. Offsite hydrocarbons also increased during the ISCO pilot test. However, first quarter 2014 groundwater monitoring results indicate that offsite concentrations appear to be stabilizing or decreasing.

During the second quarter 2014, Tesoro will continue to monitor groundwater wells in the vicinity of the ISCO pilot test to evaluate the effectiveness of the ISCO pilot test on and off site.

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, Confluence Environmental, of Sacramento, California, performed a quarterly groundwater monitoring event from 21 to 22 January 2014. Samples were collected from wells MW-1 through MW-12, DW-1 through DW-9, IP-1, IP-5, IP-8 through IP-10, TP-1, TP-2, VW-2, and VW-3 (Figure 2) in accordance with the site monitoring plan (Attachment A) and the ISCO pilot test work plan. 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 samples collected from wells MW-1, MW-3 through MW-5, DW-4, VW-2, VW-3, TP-1, and TP-2 were analyzed in accordance with the analytical plan in Attachment A. Groundwater samples collected from the remaining wells were tested for additional analytes in accordance with the ISCO pilot test work plan (Arctos, 2011).

Groundwater Results

Groundwater elevations were approximately 432 to 441 feet above mean sea level (MSL; 33 to 37 feet below ground surface [bgs]). Water levels increased an average of 1.4 feet compared to the previous quarter and were an average of 1.8 feet lower than water levels in the first quarter 2013 (Table 1). The water level data indicate that the general direction of water flow is toward the northwest with an estimated gradient of 0.02 (1 foot/66 feet; Figure 2). The gradient is consistent with historical data collected since 1993 (Attachment C).

During the first quarter 2014, the highest onsite concentration of total petroleum hydrocarbons as gasoline (TPHg) of 41,000 micrograms per liter (µg/l) was detected at well IP-8, located in the western area of the site adjacent to the USTs. The highest onsite benzene concentration of 1,100 µg/l was detected at well DW-8, located in P Street

downgradient of the USTs. Methyl tert-butyl ether (MTBE) and tert-butyl alcohol (TBA) were detected onsite at maximum concentrations of 43 and 36 µg/l, respectively, at well MW-2.

Historically, a direct relationship between dissolved-phase hydrocarbons and water levels has been observed at shallow source area wells and an indirect relationship has historically been observed at deep source area wells. Compared to when water levels were at the same elevation, dissolved-phase hydrocarbon concentrations in source area wells TP-2 and VW-2 have decreased. The table below summarizes reductions in hydrocarbon concentrations for source area wells. Concentrations at source area wells MW-2, MW-11, TP-1, and DW-1 have increased compared to when water levels were at the same elevation, but are still within historical range. Temporary concentration increases following the ISCO injections are expected and are likely a result of desorption of hydrocarbon mass. Hydrocarbon concentrations are expected to stabilize or decrease.

During the first quarter 2014, the highest offsite TPHg concentration of 17,000 µg/l was detected at well DW-5, located west of the intersection of 1st Street and P Street.. Benzene was detected offsite at a maximum concentration of 1,100 µg/l at well MW-6, located northwest of the intersection of 1st Street and P Street. The highest offsite MTBE and TBA concentrations of 110 and 380 µg/l were detected at wells MW-6 and DW-2, respectively. Wells MW-12 and DW-9 are the farthest downgradient shallow and deep well cluster. TPHg, benzene, MTBE, and TBA were detected in deep well DW-9 at concentrations of 14,000, 180, 27, and 77 µg/l, respectively. TPHg and benzene were detected in shallow well MW-12 at concentrations of 3,400 and 4.3 µg/l, respectively. MTBE and TBA were not detected in well MW-12. All offsite benzene concentrations were below the environmental screening level (ESL) of 1,800 µg/l established by the San Francisco Regional Water Quality Control Board for evaluation of potential vapor intrusion concerns. Offsite hydrocarbon concentrations increased during the ISCO pilot test. However, based on results of fourth quarter monitoring, concentrations appear to be stabilizing or decreasing at most offsite wells.

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

Expanded ISCO Pilot Test

Arctos conducted an ISCO pilot test at well IP-9 in the fourth quarter 2011. Monitoring results for the first quarter 2013 showed that TPHg and benzene concentrations decreased by over 68 percent at injection well IP-9. ISCO pilot test groundwater monitoring results are summarized in Table 4.

As described in the 16 March 2012 pilot test report, changes in groundwater chemistry and hydrocarbon concentrations indicated that the RegenOx™ chemical oxidant was effective at desorbing petroleum hydrocarbons from soil and destroying hydrocarbons in groundwater. On 25 March 2013, Arctos obtained approval from ACEH for an expanded ISCO pilot test to occur on and off site. The objective of the expanded pilot test was to further assess the effectiveness of the RegenOx™ chemical oxidant at remediating hydrocarbons in soil and groundwater.

Arctos installed seven offsite injection wells in April 2013. Arctos's subcontractor, Confluence Environmental of Sacramento, California, conducted the expanded ISCO pilot test from May to August 2013. Results of the expanded ISCO pilot test will be included in a separate report.

Source Area Remediation

Soil Vapor Extraction (SVE) System
The SVE system operated from June 2010 to November 2012. The system was shut down in November 2012 and remained off during the first quarter 2014. During operation, the total hydrocarbon mass removed by the SVE system is estimated to be 38,250 pounds or approximately 5,890 gallons (at a density of 6.5 pounds per gallon).

Oxygen Injection System
The oxygen injection system operated from October 2010 to March 2013. The system was shut down on 28 March 2013 in preparation for the expanded ISCO pilot test and remained shut off during the first quarter 2014.

Source Area Reduction
Concentrations in groundwater have decreased by up to 99 percent in all source area wells except DW-1 compared to before the SVE and oxygen injection systems were started in June and October 2010. The plume has also decreased in area compared to before the SVE and oxygen injection systems were started. The reductions in hydrocarbon concentrations for shallow and deep source area wells are summarized in the following table:

Well ID	Date	Groundwater Elevation (ft. MSL)	Petroleum Hydrocarbon Concentration[a] (µg/l)			Percent Reduction[b]
			TPHg	Benzene	MTBE	
MW-2	5/3/10	440.54	26,000	3,100	530	89%
	1/22/14	439.17	3,000	140	43	
MW-11	5/3/10	441.90	62,000	3,600	ND<15[c]	77%
	1/22/14	440.53	15,000	44	ND<1.5	
TP-1	5/3/10	440.50	15,000	2,100	3,400	83%
	1/22/14	439.26	3,400	11	41	
TP-2	5/3/10	441.08	6,400	740	14,000	99%
	1/21/14	439.53	ND<50	ND<0.5	ND<0.5	
VW-2	5/3/10	441.44	2,800	130	1,300	99%
	1/22/14	439.41	ND<50	ND<0.5	ND<0.5	
DW-1	5/3/10	441.15	1,800	160	21	NA[d]
	1/22/14	439.28	5,000	51	12	

(a) Dissolved-phase petroleum hydrocarbons as analyzed by EPA Method 8260B and reported in micrograms per liter (µg/l).
(b) Half the detection limit was used for non-detect concentrations in calculating percent reduction.
(c) ND – Not detected at the reporting limit listed.
(d) NA – Not applicable.

Figures 6A through 6C show onsite concentration contour maps for TPHg, benzene, and MTBE in May 2010, prior to startup of the SVE and oxygen injection systems, and in the first quarter 2014. As of 28 March, both the SVE and oxygen injection systems are shut down. Based on the expanded treatment area of the ISCO pilot test and the reduced concentrations in the source area, the source area treatment systems are no longer required for soil and groundwater remediation.

Conclusions

Results of groundwater sampling indicate the following conclusions:

1. Onsite hydrocarbon concentrations in groundwater have decreased following SVE and oxygen injection. The source area treatment systems are no longer required for soil and groundwater remediation.

2. In previous quarters, hydrocarbon concentrations at shallow and deep source area wells have decreased compared to concentrations at similar water levels. However, hydrocarbon concentrations at source area wells increased during first quarter 2014 compared to concentrations at similar water levels. Concentration increases following ISCO injections are expected due to desorption of hydrocarbon mass. Concentration increases

during the first quarter 2014 are within the historical range and are expected to be temporary.

3. Downgradient groundwater concentrations increased during the ISCO injections, but appeared to be stabilizing or decreasing during the first quarter 2014. Downgradient concentrations are within the historical range, and all offsite benzene concentrations are below the ESL for potential vapor intrusion concerns.

Recommendations

Based on the activities completed during this quarter, Arctos recommends the following tasks during the second quarter 2014 and beyond:

- Submit a report documenting the results and evaluating the effectiveness of the expanded ISCO pilot test.
- Continue groundwater monitoring activities and evaluate groundwater concentration trends.

If you have questions or comments, please call Emily Chow or Mike Purchase at 510/525-2180.

Very truly yours,

ARCTOS ENVIRONMENTAL

Emily Chow
Staff Scientist

Michael P. Purchase, P.E.
Principal Engineer

Copy: Jeffrey M. Baker, P.E. – Tesoro Refining & Marketing Company LLC
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
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 6A – Onsite TPHg Concentration Contours
Figure 6B – Onsite Benzene Concentration Contours
Figure 6C – Onsite MTBE Concentration Contours
Figure 7 – Expanded ISCO Pilot Test Injection Wells
Attachment A – Groundwater Sampling QA/QC Procedures
Attachment B – Field Data Sheets
Attachment C – Historical Well and Groundwater Elevations
Attachment D – Historical Groundwater Analytical Results
Attachment E – Laboratory Analytical Reports and Chain-of-Custody Forms
Attachment F – 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.

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	2/12/13	30.98	474.21[(c)]	443.23
	4/22/13	33.11		441.10
	8/21/13	35.40		438.81
	11/7/13	34.36		439.85
	1/21/14	33.23		440.98
MW-2	2/12/13	32.13	472.98	440.85
	4/22/13	34.15		438.83
	8/21/13	36.05		436.93
	11/7/13	35.09		437.89
	1/21/14	33.81		439.17
MW-3	2/12/13	31.34	473.37	442.03
	4/22/13	33.51		439.86
	8/21/13	35.71		437.66
	11/7/13	34.60		438.77
	1/21/14	33.49		439.88
MW-4	2/12/13	31.56	473.64	442.08
	4/22/13	33.80		439.84
	8/21/13	36.10		437.54
	11/7/13	35.18		438.46
	1/21/14	34.07		439.57
MW-5	2/12/13	32.68	472.67	439.99
	4/22/13	35.09		437.58
	8/21/13	37.00		435.67
	11/7/13	35.94		436.73
	1/21/14	34.65		438.02
MW-6	2/12/13	34.24	471.93	437.69
	4/22/13	36.78		435.15
	6/25/13	37.15		434.78
	8/21/13	37.98		433.95
	11/7/13	39.82		432.11
	1/21/14	35.42		436.51
MW-7	2/12/13	31.46	472.33	440.87
	4/22/13	33.19		439.14

TABLE 1

WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
MW-7	8/21/13	36.90	472.33	435.43
(cont.)	11/7/13	34.06		438.27
	1/21/14	33.11		439.22
MW-8	2/12/13	32.81	471.18	438.37
	4/22/13	35.00		436.18
	6/25/13	36.40		434.78
	8/21/13	37.20		433.98
	11/7/13	35.95		435.23
	1/21/14	34.63		436.55
MW-9	2/12/13	34.70	470.78	436.08
	4/22/13	37.01		433.77
	6/25/13	37.82		432.96
	8/21/13	39.02		431.76
	11/7/13	37.87		432.91
	1/21/14	36.31		434.47
MW-10	2/12/13	33.19	471.63	438.44
	4/22/13	34.99		436.64
	6/25/13	36.25		435.38
	8/21/13	37.11		434.52
	11/7/13	36.05		435.58
	1/21/14	34.55		437.08
MW-11	2/12/13	30.64	472.96[(c)]	442.32
	4/22/13	32.74		440.22
	8/21/13	34.74		438.22
	11/7/13	33.75		439.21
	1/21/14	32.43		440.53
MW-12	2/12/13	34.10	469.77	435.67
	4/22/13	36.18		433.59
	6/25/13	37.80		431.97
	8/21/13	38.80		430.97
	11/7/13	37.40		432.37
	1/21/14	35.94		433.83

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)
VW-2	2/12/13	31.60	472.57[c]	440.97
	4/22/13	33.51		439.06
	8/21/13	DRY[d]		--
	11/7/13	DRY		--
	1/21/14	33.16		439.41
VW-3	2/12/13	31.70	474.38	442.68
	4/22/13	33.49		440.89
	8/21/13	35.46		438.92
	11/7/13	35.07		439.31
	1/21/14	33.80		440.58
TP-1	2/12/13	31.96	472.64[c]	440.68
	4/22/13	33.71		438.93
	8/21/13	35.86		436.78
	11/7/13	34.65		437.99
	1/21/14	33.38		439.26
TP-2	2/12/13	31.81	472.78[c]	440.97
	4/22/13	33.70		439.08
	8/21/13	35.43		437.35
	11/7/13	34.50		438.28
	1/21/14	33.25		439.53
DW-1	2/12/13	31.63	472.85	441.22
	4/22/13	33.72		439.13
	8/21/13	35.90		436.95
	11/7/13	34.79		438.06
	1/21/14	33.57		439.28
DW-2	2/12/13	34.35	471.61	437.26
	4/22/13	36.70		434.91
	6/25/13	36.94		434.67
	8/21/13	37.85		433.76
	11/7/13	36.94		434.67
	1/21/14	35.59		436.02
DW-3	2/12/13	33.87	470.33	436.46
	4/22/13	36.10		434.23

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-3	6/25/13	37.39	470.33	432.94
(cont.)	8/21/13	38.38		431.95
	11/7/13	36.85		433.48
	1/21/14	35.32		435.01
DW-4	2/12/13	33.29	468.48	435.19
	4/22/13	35.90		432.58
	8/21/13	38.30		430.18
	11/7/13	36.45		432.03
	1/21/14	35.99		432.49
DW-5	2/12/13	34.10	471.86	437.76
	4/22/13	36.52		435.34
	6/25/13	37.42		434.44
	8/21/13	38.35		433.51
	11/7/13	36.97		434.89
	1/21/14	34.45		437.41
DW-6	2/12/13	34.96	471.77	436.81
	4/22/13	37.29		434.48
	6/25/13	38.55		433.22
	8/21/13	39.55		432.22
	11/7/13	38.24		433.53
	1/21/14	37.03		434.74
DW-7	2/12/13	34.54	470.07	435.53
	4/22/13	36.80		433.27
	6/25/13	38.44		431.63
	8/21/13	39.91		430.16
	11/7/13	38.25		431.82
	1/21/14	36.70		433.37
DW-8	2/12/13	30.46	472.31	441.85
	4/22/13	32.66		439.65
	8/21/13	34.43		437.88
	11/7/13	33.54		438.77
	1/21/14	33.03		439.28

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-9	2/12/13	34.25	469.80	435.55
	4/22/13	36.39		433.41
	6/25/13	38.46		431.34
	8/21/13	39.32		430.48
	11/7/13	37.76		432.04
	1/21/14	36.26		433.54

(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)	Ethyl-benzene[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	2/12/13	ND<50[b]	ND<0.5	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
	4/22/13	240	ND<0.5	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
	8/21/13	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
	11/7/13	4,300	0.82	2.9	76	160	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/21/14	9,600	2.5	5.2	130	250	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<15	ND<0.5	ND<0.5
MW-2	2/13/13	270	29	4.4	8.9	19	7.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	4/23/13	430	10	2.2	3.8	8.5	13	ND<0.5	ND<0.5	ND<0.5	6.6	ND<50	ND<8	ND<0.5	ND<0.5
	6/24/13	1,700	7.2	0.91	12	16	9.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/21/13	11,000	560	30	430	440	88	ND<0.5	ND<0.5	1.0	48	ND<50	ND<8	ND<0.5	ND<0.5
	11/7/13	4,700	140	7.5	160	170	28	ND<0.9	ND<0.9	ND<0.9	22	ND<90	ND<9	ND<0.9	ND<0.9
	1/22/14	3,000	140	9.0	68	92	43	ND<0.5	ND<0.5	ND<0.5	36	ND<50	ND<5	ND<0.5	ND<0.5
MW-3	2/12/13	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
	4/22/13	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
	8/22/13	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
	11/7/13	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
	1/22/14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-4	2/12/13	NS[c]	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/22/13	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
	8/21/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/7/13	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
	1/21/14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-5	2/12/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/22/13	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 2

GROUNDWATER ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date	TPHg[(a)] (µg/l)	Benzene[(a)] (µg/l)	Toluene[(a)] (µg/l)	Ethyl-benzene[(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-5	8/21/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
(cont.)	11/7/13	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
	1/21/14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-6	2/14/13	12,000	1,400	42	230	56	200	ND<2.5	ND<2.5	2.5	100	ND<250	ND<25	ND<2.5	ND<2.5
	4/24/13	8,600	880	22	89	25	190	ND<1.5	ND<1.5	2.7	700	ND<400	ND<15	ND<1.5	ND<1.5
	6/25/13	6,800	350	7.0	26	9.3	81	ND<0.9	ND<0.9	1.0	280	ND<800	ND<9	ND<0.9	ND<0.9
	8/22/13	14,000	1,500	59	290	150	110	ND<1.5	ND<1.5	ND<1.5	93	ND<400	ND<15	ND<1.5	ND<1.5
	11/7/13	12,000	1,200	62	190	81	100	ND<2.5	ND<2.5	ND<2.5	66	ND<250	ND<25	ND<2.5	ND<2.5
	1/22/14	15,000	1,100	37	120	52	110	ND<2.5	ND<2.5	ND<2.5	190	ND<250	ND<25	ND<2.5	ND<2.5
MW-7	2/12/13	860	1.0	ND<0.5	2.3	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	4/23/13	720	0.65	0.61	1.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	6/24/13	1,700	1.3	ND<0.5	2.7	2.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/21/13	880	0.54	ND<0.5	1.7	0.82	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/7/13	330	ND<0.5	ND<0.5	0.51	0.73	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/22/14	1,000	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-8	2/12/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/23/13	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
	6/25/13	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
	8/22/13	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
	11/7/13	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
	1/22/14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-9	2/12/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/23/13	1,900	4.5	0.75	1.7	1.0	3.4	ND<0.5	ND<0.5	ND<0.5	5.0	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)	Ethyl-benzene[(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-9	6/25/13	2,800	20	0.91	3.8	2.7	6.0	ND<0.5	ND<0.5	ND<0.5	29	ND<50	ND<5	ND<0.5	ND<0.5
(cont.)	8/22/13	1,500	20	0.70	1.7	0.84	9.0	ND<0.5	ND<0.5	ND<0.5	40	ND<50	ND<5	ND<0.5	ND<0.5
	11/7/13	1,400	3.1	ND<0.5	0.70	0.58	4.2	ND<0.5	ND<0.5	ND<0.5	12	ND<50	ND<5	ND<0.5	ND<0.5
	1/22/14	2,000	2.4	ND<0.5	0.81	0.79	2.7	ND<0.5	ND<0.5	ND<0.5	7.6	ND<50	ND<5	ND<0.5	ND<0.5
MW-10	2/12/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/22/13	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
	6/25/13	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
	8/21/13	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
	11/7/13	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
	1/21/14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-11	2/13/13	6,400	28	72	160	860	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<8	ND<0.5	ND<0.5
	4/24/13	5,800	16	18	140	640	ND<0.9	ND<0.9	ND<0.9	ND<0.9	ND<5	ND<90	ND<9	ND<0.9	ND<0.9
	6/24/13	8,000	24	34	190	830	ND<0.9	ND<0.9	ND<0.9	ND<0.9	5.8	ND<90	ND<9	ND<0.9	ND<0.9
	8/22/13	9,600	26	32	260	940	ND<0.9	ND<0.9	ND<0.9	ND<0.9	8.6	ND<200	ND<20	ND<0.9	ND<0.9
	11/7/13	8,800	50	54	380	1,000	ND<1.5	ND<1.5	ND<1.5	ND<1.5	12	ND<150	ND<15	ND<1.5	ND<1.5
	1/22/14	15,000	44	45	390	910	ND<1.5	ND<1.5	ND<1.5	ND<1.5	7.7	ND<150	ND<15	ND<1.5	ND<1.5
MW-12	2/13/13	2,500	7.6	1.3	26	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
	4/24/13	1,400	2.2	0.78	7.7	1.1	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<100	ND<20	ND<0.5	ND<0.5
	6/25/13	4,400	8.8	5.2	26	13	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/22/13	4,500	15	2.4	33	6.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/7/13	4,600	15	2.4	47	13	0.50	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/22/14	3,400	4.3	1.5	12	2.6	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
VW-2	2/12/13	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
	4/24/13	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 2

GROUNDWATER ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date	TPHg[(a)] (µg/l)	Benzene[(a)] (µg/l)	Toluene[(a)] (µg/l)	Ethyl-benzene[(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)
VW-2	8/21/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
(cont.)	11/7/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	1/22/14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
VW-3	2/12/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/22/13	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
	8/21/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/7/13	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
	1/22/14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
TP-1	2/12/13	160	ND<0.5	ND<0.5	3.6	6.0	3.3	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	4/24/13	2,000	35	21	22	180	76	ND<0.5	ND<0.5	0.70	33	ND<50	ND<5	ND<0.5	ND<0.5
	8/22/13	3,500	28	3.8	35	11	100	ND<0.5	ND<0.5	0.98	42	ND<50	ND<5	ND<0.5	ND<0.5
	11/7/13	2,800	14	1.8	19	7.3	43	ND<0.5	ND<0.5	ND<0.5	25	ND<50	ND<5	ND<0.5	ND<0.5
	1/22/14	3,400	11	1.4	16	5.2	41	ND<0.5	ND<0.5	ND<0.5	22	ND<50	ND<5	ND<0.5	ND<0.5
TP-2	2/12/13	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
	4/24/13	100	1.2	0.88	1.6	7.4	0.54	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/21/13	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	0.89	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/7/13	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
	1/21/14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
DW-1	2/12/13	ND<50	ND<0.5	ND<0.5	0.54	0.68	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	4/22/13	ND<50	ND<0.5	ND<0.5	ND<0.5	0.78	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	6/24/13	12,000	110	66	280	860	13	ND<0.5	ND<0.5	ND<0.5	11	ND<50	ND<5	ND<0.5	ND<0.5
	8/21/13	1,100	18	5.8	34	82	5.9	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)	Ethyl-benzene[(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-1	11/7/13	5,200	69	13	130	200	18	ND<0.5	ND<0.5	ND<0.5	15	ND<50	ND<8	ND<0.5	ND<0.5
(cont.)	1/22/14	5,000	51	13	98	110	12	ND<0.5	ND<0.5	ND<0.5	11	ND<50	ND<5	ND<0.5	ND<0.5
DW-2	2/13/13	6,400	500	18	60	19	140	ND<0.5	ND<0.5	1.6	510	ND<400	ND<8	ND<0.5	ND<0.5
	4/24/13	4,500	320	7.2	26	9.5	100	ND<0.5	ND<0.5	1.3	370	ND<80	ND<5	ND<0.5	ND<0.5
	6/25/13	4,900	250	6.2	58	26	100	ND<0.5	ND<0.5	1.2	400	ND<50	ND<8	ND<0.5	ND<0.5
	8/22/13	8,300	600	23	96	42	240	ND<0.5	ND<0.5	2.5	500	ND<50	ND<5	ND<0.5	ND<0.5
	11/7/13	6,500	520	18	57	17	150	ND<0.9	ND<0.9	2.2	310	ND<90	ND<9	ND<0.9	ND<0.9
	1/22/14	8,500	490	14	55	15	150	ND<0.9	ND<0.9	1.9	380	ND<300	ND<9	ND<0.9	ND<0.9
DW-3	2/12/13	120	ND<0.5	ND<0.5	1.2	0.50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	4/23/13	66	ND<0.5	2.3	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
	6/25/13	5,600	1.1	1.1	120	76	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/21/13	840	1.4	ND<0.5	3.2	1.7	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/7/13	960	ND<0.5	ND<0.5	5.1	2.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/22/14	860	ND<0.5	ND<0.5	3.0	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
DW-4	2/12/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/22/13	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
	8/21/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/7/13	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
	1/21/14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
DW-5	2/13/13	4,400	65	5.4	110	110	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<10	ND<0.5	ND<0.5
	4/24/13	3,000	32	2.5	38	31	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<8	ND<0.5	ND<0.5
	6/25/13	120,000	120	ND<4	1,400	2,200	ND<4	ND<4	ND<4	ND<4	ND<20	ND<400	ND<200	ND<4	ND<4
	8/22/13	22,000	58	11	770	1,200	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)	Ethyl-benzene[(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-5	11/7/13	26,000	62	12	1,000	1,400	ND<4	ND<4	ND<4	ND<4	ND<20	ND<400	ND<40	ND<4	ND<4
(cont.)	1/22/14	17,000	66	6.1	440	470	ND<2.5	ND<2.5	ND<2.5	ND<2.5	ND<15	ND<400	ND<40	ND<2.5	ND<2.5
DW-6	2/12/13	4,600	25	4.0	53	8.7	10	ND<0.5	ND<0.5	ND<0.5	34	ND<50	ND<9	ND<0.5	ND<0.5
	4/24/13	1,000	2.9	1.1	2.1	0.98	1.8	ND<0.5	ND<0.5	ND<0.5	6.2	ND<50	ND<5	ND<0.5	ND<0.5
	6/25/13	7,000	23	3.0	80	13	9.0	ND<0.5	ND<0.5	ND<0.5	34	ND<50	ND<5	ND<0.5	ND<0.5
	8/22/13	5,700	28	3.4	80	11	12	ND<0.5	ND<0.5	ND<0.5	37	ND<90	ND<8	ND<0.5	ND<0.5
	11/7/13	2,400	14	1.7	5.6	3.1	10	ND<0.5	ND<0.5	ND<0.5	35	ND<80	ND<5	ND<0.5	ND<0.5
	1/22/14	3,000	6.8	0.98	3.6	2.9	10	ND<0.5	ND<0.5	ND<0.5	36	ND<50	ND<5	ND<0.5	ND<0.5
DW-7	2/13/13	970	78	3.0	10	2.7	18	ND<0.5	ND<0.5	ND<0.5	56	ND<50	ND<5	ND<0.5	ND<0.5
	4/23/13	3,300	230	9.2	22	10	50	ND<0.5	ND<0.5	0.55	160	ND<50	ND<5	ND<0.5	ND<0.5
	6/25/13	27,000	590	32	960	640	100	ND<0.5	ND<0.5	0.95	330	ND<80	ND<20	ND<4	ND<0.5
	8/22/13	15,000	420	18	520	320	96	ND<2.5	ND<2.5	ND<2.5	310	ND<250	ND<25	ND<2.5	ND<2.5
	11/7/13	9,700	260	8.4	200	63	52	ND<1.5	ND<1.5	ND<1.5	170	ND<150	ND<15	ND<1.5	ND<1.5
	1/22/14	15,000	380	15	430	200	77	ND<1.5	ND<1.5	ND<1.5	230	ND<150	ND<15	ND<1.5	ND<1.5
DW-8	2/14/13	63,000	3,000	5,400	2,000	8,700	ND<5	ND<5	ND<5	ND<5	110	ND<500	ND<150	ND<5	ND<5
	4/24/13	5,900	350	370	140	790	ND<0.9	ND<0.9	ND<0.9	ND<0.9	8.0	ND<200	ND<80	ND<0.9	ND<0.9
	6/24/13	55,000	2,200	3,200	2,100	7,400	ND<0.9	ND<0.9	ND<0.9	ND<0.9	56	ND<90	ND<50	ND<0.9	ND<0.9
	8/22/13	16,000	380	240	500	1,400	ND<2.5	ND<2.5	ND<2.5	ND<2.5	ND<15	ND<250	ND<25	ND<2.5	ND<2.5
	11/7/13	56,000	1,800	2,800	2,100	7,900	ND<2.5	ND<2.5	ND<2.5	ND<2.5	37	ND<250	ND<25	ND<2.5	ND<2.5
	1/22/14	40,000	1,100	1,200	1,200	4,300	ND<7	ND<7	ND<7	ND<7	ND<40	ND<700	ND<70	ND<7	ND<7
DW-9	2/13/13	7,800	150	9.4	160	28	45	ND<1.5	ND<1.5	ND<1.5	110	ND<150	ND<15	ND<1.5	ND<1.5
	4/24/13	3,200	18	1.7	7.8	7.2	21	ND<0.5	ND<0.5	ND<0.5	67	ND<50	ND<5	ND<0.5	ND<0.5
	6/25/13	27,000	490	17	1,100	430	30	ND<4	ND<4	ND<4	62	ND<400	ND<40	ND<4	ND<4
	8/22/13	19,000	320	13	690	240	28	ND<4	ND<4	ND<4	87	ND<2,000	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)	Ethyl-benzene[(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-9	11/7/13	8,000	120	5.9	100	38	25	ND<1.5	ND<1.5	ND<1.5	73	ND<150	ND<15	ND<1.5	ND<1.5
(cont.)	1/22/14	14,000	180	6.7	200	65	27	ND<1.5	ND<1.5	ND<1.5	77	ND<150	ND<15	ND<1.5	ND<1.5

(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)	Ethyl-benzene[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
	5/9/12	16,000	580	850	800	2,100	ND<2	ND<2	ND<2	ND<2	12	ND<200	ND<20	ND<2	ND<2
	8/8/12	12,000	260	190	470	860	ND<2	ND<2	ND<2	ND<2	ND<9	ND<200	ND<20	ND<2	ND<2
	11/13/12	9,000	170	74	280	540	ND<2	ND<2	ND<2	ND<2	ND<9	ND<200	ND<20	ND<2	ND<2
	2/13/13	17,000	480	480	690	2,000	ND<2	ND<2	ND<2	ND<2	20	ND<200	ND<20	ND<2	ND<2
	4/24/13	9,700	230	160	370	1,200	ND<2	ND<2	ND<2	ND<2	ND<9	ND<200	ND<20	ND<2	ND<2
	8/22/13	23,000	360	430	740	2,300	ND<2	ND<2	ND<2	ND<2	25	ND<200	ND<20	ND<2	ND<2
	11/7/13	7,400	70	94	200	400	ND<0.9	ND<0.9	ND<0.9	ND<0.9	14	ND<90	ND<9	ND<0.9	ND<0.9
	1/22/14	16,000	190	280	460	1,600	ND<0.9	ND<0.9	ND<0.9	ND<0.9	20	ND<90	ND<10	ND<0.9	ND<0.9
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	0.90	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/1/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/8/12	340	10	4.8	6.3	13	2.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/7/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/12/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/12/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/23/13	160	5.6	3.7	1.3	3.6	1.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/21/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

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)	Ethyl-benzene[(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-2	11/7/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
(cont.)	1/21/14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
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
	2/1/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/8/12	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
	8/7/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/12/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/12/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/22/13	ND<50	0.51	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
	8/21/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/7/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	1/21/14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
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
	2/1/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/8/12	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	5.3	ND<0.5	ND<0.5
	8/7/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/12/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

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)	Ethyl-benzene[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-4	2/12/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
(cont.)	4/23/13	140	ND<0.5	43	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
	8/21/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/7/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	1/21/14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
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
	2/1/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/8/12	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
	8/7/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/12/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/12/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/23/13	ND<50	ND<0.5	4.1	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
	8/21/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/7/13	180	ND<0.5	ND<0.5	3.0	6.1	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/21/14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	0.60	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
	2/1/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

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)	Ethyl-benzene[(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-6	5/8/12	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
(cont.)	8/7/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/12/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/12/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/23/13	57	ND<0.5	11	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
	8/21/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/7/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	1/21/14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
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[(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
	4/27/11	220	8.1	0.69	3.4	1.50	0.95	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/1/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/8/12	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
	8/7/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/12/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/12/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/23/13	ND<50	ND<0.5	5.1	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
	8/21/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/7/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	1/21/14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
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

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)	Ethyl-benzene[(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-8	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
(cont.)	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
	5/9/12	50,000	2,400	4,900	790	8,600	ND<9	ND<9	ND<9	ND<9	ND<50	ND<900	ND<90	ND<9	ND<9
	8/8/12	63,000	3,500	6,700	980	7,400	ND<9	ND<9	ND<9	ND<9	65	ND<900	ND<90	ND<9	ND<9
	11/14/12	33,000	1,000	2,300	260	4,300	ND<7	ND<7	ND<7	ND<7	47	ND<700	ND<70	ND<7	ND<7
	2/14/13	65,000	3,300	7,100	1,600	9,200	ND<7	ND<7	ND<7	ND<7	110	ND<700	ND<150	ND<7	ND<7
	4/24/13	33,000	1,700	4,200	430	5,600	ND<6	ND<6	ND<6	ND<6	ND<30	ND<600	ND<60	ND<6	ND<6
	8/22/13	19,000	130	440	260	1,900	ND<4	ND<4	ND<4	ND<4	ND<20	ND<400	ND<80	ND<4	ND<4
	11/7/13	18,000	400	520	170	1,700	ND<4	ND<4	ND<4	ND<4	23	ND<400	ND<40	ND<4	ND<4
	1/22/14	41,000	550	1,600	560	4,200	ND<4	ND<4	ND<4	ND<4	22	ND<400	ND<40	ND<4	ND<4
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
	5/9/12	10,000	14	180	270	780	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<7	ND<150	ND<15	ND<1.5	ND<1.5
	8/7/12	11,000	22	240	210	880	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<7	ND<150	ND<15	ND<1.5	ND<1.5
	11/13/12	9,800	22	200	150	690	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<7	ND<150	ND<15	ND<1.5	ND<1.5
	2/13/13	12,000	68	560	280	1,300	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<7	ND<150	ND<15	ND<1.5	ND<1.5
	4/24/13	8,800	42	480	210	1,100	ND<1.5	ND<1.5	ND<1.5	ND<1.5	11	ND<150	ND<15	ND<1.5	ND<1.5
	8/22/13	7,500	14	250	190	1,000	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<7	ND<400	ND<15	ND<1.5	ND<1.5
	11/7/13	1,100	4.9	30	14	89	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<20	ND<0.5	ND<0.5
	1/22/14	1,600	1.9	9.7	8.6	16	0.50	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5

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)	Ethyl-benzene[(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-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
	5/9/12	3,900	24	38	110	58	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<20	ND<0.5	ND<0.5
	8/7/12	2,700	15	5.8	31	6.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/13/12	2,600	12	7.6	4.7	20	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<8	ND<0.5	ND<0.5
	2/12/13	6,500	26	270	180	590	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<20	ND<0.5	ND<0.5
	4/24/13	1,800	12	11	24	81	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<8	ND<0.5	ND<0.5
	8/22/13	1,100	2.2	ND<0.5	ND<0.5	2.3	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/7/13	810	2.6	1.7	1.5	7.6	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/22/14	2,100	7.2	2.7	1.8	7.9	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<8	ND<0.5	ND<0.5

(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) 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
	5/11/12	0.34	14	ND<0.015	0.050	15	2.8	210	ND<1	0.11	140[i]	99.1	771	870
	8/7/12	ND<0.5	51	0.021	0.066	21	3.2	610	ND<1	0.10	110[i]	284	1,760	1,960
	11/13/12	1.2	53	0.10	1.4	410	16	230	ND<1	ND<0.1	34,200	173	730	955
	2/13/13	0.49	95	0.062	0.39	130	5.8	730	ND<1	ND<0.1	64,900	139	1,960	2,380
	4/24/13	0.32	80	0.020	ND<0.005	ND<0.1	1.3	670	ND<1	ND<0.1	75,400	64.9	2,020	2,260
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
	5/11/12	ND<0.1	12	ND<0.015	0.098	29	5.5	46	ND<1	ND<0.1	120[i]	1,670	496	600
	8/8/12	ND<0.5	2.9	ND<0.015	0.092	25	4.2	45	ND<1	ND<0.1	70[i]	2,000	504	525
	11/14/12	ND<0.1	8.3	ND<0.015	0.095	28	3.5	44	ND<1	ND<0.1	51,200	1,190	584	680
	2/13/13	4.0	99	ND<0.015	0.0088	3.2	0.50	54	ND<1	ND<0.1	82,200	94.1	647	915
	4/23/13	1.7	92	ND<0.015	ND<0.005	ND<0.1	0.12	54	ND<1	ND<0.1	57,800	439	643	925
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
	5/9/12	ND<0.1	7.3	0.037	0.36	110	7.1	59	ND<1	ND<0.1	55[i]	1,210	377	540
	8/7/12	ND<0.5	72	0.031	0.32	84	9.6	68	ND<1	ND<0.1	37[i]	806	416	450
	11/13/12	ND<0.1	81	0.046	0.40	130	12	57	ND<1	ND<0.1	14,000	663	302	620
	2/12/13	ND<0.1	27	ND<0.015	0.10	30	2.7	56	ND<1	ND<0.1	17,500	1,420	366	525
	4/23/13	ND<0.1	21	ND<0.015	ND<0.005	ND<0.1	1.9	58	ND<1	ND<0.1	21,500	1,190	418	615
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

TABLE 4

ISCO PILOT TEST GENERAL CHEMISTRY CONCENTRATIONS
TESORO - LIVERMORE, 67076

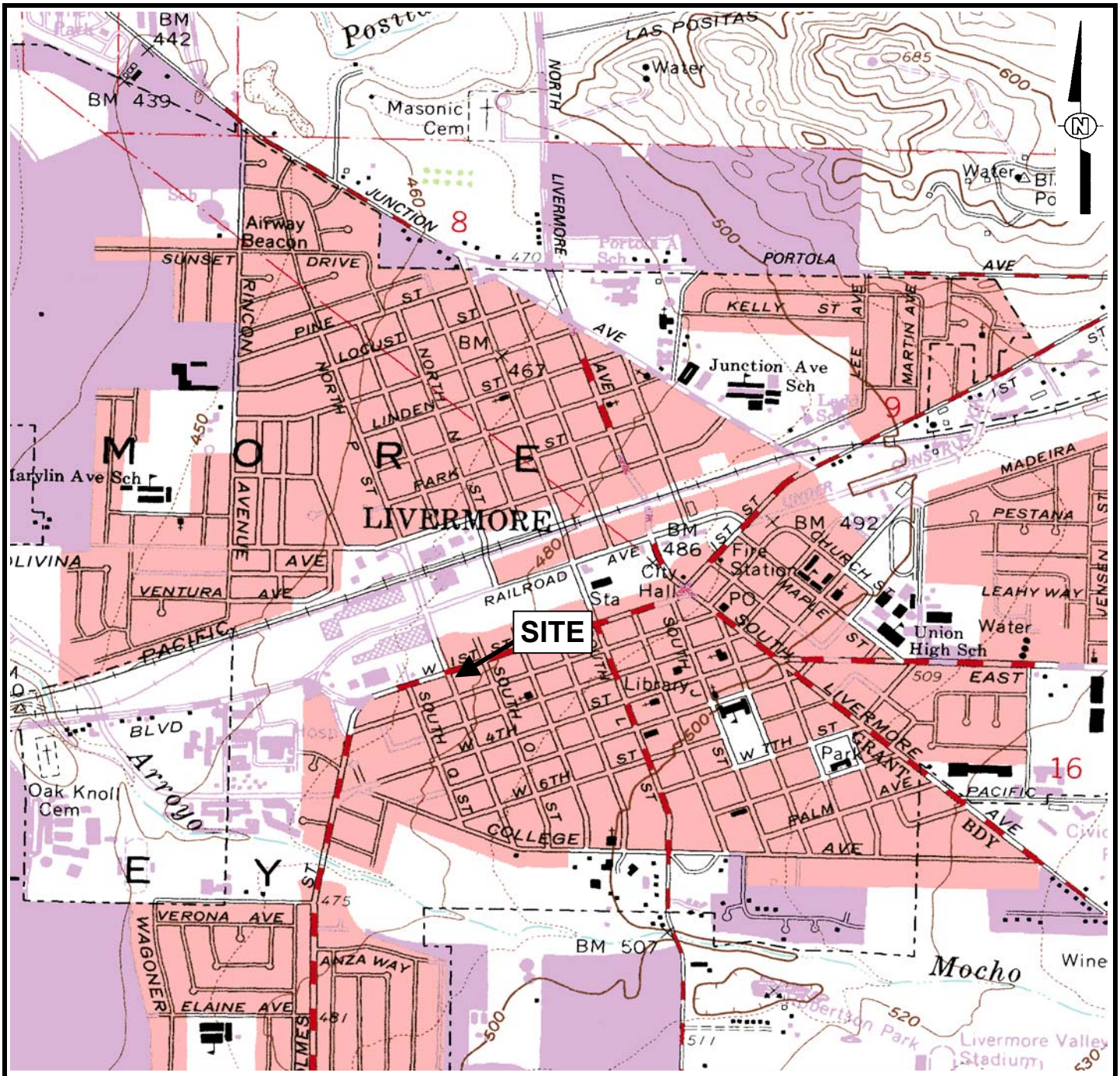
Monitoring Well	Sample Date	Nitrate[a] (mg/l)	Sulfate[a] (mg/l)	Arsenic[b] (mg/l)	Chromium[b] (mg/l)	Iron[b] (mg/l)	Manganese[b] (mg/l)	Sodium[b] (mg/l)	Hex Chrome[c] (µg/l)	Fe(2+)[d] (mg/l)	CO_2[e] (µg/l)	CH_4[e] (µg/l)	Alk[f] (mg/l)	TDS[g] (mg/l)
IP-1	2/1/12	ND<0.1	1.2	ND<0.015	ND<0.005	2.0	3.6	73	ND<1	ND<0.1	72[i]	1,130	542	635
(cont.)	5/9/12	ND<0.1	ND<0.5	ND<0.015	0.011	5.8	3.7	76	ND<1	ND<0.1	96[i]	1,060	530	650
	8/8/12	ND<0.5	ND<0.5	0.023	0.50	140	8.0	71	ND<1	ND<0.1	38[i]	1,570	444	435
	11/13/12	ND<0.1	ND<0.5	ND<0.015	0.028	9.7	3.0	68	ND<1	ND<0.1	22,200	1,070	418	540
	2/13/13	ND<0.1	ND<0.5	ND<0.015	0.056	18	3.6	60	ND<1	0.37	26,000	2,980	406	585
	4/24/13	ND<0.1	0.54	ND<0.015	ND<0.005	ND<0.1	2.9	68	ND<1	ND<0.1	19,200	1,400	408	525
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	795	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
	5/9/12	ND<0.1	26	ND<0.015	0.0098	3.1	2.5	100	ND<1	ND<0.1	44[i]	143	686	925
	8/8/12	ND<0.5	15	ND<0.015	0.013	4.4	3.3	110	ND<1	ND<0.1	40[i]	447	664	735
	11/14/12	ND<0.1	1.6	ND<0.015	ND<0.005	0.45	3.0	84	ND<1	ND<0.1	26,400	105	588	710
	2/14/13	0.11	14	ND<0.015	ND<0.005	0.46	3.2	100	ND<1	ND<0.1	30,700	1,550	659	810
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
	5/9/12	0.62	620	0.66	0.074	12	0.14	4,600	60	ND<0.1	ND<5[i]	59.4	9,490	7,480
	8/7/12	ND<2.5	810	0.90	0.14	75	0.74	5,900	60	ND<0.1	ND<5[i]	41.0	10,600	13,000
	11/13/12	ND<0.2	580	0.71	0.050	6.3	0.12	4,300	48	ND<0.1	80.6	62.4	8,020	10,200
	2/13/13	ND<0.5	440	0.57	0.039	2.2	0.16	3,000	30	ND>0.1	5,990	112	6,100	7,920

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
	5/9/12	ND<0.1	4.2	ND<0.015	ND<0.005	1.0	3.0	66	ND<1	ND<0.1	46[i]	478	368	530
	8/7/12	ND<0.5	3.2	ND<0.015	ND<0.005	1.4	2.6	60	ND<1	ND<0.1	30[i]	535	335	435
	11/13/12	ND<0.1	0.86	ND<0.015	ND<0.005	1.6	2.8	57	ND<1	ND<0.1	11,900	747	304	445
	2/12/13	ND<0.1	ND<0.5	ND<0.015	ND<0.005	1.4	2.7	52	ND<1	0.26	12,600	1,420	311	390
	4/24/13	ND<0.1	1.4	ND<0.015	ND<0.005	0.12	2.8	52	ND<1	0.11	10,300	597	296	420
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
	5/11/12	ND<0.1	14	ND<0.015	ND<0.005	0.12	0.14	77	2.2	ND<0.1	ND<5[i]	306	195	330
	8/8/12	ND<0.5	14	ND<0.015	0.0057	2.4	2.7	100	ND<1	ND<0.1	38[i]	404	556	600
	11/14/12	ND<0.1	1.6	ND<0.015	ND<0.005	1.2	2.5	91	ND<1	ND<0.1	15,300	632	472	600
	2/14/13	ND<0.1	10	ND<0.015	0.0056	2.4	3.3	150	ND<1	ND<0.1	34,400	1,520	786	930
	4/24/13	ND<0.1	5.1	ND<0.015	ND<0.005	ND<0.1	ND<0.005	41	2.2	ND<0.1	13.9	470	232	310

(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 milligrams per liter (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 milligrams per liter (mg/l).
(e) Carbon dioxide (CO_2) and methane (CH_4) analyzed by EPA Method RSK-175M; reported in micrograms per liter (µg/l).
(f) Total alkalinity as CaCO3 analyzed by Standard Method 2320B; reported in milligrams per liter (mg/l).
(g) Total dissolved solids (TDS) analyzed by Standard Method 2540 C; reported in milligrams per liter (mg/l).
(h) ND - Not detected at the reporting limit listed.
(i) CO_2 analyzed by Standard Method 4500 C; reported in milligrams per liter (mg/l).



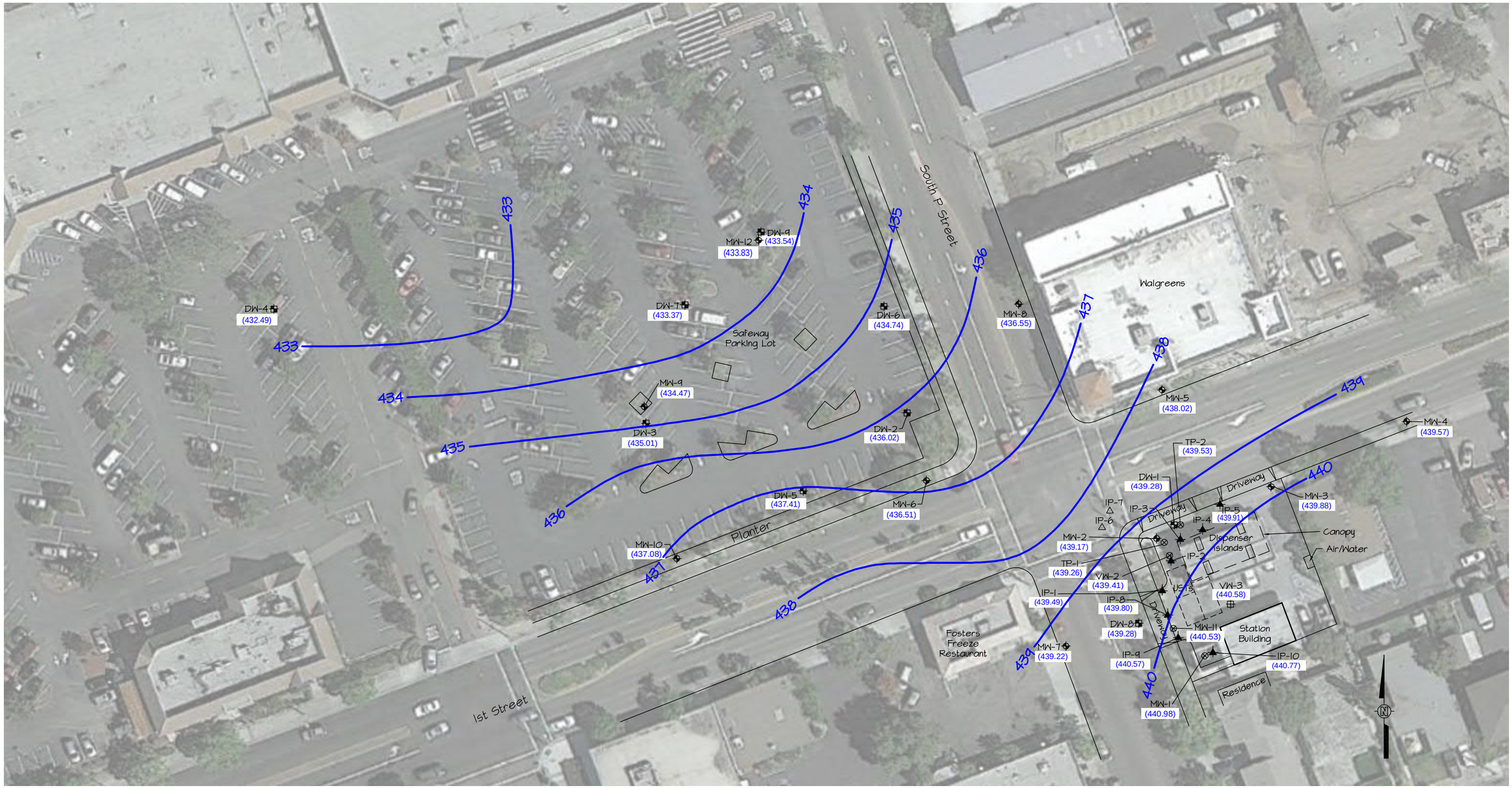
SCALE

0 2000 4000 FEET

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
DW-1 ■	Deep Groundwater Monitoring Well
IP-1 ▲	Injection Well
IP-6 △	Angled Injection Well Screen
VW-2 ⊞	Vapor Extraction Well
TP-1 ⊗	Monitoring Well/Vapor Extraction Well
(437.08)	Groundwater Elevation (Feet, MSL) Measured 21 January 2014
436	Groundwater Contour

0 30' 60'

SCALE

REVISION	NO.	BY	DATE	DESCRIPTION
24	19	MY	5/15/13	First Quarter 2013 Monitoring Report
	20	MY	8/15/13	Second Quarter 2013 Monitoring Report
	21	MY	11/15/13	Third Quarter 2013 Monitoring Report
	22	MY	2/15/14	Fourth Quarter 2013 Monitoring Report
	23	MY	3/15/14	Fourth Quarter 2013 Monitoring Report
	24	MY	5/15/14	First Quarter 2014 Monitoring Report

ARCTOS ENVIRONMENTAL

TESORO - LIVERMORE

GROUNDWATER ELEVATION CONTOURS

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

FILE NO. 01LV11B-20424.DWG

FIGURE 2

6/7/2014 4:23PM 01LV11B-20424.dwg

Legend

- MW-7 ⊕ Groundwater Monitoring Well
- DW-1 ⊞ Deep Groundwater Monitoring Well
- IP-1 ▲ Injection Well
- IP-6 △ Angled Injection Well Screen
- VW-3 # Vapor Extraction Well
- TP-1 ⊗ Monitoring Well/Vapor Extraction Well

(ND<0.5/ND<0.5) Previous Quarter/Current Quarter Total Petroleum Hydrocarbons as Gasoline (TPHg) Results in µg/L

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

ND Not Detected at Laboratory Reporting Limit

NS Not Sampled

DB-8 ● [ND] June 2012 Soil Boring with 55-Foot Grab Groundwater Sample Benzene Results in µg/L

0 30' 60'
SCALE

REVISION	NO.	BY	DATE	DESCRIPTION
24	20	MY	8/15/13	Second Quarter 2013 Monitoring Report
	21	MY	11/15/13	Third Quarter 2013 Monitoring Report
	22	MY	2/15/14	Fourth Quarter 2013 Monitoring Report
	23	MY	3/15/14	Fourth Quarter 2013 Monitoring Report
	24	MY	5/15/14	First Quarter 2014 Monitoring Report

ARCTOS ENVIRONMENTAL

TESORO - LIVERMORE

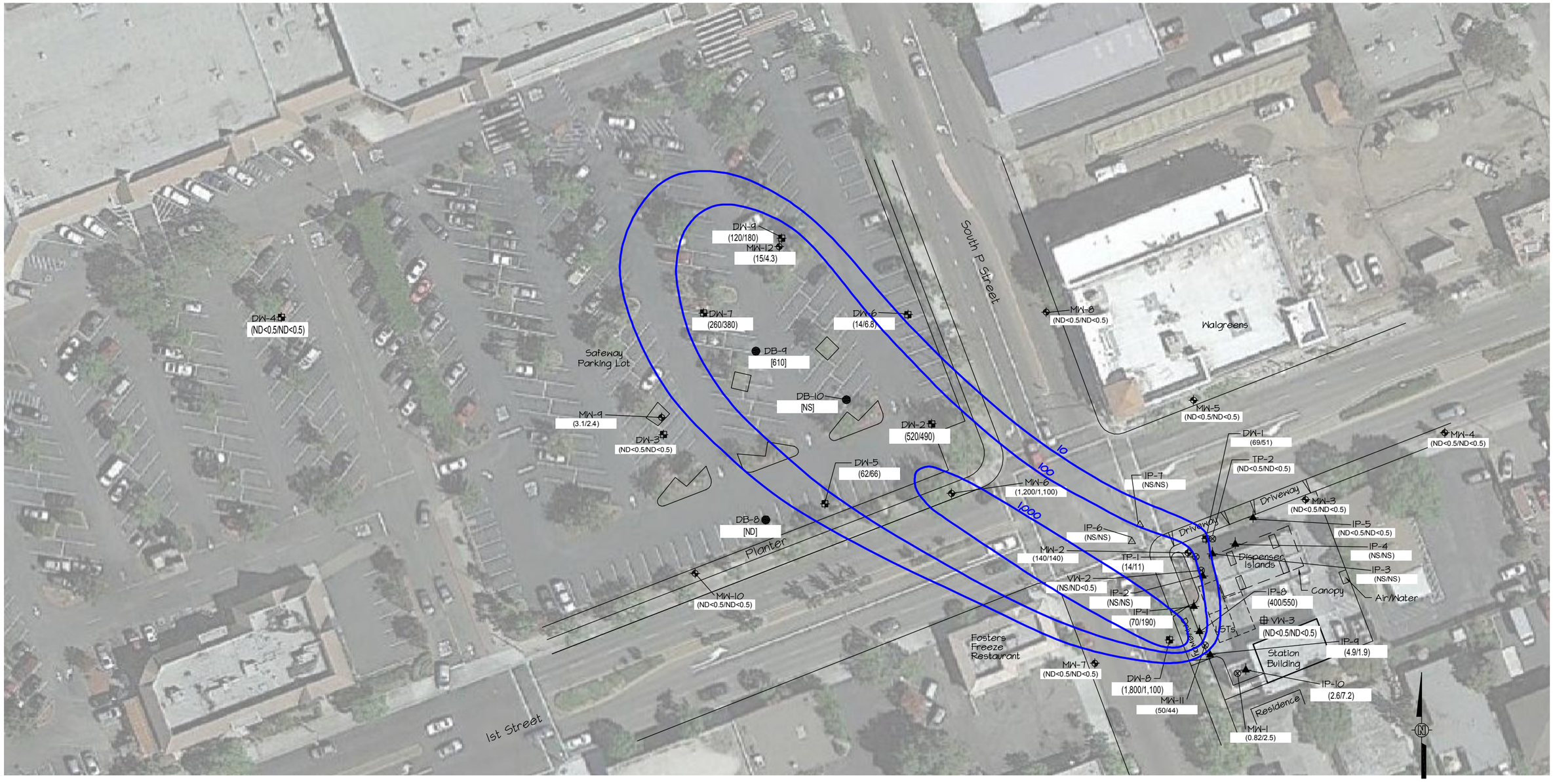
TPHg CONCENTRATION CONTOURS

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

FILE NO. 01LV11B-20524.DWG

FIGURE 3

6/6/2014 2:20PM 01LV11B-20524.dwg



Legend

MW-7	Groundwater Monitoring Well
DW-1	Deep Groundwater Monitoring Well
IP-1	Injection Well
IP-6 △	Angled Injection Well Screen
VW-3	Vapor Extraction Well
TP-1 ⊗	Monitoring Well/Vapor Extraction Well
(ND<0.5/ND<0.5)	Previous Quarter/Current Quarter Benzene Results in µg/L
1000	Benzene Concentration Contour (µg/L), Queried Where Uncertain
ND	Not Detected at Laboratory Reporting Limit
NS	Not Sampled
DB-8 ● [ND]	June 2012 Soil Boring with 55-Foot Grab Groundwater Sample Benzene Results in µg/L

0 30' 60'
SCALE

REVISION	NO.	BY	DATE	DESCRIPTION
24	20	MY	8/15/13	Second Quarter 2013 Monitoring Report
	21	MY	11/15/13	Third Quarter 2013 Monitoring Report
	22	MY	2/15/14	Fourth Quarter 2013 Monitoring Report
	23	MY	3/15/14	Fourth Quarter 2013 Monitoring Report
	24	MY	5/15/14	First Quarter 2014 Monitoring Report

ARCTOS ENVIRONMENTAL

TESORO - LIVERMORE

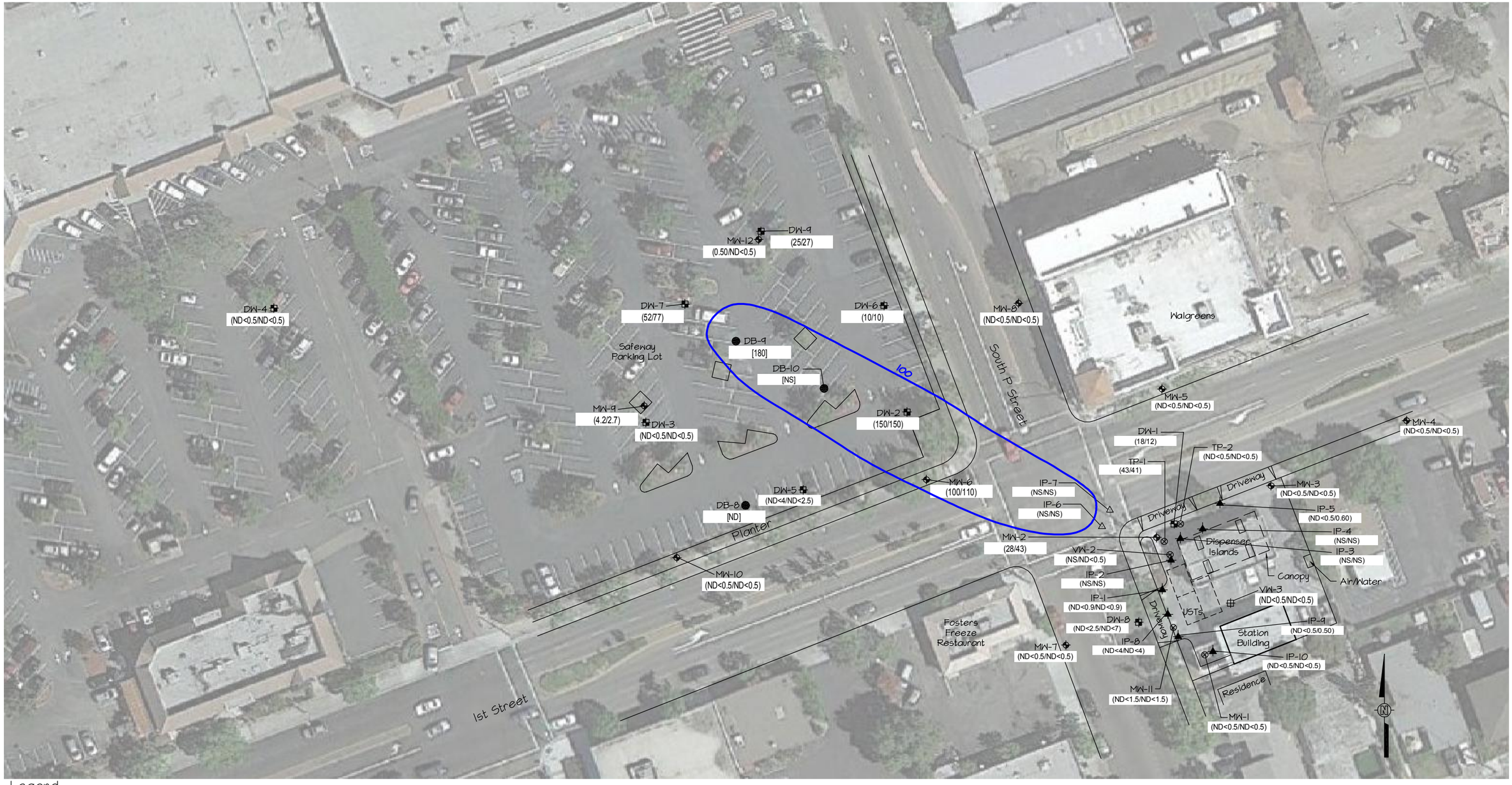
BENZENE CONCENTRATION CONTOURS

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

FILE NO. 01LV11B-20624.DWG

FIGURE 4

3/29/2014 12:41PM 01LV11B-20624.dwg



Legend

MW-1	Groundwater Monitoring Well
DW-1	Deep Groundwater Monitoring Well
IP-1	Injection Well
IP-6 △	Angled Injection Well Screen
VW-3	Vapor Extraction Well
TP-1 ⊗	Monitoring Well/Vapor Extraction Well

(ND<0.5/ND<0.5)	Previous Quarter/Current Quarter Methyl Tert-Butyl Ether (MTBE) Results in µg/L
100	MTBE Concentration Contour (µg/L), Queried Where Uncertain
ND	Not Detected at Laboratory Reporting Limit
NS	Not Sampled
DB-8 ● [ND]	June 2012 Soil Boring with 55-Foot Grab Groundwater Sample MTBE Results in µg/L

0 30' 60'
SCALE

REVISION	NO.	BY	DATE	DESCRIPTION
24	20	MY	8/15/13	Second Quarter 2013 Monitoring Report
	21	MY	11/15/13	Third Quarter 2013 Monitoring Report
	22	MY	2/15/14	Fourth Quarter 2013 Monitoring Report
	23	MY	3/15/14	Fourth Quarter 2013 Monitoring Report
	24	MY	5/15/14	First Quarter 2014 Monitoring Report

ARCTOS ENVIRONMENTAL

TESORO - LIVERMORE

MTBE CONCENTRATION CONTOURS

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

FILE NO. 01LV11B-20724.DWG

FIGURE 5

3/29/2014 12:48PM 01LV11B-20724.dwg

May 2010

January 2014

Legend

- MW-1 — Groundwater Monitoring Well
- DW-1 — Deep Groundwater Monitoring Well
- IP-1 — Injection Well
- IP-6 — Angled Injection Well Screen
- VW-3 — Vapor Extraction Well (Not Connected to System)
- TP-1 — Monitoring Well/Vapor Extraction Well
- MIP-1 — January 2011 Membrane Interface Probe (MIP) Boring
- 1000 — TPHg Concentration Contour (µg/L), Queried Where Uncertain

SCALE: 0, 10', 20'

REVISION	NO.	BY	DATE	DESCRIPTION
4	1	MY	10/15/13	Second Quarter 2013 Monitoring Report
	2	MY	12/28/13	Third Quarter 2013 Monitoring Report
	3	MY	3/15/14	Fourth Quarter 2013 Monitoring Report
	4	MY	5/15/14	First Quarter 2014 Monitoring Report

ARCTOS ENVIRONMENTAL

TESORO - LIVERMORE

ONSITE TPHg CONCENTRATION CONTOURS

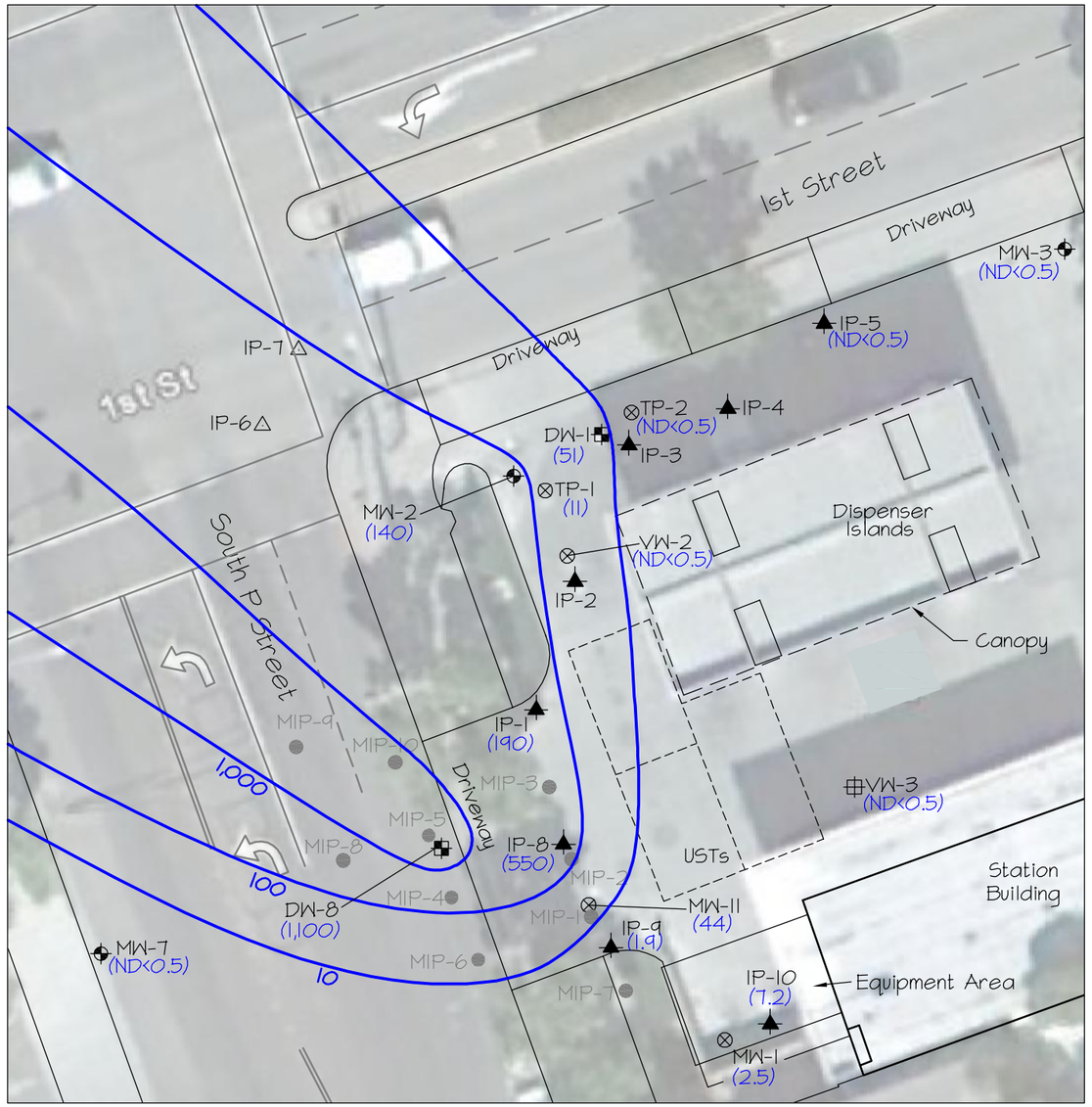
PROJECT NO.	DRAWN BY	CHECKED BY	APPROVED BY
01LV	MY	MN	JPG

FILE NO. 01LV11B2304.DWG

FIGURE 6A

3/31/2014 5:50PM 01LV11B2304.dwg

May 2010



January 2014

Legend

- MW-1 — Groundwater Monitoring Well
- DW-1 — Deep Groundwater Monitoring Well
- IP-1 — Injection Well
- IP-6 — Angled Injection Well Screen
- VW-3 — Vapor Extraction Well (Not Connected to System)
- TP-1 — Monitoring Well/Vapor Extraction Well
- MIP-1 — January 2011 Membrane Interface Probe (MIP) Boring
- 1000 — Benzene Concentration Contour (µg/L), Queried Where Uncertain

N

0 10' 20'

SCALE

REVISION	NO.	BY	DATE	DESCRIPTION
4	1	MY	10/15/13	Second Quarter 2013 Monitoring Report
	2	MY	12/28/13	Third Quarter 2013 Monitoring Report
	3	MY	3/15/14	Fourth Quarter 2013 Monitoring Report
	4	MY	5/15/14	First Quarter 2014 Monitoring Report

ARCTOS ENVIRONMENTAL

TESORO - LIVERMORE

ONSITE BENZENE CONCENTRATION CONTOURS

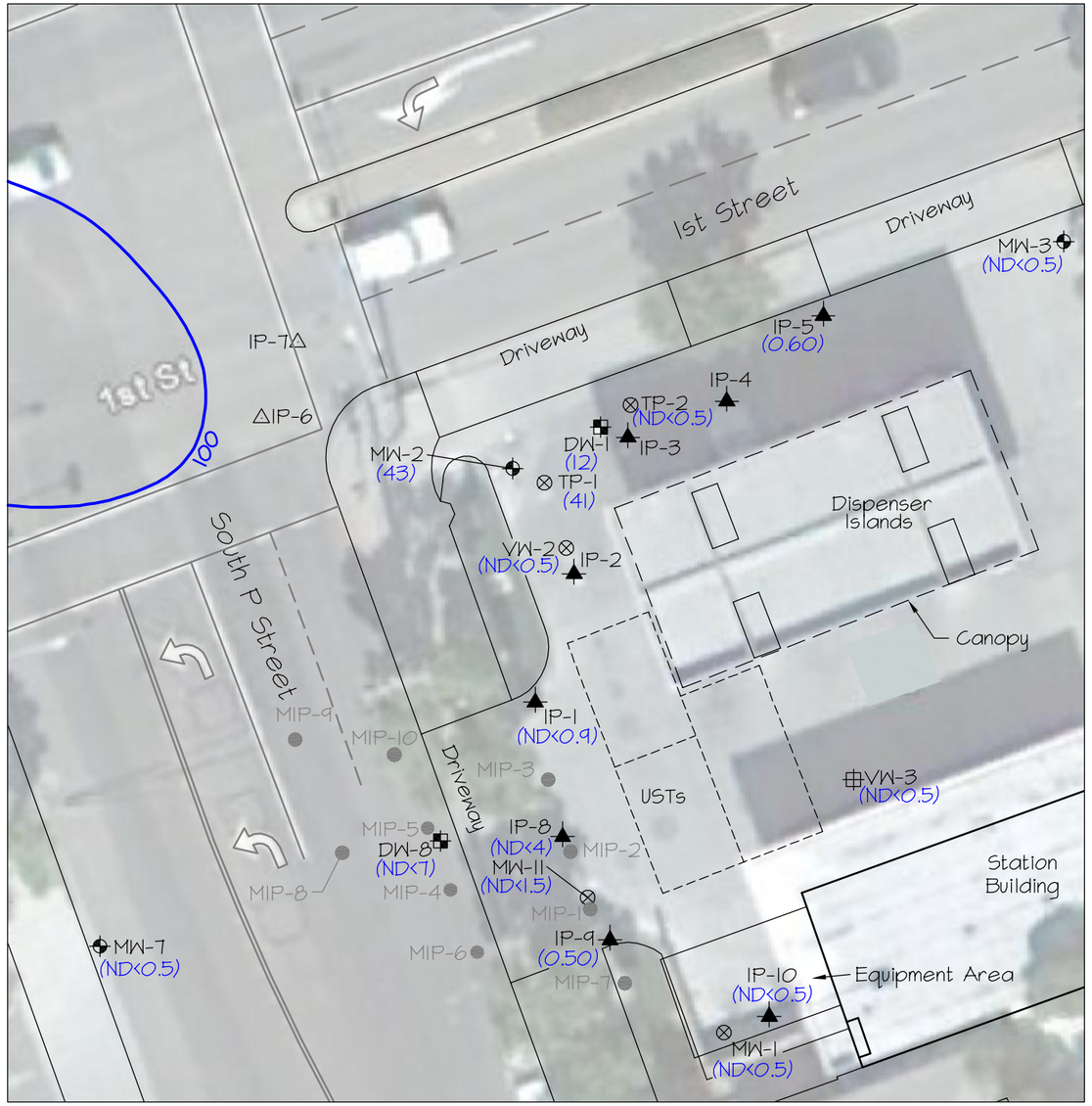
PROJECT NO.	DRAWN BY	CHECKED BY	APPROVED BY
01LV	MY	MN	JPG

FILE NO. 01LV11B2404.DWG

FIGURE 6B

3/29/2014 1:15PM 01LV11B2404.dwg

May 2010



January 2014

Legend

- MW-1 — Groundwater Monitoring Well
- DW-1 — Deep Groundwater Monitoring Well
- IP-1 — Injection Well
- IP-6 △ — Angled Injection Well Screen
- VW-3 — Vapor Extraction Well (Not Connected to System)
- TP-1 — Monitoring Well/Vapor Extraction Well
- MIP-1 — January 2011 Membrane Interface Probe (MIP) Boring
- 100 — MTBE Concentration Contour (µg/L), Queried Where Uncertain

N

0 10' 20'

SCALE

REVISION	NO.	BY	DATE	DESCRIPTION
4	1	MY	10/15/13	Second Quarter 2013 Monitoring Report
	2	MY	12/28/13	Third Quarter 2013 Monitoring Report
	3	MY	3/15/14	Fourth Quarter 2013 Monitoring Report
	4	MY	5/15/14	First Quarter 2014 Monitoring Report

ARCTOS ENVIRONMENTAL

TESORO - LIVERMORE

ONSITE MTBE CONCENTRATION CONTOURS

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

FILE NO. 01LV11B2504.DWG

FIGURE 6C

3/31/2014 5:51PM 01LV11B2504.dwg

Legend

MW-7 ⊕	Groundwater Monitoring Well
DW-1 ⊞	Deep Groundwater Monitoring Well
IP-1 ▲	Injection Well
IP-6 △	Angled Injection Well Screen
VW-2 ⊞	Vapor Extraction Well
TP-2 ⊗	Monitoring Well/Vapor Extraction Well
DB-8 ●	Soil Boring
IP-2 ▲	Expanded ISCO Pilot Test Onsite Injection Well
IP-11 ⊞	Offsite Injection Well Installed April 2013

0 30' 60'

SCALE

REVISION	NO.	BY	DATE	DESCRIPTION
2	0	MY	10/1/12	Work Plan for Expanded ISCO Pilot Test
	1	MY	2/19/13	Work Plan for Expanded ISCO Pilot Test
	2	MY	3/15/14	Fourth Quarter 2013 Monitoring Report

ARCTOS ENVIRONMENTAL

TESORO - LIVERMORE

EXPANDED ISCO PILOT TEST INJECTION WELLS

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

FILE NO. 01LV11B1601.DWG

FIGURE 7

3/4/2014 10:41AM 01LV11B1602.dwg

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 County 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, MW-12, DW-2, DW-3, DW-5, DW-6, DW-7, DW-8, and DW-9	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 this quarter are in Attachment I.

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

87178

Page 1 of 1

Confluence Environmental, Inc.
3308 El Camino Ave, Suite 300 #148
Sacramento, CA 95821
916-760-7641 - main
916-473-8617 - fax
www.confluence-env.com

Chain of Custody

Project Name: Tesoro - Livermore #67076

Job Number: P1-12012

TAT: (STANDARD) 5 DAY 2 DAY 24 HOUR OTHER:

Lab: Kiff	Site Address: 1619 1st St, Livermore	Confluence PM: Jason Brown
Address: 2795 2nd St, Suite 300, Davis CA 95616	California Global ID No.: TO600101410	Phone / Fax: 916-760-7641 / 916-473-8617
Contact: Troy Turpen	Include EDF w/ Report: (Yes) No	Confluence Log Code: CESC
Phone/ Fax: 530-297-4800 x.111	Consultant / PM: Orion / Mike Purchase	Report to: Mike Purchase
	Phone / Fax: 510-525-2180 / 510-525-2392	Invoice to: Mike Purchase

	Sample ID	Time	Date	Matrix: Soil/Solid	Matrix: Water/Liquid	Matrix: Air	Laboratory No.	No. of Containers	Preservative: Unpreserved	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: HCl	Preservative: NaOH	TPH-G, BTEX (8260)	Oxygenates(7) & Lead Scavengers (8260)	Ferrous Iron (SM 3500-Fe-D)	Hexavalent Chromium (7199)	Nitrate & Sulfate (300)	Total Alkalinity (SM2320B)	Metals by ICP (6010B)*	Methane (RSK 175M)	Carbon Dioxide (RSK 175M)	TDS (2540C)	Notes and Comments
01	DW-2	1340	12-14		X			3				3		X	X					X				
02	MW-5	1400	"		"			"				"		X	X									
03	MW-4	1210	"		"			"				"		X	X									
04	MW-1	1255	"		"			"				"		X	X									
05	TP-2	1430	"		"			2				1		X	X									
06	MW-10	1230	"		"			12	6		1	5		X	X	X	X	X	X	X	X	X	X	
07	IP-5	1410	"		"			12	6		1	5		X	X	X	X	X	X	X	X	X	X	

Sampler's Name:	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Confluence Environmental		1-21-14	1500			
Shipment Date: 1-21-14					01/24	1513
Shipment Method:						

Special Instructions: *Metals list to include: Fe, Cr, Na, As & Mn; Metals samples have been filtered in the field

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Page 1 of 3

Confluence Environmental, Inc.
3308 El Camino Ave, Suite 300 # 148
Sacramento, CA 95821
916-760-7641 - main
916-473-8617 - fax
www.confluence-env.com

Chain of Custody

Project Name: Tesoro - Livermore #67076

Job Number: P1-140121

TAT: (STANDARD) 5 DAY 2 DAY 24 HOUR OTHER:

Lab: Kiff	Site Address: 1619 1st St, Livermore	Confluence PM: Jason Brown
Address: 2795 2nd St, Suite 300, Davis CA 95616	California Global ID No.: TQ600101410	Phone / Fax: 916-760-7641 / 916-473-8617
Contact: Troy Turpen	Include EDF w/ Report: (Yes) No	Confluence Log Code: CESC
Phone/ Fax: 530-297-4800 x.111	Consultant / PM: Orion / Mike Purchase	Report to: Mike Purchase
	Phone / Fax: 510-525-2180 / 510-525-2392	Invoice to: Mike Purchase

	Sample ID	Time	Date	Matrix: Soil/Solid	Matrix: Water/Liquid	Matrix: Air	Laboratory No.	No. of Containers	Preservative: Unpreserved	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: HCl	Preservative: NaOH	Requested Analysis: TPH-G, BTEX (8260)	Requested Analysis: Oxygenates(7) & Lead Scavengers (8260)	Requested Analysis: Ferrous Iron (SM 3500-Fe-D)	Requested Analysis: Hexavalent Chromium (7199)	Requested Analysis: Nitrate & Sulfate (300)	Requested Analysis: Total Alkalinity (SM2320B)	Requested Analysis: Metals by ICP (6010B)*	Requested Analysis: Methane (RSK 175M)	Requested Analysis: Carbon Dioxide (RSK 175M)	Requested Analysis: TDS (2540C)	Notes and Comments	
	MW-3	0725	1-22-14		X			3						X	X										01
	MW-8	1350						12	6		1			X	X	X	X	X	X	X	X	X	X		02
	MW-2	0710						3						X	X										03
	MW-3	0730						3						X	X										04
	DW-3	0710						12	6		1			X	X	X	X	X	X	X	X	X	X		05
	MW-7	0815												X	X	X	X	X	X	X	X	X	X		06
	DW-1	0905												X	X	X	X	X	X	X	X	X	X		07
	TP-10	1330												X	X	X	X	X	X	X	X	X	X		08
	MW-9	0815						2	2		2			X	X	X	X	X	X	X	X	X	X		09
	TP-1	0815	2		2			3						X	X	X									10

Sampler's Name: Matt Postoni	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Confluence Environmental		1-22-14	1435			
Shipment Date:						
Shipment Method:					01/22/14	1515

Special Instructions: *Metals list to include: Fe, Cr, Na, As & Mn; Metals samples have been filtered in the field

87193

Page 2 of 3

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3308 El Camino Ave, Suite 300 #148
Sacramento, CA 95821
916-760-7641 - main
916-473-8617 - fax
www.confluence-env.com

CONFLUENCE

Chain of Custody

Project Name: Tesoro - Livermore #67076

Job Number: P1-K1021

TAT: (STANDARD) 5 DAY 2 DAY 24 HOUR OTHER:

Lab: Kiff	Site Address: 1619 1st St, Livermore
Address: 2795 2nd St, Suite 300, Davis CA 95616	California Global ID No.: T0600101410
Contact: Troy Turpen	Include EDF w/ Report: (Yes) No
Phone/ Fax: 530-297-4800 x.111	Consultant / PM: Orion / Mike Purchase
	Phone / Fax: 510-525-2180 / 510-525-2392

Confluence PM: Jason Brown	
Phone / Fax: 916-760-7641 / 916-473-8617	
Confluence Log Code:	**CESC**
Report to:	Mike Purchase
Invoice to:	Mike Purchase

	Sample ID	Time	Date	Matrix: Soil/Solid	Matrix: Water/Liquid	Matrix: Air	Laboratory No.	No. of Containers	Preservative: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH		TPH-G, BTEX (8260)	Oxygenates(7) & Lead Scavengers (8260)	Ferrous Iron (SM 3500-Fe-D)	Hexavalent Chromium (7199)	Nitrate & Sulfate (300)	Total Alkalinity (SM2320B)	Metals by ICP (6010B)*	Methane (RSK 175M)	Carbon Dioxide (RSK 175M)	TDS (2540C)	Notes and Comments	
	MW-12	0910	1-22-14		X			12	6		1	5			X	X	X	X	X	X	X	X	X	X		11
	DW-6	1015													X	X	X	X	X	X	X	X	X	X		12
	1P-9	0845													X	X	X	X	X	X	X	X	X	X		13
	DW-2	1100													X	X	X	X	X	X	X	X	X	X		14
	MW-11	1300													X	X	X	X	X	X	X	X	X	X		15
	MW-2	0940													X	X	X	X	X	X	X	X	X	X		16
	MW-6	1130													X	X	X	X	X	X	X	X	X	X		17
	DW-7	1210													X	X	X	X	X	X	X	X	X	X		18
	DW-8	1430													X	X	X	X	X	X	X	X	X	X		19
	DW-9	0940													X	X	X	X	X	X	X	X	X	X		20

Sampler's Name: Matt Bostoni

Sampler's Company: Confluence Environmental

Shipment Date:

Shipment Method:

Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
[signature]	1-22-14	1135			
			[illegible] Well Analytical	01/22/14	1515

Special Instructions: *Metals list to include: Fe, Cr, Na, As & Mn; Metals samples have been filtered in the field

87193

Page 3 of 3

Confluence Environmental, Inc.
3308 El Camino Ave, Suite 300 #148
Sacramento, CA 95821
916-760-7641 - main
916-473-8617 - fax
www.confluence-env.com

Chain of Custody

Project Name: Tesoro - Livermore #67076

Job Number: P1-14012

TAT: (STANDARD) 5 DAY 2 DAY 24 HOUR OTHER:

Lab: Kiff	Site Address: 1619 1st St, Livermore	Confluence PM: Jason Brown
Address: 2795 2nd St, Suite 300, Davis CA 95616	California Global ID No.: TQ600101410	Phone / Fax: 916-760-7641 / 916-473-8617
Contact: Troy Turpen	Include EDF w/ Report: (Yes) No	Confluence Log Code: CESC
Phone/ Fax: 530-297-4800 x.111	Consultant / PM: Orion / Mike Purchase	Report to: Mike Purchase
	Phone / Fax: 510-525-2180 / 510-525-2392	Invoice to: Mike Purchase

	Sample ID	Time	Date	Matrix: Soil/Solid	Matrix: Water/Liquid	Matrix: Air	Laboratory No.	No. of Containers	Preservative: Unpreserved	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: HCl	Preservative: NaOH	Requested Analysis: TPH-G, BTEX (8260)	Oxygenates(7) & Lead Scavengers (8260)	Ferrous Iron (SM 3500-Fe-D)	Hexavalent Chromium (7199)	Nitrate & Sulfate (300)	Total Alkalinity (SM2320B)	Metals by ICP (6010B)*	Methane (RSK 175M)	Carbon Dioxide (RSK 175M)	TDS (2540C)	Notes and Comments
	IP-8	1035	1-22-14		X			12	6		1	5		X	X	X	X	X	X	X	X	X	X	21
	DW-5	1215	"		"			"	"		"	"		X	X	X	X	X	X	X	X	X	X	22
	IP-1	1130	"		"			2	2		1	2		X	X	X	X	X	X	X	X	X	X	23

Sampler's Name: Matt Festoni	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Confluence Environmental		1-22-14	1435			
Shipment Date:						
Shipment Method:				[illegible] Analytical	01/22/14	1515

Special Instructions: *Metals list to include: Fe, Cr, Na, As & Mn; Metals samples have been filtered in the field

Confluence Environmental, Inc

Equipment Calibration Log

Equipment make/model	Equipment ID/ serial number	Date	Time	Calibration Standards	Equipment Reading	Equipment Calibrated	Temp (°C / °F)	Tech init.	Comments
Ultrameter II	7222370	1/21/14	0634	ph 7, 4, 10. cond 1413	7.0, 4.0, 10.0 1413.	Yes	57	[illegible]	
Ultrameter II	7222320	1-22-14	0630	ph 7, 4, 10. and 1413	7.0, 4.0, 10.0 1413	Y	59	[illegible]	
Ultrameter II	6216871	1/22/14	0630	ph 4.0, 7.0, 10. cond 1413	4.0, 7.0, 10.0 1413	Y Y	58° 58°	[illegible] Apr	

Notes/comments:

Water Level Measurements

Job Number: P1-140121 Date: 1/21/14 Client: Orion

Site: 1619 1ST Livermore, CA.

Well I.D.	Time	Dia	Depth to NAPL	Thickness of NAPL	Depth to water (DTW)	Total Depth (measured)	Total Depth (historical)	Ref Point TOC/TOB	B.P. ✓	
DW-1	1016	4			33.57		64.80	TOC		
DW-2	0930	4			35.59		59.80			
DW-3	0920	4			35.32		59.72			
DW-4	0905	4			35.99		70.06			
DW-5	0945	4			31.45		59.80		NO SPH ✓	
DW-6	1010	4			37.03		60.15			
DW-7	0926	4			36.70		65.18			
DW-8	1115	4			33.03		64.68			
DW-9	0936	4			36.26		59.65			
IP-1	1045	2			33.57		64.52			
IP-5	1000	2			33.14		64.25			
IP-8	1005	2			33.42		64.52			
IP-9	1100	2			32.78		64.75			
IP-10	1052	2			33.11		63.05			
MW-1	1055	4			33.23		54.26			
MW-2	1020	4			33.81		54.05			
MW-3	0945	4			33.49		52.85			
MW-4	0935	2			34.07		46.69			
MW-5	0900	2			34.65		46.27			
MW-6	0938	2			35.42		47.55			

Water Level Measurements

Job Number: P1-140121 Date: 1-21-14 Client: Orion

Site: 1619 1ST Livermore CA

Well I.D.	Time	Dia	Depth to NAPL	Thickness of NAPL	Depth to water (DTW)	Total Depth (measured)	Total Depth (historical)	Ref Point TOC/TOB		
MW-7	0950	2			33.11		46.15	TOC	~~T.C.~~	
MW-8	1335 ~~0954~~	2			34.63		44.50		* Traffic Control	
MW-9	0918 ~~0956~~	2			36.31		44.50			
MW-10	0912	2			31.55		44.98			
MW-11	1108	4			32.43		40.25			
MW-12	0930	4			35.94		44.56			
TP-1	1030	2			33.38		41.06			
TP-2	1024	2			33.25		40.11			
VW-2	1040	2			33.16		35.02			
VW-3	1036	2			33.80		36.30			

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: MW-1	**Date:** 1-21-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" 2" 3" (4") 6" Other:		**DTW:** 33.23 **Total Depth:** 54.26
Purge equip: (ES) diam: 2" Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 (4"= 0.65) 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 13.7 X 3 = 41.0 (Total Purge) 80%= 37.43

Time	Temp (°C (°F))	pH	Cond (mS / (S))	Turbidity (NTU)	ORP (mv)	Purge Rate (gal or mL/ min)	Volume Removed (gal / L)	Notes
1437	67.7	7.6	953	37	120	5	14	
1440	68.2	7.5	975	32	126	1	28	
1442	68.3	7.5	979	30	129	2	41	

Did well dewater? YES (NO)	Total volume removed: 41 (gal) / L)	
Sample method: (Disp Bailer) Ded. Tubing New Tubing Ext. Port Other:		
Sample date: 1-21-14	Sample time: 1455	DTW at sample: 37.10
Sample ID: MW-1	Lab: Kiff	Number of bottles: 3
Analysis: See COC (ISCO)		
Equipment blank ID @	Field blank ID @	
Duplicate ID:	Pre-purge DO:	Post purge DO:
$Fe2^{+}$:	Pre-purge ORP:	Post purge ORP:
NAPL depth:	Volume of NAPL:	Volume removed: ml

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: MW-2	**Date:** 1-22-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" 2" 3" (4") 6" Other:		**DTW:** 33.81 **Total Depth:** 54.05
Purge equip: (ES) diam: 2" Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 13.2 X 3 = 39.6 (Total Purge) 80%= 37.85

Time	Temp (°C / (F))	pH	Cond (mS / (µS))	Turbidity (NTU)	ORP (mv)	Purge Rate ((gal) or mL/ min)	Volume Removed ((gal) L)	Notes
0910	68.6	9.6	1423	9	2	4	13.5	
0913	68.5	8.9	1403	7	8	4	27.	
- Dewatered @				27.5 gal.				
0940	69.0	9.0	1382	12	9	—	—	

Did well dewater? (YES) NO Total volume removed: 27.5 ((gal) / L)

Sample method: (Disp Bailer) Ded. Tubing New Tubing Ext. Port Other:

Sample date: 1-22-14 Sample time: 0940 DTW at sample: 33.92

Sample ID: MW-2 Lab: Kiff Number of bottles: 12

Analysis: See COC (ISCO)

Equipment blank ID @ Field blank ID @

Duplicate ID: Pre-purge DO: Post purge DO:

$Fe2^{+}$: Pre-purge ORP: Post purge ORP:

NAPL depth: Volume of NAPL: Volume removed: ml

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: MW-3	**Date:** 1-22-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" 2" 3" (4") 6" Other:		**DTW:** 33.49 **Total Depth:** 52.85
Purge equip: (ES) diam: 2" Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 12.6 X 3 = 37.8 (Total Purge) 80%= 37.36

Time	Temp (°C / (°F))	pH	Cond (mS / (µS))	Turbidity (NTU)	ORP (mv)	Purge Rate (gal or mL/ min)	Volume Removed ((gal) / L)	Notes
0715	65.5	7.3	994	9	219	6	13	
0717	67.6	7.2	970	8	223	5	26	
0719	67.9	7.2	970	8	226	5	38	

Did well dewater? YES (NO)	Total volume removed: 38 (gal / L)
Sample method: (Disp Bailer) Ded. Tubing New Tubing Ext. Port Other:	
Sample date: 1-22-14 Sample time: 0725	DTW at sample: 35.80
Sample ID: MW-3 Lab: Kiff	Number of bottles: 3
Analysis: See COC (ISCO)	
Equipment blank ID @	Field blank ID @
Duplicate ID:	Pre-purge DO: Post purge DO:
$Fe2^+$:	Pre-purge ORP: Post purge ORP:
NAPL depth: Volume of NAPL:	Volume removed: ml

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: MW-4	**Date:** 1-21-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" (2") 3" 4" 6" Other:		**DTW:** 34.07 **Total Depth:** 46.69
Purge equip: ES - diam: Bladder Peri Waterra Positive Air Displacement Ext. System		
(disp bailer) teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 (2"= 0.16) 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 2. X 3 = 6 (Total Purge) 80%= ~~42.9~~ 36.59

Time	Temp (°C / (F))	pH	Cond (mS / (S))	Turbidity (NTU)	ORP (mv)	Purge Rate (gal or mL/ min)	Volume Removed (gal / L)	Notes
1155	67.0	6.9	1066	>1000	169	—	2	
1158	68.3	7.0	1073	>1000	164	—	4	
1200	68.5	7.0	1079	>1000	160	—	6	

Did well dewater? YES (NO)	Total volume removed: 6 (gal) / L)	
Sample method: (Disp Bailer) Ded. Tubing New Tubing Ext. Port Other:		
Sample date: 1-21-14	Sample time: 1210	DTW at sample: 34.80
Sample ID: MW-4	Lab: Kiff	Number of bottles: 3
Analysis: See COC (ISCO)		
Equipment blank ID @	Field blank ID @	
Duplicate ID:	Pre-purge DO:	Post purge DO:
$Fe2^{+}$:	Pre-purge ORP:	Post purge ORP:
NAPL depth:	Volume of NAPL:	Volume removed: ml

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: MW-5	**Date:** 1-21-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" (2") 3" 4" 6" Other:		**DTW:** 34.65 **Total Depth:** 46.27
Purge equip: ES - diam: Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 (2"= 0.16) 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 1.9 X 3 = 5.6 (Total Purge) 80%= ~~40.72~~ 36.97

Time	Temp (°C / (°F))	pH	Cond (mS / ~~uS~~)	Turbidity (NTU)	ORP (mv)	Purge Rate (gal or mL/ min)	Volume Removed ((gal) / L)	Notes
1350	69.5	7.8	1235	>1000	123	—	2	
1353	69.7	7.7	1247	>1000	129	—	4	
1356	69.9	7.7	1250	>1000	131	—	6	

Did well dewater? YES (NO)	Total volume removed: 6 (gal) / L)
Sample method: (Disp Bailer) Ded. Tubing New Tubing Ext. Port Other:	
Sample date: 1-21-14 Sample time: 1400	DTW at sample: 36.10
Sample ID: MW-5 Lab: Kiff	Number of bottles: 3
Analysis: See COC (ISCO)	
Equipment blank ID @	Field blank ID @
Duplicate ID:	Pre-purge DO: Post purge DO:
$Fe2^{+}$:	Pre-purge ORP: Post purge ORP:
NAPL depth: Volume of NAPL:	Volume removed: ml

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: MW-6	**Date:** 1-22-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" (2") 3" 4" 6" Other:		**DTW:** 35.42 **Total Depth:** 47.55
Purge equip: ES - diam: Bladder Peri Waterra Positive Air Displacement Ext. System		
(disp bailer) teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 2 X 3 = 5.9 (Total Purge) 80%= 37.84

Time	Temp (°C / (°F))	pH	Cond (mS / (S))	Turbidity (NTU)	ORP (mv)	Purge Rate (gal or mL/ min)	Volume Removed (gal / L)	Notes
1117	68.9	7.6	1218	15	-64	—	2	
1122	69.0	7.2	1235	9	-93	—	4	
1129	68.7	7.1	1249	8	-90	—	6	

Did well dewater? YES (NO)	Total volume removed: 6 (gal) / L)	
Sample method: (Disp Bailer) Ded. Tubing New Tubing Ext. Port Other:		
Sample date: 1-22-14	Sample time: 1130	DTW at sample: 36.20
Sample ID: MW-6	Lab: Kiff	Number of bottles: 12
Analysis: See COC (ISCO)		

Equipment blank ID @	Field blank ID @	
Duplicate ID:	Pre-purge DO:	Post purge DO:
$Fe2^{+}$:	Pre-purge ORP:	Post purge ORP:
NAPL depth:	Volume of NAPL:	Volume removed: ml

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: MW-7	**Date:** 1-22-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" (2") 3" 4" 6" Other:		**DTW:** 33.11 **Total Depth:** 46.15
Purge equip: ES - diam: Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 2.1 X 3 = 6.3 (Total Purge) 80%= 35.71

Time	Temp (°C / °F)	pH	Cond (mS / µS)	Turbidity (NTU)	ORP (mv)	Purge Rate (gal or mL/min)	Volume Removed (gal / L)	Notes
0809	61.9	7.6	1007	>1,000	-96	~2	2	
0810	68.5	7.3	1059	>1,000	-95	1	4	
0811	68.1	7.4	1054	>1,000	-94	1	6.5	

Did well dewater? YES (NO) Total volume removed: 6.5 (gal / L)

Sample method: (Disp Bailer) Ded. Tubing New Tubing Ext. Port Other:

Sample date: 1-22-14	Sample time: 0815	DTW at sample: 34.88
Sample ID: MW-7	Lab: Kiff	Number of bottles: 12
Analysis: See COC (ISCO)		

Equipment blank ID @	Field blank ID @	
Duplicate ID:	Pre-purge DO:	Post purge DO:
$Fe2^{+}$:	Pre-purge ORP:	Post purge ORP:
NAPL depth:	Volume of NAPL:	Volume removed: ml

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: MW-8	**Date:** 1-22-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" (2") 3" 4" 6" Other:		**DTW:** 34.63 **Total Depth:** 44.50
Purge equip: ES - diam: Bladder Peri Waterra Positive Air Displacement Ext. System		
(disp bailer) teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 (2"= 0.16) 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 1.6 X 3 = 4.8 (Total Purge) 80%= 36.60

Time	Temp (°C / (F))	pH	Cond (mS / (S))	Turbidity (NTU)	ORP (mv)	Purge Rate ~~gal/~~ mL/ min)	Volume Removed ((gal) / L)	Notes
1340	70.3	8.8	1114	>1000	15	-	1.7	
1343	70.6	8.9	1131	>1000	21	-	3.5	
1346	70.7	8.9	1140	>1000	24	-	5.0	

Did well dewater? YES (NO)	Total volume removed: 5.0 ((gal) / L)	
Sample method: (Disp Bailer) Ded. Tubing New Tubing Ext. Port Other:		
Sample date: 1-22-14	Sample time: 1350	DTW at sample: 36.90 (Traffic)
Sample ID: MW-8	Lab: Kiff	Number of bottles: 12
Analysis: See COC (ISCO)		

Equipment blank ID @	Field blank ID @	
Duplicate ID:	Pre-purge DO:	Post purge DO:
$Fe2^+$:	Pre-purge ORP:	Post purge ORP:
NAPL depth:	Volume of NAPL:	Volume removed: ml

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: MW-9	**Date:** 1-22-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" (2") 3" 4" 6" Other:		**DTW:** 36.31 **Total Depth:** 44.50
Purge equip: (ES - diam: 2") Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius^2 X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 1.24 X 3 = 4.0 (Total Purge) 80%= 39.94

Time	Temp (°C / °F)	pH	Cond (mS / µS)	Turbidity (NTU)	ORP (mv)	Purge Rate (gal or mL/min)	Volume Removed (gal / L)	Notes
0835	63.0	7.5	1217	7,120	-84	~~2~~	1.5	
	well		dewatered	@	2.5	gal		
well		Come	back	to	80%			
0845	64.0	7.3	1170	762	-97	—	—	

Did well dewater? (YES) NO	Total volume removed: 2.5 (gal) / L)	
Sample method: (Disp Bailer) Ded. Tubing New Tubing Ext. Port Other:		
Sample date: 1-22-14	Sample time: 0845	DTW at sample: 38.60
Sample ID: MW-9	Lab: Kiff	Number of bottles: 12
Analysis: See COC (ISCO)		
Equipment blank ID @	Field blank ID @	
Duplicate ID:	Pre-purge DO:	Post purge DO:
$Fe2^+$:	Pre-purge ORP:	Post purge ORP:
NAPL depth:	Volume of NAPL:	Volume removed: ml

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: MW-10	**Date:** 1-21-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" (2") 3" 4" 6" Other:		**DTW:** 34.55 **Total Depth:** 44.98
Purge equip: ES - diam: Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 (2"= 0.16) 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 1.7 X 3 = 5.0 (Total Purge) 80%= 36.63

Time	Temp (°C / °F)	pH	Cond (mS / µS)	Turbidity (NTU)	ORP (mv)	Purge Rate (gal or mL/ min)	Volume Removed (gal / L)	Notes
1217	68.2	7.7	1418	>1000	161	-	1.7	
1220	69.8	7.6	1240	>1000	158	-	3.4	
1223	69.9	7.6	1412	>1000	155	-	5.0	

Did well dewater? YES (NO)	Total volume removed: 5.0 (gal / L)	
Sample method: (Disp Bailer) Ded. Tubing New Tubing Ext. Port Other:		
Sample date: 1-21-14	Sample time: 1230	DTW at sample: 34.90
Sample ID: MW-10	Lab: Kiff	Number of bottles: 12
Analysis: See COC (ISCO)		
Equipment blank ID @	Field blank ID @	
Duplicate ID:	Pre-purge DO:	Post purge DO:
$Fe2^+$:	Pre-purge ORP:	Post purge ORP:
NAPL depth:	Volume of NAPL:	Volume removed: ml

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: MW-11	**Date:** 1-22-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" 2" 3" (4") 6" Other:		**DTW:** 32.43 **Total Depth:** 40.25
Purge equip: (ES) - diam: 2" Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 5.46 X 3 = 15.3 (Total Purge) 80%= 33.99

Time	Temp (°C (°F))	pH	Cond (mS / (mS))	Turbidity (NTU)	ORP (mv)	Purge Rate ((gal) or mL/ min)	Volume Removed ((gal) / L)	Notes
0857	66.3	10.5	2136	11	121	2	5.5	
- well	Dewatered @						5.5 gal.	
1300	68.9	10.5	4702	84	-16	—	—	

Did well dewater? YES NO	Total volume removed: 5.5 (gal/ L)
Sample method: Disp Bailer Ded. Tubing New Tubing Ext. Port Other:	
Sample date: 1-22-14 Sample time: 1300	DTW at sample: 33.50
Sample ID: MW-11 Lab: Kiff	Number of bottles: 12
Analysis: See COC (ISCO)	
Equipment blank ID @	Field blank ID @
Duplicate ID:	Pre-purge DO: Post purge DO:
$Fe2^+$:	Pre-purge ORP: Post purge ORP:
NAPL depth: Volume of NAPL:	Volume removed: ml

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: MW-12	**Date:** 1-22-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" 2" 3" (4") 6" Other:		**DTW:** 35.94 **Total Depth:** 41.56
Purge equip: ES - diam: 2" Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 5.7 X 3 = 16.9 (Total Purge) 80%= 37.66

Time	Temp (°C / °F)	pH	Cond (mS / µS)	Turbidity (NTU)	ORP (mv)	Purge Rate (gal or mL/ min)	Volume Removed (gal/ L)	Notes
0906	69.3	7.6	1184	12	-33	~4	6	
	dewatered		@	9	gallons			
	well @		80%					
0910	67.7	7.4	1138	9	-75	-	-	

Did well dewater? (YES) NO	Total volume removed: 9 (gal/ L)	
Sample method: (Disp Bailer) Ded. Tubing New Tubing Ext. Port Other:		
Sample date: 1-22-14	Sample time: 0910	DTW at sample: 37.57
Sample ID: MW-12	Lab: Kiff	Number of bottles: 12
Analysis: See COC (ISCO)		
Equipment blank ID @	Field blank ID @	
Duplicate ID:	Pre-purge DO:	Post purge DO:
$Fe2^+$:	Pre-purge ORP:	Post purge ORP:
NAPL depth:	Volume of NAPL:	Volume removed: ml

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Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: DW-1	**Date:** 1-22-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" 2" 3" (4") 6" Other:		**DTW:** 33.57 **Total Depth:** 64.80
Purge equip: (ES) - diam: 2" Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"=0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 20.3 X 3 = 60.9 (Total Purge) 80%= 39.81

Time	Temp (°C / (F))	pH	Cond (mS / (µS))	Turbidity (NTU)	ORP (mv)	Purge Rate ((gal) or mL/ min)	Volume Removed ((gal) / L)	Notes
0750	67.3	6.8	1469	221	61	5	21.	
	- Well Dewatered @ 25 gls							
0925	68.1	6.9	1442	11	52	—	—	

Did well dewater? (YES) NO	Total volume removed: 25 ((gal) / L)
Sample method: (Disp Bailer) Ded. Tubing New Tubing Ext. Port Other:	
Sample date: 1-22-14 Sample time: 0925	DTW at sample: 33.80
Sample ID: DW-1 Lab: Kiff	Number of bottles: 12
Analysis: See COC (ISCO)	
Equipment blank ID @	Field blank ID @
Duplicate ID:	Pre-purge DO: Post purge DO:
$Fe2^{+}$:	Pre-purge ORP: Post purge ORP:
NAPL depth: Volume of NAPL:	Volume removed: ml

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: DW-2	**Date:** 1-22-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" 2" 3" (4") 6" Other:		**DTW:** 35.59 **Total Depth:** 59.80
Purge equip: (ES - diam: 2") Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 15.8 X 3 = 47.3 (Total Purge) 80%= 40.43

Time	Temp (°C / (°F))	pH	Cond (mS / µS)	Turbidity (NTU)	ORP (mv)	Purge Rate (gal or mL / min)	Volume Removed (gal / L)	Notes
1037	69.1	7.9	1761	7	-104	~4	16	Strong odor
1048	70.5	7.7	1324	8	-109		32	
1056	70.6	7.6	1338	8	-110		48	

Did well dewater? YES (NO)	Total volume removed: 48 (gal) / L)	
Sample method: (Disp Bailer) Ded. Tubing New Tubing Ext. Port Other:		
Sample date: 1-22-14	Sample time: 1100	DTW at sample: 39.62
Sample ID: DW-2	Lab: Kiff	Number of bottles: 12
Analysis: See COC (ISCO)		
Equipment blank ID @	Field blank ID @	
Duplicate ID:	Pre-purge DO:	Post purge DO:
$Fe2^+$:	Pre-purge ORP:	Post purge ORP:
NAPL depth:	Volume of NAPL:	Volume removed: ml

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: DW-3	**Date:** 1-22-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" 2" 3" (4") 6" Other:		**DTW:** 35.32 **Total Depth:** 59.72
Purge equip: ES - diam: Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 15.9 X 3 = 47.6 (Total Purge) 80%= 40.20

Time	Temp (°C / °F)	pH	Cond (mS / µS)	Turbidity (NTU)	ORP (mv)	Purge Rate (gal or mL/min)	Volume Removed (gal / L)	Notes
0727	~~65.3~~ 18.5	7.3	1109	11	2	~4	16	
0732	~~69.6~~ 20.9	7.3	1080	10	-30	1	32	
0737	~~19.4~~ 68.7	7.4	1081	10	-29		48	

Did well dewater? YES (NO)	Total volume removed: 48 (gal / L)	
Sample method: (Disp Bailer) Ded. Tubing New Tubing Ext. Port Other:		
Sample date: 1-22-14	Sample time: 0740	DTW at sample: 38.32
Sample ID: DW-3	Lab: Kiff	Number of bottles: 12
Analysis: See COC (ISCO)		

Equipment blank ID @	Field blank ID @	
Duplicate ID:	Pre-purge DO:	Post purge DO:
$Fe2^+$:	Pre-purge ORP:	Post purge ORP:
NAPL depth:	Volume of NAPL:	Volume removed: ml

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Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: DW-4	**Date:** 1-21-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" 2" 3" (4") 6" Other:		**DTW:** 35.99 **Total Depth:** 70.06
Purge equip: (ES) diam: 2" Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 22.2 X 3 = 66.5 (Total Purge) 80%= 42.80

Time	Temp (°C (°F))	pH	Cond (mS/(µS))	Turbidity (NTU)	ORP (mv)	Purge Rate (gal/ mL/ min)	Volume Removed (gal/ L)	Notes
1324	70.9	7.6	846	21	121	5	22.5	
1328	70.9	7.5	853	3	115	"	45.0	
1332	70.8	7.5	850	3	112	"	66.5	
					waited Briefly			

Did well dewater? YES NO	Total volume removed: 66.5 (gal/ L)
Sample method: (Disp Bailer) Ded. Tubing New Tubing Ext. Port Other:	
Sample date: 1-21-14 Sample time: 1340	DTW at sample: 42.50
Sample ID: DW-4 Lab: Kiff	Number of bottles: 3
Analysis: See COC (ISCO)	

Equipment blank ID @	Field blank ID @	
Duplicate ID:	Pre-purge DO:	Post purge DO:
$Fe2^+$:	Pre-purge ORP:	Post purge ORP:
NAPL depth:	Volume of NAPL:	Volume removed: ml

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: DW-5	**Date:** 1-22-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" 2" 3" (4") 6" Other:		**DTW:** 34.45 **Total Depth:** 59.80
Purge equip: (ES - diam: 2") Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 16.5 X 3 = 49.5 (Total Purge) 80%= 39.52

Time	Temp (°C / (°F))	pH	Cond (mS / µS)	Turbidity (NTU)	ORP (mv)	Purge Rate (gal or mL/min)	Volume Removed (gal / L)	Notes
1232	69.2	8.2	1459	55	-117	~4	17	*Strong odor,
1236	70.7	8.0	1724	67	-130		34	water has slippery
1240	71.9	7.9	1732	69	-127		50	feel.
								slight sheen
								on surface of water.

Did well dewater? YES (NO)	Total volume removed: 50 (gal / L)	
Sample method: (Disp Bailer) Ded. Tubing New Tubing Ext. Port Other:		
Sample date: 1-22-14	Sample time: 1245	DTW at sample: 39.50
Sample ID: DW-5	Lab: Kiff	Number of bottles: 12
Analysis: See COC (ISCO)		
Equipment blank ID @	Field blank ID @	
Duplicate ID:	Pre-purge DO:	Post purge DO:
$Fe2^+$:	Pre-purge ORP:	Post purge ORP:
NAPL depth:	Volume of NAPL:	Volume removed: ml

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: DW-6	**Date:** 1-22-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" 2" 3" (4") 6" Other:		**DTW:** 37.03 **Total Depth:** 60.15
Purge equip: (ES - diam: 2") Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius^2 X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 15.0 X 3 = 45.0 (Total Purge) 80%= 21.65

Time	Temp (°C / °F)	pH	Cond (mS / µS)	Turbidity (NTU)	ORP (mv)	Purge Rate (gal or mL/min)	Volume Removed (gal / L)	Notes
1005	67.4	7.6	1097	31	-95	~4	15	odor
1009	69.4	7.4	1091	25	-68	1	30	1
1013	70.0	7.4	1089	23	-109	1	45	1

Did well dewater? YES (NO)	Total volume removed: 45 ((gal)/ L)	
Sample method: Disp Bailer Ded. Tubing New Tubing Ext. Port Other:		
Sample date: 1-22-14	Sample time: 1015	DTW at sample: 38.25
Sample ID: DW-6	Lab: Kiff	Number of bottles: 12
Analysis: See COC (ISCO)		
Equipment blank ID @	Field blank ID @	
Duplicate ID:	Pre-purge DO:	Post purge DO:
$Fe2^+$:	Pre-purge ORP:	Post purge ORP:
NAPL depth:	Volume of NAPL:	Volume removed: ml

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: DW-7	**Date:** 1-22-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" 2" 3" (4") 6" Other:		**DTW:** 36.70 **Total Depth:** 65.18
Purge equip: (ES - diam 3/4") Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 18.6 X 3 = 55.6 (Total Purge) 80%= 42.39

Time	Temp (°C / °F)	pH	Cond (mS / µS)	Turbidity (NTU)	ORP (mv)	Purge Rate (gal or mL/min)	Volume Removed (gal / L)	Notes
1201	70.6	7.8	1242	28	-106	~5	19	odor
1205	70.9	7.6	1323	46	-103	1	38	1
1209	71.0	7.6	1316	47	-106	1	56	1

Did well dewater? YES (NO)	Total volume removed: 56 (gal / L)
Sample method: (Disp Bailer) Ded. Tubing New Tubing Ext. Port Other:	
Sample date: 1-22-14 Sample time: 1210	DTW at sample: 41.07
Sample ID: DW-7 Lab: Kiff	Number of bottles: 12
Analysis: See COC (ISCO)	
Equipment blank ID @	Field blank ID @
Duplicate ID:	Pre-purge DO: Post purge DO:
$Fe2^+$:	Pre-purge ORP: Post purge ORP:
NAPL depth: Volume of NAPL:	Volume removed: ml

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: DW-8	**Date:** 1-22-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" 2" 3" (4") 6" Other:		**DTW:** 33.03 **Total Depth:** 64.68
Purge equip: (ES)- diam: 2" Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius^2 X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 20.6 X 3 = 61.8 (Total Purge) 80%= 39.36

Time	Temp (°C / (°F))	pH	Cond (mS / (S))	Turbidity (NTU)	ORP (mv)	Purge Rate (gal or mL/ min)	Volume Removed (gal / L)	Notes
0956	70.1	8.0	1635	15	50	4	21.0	
		- Well	Dewatered @				40 gal	
1430	69.5	7.8	1260	8	-16	—	—	

Did well dewater? (YES) NO Total volume removed: 40 (gal / L)

Sample method: Disp Bailer Ded. Tubing New Tubing Ext. Port Other:

Sample date: 1-22-14	Sample time: 1430	DTW at sample: 33.10
Sample ID: DW-8	Lab: Kiff	Number of bottles: 12
Analysis: See COC (ISCO)		

Equipment blank ID @	Field blank ID @	
Duplicate ID:	Pre-purge DO:	Post purge DO:
$Fe2^+$:	Pre-purge ORP:	Post purge ORP:
NAPL depth:	Volume of NAPL:	Volume removed: ml

Purging And Sampling Data S

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: DW-9	**Date:** 1-22-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" 2" 3" (4") 6" Other:		**DTW:** 36.26 **Total Depth:** 59.65
Purge equip: (ES - diam) Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 15.3 X 3 = 45.7 (Total Purge) 80%= 40.93

Time	Temp (°C / °F)	pH	Cond (mS / µS)	Turbidity (NTU)	ORP (mv)	Purge Rate (gal or mL/ min)	Volume Removed (gal / L)	Notes
	* Purged	out	of	order		due	to	access
0931	67.3	7.4	1194	23	-94	~4	15.5	Strong odor
0934	68.6	7.4	1185	16	-94		31	
0938	68.9	7.3	1173	17	-102		46	

Did well dewater? YES (NO) Total volume removed: 46 (gal) L)

Sample method: (Disp Bailer) Ded. Tubing New Tubing Ext. Port Other:

Sample date: 1-22-14	Sample time: 0940	DTW at sample: 38.07
Sample ID: DW-9	Lab: Kiff	Number of bottles: 12
Analysis: See COC (ISCO)		

Equipment blank ID @	Field blank ID @	
Duplicate ID:	Pre-purge DO:	Post purge DO:
$Fe2^+$:	Pre-purge ORP:	Post purge ORP:
NAPL depth:	Volume of NAPL:	Volume removed: ml

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: IP-1	**Date:** 1-22-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" (2") 3" 4" 6" Other:	**DTW:** 33.57	**Total Depth:** 64.52
Purge equip: (ES) diam: 2" Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 5. X 3 = 14.9 (Total Purge) 80%= 39.76

Time	Temp (°C / (F))	pH	Cond (mS / uS)	Turbidity (NTU)	ORP (mv)	Purge Rate (gal or mL/ min)	Volume Removed (gal / L)	Notes
1100	66.9	11.5	24.80	>1000	27	3	5	
1102	68.2	11.6	24.49	>1000	25	3	10	
1105	68.5	11.6	24.40	>1000	24	3	15	
						Waited For	80%	

Did well dewater? YES (NO)	Total volume removed: 15 (gal / L)
Sample method: (Disp Bailer) Ded. Tubing New Tubing Ext. Port Other:	
Sample date: 1-22-14 Sample time: 1130	DTW at sample: 39.70
Sample ID: IP-1 Lab: Kiff	Number of bottles: 12
Analysis: See COC (ISCO)	
Equipment blank ID @	Field blank ID @
Duplicate ID:	Pre-purge DO: Post purge DO:
$Fe2^{+}$:	Pre-purge ORP: Post purge ORP:
NAPL depth: Volume of NAPL:	Volume removed: ml

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: IP-5	**Date:** 1-21-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" (2") 3" 4" 6" Other:		**DTW:** 33.14 **Total Depth:** 64.25
Purge equip: (ES) diam: 2" Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 (2"= 0.16) 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 5 X 3 = 15 (Total Purge) 80%= 39.36

Time	Temp (°C / (°F))	pH	Cond (mS / µS)	Turbidity (NTU)	ORP (mv)	Purge Rate (gal or mL/ min)	Volume Removed ((gal) / L)	Notes
1406	68.4	7.4	932	>1000	127	2l	5	
1407	68.5	7.5	928	>1000	151	2l	10	
1408	68.6	7.5	922	981	155	2l	15	

Did well dewater? YES (NO)	Total volume removed: 15 ((gal) / L)	
Sample method: (Disp Bailer) Ded. Tubing New Tubing Ext. Port Other:		
Sample date: 1-21-14	Sample time: 1410	DTW at sample: 36.60
Sample ID: IP-5	Lab: Kiff	Number of bottles: 12
Analysis: See COC (ISCO)		
Equipment blank ID @	Field blank ID @	
Duplicate ID:	Pre-purge DO:	Post purge DO:
$Fe2^+$:	Pre-purge ORP:	Post purge ORP:
NAPL depth:	Volume of NAPL:	Volume removed: ml

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: IP-8	**Date:** 1-22-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" (2") 3" 4" 6" Other:		**DTW:** 33.42 **Total Depth:** 64.52
Purge equip: (ES) diam: 2" Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 5.0 X 3 = 15.0 (Total Purge) 80%= 39.64

Time	Temp (°C / °F)	pH	Cond (mS / µS)	Turbidity (NTU)	ORP (mv)	Purge Rate (gal or mL/ min)	Volume Removed (gal / L)	Notes
1020	67.7	10.4	12.61	19	50	2	5	
1023	69.0	10.7	12.42	15	246	2	10	
1025	69.3	10.7	12.10	121	42	2	15	
			Waited For	80%				

Did well dewater? YES (NO)	Total volume removed: 15 (gal / L)	
Sample method: Disp Bailer Ded. Tubing New Tubing Ext. Port Other:		
Sample date: 1-22-14	Sample time: 1035	DTW at sample: 39.50
Sample ID: IP-8	Lab: Kiff	Number of bottles: 12
Analysis: See COC (ISCO)		
Equipment blank ID @	Field blank ID @	
Duplicate ID:	Pre-purge DO:	Post purge DO:
$Fe2^{+}$:	Pre-purge ORP:	Post purge ORP:
NAPL depth:	Volume of NAPL:	Volume removed: ml

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: IP-9	**Date:** 1-22-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" (2") 3" 4" 6" Other:		**DTW:** 32.78 **Total Depth:** 64.75
Purge equip: (ES) - diam: 2" Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 (2"= 0.16) 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 5.2 X 3 = 15.4 (Total Purge) 80%= 39.17

Time	Temp (°C / (F))	pH	Cond. (mS / (µS))	Turbidity (NTU)	ORP (mv)	Purge Rate ((gal) or mL/ min)	Volume Removed ((gal) / L)	Notes
0834	65.3	9.9	21.21	47	62	5	5.5	
0835	66.7	11.4	21.27	15	60		11.0	
0836	66.5	11.6	21.30	12	63		15.5	
0837	66.4	11.7	21.33	9	64		21.0	
0838	66.5	11.7	21.34	7	65	5	26.0	

Did well dewater? YES (NO)	Total volume removed: 26 (gal/ L)	
Sample method: (Disp Bailer) Ded. Tubing New Tubing Ext. Port Other:		
Sample date: 1-22-14	Sample time: 0845	DTW at sample: 33.40
Sample ID: IP-9	Lab: Kiff	Number of bottles: 12
Analysis: See COC (ISCO)		
Equipment blank ID @	Field blank ID @	
Duplicate ID:	Pre-purge DO:	Post purge DO:
$Fe2^{+}$:	Pre-purge ORP:	Post purge ORP:
NAPL depth:	Volume of NAPL:	Volume removed: ml

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: IP-10	**Date:** 1-22-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" (2") 3" 4" 6" Other:		**DTW:** 33.11 **Total Depth:** 63.05
Purge equip: (ES) diam: 2" Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 21.8 X 3 = 14.4 (Total Purge) 80%= 39.09

Time	Temp (°C / (°F))	pH	Cond (mS / ~~mS~~)	Turbidity (NTU)	ORP (mv)	Purge Rate ((gal) or mL/ min)	Volume Removed ((gal) / L)	Notes
0758	66.5	7.6	877	29	31	4	5	
	- well	Dewatered	@				7 gal.	
1330	67.2	10.1	969.5	14	-28	—	—	

Did well dewater? (YES) NO	Total volume removed: 7 ((gal) / L)
Sample method: (Disp Bailer) Ded. Tubing New Tubing Ext. Port Other:	
Sample date: 1-22-14 Sample time: 1330	DTW at sample: 33.80
Sample ID: IP-10 Lab: Kiff	Number of bottles: 12
Analysis: See COC (ISCO)	

Equipment blank ID @	Field blank ID @	
Duplicate ID:	Pre-purge DO:	Post purge DO:
$Fe2^+$:	Pre-purge ORP:	Post purge ORP:
NAPL depth:	Volume of NAPL:	Volume removed: ml

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: TP-1	**Date:** 1-22-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" (2") 3" 4" 6" Other:		**DTW:** 33,38 **Total Depth:** 41.06
Purge equip: ES - diam: Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake: —	**Multipliers:** 1"= 0.04 (2"= 0.16) 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 1.3 X 3 = 3.7 (Total Purge) 80%= 34.91

Time	Temp (°C (F))	pH	Cond (mS (mS))	Turbidity (NTU)	ORP (mv)	Purge Rate (gal or mL/ min)	Volume Removed (gal / L)	Notes
0800	65.9	7.3	1684	>1000	37	~~0.9~~	1.5	
	- Dewatered @ 2 gal.							
0815	66.5	7.2	1590	>1000	30	—	—	

Did well dewater? (YES) NO	Total volume removed: 2 (gal) / L)	
Sample method: (Disp Bailer) Ded. Tubing New Tubing Ext. Port Other:		
Sample date: 1-22-14	Sample time: 0815	DTW at sample: 34.55
Sample ID: TP-1	Lab: Kiff	Number of bottles: 3 (4) ~~2~~
Analysis: See COC (ISCO)		
Equipment blank ID @	Field blank ID @	
Duplicate ID:	Pre-purge DO:	Post purge DO:
$Fe2^{+}$:	Pre-purge ORP:	Post purge ORP:
NAPL depth:	Volume of NAPL:	Volume removed: ml

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** M Pestoni A Feeney	**Client:** Orion
Well ID: TP-2	**Date:** 1-21-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" (2") 3" 4" 6" Other:	**DTW:** 33.25	**Total Depth:** 210.11
Purge equip: (ES) diam: 2" Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: (3-5 Case Volume) Micro/Low-Flow Extraction Other:		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 (2"=0.16) 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = 1.0 X 3 = 3.3 (Total Purge) 80%= 34.62

Time	Temp (°C / °F)	pH	Cond (mS / µS)	Turbidity (NTU)	ORP (mv)	Purge Rate (gal or mL/ min)	Volume Removed (gal / L)	Notes
1300	67.3	7.5	1301	>1000	122	2	1	
1301	68.0	7.6	1315	>1000	130	2	2	
		- Well	Dewatered			0	2	
1430	69.2	7.8	1300	>1000	110	—	—	

Did well dewater? (YES) NO	Total volume removed: 2 (gal) / L)	
Sample method: Disp Bailer Ded. Tubing New Tubing Ext. Port Other:		
Sample date: 1-21-14	Sample time: 1430	DTW at sample: 33.79
Sample ID: TP-2	Lab: Kiff	Number of bottles: 3
Analysis: See COC (ISCO)		
Equipment blank ID @	Field blank ID @	
Duplicate ID:	Pre-purge DO:	Post purge DO:
$Fe2^+$:	Pre-purge ORP:	Post purge ORP:
NAPL depth:	Volume of NAPL:	Volume removed: ml

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** MPeston A Feeney	**Client:** Orion
Well ID: VW-2	**Date:** 1-22-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" (2") 3" 4" 6" Other:		**DTW:** 33.16 **Total Depth:** 35.02
Purge equip: ES - diam: Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: ~~3-5 Case Volume~~ Micro/Low-Flow Extraction Other: No Purge		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius^2 X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = — X — = 0 (Total Purge) 80%= —

Time	Temp (°C (F))	pH	Cond (mS / (S))	Turbidity (NTU)	ORP (mv)	Purge Rate (gal or mL/ min)	Volume Removed (gal / L)	Notes
0740	68.1	6.9	1431	42	83	—	—	

Did well dewater? YES (NO) Total volume removed: — (gal / L)

Sample method: (Disp Bailer) Ded. Tubing New Tubing Ext. Port Other:

Sample date: 1-22-14	Sample time: 0740	DTW at sample: 33.16
Sample ID: VW-2	Lab: Kiff	Number of bottles: 3
Analysis: See COC (ISCO)		

Equipment blank ID @	Field blank ID @	
Duplicate ID:	Pre-purge DO:	Post purge DO:
$Fe2^+$:	Pre-purge ORP:	Post purge ORP:
NAPL depth:	Volume of NAPL:	Volume removed: ml

Purging And Sampling Data Sheet

Job#: P1-140121	**Sampler:** ~~M Pestoni~~ A Feeney	**Client:** Orion
Well ID: VW-3	**Date:** 1-22-14	**Site:** Livermore Tesoro #67076
Well diam: 1/4" 1" 2" 3" 4" 6" Other:		**DTW:** 33.80 **Total Depth:** 36.30
Purge equip: ES - diam: Bladder Peri Waterra Positive Air Displacement Ext. System		
disp bailer teflon bailer other:	**Tubing:** OD: New Dedicated NA	
Purge method: ~~3-5 Case Volume~~ Micro/Low-Flow Extraction Other: No Purge		
Pump depth/ intake:	**Multipliers:** 1"= 0.04 2"= 0.16 3"= 0.37 4"= 0.65 5"=1.02 6"= 1.47 Radius² X 0.163	
(TD - DTW X Multiplier = 1 Volume	80% Recovery (TD - DTW X 0.20 + DTW)	

1 Volume = — X — = 0 (Total Purge) 80%= —

Time	Temp (°C °F)	pH	Cond (mS ~~mS~~)	Turbidity (NTU)	ORP (mv)	Purge Rate (gal or mL/ min)	Volume Removed (gal / L)	Notes
0730	65.0	7.7	1374	5	218	—	—	

Did well dewater? YES ~~NO~~ Total volume removed: — (gal / L)

Sample method: Disp Bailer Ded. Tubing New Tubing Ext. Port Other:

Sample date: 1-22-14	Sample time: 0730	DTW at sample: 33.80
Sample ID: VW-3	Lab: Kiff	Number of bottles: 3
Analysis: See COC (ISCO)		

Equipment blank ID @	Field blank ID @	
Duplicate ID:	Pre-purge DO:	Post purge DO:
$Fe2^{+}$:	Pre-purge ORP:	Post purge ORP:
NAPL depth:	Volume of NAPL:	Volume removed: ml

ATTACHMENT C

HISTORICAL WELL AND GROUNDWATER ELEVATIONS

TABLE C-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
	12/31/00	31.71		442.58
	3/27/01	30.43		443.86

TABLE C-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	6/30/01	36.61	474.29	437.68
(cont.)	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
	10/13/08	51.00		423.29
	2/11/09	48.69		425.60
	4/27/09	41.90		432.39
	8/4/09	51.44		422.85

TABLE C-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	12/8/09	39.87	474.29	434.42
(cont.)	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
	5/7/12	36.14		438.07
	8/6/12	37.40		436.81
	11/12/12	37.10		437.11
	2/12/13	30.98		443.23
	4/22/13	33.11		441.10
	8/21/13	35.40		438.81
	11/7/13	34.36		439.85
	1/21/14	33.23		440.98
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

TABLE C-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	12/2/96	26.90	472.98	446.08
(cont.)	3/7/97	21.33		451.65
	6/12/97	29.94		443.04
	9/29/97	34.22		438.76
	12/1/97	35.94		437.04
	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 C-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
	5/7/12	36.89		436.09
	8/6/12	40.95		432.03
	11/12/12	39.03		433.95
	2/12/13	32.13		440.85

TABLE C-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	4/22/13	34.15	472.98	438.83
(cont.)	6/24/13	35.05		437.93
	8/21/13	36.05		436.93
	11/7/13	35.09		437.89
	1/21/14	33.81		439.17
MW-3	6/1/93	36.18	473.37	437.19
	6/22/93	37.11		436.26
	10/6/93	41.15		432.22
	1/13/94	33.95		439.42
	3/30/94	30.97		442.40
	4/25/94	32.46		440.91
	8/12/94	41.72		431.65
	12/14/94	37.62		435.75
	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

TABLE C-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	3/13/00	24.28	473.37	449.09
(cont.)	6/12/00	26.80		446.57
	11/10/00	29.47		443.90
	12/31/00	31.38		441.99
	3/27/01	29.94		443.43
	6/30/01	37.54		435.83
	9/26/01	45.17		428.20
	12/18/01	39.41		433.96
	3/18/02	37.73		435.64
	6/5/02	35.35		438.02
	8/21/02	36.21		437.16
	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

TABLE C-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	5/8/08	35.60	473.37	437.77
(cont.)	7/23/08	45.00		428.37
	10/13/08	50.70		422.67
	2/11/09	47.81		425.56
	4/27/09	41.18		432.19
	8/4/09	51.89		421.48
	12/8/09	39.50		433.87
	2/11/10	35.19		438.18
	5/3/10	31.39		441.98
	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
	5/7/12	36.03		437.34
	8/6/12	40.52		432.85
	11/12/12	39.24		434.13
	2/12/13	31.34		442.03
	4/22/13	33.51		439.86
	8/21/13	35.71		437.66
	11/7/13	34.60		438.77
	1/21/14	33.49		439.88
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

TABLE C-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	6/13/96	21.07	473.64	452.57
(cont.)	9/16/96	28.99		444.65
	12/2/96	26.04		447.60
	3/7/97	19.69		453.95
	6/12/97	28.04		445.60
	9/29/97	29.91		443.73
	12/1/97	33.88		439.76
	3/19/98	18.67		454.97
	5/29/98	20.16		453.48
	9/15/98	30.46		443.18
	11/30/98	34.50		439.14
	1/17/99	28.30		445.34
	6/10/99	27.60		446.04
	9/7/99	30.79		442.85
	12/13/99	31.60		442.04
	3/13/00	24.35		449.29
	6/12/00	26.91		446.73
	11/10/00	29.71		443.93
	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

TABLE C-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	8/4/04	34.87	473.64	438.77
(cont.)	11/4/04	34.28		439.36
	1/12/05	28.67		444.97
	5/2/05	24.46		449.18
	7/19/05	29.36		444.28
	11/21/05	31.80		441.84
	2/9/06	26.34		447.30
	5/16/06	24.30		449.34
	8/9/06	32.05		441.59
	11/8/06	32.85		440.79
	2/14/07	30.46		443.18
	5/17/07	33.92		439.72
	8/2/07	40.68		432.96
	11/12/07	DRY[d]		--
	2/14/08	34.53		439.11
	5/8/08	35.55		438.09
	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
	5/7/12	36.24		437.40
	8/6/12	40.69		432.95

TABLE C-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	11/12/12	39.65	473.64	433.99
(cont.)	2/12/13	31.56		442.08
	4/22/13	33.80		439.84
	8/21/13	36.10		437.54
	11/7/13	35.18		438.46
	1/21/14	34.07		439.57
MW-5	3/30/94	32.07	472.67	440.60
	4/25/94	33.65		439.02
	8/12/94	42.73		429.94
	12/14/94	38.89		433.78
	2/10/95	31.44		441.23
	6/15/95	24.99		447.68
	9/26/95	30.20		442.47
	12/15/95	28.56		444.11
	3/21/96	16.82		455.85
	6/13/96	22.61		450.06
	9/16/96	29.78		442.89
	12/2/96	26.51		446.16
	3/7/97	21.91		450.76
	9/29/97	31.74		440.93
	12/1/97	34.05		438.62
	3/19/98	20.93		451.74
	5/29/98	21.30		451.37
	9/15/98	31.32		441.35
	11/30/98	35.44		437.23
	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

TABLE C-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	3/27/01	30.57	472.67	442.10
(cont.)	6/30/01	37.24		435.43
	9/26/01	44.53		428.14
	12/18/01	40.65		432.02
	3/18/02	38.75		433.92
	6/5/02	36.21		436.46
	8/21/02	36.76		435.91
	12/3/02	36.12		436.55
	3/4/03	32.90		439.77
	6/10/03	33.04		439.63
	9/9/03	34.20		438.47
	12/23/03	31.38		441.29
	3/23/04	27.51		445.16
	5/10/04	31.12		441.55
	8/4/04	35.09		437.58
	11/4/04	34.34		438.33
	1/12/05	29.19		443.48
	5/2/05	25.31		447.36
	7/19/05	30.49		442.18
	11/21/05	32.35		440.32
	2/9/06	27.19		445.48
	5/16/06	25.30		447.37
	8/9/06	32.68		439.99
	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		--

TABLE C-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	4/27/09	42.50	472.67	430.17
(cont.)	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
	8/3/11	33.18		439.49
	10/10/11	35.58		437.09
	1/31/12	39.80		432.87
	5/7/12	37.29		435.38
	8/6/12	NM[(e)]		--
	11/12/12	40.72		431.95
	2/12/13	32.68		439.99
	4/22/13	35.09		437.58
	8/21/13	37.00		435.67
	11/7/13	35.94		436.73
	1/21/14	34.65		438.02
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

TABLE C-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	6/12/97	31.02	471.93	440.91
(cont.)	9/29/97	35.77		436.16
	12/1/97	37.14		434.79
	3/19/98	21.10		450.83
	5/29/98	23.26		448.67
	9/15/98	33.50		438.43
	11/30/98	38.73		433.20
	1/17/99	32.05		439.88
	6/10/99	31.44		440.49
	9/7/99	33.94		437.99
	12/13/99	35.84		436.09
	3/13/00	28.45		443.48
	6/12/00	30.52		441.41
	11/10/00	32.99		438.94
	12/31/00	34.95		436.98
	3/27/01	32.72		439.21
	6/30/01	39.86		432.07
	9/26/01	DRY		--
	12/18/01	43.36		428.57
	3/18/02	41.29		430.64
	6/5/02	38.85		433.08
	8/21/02	39.02		432.91
	12/3/02	38.76		433.17
	3/4/03	35.13		436.80
	6/10/03	34.15		437.78
	9/9/03	37.66		434.27
	12/23/03	33.43		438.50
	3/23/04	29.96		441.97
	5/10/04	32.98		438.95
	8/4/04	37.02		434.91
	11/4/04	37.03		434.90
	1/12/05	32.01		439.92
	5/2/05	27.30		444.63

TABLE C-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	7/19/05	32.27	471.93	439.66
(cont.)	11/21/05	33.23		438.70
	2/9/06	29.07		442.86
	5/17/06	27.23		444.70
	8/9/06	35.22		436.71
	11/8/06	33.41		438.52
	2/14/07	33.43		438.50
	5/17/07	36.50		435.43
	8/2/07	42.24		429.69
	11/12/07	DRY		--
	2/14/08	38.67		433.26
	5/8/08	38.50		433.43
	7/23/08	DRY		--
	10/13/08	DRY		--
	2/11/09	DRY		--
	4/27/09	44.87		427.06
	8/4/09	DRY		--
	12/8/09	43.02		428.91
	2/11/10	38.89		433.04
	5/3/10	34.56		437.37
	8/2/10	37.87		434.06
	11/2/10	40.45		431.48
	2/1/11	35.73		436.20
	4/25/11	30.72		441.21
	8/3/11	34.95		436.98
	10/10/11	37.45		434.48
	1/31/12	42.15		429.78
	5/7/12	39.11		432.82
	8/6/12	43.66		428.27
	11/12/12	42.20		429.73
	2/12/13	34.24		437.69
	4/22/13	36.78		435.15
	6/25/13	37.15		434.78

TABLE C-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	8/21/13	37.98	471.93	433.95
(cont.)	11/7/13	39.82		432.11
	1/21/14	35.42		436.51
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
	5/29/98	22.30		450.03
	9/15/98	32.54		439.79
	11/30/98	37.96		434.37
	1/17/99	31.04		441.29
	6/10/99	29.89		442.44
	9/7/99	32.38		439.95
	12/13/99	33.98		438.35
	3/13/00	27.09		445.24
	6/12/00	28.76		443.57
	11/10/00	31.54		440.79
	12/31/00	32.76		439.57
	3/27/01	30.97		441.36
	6/30/01	37.50		434.83

TABLE C-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	9/26/01	45.11	472.33	427.22
(cont.)	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
	2/9/06	26.15		446.18
	5/16/06	24.44		447.89
	8/9/06	31.77		440.56
	11/8/06	31.14		441.19
	2/14/07	30.39		441.94
	5/17/07	33.31		439.02
	8/2/07	37.09		435.24
	11/12/07	DRY		--
	2/14/08	36.51		435.82
	5/8/08	36.00		436.33
	7/23/08	44.42		427.91
	10/13/08	DRY		--
	2/11/09	DRY		--
	4/27/09	41.80		430.53
	8/4/09	DRY		--

TABLE C-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
MW-7	12/17/09	39.26	472.33	433.07
(cont.)	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
	5/7/12	35.97		436.36
	8/6/12	39.85		432.48
	11/12/12	38.73		433.60
	2/12/13	31.46		440.87
	4/22/13	33.19		439.14
	6/24/13	34.10		438.23
	8/21/13	36.90		435.43
	11/7/13	34.06		438.27
	1/21/14	33.11		439.22
MW-8	12/23/03	32.01	471.18	439.17
	3/23/04	28.50		442.68
	5/10/04	31.44		439.74
	8/4/04	35.11		436.07
	11/4/04	34.77		436.41
	1/12/05	29.66		441.52
	5/2/05	25.91		445.27
	7/19/05	30.56		440.62
	11/21/05	32.48		438.70
	2/9/06	27.40		443.78
	5/16/06	25.60		445.58
	8/9/06	32.77		438.41
	11/8/06	32.10		439.08
	2/14/07	30.94		440.24

TABLE C-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	5/17/07	34.14	471.18	437.04
(cont.)	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
	5/7/12	37.38		433.80
	8/6/12	41.94		429.24
	11/12/12	40.87		430.31
	2/12/13	32.81		438.37
	4/22/13	35.00		436.18
	6/25/13	36.40		434.78
	8/21/13	37.20		433.98
	11/7/13	35.95		435.23
	1/21/14	34.63		436.55
MW-9	12/23/03	34.03	470.78	436.75
	3/23/04	30.01		440.77
	5/10/04	33.61		437.17
	8/4/04	37.47		433.31

TABLE C-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	11/4/04	37.44	470.78	433.34
(cont.)	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
	5/7/12	39.43		431.35
	8/6/12	43.51		427.27
	11/12/12	42.66		428.12
	2/12/13	34.70		436.08

TABLE C-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	4/22/13	37.01	470.78	433.77
(cont.)	6/25/13	37.82		432.96
	8/21/13	39.02		431.76
	11/7/13	37.87		432.91
	1/21/14	36.31		434.47
MW-10	12/23/03	33.80	471.63	437.83
	3/23/04	28.68		442.95
	5/10/04	32.15		439.48
	8/4/04	36.40		435.23
	11/4/04	36.21		435.42
	1/12/05	31.64		439.99
	5/2/05	27.01		444.62
	7/19/05	31.59		440.04
	11/21/05	32.96		438.67
	2/9/06	28.56		443.07
	5/16/06	26.83		444.80
	8/9/06	34.37		437.26
	11/8/06	33.41		438.22
	2/14/07	32.81		438.82
	5/17/07	35.85		435.78
	8/2/07	43.46		428.17
	11/12/07	DRY		--
	2/14/08	39.71		431.92
	5/8/08	37.55		434.08
	7/23/08	DRY		--
	10/13/08	DRY		--
	2/11/09	DRY		--
	4/27/09	45.10		426.53
	8/4/09	44.52		427.11
	12/8/09	42.80		428.83
	2/11/10	39.74		431.89
	5/3/10	33.97		437.66
	8/2/10	36.12		435.51

TABLE C-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	11/2/10	38.30	471.63	433.33
(cont.)	2/1/11	34.63		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
	5/7/12	38.14		433.49
	8/6/12	40.65		430.98
	11/12/12	40.53		431.10
	2/12/13	33.19		438.44
	4/22/13	34.99		436.64
	6/25/13	36.25		435.38
	8/21/13	37.11		434.52
	11/7/13	36.05		435.58
	1/21/14	34.55		437.08
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		--
	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
	5/7/12	31.61		441.35
	8/6/12	35.20		437.76
	11/12/12	35.34		437.62
	2/12/13	30.64		442.32

TABLE C-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-11	4/22/13	32.74	472.96	440.22
(cont.)	6/24/13	33.62		439.34
	8/21/13	34.74		438.22
	11/7/13	33.75		439.21
	1/21/14	32.43		440.53
MW-12	6/14/12	40.62	469.77	429.15
	8/6/12	43.22		426.55
	11/12/12	41.85		427.92
	2/12/13	34.10		435.67
	4/22/13	36.18		433.59
	6/25/13	37.80		431.97
	8/21/13	38.80		430.97
	11/7/13	37.40		432.37
	1/21/14	35.94		433.83
VW-2	8/4/04	34.13	473.28	439.15
	11/4/04	34.75		438.53
	1/12/05	29.35		443.93
	5/2/05	25.34		447.94
	7/19/05	29.76		443.52
	11/21/05	31.81		441.47
	2/9/06	27.21		446.07
	5/17/06	25.26		448.02
	8/9/06	31.74		441.54
	11/8/06	33.52		439.76
	2/14/07	30.77		442.51
	5/17/07	33.17		440.11
	8/2/07	36.33		436.95
	11/12/07	DRY		--
	2/14/08	35.55		437.73
	5/8/08	35.31		437.97
	7/23/08	DRY		--
	10/13/08	DRY		--
	2/11/09	DRY		--

TABLE C-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	4/27/09	DRY	473.28	--
(cont.)	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
	5/7/12	31.50		441.07
	8/6/12	32.64		439.93
	11/12/12	33.90		438.67
	2/12/13	31.60		440.97
	4/22/13	33.51		439.06
	8/21/13	DRY		--
	11/7/13	DRY		--
	1/21/14	33.16		439.41
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

TABLE C-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	11/12/07	DRY	474.38	--
(cont.)	2/14/08	DRY		--
	5/8/08	34.80		439.58
	7/23/08	DRY		--
	10/13/08	DRY		--
	2/11/09	DRY		--
	4/27/09	DRY		--
	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		--
	5/7/12	DRY		--
	8/6/12	DRY		--
	11/12/12	DRY		--
	2/12/13	31.70		442.68
	4/22/13	33.49		440.89
	8/21/13	35.46		438.92
	11/7/13	35.07		439.31
	1/21/14	33.80		440.58
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

TABLE C-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	5/17/07	33.52	472.82	439.30
(cont.)	8/2/07	40.30		432.52
	11/12/07	DRY		--
	2/14/08	36.17		436.65
	5/8/08	36.17		436.65
	7/23/08	DRY		--
	10/13/08	DRY		--
	2/11/09	DRY		--
	4/27/09	DRY		--
	8/4/09	DRY		--
	12/8/09	41.39		431.43
	2/11/10	NM		--
	5/3/10	32.32		440.50
	8/2/10	33.96	472.64[(c)]	438.68
	11/2/10	37.46		435.18
	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
	5/7/12	34.70		437.94
	8/6/12	36.59		436.05
	11/12/12	37.00		435.64
	2/12/13	31.96		440.68
	4/22/13	33.71		438.93
	8/21/13	35.86		436.78
	11/7/13	34.65		437.99
	1/21/14	33.38		439.26
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

TABLE C-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	11/8/06	32.80	472.93	440.13
(cont.)	2/14/07	30.32		442.61
	5/17/07	33.28		439.65
	8/2/07	39.35		433.58
	11/12/07	DRY		--
	2/14/08	35.62		437.31
	5/8/08	36.62		436.31
	7/23/08	DRY		--
	10/13/08	DRY		--
	2/11/09	DRY		--
	4/27/09	DRY		--
	8/4/09	DRY		--
	12/8/09	40.08		432.85
	2/11/10	NM		--
	5/3/10	31.85		441.08
	8/2/10	33.57	472.78[c]	439.21
	11/2/10	37.35		435.43
	2/1/11	32.79		439.99
	4/25/11	28.30		444.48
	8/3/11	31.59		441.19
	10/10/11	32.14		440.64
	1/31/12	34.32		438.46
	5/7/12	34.41		438.37
	8/6/12	36.00		436.78
	11/12/12	36.25		436.53
	2/12/13	31.81		440.97
	4/22/13	33.70		439.08
	8/21/13	35.43		437.35
	11/7/13	34.50		438.28
	1/21/14	33.25		439.53
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

TABLE C-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
DW-1	2/11/09	48.28	472.85	424.57
(cont.)	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
	5/7/12	36.35		436.50
	8/6/12	40.60		432.25
	11/12/12	39.29		433.56
	2/12/13	31.63		441.22
	4/22/13	33.72		439.13
	6/24/13	35.08		437.77
	8/21/13	35.90		436.95
	11/7/13	34.79		438.06
	1/21/14	33.57		439.28
DW-2	5/22/08	39.80	471.61	431.81
	7/23/08	48.25		423.36
	10/13/08	53.40		418.21
	2/11/09	51.50		420.11
	4/27/09	44.71		426.90
	8/4/09	54.67		416.94
	12/8/09	42.88		428.73
	2/11/10	38.63		432.98
	5/3/10	34.46		437.15
	8/2/10	37.72		433.89
	11/2/10	40.50		431.11

TABLE C-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	2/1/11	35.66	471.61	435.95
(cont.)	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
	5/7/12	39.10		432.51
	8/6/12	43.90		427.71
	11/12/12	42.25		429.36
	2/12/13	34.35		437.26
	4/22/13	36.70		434.91
	6/25/13	36.94		434.67
	8/21/13	37.85		433.76
	11/7/13	36.94		434.67
	1/21/14	35.59		436.02
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
	5/7/12	38.70		431.63
	8/6/12	43.26		427.07
	11/12/12	41.48		428.85

TABLE C-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(a)] (feet MSL)	Water Table Elevation[(b)] (feet MSL)
DW-3	2/12/13	33.87	470.33	436.46
(cont.)	4/22/13	36.10		434.23
	6/25/13	37.39		432.94
	8/21/13	38.38		431.95
	11/7/13	36.85		433.48
	1/21/14	35.32		435.01
DW-4	5/22/08	40.20	468.48	428.28
	7/23/08	49.50		418.98
	10/13/08	54.90		413.58
	2/11/09	51.71		416.77
	4/27/09	45.10		423.38
	8/4/09	56.46		412.02
	12/8/09	42.26		426.22
	2/11/10	37.98		430.50
	5/3/10	34.04		434.44
	8/2/10	36.94		431.54
	11/2/10	39.50		428.98
	2/1/11	35.11		433.37
	4/25/11	30.12		438.36
	8/3/11	34.54		433.94
	10/10/11	36.60		431.88
	1/31/12	42.10		426.38
	5/7/12	38.26		430.22
	8/6/12	42.80		425.68
	11/12/12	40.86		427.62
	2/12/13	33.29		435.19
	4/22/13	35.90		432.58
	8/21/13	38.30		430.18
	11/7/13	36.45		432.03
	1/21/14	35.99		432.49
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

TABLE C-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-5	8/2/10	37.56	471.86	434.30
(cont.)	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
	5/7/12	38.98		432.88
	8/6/12	46.32		425.54
	11/12/12	41.65		430.21
	2/12/13	34.10		437.76
	4/22/13	36.52		435.34
	6/25/13	37.42		434.44
	8/21/13	38.35		433.51
	11/7/13	36.97		434.89
	1/21/14	34.45		437.41
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
	5/7/12	39.82		431.95
	8/6/12	44.50		427.27
	11/12/12	42.95		428.82
	2/12/13	34.96		436.81
	4/22/13	37.29		434.48
	6/25/13	38.55		433.22
	8/21/13	39.55		432.22

TABLE C-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-6	11/7/13	38.24	471.77	433.53
(cont.)	1/21/14	37.03		434.74
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
	5/7/12	39.30		430.77
	8/6/12	44.02		426.05
	11/12/12	42.43		427.64
	2/12/13	34.54		435.53
	4/22/13	36.80		433.27
	6/25/13	38.44		431.63
	8/21/13	39.91		430.16
	11/7/13	38.25		431.82
	1/21/14	36.70		433.37
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
	5/7/12	35.52		436.79
	8/6/12	39.61		432.70
	11/12/12	38.00		434.31
	2/12/13	30.46		441.85
	4/22/13	32.66		439.65
	6/24/13	33.87		438.44
	8/21/13	34.43		437.88

TABLE C-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-8	11/7/13	33.54	472.31	438.77
(cont.)	1/21/14	33.03		439.28
DW-9	6/14/12	40.85	469.80	428.95
	8/6/12	43.65		426.15
	11/12/12	42.05		427.75
	2/12/13	34.25		435.55
	4/22/13	36.39		433.41
	6/25/13	38.46		431.34
	8/21/13	39.32		430.48
	11/7/13	37.76		432.04
	1/21/14	36.26		433.54
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
	5/7/12	36.18		436.88
	8/6/12	40.23		432.83
	11/12/12	38.76		434.30
	2/12/13	31.25		441.81
	4/22/13	33.28		439.78
	6/24/13	34.85		438.21
	8/21/13	36.10		436.96
	11/7/13	35.07		437.99
	1/21/14	33.57		439.49

TABLE C-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-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
	5/7/12	37.21		435.85
	8/6/12	40.78		432.28
	11/12/12	39.79		433.27
	2/12/13	NM		--
	4/22/13	33.86		439.20
	8/21/13	NM		--
	11/7/13	NM		--
	1/21/14	NM		--
IP-3	7/23/08	45.47	472.97	427.50
	10/13/08	51.11		421.86
	5/3/10[f]	31.68		441.29
	4/25/11	28.07	473.05[c]	444.98
	5/7/12	36.41		436.64
	8/6/12	40.70		432.35
	11/12/12	39.41		433.64
	2/12/13	NM		--
	4/22/13	34.12		438.93
	8/21/13	NM		--
	11/7/13	NM		--
	1/21/14	NM		--
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
	5/7/12	36.30		436.80
	8/6/12	40.67		432.43
	11/12/12	39.15		433.95
	2/12/13	NM		--
	4/22/13	33.76		439.34

TABLE C-1

HISTORICAL WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Well No.	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[a] (feet MSL)	Water Table Elevation[b] (feet MSL)
IP-4	8/21/13	NM	473.10	--
(cont.)	11/7/13	NM		--
	1/21/14	NM		--
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
	5/7/12	36.90		436.15
	8/6/12	40.65		432.40
	11/12/12	39.16		433.89
	2/12/13	NM		--
	4/22/13	33.78		439.27
	6/24/13	35.08		437.97
	8/21/13	NM		--
	11/7/13	34.68		438.37
	1/21/14	33.14		439.91
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
	5/7/12	39.70		432.73
	8/6/12	44.44		427.99
	11/12/12	42.67		429.76
	2/12/13	NM		--
	4/22/13	37.05		435.38
	8/21/13	NM		--
	11/7/13	NM		--
	1/21/14	NM		--
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
	5/7/12	41.87		430.56

TABLE C-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-7	8/6/12	45.63	472.43	426.80
(cont.)	11/12/12	43.87		428.56
	2/12/13	NM		--
	4/22/13	38.34		434.09
	8/21/13	NM		--
	11/7/13	NM		--
	1/21/14	NM		--
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
	5/7/12	36.25		436.97
	8/6/12	40.32		432.90
	11/12/12	39.10		434.12
	2/12/13	31.59		441.63
	4/22/13	33.75		439.47
	8/21/13	36.69		436.53
	11/7/13	34.58		438.64
	1/21/14	33.42		439.80
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
	5/7/12	37.03		436.32
	8/6/12	40.30		433.05
	11/12/12	38.77		434.58
	2/12/13	31.25		442.10
	4/22/13	33.85		439.50
	8/21/13	35.50		437.85
	11/7/13	33.96		439.39
	1/21/14	32.78		440.57
IP-10	2/11/09	48.77	473.78	425.01
	5/3/10[f]	32.23		441.55

TABLE C-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
	5/7/12	36.24		437.64
	8/6/12	40.36		433.52
	11/12/12	38.99		434.89
	2/12/13	31.18		442.70
	4/22/13	33.40		440.48
	6/24/13	34.87		439.01
	8/21/13	35.55		438.33
	11/7/13	34.41		439.47
	1/21/14	33.11		440.77

(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 D

HISTORICAL GROUNDWATER ANALYTICAL RESULTS

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	--	--	--	--	--	--	--	--

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	1/17/99	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
(cont.)	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	--	--	--	--	--	--	--	--
	12/13/99	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	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

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	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
(cont.)	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
	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
	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
	5/9/12	3,300	2.2	5.5	52	89	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<100	ND<5	ND<0.5	ND<0.5
	8/8/12	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
	11/12/12	110	ND<0.5	ND<0.5	1.1	3.7	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/12/13	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
	4/22/13	240	ND<0.5	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
	8/21/13	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<5.0	ND<50	ND<5.0	ND<0.5	ND<0.5

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	11/7/13	4,300	0.82	2.9	76	160	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.)	1/21/14	9,600	2.5	5.2	130	250	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<15	ND<0.5	ND<0.5
MW-2	6/1/93	170,000	20,000	21,000	3,300	18,000	--	--	--	--	--	--	--	--	--
	6/22/93	160,000	19,000	22,000	3,500	18,000	--	--	--	--	--	--	--	--	--
	10/6/93	110,000	17,000	17,000	3,000	15,000	--	--	--	--	--	--	--	--	--
	1/13/94	93,000	20,000	19,000	2,300	14,000	--	--	--	--	--	--	--	--	--
	3/30/94	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/25/94	41,000	9,600	7,300	840	7,800	--	--	--	--	--	--	--	--	--
	8/12/94	59,000	11,000	11,000	2,300	11,000	--	--	--	--	--	--	--	--	--
	12/14/94	63,000	13,000	13,000	2,200	12,000	--	--	--	--	--	--	--	--	--
	2/10/95	63,000	12,000	12,000	2,200	11,000	--	--	--	--	--	--	--	--	--
	6/15/95	61,000	11,000	12,000	1,900	11,000	--	--	--	--	--	--	--	--	--
	9/26/95	61,000	9,400	11,000	2,300	12,000	--	--	--	--	--	--	--	--	--
	12/15/95	48,000	8,000	8,300	2,200	12,000	--	--	--	--	--	--	--	--	--
	3/21/96	48,000	8,000	7,700	2,400	12,000	--	--	--	--	--	--	--	--	--
	6/13/96	33,000	7,300	8,800	1,900	12,000	ND<250	--	--	--	--	--	--	--	--
	9/16/96	8,600	510	640	180	1,300	ND<250	--	--	--	--	--	--	--	--
	12/2/96	29,000	4,400	4,000	1,300	6,100	ND<130	--	--	--	--	--	--	--	--
	3/7/97	13,000	1,800	1,100	270	2,000	ND<250	--	--	--	--	--	--	--	--
	6/12/97	68,000	7,800	6,600	2,300	11,000	ND<500	--	--	--	--	--	--	--	--
	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	--	--	--	--	--	--	--	--

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	9/15/98	36,000	3,900	1,200	1,400	7,800	ND<250	--	--	--	--	--	--	--	--
(cont.)	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	--	--	--	--	--	--	--	--
	Fmw-11	14,000	1,400	87	690	110	34	--	--	--	--	--	--	--	--
	3/13/00	38,000	2,400	2,300	1,600	6,400	2,400	--	--	--	--	--	--	--	--
	6/12/00	56,000	4,000	950	2,300	7,200	ND<50	--	--	--	--	--	--	--	--
	11/10/00	35,000	5,100	850	1,500	3,200	230	--	--	--	--	--	--	--	--
	12/31/00	21,000	3,200	420	1,300	1,200	440	--	--	--	--	--	--	--	--
	3/27/01	3,500	420	64	16	280	120	--	--	--	--	--	--	--	--
	6/30/01	1,200	88	4.5	65	37	29	--	--	--	--	--	--	--	--
	9/26/01	53,000	8,500	1,500	2,400	4,600	270	--	--	--	--	--	--	--	--
	12/18/01	26,000	5,400	900	1,500	2,200	430	--	--	--	--	--	--	--	--
	1/22/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/18/02	4,200	240	7.3	200	53	89	--	--	--	--	--	--	--	--
	6/5/02	25,000	3,500	390	1,400	2,400	550	--	--	--	--	--	--	--	--
	8/21/02	10,000	1,200	32	620	300	160	--	--	--	--	--	--	--	--
	12/3/02	3,700	110	2.5	130	11	29	--	--	--	--	--	--	--	--
	3/4/03	8,700	1,100	77	350	540	230	ND<0.5	ND<0.5	ND<10	21	ND<150	ND<5	ND<0.5	ND<0.5
	6/10/03	6,300	660	35	190	120	410	ND<2.5	ND<2.5	ND<5	ND<25	ND<250	ND<25	ND<2.5	ND<2.5
	9/9/03	6,900	500	ND<20	360	29	9,500	ND<20	ND<20	60	ND<200	ND<2,000	ND<200	ND<20	ND<20
	12/23/03	22,000	4,900	1,300	720	2,300	1,700	ND<20	ND<20	21	ND<200	ND<2,000	ND<200	ND<20	ND<20
	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

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	5/10/04	7,300	1,000	51	240	290	1,800	ND<5	ND<5	14	ND<50	ND<500	ND<50	ND<5	ND<5
(cont.)	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 D-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)	Ethyl-benzene[b] (µg/l)	Total 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
	5/11/12	14,000	1,200	140	490	1,000	220	ND<2.5	ND<2.5	2.7	120	ND<250	ND<25	ND<2.5	ND<2.5
	8/8/12	15,000	720	120	460	580	140	ND<2.5	ND<2.5	2.6	70	ND<250	ND<25	ND<2.5	ND<2.5
	11/14/12	5,700	480	30	96	300	200	ND<0.9	ND<0.9	1.8	110	ND<200	ND<9	ND<0.9	ND<0.9
	2/13/13	270	29	4.4	8.9	19	7.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	4/23/13	430	10	2.2	3.8	8.5	13	ND<0.5	ND<0.5	ND<0.5	6.6	ND<50	ND<8	ND<0.5	ND<0.5
	6/24/13	1,700	7.2	0.91	12	16	9.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/21/13	11,000	560	30	430	440	88	ND<0.5	ND<0.5	1.0	48	ND<50	ND<8	ND<0.5	ND<0.5
	11/7/13	4,700	140	7.5	160	170	28	ND<0.9	ND<0.9	ND<0.9	22	ND<90	ND<9	ND<0.9	ND<0.9
	1/22/14	3,000	140	9.0	68	92	43	ND<0.5	ND<0.5	ND<0.5	36	ND<50	ND<5	ND<0.5	ND<0.5
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	--	--	--	--	--	--	--	--	--

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	12/14/94	75	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
(cont.)	2/10/95	96	1.4	ND<0.5	ND<0.5	1.8	--	--	--	--	--	--	--	--	--
	6/15/95	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	9/26/95	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	12/15/95	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	11/4/04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	6.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/12/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	4.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/2/05	140	ND<0.5	ND<0.5	ND<0.5	0.81	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/19/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.6	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/21/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	3.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/9/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	2.9	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/16/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/9/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/8/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	0.71	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/14/07	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/17/07	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	0.54	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	--	--
	8/2/07	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	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

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	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
(cont.)	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
	5/7/12	74	ND<0.5	0.56	1.9	7.7	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/6/12	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
	11/12/12	170	ND<0.5	0.83	4.1	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
	2/12/13	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
	4/22/13	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
	8/22/13	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
	11/7/13	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
	1/22/14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-4	3/30/94	120	4.2	15	2.5	26	--	--	--	--	--	--	--	--	--
	4/25/94	65	ND<0.5	1.8	ND<0.5	2.1	--	--	--	--	--	--	--	--	--
	8/12/94	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	12/14/94	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	2/10/95	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	6/15/95	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
(cont.)	9/26/95	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	12/15/95	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	11/4/04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/12/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/2/05	ND<50	1.8	1.1	1.4	4.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/19/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	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

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	2/11/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
(cont.)	5/4/10	ND<50	2.4	1.8	2.3	4.8	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/3/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/3/10	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/1/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/26/11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	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
	5/7/12	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
	8/6/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/12/12	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
	2/12/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/22/13	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
	8/21/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/7/13	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
	1/21/14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-5	3/30/94	7,500	1,300	20	ND<13	160	--	--	--	--	--	--	--	--	--
	4/25/94	6,500	1,100	41	130	740	--	--	--	--	--	--	--	--	--
	8/12/94	4,000	420	2.9	41	98	--	--	--	--	--	--	--	--	--
	12/14/94	4,800	660	ND<2.5	33	13	--	--	--	--	--	--	--	--	--
	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	--	--	--	--	--	--	--	--	--

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	12/15/95	2,100	77	1.5	10	1.5	--	--	--	--	--	--	--	--	--
(cont.)	3/21/96	930	35	2.0	2.0	18	--	--	--	--	--	--	--	--	--
	6/13/96	610	38	0.72	1.9	2.0	ND<5	--	--	--	--	--	--	--	--
	9/16/96	380	29	ND<0.5	0.95	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	12/2/96	200	1.1	0.64	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	3/7/97	520	74	ND<0.5	0.58	1.5	ND<5	--	--	--	--	--	--	--	--
	6/12/97	140	5.3	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	9/29/97	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	12/1/97	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	3/19/98	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	5/29/98	540	4.1	ND<0.5	ND<0.5	0.52	ND<5	--	--	--	--	--	--	--	--
	9/15/98	67	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	11/30/98	430	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	1/17/99	500	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	6/10/99	66	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	9/7/99	820	46	1.7	10	21	ND<5	--	--	--	--	--	--	--	--
	12/13/99	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	3/13/00	270	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	6/12/00	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	11/10/00	2,200	42	1.1	25	30	8.6	--	--	--	--	--	--	--	--
	12/31/00	1,300	21	ND<0.5	4.3	2.6	10	--	--	--	--	--	--	--	--
	3/27/01	1,200	11	ND<0.5	2.6	ND<0.5	21	--	--	--	--	--	--	--	--
	6/30/01	1,400	4.8	ND<0.5	1.5	0.56	14	--	--	--	--	--	--	--	--
	9/26/01	660	ND<0.5	ND<0.5	ND<0.5	ND<0.5	3.0	--	--	--	--	--	--	--	--

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

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	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
(cont.)	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
	5/8/12	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
	8/6/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/12/12	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
	2/12/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/22/13	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 D-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)	Ethyl-benzene[b] (µg/l)	Total 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	8/21/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
(cont.)	11/7/13	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
	1/21/14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-6	3/30/94	63,000	21,000	8,600	1,700	12,000	--	--	--	--	--	--	--	--	--
	4/25/94	77,000	22,000	12,000	2,300	16,000	--	--	--	--	--	--	--	--	--
	8/12/94	65,000	12,000	8,100	2,200	16,000	--	--	--	--	--	--	--	--	--
	12/14/94	65,000	18,000	9,500	2,200	14,000	--	--	--	--	--	--	--	--	--
	2/10/95	63,000	21,000	8,400	2,000	14,000	--	--	--	--	--	--	--	--	--
	6/15/95	75,000	20,000	11,000	2,100	15,000	--	--	--	--	--	--	--	--	--
	9/26/95	62,000	15,000	9,600	1,700	12,000	--	--	--	--	--	--	--	--	--
	12/15/95	61,000	15,000	9,000	2,300	15,000	--	--	--	--	--	--	--	--	--
	3/21/96	65,000	18,000	9,800	2,400	16,000	--	--	--	--	--	--	--	--	--
	6/13/96	29,000	8,600	3,300	2,200	12,000	ND<250	--	--	--	--	--	--	--	--
	9/16/96	42,000	6,400	1,800	2,100	11,000	ND<250	--	--	--	--	--	--	--	--
	12/2/96	28,000	3,000	1,100	970	8,300	ND<500	--	--	--	--	--	--	--	--
	3/7/97	12,000	2,000	190	520	2,300	ND<250	--	--	--	--	--	--	--	--
	6/12/97	37,000	3,900	470	1,600	6,200	ND<100	--	--	--	--	--	--	--	--
	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	--	--	--	--	--	--	--	--

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	6/10/99	22,000	1,600	160	1,400	2,900	5.5	--	--	--	--	--	--	--	--
(cont.)	9/7/99	17,000	1,400	33	1,300	1,800	ND<50	--	--	--	--	--	--	--	--
	12/13/99	16,000	790	9.2	840	780	ND<25	--	--	--	--	--	--	--	--
	3/13/00	16,000	790	85	780	1,600	ND<25	--	--	--	--	--	--	--	--
	6/12/00	24,000	1,100	150	1,300	2,300	5,600	--	--	--	--	--	--	--	--
	11/10/00	13,000	440	7.0	760	350	1,000	--	--	--	--	--	--	--	--
	12/31/00	12,000	680	8.0	820	190	1,400	--	--	--	--	--	--	--	--
	3/27/01	14,000	330	17	940	670	380	--	--	--	--	--	--	--	--
	6/30/01	750	45	0.93	47	14	54	--	--	--	--	--	--	--	--
	9/26/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/18/01	43,000	3,800	350	1,900	3,000	900	--	--	--	--	--	--	--	--
	1/22/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/18/02	33,000	2,600	120	1,800	2,800	740	--	--	--	--	--	--	--	--
	6/5/02	10,000	1,100	16	700	180	600	--	--	--	--	--	--	--	--
	8/21/02	10,000	1,200	23	710	290	370	--	--	--	--	--	--	--	--
	12/3/02	16,000	1,700	63	970	630	1,500	--	--	--	--	--	--	--	--
	3/4/03	16,000	1,700	25	1,200	40	7,700	ND<20	ND<20	ND<70	ND<200	ND<2,000	ND<200	ND<20	ND<20
	6/10/03	9,500	860	15	380	47	2,600	ND<5	ND<5	18	ND<50	ND<500	ND<50	ND<5	ND<5
	9/9/03	11,000	1,000	16	630	120	2,500	ND<5	ND<5	20	52	ND<500	ND<50	ND<5	ND<5
	12/23/03	18,000	2,100	41	1,100	390	4,900	ND<10	ND<10	42	ND<100	ND<1,000	ND<100	ND<10	ND<10
	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

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	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
(cont.)	5/2/05	14,000	630	22	610	920	4,000	ND<10	ND<10	32	120	ND<3,000	ND<100	ND<10	ND<10
	7/20/05	9,800	1,200	21	340	150	1,800	ND<2.5	ND<2.5	14	140	ND<500	ND<25	ND<2.5	ND<2.5
	11/21/05	6,600	150	26	580	640	100	ND<1	ND<1	ND<1	13	ND<100	ND<10	ND<1	ND<1
	2/9/06	7,100	340	11	370	360	910	ND<2	ND<2	9.3	120	ND<200	ND<20	ND<2	ND<2
	5/17/06	7,100	270	5.1	320	290	930	ND<2	ND<2	8.4	260	ND<200	ND<20	ND<2	ND<2
	8/9/06	5,800	440	7.5	120	45	670	ND<2	ND<2	7.3	380	ND<2,000	ND<50	ND<2	ND<2
	11/8/06	9,200	990	37	390	140	310	ND<2	ND<2	3.2	110	ND<200	ND<20	ND<2	ND<2
	2/14/07	5,900	480	10	73	23	1,600	ND<2	ND<2	14	1,100	ND<500	ND<20	ND<2	ND<2
	5/17/07	3,700	240	3.4	30	10	770	ND<0.5	ND<0.5	9.2	800	ND<2,000	ND<5	--	--
	8/2/07	15,000	1,800	120	980	510	310	ND<2.5	ND<2.5	3.0	180	ND<250	ND<25	ND<2.5	ND<2.5
	11/12/07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/14/08	14,000	2,000	63	750	190	810	ND<2.5	ND<2.5	7.7	600	ND<250	ND<25	ND<2.5	ND<2.5
	5/8/08	15,000	1,700	59	700	130	540	ND<2.5	ND<2.5	5.9	410	ND<2,000	ND<25	ND<2.5	ND<2.5
	7/23/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/13/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/11/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/28/09	16,000	2,200	160	860	230	320	ND<2.5	ND<2.5	3.8	580	ND<1,000	ND<25	ND<2.5	ND<2.5
	8/4/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/9/09	15,000	2,100	96	800	160	340	ND<5	ND<5	ND<5	460	ND<2,000	ND<50	ND<5	ND<5
	2/12/10	21,000	2,500	140	1,000	240	540	ND<5	ND<5	6.0	460	ND<500	ND<50	ND<5	ND<5
	5/4/10	17,000	2,100	120	780	260	820	ND<5	ND<5	8.6	450	ND<500	ND<50	ND<5	ND<5
	8/3/10	21,000	2,700	120	690	250	730	ND<5	ND<5	7.4	480	ND<500	ND<50	ND<5	ND<5
	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

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	2/2/11	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
(cont.)	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
	5/10/12	11,000	1,200	60	140	69	150	ND<0.9	ND<0.9	ND<2	290	ND<250	ND<9	ND<0.9	ND<0.9
	8/8/12	12,000	1,200	31	69	47	170	ND<2.5	ND<2.5	ND<2.5	440	ND<250	ND<25	ND<2.5	ND<2.5
	11/14/12	17,000	1,600	68	120	96	190	ND<2.5	ND<2.5	ND<2.5	86	ND<500	ND<25	ND<2.5	ND<2.5
	2/14/13	12,000	1,400	42	230	56	200	ND<2.5	ND<2.5	2.5	100	ND<250	ND<25	ND<2.5	ND<2.5
	4/24/13	8,600	880	22	89	25	190	ND<1.5	ND<1.5	2.7	700	ND<400	ND<15	ND<1.5	ND<1.5
	6/25/13	6,800	350	7.0	26	9.3	81	ND<0.9	ND<0.9	1.0	280	ND<800	ND<9	ND<0.9	ND<0.9
	8/22/13	14,000	1,500	59	290	150	110	ND<1.5	ND<1.5	ND<1.5	93	ND<400	ND<15	ND<1.5	ND<1.5
	11/7/13	12,000	1,200	62	190	81	100	ND<2.5	ND<2.5	ND<2.5	66	ND<250	ND<25	ND<2.5	ND<2.5
	1/22/14	15,000	1,100	37	120	52	110	ND<2.5	ND<2.5	ND<2.5	190	ND<250	ND<25	ND<2.5	ND<2.5
MW-7	3/30/94	43,000	7,200	2,400	1,600	11,000	--	--	--	--	--	--	--	--	--
	4/25/94	30,000	3,900	1,000	940	6,900	--	--	--	--	--	--	--	--	--
	8/12/94	30,000	3,800	1,400	1,300	7,500	--	--	--	--	--	--	--	--	--
	12/14/94	31,000	3,600	1,200	900	6,400	--	--	--	--	--	--	--	--	--
	2/10/95	27,000	4,000	900	890	5,100	--	--	--	--	--	--	--	--	--
	6/15/95	17,000	920	680	740	4,100	--	--	--	--	--	--	--	--	--
	9/26/95	7,000	200	150	170	810	--	--	--	--	--	--	--	--	--
	12/15/95	11,000	350	170	540	1,900	--	--	--	--	--	--	--	--	--
	3/21/96	12,000	320	100	730	2,500	--	--	--	--	--	--	--	--	--
	6/13/96	5,900	98	19	370	620	ND<50	--	--	--	--	--	--	--	--

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	9/16/96	7,800	140	43	440	590	ND<25	--	--	--	--	--	--	--	--
(cont.)	12/2/96	6,300	87	29	290	430	ND<50	--	--	--	--	--	--	--	--
	3/7/97	4,500	35	19	360	470	ND<25	--	--	--	--	--	--	--	--
	6/12/97	3,900	29	5.2	170	48	ND<5	--	--	--	--	--	--	--	--
	9/29/97	6,100	56	9.0	340	190	ND<25	--	--	--	--	--	--	--	--
	12/1/97	6,500	24	ND<2.5	400	250	ND<25	--	--	--	--	--	--	--	--
	3/19/98	2,000	20	ND<2.5	73	79	ND<25	--	--	--	--	--	--	--	--
	5/29/98	5,700	22	7.3	290	350	ND<25	--	--	--	--	--	--	--	--
	9/15/98	1,700	15	ND<2.5	44	5.1	ND<25	--	--	--	--	--	--	--	--
	11/30/98	4,800	42	12	270	640	ND<25	--	--	--	--	--	--	--	--
	1/17/99	3,400	33	ND<5	200	190	ND<50	--	--	--	--	--	--	--	--
	6/10/99	1,700	7.8	1.5	23	4.1	ND<5	--	--	--	--	--	--	--	--
	9/7/99	1,900	9.7	2.1	70	2.9	ND<5	--	--	--	--	--	--	--	--
	12/13/99	1,900	8.0	1.1	10	1.1	ND<5	--	--	--	--	--	--	--	--
	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	--	--	--	--	--	--	--	--

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	6/5/02	1,800	7.6	1.0	39	20	ND<0.5	--	--	--	--	--	--	--	--
(cont.)	8/21/02	3,300	7.6	0.70	85	36	ND<0.5	--	--	--	--	--	--	--	--
	12/3/02	1,700	5.4	ND<0.5	15	5.5	ND<0.5	--	--	--	--	--	--	--	--
	3/4/03	440	1.8	ND<0.5	0.54	2.9	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	6/10/03	550	0.80	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	9/9/03	120	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	12/23/03	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	3/23/04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/10/04	67	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/4/04	2,600	2.5	ND<0.5	36	31	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/4/04	1,600	2.0	ND<0.5	16	16	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/12/05	830	1.6	ND<0.5	15	12	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/2/05	710	ND<0.5	ND<0.5	0.75	0.52	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/20/05	1,400	1.1	ND<0.5	9.2	8.6	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/21/05	1,100	0.56	ND<0.5	3.4	23	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/9/06	270	ND<0.5	ND<0.5	1.2	0.98	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/16/06	930	0.84	ND<0.5	10	7.9	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	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

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	5/8/08	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
(cont.)	7/23/08	2,300	3.9	1.4	8.9	5.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	10/13/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/11/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/28/09	4,500	7.4	3.8	33	7.3	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/4/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/17/09	4,500	6.7	3.4	27	8.8	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<80	ND<8	ND<0.5	ND<0.5
	2/11/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/6/10	3,600	7.9	3.6	14	6.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<8	ND<0.5	ND<0.5
	8/3/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/3/10	2,100	4.6	1.3	16	3.3	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/2/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/26/11	1,200	3.3	0.59	1.6	1.3	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	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
	5/9/12	1,600	1.4	0.79	1.4	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
	8/7/12	1,500	1.0	ND<0.5	0.51	0.65	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/13/12	690	ND<0.5	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
	2/12/13	860	1.0	ND<0.5	2.3	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	4/23/13	720	0.65	0.61	1.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	6/24/13	1,700	1.3	ND<0.5	2.7	2.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/21/13	880	0.54	ND<0.5	1.7	0.82	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 D-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)	Ethyl-benzene[b] (µg/l)	Total 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	11/7/13	330	ND<0.5	ND<0.5	0.51	0.73	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.)	1/22/14	1,000	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-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
	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

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	2/11/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
(cont.)	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
	5/7/12	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
	8/6/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/12/12	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
	2/12/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/23/13	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
	6/25/13	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
	8/22/13	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
	11/7/13	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
	1/22/14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-9	9/5/03	3,400	23	1.5	110	10	10	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--
	12/23/03	1,100	2.4	ND<0.5	0.80	0.80	2.1	ND<0.5	ND<0.5	ND<0.5	5.9	ND<50	ND<5	ND<0.5	ND<0.5

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

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	2/11/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
(cont.)	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
	5/8/12	2,500	12	1.1	9.0	3.0	7.4	ND<0.5	ND<0.5	ND<0.5	8.8	ND<50	ND<5	ND<0.5	ND<0.5
	8/6/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/13/12	740	ND<0.5	ND<0.5	ND<0.5	ND<0.5	4.2	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/12/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/23/13	1,900	4.5	0.75	1.7	1.0	3.4	ND<0.5	ND<0.5	ND<0.5	5.0	ND<50	ND<5	ND<0.5	ND<0.5
	6/25/13	2,800	20	0.91	3.8	2.7	6.0	ND<0.5	ND<0.5	ND<0.5	29	ND<50	ND<5	ND<0.5	ND<0.5
	8/22/13	1,500	20	0.70	1.7	0.84	9.0	ND<0.5	ND<0.5	ND<0.5	40	ND<50	ND<5	ND<0.5	ND<0.5
	11/7/13	1,400	3.1	ND<0.5	0.70	0.58	4.2	ND<0.5	ND<0.5	ND<0.5	12	ND<50	ND<5	ND<0.5	ND<0.5
	1/22/14	2,000	2.4	ND<0.5	0.81	0.79	2.7	ND<0.5	ND<0.5	ND<0.5	7.6	ND<50	ND<5	ND<0.5	ND<0.5
MW-10	9/5/03	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--
	12/23/03	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	3/23/04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/10/04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/4/04	ND<50	ND<0.5	ND<0.5	ND<0.5	0.61	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/4/04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	2/2/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
(cont.)	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
	5/7/12	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
	8/6/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/12/12	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
	2/12/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/22/13	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
	6/25/13	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
	8/21/13	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
	11/7/13	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
	1/21/14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-11	12/16/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/11/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/27/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/4/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/8/09	100,000	6,100	9,000	3,100	20,000	3.3	ND<0.5	ND<0.5	ND<0.5	25	ND<200	ND<20	ND<0.5	ND<0.5
	2/11/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/3/10	62,000	3,600	5,900	2,600	12,000	ND<15	ND<15	ND<15	ND<15	ND<70	ND<1,500	ND<150	ND<15	ND<15
	8/3/10	53,000	2,800	3,800	2,100	10,000	ND<15	ND<15	ND<15	ND<15	ND<70	ND<1,500	ND<150	ND<15	ND<15
	11/4/10	59,000	2,100	5,400	1,400	12,000	ND<15	ND<15	ND<15	ND<15	ND<70	ND<1,500	ND<150	ND<15	ND<15
	2/2/11	20,000	210	610	560	3,600	ND<5	ND<5	ND<5	ND<5	38	ND<500	ND<50	ND<5	ND<5

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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-11	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
(cont.)	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
	5/11/12	1,100	3.8	15	6.7	150	0.52	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<8	ND<0.5	ND<0.5
	8/7/12	10,000	54	83	270	1,400	2.3	ND<0.5	ND<0.5	ND<0.5	10	ND<50	ND<5	ND<0.5	ND<0.5
	11/13/12	1,100	5.7	4.1	15	86	1.6	ND<0.5	ND<0.5	ND<0.5	6.1	ND<50	ND<5	ND<0.5	ND<0.5
	2/13/13	6,400	28	72	160	860	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<8	ND<0.5	ND<0.5
	4/24/13	5,800	16	18	140	640	ND<0.9	ND<0.9	ND<0.9	ND<0.9	ND<5	ND<90	ND<9	ND<0.9	ND<0.9
	6/24/13	8,000	24	34	190	830	ND<0.9	ND<0.9	ND<0.9	ND<0.9	5.8	ND<90	ND<9	ND<0.9	ND<0.9
	8/22/13	9,600	26	32	260	940	ND<0.9	ND<0.9	ND<0.9	ND<0.9	8.6	ND<200	ND<20	ND<0.9	ND<0.9
	11/7/13	8,800	50	54	380	1,000	ND<1.5	ND<1.5	ND<1.5	ND<1.5	12	ND<150	ND<15	ND<1.5	ND<1.5
	1/22/14	15,000	44	45	390	910	ND<1.5	ND<1.5	ND<1.5	ND<1.5	7.7	ND<150	ND<15	ND<1.5	ND<1.5
MW-12	6/14/12	6,900	8.5	2.2	96	22	ND<0.9	ND<0.9	ND<0.9	ND<0.9	ND<5	ND<90	ND<9	ND<0.9	ND<0.9
	8/8/12	6,000	10	2.2	100	12	ND<0.9	ND<0.9	ND<0.9	ND<0.9	ND<5	ND<90	ND<9	ND<0.9	ND<0.9
	11/14/12	5,500	6.8	2.0	67	13	ND<0.9	ND<0.9	ND<0.9	ND<0.9	ND<5	ND<90	ND<9	ND<0.9	ND<0.9
	2/13/13	2,500	7.6	1.3	26	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
	4/24/13	1,400	2.2	0.78	7.7	1.1	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<100	ND<20	ND<0.5	ND<0.5
	6/25/13	4,400	8.8	5.2	26	13	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/22/13	4,500	15	2.4	33	6.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/7/13	4,600	15	2.4	47	13	0.50	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/22/14	3,400	4.3	1.5	12	2.6	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
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

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	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
(cont.)	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
	5/17/07	3,500	51	7.3	17	24	100	ND<2.5	ND<2.5	ND<2.5	7,100	ND<250	ND<25	--	--
	8/2/07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/12/07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/14/08	5,700	180	14	150	120	530	ND<2.5	ND<2.5	4.1	5,000	ND<250	ND<25	ND<2.5	ND<2.5
	5/8/08	3,000	40	3.8	32	34	270	ND<1.5	ND<1.5	2.7	4,500	ND<250	ND<15	ND<1.5	ND<1.5
	7/23/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/13/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/11/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/27/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/4/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/9/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/11/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/5/10	2,800	130	6.1	170	130	1,300	ND<2.5	ND<2.5	12	1,700	ND<250	ND<25	ND<2.5	ND<2.5
	8/3/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/4/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	2/2/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
(cont.)	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
	5/7/12	ND<50	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
	8/6/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/12/12	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
	2/12/13	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
	4/24/13	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
	8/21/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/7/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	1/22/14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
VW-3	8/4/04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/4/04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/12/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/2/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/20/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/21/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/9/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	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<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

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
VW-3	5/17/07	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	--	--
(cont.)	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
	5/7/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/6/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/12/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/12/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	4/22/13	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
(cont.)	8/21/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/7/13	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
	1/22/14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
TP-1	7/20/05	42,000	2,800	1,100	1,700	4,800	12,000	ND<20	ND<20	92	130	ND<2,000	ND<200	ND<20	ND<20
	11/22/05	36,000	2,100	290	1,400	2,600	11,000	ND<20	ND<20	70	810	ND<2,000	ND<200	ND<20	ND<20
	2/9/06	19,000	1,400	230	990	1,700	8,900	ND<15	ND<15	72	2,200	ND<1,500	ND<150	ND<15	ND<15
	5/17/06	20,000	1,400	200	920	1,800	9,200	ND<20	ND<20	37	2,500	ND<10,000	ND<200	ND<20	ND<20
	8/9/06	28,000	1,600	150	1,200	2,200	13,000	ND<15	ND<15	84	4,900	ND<2,500	ND<150	ND<15	ND<15
	11/8/06	20,000	1,100	78	990	1,600	6,800	ND<15	ND<15	47	4,400	ND<8,000	ND<150	ND<15	ND<15
	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

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	8/3/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
(cont.)	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
	5/8/12	590	1.6	ND<0.5	7.1	22	28	ND<0.5	ND<0.5	ND<0.5	27	ND<80	ND<5	ND<0.5	ND<0.5
	8/7/12	2,800	24	3.7	74	68	110	ND<0.5	ND<0.5	0.94	62	ND<400	ND<5	ND<0.5	ND<0.5
	11/13/12	180	2.3	0.63	4.7	2.3	17	ND<0.5	ND<0.5	ND<0.5	9.6	ND<50	ND<5	ND<0.5	ND<0.5
	2/12/13	160	ND<0.5	ND<0.5	3.6	6.0	3.3	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	4/24/13	2,000	35	21	22	180	76	ND<0.5	ND<0.5	0.70	33	ND<50	ND<5	ND<0.5	ND<0.5
	8/22/13	3,500	28	3.8	35	11	100	ND<0.5	ND<0.5	0.98	42	ND<50	ND<5	ND<0.5	ND<0.5
	11/7/13	2,800	14	1.8	19	7.3	43	ND<0.5	ND<0.5	ND<0.5	25	ND<50	ND<5	ND<0.5	ND<0.5
	1/22/14	3,400	11	1.4	16	5.2	41	ND<0.5	ND<0.5	ND<0.5	22	ND<50	ND<5	ND<0.5	ND<0.5
TP-2	7/20/05	26,000	1,800	1,100	1,100	2,500	63,000	ND<150	ND<150	400	ND<700	ND<15,000	ND<1,500	ND<150	ND<150
	11/22/05	16,000	1,200	140	840	820	52,000	ND<90	ND<90	340	1,200	ND<9,000	ND<900	ND<90	ND<90
	2/9/06	2,700	94	2.9	28	14	1,200	ND<2.5	ND<2.5	13	1,600	ND<250	ND<25	ND<2.5	ND<2.5
	5/17/06	31,000	2,200	1,100	1,500	3,300	87,000	ND<90	ND<90	680	4,800	ND<15,000	ND<1,500	ND<90	ND<90
	8/9/06	14,000	1,400	86	1,200	830	56,000	ND<2.5	ND<2.5	350	2,800	ND<4,000	ND<25	ND<2.5	ND<2.5
	11/8/06	16,000	1,300	ND<90	930	370	38,000	ND<90	ND<90	280	3,600	ND<40,000	ND<900	ND<90	ND<90
	2/14/07	22,000	1,900	230	1,700	1,600	53,000	ND<90	ND<90	400	2,800	ND<20,000	ND<900	ND<90	ND<90
	5/17/07	ND<25,000	2,400	51	1,500	510	69,000	ND<2	ND<0.5	550	4,300	ND<25,000	ND<5	--	--
	8/2/07	10,000	1,200	ND<25	640	140	14,000	ND<25	ND<25	110	16,000	ND<10,000	ND<250	ND<25	ND<25

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
TP-2	11/12/07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
(cont.)	2/14/08	12,000	920	28	850	740	17,000	ND<25	ND<25	120	5,900	ND<4,000	ND<250	ND<25	ND<25
	5/8/08	7,400	710	28	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
	5/7/12	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
	8/7/12	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	8.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/12/12	59	ND<0.5	ND<0.5	0.59	0.54	2.8	ND<0.5	ND<0.5	ND<0.5	13	ND<50	ND<5	ND<0.5	ND<0.5
	2/12/13	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
	4/24/13	100	1.2	0.88	1.6	7.4	0.54	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/21/13	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	0.89	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
TP-2	11/7/13	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.)	1/21/14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
DW-1	5/22/08	5,100	470	150	210	570	100	ND<0.9	ND<0.9	0.98	76	ND<90	ND<9	ND<0.9	ND<0.9
	7/23/08	560	43	5.2	18	40	16	ND<0.5	ND<0.5	ND<0.5	21	ND<100	ND<5	ND<0.5	ND<0.5
	10/13/08	2,800	370	15	120	78	140	ND<0.5	ND<0.5	1.2	220	ND<300	ND<80	ND<0.5	ND<0.5
	2/11/09	520	45	5.3	32	31	42	ND<0.5	ND<0.5	ND<0.5	43	ND<100	ND<8	ND<0.5	ND<0.5
	4/28/09	2,700	250	36	160	190	86	ND<0.5	ND<0.5	0.84	120	ND<50	ND<5	ND<0.5	ND<0.5
	8/5/09	2,100	330	17	87	53	220	ND<0.5	ND<0.5	2.0	310	ND<50	ND<5	ND<0.5	ND<0.5
	12/8/09	6,200	560	63	400	490	140	ND<0.5	ND<0.5	1.1	200	ND<200	ND<8	ND<0.5	ND<0.5
	2/12/10	2,000	200	36	130	150	49	ND<0.5	ND<0.5	ND<0.5	58	ND<200	ND<5	ND<0.5	ND<0.5
	5/4/10	1,800	160	27	110	140	21	ND<0.5	ND<0.5	ND<0.5	41	ND<100	ND<5	ND<0.5	ND<0.5
	8/2/10	1,400	53	11	67	78	8.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/4/10	ND<50	0.90	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
	5/9/12	2,000	24	5.6	75	160	2.9	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/6/12	140	1.7	1.0	3.2	7.7	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/12/12	250	ND<0.5	ND<0.5	2.7	5.7	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/12/13	ND<50	ND<0.5	ND<0.5	0.54	0.68	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	4/22/13	ND<50	ND<0.5	ND<0.5	ND<0.5	0.78	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	6/24/13	12,000	110	66	280	860	13	ND<0.5	ND<0.5	ND<0.5	11	ND<50	ND<5	ND<0.5	ND<0.5

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	8/21/13	1,100	18	5.8	34	82	5.9	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
(cont.)	11/7/13	5,200	69	13	130	200	18	ND<0.5	ND<0.5	ND<0.5	15	ND<50	ND<8	ND<0.5	ND<0.5
	1/22/14	5,000	51	13	98	110	12	ND<0.5	ND<0.5	ND<0.5	11	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
	5/10/12	2,200	140	8.6	0.63	15	98	ND<0.5	ND<0.5	1.1	430	ND<200	ND<8	ND<0.5	ND<0.5
	8/7/12	4,000	360	8.9	14	15	110	ND<0.5	ND<0.5	1.2	380	ND<400	ND<5	ND<0.5	ND<0.5
	11/14/12	4,000	190	7.8	13	13	120	ND<0.5	ND<0.5	1.3	390	ND<200	ND<5	ND<0.5	ND<0.5
	2/13/13	6,400	500	18	60	19	140	ND<0.5	ND<0.5	1.6	510	ND<400	ND<8	ND<0.5	ND<0.5
	4/24/13	4,500	320	7.2	26	9.5	100	ND<0.5	ND<0.5	1.3	370	ND<80	ND<5	ND<0.5	ND<0.5

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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-2	6/25/13	4,900	250	6.2	58	26	100	ND<0.5	ND<0.5	1.2	400	ND<50	ND<8	ND<0.5	ND<0.5
(cont.)	8/22/13	8,300	600	23	96	42	240	ND<0.5	ND<0.5	2.5	500	ND<50	ND<5	ND<0.5	ND<0.5
	11/7/13	6,500	520	18	57	17	150	ND<0.9	ND<0.9	2.2	310	ND<90	ND<9	ND<0.9	ND<0.9
	1/22/14	8,500	490	14	55	15	150	ND<0.9	ND<0.9	1.9	380	ND<300	ND<9	ND<0.9	ND<0.9
DW-3	5/22/08	4,700	8.7	2.1	120	200	0.86	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/23/08	2,800	8.1	1.4	94	100	2.8	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	10/13/08	4,100	59	10	160	70	1.9	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<80	ND<0.5	ND<0.5
	2/11/09	1,700	21	1.7	35	21	9.8	ND<0.5	ND<0.5	ND<0.5	16	ND<50	ND<10	ND<0.5	ND<0.5
	4/27/09	1,800	16	2.3	26	10	3.0	ND<0.5	ND<0.5	ND<0.5	12	ND<50	ND<5	ND<0.5	ND<0.5
	8/4/09	1,200	6.8	0.99	4.3	3.4	18	ND<0.5	ND<0.5	ND<0.5	35	ND<50	ND<5	ND<0.5	ND<0.5
	12/9/09	2,200	24	5.9	56	29	ND<0.5	ND<0.5	ND<0.5	ND<0.5	7.2	ND<300	ND<20	ND<0.5	ND<0.5
	2/11/10	700	9.5	2.0	18	6.2	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<80	ND<8	ND<0.5	ND<0.5
	5/4/10	420	5.5	0.93	8.8	3.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<80	ND<5	ND<0.5	ND<0.5
	8/2/10	640	4.0	ND<0.5	5.3	3.9	0.59	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/3/10	170	0.85	ND<0.5	ND<0.5	0.59	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	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
	5/8/12	750	1.2	ND<0.5	5.4	4.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<80	ND<5	ND<0.5	ND<0.5
	8/6/12	900	0.56	ND<0.5	7.0	4.6	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/13/12	410	ND<0.5	ND<0.5	1.7	2.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/12/13	120	ND<0.5	ND<0.5	1.2	0.50	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 D-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)	Ethyl-benzene[b] (µg/l)	Total 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	4/23/13	66	ND<0.5	2.3	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.)	6/25/13	5,600	1.1	1.1	120	76	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/21/13	840	1.4	ND<0.5	3.2	1.7	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/7/13	960	ND<0.5	ND<0.5	5.1	2.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/22/14	860	ND<0.5	ND<0.5	3.0	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
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
	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
	5/7/12	ND<50	ND<0.5	ND<0.5	ND<0.5	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
	8/6/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/12/12	ND<50	ND<0.5	ND<0.5	0.70	1.7	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 D-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)	Ethyl-benzene[b] (µg/l)	Total 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	2/12/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
(cont.)	4/22/13	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
	8/21/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/7/13	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
	1/21/14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
DW-5	12/9/09	15,000	140	25	200	960	ND<2.5	ND<2.5	ND<2.5	ND<2.5	ND<15	ND<250	ND<25	ND<2.5	ND<2.5
	2/11/10	1,600	37	2.5	36	21	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<80	ND<5	ND<0.5	ND<0.5
	5/4/10	2,100	69	2.9	41	18	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<80	ND<8	ND<0.5	ND<0.5
	8/2/10	12,000	240	9.4	350	280	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<10	ND<0.5	ND<0.5
	11/2/10	5,000	120	3.6	68	35	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<8	ND<0.5	ND<0.5
	2/1/11	3,800	70	2.5	37	18	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	4/27/11	710	8.0	ND<0.5	4.3	2.1	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	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
	5/10/12	11,000	100	6.8	320	380	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<7	ND<150	ND<20	ND<1.5	ND<1.5
	8/8/12	14,000	84	11	480	590	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<7	ND<150	ND<15	ND<1.5	ND<1.5
	11/14/12	8,800	24	2.5	110	140	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<7	ND<150	ND<15	ND<1.5	ND<1.5
	2/13/13	4,400	65	5.4	110	110	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<10	ND<0.5	ND<0.5
	4/24/13	3,000	32	2.5	38	31	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<8	ND<0.5	ND<0.5
	6/25/13	120,000	120	ND<4	1,400	2,200	ND<4	ND<4	ND<4	ND<4	ND<20	ND<400	ND<200	ND<4	ND<4
	8/22/13	22,000	58	11	770	1,200	ND<4	ND<4	ND<4	ND<4	ND<20	ND<400	ND<40	ND<4	ND<4
	11/7/13	26,000	62	12	1,000	1,400	ND<4	ND<4	ND<4	ND<4	ND<20	ND<400	ND<40	ND<4	ND<4
	1/22/14	17,000	66	6.1	440	470	ND<2.5	ND<2.5	ND<2.5	ND<2.5	ND<15	ND<400	ND<40	ND<2.5	ND<2.5

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
DW-6	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
	5/10/12	2,600	7.8	1.6	12	5.2	4.6	ND<0.5	ND<0.5	ND<0.5	17	ND<50	ND<5	ND<0.5	ND<0.5
	8/6/12	4,500	15	3.2	41	8.3	6.2	ND<0.5	ND<0.5	ND<0.5	20	ND<50	ND<8	ND<0.5	ND<0.5
	11/14/12	3,000	5.4	1.8	11	4.7	2.1	ND<0.5	ND<0.5	ND<0.5	6.8	ND<50	ND<5	ND<0.5	ND<0.5
	2/12/13	4,600	25	4.0	53	8.7	10	ND<0.5	ND<0.5	ND<0.5	34	ND<50	ND<9	ND<0.5	ND<0.5
	4/24/13	1,000	2.9	1.1	2.1	0.98	1.8	ND<0.5	ND<0.5	ND<0.5	6.2	ND<50	ND<5	ND<0.5	ND<0.5
	6/25/13	7,000	23	3.0	80	13	9.0	ND<0.5	ND<0.5	ND<0.5	34	ND<50	ND<5	ND<0.5	ND<0.5
	8/22/13	5,700	28	3.4	80	11	12	ND<0.5	ND<0.5	ND<0.5	37	ND<90	ND<8	ND<0.5	ND<0.5
	11/7/13	2,400	14	1.7	5.6	3.1	10	ND<0.5	ND<0.5	ND<0.5	35	ND<80	ND<5	ND<0.5	ND<0.5
	1/22/14	3,000	6.8	0.98	3.6	2.9	10	ND<0.5	ND<0.5	ND<0.5	36	ND<50	ND<5	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

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	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
(cont.)	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
	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
	5/10/12	940	47	1.6	6.1	5.2	120	ND<0.5	ND<0.5	1.1	280	ND<50	ND<5	ND<0.5	ND<0.5
	8/6/12	1,200	33	2.5	8.0	8.4	80	ND<0.5	ND<0.5	0.83	250	ND<300	ND<5	ND<0.5	ND<0.5
	11/13/12	6,500	340	11	45	22	51	ND<0.5	ND<0.5	0.56	160	ND<80	ND<8	ND<0.5	ND<0.5
	2/13/13	970	78	3.0	10	2.7	18	ND<0.5	ND<0.5	ND<0.5	56	ND<50	ND<5	ND<0.5	ND<0.5
	4/23/13	3,300	230	9.2	22	10	50	ND<0.5	ND<0.5	0.55	160	ND<50	ND<5	ND<0.5	ND<0.5
	6/25/13	27,000	590	32	960	640	100	ND<0.5	ND<0.5	0.95	330	ND<80	ND<20	ND<4	ND<0.5
	8/22/13	15,000	420	18	520	320	96	ND<2.5	ND<2.5	ND<2.5	310	ND<250	ND<25	ND<2.5	ND<2.5
	11/7/13	9,700	260	8.4	200	63	52	ND<1.5	ND<1.5	ND<1.5	170	ND<150	ND<15	ND<1.5	ND<1.5
	1/22/14	15,000	380	15	430	200	77	ND<1.5	ND<1.5	ND<1.5	230	ND<150	ND<15	ND<1.5	ND<1.5
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
	5/11/12	11,000	500	1,000	300	1,200	ND<2.5	ND<2.5	ND<2.5	ND<2.5	25	ND<250	ND<25	ND<2.5	ND<2.5
	8/8/12	52,000	1,900	4,500	1,500	5,900	ND<2.5	ND<2.5	ND<2.5	ND<2.5	58	ND<250	ND<25	ND<2.5	ND<2.5
	11/14/12	27,000	580	870	510	3,400	ND<5	ND<5	ND<5	ND<5	ND<25	ND<500	ND<50	ND<5	ND<5
	2/14/13	63,000	3,000	5,400	2,000	8,700	ND<5	ND<5	ND<5	ND<5	110	ND<500	ND<150	ND<5	ND<5
	4/24/13	5,900	350	370	140	790	ND<0.9	ND<0.9	ND<0.9	ND<0.9	8.0	ND<200	ND<80	ND<0.9	ND<0.9
	6/24/13	55,000	2,200	3,200	2,100	7,400	ND<0.9	ND<0.9	ND<0.9	ND<0.9	56	ND<90	ND<50	ND<0.9	ND<0.9

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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-8	8/22/13	16,000	380	240	500	1,400	ND<2.5	ND<2.5	ND<2.5	ND<2.5	ND<15	ND<250	ND<25	ND<2.5	ND<2.5
(cont.)	11/7/13	56,000	1,800	2,800	2,100	7,900	ND<2.5	ND<2.5	ND<2.5	ND<2.5	37	ND<250	ND<25	ND<2.5	ND<2.5
	1/22/14	40,000	1,100	1,200	1,200	4,300	ND<7	ND<7	ND<7	ND<7	ND<40	ND<700	ND<70	ND<7	ND<7
DW-9	6/14/12	8,300	89	2.4	21	96	36	ND<1.5	ND<1.5	ND<1.5	80	ND<150	ND<15	ND<1.5	ND<1.5
	8/8/12	12,000	310	11	400	110	35	ND<1.5	ND<1.5	ND<1.5	96	ND<150	ND<15	ND<1.5	ND<1.5
	11/14/12	10,000	210	7.5	230	65	28	ND<1.5	ND<1.5	ND<1.5	94	ND<150	ND<15	ND<1.5	ND<1.5
	2/13/13	7,800	150	9.4	160	28	45	ND<1.5	ND<1.5	ND<1.5	110	ND<150	ND<15	ND<1.5	ND<1.5
	4/24/13	3,200	18	1.7	7.8	7.2	21	ND<0.5	ND<0.5	ND<0.5	67	ND<50	ND<5	ND<0.5	ND<0.5
	6/25/13	27,000	490	17	1,100	430	30	ND<4	ND<4	ND<4	62	ND<400	ND<40	ND<4	ND<4
	8/22/13	19,000	320	13	690	240	28	ND<4	ND<4	ND<4	87	ND<2,000	ND<40	ND<4	ND<4
	11/7/13	8,000	120	5.9	100	38	25	ND<1.5	ND<1.5	ND<1.5	73	ND<150	ND<15	ND<1.5	ND<1.5
	1/22/14	14,000	180	6.7	200	65	27	ND<1.5	ND<1.5	ND<1.5	77	ND<150	ND<15	ND<1.5	ND<1.5
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

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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-1	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
(cont.)	5/9/12	16,000	580	850	800	2,100	ND<2	ND<2	ND<2	ND<2	12	ND<200	ND<20	ND<2	ND<2
	8/8/12	12,000	260	190	470	860	ND<2	ND<2	ND<2	ND<2	ND<9	ND<200	ND<20	ND<2	ND<2
	11/13/12	9,000	170	74	280	540	ND<2	ND<2	ND<2	ND<2	ND<9	ND<200	ND<20	ND<2	ND<2
	2/13/13	17,000	480	480	690	2,000	ND<2	ND<2	ND<2	ND<2	20	ND<200	ND<20	ND<2	ND<2
	4/24/13	9,700	230	160	370	1,200	ND<2	ND<2	ND<2	ND<2	ND<9	ND<200	ND<20	ND<2	ND<2
	6/24/13	14,000	130	260	280	1000	ND<2	ND<2	ND<2	ND<2	10	ND<200	ND<20	ND<2	ND<2
	8/22/13	23,000	360	430	740	2,300	ND<2	ND<2	ND<2	ND<2	25	ND<200	ND<20	ND<2	ND<2
	11/7/13	7,400	70	94	200	400	ND<0.9	ND<0.9	ND<0.9	ND<0.9	14	ND<90	ND<9	ND<0.9	ND<0.9
	1/22/14	16,000	190	280	460	1,600	ND<0.9	ND<0.9	ND<0.9	ND<0.9	20	ND<90	ND<10	ND<0.9	ND<0.9
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
	5/8/12	340	10	4.8	6.3	13	2.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/7/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/12/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/12/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/23/13	160	5.6	3.7	1.3	3.6	1.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/21/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/7/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	1/21/14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
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 D-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)	Ethyl-benzene[b] (µg/l)	Total 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
	5/8/12	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
	8/7/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/12/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/12/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/22/13	ND<50	0.51	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
	8/21/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/7/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	1/21/14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
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
	5/8/12	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	5.3	ND<0.5	ND<0.5
	8/7/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/12/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/12/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/23/13	140	ND<0.5	43	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
	8/21/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/7/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	1/21/14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
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

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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-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
(cont.)	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
	5/8/12	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
	8/7/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/12/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/12/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/23/13	ND<50	ND<0.5	4.1	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
	8/21/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/7/13	180	ND<0.5	ND<0.5	3.0	6.1	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/21/14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	0.60	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
	5/8/12	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
	8/7/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/12/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/12/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/23/13	57	ND<0.5	11	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
	8/21/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/7/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	1/21/14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
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 D-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)	Ethyl-benzene[b] (µg/l)	Total 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-7	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
(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
	5/8/12	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
	8/7/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/12/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/12/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/23/13	ND<50	ND<0.5	5.1	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
	8/21/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/7/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	1/21/14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
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	2,900	7,300	1400	11,000	ND<15	ND<15	ND<15	ND<15	ND<70	ND<1,500	ND<150	NS	NS
	5/9/12	50,000	2,400	4,900	790	8,600	ND<9	ND<9	ND<9	ND<9	ND<50	ND<900	ND<90	ND<9	ND<9
	8/8/12	63,000	3,500	6,700	980	7,400	ND<9	ND<9	ND<9	ND<9	65	ND<900	ND<90	ND<9	ND<9
	11/14/12	33,000	1,000	2,300	260	4,300	ND<7	ND<7	ND<7	ND<7	47	ND<700	ND<70	ND<7	ND<7
	2/14/13	65,000	3,300	7,100	1,600	9,200	ND<7	ND<7	ND<7	ND<7	110	ND<700	ND<150	ND<7	ND<7
	4/24/13	33,000	1,700	4,200	430	5,600	ND<6	ND<6	ND<6	ND<6	ND<30	ND<600	ND<60	ND<6	ND<6
	8/22/13	19,000	130	440	260	1,900	ND<4	ND<4	ND<4	ND<4	ND<20	ND<400	ND<80	ND<4	ND<4
	11/7/13	18,000	400	520	170	1,700	ND<4	ND<4	ND<4	ND<4	23	ND<400	ND<40	ND<4	ND<4
	1/22/14	41,000	550	1,600	560	4,200	ND<4	ND<4	ND<4	ND<4	22	ND<400	ND<40	ND<4	ND<4
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

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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-9	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
(cont.)	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
	5/9/12	10,000	14	180	270	780	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<7	ND<150	ND<15	ND<1.5	ND<1.5
	8/7/12	11,000	22	240	210	880	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<7	ND<150	ND<15	ND<1.5	ND<1.5
	11/13/12	9,800	22	200	150	690	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<7	ND<150	ND<15	ND<1.5	ND<1.5
	2/13/13	12,000	68	560	280	1,300	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<7	ND<150	ND<15	ND<1.5	ND<1.5
	4/24/13	8,800	42	480	210	1,100	ND<1.5	ND<1.5	ND<1.5	ND<1.5	11	ND<150	ND<15	ND<1.5	ND<1.5
	8/22/13	7,500	14	250	190	1,000	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<7	ND<400	ND<15	ND<1.5	ND<1.5
	11/7/13	1,100	4.9	30	14	89	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<20	ND<0.5	ND<0.5
	1/22/14	1,600	1.9	9.7	8.6	16	0.50	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
IP-10	2/11/09	8,100	29	58	170	1,200	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<7	ND<150	ND<20	ND<1.5	ND<1.5
	5/3/10[g]	3,600	73	80	140	240	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<20	ND<0.5	ND<0.5
	4/26/11	4,300	28	140	110	330	ND<0.5	ND<0.5	ND<0.5	ND<0.5	10	ND<50	ND<8	ND<0.5	ND<0.5
	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
	5/9/12	3,900	24	38	110	58.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<20	ND<0.5	ND<0.5
	8/7/12	2,700	15	5.8	31	6.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/13/12	2,600	12	7.6	4.7	20	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<8	ND<0.5	ND<0.5
	2/12/13	6,500	26	270	180	590	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<20	ND<0.5	ND<0.5
	4/24/13	1,800	12	11	24	81	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<8	ND<0.5	ND<0.5
	6/24/13	1,500	5.4	1.1	0.76	6.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/22/13	1,100	2.2	ND<0.5	ND<0.5	2.3	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5

TABLE D-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)	Ethyl-benzene[b] (µg/l)	Total 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	11/7/13	810	2.6	1.7	1.5	7.6	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
(cont.)	1/22/14	2,100	7.2	2.7	1.8	7.9	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<8	ND<0.5	ND<0.5

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

(b) Total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, xylenes, methyl tert-butyl ether (MTBE), di-isopropyl ether (DIPE), ethyl tert-butyl ether (ETBE), tert-amyl methyl ether (TAME), tert-butyl alcohol (TBA), 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).

(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 E

LABORATORY ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY FORMS

KIFF Analytical LLC

Report Number : 87178
Date : 01/27/2014

Laboratory Results

Emily Chow
Orion Environmental
2955 Redondo Ave.
Long Beach, CA 90806

Subject : 7 Water Samples
Project Name : Tesoro - Livermore #67076
Project Number : 01LV

Dear Ms. Chow,

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. 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 Environmental Laboratory Accreditation Program (ELAP), 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 : 87178
Date : 01/27/2014

Subject : 7 Water Samples
Project Name : Tesoro - Livermore #67076
Project Number : 01LV

Case Narrative

The Method Reporting Limit for Ethanol has been increased due to the presence of an interfering compound for sample MW-1.

Recoveries for some Matrix Spike/Matrix Spike Duplicate analytes were outside of control limits. This may indicate a bias for the samples that were spiked. Since the LCS recoveries were within control limits, no data are flagged.

KIFF Analytical LLC

Report Number : 87178
Date : 01/27/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **DW-4** Matrix : Water Lab Number : 87178-01
Sample Date :01/21/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	01/21/14 23:25
Toluene	< 0.50	0.50	ug/L	EPA 8260B	01/21/14 23:25
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	01/21/14 23:25
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	01/21/14 23:25
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	01/21/14 23:25
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/21/14 23:25
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/21/14 23:25
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/21/14 23:25
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	01/21/14 23:25
Methanol	< 50	50	ug/L	EPA 8260B	01/21/14 23:25
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	01/21/14 23:25
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	01/21/14 23:25
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/21/14 23:25
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/21/14 23:25
1,2-Dichloroethane-d4 (Surr)	98.7		% Recovery	EPA 8260B	01/21/14 23:25
Toluene - d8 (Surr)	107		% Recovery	EPA 8260B	01/21/14 23:25

KIFF Analytical LLC

Report Number : 87178
Date : 01/27/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **MW-5** Matrix : Water Lab Number : 87178-02
Sample Date :01/21/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	01/21/14 23:57
Toluene	< 0.50	0.50	ug/L	EPA 8260B	01/21/14 23:57
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	01/21/14 23:57
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	01/21/14 23:57
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	01/21/14 23:57
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/21/14 23:57
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/21/14 23:57
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/21/14 23:57
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	01/21/14 23:57
Methanol	< 50	50	ug/L	EPA 8260B	01/21/14 23:57
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	01/21/14 23:57
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	01/21/14 23:57
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/21/14 23:57
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/21/14 23:57
1,2-Dichloroethane-d4 (Surr)	98.8		% Recovery	EPA 8260B	01/21/14 23:57
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	01/21/14 23:57

KIFF Analytical LLC

Report Number : 87178
Date : 01/27/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **MW-4** Matrix : Water Lab Number : 87178-03
Sample Date :01/21/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 00:28
Toluene	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 00:28
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 00:28
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 00:28
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 00:28
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 00:28
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 00:28
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 00:28
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	01/22/14 00:28
Methanol	< 50	50	ug/L	EPA 8260B	01/22/14 00:28
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	01/22/14 00:28
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	01/22/14 00:28
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 00:28
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 00:28
1,2-Dichloroethane-d4 (Surr)	98.5		% Recovery	EPA 8260B	01/22/14 00:28
Toluene - d8 (Surr)	99.1		% Recovery	EPA 8260B	01/22/14 00:28

KIFF Analytical LLC

Report Number : 87178
Date : 01/27/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **MW-1** Matrix : Water Lab Number : 87178-04
Sample Date :01/21/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	**2.5**	0.50	ug/L	EPA 8260B	01/22/14 01:00
Toluene	**5.2**	0.50	ug/L	EPA 8260B	01/22/14 01:00
Ethylbenzene	**130**	0.50	ug/L	EPA 8260B	01/22/14 01:00
Total Xylenes	**250**	0.50	ug/L	EPA 8260B	01/22/14 01:00
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 01:00
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 01:00
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 01:00
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 01:00
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	01/22/14 01:00
Methanol	< 50	50	ug/L	EPA 8260B	01/22/14 01:00
Ethanol	< 15	15	ug/L	EPA 8260B	01/22/14 21:25
TPH as Gasoline	**9600**	150	ug/L	EPA 8260B	01/22/14 21:25
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 01:00
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 01:00
1,2-Dichloroethane-d4 (Surr)	90.5		% Recovery	EPA 8260B	01/22/14 01:00
Toluene - d8 (Surr)	95.5		% Recovery	EPA 8260B	01/22/14 01:00

KIFF Analytical LLC

Report Number : 87178
Date : 01/27/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **TP-2** Matrix : Water Lab Number : 87178-05
Sample Date :01/21/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 01:31
Toluene	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 01:31
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 01:31
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 01:31
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 01:31
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 01:31
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 01:31
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 01:31
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	01/22/14 01:31
Methanol	< 50	50	ug/L	EPA 8260B	01/22/14 01:31
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	01/22/14 01:31
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	01/22/14 01:31
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 01:31
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 01:31
1,2-Dichloroethane-d4 (Surr)	96.2		% Recovery	EPA 8260B	01/22/14 01:31
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	01/22/14 01:31

KIFF Analytical LLC

Report Number : 87178
Date : 01/27/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **MW-10** Matrix : Water Lab Number : 87178-06
Sample Date :01/21/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	**1.4**	0.10	mg/L	EPA 300.0	01/22/14 14:24
Sulfate	**82**	2.5	mg/L	EPA 300.0	01/22/14 14:13
Hexavalent Chromium	**15**	1.0	ug/L	EPA 7199	01/22/14 10:13
Ferrous Iron	< 0.10	0.10	mg/L	SM 3500-Fe D	01/22/14 10:59
Arsenic, Dissolved	< 0.015	0.015	mg/L	EPA 6010B	01/27/14 14:44
Chromium, Dissolved	**0.014**	0.0050	mg/L	EPA 6010B	01/27/14 14:44
Iron, Dissolved	< 0.10	0.10	mg/L	EPA 6010B	01/27/14 14:44
Manganese, Dissolved	**0.040**	0.0050	mg/L	EPA 6010B	01/27/14 14:44
Sodium, Dissolved	**55**	0.50	mg/L	EPA 6010B	01/27/14 14:44
Benzene	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 02:03
Toluene	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 02:03
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 02:03
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 02:03
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 02:03
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 02:03
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 02:03
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 02:03
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	01/22/14 02:03
Methanol	< 50	50	ug/L	EPA 8260B	01/22/14 02:03
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	01/22/14 02:03
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	01/22/14 02:03
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 02:03
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 02:03
1,2-Dichloroethane-d4 (Surr)	97.3		% Recovery	EPA 8260B	01/22/14 02:03
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	01/22/14 02:03

KIFF Analytical LLC

Report Number : 87178
Date : 01/27/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **IP-5** Matrix : Water Lab Number : 87178-07
Sample Date :01/21/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	**0.39**	0.10	mg/L	EPA 300.0	01/22/14 14:36
Sulfate	**38**	0.50	mg/L	EPA 300.0	01/22/14 12:53
Hexavalent Chromium	< 1.0	1.0	ug/L	EPA 7199	01/22/14 10:23
Ferrous Iron	< 0.10	0.10	mg/L	SM 3500-Fe D	01/22/14 11:00
Arsenic, Dissolved	< 0.015	0.015	mg/L	EPA 6010B	01/27/14 14:48
Chromium, Dissolved	< 0.0050	0.0050	mg/L	EPA 6010B	01/27/14 14:48
Iron, Dissolved	< 0.10	0.10	mg/L	EPA 6010B	01/27/14 14:48
Manganese, Dissolved	**0.41**	0.0050	mg/L	EPA 6010B	01/27/14 14:48
Sodium, Dissolved	**40**	0.50	mg/L	EPA 6010B	01/27/14 14:48
Benzene	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 02:34
Toluene	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 02:34
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 02:34
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 02:34
Methyl-t-butyl ether (MTBE)	**0.60**	0.50	ug/L	EPA 8260B	01/22/14 02:34
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 02:34
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 02:34
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 02:34
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	01/22/14 02:34
Methanol	< 50	50	ug/L	EPA 8260B	01/22/14 02:34
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	01/22/14 02:34
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	01/22/14 02:34
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 02:34
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/22/14 02:34
1,2-Dichloroethane-d4 (Surr)	99.0		% Recovery	EPA 8260B	01/22/14 02:34
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	01/22/14 02:34

Report Number : 87178

Date : 01/27/2014

QC Report : Method Blank Data

Project Name : **Tesoro - Livermore #67076**

Project Number : **01LV**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Arsenic, Dissolved	< 0.015	0.015	mg/L	EPA 6010B	01/27/2014
Chromium, Dissolved	< 0.0050	0.0050	mg/L	EPA 6010B	01/27/2014
Iron, Dissolved	< 0.10	0.10	mg/L	EPA 6010B	01/27/2014
Manganese, Dissolved	< 0.0050	0.0050	mg/L	EPA 6010B	01/27/2014
Sodium, Dissolved	< 0.50	0.50	mg/L	EPA 6010B	01/27/2014
Benzene	< 0.50	0.50	ug/L	EPA 8260B	01/21/2014
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	01/21/2014
Toluene	< 0.50	0.50	ug/L	EPA 8260B	01/21/2014
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	01/21/2014
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/21/2014
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	01/21/2014
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/21/2014
Methanol	< 50	50	ug/L	EPA 8260B	01/21/2014
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	01/21/2014
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	01/21/2014
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/21/2014
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	01/21/2014
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/21/2014
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/21/2014
1,2-Dichloroethane-d4 (Surr)	96.7		%	EPA 8260B	01/21/2014
Toluene - d8 (Surr)	101		%	EPA 8260B	01/21/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	01/22/2014
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	01/22/2014
Hexavalent Chromium	<1.0	1.0	ug/L	EPA 7199	01/22/2014
Ferrous Iron	<0.10	0.10	mg/L	SM 3500-Fe D	01/22/2014
Nitrate as N	<0.10	0.10	mg/L	EPA 300.0	01/22/2014
Sulfate	<0.50	0.50	mg/L	EPA 300.0	01/22/2014

KIFF ANALYTICAL, LLC

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

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 01/27/2014

Project Name : **Tesoro - Livermore #67076**

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														
	87174-01	<0.50	40.3	40.3	38.4	38.1	ug/L	EPA 8260B	1/21/14	95.3	94.4	0.895	70.0-130	25
1,2-Dichloroethane														
	87174-01	<0.50	40.0	40.0	37.6	36.8	ug/L	EPA 8260B	1/21/14	94.1	92.1	2.13	70.0-130	25
Benzene														
	87174-01	<0.50	40.0	40.0	37.9	38.0	ug/L	EPA 8260B	1/21/14	94.8	94.9	0.171	70.0-130	25
Diisopropyl ether														
	87174-01	<0.50	40.0	40.0	39.6	39.4	ug/L	EPA 8260B	1/21/14	99.1	98.4	0.701	70.0-130	25
Ethanol														
	87174-01	<5.0	100	100	101	102	ug/L	EPA 8260B	1/21/14	101	102	1.78	55.0-150	25
Ethyl-tert-butyl ether														
	87174-01	<0.50	40.0	40.0	38.9	39.4	ug/L	EPA 8260B	1/21/14	97.2	98.4	1.22	70.0-130	25
Ethylbenzene														
	87174-01	<0.50	40.0	40.0	37.8	36.9	ug/L	EPA 8260B	1/21/14	94.4	92.2	2.41	70.0-130	25
Methanol														
	87174-01	<50	1000	1000	944	932	ug/L	EPA 8260B	1/21/14	94.4	93.2	1.36	65.0-150	25
Methyl-t-butyl ether														
	87174-01	3.5	39.9	39.9	42.7	41.4	ug/L	EPA 8260B	1/21/14	98.5	95.1	3.52	70.0-130	25
P + M Xylene														
	87174-01	<0.50	40.0	40.0	37.5	36.8	ug/L	EPA 8260B	1/21/14	93.8	91.9	1.95	70.0-130	25

KIFF ANALYTICAL, LLC

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

Report Number : 87178

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 01/27/2014

Project Name : **Tesoro - Livermore #67076**

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														
	87174-01	<5.0	200	200	192	192	ug/L	EPA 8260B	1/21/14	95.8	96.2	0.385	70.0-130	25
Tert-amyl-methyl ether														
	87174-01	<0.50	40.0	40.0	39.8	40.2	ug/L	EPA 8260B	1/21/14	99.4	101	1.24	70.0-130	25
Toluene														
	87174-01	<0.50	40.0	40.0	39.6	38.6	ug/L	EPA 8260B	1/21/14	99.0	96.5	2.63	70.0-130	25
Ethanol														
	87190-03	<5.0	100	100	108	106	ug/L	EPA 8260B	1/22/14	108	106	1.96	55.0-150	25
Hexavalent Chromium														
	87178-06	15	5.00	5.00	20.0	19.9	ug/L	EPA 7199	1/22/14	106	104	0.422	90.0-110	10
Ferrous Iron														
	87178-06	< 0.10	0.253	0.253	0.239	0.231	mg/L	SM 3500-Fe D	1/22/14	92.6	89.4	3.40	70.0-130	25
Nitrate as N														
	87178-06	1.4	0.500	0.500	1.90	1.91	mg/L	EPA 300.0	1/22/14	103	103	0.106	90.0-110	10
Sulfate														
	87178-06	78	2.50	2.50	80.2	80.3	mg/L	EPA 300.0	1/22/14	**75.5**	**80.9**	0.168	90.0-110	10

KIFF ANALYTICAL, LLC

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

Report Number : 87178

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 01/27/2014

Project Name : **Tesoro - Livermore #67076**

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
Arsenic, (Dis)														
	87169-04	< 0.015	0.400	0.400	0.416	0.412	mg/L	EPA 6010B	1/27/14	103	102	1.14	75-125	20
Chromium, (Dis)														
	87169-04	< 0.0050	0.400	0.400	0.392	0.389	mg/L	EPA 6010B	1/27/14	98.0	97.2	0.767	75-125	20
Iron, (Dis)														
	87169-04	< 0.10	0.400	0.400	0.440	0.434	mg/L	EPA 6010B	1/27/14	98.8	97.5	1.21	75-125	20
Manganese, (Dis)														
	87169-04	0.61	0.400	0.400	0.994	0.985	mg/L	EPA 6010B	1/27/14	96.0	93.7	0.940	75-125	20
Sodium, (Dis)														
	87169-04	66	0.400	0.400	66.1	65.5	mg/L	EPA 6010B	1/27/14	**0.00**	**0.00**	0.882	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 #67076**

Project Number : **01LV**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Arsenic, (Dis)	0.400	mg/L	EPA 6010B	1/27/14	101	85-115
Chromium, (Dis)	0.400	mg/L	EPA 6010B	1/27/14	98.9	85-115
Iron, (Dis)	0.400	mg/L	EPA 6010B	1/27/14	99.2	85-115
Manganese, (Dis)	0.400	mg/L	EPA 6010B	1/27/14	99.4	85-115
Sodium, (Dis)	0.400	mg/L	EPA 6010B	1/27/14	99.5	85-115
1,2-Dibromoethane	40.3	ug/L	EPA 8260B	1/21/14	94.0	70.0-130
1,2-Dichloroethane	40.0	ug/L	EPA 8260B	1/21/14	93.4	70.0-130
Benzene	40.0	ug/L	EPA 8260B	1/21/14	96.4	70.0-130
Diisopropyl ether	40.0	ug/L	EPA 8260B	1/21/14	107	70.0-130
Ethanol	100	ug/L	EPA 8260B	1/21/14	102	55.0-150
Ethyl-tert-butyl ether	40.0	ug/L	EPA 8260B	1/21/14	105	70.0-130
Ethylbenzene	40.0	ug/L	EPA 8260B	1/21/14	95.6	70.0-130
Methanol	1000	ug/L	EPA 8260B	1/21/14	94.9	65.0-150
Methyl-t-butyl ether	39.9	ug/L	EPA 8260B	1/21/14	103	70.0-130
P + M Xylene	40.0	ug/L	EPA 8260B	1/21/14	94.8	70.0-130
TPH as Gasoline	489	ug/L	EPA 8260B	1/21/14	110	70.0-130
Tert-Butanol	200	ug/L	EPA 8260B	1/21/14	97.7	70.0-130
Tert-amyl-methyl ether	40.0	ug/L	EPA 8260B	1/21/14	98.3	70.0-130
Toluene	40.0	ug/L	EPA 8260B	1/21/14	105	70.0-130
Ethanol	100	ug/L	EPA 8260B	1/22/14	101	55.0-150

KIFF ANALYTICAL, LLC

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

QC Report : Laboratory Control Sample (LCS)

Project Name : **Tesoro - Livermore #67076**

Project Number : **01LV**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
TPH as Gasoline	484	ug/L	EPA 8260B	1/22/14	104	70.0-130
Hexavalent Chromium	5.00	ug/L	EPA 7199	1/22/14	99.7	90.0-110
Ferrous Iron	0.253	mg/L	SM 3500-Fe D	1/22/14	99.3	70.0-130
Nitrate as N	0.500	mg/L	EPA 300.0	1/22/14	99.5	90.0-110
Sulfate	2.50	mg/L	EPA 300.0	1/22/14	100	90.0-110

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

87178

Page 1 of 1

Confluence Environmental, Inc.
3308 El Camino Ave, Suite 300 #148
Sacramento, CA 95821
916-760-7641 - main
916-473-8617 - fax
www.confluence-env.com

Chain of Custody

Project Name: Tesoro - Livermore #67076

Job Number: P1-12012I

TAT: (STANDARD) 5 DAY 2 DAY 24 HOUR OTHER:

Lab: **Kiff**	Site Address: 1619 1st St, Livermore	Confluence PM: Jason Brown
Address: 2795 2nd St, Suite 300, Davis CA 95616	California Global ID No.: TO600101410	Phone / Fax: 916-760-7641 / 916-473-8617
Contact: Troy Turpen	Include EDF w/ Report: (Yes) No	Confluence Log Code: **CESC**
Phone/ Fax: 530-297-4800 x.111	Consultant / PM: Orion / Mike Purchase	Report to: Mike Purchase
	Phone / Fax: 510-525-2180 / 510-525-2392	Invoice to: Mike Purchase

	Sample ID	Time	Date	Matrix: Soil/Solid	Matrix: Water/Liquid	Matrix: Air	Laboratory No.	No. of Containers	Preservative: Unpreserved	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: HCl	Preservative: NaOH	Requested Analysis: TPH-G, BTEX (8260)	Requested Analysis: Oxygenates(7) & Lead Scavengers (8260)	Requested Analysis: Ferrous Iron (SM 3500-Fe-D)	Requested Analysis: Hexavalent Chromium (7199)	Requested Analysis: Nitrate & Sulfate (300)	Requested Analysis: Total Alkalinity (SM2320B)	Requested Analysis: Metals by ICP (6010B)*	Requested Analysis: Methane (RSK 175M)	Requested Analysis: Carbon Dioxide (RSK 175M)	Requested Analysis: TDS (2540C)	Notes and Comments	
	DW-2	1340	12-14		X			5				3		X	X					X*					01
	MW-5	1400												X	X										02
	MW-4	1210												X	X										03
	MW-1	1255												X	X										04
	TP-2	1430						2				2		X	X										05
	MW-10	1230						12	6		1	5		X	X	X	X	X	X	X	X	X	X		06
	TP-5	1410						12	6		1	5		X	X	X	X	X	X	X	X	X	X		07

Sampler's Name:	Matt Pestana
Sampler's Company:	Confluence Environmental
Shipment Date:	1-21-14
Shipment Method:	

Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
	1-21-14	1500			
				01/24	1513

Special Instructions: ***Metals list to include: Fe, Cr, Na, As & Mn; Metals samples have been filtered in the field**

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KIFF Analytical LLC

SAMPLE RECEIPT CHECKLIST

SRG #: 87178

Sample Receipt	Initials/Date: [illegible] 012114	Storage Time: 1744	Sample Login	Initials/Date: TJB 012114

TAT: ☑ Standard ☐ Rush ☐ Split ☐ None | Method of Receipt: ☑ Courier ☐ Over-the-counter ☐ Shipped

Temp °C -1.6 ☐ N/A | Therm ID IR3 | Time 1733 | Coolant present ☑ Yes ☐ No ☐ Water | ☐ Temp Excursion

For Shipments Only: Cooler Receipt Initials/Date/Time: | Custody Seals ☐ N/A ☐ Intact ☐ Broken

Chain-of-Custody:	Yes	No
Is COC present?	✓	
Is COC signed by relinquisher?	✓	
Is COC dated by relinquisher?	✓	
Is the sampler's name on the COC?	✓	
Are there analyses or hold for all samples?	✓	

Documented on	COC	Labels	Discrepancies:
Sample ID	X	X	
Project ID	X	X	
Sample Date	X	X	
Sample Time	X	X	
Does COC match project history?	☐ N/A	☑ Yes	☐ No

Samples:	N/A	Yes	No
Are sample custody seals intact?	✓		
Are sample containers intact?		✓	
Is preservation documented?		✓	
In-house Analysis:	**N/A**	**Yes**	**No**
Are preservatives acceptable?		✓	
Are samples within holding time?		✓	
Are sample container types correct?		✓	
Is there adequate sample volume?		✓	

Comments: The VOA vials with white caps are labeled NP. Sample Receiving will log in the VOA vials with gray caps as HCl preserved. TJB 012114 1817

Receipt Details:

Matrix	Container Type	# of Containers
WA	Jar	29
WA	Poly	10

CS Required: ☐

Proceed With Analysis: ☐ YES ☐ NO Init/Date:
Client Communication:

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

Calscience Environmental Laboratories, Inc.

CALSCIENCE

WORK ORDER NUMBER: 14-01-1311

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Kiff Analytical

Client Project Name: Tesoro - Livermore #67076

Attention: Joel Kiff
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Amanda Porter

Approved for release on 01/30/2014 by:
Amanda Porter
Project Manager

ResultLink

Email your PM

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

Calscience Environmental Laboratories, Inc.

Contents

Client Project Name: Tesoro - Livermore #67076
Work Order Number: 14-01-1311

Calscience Environmental Laboratories, Inc.

Work Order Narrative

Work Order: 14-01-1311 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain of Custody (COC) on 01/23/14. They were assigned to Work Order 14-01-1311.

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

Holding Times:

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

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

Quality Control:

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

Additional Comments:

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

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

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

Subcontractor Information:

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

Return to Contents

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 01/23/14
Work Order: 14-01-1311
Preparation: N/A
Method: RSK-175M
Units: ug/L

Project: Tesoro - Livermore #67076

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-10	**14-01-1311-1-D**	**01/21/14 12:30**	**Aqueous**	**GC 14**	**N/A**	**01/25/14 09:38**	**140124L05**

Parameter	Result	RL	DF	Qualifiers
Carbon Dioxide	19200	17.0	10	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IP-5	**14-01-1311-2-D**	**01/21/14 14:10**	**Aqueous**	**GC 14**	**N/A**	**01/25/14 09:56**	**140124L05**

Parameter	Result	RL	DF	Qualifiers
Carbon Dioxide	11400	17.0	10	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-659-666**	**N/A**	**Aqueous**	**GC 14**	**N/A**	**01/24/14 20:43**	**140124L05**

Parameter	Result	RL	DF	Qualifiers
Carbon Dioxide	ND	1.70	1	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 01/23/14
Work Order: 14-01-1311
Preparation: N/A
Method: RSK-175M
Units: ug/L

Project: Tesoro - Livermore #67076

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-10	**14-01-1311-1-A**	**01/21/14 12:30**	**Aqueous**	**GC 61**	**N/A**	**01/25/14 09:52**	**140124L03**

Parameter	Result	RL	DF	Qualifiers
Methane	14.7	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IP-5	**14-01-1311-2-A**	**01/21/14 14:10**	**Aqueous**	**GC 61**	**N/A**	**01/25/14 10:16**	**140124L03**

Parameter	Result	RL	DF	Qualifiers
Methane	334	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-663-2078**	**N/A**	**Aqueous**	**GC 61**	**N/A**	**01/24/14 21:25**	**140124L03**

Parameter	Result	RL	DF	Qualifiers
Methane	ND	1.00	1	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505
Project: Tesoro - Livermore #67076

Date Received: 01/23/14
Work Order: 14-01-1311

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
MW-10	**14-01-1311-1**	**01/21/14 12:30**	**Aqueous**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Alkalinity, Total (as CaCO3)	557	5.00	1		mg/L	N/A	01/28/14	SM 2320B
Solids, Total Dissolved	795	1.00	1		mg/L	01/27/14	01/27/14	SM 2540 C

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
IP-5	**14-01-1311-2**	**01/21/14 14:10**	**Aqueous**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Alkalinity, Total (as CaCO3)	313	5.00	1		mg/L	N/A	01/28/14	SM 2320B
Solids, Total Dissolved	470	1.00	1		mg/L	01/27/14	01/27/14	SM 2540 C

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

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Alkalinity, Total (as CaCO3)	ND	1.0	1		mg/L	N/A	01/28/14	SM 2320B
Solids, Total Dissolved	ND	1.0	1		mg/L	01/27/14	01/27/14	SM 2540 C

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Quality Control - Sample Duplicate

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 01/23/14
Work Order: 14-01-1311
Preparation: N/A
Method: SM 2320B

Project: Tesoro - Livermore #67076

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
14-01-0950-4	**Sample**	**Aqueous**	**PH1/BUR03**	**N/A**	**01/28/14 14:30**	**E0128ALKD1**
14-01-0950-4	**Sample Duplicate**	**Aqueous**	**PH1/BUR03**	**N/A**	**01/28/14 14:30**	**E0128ALKD1**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Alkalinity, Total (as CaCO3)	508.0	505.0	1	0-25	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Sample Duplicate

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Project: Tesoro - Livermore #67076

Date Received: 01/23/14
Work Order: 14-01-1311
Preparation: N/A
Method: SM 2540 C

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
14-01-1193-1	**Sample**	**Aqueous**	**N/A**	**01/27/14 00:00**	**01/27/14 14:40**	**E0127TDSD1**
14-01-1193-1	**Sample Duplicate**	**Aqueous**	**N/A**	**01/27/14 00:00**	**01/27/14 14:40**	**E0127TDSD1**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Solids, Total Dissolved	835.0	820.0	2	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Project: Tesoro - Livermore #67076

Date Received: 01/23/14
Work Order: 14-01-1311
Preparation: N/A
Method: RSK-175M

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-659-666	**LCS**	**Aqueous**	**GC 14**	**N/A**	**01/24/14 20:00**	**140124L05**
099-12-659-666	**LCSD**	**Aqueous**	**GC 14**	**N/A**	**01/24/14 20:18**	**140124L05**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Carbon Dioxide	102.0	94.82	93	94.33	92	80-120	1	0-20	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Project: Tesoro - Livermore #67076

Date Received: 01/23/14
Work Order: 14-01-1311
Preparation: N/A
Method: RSK-175M

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-663-2078	**LCS**	**Aqueous**	**GC 61**	**N/A**	**01/24/14 20:39**	**140124L03**
099-12-663-2078	**LCSD**	**Aqueous**	**GC 61**	**N/A**	**01/24/14 21:02**	**140124L03**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Methane	98.50	93.29	95	93.24	95	80-120	0	0-20	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Project: Tesoro - Livermore #67076

Date Received: 01/23/14
Work Order: 14-01-1311
Preparation: N/A
Method: SM 2320B

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-15-859-262	**LCS**	**Aqueous**	**PH1/BUR03**	**N/A**	**01/28/14 14:30**	**E0128ALKB1**
099-15-859-262	**LCSD**	**Aqueous**	**PH1/BUR03**	**N/A**	**01/28/14 14:30**	**E0128ALKB1**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Alkalinity, Total (as CaCO3)	100.0	100.0	100	101.0	101	80-120	1	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Project: Tesoro - Livermore #67076

Date Received: 01/23/14
Work Order: 14-01-1311
Preparation: N/A
Method: SM 2540 C

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-180-3957	**LCS**	**Aqueous**	**N/A**	**01/27/14**	**01/27/14 14:40**	**E0127TDSL1**
099-12-180-3957	**LCSD**	**Aqueous**	**N/A**	**01/27/14**	**01/27/14 14:40**	**E0127TDSL1**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Solids, Total Dissolved	100.0	105.0	105	110.0	110	80-120	5	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Sample Analysis Summary Report

Work Order: 14-01-1311 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
RSK-175M	N/A	884	GC 14	2
RSK-175M	N/A	888	GC 61	2
SM 2320B	N/A	857	PH1/BUR03	1
SM 2540 C	N/A	722	N/A	1

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Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order: 14-01-1311 Page 1 of 1

Qualifiers	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 suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

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

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

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

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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

14-01-1311

COC No. 87178 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: P1-140121 P.O. No.: 87178

Project Name: Tesoro - Livermore #67076

Project Address:

Recommended but not mandatory to complete this section:

Sampling Company Log Code: CESC

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 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-10	01/21/14	12:30	1	1	2	2	X	X	X	X	X	X	1
IP-5	01/21/14	14:10	1	1	2	2	X	X	X	X	X	X	2

Relinquished by:	Date	Time	Received by:
Kiff Analytical LLC	012214	1700	
Relinquished by:	Date	Time	Received by:
Relinquished by: (Ontrac)	Date 1/23/14	Time 1030	Received by Laboratory:

Remarks: Please refer to attached Test Detail.

Bill to: Accounts Payable

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Test Detail for Kiff Work Order: 87178

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

1311

Carbon Dioxide by RSK 175 (1)
Carbon Dioxide

Hydrocarbons in Water by RSK 175 (1)
Methane

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1311

Shipped From:
KIFF ANALYTICAL
2795 2ND STREET 300
DAVIS, CA 95618

Sent By: SAMPLE RECEIVINGX125
Phone#: (530)297-4800
wgt(lbs): 15
Reference: SUBS
Reference 2: 600

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

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 14-01-1317

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: KFF DATE: 01/23/14

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

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 **Checked by:** 836

CUSTODY SEALS INTACT:

☑ Cooler ☐_____ ☐ No (Not Intact) ☐ Not Present ☐ N/A **Checked by:** 836

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present **Checked by:** 802

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	☑	☐	☐
Aqueous samples received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfides ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☐
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☑	☐	☐
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

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

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

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

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

Air: ☐Tedlar® ☐Canister **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** BV2

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** 603

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:** 603

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KIFF Analytical LLC

Report Number : 87193
Date : 01/29/2014

Laboratory Results

Emily Chow
Orion Environmental
2955 Redondo Ave.
Long Beach, CA 90806

Subject : 23 Water Samples
Project Name : Tesoro - Livermore #67076
Project Number : 01LV

Dear Ms. Chow,

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. 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 Environmental Laboratory Accreditation Program (ELAP), 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 : 87193
Date : 01/29/2014

Subject : 23 Water Samples
Project Name : Tesoro - Livermore #67076
Project Number : 01LV

Case Narrative

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

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

Recoveries for some Matrix Spike/Matrix Spike Duplicate analytes were outside of control limits. This may indicate a bias for the samples that were spiked. Since the LCS recoveries were within control limits, no data are flagged.

The Method Reporting Limit for Nitrate as N by Method EPA 300.0 was raised due to the high concentration of other analytes for samples DW-1, DW-2, DW-5, DW-6, DW-7, DW-8, DW-9, IP-1, IP-8, IP-9, MW-11, MW-2, MW-6, MW-9.

The Method Reporting Limit for Sulfate by Method EPA 300.0 was raised due to the high concentration of other analytes for samples DW-2, DW-6, DW-8, DW-9, MW-6 and MW-9.

KIFF Analytical LLC

Report Number : 87193
Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **MW-3** Matrix : Water Lab Number : 87193-01
Sample Date :01/22/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 12:58
Toluene	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 12:58
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 12:58
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 12:58
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 12:58
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 12:58
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 12:58
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 12:58
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	01/23/14 12:58
Methanol	< 50	50	ug/L	EPA 8260B	01/23/14 12:58
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	01/23/14 12:58
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	01/23/14 12:58
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 12:58
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 12:58
1,2-Dichloroethane-d4 (Surr)	99.0		% Recovery	EPA 8260B	01/23/14 12:58
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	01/23/14 12:58

KIFF Analytical LLC

Report Number : 87193
Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **MW-8** Matrix : Water Lab Number : 87193-02
Sample Date :01/22/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	**1.3**	0.10	mg/L	EPA 300.0	01/23/14 13:02
Sulfate	**64**	5.0	mg/L	EPA 300.0	01/28/14 12:44
Hexavalent Chromium	< 1.0	1.0	ug/L	EPA 7199	01/23/14 10:19
Ferrous Iron	< 0.10	0.10	mg/L	SM 3500-Fe D	01/23/14 10:56
Arsenic, Dissolved	< 0.015	0.015	mg/L	EPA 6010B	01/28/14 12:46
Chromium, Dissolved	< 0.0050	0.0050	mg/L	EPA 6010B	01/28/14 12:46
Iron, Dissolved	< 0.10	0.10	mg/L	EPA 6010B	01/28/14 12:46
Manganese, Dissolved	**0.55**	0.0050	mg/L	EPA 6010B	01/28/14 12:46
Sodium, Dissolved	**52**	0.50	mg/L	EPA 6010B	01/28/14 12:46
Benzene	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 11:23
Toluene	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 11:23
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 11:23
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 11:23
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 11:23
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 11:23
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 11:23
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 11:23
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	01/23/14 11:23
Methanol	< 50	50	ug/L	EPA 8260B	01/23/14 11:23
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	01/23/14 11:23
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	01/23/14 11:23
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 11:23
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 11:23
1,2-Dichloroethane-d4 (Surr)	97.0		% Recovery	EPA 8260B	01/23/14 11:23
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	01/23/14 11:23

KIFF Analytical LLC

Report Number : 87193
Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **VW-2** Matrix : Water Lab Number : 87193-03
Sample Date :01/22/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 13:30
Toluene	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 13:30
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 13:30
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 13:30
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 13:30
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 13:30
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 13:30
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 13:30
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	01/23/14 13:30
Methanol	< 50	50	ug/L	EPA 8260B	01/23/14 13:30
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	01/23/14 13:30
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	01/23/14 13:30
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 13:30
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 13:30
1,2-Dichloroethane-d4 (Surr)	97.3		% Recovery	EPA 8260B	01/23/14 13:30
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	01/23/14 13:30

KIFF Analytical LLC

Report Number : 87193
Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **VW-3** Matrix : Water Lab Number : 87193-04
Sample Date :01/22/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 11:24
Toluene	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 11:24
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 11:24
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 11:24
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 11:24
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 11:24
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 11:24
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 11:24
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	01/23/14 11:24
Methanol	< 50	50	ug/L	EPA 8260B	01/23/14 11:24
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	01/23/14 11:24
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	01/23/14 11:24
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 11:24
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 11:24
1,2-Dichloroethane-d4 (Surr)	102		% Recovery	EPA 8260B	01/23/14 11:24
Toluene - d8 (Surr)	99.2		% Recovery	EPA 8260B	01/23/14 11:24

KIFF Analytical LLC

Report Number : 87193
Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **DW-3** Matrix : Water Lab Number : 87193-05
Sample Date :01/22/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	**3.0**	0.50	mg/L	EPA 300.0	01/22/14 22:29
Sulfate	**59**	2.5	mg/L	EPA 300.0	01/22/14 22:29
Hexavalent Chromium	< 1.0	1.0	ug/L	EPA 7199	01/22/14 19:55
Ferrous Iron	< 0.10	0.10	mg/L	SM 3500-Fe D	01/22/14 21:06
Arsenic, Dissolved	< 0.015	0.015	mg/L	EPA 6010B	01/28/14 12:50
Chromium, Dissolved	< 0.0050	0.0050	mg/L	EPA 6010B	01/28/14 12:50
Iron, Dissolved	< 0.10	0.10	mg/L	EPA 6010B	01/28/14 12:50
Manganese, Dissolved	**0.63**	0.0050	mg/L	EPA 6010B	01/28/14 12:50
Sodium, Dissolved	**52**	0.50	mg/L	EPA 6010B	01/28/14 12:50
Benzene	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:01
Toluene	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:01
Ethylbenzene	**3.0**	0.50	ug/L	EPA 8260B	01/23/14 14:01
Total Xylenes	**1.6**	0.50	ug/L	EPA 8260B	01/23/14 14:01
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:01
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:01
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:01
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:01
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	01/23/14 14:01
Methanol	< 50	50	ug/L	EPA 8260B	01/23/14 14:01
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	01/23/14 14:01
TPH as Gasoline	**860**	50	ug/L	EPA 8260B	01/23/14 14:01
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:01
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:01
1,2-Dichloroethane-d4 (Surr)	98.8		% Recovery	EPA 8260B	01/23/14 14:01
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	01/23/14 14:01

KIFF Analytical LLC

Report Number : 87193
Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **MW-7** Matrix : Water Lab Number : 87193-06
Sample Date :01/22/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	< 0.10	0.10	mg/L	EPA 300.0	01/22/14 22:40
Sulfate	**23**	0.50	mg/L	EPA 300.0	01/22/14 22:40
Hexavalent Chromium	< 1.0	1.0	ug/L	EPA 7199	01/22/14 20:01
Ferrous Iron	< 0.10	0.10	mg/L	SM 3500-Fe D	01/22/14 21:07
Arsenic, Dissolved	< 0.015	0.015	mg/L	EPA 6010B	01/28/14 12:54
Chromium, Dissolved	< 0.0050	0.0050	mg/L	EPA 6010B	01/28/14 12:54
Iron, Dissolved	**0.42**	0.10	mg/L	EPA 6010B	01/28/14 12:54
Manganese, Dissolved	**1.6**	0.0050	mg/L	EPA 6010B	01/28/14 12:54
Sodium, Dissolved	**71**	0.50	mg/L	EPA 6010B	01/28/14 12:54
Benzene	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:33
Toluene	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:33
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:33
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:33
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:33
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:33
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:33
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:33
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	01/23/14 14:33
Methanol	< 50	50	ug/L	EPA 8260B	01/23/14 14:33
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	01/23/14 14:33
TPH as Gasoline	**1000**	50	ug/L	EPA 8260B	01/23/14 14:33
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:33
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:33
1,2-Dichloroethane-d4 (Surr)	97.7		% Recovery	EPA 8260B	01/23/14 14:33
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	01/23/14 14:33

KIFF Analytical LLC

Report Number : 87193
Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **DW-1** Matrix : Water Lab Number : 87193-07
Sample Date :01/22/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	< 1.0	1.0	mg/L	EPA 300.0	01/22/14 22:52
Sulfate	**13**	5.0	mg/L	EPA 300.0	01/22/14 22:52
Hexavalent Chromium	< 1.0	1.0	ug/L	EPA 7199	01/22/14 20:08
Ferrous Iron	**0.14**	0.10	mg/L	SM 3500-Fe D	01/22/14 21:08
Arsenic, Dissolved	< 0.015	0.015	mg/L	EPA 6010B	01/28/14 12:58
Chromium, Dissolved	< 0.0050	0.0050	mg/L	EPA 6010B	01/28/14 12:58
Iron, Dissolved	**0.91**	0.10	mg/L	EPA 6010B	01/28/14 12:58
Manganese, Dissolved	**4.1**	0.0050	mg/L	EPA 6010B	01/28/14 12:58
Sodium, Dissolved	**140**	0.50	mg/L	EPA 6010B	01/28/14 12:58
Benzene	**51**	0.50	ug/L	EPA 8260B	01/24/14 19:12
Toluene	**13**	0.50	ug/L	EPA 8260B	01/24/14 19:12
Ethylbenzene	**98**	0.50	ug/L	EPA 8260B	01/24/14 19:12
Total Xylenes	**110**	0.50	ug/L	EPA 8260B	01/24/14 19:12
Methyl-t-butyl ether (MTBE)	**12**	0.50	ug/L	EPA 8260B	01/24/14 19:12
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/24/14 19:12
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/24/14 19:12
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/24/14 19:12
Tert-Butanol	**11**	5.0	ug/L	EPA 8260B	01/24/14 19:12
Methanol	< 50	50	ug/L	EPA 8260B	01/24/14 19:12
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	01/24/14 19:12
TPH as Gasoline	**5000**	150	ug/L	EPA 8260B	01/23/14 23:53
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/24/14 19:12
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/24/14 19:12
1,2-Dichloroethane-d4 (Surr)	89.3		% Recovery	EPA 8260B	01/24/14 19:12
Toluene - d8 (Surr)	94.1		% Recovery	EPA 8260B	01/24/14 19:12

KIFF Analytical LLC

Report Number : 87193
Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **IP-10** Matrix : Water Lab Number : 87193-08
Sample Date :01/22/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	< 0.10	0.10	mg/L	EPA 300.0	01/23/14 11:38
Sulfate	**1.4**	0.50	mg/L	EPA 300.0	01/23/14 11:38
Hexavalent Chromium	< 1.0	1.0	ug/L	EPA 7199	01/23/14 10:26
Ferrous Iron	**0.30**	0.10	mg/L	SM 3500-Fe D	01/23/14 10:57
Arsenic, Dissolved	< 0.015	0.015	mg/L	EPA 6010B	01/28/14 13:02
Chromium, Dissolved	< 0.0050	0.0050	mg/L	EPA 6010B	01/28/14 13:02
Iron, Dissolved	**1.1**	0.10	mg/L	EPA 6010B	01/28/14 13:02
Manganese, Dissolved	**2.8**	0.0050	mg/L	EPA 6010B	01/28/14 13:02
Sodium, Dissolved	**58**	0.50	mg/L	EPA 6010B	01/28/14 13:02
Benzene	**7.2**	0.50	ug/L	EPA 8260B	01/23/14 15:05
Toluene	**2.7**	0.50	ug/L	EPA 8260B	01/23/14 15:05
Ethylbenzene	**1.8**	0.50	ug/L	EPA 8260B	01/23/14 15:05
Total Xylenes	**7.9**	0.50	ug/L	EPA 8260B	01/23/14 15:05
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 15:05
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 15:05
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 15:05
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 15:05
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	01/23/14 15:05
Methanol	< 50	50	ug/L	EPA 8260B	01/23/14 15:05
Ethanol	< 8.0	8.0	ug/L	EPA 8260B	01/23/14 15:05
TPH as Gasoline	**2100**	50	ug/L	EPA 8260B	01/23/14 15:05
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 15:05
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 15:05
1,2-Dichloroethane-d4 (Surr)	94.6		% Recovery	EPA 8260B	01/23/14 15:05
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	01/23/14 15:05

KIFF Analytical LLC

Report Number : 87193
Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **MW-9** Matrix : Water Lab Number : 87193-09
Sample Date :01/22/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	< 0.50	0.50	mg/L	EPA 300.0	01/22/14 23:03
Sulfate	< 2.5	2.5	mg/L	EPA 300.0	01/22/14 23:03
Hexavalent Chromium	< 1.0	1.0	ug/L	EPA 7199	01/22/14 20:15
Ferrous Iron	**0.62**	0.10	mg/L	SM 3500-Fe D	01/22/14 21:09
Arsenic, Dissolved	< 0.015	0.015	mg/L	EPA 6010B	01/28/14 13:06
Chromium, Dissolved	< 0.0050	0.0050	mg/L	EPA 6010B	01/28/14 13:06
Iron, Dissolved	**1.8**	0.10	mg/L	EPA 6010B	01/28/14 13:06
Manganese, Dissolved	**1.7**	0.0050	mg/L	EPA 6010B	01/28/14 13:06
Sodium, Dissolved	**57**	0.50	mg/L	EPA 6010B	01/28/14 13:06
Benzene	**2.4**	0.50	ug/L	EPA 8260B	01/23/14 13:01
Toluene	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 13:01
Ethylbenzene	**0.81**	0.50	ug/L	EPA 8260B	01/23/14 13:01
Total Xylenes	**0.79**	0.50	ug/L	EPA 8260B	01/23/14 13:01
Methyl-t-butyl ether (MTBE)	**2.7**	0.50	ug/L	EPA 8260B	01/23/14 13:01
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 13:01
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 13:01
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 13:01
Tert-Butanol	**7.6**	5.0	ug/L	EPA 8260B	01/23/14 13:01
Methanol	< 50	50	ug/L	EPA 8260B	01/23/14 13:01
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	01/23/14 13:01
TPH as Gasoline	**2000**	50	ug/L	EPA 8260B	01/23/14 13:01
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 13:01
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 13:01
1,2-Dichloroethane-d4 (Surr)	99.0		% Recovery	EPA 8260B	01/23/14 13:01
Toluene - d8 (Surr)	98.0		% Recovery	EPA 8260B	01/23/14 13:01

KIFF Analytical LLC

Report Number : 87193
Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **TP-1** Matrix : Water Lab Number : 87193-10
Sample Date :01/22/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	**11**	0.50	ug/L	EPA 8260B	01/23/14 13:33
Toluene	**1.4**	0.50	ug/L	EPA 8260B	01/23/14 13:33
Ethylbenzene	**16**	0.50	ug/L	EPA 8260B	01/23/14 13:33
Total Xylenes	**5.2**	0.50	ug/L	EPA 8260B	01/23/14 13:33
Methyl-t-butyl ether (MTBE)	**41**	0.50	ug/L	EPA 8260B	01/23/14 13:33
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 13:33
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 13:33
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 13:33
Tert-Butanol	**22**	5.0	ug/L	EPA 8260B	01/23/14 13:33
Methanol	< 50	50	ug/L	EPA 8260B	01/23/14 13:33
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	01/23/14 13:33
TPH as Gasoline	**3400**	50	ug/L	EPA 8260B	01/23/14 13:33
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 13:33
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 13:33
1,2-Dichloroethane-d4 (Surr)	91.9		% Recovery	EPA 8260B	01/23/14 13:33
Toluene - d8 (Surr)	90.9		% Recovery	EPA 8260B	01/23/14 13:33

KIFF Analytical LLC

Report Number : 87193
Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **MW-12** Matrix : Water Lab Number : 87193-11
Sample Date :01/22/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	**1.8**	0.50	mg/L	EPA 300.0	01/22/14 23:15
Sulfate	**33**	2.5	mg/L	EPA 300.0	01/22/14 23:15
Hexavalent Chromium	< 1.0	1.0	ug/L	EPA 7199	01/22/14 20:22
Ferrous Iron	< 0.10	0.10	mg/L	SM 3500-Fe D	01/22/14 21:09
Arsenic, Dissolved	< 0.015	0.015	mg/L	EPA 6010B	01/28/14 13:10
Chromium, Dissolved	< 0.0050	0.0050	mg/L	EPA 6010B	01/28/14 13:10
Iron, Dissolved	< 0.10	0.10	mg/L	EPA 6010B	01/28/14 13:10
Manganese, Dissolved	**1.1**	0.0050	mg/L	EPA 6010B	01/28/14 13:10
Sodium, Dissolved	**62**	0.50	mg/L	EPA 6010B	01/28/14 13:10
Benzene	**4.3**	0.50	ug/L	EPA 8260B	01/24/14 18:18
Toluene	**1.5**	0.50	ug/L	EPA 8260B	01/24/14 18:18
Ethylbenzene	**12**	0.50	ug/L	EPA 8260B	01/24/14 18:18
Total Xylenes	**2.6**	0.50	ug/L	EPA 8260B	01/24/14 18:18
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	01/24/14 18:18
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/24/14 18:18
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/24/14 18:18
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/24/14 18:18
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	01/24/14 18:18
Methanol	< 50	50	ug/L	EPA 8260B	01/24/14 18:18
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	01/24/14 18:18
TPH as Gasoline	**3400**	50	ug/L	EPA 8260B	01/24/14 18:18
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/24/14 18:18
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/24/14 18:18
1,2-Dichloroethane-d4 (Surr)	95.4		% Recovery	EPA 8260B	01/24/14 18:18
Toluene - d8 (Surr)	94.5		% Recovery	EPA 8260B	01/24/14 18:18

KIFF Analytical LLC

Report Number : 87193
Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **DW-6** Matrix : Water Lab Number : 87193-12
Sample Date :01/22/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	< 0.50	0.50	mg/L	EPA 300.0	01/22/14 23:49
Sulfate	< 2.5	2.5	mg/L	EPA 300.0	01/22/14 23:49
Hexavalent Chromium	< 1.0	1.0	ug/L	EPA 7199	01/22/14 20:28
Ferrous Iron	**0.32**	0.10	mg/L	SM 3500-Fe D	01/22/14 21:10
Arsenic, Dissolved	< 0.015	0.015	mg/L	EPA 6010B	01/28/14 13:14
Chromium, Dissolved	< 0.0050	0.0050	mg/L	EPA 6010B	01/28/14 13:14
Iron, Dissolved	**0.69**	0.10	mg/L	EPA 6010B	01/28/14 13:14
Manganese, Dissolved	**2.2**	0.0050	mg/L	EPA 6010B	01/28/14 13:14
Sodium, Dissolved	**50**	0.50	mg/L	EPA 6010B	01/28/14 13:14
Benzene	**6.8**	0.50	ug/L	EPA 8260B	01/23/14 14:06
Toluene	**0.98**	0.50	ug/L	EPA 8260B	01/23/14 14:06
Ethylbenzene	**3.6**	0.50	ug/L	EPA 8260B	01/23/14 14:06
Total Xylenes	**2.9**	0.50	ug/L	EPA 8260B	01/23/14 14:06
Methyl-t-butyl ether (MTBE)	**10**	0.50	ug/L	EPA 8260B	01/23/14 14:06
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:06
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:06
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:06
Tert-Butanol	**36**	5.0	ug/L	EPA 8260B	01/23/14 14:06
Methanol	< 50	50	ug/L	EPA 8260B	01/23/14 14:06
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	01/23/14 14:06
TPH as Gasoline	**3000**	50	ug/L	EPA 8260B	01/23/14 14:06
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:06
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:06
1,2-Dichloroethane-d4 (Surr)	96.3		% Recovery	EPA 8260B	01/23/14 14:06
Toluene - d8 (Surr)	93.4		% Recovery	EPA 8260B	01/23/14 14:06

KIFF Analytical LLC

Report Number : 87193
Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **IP-9** Matrix : Water Lab Number : 87193-13
Sample Date :01/22/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	< 0.50	0.50	mg/L	EPA 300.0	01/23/14 00:00
Sulfate	**320**	25	mg/L	EPA 300.0	01/28/14 12:55
Hexavalent Chromium	**16**	1.0	ug/L	EPA 7199	01/22/14 20:35
Ferrous Iron	< 0.10	0.10	mg/L	SM 3500-Fe D	01/22/14 21:10
Arsenic, Dissolved	**0.10**	0.015	mg/L	EPA 6010B	01/29/14 10:00
Chromium, Dissolved	**0.022**	0.0050	mg/L	EPA 6010B	01/29/14 10:00
Iron, Dissolved	< 0.10	0.10	mg/L	EPA 6010B	01/29/14 10:00
Manganese, Dissolved	**0.014**	0.0050	mg/L	EPA 6010B	01/29/14 10:00
Sodium, Dissolved	**3500**	50	mg/L	EPA 6010B	01/29/14 11:04
Benzene	**1.9**	0.50	ug/L	EPA 8260B	01/23/14 14:38
Toluene	**9.7**	0.50	ug/L	EPA 8260B	01/23/14 14:38
Ethylbenzene	**8.6**	0.50	ug/L	EPA 8260B	01/23/14 14:38
Total Xylenes	**16**	0.50	ug/L	EPA 8260B	01/23/14 14:38
Methyl-t-butyl ether (MTBE)	**0.50**	0.50	ug/L	EPA 8260B	01/23/14 14:38
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:38
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:38
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:38
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	01/23/14 14:38
Methanol	< 50	50	ug/L	EPA 8260B	01/23/14 14:38
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	01/23/14 14:38
TPH as Gasoline	**1600**	50	ug/L	EPA 8260B	01/23/14 14:38
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:38
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/14 14:38
1,2-Dichloroethane-d4 (Surr)	99.2		% Recovery	EPA 8260B	01/23/14 14:38
Toluene - d8 (Surr)	96.1		% Recovery	EPA 8260B	01/23/14 14:38

KIFF Analytical LLC

Report Number : 87193
Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **DW-2** Matrix : Water Lab Number : 87193-14
Sample Date :01/22/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	< 1.0	1.0	mg/L	EPA 300.0	01/23/14 00:12
Sulfate	< 5.0	5.0	mg/L	EPA 300.0	01/23/14 00:12
Hexavalent Chromium	< 1.0	1.0	ug/L	EPA 7199	01/22/14 20:42
Ferrous Iron	**0.47**	0.10	mg/L	SM 3500-Fe D	01/22/14 21:11
Arsenic, Dissolved	< 0.015	0.015	mg/L	EPA 6010B	01/28/14 13:18
Chromium, Dissolved	< 0.0050	0.0050	mg/L	EPA 6010B	01/28/14 13:18
Iron, Dissolved	**0.99**	0.10	mg/L	EPA 6010B	01/28/14 13:18
Manganese, Dissolved	**2.4**	0.0050	mg/L	EPA 6010B	01/28/14 13:18
Sodium, Dissolved	**75**	0.50	mg/L	EPA 6010B	01/28/14 13:18
Benzene	**490**	0.90	ug/L	EPA 8260B	01/23/14 22:15
Toluene	**14**	0.90	ug/L	EPA 8260B	01/23/14 22:15
Ethylbenzene	**55**	0.90	ug/L	EPA 8260B	01/23/14 22:15
Total Xylenes	**15**	0.90	ug/L	EPA 8260B	01/23/14 22:15
Methyl-t-butyl ether (MTBE)	**150**	0.90	ug/L	EPA 8260B	01/23/14 22:15
Diisopropyl ether (DIPE)	< 0.90	0.90	ug/L	EPA 8260B	01/23/14 22:15
Ethyl-t-butyl ether (ETBE)	< 0.90	0.90	ug/L	EPA 8260B	01/23/14 22:15
Tert-amyl methyl ether (TAME)	**1.9**	0.90	ug/L	EPA 8260B	01/23/14 22:15
Tert-Butanol	**380**	5.0	ug/L	EPA 8260B	01/23/14 22:15
Methanol	< 300	300	ug/L	EPA 8260B	01/23/14 22:15
Ethanol	< 9.0	9.0	ug/L	EPA 8260B	01/23/14 22:15
TPH as Gasoline	**8500**	150	ug/L	EPA 8260B	01/24/14 21:32
1,2-Dichloroethane	< 0.90	0.90	ug/L	EPA 8260B	01/23/14 22:15
1,2-Dibromoethane	< 0.90	0.90	ug/L	EPA 8260B	01/23/14 22:15
1,2-Dichloroethane-d4 (Surr)	93.8		% Recovery	EPA 8260B	01/23/14 22:15
Toluene - d8 (Surr)	93.2		% Recovery	EPA 8260B	01/23/14 22:15

KIFF Analytical LLC

Report Number : 87193
Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **MW-11** Matrix : Water Lab Number : 87193-15
Sample Date :01/22/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	< 1.0	1.0	mg/L	EPA 300.0	01/23/14 11:48
Sulfate	**100**	5.0	mg/L	EPA 300.0	01/23/14 11:48
Hexavalent Chromium	< 1.0	1.0	ug/L	EPA 7199	01/23/14 10:32
Ferrous Iron	**0.11**	0.10	mg/L	SM 3500-Fe D	01/23/14 10:57
Arsenic, Dissolved	**0.029**	0.015	mg/L	EPA 6010B	01/29/14 10:15
Chromium, Dissolved	< 0.0050	0.0050	mg/L	EPA 6010B	01/29/14 10:15
Iron, Dissolved	**0.12**	0.10	mg/L	EPA 6010B	01/29/14 10:15
Manganese, Dissolved	**0.54**	0.0050	mg/L	EPA 6010B	01/29/14 10:15
Sodium, Dissolved	**850**	5.0	mg/L	EPA 6010B	01/29/14 11:08
Benzene	**44**	1.5	ug/L	EPA 8260B	01/23/14 23:20
Toluene	**45**	1.5	ug/L	EPA 8260B	01/23/14 23:20
Ethylbenzene	**390**	1.5	ug/L	EPA 8260B	01/23/14 23:20
Total Xylenes	**910**	1.5	ug/L	EPA 8260B	01/23/14 23:20
Methyl-t-butyl ether (MTBE)	< 1.5	1.5	ug/L	EPA 8260B	01/23/14 23:20
Diisopropyl ether (DIPE)	< 1.5	1.5	ug/L	EPA 8260B	01/23/14 23:20
Ethyl-t-butyl ether (ETBE)	< 1.5	1.5	ug/L	EPA 8260B	01/23/14 23:20
Tert-amyl methyl ether (TAME)	< 1.5	1.5	ug/L	EPA 8260B	01/23/14 23:20
Tert-Butanol	**7.7**	7.0	ug/L	EPA 8260B	01/23/14 23:20
Methanol	< 150	150	ug/L	EPA 8260B	01/23/14 23:20
Ethanol	< 15	15	ug/L	EPA 8260B	01/23/14 23:20
TPH as Gasoline	**15000**	250	ug/L	EPA 8260B	01/24/14 22:36
1,2-Dichloroethane	< 1.5	1.5	ug/L	EPA 8260B	01/23/14 23:20
1,2-Dibromoethane	< 1.5	1.5	ug/L	EPA 8260B	01/23/14 23:20
1,2-Dichloroethane-d4 (Surr)	95.1		% Recovery	EPA 8260B	01/23/14 23:20
Toluene - d8 (Surr)	93.6		% Recovery	EPA 8260B	01/23/14 23:20

KIFF Analytical LLC

Report Number : 87193
Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **MW-2** Matrix : Water Lab Number : 87193-16
Sample Date :01/22/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	< 0.50	0.50	mg/L	EPA 300.0	01/23/14 00:23
Sulfate	**61**	2.5	mg/L	EPA 300.0	01/23/14 00:23
Hexavalent Chromium	< 1.0	1.0	ug/L	EPA 7199	01/22/14 20:48
Ferrous Iron	**0.59**	0.10	mg/L	SM 3500-Fe D	01/22/14 21:11
Arsenic, Dissolved	< 0.015	0.015	mg/L	EPA 6010B	01/29/14 10:27
Chromium, Dissolved	< 0.0050	0.0050	mg/L	EPA 6010B	01/29/14 10:27
Iron, Dissolved	**1.2**	0.10	mg/L	EPA 6010B	01/29/14 10:27
Manganese, Dissolved	**2.9**	0.0050	mg/L	EPA 6010B	01/29/14 10:27
Sodium, Dissolved	**54**	0.50	mg/L	EPA 6010B	01/29/14 10:27
Benzene	**140**	0.50	ug/L	EPA 8260B	01/24/14 21:50
Toluene	**9.0**	0.50	ug/L	EPA 8260B	01/24/14 21:50
Ethylbenzene	**68**	0.50	ug/L	EPA 8260B	01/24/14 21:50
Total Xylenes	**92**	0.50	ug/L	EPA 8260B	01/24/14 21:50
Methyl-t-butyl ether (MTBE)	**43**	0.50	ug/L	EPA 8260B	01/24/14 21:50
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/24/14 21:50
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/24/14 21:50
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/24/14 21:50
Tert-Butanol	**36**	5.0	ug/L	EPA 8260B	01/24/14 21:50
Methanol	< 50	50	ug/L	EPA 8260B	01/24/14 21:50
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	01/24/14 21:50
TPH as Gasoline	**3000**	50	ug/L	EPA 8260B	01/24/14 21:50
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/24/14 21:50
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/24/14 21:50
1,2-Dichloroethane-d4 (Surr)	95.0		% Recovery	EPA 8260B	01/24/14 21:50
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	01/24/14 21:50

KIFF Analytical LLC

Report Number : 87193
Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **MW-6** Matrix : Water Lab Number : 87193-17
Sample Date :01/22/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	< 1.0	1.0	mg/L	EPA 300.0	01/23/14 00:35
Sulfate	< 5.0	5.0	mg/L	EPA 300.0	01/23/14 00:35
Hexavalent Chromium	< 1.0	1.0	ug/L	EPA 7199	01/22/14 20:55
Ferrous Iron	**0.82**	0.10	mg/L	SM 3500-Fe D	01/22/14 21:12
Arsenic, Dissolved	< 0.015	0.015	mg/L	EPA 6010B	01/29/14 10:32
Chromium, Dissolved	< 0.0050	0.0050	mg/L	EPA 6010B	01/29/14 10:32
Iron, Dissolved	**1.2**	0.10	mg/L	EPA 6010B	01/29/14 10:32
Manganese, Dissolved	**2.1**	0.0050	mg/L	EPA 6010B	01/29/14 10:32
Sodium, Dissolved	**68**	0.50	mg/L	EPA 6010B	01/29/14 10:32
Benzene	**1100**	2.5	ug/L	EPA 8260B	01/24/14 02:02
Toluene	**37**	2.5	ug/L	EPA 8260B	01/24/14 02:02
Ethylbenzene	**120**	2.5	ug/L	EPA 8260B	01/24/14 02:02
Total Xylenes	**52**	2.5	ug/L	EPA 8260B	01/24/14 02:02
Methyl-t-butyl ether (MTBE)	**110**	2.5	ug/L	EPA 8260B	01/24/14 02:02
Diisopropyl ether (DIPE)	< 2.5	2.5	ug/L	EPA 8260B	01/24/14 02:02
Ethyl-t-butyl ether (ETBE)	< 2.5	2.5	ug/L	EPA 8260B	01/24/14 02:02
Tert-amyl methyl ether (TAME)	< 2.5	2.5	ug/L	EPA 8260B	01/24/14 02:02
Tert-Butanol	**190**	15	ug/L	EPA 8260B	01/24/14 02:02
Methanol	< 250	250	ug/L	EPA 8260B	01/24/14 02:02
Ethanol	< 25	25	ug/L	EPA 8260B	01/24/14 02:02
TPH as Gasoline	**15000**	250	ug/L	EPA 8260B	01/24/14 02:02
1,2-Dichloroethane	< 2.5	2.5	ug/L	EPA 8260B	01/24/14 02:02
1,2-Dibromoethane	< 2.5	2.5	ug/L	EPA 8260B	01/24/14 02:02
1,2-Dichloroethane-d4 (Surr)	97.9		% Recovery	EPA 8260B	01/24/14 02:02
Toluene - d8 (Surr)	95.0		% Recovery	EPA 8260B	01/24/14 02:02

KIFF Analytical LLC

Report Number : 87193
Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **DW-7** Matrix : Water Lab Number : 87193-18
Sample Date :01/22/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	< 1.0	1.0	mg/L	EPA 300.0	01/23/14 11:57
Sulfate	**20**	5.0	mg/L	EPA 300.0	01/23/14 11:57
Hexavalent Chromium	< 1.0	1.0	ug/L	EPA 7199	01/23/14 10:39
Ferrous Iron	**0.23**	0.10	mg/L	SM 3500-Fe D	01/23/14 11:00
Arsenic, Dissolved	< 0.015	0.015	mg/L	EPA 6010B	01/29/14 10:37
Chromium, Dissolved	< 0.0050	0.0050	mg/L	EPA 6010B	01/29/14 10:37
Iron, Dissolved	**0.61**	0.10	mg/L	EPA 6010B	01/29/14 10:37
Manganese, Dissolved	**2.4**	0.0050	mg/L	EPA 6010B	01/29/14 10:37
Sodium, Dissolved	**100**	0.50	mg/L	EPA 6010B	01/29/14 10:37
Benzene	**380**	1.5	ug/L	EPA 8260B	01/24/14 00:57
Toluene	**15**	1.5	ug/L	EPA 8260B	01/24/14 00:57
Ethylbenzene	**430**	1.5	ug/L	EPA 8260B	01/24/14 00:57
Total Xylenes	**200**	1.5	ug/L	EPA 8260B	01/24/14 00:57
Methyl-t-butyl ether (MTBE)	**77**	1.5	ug/L	EPA 8260B	01/24/14 00:57
Diisopropyl ether (DIPE)	< 1.5	1.5	ug/L	EPA 8260B	01/24/14 00:57
Ethyl-t-butyl ether (ETBE)	< 1.5	1.5	ug/L	EPA 8260B	01/24/14 00:57
Tert-amyl methyl ether (TAME)	< 1.5	1.5	ug/L	EPA 8260B	01/24/14 00:57
Tert-Butanol	**230**	7.0	ug/L	EPA 8260B	01/24/14 00:57
Methanol	< 150	150	ug/L	EPA 8260B	01/24/14 00:57
Ethanol	< 15	15	ug/L	EPA 8260B	01/24/14 00:57
TPH as Gasoline	**15000**	250	ug/L	EPA 8260B	01/24/14 23:09
1,2-Dichloroethane	< 1.5	1.5	ug/L	EPA 8260B	01/24/14 00:57
1,2-Dibromoethane	< 1.5	1.5	ug/L	EPA 8260B	01/24/14 00:57
1,2-Dichloroethane-d4 (Surr)	95.1		% Recovery	EPA 8260B	01/24/14 00:57
Toluene - d8 (Surr)	92.2		% Recovery	EPA 8260B	01/24/14 00:57

KIFF Analytical LLC

Report Number : 87193
Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **DW-8** Matrix : Water Lab Number : 87193-19
Sample Date :01/22/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	< 2.0	2.0	mg/L	EPA 300.0	01/23/14 12:07
Sulfate	< 10	10	mg/L	EPA 300.0	01/23/14 12:07
Hexavalent Chromium	< 1.0	1.0	ug/L	EPA 7199	01/23/14 10:46
Ferrous Iron	**0.11**	0.10	mg/L	SM 3500-Fe D	01/23/14 11:00
Arsenic, Dissolved	< 0.015	0.015	mg/L	EPA 6010B	01/29/14 10:42
Chromium, Dissolved	< 0.0050	0.0050	mg/L	EPA 6010B	01/29/14 10:42
Iron, Dissolved	**1.8**	0.10	mg/L	EPA 6010B	01/29/14 10:42
Manganese, Dissolved	**3.0**	0.0050	mg/L	EPA 6010B	01/29/14 10:42
Sodium, Dissolved	**110**	0.50	mg/L	EPA 6010B	01/29/14 10:42
Benzene	**1100**	7.0	ug/L	EPA 8260B	01/25/14 00:13
Toluene	**1200**	7.0	ug/L	EPA 8260B	01/25/14 00:13
Ethylbenzene	**1200**	7.0	ug/L	EPA 8260B	01/25/14 00:13
Total Xylenes	**4300**	7.0	ug/L	EPA 8260B	01/25/14 00:13
Methyl-t-butyl ether (MTBE)	< 7.0	7.0	ug/L	EPA 8260B	01/25/14 00:13
Diisopropyl ether (DIPE)	< 7.0	7.0	ug/L	EPA 8260B	01/25/14 00:13
Ethyl-t-butyl ether (ETBE)	< 7.0	7.0	ug/L	EPA 8260B	01/25/14 00:13
Tert-amyl methyl ether (TAME)	< 7.0	7.0	ug/L	EPA 8260B	01/25/14 00:13
Tert-Butanol	< 40	40	ug/L	EPA 8260B	01/25/14 00:13
Methanol	< 700	700	ug/L	EPA 8260B	01/25/14 00:13
Ethanol	< 70	70	ug/L	EPA 8260B	01/25/14 00:13
TPH as Gasoline	**40000**	700	ug/L	EPA 8260B	01/25/14 00:13
1,2-Dichloroethane	< 7.0	7.0	ug/L	EPA 8260B	01/25/14 00:13
1,2-Dibromoethane	< 7.0	7.0	ug/L	EPA 8260B	01/25/14 00:13
1,2-Dichloroethane-d4 (Surr)	101		% Recovery	EPA 8260B	01/25/14 00:13
Toluene - d8 (Surr)	97.6		% Recovery	EPA 8260B	01/25/14 00:13

KIFF Analytical LLC

Report Number : 87193
Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **DW-9** Matrix : Water Lab Number : 87193-20
Sample Date :01/22/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	< 1.0	1.0	mg/L	EPA 300.0	01/23/14 01:09
Sulfate	< 5.0	5.0	mg/L	EPA 300.0	01/23/14 01:09
Hexavalent Chromium	< 1.0	1.0	ug/L	EPA 7199	01/22/14 21:15
Ferrous Iron	< 0.10	0.10	mg/L	SM 3500-Fe D	01/22/14 21:12
Arsenic, Dissolved	< 0.015	0.015	mg/L	EPA 6010B	01/29/14 10:46
Chromium, Dissolved	< 0.0050	0.0050	mg/L	EPA 6010B	01/29/14 10:46
Iron, Dissolved	**0.84**	0.10	mg/L	EPA 6010B	01/29/14 10:46
Manganese, Dissolved	**2.3**	0.0050	mg/L	EPA 6010B	01/29/14 10:46
Sodium, Dissolved	**64**	0.50	mg/L	EPA 6010B	01/29/14 10:46
Benzene	**180**	1.5	ug/L	EPA 8260B	01/24/14 01:30
Toluene	**6.7**	1.5	ug/L	EPA 8260B	01/24/14 01:30
Ethylbenzene	**200**	1.5	ug/L	EPA 8260B	01/24/14 01:30
Total Xylenes	**65**	1.5	ug/L	EPA 8260B	01/24/14 01:30
Methyl-t-butyl ether (MTBE)	**27**	1.5	ug/L	EPA 8260B	01/24/14 01:30
Diisopropyl ether (DIPE)	< 1.5	1.5	ug/L	EPA 8260B	01/24/14 01:30
Ethyl-t-butyl ether (ETBE)	< 1.5	1.5	ug/L	EPA 8260B	01/24/14 01:30
Tert-amyl methyl ether (TAME)	< 1.5	1.5	ug/L	EPA 8260B	01/24/14 01:30
Tert-Butanol	**77**	7.0	ug/L	EPA 8260B	01/24/14 01:30
Methanol	< 150	150	ug/L	EPA 8260B	01/24/14 01:30
Ethanol	< 15	15	ug/L	EPA 8260B	01/24/14 01:30
TPH as Gasoline	**14000**	250	ug/L	EPA 8260B	01/24/14 23:41
1,2-Dichloroethane	< 1.5	1.5	ug/L	EPA 8260B	01/24/14 01:30
1,2-Dibromoethane	< 1.5	1.5	ug/L	EPA 8260B	01/24/14 01:30
1,2-Dichloroethane-d4 (Surr)	95.3		% Recovery	EPA 8260B	01/24/14 01:30
Toluene - d8 (Surr)	93.4		% Recovery	EPA 8260B	01/24/14 01:30

KIFF Analytical LLC

Report Number : 87193
Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **IP-8** Matrix : Water Lab Number : 87193-21
Sample Date :01/22/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	< 1.0	1.0	mg/L	EPA 300.0	01/23/14 01:20
Sulfate	**840**	50	mg/L	EPA 300.0	01/28/14 13:07
Hexavalent Chromium	**9.7**	1.0	ug/L	EPA 7199	01/22/14 21:22
Ferrous Iron	< 0.10	0.10	mg/L	SM 3500-Fe D	01/22/14 21:13
Arsenic, Dissolved	**0.21**	0.015	mg/L	EPA 6010B	01/29/14 10:50
Chromium, Dissolved	**0.010**	0.0050	mg/L	EPA 6010B	01/29/14 10:50
Iron, Dissolved	< 0.10	0.10	mg/L	EPA 6010B	01/29/14 10:50
Manganese, Dissolved	**0.043**	0.0050	mg/L	EPA 6010B	01/29/14 10:50
Sodium, Dissolved	**3600**	50	mg/L	EPA 6010B	01/29/14 11:20
Benzene	**550**	4.0	ug/L	EPA 8260B	01/24/14 23:56
Toluene	**1600**	4.0	ug/L	EPA 8260B	01/24/14 23:56
Ethylbenzene	**560**	4.0	ug/L	EPA 8260B	01/24/14 23:56
Total Xylenes	**4200**	4.0	ug/L	EPA 8260B	01/24/14 23:56
Methyl-t-butyl ether (MTBE)	< 4.0	4.0	ug/L	EPA 8260B	01/24/14 23:56
Diisopropyl ether (DIPE)	< 4.0	4.0	ug/L	EPA 8260B	01/24/14 23:56
Ethyl-t-butyl ether (ETBE)	< 4.0	4.0	ug/L	EPA 8260B	01/24/14 23:56
Tert-amyl methyl ether (TAME)	< 4.0	4.0	ug/L	EPA 8260B	01/24/14 23:56
Tert-Butanol	**22**	20	ug/L	EPA 8260B	01/24/14 23:56
Methanol	< 400	400	ug/L	EPA 8260B	01/24/14 23:56
Ethanol	< 40	40	ug/L	EPA 8260B	01/24/14 23:56
TPH as Gasoline	**41000**	900	ug/L	EPA 8260B	01/27/14 21:19
1,2-Dichloroethane	< 4.0	4.0	ug/L	EPA 8260B	01/24/14 23:56
1,2-Dibromoethane	< 4.0	4.0	ug/L	EPA 8260B	01/24/14 23:56
1,2-Dichloroethane-d4 (Surr)	93.6		% Recovery	EPA 8260B	01/24/14 23:56
Toluene - d8 (Surr)	99.8		% Recovery	EPA 8260B	01/24/14 23:56

KIFF Analytical LLC

Report Number : 87193
Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **DW-5** Matrix : Water Lab Number : 87193-22
Sample Date :01/22/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	< 2.0	2.0	mg/L	EPA 300.0	01/23/14 12:28
Sulfate	**60**	10	mg/L	EPA 300.0	01/23/14 12:28
Hexavalent Chromium	< 1.0	1.0	ug/L	EPA 7199	01/23/14 10:53
Ferrous Iron	< 0.10	0.10	mg/L	SM 3500-Fe D	01/23/14 11:03
Arsenic, Dissolved	< 0.015	0.015	mg/L	EPA 6010B	01/29/14 10:55
Chromium, Dissolved	< 0.0050	0.0050	mg/L	EPA 6010B	01/29/14 10:55
Iron, Dissolved	< 0.10	0.10	mg/L	EPA 6010B	01/29/14 10:55
Manganese, Dissolved	**1.2**	0.0050	mg/L	EPA 6010B	01/29/14 10:55
Sodium, Dissolved	**250**	0.50	mg/L	EPA 6010B	01/29/14 10:55
Benzene	**66**	2.5	ug/L	EPA 8260B	01/27/14 15:07
Toluene	**6.1**	2.5	ug/L	EPA 8260B	01/27/14 15:07
Ethylbenzene	**440**	2.5	ug/L	EPA 8260B	01/27/14 15:07
Total Xylenes	**470**	2.5	ug/L	EPA 8260B	01/27/14 15:07
Methyl-t-butyl ether (MTBE)	< 2.5	2.5	ug/L	EPA 8260B	01/27/14 15:07
Diisopropyl ether (DIPE)	< 2.5	2.5	ug/L	EPA 8260B	01/27/14 15:07
Ethyl-t-butyl ether (ETBE)	< 2.5	2.5	ug/L	EPA 8260B	01/27/14 15:07
Tert-amyl methyl ether (TAME)	< 2.5	2.5	ug/L	EPA 8260B	01/27/14 15:07
Tert-Butanol	< 15	15	ug/L	EPA 8260B	01/27/14 15:07
Methanol	< 400	400	ug/L	EPA 8260B	01/25/14 00:28
Ethanol	< 40	40	ug/L	EPA 8260B	01/25/14 00:28
TPH as Gasoline	**17000**	250	ug/L	EPA 8260B	01/27/14 15:07
1,2-Dichloroethane	< 2.5	2.5	ug/L	EPA 8260B	01/27/14 15:07
1,2-Dibromoethane	< 2.5	2.5	ug/L	EPA 8260B	01/27/14 15:07
1,2-Dichloroethane-d4 (Surr)	98.8		% Recovery	EPA 8260B	01/27/14 15:07
Toluene - d8 (Surr)	98.1		% Recovery	EPA 8260B	01/27/14 15:07

KIFF Analytical LLC

Report Number : 87193
Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**
Project Number : **01LV**

Sample : **IP-1** Matrix : Water Lab Number : 87193-23
Sample Date :01/22/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Nitrate as N	< 1.0	1.0	mg/L	EPA 300.0	01/23/14 01:32
Sulfate	**680**	50	mg/L	EPA 300.0	01/28/14 13:18
Ferrous Iron	< 0.10	0.10	mg/L	SM 3500-Fe D	01/22/14 21:13
Hexavalent Chromium	**1.1**	1.0	ug/L	EPA 7199	01/22/14 21:29
Arsenic, Dissolved	**0.20**	0.015	mg/L	EPA 6010B	01/29/14 10:59
Chromium, Dissolved	**0.0065**	0.0050	mg/L	EPA 6010B	01/29/14 10:59
Iron, Dissolved	**0.27**	0.10	mg/L	EPA 6010B	01/29/14 10:59
Manganese, Dissolved	**0.031**	0.0050	mg/L	EPA 6010B	01/29/14 10:59
Sodium, Dissolved	**2600**	50	mg/L	EPA 6010B	01/29/14 11:24
Benzene	**190**	0.90	ug/L	EPA 8260B	01/24/14 22:53
Toluene	**280**	0.90	ug/L	EPA 8260B	01/24/14 22:53
Ethylbenzene	**460**	0.90	ug/L	EPA 8260B	01/24/14 22:53
Total Xylenes	**1600**	4.0	ug/L	EPA 8260B	01/27/14 19:30
Methyl-t-butyl ether (MTBE)	< 0.90	0.90	ug/L	EPA 8260B	01/24/14 22:53
Diisopropyl ether (DIPE)	< 0.90	0.90	ug/L	EPA 8260B	01/24/14 22:53
Ethyl-t-butyl ether (ETBE)	< 0.90	0.90	ug/L	EPA 8260B	01/24/14 22:53
Tert-amyl methyl ether (TAME)	< 0.90	0.90	ug/L	EPA 8260B	01/24/14 22:53
Tert-Butanol	**20**	5.0	ug/L	EPA 8260B	01/24/14 22:53
Methanol	< 90	90	ug/L	EPA 8260B	01/24/14 22:53
Ethanol	< 10	10	ug/L	EPA 8260B	01/24/14 22:53
TPH as Gasoline	**16000**	400	ug/L	EPA 8260B	01/27/14 19:30
1,2-Dichloroethane	< 0.90	0.90	ug/L	EPA 8260B	01/24/14 22:53
1,2-Dibromoethane	< 0.90	0.90	ug/L	EPA 8260B	01/24/14 22:53
1,2-Dichloroethane-d4 (Surr)	92.5		% Recovery	EPA 8260B	01/24/14 22:53
Toluene - d8 (Surr)	94.9		% Recovery	EPA 8260B	01/24/14 22:53

Report Number : 87193

Date : 01/29/2014

QC Report : Method Blank Data

Project Name : **Tesoro - Livermore #67076**

Project Number : **01LV**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Arsenic, Dissolved	< 0.015	0.015	mg/L	EPA 6010B	01/27/2014
Chromium, Dissolved	< 0.0050	0.0050	mg/L	EPA 6010B	01/27/2014
Iron, Dissolved	< 0.10	0.10	mg/L	EPA 6010B	01/27/2014
Manganese, Dissolved	< 0.0050	0.0050	mg/L	EPA 6010B	01/27/2014
Sodium, Dissolved	< 0.50	0.50	mg/L	EPA 6010B	01/27/2014
Arsenic, Dissolved	< 0.015	0.015	mg/L	EPA 6010B	01/29/2014
Chromium, Dissolved	< 0.0050	0.0050	mg/L	EPA 6010B	01/29/2014
Iron, Dissolved	< 0.10	0.10	mg/L	EPA 6010B	01/29/2014
Manganese, Dissolved	< 0.0050	0.0050	mg/L	EPA 6010B	01/29/2014
Sodium, Dissolved	< 0.50	0.50	mg/L	EPA 6010B	01/29/2014
Benzene	< 0.50	0.50	ug/L	EPA 8260B	01/27/2014
Toluene	< 0.50	0.50	ug/L	EPA 8260B	01/27/2014
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	01/27/2014
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	01/27/2014
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	01/27/2014
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/27/2014
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/27/2014
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/27/2014
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	01/27/2014
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	01/27/2014
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/27/2014
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/27/2014
1,2-Dichloroethane-d4 (Surr)	105		%	EPA 8260B	01/27/2014
Toluene - d8 (Surr)	101		%	EPA 8260B	01/27/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
Toluene	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	01/23/2014
Methanol	< 50	50	ug/L	EPA 8260B	01/23/2014
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	01/23/2014
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	01/23/2014
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
1,2-Dichloroethane-d4 (Surr)	100		%	EPA 8260B	01/23/2014
Toluene - d8 (Surr)	102		%	EPA 8260B	01/23/2014
Benzene	< 0.50	0.50	ug/L	EPA 8260B	01/24/2014
Toluene	< 0.50	0.50	ug/L	EPA 8260B	01/24/2014
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	01/24/2014
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	01/24/2014
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	01/24/2014
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/24/2014
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/24/2014
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/24/2014
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	01/24/2014
Methanol	< 50	50	ug/L	EPA 8260B	01/24/2014
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	01/24/2014
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	01/24/2014
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/24/2014
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/24/2014
1,2-Dichloroethane-d4 (Surr)	97.4		%	EPA 8260B	01/24/2014
Toluene - d8 (Surr)	103		%	EPA 8260B	01/24/2014

Report Number : 87193

Date : 01/29/2014

QC Report : Method Blank Data

Project Name : **Tesoro - Livermore #67076**

Project Number : **01LV**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
Toluene	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	01/23/2014
Methanol	< 50	50	ug/L	EPA 8260B	01/23/2014
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	01/23/2014
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	01/23/2014
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
1,2-Dichloroethane-d4 (Surr)	102		%	EPA 8260B	01/23/2014
Toluene - d8 (Surr)	98.8		%	EPA 8260B	01/23/2014
Benzene	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
Toluene	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	01/23/2014
Methanol	< 50	50	ug/L	EPA 8260B	01/23/2014
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	01/23/2014
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	01/23/2014
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/23/2014
1,2-Dichloroethane-d4 (Surr)	101		%	EPA 8260B	01/23/2014
Toluene - d8 (Surr)	98.2		%	EPA 8260B	01/23/2014

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	01/24/2014
Toluene	< 0.50	0.50	ug/L	EPA 8260B	01/24/2014
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	01/24/2014
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	01/24/2014
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	01/24/2014
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	01/24/2014
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	01/24/2014
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	01/24/2014
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	01/24/2014
Methanol	< 50	50	ug/L	EPA 8260B	01/24/2014
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	01/24/2014
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	01/24/2014
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/24/2014
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/24/2014
1,2-Dichloroethane-d4 (Surr)	102		%	EPA 8260B	01/24/2014
Toluene - d8 (Surr)	98.9		%	EPA 8260B	01/24/2014
Hexavalent Chromium	<1.0	1.0	ug/L	EPA 7199	01/22/2014
Ferrous Iron	<0.10	0.10	mg/L	SM 3500-Fe D	01/22/2014
Nitrate as N	<0.10	0.10	mg/L	EPA 300.0	01/22/2014
Sulfate	<0.50	0.50	mg/L	EPA 300.0	01/22/2014

KIFF ANALYTICAL, LLC

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

Report Number : 87193

Date : 01/29/2014

QC Report : Method Blank Data

Project Name : **Tesoro - Livermore #67076**

Project Number : **01LV**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Ferrous Iron	<0.10	0.10	mg/L	SM 3500-Fe D	01/23/2014
Hexavalent Chromium	<1.0	1.0	ug/L	EPA 7199	01/23/2014
Nitrate as N	<0.10	0.10	mg/L	EPA 300.0	01/23/2014
Sulfate	<0.50	0.50	mg/L	EPA 300.0	01/23/2014
Sulfate	<0.50	0.50	mg/L	EPA 300.0	01/28/2014

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 : 87193

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**

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														
	87178-06	15	5.00	5.00	20.0	19.9	ug/L	EPA 7199	1/22/14	106	104	0.422	90.0-110	10
Ferrous Iron														
	87178-06	< 0.10	0.253	0.253	0.239	0.231	mg/L	SM 3500-Fe D	1/22/14	92.6	89.4	3.40	70.0-130	25
Nitrate as N														
	87178-06	1.4	0.500	0.500	1.90	1.91	mg/L	EPA 300.0	1/22/14	103	103	0.106	90.0-110	10
Sulfate														
	87178-06	78	2.50	2.50	80.2	80.3	mg/L	EPA 300.0	1/22/14	**75.5**	**80.9**	0.168	90.0-110	10
Ferrous Iron														
	87193-02	< 0.10	0.253	0.253	0.258	0.317	mg/L	SM 3500-Fe D	1/23/14	98.5	122	20.5	70.0-130	25
Hexavalent Chromium														
	87193-02	< 1.0	5.00	5.00	5.55	5.88	ug/L	EPA 7199	1/23/14	100	107	5.79	90.0-110	10
Nitrate as N														
	87193-02	1.1	0.500	0.500	1.61	1.62	mg/L	EPA 300.0	1/23/14	97.9	100	0.744	90.0-110	10

KIFF ANALYTICAL, LLC

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

Report Number : 87193

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**

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														
	87193-02	64	2.50	2.50	66.3	66.7	mg/L	EPA 300.0	1/23/14	**74.7**	**88.8**	0.530	90.0-110	10
1,2-Dibromoethane														
	87196-04	<0.50	40.1	40.1	44.5	43.6	ug/L	EPA 8260B	1/27/14	111	109	2.14	70.0-130	25
1,2-Dichloroethane														
	87196-04	0.58	39.8	39.8	43.5	43.7	ug/L	EPA 8260B	1/27/14	108	108	0.355	70.0-130	25
Benzene														
	87196-04	<0.50	39.8	39.8	37.3	37.2	ug/L	EPA 8260B	1/27/14	93.9	93.6	0.254	70.0-130	25
Diisopropyl ether														
	87196-04	<0.50	39.8	39.8	39.2	39.2	ug/L	EPA 8260B	1/27/14	98.5	98.7	0.194	70.0-130	25
Ethyl-tert-butyl ether														
	87196-04	<0.50	39.8	39.8	41.3	42.4	ug/L	EPA 8260B	1/27/14	104	106	2.48	70.0-130	25
Ethylbenzene														
	87196-04	<0.50	39.8	39.8	37.7	37.7	ug/L	EPA 8260B	1/27/14	94.8	94.7	0.0274	70.0-130	25
Methyl-t-butyl ether														
	87196-04	14	39.6	39.6	55.9	56.4	ug/L	EPA 8260B	1/27/14	106	107	1.11	70.0-130	25
P + M Xylene														
	87196-04	<0.50	39.8	39.8	37.8	38.2	ug/L	EPA 8260B	1/27/14	95.0	96.2	1.28	70.0-130	25

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

QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Name : **Tesoro - Livermore #67076**

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														
	87196-04	46	199	199	234	230	ug/L	EPA 8260B	1/27/14	94.2	92.6	1.68	70.0-130	25
Tert-amyl-methyl ether														
	87196-04	<0.50	39.8	39.8	43.7	45.5	ug/L	EPA 8260B	1/27/14	110	114	4.11	70.0-130	25
Toluene														
	87196-04	<0.50	39.8	39.8	38.2	38.5	ug/L	EPA 8260B	1/27/14	96.1	96.8	0.782	70.0-130	25
1,2-Dibromoethane														
	87193-02	<0.50	40.3	40.3	38.5	38.0	ug/L	EPA 8260B	1/23/14	95.5	94.4	1.18	70.0-130	25
1,2-Dichloroethane														
	87193-02	<0.50	40.0	40.0	38.5	38.1	ug/L	EPA 8260B	1/23/14	96.3	95.3	1.03	70.0-130	25
Benzene														
	87193-02	<0.50	40.0	40.0	37.3	37.0	ug/L	EPA 8260B	1/23/14	93.3	92.4	0.953	70.0-130	25
Diisopropyl ether														
	87193-02	<0.50	40.0	40.0	39.3	38.8	ug/L	EPA 8260B	1/23/14	98.4	97.0	1.35	70.0-130	25
Ethanol														
	87193-02	<5.0	100	100	95.9	98.5	ug/L	EPA 8260B	1/23/14	95.9	98.5	2.62	55.0-150	25
Ethyl-tert-butyl ether														
	87193-02	<0.50	40.0	40.0	39.3	38.9	ug/L	EPA 8260B	1/23/14	98.3	97.3	1.04	70.0-130	25

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**

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														
	87193-02	<0.50	40.0	40.0	38.2	37.2	ug/L	EPA 8260B	1/23/14	95.6	93.0	2.76	70.0-130	25
Methanol														
	87193-02	<50	1000	1000	915	897	ug/L	EPA 8260B	1/23/14	91.5	89.7	1.91	65.0-150	25
Methyl-t-butyl ether														
	87193-02	<0.50	39.9	39.9	38.8	39.1	ug/L	EPA 8260B	1/23/14	97.4	98.1	0.791	70.0-130	25
P + M Xylene														
	87193-02	<0.50	40.0	40.0	37.8	36.6	ug/L	EPA 8260B	1/23/14	94.4	91.6	2.98	70.0-130	25
Tert-Butanol														
	87193-02	<5.0	200	200	194	193	ug/L	EPA 8260B	1/23/14	97.2	96.5	0.715	70.0-130	25
Tert-amyl-methyl ether														
	87193-02	<0.50	40.0	40.0	40.8	41.2	ug/L	EPA 8260B	1/23/14	102	103	0.905	70.0-130	25
Toluene														
	87193-02	<0.50	40.0	40.0	39.2	38.9	ug/L	EPA 8260B	1/23/14	98.1	97.2	0.873	70.0-130	25
1,2-Dibromoethane														
	87193-07	<0.50	40.3	40.3	35.8	36.0	ug/L	EPA 8260B	1/24/14	88.9	89.3	0.463	70.0-130	25
1,2-Dichloroethane														
	87193-07	<0.50	40.0	40.0	33.9	33.9	ug/L	EPA 8260B	1/24/14	84.7	84.8	0.153	70.0-130	25

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QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**

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														
	87193-07	51	40.0	40.0	86.6	86.2	ug/L	EPA 8260B	1/24/14	88.2	87.4	0.898	70.0-130	25
Diisopropyl ether														
	87193-07	<0.50	40.0	40.0	34.7	35.1	ug/L	EPA 8260B	1/24/14	86.9	87.7	0.924	70.0-130	25
Ethanol														
	87193-07	<5.0	100	100	103	104	ug/L	EPA 8260B	1/24/14	103	104	1.40	55.0-150	25
Ethyl-tert-butyl ether														
	87193-07	<0.50	40.0	40.0	35.0	35.5	ug/L	EPA 8260B	1/24/14	87.6	88.7	1.30	70.0-130	25
Ethylbenzene														
	87193-07	98	40.0	40.0	135	134	ug/L	EPA 8260B	1/24/14	90.6	88.9	1.86	70.0-130	25
Methanol														
	87193-07	<50	1000	1000	862	925	ug/L	EPA 8260B	1/24/14	86.2	92.5	7.05	65.0-150	25
Methyl-t-butyl ether														
	87193-07	12	39.9	39.9	47.0	46.8	ug/L	EPA 8260B	1/24/14	88.0	87.6	0.519	70.0-130	25
P + M Xylene														
	87193-07	90	40.0	40.0	126	125	ug/L	EPA 8260B	1/24/14	92.4	89.2	3.64	70.0-130	25
Tert-Butanol														
	87193-07	11	200	200	197	208	ug/L	EPA 8260B	1/24/14	93.1	98.4	5.54	70.0-130	25
Tert-amyl-methyl ether														
	87193-07	<0.50	40.0	40.0	35.9	35.5	ug/L	EPA 8260B	1/24/14	89.7	88.7	1.16	70.0-130	25

KIFF ANALYTICAL, LLC

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

Report Number : 87193

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**

Project Number : **01LV**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Toluene														
	87193-07	13	40.0	40.0	49.3	49.1	ug/L	EPA 8260B	1/24/14	91.5	90.8	0.708	70.0-130	25
1,2-Dibromoethane														
	87193-04	<0.50	40.3	40.3	41.2	40.8	ug/L	EPA 8260B	1/23/14	102	101	1.03	70.0-130	25
1,2-Dichloroethane														
	87193-04	<0.50	40.0	40.0	40.3	39.7	ug/L	EPA 8260B	1/23/14	101	99.2	1.62	70.0-130	25
Benzene														
	87193-04	<0.50	40.0	40.0	41.6	40.4	ug/L	EPA 8260B	1/23/14	104	101	2.84	70.0-130	25
Diisopropyl ether														
	87193-04	<0.50	40.0	40.0	42.5	42.3	ug/L	EPA 8260B	1/23/14	106	106	0.570	70.0-130	25
Ethanol														
	87193-04	<5.0	100	100	115	117	ug/L	EPA 8260B	1/23/14	115	117	1.04	55.0-150	25
Ethyl-tert-butyl ether														
	87193-04	<0.50	40.0	40.0	42.1	42.2	ug/L	EPA 8260B	1/23/14	105	106	0.240	70.0-130	25
Ethylbenzene														
	87193-04	<0.50	40.0	40.0	42.6	41.7	ug/L	EPA 8260B	1/23/14	106	104	2.15	70.0-130	25
Methanol														
	87193-04	<50	1000	1000	1230	1200	ug/L	EPA 8260B	1/23/14	123	120	3.09	65.0-150	25

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Report Number : 87193

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**

Project Number : **01LV**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Methyl-t-butyl ether														
	87193-04	<0.50	39.9	39.9	41.9	41.9	ug/L	EPA 8260B	1/23/14	105	105	0.0890	70.0-130	25
P + M Xylene														
	87193-04	<0.50	40.0	40.0	42.3	41.4	ug/L	EPA 8260B	1/23/14	106	103	2.15	70.0-130	25
Tert-Butanol														
	87193-04	<5.0	200	200	206	206	ug/L	EPA 8260B	1/23/14	103	103	0.0839	70.0-130	25
Tert-amyl-methyl ether														
	87193-04	<0.50	40.0	40.0	42.8	42.9	ug/L	EPA 8260B	1/23/14	107	107	0.238	70.0-130	25
Toluene														
	87193-04	<0.50	40.0	40.0	42.4	41.1	ug/L	EPA 8260B	1/23/14	106	103	2.91	70.0-130	25
1,2-Dibromoethane														
	87180-02	<0.50	40.3	40.3	40.2	39.4	ug/L	EPA 8260B	1/23/14	99.8	97.9	1.92	70.0-130	25
1,2-Dichloroethane														
	87180-02	0.80	40.0	40.0	40.2	39.4	ug/L	EPA 8260B	1/23/14	98.4	96.6	1.78	70.0-130	25
Benzene														
	87180-02	<0.50	40.0	40.0	40.4	39.2	ug/L	EPA 8260B	1/23/14	101	97.9	3.02	70.0-130	25
Diisopropyl ether														
	87180-02	<0.50	40.0	40.0	41.6	41.3	ug/L	EPA 8260B	1/23/14	104	103	0.835	70.0-130	25

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

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**

Project Number : **01LV**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Ethanol														
	87180-02	<5.0	100	100	111	111	ug/L	EPA 8260B	1/23/14	111	111	0.593	55.0-150	25
Ethyl-tert-butyl ether														
	87180-02	<0.50	40.0	40.0	41.7	41.5	ug/L	EPA 8260B	1/23/14	104	104	0.625	70.0-130	25
Ethylbenzene														
	87180-02	<0.50	40.0	40.0	41.6	40.3	ug/L	EPA 8260B	1/23/14	104	101	3.07	70.0-130	25
Methanol														
	87180-02	69	1000	1000	1230	1210	ug/L	EPA 8260B	1/23/14	116	114	1.39	65.0-150	25
Methyl-t-butyl ether														
	87180-02	61	39.9	39.9	104	104	ug/L	EPA 8260B	1/23/14	108	107	0.733	70.0-130	25
P + M Xylene														
	87180-02	<0.50	40.0	40.0	41.2	40.2	ug/L	EPA 8260B	1/23/14	103	100	2.39	70.0-130	25
Tert-Butanol														
	87180-02	<5.0	200	200	204	200	ug/L	EPA 8260B	1/23/14	102	99.8	2.08	70.0-130	25
Tert-amyl-methyl ether														
	87180-02	<0.50	40.0	40.0	41.8	41.9	ug/L	EPA 8260B	1/23/14	104	105	0.0859	70.0-130	25
Toluene														
	87180-02	<0.50	40.0	40.0	40.8	39.8	ug/L	EPA 8260B	1/23/14	102	99.4	2.62	70.0-130	25

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QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**

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														
	87193-11	<0.50	40.3	40.3	38.9	38.9	ug/L	EPA 8260B	1/24/14	96.5	96.4	0.0450	70.0-130	25
1,2-Dichloroethane														
	87193-11	<0.50	40.0	40.0	38.0	37.6	ug/L	EPA 8260B	1/24/14	95.0	94.0	1.08	70.0-130	25
Benzene														
	87193-11	4.3	40.0	40.0	43.1	42.3	ug/L	EPA 8260B	1/24/14	97.1	95.0	2.14	70.0-130	25
Diisopropyl ether														
	87193-11	<0.50	40.0	40.0	41.1	41.7	ug/L	EPA 8260B	1/24/14	103	104	1.40	70.0-130	25
Ethanol														
	87193-11	<5.0	100	100	114	114	ug/L	EPA 8260B	1/24/14	114	114	0.465	55.0-150	25
Ethyl-tert-butyl ether														
	87193-11	<0.50	40.0	40.0	40.3	41.2	ug/L	EPA 8260B	1/24/14	101	103	1.99	70.0-130	25
Ethylbenzene														
	87193-11	12	40.0	40.0	54.5	52.4	ug/L	EPA 8260B	1/24/14	106	100	5.05	70.0-130	25
Methanol														
	87193-11	<50	1000	1000	1130	1110	ug/L	EPA 8260B	1/24/14	113	111	1.34	65.0-150	25
Methyl-t-butyl ether														
	87193-11	<0.50	39.9	39.9	40.8	41.4	ug/L	EPA 8260B	1/24/14	102	104	1.48	70.0-130	25
P + M Xylene														
	87193-11	2.1	40.0	40.0	44.8	43.2	ug/L	EPA 8260B	1/24/14	107	103	3.79	70.0-130	25

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QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Name : **Tesoro - Livermore #67076**

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														
	87193-11	<5.0	200	200	205	204	ug/L	EPA 8260B	1/24/14	102	102	0.260	70.0-130	25
Tert-amyl-methyl ether														
	87193-11	<0.50	40.0	40.0	39.9	40.5	ug/L	EPA 8260B	1/24/14	99.8	101	1.31	70.0-130	25
Toluene														
	87193-11	1.5	40.0	40.0	40.9	40.2	ug/L	EPA 8260B	1/24/14	98.4	96.7	1.78	70.0-130	25
Arsenic, (Dis)														
	87169-04	< 0.015	0.400	0.400	0.416	0.412	mg/L	EPA 6010B	1/27/14	103	102	1.14	75-125	20
Chromium, (Dis)														
	87169-04	< 0.0050	0.400	0.400	0.392	0.389	mg/L	EPA 6010B	1/27/14	98.0	97.2	0.767	75-125	20
Iron, (Dis)														
	87169-04	< 0.10	0.400	0.400	0.440	0.434	mg/L	EPA 6010B	1/27/14	98.8	97.5	1.21	75-125	20
Manganese, (Dis)														
	87169-04	0.61	0.400	0.400	0.994	0.985	mg/L	EPA 6010B	1/27/14	96.0	93.7	0.940	75-125	20
Sodium, (Dis)														
	87169-04	66	0.400	0.400	66.1	65.5	mg/L	EPA 6010B	1/27/14	**0.00**	**0.00**	0.882	75-125	20
Arsenic, (Dis)														
	87193-13	0.10	0.400	0.400	0.539	0.531	mg/L	EPA 6010B	1/29/14	109	107	1.48	75-125	20

Report Number : 87193

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 01/29/2014

Project Name : **Tesoro - Livermore #67076**

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
Chromium, (Dis)														
	87193-13	0.022	0.400	0.400	0.393	0.390	mg/L	EPA 6010B	1/29/14	92.6	92.0	0.613	75-125	20
Iron, (Dis)														
	87193-13	< 0.10	0.400	0.400	0.457	0.450	mg/L	EPA 6010B	1/29/14	98.0	96.2	1.63	75-125	20
Manganese, (Dis)														
	87193-13	0.014	0.400	0.400	0.392	0.391	mg/L	EPA 6010B	1/29/14	94.4	94.2	0.153	75-125	20
Sodium, (Dis)														
	87193-13	3100	0.400	0.400	3080	2980	mg/L	EPA 6010B	1/29/14	**3500**	**0.00**	3.26	75-125	20
Sulfate														
	87199-01	11	2.50	2.50	12.9	13.0	mg/L	EPA 300.0	1/28/14	90.6	94.2	0.705	90.0-110	10

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QC Report : Laboratory Control Sample (LCS)

Project Name : **Tesoro - Livermore #67076**

Project Number : **01LV**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Arsenic, (Dis)	0.400	mg/L	EPA 6010B	1/27/14	101	85-115
Chromium, (Dis)	0.400	mg/L	EPA 6010B	1/27/14	98.9	85-115
Iron, (Dis)	0.400	mg/L	EPA 6010B	1/27/14	99.2	85-115
Manganese, (Dis)	0.400	mg/L	EPA 6010B	1/27/14	99.4	85-115
Sodium, (Dis)	0.400	mg/L	EPA 6010B	1/27/14	99.5	85-115
Arsenic, (Dis)	0.400	mg/L	EPA 6010B	1/29/14	100	85-115
Chromium, (Dis)	0.400	mg/L	EPA 6010B	1/29/14	97.1	85-115
Iron, (Dis)	0.400	mg/L	EPA 6010B	1/29/14	99.9	85-115
Manganese, (Dis)	0.400	mg/L	EPA 6010B	1/29/14	95.7	85-115
Sodium, (Dis)	0.400	mg/L	EPA 6010B	1/29/14	87.4	85-115
1,2-Dibromoethane	40.3	ug/L	EPA 8260B	1/27/14	109	70.0-130
1,2-Dichloroethane	40.0	ug/L	EPA 8260B	1/27/14	108	70.0-130
Benzene	40.0	ug/L	EPA 8260B	1/27/14	94.3	70.0-130
Diisopropyl ether	40.0	ug/L	EPA 8260B	1/27/14	99.8	70.0-130
Ethyl-tert-butyl ether	40.0	ug/L	EPA 8260B	1/27/14	104	70.0-130
Ethylbenzene	40.0	ug/L	EPA 8260B	1/27/14	96.1	70.0-130
Methyl-t-butyl ether	39.9	ug/L	EPA 8260B	1/27/14	100	70.0-130
P + M Xylene	40.0	ug/L	EPA 8260B	1/27/14	95.9	70.0-130
Tert-Butanol	200	ug/L	EPA 8260B	1/27/14	95.5	70.0-130
Tert-amyl-methyl ether	40.0	ug/L	EPA 8260B	1/27/14	107	70.0-130

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

QC Report : Laboratory Control Sample (LCS)

Project Name : **Tesoro - Livermore #67076**

Project Number : **01LV**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Toluene	40.0	ug/L	EPA 8260B	1/27/14	98.3	70.0-130
1,2-Dibromoethane	40.3	ug/L	EPA 8260B	1/23/14	94.8	70.0-130
1,2-Dichloroethane	40.0	ug/L	EPA 8260B	1/23/14	92.8	70.0-130
Benzene	40.0	ug/L	EPA 8260B	1/23/14	90.9	70.0-130
Diisopropyl ether	40.0	ug/L	EPA 8260B	1/23/14	93.7	70.0-130
Ethanol	100	ug/L	EPA 8260B	1/23/14	90.1	55.0-150
Ethyl-tert-butyl ether	40.0	ug/L	EPA 8260B	1/23/14	92.6	70.0-130
Ethylbenzene	40.0	ug/L	EPA 8260B	1/23/14	94.2	70.0-130
Methanol	1000	ug/L	EPA 8260B	1/23/14	88.9	65.0-150
Methyl-t-butyl ether	39.9	ug/L	EPA 8260B	1/23/14	92.4	70.0-130
P + M Xylene	40.0	ug/L	EPA 8260B	1/23/14	92.6	70.0-130
TPH as Gasoline	489	ug/L	EPA 8260B	1/23/14	103	70.0-130
Tert-Butanol	200	ug/L	EPA 8260B	1/23/14	95.7	70.0-130
Tert-amyl-methyl ether	40.0	ug/L	EPA 8260B	1/23/14	95.7	70.0-130
Toluene	40.0	ug/L	EPA 8260B	1/23/14	96.8	70.0-130
1,2-Dibromoethane	40.3	ug/L	EPA 8260B	1/24/14	94.2	70.0-130
1,2-Dichloroethane	40.0	ug/L	EPA 8260B	1/24/14	90.4	70.0-130
Benzene	40.0	ug/L	EPA 8260B	1/24/14	92.9	70.0-130
Diisopropyl ether	40.0	ug/L	EPA 8260B	1/24/14	93.5	70.0-130
Ethanol	100	ug/L	EPA 8260B	1/24/14	93.4	55.0-150
Ethyl-tert-butyl ether	40.0	ug/L	EPA 8260B	1/24/14	94.4	70.0-130

KIFF ANALYTICAL, LLC

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

QC Report : Laboratory Control Sample (LCS)

Project Name : **Tesoro - Livermore #67076**

Project Number : **01LV**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Ethylbenzene	40.0	ug/L	EPA 8260B	1/24/14	93.7	70.0-130
Methanol	1000	ug/L	EPA 8260B	1/24/14	87.2	65.0-150
Methyl-t-butyl ether	39.9	ug/L	EPA 8260B	1/24/14	93.5	70.0-130
P + M Xylene	40.0	ug/L	EPA 8260B	1/24/14	93.2	70.0-130
TPH as Gasoline	489	ug/L	EPA 8260B	1/24/14	101	70.0-130
Tert-Butanol	200	ug/L	EPA 8260B	1/24/14	95.6	70.0-130
Tert-amyl-methyl ether	40.0	ug/L	EPA 8260B	1/24/14	96.9	70.0-130
Toluene	40.0	ug/L	EPA 8260B	1/24/14	97.4	70.0-130
1,2-Dibromoethane	40.2	ug/L	EPA 8260B	1/23/14	95.2	70.0-130
1,2-Dichloroethane	39.9	ug/L	EPA 8260B	1/23/14	94.1	70.0-130
Benzene	39.9	ug/L	EPA 8260B	1/23/14	96.7	70.0-130
Diisopropyl ether	39.9	ug/L	EPA 8260B	1/23/14	98.4	70.0-130
Ethanol	99.8	ug/L	EPA 8260B	1/23/14	106	55.0-150
Ethyl-tert-butyl ether	39.9	ug/L	EPA 8260B	1/23/14	97.6	70.0-130
Ethylbenzene	39.9	ug/L	EPA 8260B	1/23/14	101	70.0-130
Methanol	998	ug/L	EPA 8260B	1/23/14	117	65.0-150
Methyl-t-butyl ether	39.8	ug/L	EPA 8260B	1/23/14	97.5	70.0-130
P + M Xylene	39.9	ug/L	EPA 8260B	1/23/14	101	70.0-130
TPH as Gasoline	486	ug/L	EPA 8260B	1/23/14	107	70.0-130
Tert-Butanol	200	ug/L	EPA 8260B	1/23/14	96.6	70.0-130
Tert-amyl-methyl ether	39.9	ug/L	EPA 8260B	1/23/14	98.4	70.0-130
Toluene	39.9	ug/L	EPA 8260B	1/23/14	99.2	70.0-130

QC Report : Laboratory Control Sample (LCS)

Project Name : **Tesoro - Livermore #67076**

Project Number : **01LV**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
1,2-Dibromoethane	40.2	ug/L	EPA 8260B	1/23/14	98.2	70.0-130
1,2-Dichloroethane	39.9	ug/L	EPA 8260B	1/23/14	97.2	70.0-130
Benzene	39.9	ug/L	EPA 8260B	1/23/14	100	70.0-130
Diisopropyl ether	39.9	ug/L	EPA 8260B	1/23/14	104	70.0-130
Ethanol	99.8	ug/L	EPA 8260B	1/23/14	106	55.0-150
Ethyl-tert-butyl ether	39.9	ug/L	EPA 8260B	1/23/14	105	70.0-130
Ethylbenzene	39.9	ug/L	EPA 8260B	1/23/14	103	70.0-130
Methanol	998	ug/L	EPA 8260B	1/23/14	114	65.0-150
Methyl-t-butyl ether	39.8	ug/L	EPA 8260B	1/23/14	104	70.0-130
P + M Xylene	39.9	ug/L	EPA 8260B	1/23/14	103	70.0-130
TPH as Gasoline	489	ug/L	EPA 8260B	1/23/14	110	70.0-130
Tert-Butanol	200	ug/L	EPA 8260B	1/23/14	99.9	70.0-130
Tert-amyl-methyl ether	39.9	ug/L	EPA 8260B	1/23/14	105	70.0-130
Toluene	39.9	ug/L	EPA 8260B	1/23/14	101	70.0-130
1,2-Dibromoethane	40.1	ug/L	EPA 8260B	1/24/14	98.3	70.0-130
1,2-Dichloroethane	39.8	ug/L	EPA 8260B	1/24/14	98.5	70.0-130
Benzene	39.8	ug/L	EPA 8260B	1/24/14	99.5	70.0-130
Diisopropyl ether	39.8	ug/L	EPA 8260B	1/24/14	104	70.0-130
Ethanol	99.5	ug/L	EPA 8260B	1/24/14	102	55.0-150
Ethyl-tert-butyl ether	39.8	ug/L	EPA 8260B	1/24/14	104	70.0-130
Ethylbenzene	39.8	ug/L	EPA 8260B	1/24/14	102	70.0-130

KIFF ANALYTICAL, LLC

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

QC Report : Laboratory Control Sample (LCS)

Project Name : **Tesoro - Livermore #67076**

Project Number : **01LV**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Methanol	995	ug/L	EPA 8260B	1/24/14	109	65.0-150
Methyl-t-butyl ether	39.7	ug/L	EPA 8260B	1/24/14	102	70.0-130
P + M Xylene	39.8	ug/L	EPA 8260B	1/24/14	102	70.0-130
TPH as Gasoline	485	ug/L	EPA 8260B	1/24/14	107	70.0-130
Tert-Butanol	199	ug/L	EPA 8260B	1/24/14	100	70.0-130
Tert-amyl-methyl ether	39.8	ug/L	EPA 8260B	1/24/14	105	70.0-130
Toluene	39.8	ug/L	EPA 8260B	1/24/14	101	70.0-130
Hexavalent Chromium	5.00	ug/L	EPA 7199	1/22/14	99.7	90.0-110
Ferrous Iron	0.253	mg/L	SM 3500-Fe D	1/22/14	99.3	70.0-130
Nitrate as N	0.500	mg/L	EPA 300.0	1/22/14	99.5	90.0-110
Sulfate	2.50	mg/L	EPA 300.0	1/22/14	100	90.0-110
Ferrous Iron	0.253	mg/L	SM 3500-Fe D	1/23/14	97.7	70.0-130
Hexavalent Chromium	5.00	ug/L	EPA 7199	1/23/14	96.6	90.0-110
Nitrate as N	0.500	mg/L	EPA 300.0	1/23/14	105	90.0-110
Sulfate	2.50	mg/L	EPA 300.0	1/23/14	106	90.0-110

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

QC Report : Laboratory Control Sample (LCS)

Project Name : **Tesoro - Livermore #67076**

Project Number : **01LV**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Sulfate	2.50	mg/L	EPA 300.0	1/28/14	102	90.0-110

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

87193

Confluence Environmental, Inc.
3308 El Camino Ave, Suite 300 #148
Sacramento, CA 95821
916-760-7641 - main
916-473-8617 - fax
www.confluence-env.com

Chain of Custody

Project Name: Tesoro - Livermore #67076

Job Number: P1-140121

TAT: (STANDARD) 5 DAY 2 DAY 24 HOUR OTHER:

Lab: **Kiff**	Site Address: 1619 1st St, Livermore	Confluence PM: Jason Brown
Address: 2795 2nd St, Suite 300, Davis CA 95616	California Global ID No.: TO600101410	Phone / Fax: 916-760-7641 / 916-473-8617
Contact: Troy Turpen	Include EDF w/ Report: (Yes) No	Confluence Log Code: **CESC**
Phone/ Fax: 530-297-4800 x.111	Consultant / PM: Orion / Mike Purchase	Report to: Mike Purchase
	Phone / Fax: 510-525-2180 / 510-525-2392	Invoice to: Mike Purchase

	Sample ID	Time	Date	Matrix: Soil/Solid	Matrix: Water/Liquid	Matrix: Air	Laboratory No.	No. of Containers	Preservative: Unpreserved	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: HCl	Preservative: NaOH	Requested Analysis: TPH-G, BTEX (8260)	Requested Analysis: Oxygenates(7) & Lead Scavengers (8260)	Requested Analysis: Ferrous Iron (SM 3500-Fe-D)	Requested Analysis: Hexavalent Chromium (7199)	Requested Analysis: Nitrate & Sulfate (300)	Requested Analysis: Total Alkalinity (SM2320B)	Requested Analysis: Metals by ICP (6010B)*	Requested Analysis: Methane (RSK 175M)	Requested Analysis: Carbon Dioxide (RSK 175M)	Requested Analysis: TDS (2540C)	Notes and Comments	
	MW-3	0725	1-22-14		X			3						X	X										01
	MW-8	1350						12	6		1			X	X	X	X	X	X	X	X	X	X		02
	MW-2	0710						3						X	X										03
	VW-3	0730						3						X	X										04
	DW-3	0710						12	6		1			X	X	X	X	X	X	X	X	X	X		05
	MW-7	0815												X	X	X	X	X	X	X	X	X	X		06
	[redacted]-1	0905												X	X	X	X	X	X	X	X	X	X		07
	IP-10	1330												X	X	X	X	X	X	X	X	X	X		08
	MW-9	0815						2	2		2			X	X	X	X	X	X	X	X	X	X		09
	TP-1	0315						3						X	X	[redacted]									10

Sampler's Name: Matt Postoni	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Confluence Environmental		1-22-14	1435			
Shipment Date:						
Shipment Method:				[redacted] Kiff Analytical	1-22-14	1515

Special Instructions: *Metals list to include: Fe, Cr, Na, As & Mn; Metals samples have been filtered in the field

87193

Page 2 of 3

Confluence Environmental, Inc.
3308 El Camino Ave, Suite 300 #148
Sacramento, CA 95821
916-760-7641 - main
916-473-8617 - fax
www.confluence-env.com

Chain of Custody

Project Name: Tesoro - Livermore #67076

Job Number: P1-k1021

TAT: (STANDARD) 5 DAY 2 DAY 24 HOUR OTHER:

Lab: **Kiff**	Site Address: 1619 1st St, Livermore	Confluence PM: Jason Brown
Address: 2795 2nd St, Suite 300, Davis CA 95616	California Global ID No.: TQ600101410	Phone / Fax: 916-760-7641 / 916-473-8617
Contact: Troy Turpen	Include EDF w/ Report: (Yes) No	Confluence Log Code: **CESC**
Phone/ Fax: 530-297-4800 x.111	Consultant / PM: Orion / Mike Purchase	Report to: Mike Purchase
	Phone / Fax: 510-525-2180 / 510-525-2392	Invoice to: Mike Purchase

	Sample ID	Time	Date	Matrix: Soil/Solid	Matrix: Water/Liquid	Matrix: Air	Laboratory No.	No. of Containers	Preservative: Unpreserved	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: HCl	Preservative: NaOH	Requested Analysis: TPH-G, BTEX (8260)	Oxygenates(7) & Lead Scavengers (8260)	Ferrous Iron (SM 3500-Fe-D)	Hexavalent Chromium (7199)	Nitrate & Sulfate (300)	Total Alkalinity (SM2320B)	Metals by ICP (6010B)*	Methane (RSK 175M)	Carbon Dioxide (RSK 175M)	TDS (2540C)	Notes and Comments	
	MW-12	0910	1-22-14		X			12	6		1	5		X	X	X	X	X	X	X	X	X	X		11
	DW-6	1015	"		"			"	"		"	"		X	X	X	X	X	X	X	X	X	X		12
	IP-9	0845	"		"			"	"		"	"		X	X	X	X	X	X	X	X	X	X		13
	DW-2	1100	"		"			"	"		"	"		X	X	X	X	X	X	X	X	X	X		14
	MW-11	1300	"		"			"	"		"	"		X	X	X	X	X	X	X	X	X	X		15
	MW-2	0940	"		"			"	"		"	"		X	X	X	X	X	X	X	X	X	X		16
	MW-6	1130	"		"			"	"		"	"		X	X	X	X	X	X	X	X	X	X		17
	DW-7	1210	"		"			"	"		"	"		X	X	X	X	X	X	X	X	X	X		18
	DW-8	1430	"		"			"	"		"	"		X	X	X	X	X	X	X	X	X	X		19
	DW-9	0940	"		"			"	"		"	"		X	X	X	X	X	X	X	X	X	X		20

	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Name: Matt Pestoni		1-22-14	1435			
Sampler's Company: Confluence Environmental						
Shipment Date:						
Shipment Method:				[illegible] Kiff Analytical	01/22/14	1515

Special Instructions: *Metals list to include: Fe, Cr, Na, As & Mn; Metals samples have been filtered in the field

87193

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Confluence Environmental, Inc.
3308 El Camino Ave, Suite 300 #148
Sacramento, CA 95821
916-760-7641 - main
916-473-8617 - fax
www.confluence-env.com

Chain of Custody

Project Name: Tesoro - Livermore #67076

Job Number: P1-1401121

TAT: (STANDARD) 5 DAY 2 DAY 24 HOUR OTHER:

Lab: **Kiff**	Site Address: 1619 1st St, Livermore	Confluence PM: Jason Brown
Address: 2795 2nd St, Suite 300, Davis CA 95616	California Global ID No.: TQ600101410	Phone / Fax: 916-760-7641 / 916-473-8617
Contact: Troy Turpen	Include EDF w/ Report: (Yes) No	Confluence Log Code: **CESC**
Phone/ Fax: 530-297-4800 x.111	Consultant / PM: Orion / Mike Purchase	Report to: Mike Purchase
	Phone / Fax: 510-525-2180 / 510-525-2392	Invoice to: Mike Purchase

	Sample ID	Time	Date	Matrix: Soil/Solid	Matrix: Water/Liquid	Matrix: Air	Laboratory No.	No. of Containers	Preservative: Unpreserved	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: HCl	Preservative: NaOH	Requested Analysis: TPH-G, BTEX (8260)	Oxygenates(7) & Lead Scavengers (8260)	Ferrous Iron (SM 3500-Fe-D)	Hexavalent Chromium (7199)	Nitrate & Sulfate (300)	Total Alkalinity (SM2320B)	Metals by ICP (6010B)*	Methane (RSK 175M)	Carbon Dioxide (RSK 175M)	TDS (2540C)	Notes and Comments
	IP-8	1035	1-22-14		X			12	6		1	5		X	X	X	X	X	X	X	X	X	X	21
	DW-5	1215	"		"			"	"		"	"		X	X	X	X	X	X	X	X	X	X	22
	IP-1	1130	"		"			2	2		2	2		X	X	X	X	X	X	X	X	X	X	23

Sampler's Name: Matt DeSTONI	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Confluence Environmental		1-22-14	1435			
Shipment Date:						
Shipment Method:				Kiff Analytical	01/22/14	1515

Special Instructions: *Metals list to include: Fe, Cr, Na, As & Mn; Metals samples have been filtered in the field

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KIFF Analytical LLC

SAMPLE RECEIPT CHECKLIST

SRG #: 87193

Sample Receipt	Initials/Date: Eg 012214	Storage Time: 1750	Sample Login	Initials/Date: TJB 012214

TAT: ☑ Standard ☐ Rush ☐ Split ☐ None

Method of Receipt: ☑ Courier ☐ Over-the-counter ☐ Shipped

Temp °C: -2.6/-7.8/-0.6/-1.4 ☐ N/A | Therm ID: IR3 | Time: 1715

Coolant present: ☑ Yes ☐ No ☐ Water ☐ Temp Excursion

For Shipments Only: Cooler Receipt Initials/Date/Time:

Custody Seals ☐ N/A ☐ Intact ☐ Broken

Chain-of-Custody:	Yes	No
Is COC present?	✓	
Is COC signed by relinquisher?	✓	
Is COC dated by relinquisher?	✓	
Is the sampler's name on the COC?	✓	
Are there analyses or hold for all samples?	✓	

Documented on	COC	Labels	Discrepancies:
Sample ID	X	X	
Project ID	X	X	
Sample Date	X	X	
Sample Time	X	X	
Does COC match project history?	☐ N/A	☒ Yes	☐ No

Samples:	N/A	Yes	No
Are sample custody seals intact?	✓		
Are sample containers intact?		✓	
Is preservation documented?		✓	
In-house Analysis:	**N/A**	**Yes**	**No**
Are preservatives acceptable?		✓	
Are samples within holding time?		✓	
Are sample container types correct?		✓	
Is there adequate sample volume?		✓	

Comments: Preservation is not indicated on the gray-capped VOAs, but the white-capped VOAs specifically say NP. SR will log in the gray-capped VOAs as HCl-preserved and the white-capped VOAs as unpreserved. TJB 012214 2224

Receipt Details:

Matrix	Container Type	# of Containers
WA	poly	95
WA	VOA	142

CS Required: ☐

Proceed With Analysis: ☐ YES ☐ NO Init/Date:

Client Communication:

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

Calscience Environmental Laboratories, Inc.

CALSCIENCE

WORK ORDER NUMBER: 14-01-1400

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Kiff Analytical

Client Project Name: Tesoro - Livermore #67076

Attention: Joel Kiff
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Amanda Porter

Approved for release on 01/31/2014 by:
Amanda Porter
Project Manager

ResultLink

Email your PM

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

Calscience Environmental Laboratories, Inc.

Contents

Client Project Name: Tesoro - Livermore #67076
Work Order Number: 14-01-1400

Calscience Environmental Laboratories, Inc.

Work Order Narrative

Work Order: 14-01-1400 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain of Custody (COC) on 01/24/14. They were assigned to Work Order 14-01-1400.

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

Holding Times:

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

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

Quality Control:

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

Additional Comments:

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

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

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

Subcontractor Information:

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

Return to Contents

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 01/24/14
Work Order: 14-01-1400
Preparation: N/A
Method: RSK-175M
Units: ug/L

Project: Tesoro - Livermore #67076

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-8	**14-01-1400-1-C**	**01/22/14 13:50**	**Aqueous**	**GC 14**	**N/A**	**01/25/14 10:27**	**140124L05**

Parameter	Result	RL	DF	Qualifiers
Carbon Dioxide	17500	17.0	10	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
DW-3	**14-01-1400-2-C**	**01/22/14 07:40**	**Aqueous**	**GC 14**	**N/A**	**01/25/14 10:46**	**140124L05**

Parameter	Result	RL	DF	Qualifiers
Carbon Dioxide	15500	17.0	10	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-7	**14-01-1400-3-C**	**01/22/14 08:15**	**Aqueous**	**GC 14**	**N/A**	**01/25/14 11:05**	**140124L05**

Parameter	Result	RL	DF	Qualifiers
Carbon Dioxide	25100	17.0	10	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
DW-1	**14-01-1400-4-C**	**01/22/14 09:25**	**Aqueous**	**GC 14**	**N/A**	**01/25/14 11:25**	**140124L05**

Parameter	Result	RL	DF	Qualifiers
Carbon Dioxide	57100	17.0	10	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IP-10	**14-01-1400-5-C**	**01/22/14 13:30**	**Aqueous**	**GC 14**	**N/A**	**01/25/14 11:45**	**140124L05**

Parameter	Result	RL	DF	Qualifiers
Carbon Dioxide	18100	17.0	10	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-9	**14-01-1400-6-C**	**01/22/14 08:45**	**Aqueous**	**GC 14**	**N/A**	**01/25/14 12:12**	**140124L05**

Parameter	Result	RL	DF	Qualifiers
Carbon Dioxide	32200	17.0	10	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-12	**14-01-1400-7-C**	**01/22/14 09:10**	**Aqueous**	**GC 14**	**N/A**	**01/25/14 12:31**	**140124L05**

Parameter	Result	RL	DF	Qualifiers
Carbon Dioxide	24300	17.0	10	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
DW-6	**14-01-1400-8-C**	**01/22/14 10:15**	**Aqueous**	**GC 14**	**N/A**	**01/25/14 12:50**	**140124L05**

Parameter	Result	RL	DF	Qualifiers
Carbon Dioxide	27500	17.0	10	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 01/24/14
Work Order: 14-01-1400
Preparation: N/A
Method: RSK-175M
Units: ug/L

Project: Tesoro - Livermore #67076

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IP-9	**14-01-1400-9-C**	**01/22/14 08:45**	**Aqueous**	**GC 14**	**N/A**	**01/25/14 13:28**	**140124L05**

Parameter	Result	RL	DF	Qualifiers
Carbon Dioxide	505	1.70	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
DW-2	**14-01-1400-10-C**	**01/22/14 11:00**	**Aqueous**	**GC 14**	**N/A**	**01/25/14 14:06**	**140124L05**

Parameter	Result	RL	DF	Qualifiers
Carbon Dioxide	50100	17.0	10	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-11	**14-01-1400-11-C**	**01/22/14 13:00**	**Aqueous**	**GC 14**	**N/A**	**01/25/14 14:26**	**140124L05**

Parameter	Result	RL	DF	Qualifiers
Carbon Dioxide	48500	17.0	10	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-2	**14-01-1400-12-C**	**01/22/14 09:40**	**Aqueous**	**GC 14**	**N/A**	**01/25/14 14:45**	**140124L05**

Parameter	Result	RL	DF	Qualifiers
Carbon Dioxide	69700	17.0	10	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-6	**14-01-1400-13-C**	**01/22/14 11:30**	**Aqueous**	**GC 14**	**N/A**	**01/25/14 15:17**	**140124L05**

Parameter	Result	RL	DF	Qualifiers
Carbon Dioxide	47200	17.0	10	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
DW-7	**14-01-1400-14-C**	**01/22/14 12:10**	**Aqueous**	**GC 14**	**N/A**	**01/25/14 15:37**	**140124L05**

Parameter	Result	RL	DF	Qualifiers
Carbon Dioxide	40400	17.0	10	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
DW-8	**14-01-1400-15-C**	**01/22/14 14:30**	**Aqueous**	**GC 14**	**N/A**	**01/27/14 14:41**	**140127L01**

Parameter	Result	RL	DF	Qualifiers
Carbon Dioxide	19100	17.0	10	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
DW-9	**14-01-1400-16-C**	**01/22/14 09:40**	**Aqueous**	**GC 14**	**N/A**	**01/27/14 15:02**	**140127L01**

Parameter	Result	RL	DF	Qualifiers
Carbon Dioxide	24800	17.0	10	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 01/24/14
Work Order: 14-01-1400
Preparation: N/A
Method: RSK-175M
Units: ug/L

Project: Tesoro - Livermore #67076

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IP-8	**14-01-1400-17-C**	**01/22/14 10:35**	**Aqueous**	**GC 14**	**N/A**	**01/27/14 15:42**	**140127L01**

Parameter	Result	RL	DF	Qualifiers
Carbon Dioxide	632	1.70	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
DW-5	**14-01-1400-18-C**	**01/22/14 12:45**	**Aqueous**	**GC 14**	**N/A**	**01/27/14 16:32**	**140127L01**

Parameter	Result	RL	DF	Qualifiers
Carbon Dioxide	16600	17.0	10	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IP-1	**14-01-1400-19-D**	**01/22/14 11:30**	**Aqueous**	**GC 14**	**N/A**	**01/28/14 09:28**	**140127L01**

Parameter	Result	RL	DF	Qualifiers
Carbon Dioxide	352	1.70	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-659-666**	**N/A**	**Aqueous**	**GC 14**	**N/A**	**01/24/14 20:43**	**140124L05**

Parameter	Result	RL	DF	Qualifiers
Carbon Dioxide	ND	1.70	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-659-667**	**N/A**	**Aqueous**	**GC 14**	**N/A**	**01/27/14 12:22**	**140127L01**

Parameter	Result	RL	DF	Qualifiers
Carbon Dioxide	ND	1.70	1	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 01/24/14
Work Order: 14-01-1400
Preparation: N/A
Method: RSK-175M
Units: ug/L

Project: Tesoro - Livermore #67076

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-8	**14-01-1400-1-A**	**01/22/14 13:50**	**Aqueous**	**GC 52**	**N/A**	**01/25/14 10:26**	**140125L01**

Parameter	Result	RL	DF	Qualifiers
Methane	7.60	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
DW-3	**14-01-1400-2-A**	**01/22/14 07:40**	**Aqueous**	**GC 52**	**N/A**	**01/25/14 10:52**	**140125L01**

Parameter	Result	RL	DF	Qualifiers
Methane	450	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-7	**14-01-1400-3-A**	**01/22/14 08:15**	**Aqueous**	**GC 52**	**N/A**	**01/25/14 11:48**	**140125L01**

Parameter	Result	RL	DF	Qualifiers
Methane	1330	4.00	4	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
DW-1	**14-01-1400-4-A**	**01/22/14 09:25**	**Aqueous**	**GC 52**	**N/A**	**01/25/14 13:07**	**140125L01**

Parameter	Result	RL	DF	Qualifiers
Methane	2030	8.00	8	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IP-10	**14-01-1400-5-A**	**01/22/14 13:30**	**Aqueous**	**GC 52**	**N/A**	**01/25/14 13:34**	**140125L01**

Parameter	Result	RL	DF	Qualifiers
Methane	1150	8.00	8	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-9	**14-01-1400-6-A**	**01/22/14 08:45**	**Aqueous**	**GC 61**	**N/A**	**01/25/14 10:54**	**140124L03**

Parameter	Result	RL	DF	Qualifiers
Methane	426	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-12	**14-01-1400-7-A**	**01/22/14 09:10**	**Aqueous**	**GC 61**	**N/A**	**01/25/14 12:14**	**140124L03**

Parameter	Result	RL	DF	Qualifiers
Methane	2250	8.00	8	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
DW-6	**14-01-1400-8-A**	**01/22/14 10:15**	**Aqueous**	**GC 61**	**N/A**	**01/25/14 13:00**	**140124L03**

Parameter	Result	RL	DF	Qualifiers
Methane	1890	4.00	4	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 01/24/14
Work Order: 14-01-1400
Preparation: N/A
Method: RSK-175M
Units: ug/L

Project: Tesoro - Livermore #67076

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IP-9	**14-01-1400-9-A**	**01/22/14 08:45**	**Aqueous**	**GC 61**	**N/A**	**01/25/14 13:46**	**140124L03**

Parameter	Result	RL	DF	Qualifiers
Methane	11.1	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
DW-2	**14-01-1400-10-A**	**01/22/14 11:00**	**Aqueous**	**GC 61**	**N/A**	**01/25/14 15:04**	**140124L03**

Parameter	Result	RL	DF	Qualifiers
Methane	3260	8.00	8	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-11	**14-01-1400-11-D**	**01/22/14 13:00**	**Aqueous**	**GC 61**	**N/A**	**01/27/14 18:30**	**140127L02**

Parameter	Result	RL	DF	Qualifiers
Methane	165	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-2	**14-01-1400-12-A**	**01/22/14 09:40**	**Aqueous**	**GC 61**	**N/A**	**01/25/14 15:55**	**140124L03**

Parameter	Result	RL	DF	Qualifiers
Methane	2130	4.00	4	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-6	**14-01-1400-13-A**	**01/22/14 11:30**	**Aqueous**	**GC 52**	**N/A**	**01/25/14 15:35**	**140125L01**

Parameter	Result	RL	DF	Qualifiers
Methane	7210	20.0	20	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
DW-7	**14-01-1400-14-A**	**01/22/14 12:10**	**Aqueous**	**GC 52**	**N/A**	**01/25/14 15:09**	**140125L01**

Parameter	Result	RL	DF	Qualifiers
Methane	6940	20.0	20	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
DW-8	**14-01-1400-15-A**	**01/22/14 14:30**	**Aqueous**	**GC 52**	**N/A**	**01/25/14 14:16**	**140125L01**

Parameter	Result	RL	DF	Qualifiers
Methane	2580	8.00	8	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
DW-9	**14-01-1400-16-A**	**01/22/14 09:40**	**Aqueous**	**GC 52**	**N/A**	**01/27/14 14:31**	**140127L01**

Parameter	Result	RL	DF	Qualifiers
Methane	4940	20.0	20	B

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 01/24/14
Work Order: 14-01-1400
Preparation: N/A
Method: RSK-175M
Units: ug/L

Project: Tesoro - Livermore #67076

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IP-8	**14-01-1400-17-A**	**01/22/14 10:35**	**Aqueous**	**GC 52**	**N/A**	**01/27/14 15:24**	**140127L01**

Parameter	Result	RL	DF	Qualifiers
Methane	216	1.00	1	B

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
DW-5	**14-01-1400-18-A**	**01/22/14 12:45**	**Aqueous**	**GC 52**	**N/A**	**01/27/14 16:14**	**140127L01**

Parameter	Result	RL	DF	Qualifiers
Methane	1940	8.00	8	B

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IP-1	**14-01-1400-19-A**	**01/22/14 11:30**	**Aqueous**	**GC 52**	**N/A**	**01/27/14 17:08**	**140127L01**

Parameter	Result	RL	DF	Qualifiers
Methane	842	4.00	4	B

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-663-2078**	**N/A**	**Aqueous**	**GC 61**	**N/A**	**01/24/14 21:25**	**140124L03**

Parameter	Result	RL	DF	Qualifiers
Methane	ND	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-663-2079**	**N/A**	**Aqueous**	**GC 52**	**N/A**	**01/25/14 09:59**	**140125L01**

Parameter	Result	RL	DF	Qualifiers
Methane	ND	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-663-2081**	**N/A**	**Aqueous**	**GC 52**	**N/A**	**01/27/14 13:04**	**140127L01**

Parameter	Result	RL	DF	Qualifiers
Methane	91.1	1.00	1	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-663-2080**	**N/A**	**Aqueous**	**GC 61**	**N/A**	**01/27/14 13:04**	**140127L02**

Parameter	Result	RL	DF	Qualifiers
Methane	ND	1.00	1	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505
Project: Tesoro - Livermore #67076

Date Received: 01/24/14
Work Order: 14-01-1400

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
MW-8	**14-01-1400-1**	**01/22/14 13:50**	**Aqueous**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Alkalinity, Total (as CaCO3)	380	5.00	1		mg/L	N/A	01/30/14	SM 2320B
Solids, Total Dissolved	605	1.00	1		mg/L	01/29/14	01/29/14	SM 2540 C

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
DW-3	**14-01-1400-2**	**01/22/14 07:40**	**Aqueous**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Alkalinity, Total (as CaCO3)	364	5.00	1		mg/L	N/A	01/30/14	SM 2320B
Solids, Total Dissolved	575	1.00	1		mg/L	01/29/14	01/29/14	SM 2540 C

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
MW-7	**14-01-1400-3**	**01/22/14 08:15**	**Aqueous**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Alkalinity, Total (as CaCO3)	448	5.00	1		mg/L	N/A	01/30/14	SM 2320B
Solids, Total Dissolved	600	1.00	1		mg/L	01/29/14	01/29/14	SM 2540 C

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
DW-1	**14-01-1400-4**	**01/22/14 09:25**	**Aqueous**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Alkalinity, Total (as CaCO3)	715	5.00	1		mg/L	N/A	01/30/14	SM 2320B
Solids, Total Dissolved	865	1.00	1		mg/L	01/29/14	01/29/14	SM 2540 C

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
IP-10	**14-01-1400-5**	**01/22/14 13:30**	**Aqueous**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Alkalinity, Total (as CaCO3)	306	5.00	1		mg/L	N/A	01/30/14	SM 2320B
Solids, Total Dissolved	455	1.00	1		mg/L	01/29/14	01/29/14	SM 2540 C

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
MW-9	**14-01-1400-6**	**01/22/14 08:45**	**Aqueous**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Alkalinity, Total (as CaCO3)	473	5.00	1		mg/L	N/A	01/30/14	SM 2320B
Solids, Total Dissolved	600	1.00	1		mg/L	01/29/14	01/29/14	SM 2540 C

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
MW-12	**14-01-1400-7**	**01/22/14 09:10**	**Aqueous**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Alkalinity, Total (as CaCO3)	402	5.00	1		mg/L	N/A	01/30/14	SM 2320B
Solids, Total Dissolved	610	1.00	1		mg/L	01/29/14	01/29/14	SM 2540 C

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505
Project: Tesoro - Livermore #67076

Date Received: 01/24/14
Work Order: 14-01-1400

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
DW-6	**14-01-1400-8**	**01/22/14 10:15**	**Aqueous**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Alkalinity, Total (as CaCO3)	432	5.00	1		mg/L	N/A	01/30/14	SM 2320B
Solids, Total Dissolved	560	1.00	1		mg/L	01/29/14	01/29/14	SM 2540 C

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
IP-9	**14-01-1400-9**	**01/22/14 08:45**	**Aqueous**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Alkalinity, Total (as CaCO3)	6280	10.0	1		mg/L	N/A	01/30/14	SM 2320B
Solids, Total Dissolved	6750	10.0	1		mg/L	01/29/14	01/29/14	SM 2540 C

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
DW-2	**14-01-1400-10**	**01/22/14 11:00**	**Aqueous**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Alkalinity, Total (as CaCO3)	572	5.00	1		mg/L	N/A	01/30/14	SM 2320B
Solids, Total Dissolved	705	1.00	1		mg/L	01/29/14	01/29/14	SM 2540 C

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
MW-11	**14-01-1400-11**	**01/22/14 13:00**	**Aqueous**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Alkalinity, Total (as CaCO3)	2250	10.0	1		mg/L	N/A	01/30/14	SM 2320B
Solids, Total Dissolved	2720	10.0	1		mg/L	01/29/14	01/29/14	SM 2540 C

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
MW-2	**14-01-1400-12**	**01/22/14 09:40**	**Aqueous**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Alkalinity, Total (as CaCO3)	640	5.00	1		mg/L	N/A	01/30/14	SM 2320B
Solids, Total Dissolved	760	1.00	1		mg/L	01/29/14	01/29/14	SM 2540 C

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
MW-6	**14-01-1400-13**	**01/22/14 11:30**	**Aqueous**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Alkalinity, Total (as CaCO3)	539	5.00	1		mg/L	N/A	01/30/14	SM 2320B
Solids, Total Dissolved	695	1.00	1		mg/L	01/29/14	01/29/14	SM 2540 C

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
DW-7	**14-01-1400-14**	**01/22/14 12:10**	**Aqueous**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Alkalinity, Total (as CaCO3)	572	5.00	1		mg/L	N/A	01/30/14	SM 2320B
Solids, Total Dissolved	755	1.00	1		mg/L	01/29/14	01/29/14	SM 2540 C

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505
Project: Tesoro - Livermore #67076

Date Received: 01/24/14
Work Order: 14-01-1400

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
DW-8	**14-01-1400-15**	**01/22/14 14:30**	**Aqueous**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Alkalinity, Total (as CaCO3)	527	5.00	1		mg/L	N/A	01/30/14	SM 2320B
Solids, Total Dissolved	625	1.00	1		mg/L	01/29/14	01/29/14	SM 2540 C

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
DW-9	**14-01-1400-16**	**01/22/14 09:40**	**Aqueous**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Alkalinity, Total (as CaCO3)	469	5.00	1		mg/L	N/A	01/30/14	SM 2320B
Solids, Total Dissolved	630	1.00	1		mg/L	01/29/14	01/29/14	SM 2540 C

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
IP-8	**14-01-1400-17**	**01/22/14 10:35**	**Aqueous**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Alkalinity, Total (as CaCO3)	7080	10.0	1		mg/L	N/A	01/30/14	SM 2320B
Solids, Total Dissolved	11800	100	1		mg/L	01/29/14	01/29/14	SM 2540 C

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
DW-5	**14-01-1400-18**	**01/22/14 12:45**	**Aqueous**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Alkalinity, Total (as CaCO3)	804	5.00	1		mg/L	N/A	01/30/14	SM 2320B
Solids, Total Dissolved	1080	10.0	1		mg/L	01/29/14	01/29/14	SM 2540 C

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
IP-1	**14-01-1400-19**	**01/22/14 11:30**	**Aqueous**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Alkalinity, Total (as CaCO3)	6570	10.0	1		mg/L	N/A	01/30/14	SM 2320B
Solids, Total Dissolved	9800	10.0	1		mg/L	01/29/14	01/29/14	SM 2540 C

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

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Alkalinity, Total (as CaCO3)	ND	1.0	1		mg/L	N/A	01/30/14	SM 2320B
Solids, Total Dissolved	ND	1.0	1		mg/L	01/29/14	01/29/14	SM 2540 C

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Quality Control - Sample Duplicate

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Project: Tesoro - Livermore #67076

Date Received: 01/24/14
Work Order: 14-01-1400
Preparation: N/A
Method: SM 2320B

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
MW-8	**Sample**	**Aqueous**	**PH1/BUR03**	**N/A**	**01/30/14 14:50**	**E0130ALKD1**
MW-8	**Sample Duplicate**	**Aqueous**	**PH1/BUR03**	**N/A**	**01/30/14 14:50**	**E0130ALKD1**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Alkalinity, Total (as CaCO3)	380.0	380.0	0	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Sample Duplicate

Kiff Analytical		Date Received:	01/24/14
2795 2nd Street, Suite 300		Work Order:	14-01-1400
Davis, CA 95618-6505		Preparation:	N/A
		Method:	SM 2540 C
Project: Tesoro - Livermore #67076			Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
MW-8	**Sample**	**Aqueous**	**N/A**	**01/29/14 00:00**	**01/29/14 15:10**	**E0129TDSD1**
MW-8	**Sample Duplicate**	**Aqueous**	**N/A**	**01/29/14 00:00**	**01/29/14 15:10**	**E0129TDSD1**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Solids, Total Dissolved	605.0	625.0	3	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Project: Tesoro - Livermore #67076

Date Received: 01/24/14
Work Order: 14-01-1400
Preparation: N/A
Method: RSK-175M

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-659-666	**LCS**	**Aqueous**	**GC 14**	**N/A**	**01/24/14 20:00**	**140124L05**
099-12-659-666	**LCSD**	**Aqueous**	**GC 14**	**N/A**	**01/24/14 20:18**	**140124L05**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Carbon Dioxide	102.0	94.82	93	94.33	92	80-120	1	0-20	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Project: Tesoro - Livermore #67076

Date Received: 01/24/14
Work Order: 14-01-1400
Preparation: N/A
Method: RSK-175M

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-659-667	**LCS**	**Aqueous**	**GC 14**	**N/A**	**01/27/14 11:44**	**140127L01**
099-12-659-667	**LCSD**	**Aqueous**	**GC 14**	**N/A**	**01/27/14 12:02**	**140127L01**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Carbon Dioxide	102.0	93.87	92	93.16	91	80-120	1	0-20	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Project: Tesoro - Livermore #67076

Date Received: 01/24/14
Work Order: 14-01-1400
Preparation: N/A
Method: RSK-175M

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-663-2079	**LCS**	**Aqueous**	**GC 52**	**N/A**	**01/25/14 09:05**	**140125L01**
099-12-663-2079	**LCSD**	**Aqueous**	**GC 52**	**N/A**	**01/25/14 09:31**	**140125L01**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Methane	98.50	90.35	92	90.71	92	80-120	0	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Project: Tesoro - Livermore #67076

Date Received: 01/24/14
Work Order: 14-01-1400
Preparation: N/A
Method: RSK-175M

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-663-2081	**LCS**	**Aqueous**	**GC 52**	**N/A**	**01/27/14 12:10**	**140127L01**
099-12-663-2081	**LCSD**	**Aqueous**	**GC 52**	**N/A**	**01/27/14 12:37**	**140127L01**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Methane	98.50	91.06	92	90.84	92	80-120	0	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Project: Tesoro - Livermore #67076

Date Received: 01/24/14
Work Order: 14-01-1400
Preparation: N/A
Method: RSK-175M

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-663-2078	**LCS**	**Aqueous**	**GC 61**	**N/A**	**01/24/14 20:39**	**140124L03**
099-12-663-2078	**LCSD**	**Aqueous**	**GC 61**	**N/A**	**01/24/14 21:02**	**140124L03**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Methane	98.50	93.29	95	93.24	95	80-120	0	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Project: Tesoro - Livermore #67076

Date Received: 01/24/14
Work Order: 14-01-1400
Preparation: N/A
Method: RSK-175M

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-663-2080	**LCS**	**Aqueous**	**GC 61**	**N/A**	**01/27/14 12:08**	**140127L02**
099-12-663-2080	**LCSD**	**Aqueous**	**GC 61**	**N/A**	**01/27/14 12:36**	**140127L02**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Methane	98.50	93.93	95	93.68	95	80-120	0	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Project: Tesoro - Livermore #67076

Date Received: 01/24/14
Work Order: 14-01-1400
Preparation: N/A
Method: SM 2320B

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-15-859-263	**LCS**	**Aqueous**	**PH1/BUR03**	**N/A**	**01/30/14 14:50**	**E0130ALKB1**
099-15-859-263	**LCSD**	**Aqueous**	**PH1/BUR03**	**N/A**	**01/30/14 14:50**	**E0130ALKB1**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Alkalinity, Total (as CaCO3)	100.0	99.00	99	99.00	99	80-120	0	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Project: Tesoro - Livermore #67076

Date Received: 01/24/14
Work Order: 14-01-1400
Preparation: N/A
Method: SM 2540 C

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-180-3959	**LCS**	**Aqueous**	**N/A**	**01/29/14**	**01/29/14 15:10**	**E0129TDSL1**
099-12-180-3959	**LCSD**	**Aqueous**	**N/A**	**01/29/14**	**01/29/14 15:10**	**E0129TDSL1**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Solids, Total Dissolved	100.0	110.0	110	105.0	105	80-120	5	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Sample Analysis Summary Report

Work Order: 14-01-1400 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
RSK-175M	N/A	884	GC 14	2
RSK-175M	N/A	884	GC 52	2
RSK-175M	N/A	884	GC 61	2
RSK-175M	N/A	888	GC 14	2
RSK-175M	N/A	888	GC 52	2
RSK-175M	N/A	888	GC 61	2
RSK-175M	N/A	896	GC 14	2
RSK-175M	N/A	896	GC 52	2
RSK-175M	N/A	896	GC 61	2
RSK-175M	N/A	908	GC 14	2
RSK-175M	N/A	908	GC 52	2
SM 2320B	N/A	857	PH1/BUR03	1
SM 2540 C	N/A	722	N/A	1

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Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order: 14-01-1400 Page 1 of 1

Qualifiers	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 suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

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

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

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

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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

14-01-1400

COC No. **87193** Page 1 of 2

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.: **87193**

Project Name: Tesoro - Livermore #67076

Project Address:

Recommended but not mandatory to complete this section:

Sampling Company Log Code: CESC

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 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-8	01/22/14	13:50	1	1	2	2	X	X	X	X	X	X	1
DW-3	01/22/14	07:40	1	1	2	2	X	X	X	X	X	X	2
MW-7	01/22/14	08:15	1	1	2	2	X	X	X	X	X	X	3
DW-1	01/22/14	09:25	1	1	2	2	X	X	X	X	X	X	4
IP-10	01/22/14	13:30	1	1	2	2	X	X	X	X	X	X	5
MW-9	01/22/14	08:45	1	1	2	2	X	X	X	X	X	X	6
MW-12	01/22/14	09:10	1	1	2	2	X	X	X	X	X	X	7
DW-6	01/22/14	10:15	1	1	2	2	X	X	X	X	X	X	8
IP-9	01/22/14	08:45	1	1	2	2	X	X	X	X	X	X	9
DW-2	01/22/14	11:00	1	1	2	2	X	X	X	X	X	X	10

	Date	Time	
Relinquished by: Kiff Analytical LLC	012314	1700	Received by:
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date 1/24/14	Time 1000	Received by Laboratory:

Remarks: Please refer to attached Test Detail.

Bill to: Accounts Payable

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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

1400

COC No. **87193** Page 2 of 2

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: CESC

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

Global ID: T0600101410

Project Number: 01LV | P.O. No.: **87193**

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

Project Name: Tesoro - Livermore #67076

Project Address:

Sample Designation	Sampling Date	Sampling Time	Container / Preservative: 1-L Poly None	250ml Poly None	VOA 40 ml 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-11	01/22/14	13:00	1	1	2	2	X	X	X	X	X	X	11
MW-2	01/22/14	09:40	1	1	2	2	X	X	X	X	X	X	12
MW-6	01/22/14	11:30	1	1	2	2	X	X	X	X	X	X	13
DW-7	01/22/14	12:10	1	1	2	2	X	X	X	X	X	X	14
DW-8	01/22/14	14:30	1	1	2	2	X	X	X	X	X	X	15
DW-9	01/22/14	09:40	1	1	2	2	X	X	X	X	X	X	16
IP-8	01/22/14	10:35	1	1	2	2	X	X	X	X	X	X	17
DW-5	01/22/14	12:45	1	1	2	2	X	X	X	X	X	X	18
IP-1	01/22/14	11:30	1	1	2	2	X	X	X	X	X	X	19

	Date	Time		
Relinquished by: Kiff Analytical LLC	012314	1700	Received by:	Remarks:
Relinquished by:	Date	Time	Received by:	
Relinquished by:	Date 1/24/14	Time 1000	Received by Laboratory:	Bill to: Accounts Payable

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1400

Test Detail for Kiff Work Order: 87193

Alkalinity SM 2320 (1)
Alkalinity, Total (as $CaCO_3$)

Carbon Dioxide by RSK 175 (1)
Carbon Dioxide

Hydrocarbons in Water by RSK 175 (1)
Methane

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2795 2ND STREET 300
DAVIS, CA 95618

Sent By: SAMPLE RECEIVINGX125
Phone#: (530)297-4800
wgt(lbs): 40
Reference: SUBS
Reference 2: 600

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

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DAVIS, CA 95618

Sent By: SAMPLE RECEIVINGX125
Phone#: (530)297-4800
wgt(lbs): 40
Reference: SUBS
Reference 2: 600

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

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 14-01-1400

SAMPLE RECEIPT FORM

Cooler 1 of 2

CLIENT: Kiff

DATE: 01/24/14

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

Temperature 2.1 °C - 0.3 °C (CF) = 1.8 °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 Checked by: 15

CUSTODY SEALS INTACT:

☑ Cooler ☐ _____ ☐ No (Not Intact) ☐ Not Present ☐ N/A Checked by: 15

☐ Sample ☐ _____ ☐ No (Not Intact) ☑ Not Present Checked by: 603

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	☑	☐	☐
Aqueous samples received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfides ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☐
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☑	☐	☐
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

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

Aqueous: ☑(2)VOA ☑(2)VOAh ☐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® ☐Canister **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** 603

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** 659

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:** 659

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 14-01-1400

SAMPLE RECEIPT FORM

Cooler 2 of 2

CLIENT: Kiff

DATE: 01/24/14

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

Temperature 2.4 °C - 0.3 °C (CF) = 2.1 °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 **Checked by:** 15

CUSTODY SEALS INTACT:

☑ Cooler ☐_____ ☐ No (Not Intact) ☐ Not Present ☐ N/A **Checked by:** 15

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present **Checked by:** 603

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	☑	☐	☐
Aqueous samples received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfides ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☐
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☑	☐	☐
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

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

Aqueous: ☑VOA(2) ☑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® ☐Canister **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** 603

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** 659

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:** 659

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 14-01-1400

SAMPLE ANOMALY FORM

SAMPLES - CONTAINERS & LABELS:

- ☐ **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:** _____

Comments:

(-5) RECEIVED APPROX. 750ml FOR TDS.

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: GBZ 01/24/14

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ATTACHMENT F

WASTE MANIFESTS