ARCTOS

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19 November 2009
Project No. 01LV

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

Subject: **Third Quarter 2009 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 Companies, Inc. (Tesoro), has prepared this letter report summarizing project tasks completed during the third quarter 2009 at the subject site (Figure 1).

Executive Summary

Arctos conducted quarterly groundwater monitoring at the site on 4 and 5 August 2009. There was an average 10-foot decrease in water levels since the second quarter 2009. Third quarter 2009 groundwater elevations are at historical lows since monitoring began at onsite wells in 1993. Due to the significant decrease in water levels, only 7 of the 19 wells had sufficient water for groundwater monitoring.

Arctos has scheduled the installation of three downgradient deep monitoring wells for November 2009 in accordance with a work plan dated 19 May 2009 and approved in a 23 July 2009 letter from Alameda County Environmental Health (ACEH). The proposed deep monitoring wells will assist in the lateral delineation of downgradient impacted groundwater.

Arctos is continuing to work with the City of Livermore to obtain construction permits for the installation of a source area remediation system. Permit approval and issuance is anticipated for the first quarter 2010.

Site Background

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

Field Activities

Arctos's subcontractor, Environmental Field Services, LLC (EFS), of Patterson, California, performed groundwater monitoring on 4 and 5 August 2009. Samples were collected from wells MW-1 through MW-3, and DW-1 through DW-4 (Figure 2) in accordance with the site monitoring plan (Attachment A). Groundwater monitoring was performed in accordance with the guidelines of the California Underground Storage Tank Regulations, Title 23, Division 3, Chapter 16, California Code of Regulations. Groundwater sampling quality assurance/quality control (QA/QC) procedures are in Attachment A. Field data sheets are in Attachment B.

Analytical Program

The groundwater samples were analyzed in accordance with the analytical plan in Attachment A.

Groundwater Results

Groundwater elevations were approximately 412 to 423 feet above mean sea level (51 to 56 feet below ground surface). Water levels dropped an average of 10 feet compared to the April 2009 event (Table 1). Only 7 of the 19 monitoring wells had sufficient water for groundwater monitoring due to the significant decrease in water levels. The water level data indicate that the general direction of water flow is toward the northwest with an estimated gradient of 0.023 (1 foot/43 feet; Figure 2). The gradient is consistent with historical data collected since 1993 even though groundwater elevations are at historical lows (Attachment C).

The highest total petroleum hydrocarbons as gasoline (TPHg), benzene, and methyl tert-butyl ether (MTBE) concentrations of 30,000, 5,800, and 1,400 micrograms per liter (µg/l), respectively, were at source area well MW-2. Groundwater analytical results are summarized in Table 2. Elevated TPHg, benzene, and MTBE concentrations in groundwater (6,800, 910 and 200 µg/l, respectively) were also present approximately 170 feet downgradient of the site at well DW-2. Figures 3, 4, and 5 show the isoconcentration contours for TPHg, benzene, and MTBE, respectively. Historical analytical results are in Attachment D, and the laboratory report and the chain-of-custody form are in Attachment E.

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Additional Site Assessment

Arctos will install three deep offsite monitoring wells to assess the lateral extent of downgradient impacted groundwater. Tesoro proposed the wells in a work plan dated 19 May 2009 and approved in a 23 July 2009 letter from ACEH. Arctos has scheduled the installation of three deep monitoring wells for November 2009.

Remediation System

Source area concentrations indicate that onsite groundwater remediation is required to decrease the mass flux from the source area. Arctos is continuing to work with the City of Livermore to obtain building permits for construction of the source area remediation system. The City requested that a noise study be performed to evaluate the potential impact of the proposed remediation equipment to the adjacent properties. Arctos performed the noise study and reviewed the data with the City in the second quarter 2009. The data collected from the noise study showed that the minimum background noise level during a 24-hour period at the site was 46.4 decibels (dBA) at 2:11 a.m. During the study, the only time that the average background noise level dropped below 50 dBA was between 1:55 a.m. and 3:40 a.m. Arctos prepared a noise reduction barrier wall design and submitted it to the City in the third quarter 2009. The barrier wall design has been approved by the City's planning department. Arctos was informed in May 2009 by the City that public notice would not be required for this project; however, the City is now requiring that the permit application be submitted for public comment. This will incur added delay to the approval process. In addition, there have been numerous delays to the permit approval process caused by the City due to personnel change as well. Arctos expects to obtain the necessary permits for construction and installation of the remediation system in the first quarter 2010.

Conclusions

Results of the groundwater sampling indicate the following conclusions:

1. Onsite groundwater remediation is required to decrease the mass flux from the source area.

2. Three additional deep monitoring wells are needed downgradient of the source area to delineate the lateral extent of impacted groundwater.

3. Noise study results indicate that a noise barrier wall is needed to reduce noise levels to limits set by the City of Livermore.

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Recommendations

Based on the activities proposed in the IRAP and the results of the groundwater monitoring, Arctos recommends the following tasks during the fourth quarter of 2009:

- ☐ Install and sample three deep monitoring wells downgradient of the source area to delineate the lateral extent of impacted groundwater
- ☐ Continue to work with the City of Livermore to obtain building permits
- ☐ Install and start the source area remediation system.

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

Very truly yours,

ARCTOS ENVIRONMENTAL

REGISTERED PROFESSIONAL ENGINEER MATTHEW J. NELSON NO. C74889 Exp. 12-31-09 CIVIL STATE OF CALIFORNIA

Matthew J. Nelson, P.E.
Project Engineer

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

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

Attachments: Table 1 – Well and Groundwater Elevations
Table 2 – Groundwater Analytical Results
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
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, 2008. *Interim Remedial Action Plan for Groundwater, 1619 1st Street, Livermore, California, Tesoro Station No. 67076, Former Beacon Station No. 3604, ACEH Case No. RO0434*, 21 March.

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	10/13/08	51.00	474.29	423.29
	2/11/09	48.69		425.60
	4/27/09	41.90		432.39
	8/4/09	51.44		422.85
MW-2	10/13/08	51.30	472.98	421.68
	2/11/09	48.90		424.08
	4/27/09	42.62		430.36
	8/4/09	51.83		421.15
MW-3	10/13/08	50.70	473.37	422.67
	2/11/09	47.81		425.56
	4/27/09	41.18		432.19
	8/4/09	51.89		421.48
MW-4	10/13/08	DRY[(c)]	473.64	--
	2/11/09	DRY		--
	4/27/09	40.64		433.00
	8/4/09	DRY		--
MW-5	10/13/08	DRY	472.67	--
	2/11/09	DRY		--
	4/27/09	42.50		430.17
	8/4/09	DRY		--
MW-6	10/13/08	DRY	471.93	--
	2/11/09	DRY		--
	4/27/09	44.87		427.06
	8/4/09	DRY		--
MW-7	10/13/08	DRY	472.33	--
	2/11/09	DRY		--
	4/27/09	41.80		430.53
	8/4/09	DRY		--
MW-8	10/13/08	DRY	471.18	--
	2/11/09	DRY		--
	4/27/09	DRY		--
	8/4/09	DRY		--

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-9	10/13/08	DRY	470.78	--
	2/11/09	DRY		--
	4/27/09	DRY		--
	8/4/09	DRY		--
MW-10	10/13/08	DRY	471.63	--
	2/11/09	DRY		--
	4/27/09	DRY		--
	8/4/09	DRY		--
MW-11	12/16/08	DRY	473.26	--
	2/11/09	DRY		--
	4/27/09	DRY		--
	8/4/09	DRY		--
VW-2	10/13/08	DRY	473.28	--
	2/11/09	DRY		--
	4/27/09	DRY		--
	8/4/09	DRY		--
VW-3	10/13/08	DRY	474.38	--
	2/11/09	DRY		--
	4/27/09	DRY		--
	8/4/09	DRY		--
TP-1	10/13/08	DRY	472.82	--
	2/11/09	DRY		--
	4/27/09	DRY		--
	8/4/09	DRY		--
TP-2	10/13/08	DRY	472.93	--
	2/11/09	DRY		--
	4/27/09	DRY		--
	8/4/09	DRY		--
DW-1	10/13/08	51.40	472.85	421.45
	2/11/09	48.28		424.57
	4/27/09	41.74		431.11
	8/4/09	52.22		420.63

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-2	10/13/08	53.40	471.61	418.21
	2/11/09	51.50		420.11
	4/27/09	44.71		426.90
	8/4/09	54.67		416.94
DW-3	10/13/08	54.62	470.33	415.71
	2/11/09	51.96		418.37
	4/27/09	45.17		425.16
	8/4/09	56.32		414.01
DW-4	10/13/08	54.90	468.48	413.58
	2/11/09	51.71		416.77
	4/27/09	45.10		423.38
	8/4/09	56.46		412.02

(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) Potentiometric Surface Elevation = (Casing Elevation - Depth to Water)

(c) 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] (ug/l)	Benzene[a] (ug/l)	Toluene[a] (ug/l)	Ethylbenzene[a] (ug/l)	Total Xylenes[a] (ug/l)	MTBE[a] (ug/l)	DIPE[a] (ug/l)	ETBE[a] (ug/l)	TAME[a] (ug/l)	TBA[a] (ug/l)	Methanol[a] (ug/l)	Ethanol[a] (ug/l)	1,2-DCA[a] (ug/l)	EDB[a] (ug/l)
MW-1	10/13/08	730	ND<0.5[b]	ND<0.5	0.68	0.8	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
MW-2	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
MW-3	10/13/08	280	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	61	ND<5	ND<0.5	ND<0.5
	2/11/09	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	4/27/09	ND<50	ND<0.5	ND<0.5	ND<0.5	0.64	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/4/09	190	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-4	10/13/08	NS[c]	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
MW-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	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
MW-6	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
MW-7	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
MW-8	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

TABLE 2

GROUNDWATER ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date	TPHg[a] (ug/l)	Benzene[a] (ug/l)	Toluene[a] (ug/l)	Ethylbenzene[a] (ug/l)	Total Xylenes[a] (ug/l)	MTBE[a] (ug/l)	DIPE[a] (ug/l)	ETBE[a] (ug/l)	TAME[a] (ug/l)	TBA[a] (ug/l)	Methanol[a] (ug/l)	Ethanol[a] (ug/l)	1,2-DCA[a] (ug/l)	EDB[a] (ug/l)
MW-8	4/27/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
(cont.)	8/4/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-9	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
MW-10	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
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
VW-2	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
VW-3	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
TP-1	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
TP-2	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

TABLE 2

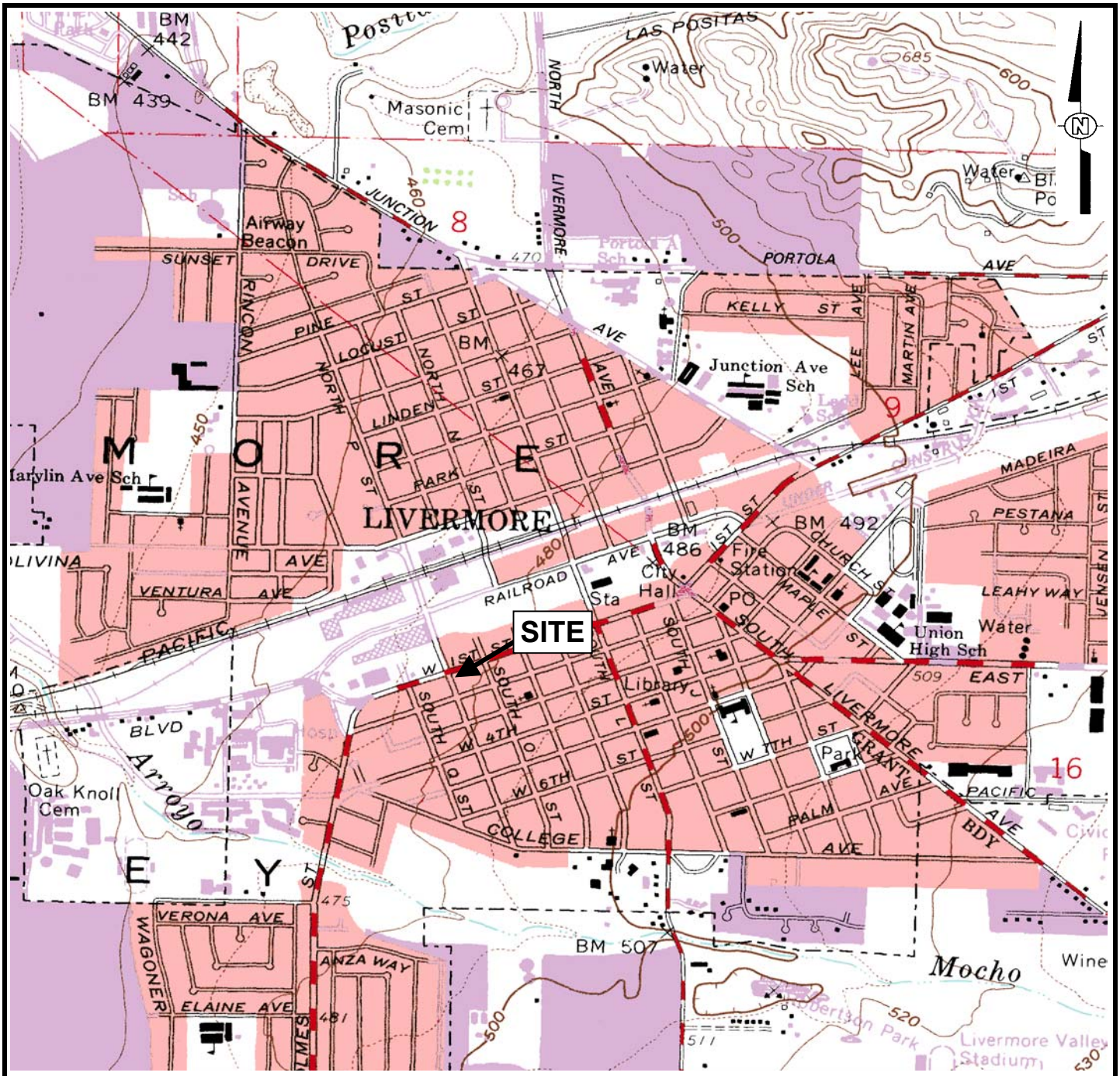
GROUNDWATER ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date	TPHg[(a)] (ug/l)	Benzene[(a)] (ug/l)	Toluene[(a)] (ug/l)	Ethylbenzene[(a)] (ug/l)	Total Xylenes[(a)] (ug/l)	MTBE[(a)] (ug/l)	DIPE[(a)] (ug/l)	ETBE[(a)] (ug/l)	TAME[(a)] (ug/l)	TBA[(a)] (ug/l)	Methanol[(a)] (ug/l)	Ethanol[(a)] (ug/l)	1,2-DCA[(a)] (ug/l)	EDB[(a)] (ug/l)
DW-1	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
DW-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
DW-3	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
DW-4	10/13/08	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	43	ND<0.5	ND<0.5
	2/11/09	ND<50	0.68	ND<0.5	1.4	1.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	4/27/09	ND<50	0.5	ND<0.5	1.1	1.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/5/09	52	1.7	ND<0.5	1.4	0.83	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5

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

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

(c) NS - Not sampled.



REFERENCE

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

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

Legend

- MW-7 — Groundwater Monitoring Well With Groundwater Elevation (Feet, MSL) Measured 4 August 2009
- DW-1 — Deep Groundwater Monitoring Well with Groundwater Elevation (Feet, MSL) Measured 4 August 2009
- DW-5 — Proposed Deep Groundwater Monitoring Well
- IP-1 — Injection Well
- IP-6 — Angled Injection Well Screen Location
- VW-2 — Vapor Extraction Well
- TP-2 — Temporary Monitoring Well
- 422 — Goundwater Elevation Contour

0 30' 60'
SCALE

REVISION	NO.	BY	DATE	DESCRIPTION
5	1	MY	10/31/08	Third Quarter 2008 Monitoring Report
	2	MY	1/30/09	Fourth Quarter 2008 Monitoring Report
	3	MY	4/30/09	First Quarter 2009 Monitoring Report
	4	MY	8/19/09	Second Quarter 2009 Monitoring Report
	5	MY	11/19/09	Third Quarter 2009 Monitoring Report

ARCTOS ENVIRONMENTAL

TESORO - LIVERMORE

GROUNDWATER ELEVATION CONTOURS

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

FILE NO. 01LV11B-20405.DWG

FIGURE 2

11/3/2009 4:09PM 01LV11B-20405.dwg

Legend

MW-7 ⊕	Groundwater Monitoring Well with 28 April and 4 to 5 August 2009 Total Petroleum Hydrocarbons as Gasoline (TPHg) Results in µg/L
DW-1 ⊞	Deep Groundwater Monitoring Well with 28 April and 4 to 5 August 2009 TPHg Results in µg/L
IP-1 ▲	Injection Well
IP-6 △	Angled Injection Well Screen Location
VW-2 #	Vapor Extraction Well with 28 April and 4 to 5 August 2009 TPHg Results in µg/L
TP-2 ⊗	Temporary Monitoring Well with 28 April and 4 to 5 August 2009 TPHg Results in µg/L
1000	TPHg Concentration Contour (µg/L), Queried Where Uncertain
ND	Not Detected
NS	Not Sampled
(2,800/890)	Previous Quarter/Current Quarter TPHg Results in µg/L

0 30' 60'
SCALE

REVISION	NO.	BY	DATE	DESCRIPTION
5	1	MY	10/31/08	Third Quarter 2008 Monitoring Report
	2	MY	1/30/09	Fourth Quarter 2008 Monitoring Report
	3	MY	4/30/09	First Quarter 2009 Monitoring Report
	4	MY	8/19/09	Second Quarter 2009 Monitoring Report
	5	MY	11/19/09	Third Quarter 2009 Monitoring Report

ARCTOS ENVIRONMENTAL

TESORO - LIVERMORE

TPHg CONCENTRATION CONTOURS

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

FILE NO. 01LV11B-20505.DWG

FIGURE 3

11/3/2009 4:49PM 01LV11B-20505.dwg

Legend

- MW-7 ⊕ Groundwater Monitoring Well with 27 April and 4 to 5 August 2009 Benzene Results in µg/L
- DW-1 ⊞ Deep Groundwater Monitoring Well with 27 April and 4 to 5 August 2009 Benzene Results in µg/L
- IP-1 ▲ Injection Well
- IP-6 △ Angled Injection Well Screen Location
- VW-2 ⊞ Vapor Extraction Well with 27 April and 4 to 5 August 2009 Benzene Results in µg/L
- TP-2 ⊗ Temporary Monitoring Well with 27 April and 4 to 5 August 2009 Benzene Results in µg/L
- 1,000 Benzene Concentration Contour (µg/L), Queried Where Uncertain
- ND Not Detected
- NS Not Sampled
- (9.9/ND<0.5) Previous Quarter/Current Quarter Benzene Results in µg/L

0 30' 60'
SCALE

REVISION	NO.	BY	DATE	DESCRIPTION
5	1	MY	10/31/08	Third Quarter 2008 Monitoring Report
	2	MY	1/30/09	Fourth Quarter 2008 Monitoring Report
	3	MY	4/30/09	First Quarter 2009 Monitoring Report
	4	MY	8/19/09	Second Quarter 2009 Monitoring Report
	5	MY	11/19/09	Third Quarter 2009 Monitoring Report

ARCTOS ENVIRONMENTAL

TESORO - LIVERMORE

BENZENE CONCENTRATION CONTOURS

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

FILE NO. 01LV11B-20605.DWG

FIGURE 4

11/3/2009 4:50PM 01LV11B-20605.dwg

Legend

- MW-7 ⊕ Groundwater Monitoring Well with 27 April and 4 to 5 August 2009 Methyl Tert-Butyl Ether (MTBE) Results in µg/L
- DW-1 ⊞ Deep Groundwater Monitoring Well with 27 April and 4 to 5 August 2009 MTBE Results in µg/L
- IP-1 ▲ Injection Well
- IP-6 △ Angled Injection Well Screen Location
- VW-2 ⊞ Vapor Extraction Well with 27 April and 4 to 5 August 2009 MTBE Results in µg/L
- TP-2 ⊗ Temporary Monitoring Well with 27 April and 4 to 5 August 2009 MTBE Results in µg/L
- 100 MTBE Concentration Contour (µg/L), Queried Where Uncertain
- ND Not Detected
- NS Not Sampled
- (ND<0.5/ND<0.5) Previous Quarter/Current Quarter MTBE Results in µg/L

0 30' 60'
SCALE

REVISION 5

REVISIONS			
NO.	BY	DATE	DESCRIPTION
1	MY	10/31/08	Third Quarter 2008 Monitoring Report
2	MY	1/30/09	Fourth Quarter 2008 Monitoring Report
3	MY	4/30/09	First Quarter 2009 Monitoring Report
4	MY	8/19/09	Second Quarter 2009 Monitoring Report
5	MY	11/19/09	Third Quarter 2009 Monitoring Report

ARCTOS ENVIRONMENTAL

TESORO - LIVERMORE

MTBE CONCENTRATION CONTOURS

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

FILE NO. 01LV11B-20705.DWG

FIGURE 5

01LV11B-20705.dwg 11/3/2009 4:51PM

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 ACEH's 23 July 2009 letter to Tesoro, Arctos proposed to reduce the monitoring and sampling frequency to semiannually in the second quarter 2009 status report. Select wells will continue to be monitored quarterly to assess the effectiveness of the planned groundwater remediation system according to the following groundwater monitoring plan:

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

Analytical Plan

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

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

Purge-and-Bail Sampling Procedures

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

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

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

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

General Field Quality Assurance/Control (QA/QC) Procedures

Chain-of-Custody Records

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

Equipment Decontamination Procedures

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

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

Personal Decontamination Procedures

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

1. Wore appropriate gloves.

2. Washed hands thoroughly with soap and water.

3. Avoided unnecessary contact with groundwater.

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

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

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

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

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

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

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

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

ATTACHMENT B

FIELD DATA SHEETS

Field Data Sheet

Date: 8/4/2009 **Project Name:** Tesoro - Livermore #67076 **Project Number:** 01LV

Technician: C.Young **Location:** Walnut Creek, CA **Global ID :** T0600101410

Well ID	Casing Diameter	Total Depth	DTP	DTW	Thickness	Comments
MW-1	4"	54.55	-	51.44	-	
MW-2	4"	54.1	-	51.83	-	
MW-3	4"	52.9	-	51.89	-	
MW-4	2"	46.8	-	-	-	well dry
MW-5	2"	46.27	-	-	-	well dry
MW-6	2"	47.65	-	-	-	well dry
MW-7	2"	46.77	-	-	-	well dry
MW-8	2"	44.52	-	44.04	-	not enough water to purge or sample
MW-9	2"	44.58	-	-	-	well dry
MW-10	2"	45.1	-	44.52	-	not enough water to purge or sample
MW-11	4"	42.85	-	42.47	-	not enough water to purge or sample
DW-1	4"	64.75	-	52.22	-	
DW-2	4"	59.84	-	54.67	-	
DW-3	4"	59.74	-	56.32	-	
DW-4	4"	70.04	-	56.46	-	
TP-1	2"	43.22	-	42.83	-	not enough water to purge or sample
TP-2	2"	41.21	-	41.12	-	not enough water to purge or sample
VW-2	2"	36.78	-	36.36	-	not enough water to purge or sample
VW-3	2"	36.34	-	-	-	well dry

Groundwater Sampling Form

Project Name: Tesoro - Livermore #67076 **Project Number:** 01LV
Location: Livermore, CA **Date:** 8/4/09
Well Number: MW-1 **Well Integrity:** Good.
Technician: D. Vargas / C. Young **Ambient Conditions:** Sunny

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW		Gallons Per Linear Foot	1 Well Volume (gal.)
2	-	=		X	0.17	=		
3	-	=		X	0.38	=		
(4)	54.55	-	51.44	=	3.11	X	0.66	= 2.05
4.5	-	=		X	0.83	=		
6	-	=		X	1.5	=		

Groundwater Surface Inspection

Floating Product (ft) (in.): N/A **(Sheen)/Iridescence:** slight **Odor:** Yes

Groundwater Purging Purge Method

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

Stagnant Volumes Purged	Volume Purge (gal.)	Time	pH	Conductivity (us/umhos)	Temp.(°C)	Color/Turbidity
0	0	10:16	7.36	467	19.6	clear/sheen
1	2.5 ⑧	10:20	7.39	508	19.5	gray/cloudy
2	5.0 ⑧					Dry @ 2.5 gal.
3	7.5 ⑨					
4						
5						
6						
7						
8						
9						
10						

Recovery Rate: Fast / Medium / (Slow)

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	51.44	
(P) After Purging	54.55	
P- 0.8(P-I) =	52.06	80% Recovery
(S) Before Sampling	52.53	
(P-S) / (P-) X 100 = Did not recover to 80%		% Total Recovery

Sample Containers:

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

Sample Date : 8/4/09 **Time:** 12:45 **Turbidity (NTU):** NM
Sampling Equipment : Disposable Bailer **D.O. mg/l** NM
Calibrate Date: 8/4/2009

Comments: Hand bailed. No bolts. Dry at 2.5 gal.

Groundwater Sampling Form

Project Name: Tesoro - Livermore #67076 **Project Number:** 01LV
Location: Livermore, CA **Date:** 8/4/09
Well Number: MW-2 **Well Integrity:** GOOD
Technician: D. Vargas / C. Young **Ambient Conditions:** SUNNY

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW		Gallons Per Linear Foot		1 Well Volume (gal.)
2		-		=		X	0.17	=	
3		-		=		X	0.38	=	
(4)	54.1	-	51.83	=	2.27	X	0.66	=	1.5
4.5		-		=		X	0.83	=	
6		-		=		X	1.5	=	

Groundwater Surface Inspection

Floating Product (ft) (in.): ∅ **Sheen/Iridescence:** Slight **Odor:** Yes

Groundwater Purging Purge Method

Submersible Pump Honda Pump (Hand Bail) Grab Sample

Stagnant Volumes Purged	Volume Purge (gal.)	Time	pH	Conductivity (us/umhos)	Temp.(°C)	Color/Turbidity
0	0	10:27	6.92	568	20.2	Sheen/cloudy
1	1.5	10:32	6.98	575	20.1	Cloudy
2	3.0	10:38	6.92	585	20.0	Cloudy
3	4.5					Dry @ 3 GAL.
4						
5						
6						
7						
8						
9						
10						

Recovery Rate: Fast / Medium / (Slow)

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	51.83	
(P) After Purging	54.1	
P- 0.8(P-I) =	52.28	80% Recovery
(S) Before Sampling	52.28	
(P-S) / (P-) X 100 =	80%	% Total Recovery

Sample Containers:

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

Sample Date : 8/4/09 **Time:** 12:55 **Turbidity (NTU):** NM
Sampling Equipment : Disposable Bailer **D.O. mg/l** NM
Calibrate Date: 8/4/2009

Comments: No Bolts DRY @ 3.0 gal.

Groundwater Sampling Form

Project Name: Tesoro - Livermore #67076 Project Number: 01LV
Location: Livermore, CA Date: 8/4/09
Well Number: MW-3 Well Integrity: Good
Technician: D. Vargas / C. Young Ambient Conditions: Sunny

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW		Gallons Per Linear Foot	1 Well Volume (gal.)
2		-		=		X	0.17	=
3		-		=		X	0.38	=
(4)	52.90	-	51.89	=	1.01	X	0.66	= 0.67
4.5		-		=		X	0.83	=
6		-		=		X	1.5	=

Groundwater Surface Inspection

Floating Product (ft) (in.): Ø (Sheen)/Iridescence: slight Odor: Yes

Groundwater Purging Purge Method

Submersible Pump Honda Pump (Hand Bail) Grab Sample

Stagnant Volumes Purged	Volume Purge (gal.)	Time	pH	Conductivity (us/umhos)	Temp.(°C)	Color/Turbidity
0	0	10:47	7.41	524	20.0	Gray / Cloudy
1	1	10:50	7.45	507	19.6	Gray + Brown / Cloudy
2	2					Dry @ 1.5 GAL.
3	3					
4						
5						
6						
7						
8						
9						
10						

Recovery Rate: Fast / Medium / (Slow)

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	51.89	
(P) After Purging	52.90	
P- 0.8(P-I) =	52.09	80% Recovery
(S) Before Sampling	51.86	
(P-S) / (P-) X 100 =	100	% Total Recovery

Sample Containers:

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

Sample Date: 8/4/09 Time: 13:05 Turbidity (NTU): NM
Sampling Equipment: Disposable Bailer D.O. mg/l NM
Calibrate Date: 8/4/2009

Comments: Missing bolt. Hand bailed. Dry at one-half gallon.

Groundwater Sampling Form

Project Name: Tesoro - Livermore #67076 **Project Number:** 01 LV
Location: Livermore, CA **Date:** 8/4/09
Well Number: MW-8 **Well Integrity:** Good
Technician: D. Vargas / C. Young **Ambient Conditions:** Sunny

Well Volume Calculation						
Well Casing Diameter (in.)	Total Well Depth	Depth To Ground-water (GW)		Linear Feet of GW	Gallons Per Linear Foot	1 Well Volume (gal.)
(2)	44.52	- 44.04	=	0.48 X	0.17	= 0.08
3	-	=		X	0.38	=
4	-	=		X	0.66	=
4.5	-	=		X	0.83	=
6	-	=		X	1.5	=

Groundwater Surface Inspection

Floating Product (ft) (in.):_____ **Sheen/Iridescence:**_____ **Odor:**_____

Groundwater Purging Purge Method

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

Stagnant Volumes Purged	Volume Purge (gal.)	Time	pH	Conductivity (us/umhos)	Temp.(°C)	Color/Turbidity
0	0					
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Recovery Rate:
Fast
Medium
Slow

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)
(I) Initially	
(P) After Purging	
P- 0.8(P-I) =	
(S) Before Sampling	
(P-S) / (P-) X 100 =	% Total Recovery

80% Recovery

Sample Containers:

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

Sample Date :_____ **Time:**_____ **Turbidity (NTU):** NM

Sampling Equipment : Disposable Bailer **D.O. mg/l** NM

Calibrate Date: 8/4/2009

Comments: Not enough water to sample.

Groundwater Sampling Form

Project Name: Tesoro - Livermore #67076 **Project Number:** 01LV
Location: Livermore, CA **Date:** 8/4/09
Well Number: MW-10 **Well Integrity:** Good
Technician: D. Vargas / C. Young **Ambient Conditions:** Sunny

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW		Gallons Per Linear Foot		1 Well Volume (gal.)
(2)	45.1	-	44.52	=	0.58	X	0.17	=	0.09
3		-		=		X	0.38	=	
4		-		=		X	0.66	=	
4.5		-		=		X	0.83	=	
6		-		=		X	1.5	=	

Groundwater Surface Inspection

Floating Product (ft) (in.): _____ **Sheen/Iridescence:** _____ **Odor:** _____

Groundwater Purging Purge Method

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

Stagnant Volumes Purged	Volume Purge (gal.)	Time	pH	Conductivity (us/umhos)	Temp.(°C)	Color/Turbidity
0	0					
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Recovery Rate:
Fast
Medium
Slow

Groundwater Sampling

Water Level Recovery:

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

Sample Containers:

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

Sample Date : _____ **Time:** _____ **Turbidity (NTU):** NM
Sampling Equipment : Disposable Bailer **D.O. mg/l** NM
Calibrate Date: 8/4/2009

Comments: Not enough water to sample.

Groundwater Sampling Form

Project Name: Tesoro - Livermore #67076 Project Number: 01 LV
Location: Livermore, CA Date: 8/4/09
Well Number: MW - 11 Well Integrity: Good
Technician: D. Vargas / C. Young Ambient Conditions: Sunny

Well Volume Calculation						
Well Casing Diameter (in.)	Total Well Depth	Depth To Ground-water (GW)	Linear Feet of GW		Gallons Per Linear Foot	1 Well Volume (gal.)
2	-	=		X	0.17	=
3	-	=		X	0.38	=
(4)	42.85 -	42.47 =	0.38	X	0.66	= 0.25
4.5	-	=		X	0.83	=
6	-	=		X	1.5	=

Groundwater Surface Inspection

Floating Product (ft) (in.): _____ Sheen/Iridescence: _____ Odor: _____

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Stagnant Volumes Purged	Volume Purge (gal.)	Time	pH	Conductivity (us/umhos)	Temp.(°C)	Color/Turbidity
0	0					
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Recovery Rate:
Fast
Medium
Slow

Groundwater Sampling

Water Level Recovery:

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

Sample Containers:

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

Sample Date : _____ Time: _____ Turbidity (NTU): NM
Sampling Equipment : Disposable Bailer D.O. mg/l NM
Calibrate Date: 8/4/2009

Comments: Not enough water to sample.

Groundwater Sampling Form

Project Name: Tesoro - Livermore #67076 **Project Number:** 01LV
Location: Livermore, CA **Date:** 8/5/09
Well Number: DW-1 **Well Integrity:** Good
Technician: D. Vargas / C. Young **Ambient Conditions:** Sunny

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW		Gallons Per Linear Foot	1 Well Volume (gal.)
2		-		=		X	0.17	=
3		-		=		X	0.38	=
(4)	64.75	-	52.22	=	12.53	X	0.66	= 8.27
4.5		-		=		X	0.83	=
6		-		=		X	1.5	=

Groundwater Surface Inspection

Floating Product (ft) (in.): N/A **Sheen/Iridescence:** ~~Slight~~ slight **Odor:** Yes

Groundwater Purging Purge Method

(Submersible Pump) Honda Pump Hand Bail Grab Sample

Stagnant Volumes Purged	Volume Purge (gal.)	Time	pH	Conductivity (us/umhos)	Temp.(°C)	Color/Turbidity
0	0	9:58	7.65	501	21.4	Brown / Cloudy
1	8.5	10:04	7.53	509	21.1	Brown / Cloudy / Sheen
2	17.0	10:09	7.51	510	21.1	Clear / Sheen / Lt. Brown
3	25.5	10:16	7.59	512	21.1	Clear / Sheen
4						
5						
6						
7						
8						
9						
10						

Recovery Rate: (Fast) Medium Slow

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	52.22	
(P) After Purging	62.40	
P- 0.8(P-I) =	54.26	80% Recovery
(S) Before Sampling	54.26	
(P-S) / (P-) X 100 =	80	% Total Recovery

Sample Containers:

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

Sample Date : 8/5/09 **Time:** 11:30 **Turbidity (NTU):** NM
Sampling Equipment : Disposable Bailer **D.O. mg/l** NM
Calibrate Date: 8/4/2009

Comments: ~~No Odor~~.

Groundwater Sampling Form

Project Name: Tesoro - Livermore #67076 **Project Number:** 01LV
Location: Livermore, CA **Date:** 8/4/09
Well Number: DW-2 **Well Integrity:** Good
Technician: D. Vargas / C. Young **Ambient Conditions:** Sunny

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW		Gallons Per Linear Foot	1 Well Volume (gal.)
2	-	=		X			0.17	=
3	-	=		X			0.38	=
(4)	59.84	-	54.67	=	5.17	X	0.66	= 3.41
4.5	-	=		X			0.83	=
6	-	=		X			1.5	=

Groundwater Surface Inspection

Floating Product (ft) (in.): Ø **Sheen/Iridescence:** slight **Odor:** Yes

Groundwater Purging Purge Method

Submersible Pump Honda Pump (Hand Bail) Grab Sample

Stagnant Volumes Purged	Volume Purge (gal.)	Time	pH	Conductivity (us/umhos)	Temp.(°C)	Color/Turbidity
0	0	11:02	7.20	537	20.6	clear
1	3.5	11:08	7.14	542	20.6	Gray/cloudy/sheen
2	7.0	11:12	7.21	544	20.5	Gray/cloudy/sheen
3	10.5	11:17	7.18	540	20.6	Gray/cloudy/sheen
4						
5						
6						
7						
8						
9						
10						

Recovery Rate: (Fast) Medium Slow

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	54.67	
(P) After Purging	[redacted] 56.59	
P- 0.8(P-I) = 55.05	[redacted]	80% Recovery
(S) Before Sampling	55.05	
(P-S) / (P-) X 100 =	80	% Total Recovery

Sample Containers:

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

Sample Date : 8/4/09 **Time:** 12:35 **Turbidity (NTU):** NM
Sampling Equipment : Disposable Bailer **D.O. mg/l** NM
Calibrate Date: 8/4/2009

Comments:

Groundwater Sampling Form

Project Name: Tesoro - Livermore #67076 **Project Number:** 01 LV
Location: Livermore, CA **Date:** 8/4/09
Well Number: DW-3 **Well Integrity:** Good
Technician: D. Vargas / C. Young **Ambient Conditions:** Sunny

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW		Gallons Per Linear Foot		1 Well Volume (gal.)
2	-		=		X		0.17	=	
3	-		=		X		0.38	=	
(4)	59.74	-	56.32	=	3.42	X	0.66	=	2.26
4.5	-		=		X		0.83	=	
6	-		=		X		1.5	=	

Groundwater Surface Inspection

Floating Product (ft) (in.): Ø **Sheen/Iridescence:** Slight **Odor:** Yes

Groundwater Purging Purge Method

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

Stagnant Volumes Purged	Volume Purge (gal.)	Time	pH	Conductivity (us/umhos)	Temp.(°C)	Color/Turbidity
0	0	11:23	7.29	539	21.4	Gray / Cloudy / Sheen
1	2.5	11:26	7.31	542	21.5	Gray / Cloudy / Sheen
2	5.0	11:31	7.36	542	21.3	Gray / Cloudy
3	7.5	11:38	7.41	537	21.7	Gray / Cloudy
4						
5						
6						
7						
8						
9						
10						

Recovery Rate: (Fast) Medium Slow

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	56.32	
(P) After Purging	59.24	
P- 0.8(P-I) =	56.90	80% Recovery
(S) Before Sampling	56.90	
(P-S) / (P-) X 100 =	100%	% Total Recovery

Sample Containers:

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

Sample Date : 8/4/09 **Time:** 12:04 **Turbidity (NTU):** NM
Sampling Equipment : Disposable Bailer **D.O. mg/l** NM
Calibrate Date: 8/4/2009

Comments: Missing bolt

Groundwater Sampling Form

Project Name: Tesoro - Livermore #67076 **Project Number:** 01LV
Location: Livermore, CA **Date:** 8/5/09
Well Number: DW-4 **Well Integrity:**
Technician: D. Vargas / C. Young **Ambient Conditions:** Sunny

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW	Gallons Per Linear Foot	1 Well Volume (gal.)
2		-		=	X	0.17	=
3		-		=	X	0.38	=
(4)	70.04	-	56.46	=	13.58 X	0.66	= 8.96
4.5		-		=	X	0.83	=
6		-		=	X	1.5	=

Groundwater Surface Inspection

Floating Product (ft) (in.): Ø **Sheen/Iridescence:** Slight **Odor:** Yes

Groundwater Purging Purge Method

(Submersible Pump) Honda Pump Hand Bail Grab Sample

Stagnant Volumes Purged	Volume Purge (gal.)	Time	pH	Conductivity (us/umhos)	Temp.(°C)	Color/Turbidity
0	0	10:33	7.65	497	21.2	Brown / cloudy
1	9	10:40	7.51	498	21.5	Brown / cloudy / Sheen
2	18	10:47	7.48	499	22.0	Lt. brown / clear
3	27	10:55	7.55	496	22.0	clear
4						
5						
6						
7						
8						
9						
10						

Recovery Rate: (Fast) Medium Slow

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)	
(I) Initially	56.46	
(P) After Purging	62.55	
P- 0.8(P-I) =	57.68	80% Recovery
(S) Before Sampling	57.68	
(P-S) / (P-) X 100 =	80	% Total Recovery

Sample Containers:

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

Sample Date : 8/5/09 **Time:** 11:10 **Turbidity (NTU):** NM
Sampling Equipment : Disposable Bailer **D.O. mg/l** NM
Calibrate Date: 8/4/2009

Comments:

Groundwater Sampling Form

Project Name: Tesoro - Livermore #67076 Project Number: 01LV
Location: Livermore, CA Date: 8/4/09
Well Number: TP-1 Well Integrity: Good
Technician: D. Vargas / C. Young Ambient Conditions: Sunny

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW		Gallons Per Linear Foot	1 Well Volume (gal.)
(2)	43.22	-	42.83	=	0.39	X	0.17	= 0.07
3		-		=		X	0.38	=
4		-		=		X	0.66	=
4.5		-		=		X	0.83	=
6		-		=		X	1.5	=

Groundwater Surface Inspection

Floating Product (ft) (in.):_____ Sheen/Iridescence:_____ Odor:_____

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Stagnant Volumes Purged	Volume Purge (gal.)	Time	pH	Conductivity (us/umhos)	Temp.(°C)	Color/Turbidity
0	0					
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Recovery Rate:
Fast
Medium
Slow

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)
(I) Initially	
(P) After Purging	
P- 0.8(P-I) =	
(S) Before Sampling	
(P-S) / (P-I) X 100 =	% Total Recovery

80% Recovery

Sample Containers:

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

Sample Date :_____ Time:_____ Turbidity (NTU): NM

Sampling Equipment : Disposable Bailer D.O. mg/l NM

Calibrate Date: 8/4/2009

Comments: Not enough water to sample

Groundwater Sampling Form

Project Name: Tesoro - Livermore #67076 Project Number: 01LV
Location: Livermore, CA Date: 8/4/09
Well Number: TP2 Well Integrity: Good
Technician: D. Vargas / C. Young Ambient Conditions: Sunny

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW		Gallons Per Linear Foot		1 Well Volume (gal.)
(2)	41.21	-	41.12	=	0.09	X	0.17	=	.015
3		-		=		X	0.38	=	
4		-		=		X	0.66	=	
4.5		-		=		X	0.83	=	
6		-		=		X	1.5	=	

Groundwater Surface Inspection

Floating Product (ft) (in.): _____ Sheen/Iridescence: _____ Odor: _____

Groundwater Purging Purge Method

Submersible Pump Honda Pump Hand Bail Grab Sample

Stagnant Volumes Purged	Volume Purge (gal.)	Time	pH	Conductivity (us/umhos)	Temp.(°C)	Color/Turbidity
0	0					
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Recovery Rate: Fast / Medium / Slow

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)
(I) Initially	
(P) After Purging	
P- 0.8(P-I) =	
(S) Before Sampling	
(P-S) / (P-) X 100 =	% Total Recovery

80% Recovery

Sample Containers:

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

Sample Date: _____ Time: _____ Turbidity (NTU): NM

Sampling Equipment: Disposable Bailer D.O. mg/l NM

Calibrate Date: 8/4/2009

Comments: Not enough water to Purge or Sample.

Groundwater Sampling Form

Project Name: Tesoro - Livermore #67076 **Project Number:** 01LV
Location: Livermore, CA **Date:** 8/4/09
Well Number: VW-2 **Well Integrity:** Good
Technician: D. Vargas / C. Young **Ambient Conditions:** Sunny

Well Volume Calculation

Well Casing Diameter (in.)	Total Well Depth		Depth To Ground-water (GW)		Linear Feet of GW		Gallons Per Linear Foot		1 Well Volume (gal.)
2	36.78	-	36.36	=	0.42	X	0.17	=	.07
3		-		=		X	0.38	=	
4		-		=		X	0.66	=	
4.5		-		=		X	0.83	=	
6		-		=		X	1.5	=	

Groundwater Surface Inspection

Floating Product (ft) (in.): _____ **Sheen/Iridescence:** _____ **Odor:** _____

Groundwater Purging Purge Method

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

Stagnant Volumes Purged	Volume Purge (gal.)	Time	pH	Conductivity (us/umhos)	Temp.(°C)	Color/Turbidity
0	0					
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Recovery Rate:
Fast
Medium
Slow

Groundwater Sampling

Water Level Recovery:

	Depth to GW (ft.)
(I) Initially	
(P) After Purging	
P- 0.8(P-I) =	
(S) Before Sampling	
(P-S) / (P-) X 100 =	

80% Recovery
% Total Recovery

Sample Containers:

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

Sample Date : _____ **Time:** _____ **Turbidity (NTU):** NM
Sampling Equipment : Disposable Bailer **D.O. mg/l** NM
Calibrate Date: 8/4/2009

Comments: Not enough water to purge or sample.

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		437.58
	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-2	6/1/93	38.02	472.98	434.96
	6/22/93	39.07		433.91
	10/6/93	43.72		429.26
	1/13/94	35.85		437.13
	3/30/94	32.82		440.16
	4/25/94	34.76		438.22
	8/12/94	44.33		428.65
	12/14/94	40.00		432.98
	2/10/95	32.16		440.82
	6/15/95	25.93		447.05
	9/26/95	32.42		440.56
	12/15/95	29.41		443.57
	3/21/96	17.47		455.51
	6/13/96	23.69		449.29
	9/16/96	31.24		441.74
	12/2/96	26.90		446.08
	3/7/97	21.33		451.65
	6/12/97	29.94		443.04
	9/29/97	34.22		438.76
	12/1/97	35.94		437.04
	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

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	6/30/01	37.58	472.98	435.40
(cont.)	9/26/01	44.97		428.01
	12/18/01	40.67		432.31
	3/18/02	38.94		434.04
	6/5/02	36.45		436.53
	8/21/02	37.15		435.83
	12/3/02	36.76		436.22
	3/4/03	33.60		439.38
	6/10/03	32.89		440.09
	9/9/03	35.45		437.53
	12/23/03	31.79		441.19
	3/23/04	28.25		444.73
	5/10/04	30.91		442.07
	8/4/04	35.36		437.62
	11/4/04	34.92		438.06
	1/12/05	29.46		443.52
	5/2/05	25.61		447.37
	7/19/05	30.11		442.87
	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

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	4/27/09	42.62	472.98	430.36
(cont.)	8/4/09	51.83		421.15
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
	3/13/00	24.28		449.09
	6/12/00	26.80		446.57
	11/10/00	29.47		443.90
	12/31/00	31.38		441.99

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	3/27/01	29.94	473.37	443.43
(cont.)	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
	5/8/08	35.60		437.77
	7/23/08	45.00		428.37
	10/13/08	50.70		422.67
	2/11/09	47.81		425.56

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	4/27/09	41.18	473.37	432.19
(cont.)	8/4/09	51.89		421.48
MW-4	3/30/94	31.56	473.64	442.08
	4/25/94	32.73		440.91
	8/12/94	41.61		432.03
	12/14/94	38.11		435.53
	2/10/95	30.50		443.14
	6/15/95	23.63		450.01
	9/26/95	29.70		443.94
	12/15/95	27.56		446.08
	3/21/96	15.63		458.01
	6/13/96	21.07		452.57
	9/16/96	28.99		444.65
	12/2/96	26.04		447.60
	3/7/97	19.69		453.95
	6/12/97	28.04		445.60
	9/29/97	29.91		443.73
	12/1/97	33.88		439.76
	3/19/98	18.67		454.97
	5/29/98	20.16		453.48
	9/15/98	30.46		443.18
	11/30/98	34.50		439.14
	1/17/99	28.30		445.34
	6/10/99	27.60		446.04
	9/7/99	30.79		442.85
	12/13/99	31.60		442.04
	3/13/00	24.35		449.29
	6/12/00	26.91		446.73
	11/10/00	29.71		443.93
	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

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	12/18/01	39.30	473.64	434.34
(cont.)	3/18/02	37.75		435.89
	6/5/02	35.68		437.96
	8/21/02	36.58		437.06
	12/3/02	35.90		437.74
	3/4/03	32.73		440.91
	6/10/03	31.20		442.44
	9/9/03	34.64		439.00
	12/23/03	31.30		442.34
	3/23/04	26.71		446.93
	5/10/04	30.33		443.31
	8/4/04	34.87		438.77
	11/4/04	34.28		439.36
	1/12/05	28.67		444.97
	5/2/05	24.46		449.18
	7/19/05	29.36		444.28
	11/21/05	31.80		441.84
	2/9/06	26.34		447.30
	5/16/06	24.30		449.34
	8/9/06	32.05		441.59
	11/8/06	32.85		440.79
	2/14/07	30.46		443.18
	5/17/07	33.92		439.72
	8/2/07	40.68		432.96
	11/12/07	DRY[c]		--
	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		--

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	3/30/94	32.07	472.67	440.60
(cont.)	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
	3/27/01	30.57		442.10
	6/30/01	37.24		435.43
	9/26/01	44.53		428.14
	12/18/01	40.65		432.02
	3/18/02	38.75		433.92
	6/5/02	36.21		436.46
	8/21/02	36.76		435.91

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	12/3/02	36.12	472.67	436.55
(cont.)	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		--
	4/27/09	42.5		430.17
	8/4/09	DRY		--
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

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	6/15/95	26.88	471.93	445.05
(cont.)	9/26/95	33.55		438.38
	12/15/95	30.32		441.61
	3/21/96	18.89		453.04
	6/13/96	24.62		447.31
	9/16/96	32.64		439.29
	12/2/96	27.42		444.51
	3/7/97	22.13		449.80
	6/12/97	31.02		440.91
	9/29/97	35.77		436.16
	12/1/97	37.14		434.79
	3/19/98	21.10		450.83
	5/29/98	23.26		448.67
	9/15/98	33.50		438.43
	11/30/98	38.73		433.20
	1/17/99	32.05		439.88
	6/10/99	31.44		440.49
	9/7/99	33.94		437.99
	12/13/99	35.84		436.09
	3/13/00	28.45		443.48
	6/12/00	30.52		441.41
	11/10/00	32.99		438.94
	12/31/00	34.95		436.98
	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

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	9/9/03	37.66	471.93	434.27
(cont.)	12/23/03	33.43		438.50
	3/23/04	29.96		441.97
	5/10/04	32.98		438.95
	8/4/04	37.02		434.91
	11/4/04	37.03		434.90
	1/12/05	32.01		439.92
	5/2/05	27.30		444.63
	7/19/05	32.27		439.66
	11/21/05	33.23		438.70
	2/9/06	29.07		442.86
	5/17/06	27.23		444.70
	8/9/06	35.22		436.71
	11/8/06	33.41		438.52
	2/14/07	33.43		438.50
	5/17/07	36.50		435.43
	8/2/07	42.24		429.69
	11/12/07	DRY		--
	2/14/08	38.67		433.26
	5/8/08	38.50		433.43
	7/23/08	DRY		--
	10/13/08	DRY		--
	2/11/09	DRY		--
	4/27/09	44.87		427.06
	8/4/09	DRY		--
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

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	3/21/96	17.36	472.33	454.97
(cont.)	6/13/96	23.47		448.86
	9/16/96	31.35		440.98
	12/2/96	27.11		445.22
	3/7/97	21.33		451.00
	6/12/97	29.90		442.43
	9/29/97	34.37		437.96
	12/1/97	36.46		435.87
	3/19/98	20.33		452.00
	5/29/98	22.30		450.03
	9/15/98	32.54		439.79
	11/30/98	37.96		434.37
	1/17/99	31.04		441.29
	6/10/99	29.89		442.44
	9/7/99	32.38		439.95
	12/13/99	33.98		438.35
	3/13/00	27.09		445.24
	6/12/00	28.76		443.57
	11/10/00	31.54		440.79
	12/31/00	32.76		439.57
	3/27/01	30.97		441.36
	6/30/01	37.50		434.83
	9/26/01	45.11		427.22
	12/18/01	41.13		431.20
	3/18/02	39.22		433.11
	6/5/02	36.55		435.78
	8/21/02	36.81		435.52
	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

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	5/10/04	29.86	472.33	442.47
(cont.)	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		--
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

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	11/8/06	32.10	471.18	439.08
(cont.)	2/14/07	30.94		440.24
	5/17/07	34.14		437.04
	8/2/07	41.24		429.94
	11/12/07	DRY		--
	2/14/08	35.55		435.63
	5/8/08	36.64		434.54
	7/23/08	DRY		--
	10/13/08	DRY		--
	2/11/09	DRY		--
	4/27/09	DRY		--
	8/4/09	DRY		--
MW-9	12/23/03	34.03	470.78	436.75
	3/23/04	30.01		440.77
	5/10/04	33.61		437.17
	8/4/04	37.47		433.31
	11/4/04	37.44		433.34
	5/2/05	27.73		443.05
	7/19/05	32.90		437.88
	11/21/05	34.15		436.63
	2/9/06	29.44		441.34
	5/16/06	27.50		443.28
	8/9/06	35.85		434.93
	11/8/06	34.18		436.60
	2/14/07	34.00		436.78
	5/17/07	36.88		433.90
	8/2/07	44.11		426.67
	11/12/07	DRY		--
	2/14/08	39.32		431.46
	5/8/08	38.90		431.88
	7/23/08	DRY		--
	10/13/08	DRY		--
	2/11/09	DRY		--

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	4/27/09	DRY	470.78	--
(cont.)	8/4/09	DRY		--
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	DRY		--
	8/4/09	DRY		--
MW-11	12/16/08	DRY	473.26	--
	2/11/09	DRY		--
	4/27/09	DRY		--
	8/4/09	DRY		--
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

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	7/19/05	29.76	473.28	443.52
(cont.)	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		--
	4/27/09	DRY		--
	8/4/09	DRY		--
VW-3	8/4/04	32.89	474.38	441.49
	11/4/04	34.78		439.60
	1/12/05	29.51		444.87
	5/2/05	24.79		449.59
	7/19/05	28.91		445.47
	11/21/05	31.07		443.31
	2/9/06	26.60		447.78
	5/16/06	24.19		450.19
	8/9/06	30.53		443.85
	11/8/06	31.62		442.76
	2/14/07	30.48		443.90
	5/17/07	31.70		442.68
	8/2/07	35.55		438.83
	11/12/07	DRY		--
	2/14/08	DRY		--
	5/8/08	34.80		439.58
	7/23/08	DRY		--

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	10/13/08	DRY	474.38	--
(cont.)	2/11/09	DRY		--
	4/27/09	DRY		--
	8/4/09	DRY		--
TP-1	7/19/05	29.91	472.82	442.91
	11/21/05	32.28		440.54
	2/9/06	28.02		444.80
	5/17/06	25.18		447.64
	8/9/06	32.81		440.01
	11/8/06	32.02		440.80
	2/14/07	33.59		439.23
	5/17/07	33.52		439.30
	8/2/07	40.30		432.52
	11/12/07	DRY		--
	2/14/08	36.17		436.65
	5/8/08	36.17		436.65
	7/23/08	DRY		--
	10/13/08	DRY		--
	2/11/09	DRY		--
	4/27/09	DRY		--
	8/4/09	DRY		--
TP-2	7/19/05	29.67	472.93	443.26
	11/21/05	31.43		441.50
	2/9/06	27.27		445.66
	5/17/06	25.00		447.93
	8/9/06	31.74		441.19
	11/8/06	32.80		440.13
	2/14/07	30.32		442.61
	5/17/07	33.28		439.65
	8/2/07	39.35		433.58
	11/12/07	DRY		--
	2/14/08	35.62		437.31
	5/8/08	36.62		436.31
	7/23/08	DRY		--

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	10/13/08	DRY	472.93	--
(cont.)	2/11/09	DRY		--
	4/27/09	DRY		--
	8/4/09	DRY		--
DW-1	5/22/08	37.30	472.85	435.55
	7/23/08	45.55		427.30
	10/13/08	51.40		421.45
	2/11/09	48.28		424.57
	4/27/09	41.74		431.11
	8/4/09	52.22		420.63
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
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
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	41.73		426.75
	8/4/09	56.46		412.02
MW-A	1/17/99	30.13	NM[(d)]	NM
MW-B	1/17/99	30.29	NM	NM
MW-C	1/17/99	30.60	NM	NM
MW-D	1/17/99	31.32	NM	NM

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-E	1/17/99	31.36	NM	NM
MW-W	1/17/99	30.91	NM	NM

(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) Potentiometric Surface Elevation = (Casing Elevation - Depth to Water)

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

(d) NM = Well not surveyed.

ATTACHMENT D

HISTORICAL GROUNDWATER ANALYTICAL RESULTS

TABLE D-1

HISTORICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (ug/l)	Benzene[b] (ug/l)	Toluene[b] (ug/l)	Ethylbenzene[b] (ug/l)	Total Xylenes[b] (ug/l)	MTBE[b] (ug/l)	DIPE[b] (ug/l)	ETBE[b] (ug/l)	TAME[b] (ug/l)	TBA[b] (ug/l)	Methanol[b] (ug/l)	Ethanol[b] (ug/l)	1,2-DCA[b] (ug/l)	EDB[b] (ug/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	1000	1,200	320	1,500	--	--	--	--	--	--	--	--	--
	2/10/95	9,300	1,200	1,500	280	1,500	--	--	--	--	--	--	--	--	--
	6/15/95	140	5.6	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	9/26/95	410	140	ND<0.5	ND<0.5	43	--	--	--	--	--	--	--	--	--
	12/15/95	740	250	ND<1.3	ND<1.3	87	--	--	--	--	--	--	--	--	--
	3/21/96	ND<50	0.52	ND<0.5	ND<0.5	0.51	--	--	--	--	--	--	--	--	--
	6/13/96	240	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	9/16/96	720	70	ND<0.5	1.0	5.1	ND<5	--	--	--	--	--	--	--	--
	12/2/96	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	3/7/97	600	6.7	ND<0.5	1.2	1.8	ND<5	--	--	--	--	--	--	--	--
	6/12/97	18,000	180	800	410	1,800	ND<5	--	--	--	--	--	--	--	--
	9/29/97	350	120	1.5	ND<0.5	12	ND<5	--	--	--	--	--	--	--	--
	12/1/97	ND<50	7.0	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	3/19/98	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	5/29/98	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	9/15/98	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	11/30/98	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	1/17/99	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	6/10/99	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	9/7/99	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	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	--	--	--	--	--	--	--	--

TABLE D-1

HISTORICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (ug/l)	Benzene[b] (ug/l)	Toluene[b] (ug/l)	Ethylbenzene[b] (ug/l)	Total Xylenes[b] (ug/l)	MTBE[b] (ug/l)	DIPE[b] (ug/l)	ETBE[b] (ug/l)	TAME[b] (ug/l)	TBA[b] (ug/l)	Methanol[b] (ug/l)	Ethanol[b] (ug/l)	1,2-DCA[b] (ug/l)	EDB[b] (ug/l)
MW-1	11/10/00	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--
(cont.)	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	0.8	0.7	0.86	2.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<40	ND<5	ND<0.5	ND<0.5
	7/19/05	290	ND<0.5	ND<0.5	4.0	4.1	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/21/05	370	ND<0.5	ND<0.5	0.75	1.3	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/9/06	140	ND<0.5	ND<0.5	0.67	1.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/16/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/9/06	100	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/8/06	400	ND<0.5	ND<0.5	1.7	1.9	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/14/07	410	ND<0.5	ND<0.5	2.2	2.2	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/17/07	2,300	ND<0.5	0.66	17	21	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<8	--	--
	8/2/07	580	5.7	0.64	6.8	12	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/12/07	750	0.85	2.7	4.2	9.3	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<20	ND<0.5	ND<0.5
	2/14/08	1,700	3.3	17	38	83	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/8/08	620	1.8	ND<0.5	12	12	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/23/08	270	0.52	ND<0.5	3.9	1.8	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<80	ND<5	ND<0.5	ND<0.5
	10/13/08	730	ND<0.5	ND<0.5	0.68	0.8	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
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	--	--	--	--	--	--	--	--	--

TABLE D-1

HISTORICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (ug/l)	Benzene[b] (ug/l)	Toluene[b] (ug/l)	Ethylbenzene[b] (ug/l)	Total Xylenes[b] (ug/l)	MTBE[b] (ug/l)	DIPE[b] (ug/l)	ETBE[b] (ug/l)	TAME[b] (ug/l)	TBA[b] (ug/l)	Methanol[b] (ug/l)	Ethanol[b] (ug/l)	1,2-DCA[b] (ug/l)	EDB[b] (ug/l)
MW-2	3/30/94	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
(cont.)	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	--	--	--	--	--	--	--	--
	9/15/98	36,000	3,900	1,200	1,400	7,800	ND<250	--	--	--	--	--	--	--	--
	11/30/98	16,000	2,200	59	1,200	1,500	ND<250	--	--	--	--	--	--	--	--
	1/17/99	30,000	4,000	2,200	2,100	9,500	ND<250	--	--	--	--	--	--	--	--
	6/10/99	70,000	6,300	1,800	3,600	14,000	ND<500	--	--	--	--	--	--	--	--
	9/7/99	42,000	3,800	840	1,900	8,000	150	--	--	--	--	--	--	--	--
	12/13/99	14,000	1,400	87	690	110	34	--	--	--	--	--	--	--	--
	3/13/00	38,000	2,400	2,300	1,600	6,400	2,400	--	--	--	--	--	--	--	--
	6/12/00	56,000	4,000	950	2,300	7,200	ND<50	--	--	--	--	--	--	--	--
	11/10/00	35,000	5,100	850	1,500	3,200	230	--	--	--	--	--	--	--	--
	12/31/00	21,000	3,200	420	1,300	1,200	440	--	--	--	--	--	--	--	--
	3/27/01	3,500	420	64	16	280	120	--	--	--	--	--	--	--	--
	6/30/01	1,200	88	4.5	65	37	29	--	--	--	--	--	--	--	--
	9/26/01	53,000	8,500	1,500	2,400	4,600	270	--	--	--	--	--	--	--	--

TABLE D-1

HISTORICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (ug/l)	Benzene[b] (ug/l)	Toluene[b] (ug/l)	Ethylbenzene[b] (ug/l)	Total Xylenes[b] (ug/l)	MTBE[b] (ug/l)	DIPE[b] (ug/l)	ETBE[b] (ug/l)	TAME[b] (ug/l)	TBA[b] (ug/l)	Methanol[b] (ug/l)	Ethanol[b] (ug/l)	1,2-DCA[b] (ug/l)	EDB[b] (ug/l)
MW-2	12/18/01	26,000	5,400	900	1,500	2,200	430	--	--	--	--	--	--	--	--
(cont.)	3/18/02	4,200	240	7.3	200	53	89	--	--	--	--	--	--	--	--
	1/22/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	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
	5/10/04	7,300	1000	51	240	290	1,800	ND<5	ND<5	14	ND<50	ND<500	ND<50	ND<5	ND<5
	8/4/04	45,000	7,200	1,900	1,800	5,100	2,500	ND<25	ND<25	31	ND<250	ND<2,500	ND<250	ND<25	ND<25
	11/4/04	27,000	4,400	1,100	840	2,200	3,500	ND<9	ND<9	29	ND<50	ND<900	ND<90	ND<9	ND<9
	1/12/05	16,000	1,900	640	570	1,500	1,900	ND<4	ND<4	19	28[f]	ND<400	ND<40	ND<4	ND<4
	5/2/05	44,000	5,200	1,100	1,800	4,800	2,200	ND<20	ND<20	30	ND<200	ND<2,000	ND<200	ND<20	ND<20
	7/20/05	21,000	3,000	500	1000	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	1000	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<1000	ND<50	ND<5	ND<5
	7/23/08	25,000	3,800	220	1,600	1000	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

TABLE D-1

HISTORICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (ug/l)	Benzene[b] (ug/l)	Toluene[b] (ug/l)	Ethylbenzene[b] (ug/l)	Total Xylenes[b] (ug/l)	MTBE[b] (ug/l)	DIPE[b] (ug/l)	ETBE[b] (ug/l)	TAME[b] (ug/l)	TBA[b] (ug/l)	Methanol[b] (ug/l)	Ethanol[b] (ug/l)	1,2-DCA[b] (ug/l)	EDB[b] (ug/l)
MW-2	4/28/09	28,000	3,400	600	1,500	1,700	380	ND<8	ND<8	8.1	150	ND<1000	ND<80	ND<8	ND<8
(cont.)	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
MW-3	6/1/93	270	4.6	ND<0.5	ND<0.5	1.9	--	--	--	--	--	--	--	--	--
	6/22/93	160	8.2	ND<0.5	ND<0.5	0.72	--	--	--	--	--	--	--	--	--
	10/6/93	740	57	110	24	120	--	--	--	--	--	--	--	--	--
	1/13/94	83	2.6	0.67	0.78	4.2	--	--	--	--	--	--	--	--	--
	3/30/94	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/25/94	60	0.75	3.2	0.5	3.6	--	--	--	--	--	--	--	--	--
	8/12/94	310	7.3	14	2.6	13	--	--	--	--	--	--	--	--	--
	12/14/94	75	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	2/10/95	96	1.4	ND<0.5	ND<0.5	1.8	--	--	--	--	--	--	--	--	--
	6/15/95	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	9/26/95	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	12/15/95	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	11/4/04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	6.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/12/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	4.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/2/05	140	ND<0.5	ND<0.5	ND<0.5	0.81	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/19/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.6	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/21/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	3.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/9/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	2.9	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/16/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/9/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/8/06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	0.71	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/14/07	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/17/07	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	0.54	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	--	--
	8/2/07	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	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

TABLE D-1

HISTORICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (ug/l)	Benzene[b] (ug/l)	Toluene[b] (ug/l)	Ethylbenzene[b] (ug/l)	Total Xylenes[b] (ug/l)	MTBE[b] (ug/l)	DIPE[b] (ug/l)	ETBE[b] (ug/l)	TAME[b] (ug/l)	TBA[b] (ug/l)	Methanol[b] (ug/l)	Ethanol[b] (ug/l)	1,2-DCA[b] (ug/l)	EDB[b] (ug/l)
MW-3	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
(cont.)	4/27/09	ND<50	ND<0.5	ND<0.5	ND<0.5	0.64	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/4/09	190	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-4	3/30/94	120	4.2	15	2.5	26	--	--	--	--	--	--	--	--	--
	4/25/94	65	ND<0.5	1.8	ND<0.5	2.1	--	--	--	--	--	--	--	--	--
	8/12/94	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	12/14/94	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	2/10/95	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	6/15/95	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	9/26/95	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	12/15/95	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	11/4/04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/12/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/2/05	ND<50	1.8	1.1	1.4	4.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/19/05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	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

TABLE D-1

HISTORICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (ug/l)	Benzene[b] (ug/l)	Toluene[b] (ug/l)	Ethylbenzene[b] (ug/l)	Total Xylenes[b] (ug/l)	MTBE[b] (ug/l)	DIPE[b] (ug/l)	ETBE[b] (ug/l)	TAME[b] (ug/l)	TBA[b] (ug/l)	Methanol[b] (ug/l)	Ethanol[b] (ug/l)	1,2-DCA[b] (ug/l)	EDB[b] (ug/l)
MW-5	3/30/94	7,500	1,300	20	ND<13	160	--	--	--	--	--	--	--	--	--
	4/25/94	6,500	1,100	41	130	740	--	--	--	--	--	--	--	--	--
	8/12/94	4,000	420	2.9	41	98	--	--	--	--	--	--	--	--	--
	12/14/94	4,800	660	ND<2.5	33	13	--	--	--	--	--	--	--	--	--
	2/10/95	5,200	490	ND<13	23	19	--	--	--	--	--	--	--	--	--
	6/15/95	460	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--	--
	9/26/95	1,400	61	ND<0.5	3.1	ND<0.5	--	--	--	--	--	--	--	--	--
	12/15/95	2,100	77	1.5	10	1.5	--	--	--	--	--	--	--	--	--
	3/21/96	930	35	2.0	2.0	18	--	--	--	--	--	--	--	--	--
	6/13/96	610	38	0.72	1.9	2.0	ND<5	--	--	--	--	--	--	--	--
	9/16/96	380	29	ND<0.5	0.95	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	12/2/96	200	1.1	0.64	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	3/7/97	520	74	ND<0.5	0.58	1.5	ND<5	--	--	--	--	--	--	--	--
	6/12/97	140	5.3	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	9/29/97	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	12/1/97	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	3/19/98	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	5/29/98	540	4.1	ND<0.5	ND<0.5	0.52	ND<5	--	--	--	--	--	--	--	--
	9/15/98	67	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	11/30/98	430	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	1/17/99	500	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	6/10/99	66	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	--	--	--	--	--	--	--	--
	9/7/99	820	46	1.7	10	21	ND<5	--	--	--	--	--	--	--	--
	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] (ug/l)	Benzene[b] (ug/l)	Toluene[b] (ug/l)	Ethylbenzene[b] (ug/l)	Total Xylenes[b] (ug/l)	MTBE[b] (ug/l)	DIPE[b] (ug/l)	ETBE[b] (ug/l)	TAME[b] (ug/l)	TBA[b] (ug/l)	Methanol[b] (ug/l)	Ethanol[b] (ug/l)	1,2-DCA[b] (ug/l)	EDB[b] (ug/l)
MW-5	12/18/01	240	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--
(cont.)	1/22/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/18/02	890	0.65	ND<0.5	ND<0.5	ND<0.5	3.1	--	--	--	--	--	--	--	--
	6/5/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/21/02	2,100	20	ND<0.5	63	4.0	7.0	--	--	--	--	--	--	--	--
	12/3/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/4/03	490	10	ND<0.5	2.2	ND<0.5	1.0	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	6/10/03	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/9/03	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	12/23/03	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/23/04	440	2.3	ND<0.5	1.0	5.9	2.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/10/04	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/4/04	160	ND<0.5	ND<0.5	ND<0.5	0.71	0.94	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/4/04	290	0.74	ND<0.5	0.58	1.3	0.61	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/12/05	300	ND<0.5	ND<0.5	0.51	1.6	0.73	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/2/05	120	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/20/05	330	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.1	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/21/05	210	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.2	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/9/06	ND<50	ND<0.5	ND<0.5	0.63	1.0	1.0	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/16/06	140	ND<0.5	ND<0.5	ND<0.5	ND<0.5	0.79	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/9/06	220	ND<0.5	ND<0.5	ND<0.5	ND<0.5	7.8	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/8/06	120	ND<0.5	ND<0.5	ND<0.5	ND<0.5	2.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/14/07	200	ND<0.5	ND<0.5	ND<0.5	1.1	2.1	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/17/07	140	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.4	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	--	--
	8/2/07	85	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.9	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/12/07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/14/08	980	ND<0.5	ND<0.5	2.1	ND<0.5	1.0	ND<0.5	ND<0.5	ND<0.5	34	ND<50	ND<5	ND<0.5	ND<0.5
	5/8/08	580	ND<0.5	ND<0.5	1.8	ND<0.5	0.6	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

TABLE D-1

HISTORICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (ug/l)	Benzene[b] (ug/l)	Toluene[b] (ug/l)	Ethylbenzene[b] (ug/l)	Total Xylenes[b] (ug/l)	MTBE[b] (ug/l)	DIPE[b] (ug/l)	ETBE[b] (ug/l)	TAME[b] (ug/l)	TBA[b] (ug/l)	Methanol[b] (ug/l)	Ethanol[b] (ug/l)	1,2-DCA[b] (ug/l)	EDB[b] (ug/l)
MW-5	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
(cont.)	8/4/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-6	3/30/94	63,000	21,000	8,600	1,700	12,000	--	--	--	--	--	--	--	--	--
	4/25/94	77,000	22,000	12,000	2,300	16,000	--	--	--	--	--	--	--	--	--
	8/12/94	65,000	12,000	8,100	2,200	16,000	--	--	--	--	--	--	--	--	--
	12/14/94	65,000	18,000	9,500	2,200	14,000	--	--	--	--	--	--	--	--	--
	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	--	--	--	--	--	--	--	--
	6/10/99	22,000	1,600	160	1,400	2,900	5.5	--	--	--	--	--	--	--	--
	9/7/99	17,000	1,400	33	1,300	1,800	ND<50	--	--	--	--	--	--	--	--
	12/13/99	16,000	790	9.2	840	780	ND<25	--	--	--	--	--	--	--	--
	3/13/00	16,000	790	85	780	1,600	ND<25	--	--	--	--	--	--	--	--
	6/12/00	24,000	1,100	150	1,300	2,300	5,600	--	--	--	--	--	--	--	--
	11/10/00	13,000	440	7.0	760	350	1000	--	--	--	--	--	--	--	--
	12/31/00	12,000	680	8.0	820	190	1,400	--	--	--	--	--	--	--	--
	3/27/01	14,000	330	17	940	670	380	--	--	--	--	--	--	--	--

TABLE D-1

HISTORICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (ug/l)	Benzene[b] (ug/l)	Toluene[b] (ug/l)	Ethylbenzene[b] (ug/l)	Total Xylenes[b] (ug/l)	MTBE[b] (ug/l)	DIPE[b] (ug/l)	ETBE[b] (ug/l)	TAME[b] (ug/l)	TBA[b] (ug/l)	Methanol[b] (ug/l)	Ethanol[b] (ug/l)	1,2-DCA[b] (ug/l)	EDB[b] (ug/l)
MW-6	6/30/01	750	45	0.93	47	14	54	--	--	--	--	--	--	--	--
(cont.)	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	1000	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<1000	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<1000	ND<100	ND<10	ND<10
	8/4/04	8,200	990	19	300	120	3,300	ND<5	ND<5	23	ND<50	ND<500	ND<50	ND<5	ND<5
	11/4/04	9,600	1,100	30	320	160	2,200	ND<4	ND<4	18	22	ND<400	ND<40	ND<4	ND<4
	1/12/05	12,000	1,100	34	600	500	3,600	ND<4	ND<4	31	30	ND<400	ND<40	ND<4	ND<4
	5/2/05	14,000	630	22	610	920	4,000	ND<10	ND<10	32	120	ND<3,000	ND<100	ND<10	ND<10
	7/20/05	9,800	1,200	21	340	150	1,800	ND<2.5	ND<2.5	14	140	ND<500	ND<25	ND<2.5	ND<2.5
	11/21/05	6,600	150	26	580	640	100	ND<1	ND<1	ND<1	13	ND<100	ND<10	ND<1	ND<1
	2/9/06	7,100	340	11	370	360	910	ND<2	ND<2	9.3	120	ND<200	ND<20	ND<2	ND<2
	5/17/06	7,100	270	5.1	320	290	930	ND<2	ND<2	8.4	260	ND<200	ND<20	ND<2	ND<2
	8/9/06	5,800	440	7.5	120	45	670	ND<2	ND<2	7.3	380	ND<2,000	ND<50	ND<2	ND<2
	11/8/06	9,200	990	37	390	140	310	ND<2	ND<2	3.2	110	ND<200	ND<20	ND<2	ND<2
	2/14/07	5,900	480	10	73	23	1,600	ND<2	ND<2	14	1,100	ND<500	ND<20	ND<2	ND<2
	5/17/07	3,700	240	3.4	30	10	770	ND<0.5	ND<0.5	9.2	800	ND<2,000	ND<5	--	--
	8/2/07	15,000	1,800	120	980	510	310	ND<2.5	ND<2.5	3.0	180	ND<250	ND<25	ND<2.5	ND<2.5
	11/12/07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/14/08	14,000	2,000	63	750	190	810	ND<2.5	ND<2.5	7.7	600	ND<250	ND<25	ND<2.5	ND<2.5
	5/8/08	15,000	1,700	59	700	130	540	ND<2.5	ND<2.5	5.9	410	ND<2,000	ND<25	ND<2.5	ND<2.5
	7/23/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

TABLE D-1

HISTORICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (ug/l)	Benzene[b] (ug/l)	Toluene[b] (ug/l)	Ethylbenzene[b] (ug/l)	Total Xylenes[b] (ug/l)	MTBE[b] (ug/l)	DIPE[b] (ug/l)	ETBE[b] (ug/l)	TAME[b] (ug/l)	TBA[b] (ug/l)	Methanol[b] (ug/l)	Ethanol[b] (ug/l)	1,2-DCA[b] (ug/l)	EDB[b] (ug/l)
MW-6	10/13/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
(cont.)	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<1000	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
MW-7	3/30/94	43,000	7,200	2,400	1,600	11,000	--	--	--	--	--	--	--	--	--
	4/25/94	30,000	3,900	1000	940	6,900	--	--	--	--	--	--	--	--	--
	8/12/94	30,000	3,800	1,400	1,300	7,500	--	--	--	--	--	--	--	--	--
	12/14/94	31,000	3,600	1,200	900	6,400	--	--	--	--	--	--	--	--	--
	2/10/95	27,000	4,000	900	890	5,100	--	--	--	--	--	--	--	--	--
	6/15/95	17,000	920	680	740	4,100	--	--	--	--	--	--	--	--	--
	9/26/95	7,000	200	150	170	810	--	--	--	--	--	--	--	--	--
	12/15/95	11,000	350	170	540	1,900	--	--	--	--	--	--	--	--	--
	3/21/96	12,000	320	100	730	2,500	--	--	--	--	--	--	--	--	--
	6/13/96	5,900	98	19	370	620	ND<50	--	--	--	--	--	--	--	--
	9/16/96	7,800	140	43	440	590	ND<25	--	--	--	--	--	--	--	--
	12/2/96	6,300	87	29	290	430	ND<50	--	--	--	--	--	--	--	--
	3/7/97	4,500	35	19	360	470	ND<25	--	--	--	--	--	--	--	--
	6/12/97	3,900	29	5.2	170	48	ND<5	--	--	--	--	--	--	--	--
	9/29/97	6,100	56	9.0	340	190	ND<25	--	--	--	--	--	--	--	--
	12/1/97	6,500	24	ND<2.5	400	250	ND<25	--	--	--	--	--	--	--	--
	3/19/98	2,000	20	ND<2.5	73	79	ND<25	--	--	--	--	--	--	--	--
	5/29/98	5,700	22	7.3	290	350	ND<25	--	--	--	--	--	--	--	--
	9/15/98	1,700	15	ND<2.5	44	5.1	ND<25	--	--	--	--	--	--	--	--
	11/30/98	4,800	42	12	270	640	ND<25	--	--	--	--	--	--	--	--
	1/17/99	3,400	33	ND<5	200	190	ND<50	--	--	--	--	--	--	--	--
	6/10/99	1,700	7.8	1.5	23	4.1	ND<5	--	--	--	--	--	--	--	--
	9/7/99	1,900	9.7	2.1	70	2.9	ND<5	--	--	--	--	--	--	--	--
	12/13/99	1,900	8.0	1.1	10	1.1	ND<5	--	--	--	--	--	--	--	--
	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	1000	3.9	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] (ug/l)	Benzene[b] (ug/l)	Toluene[b] (ug/l)	Ethylbenzene[b] (ug/l)	Total Xylenes[b] (ug/l)	MTBE[b] (ug/l)	DIPE[b] (ug/l)	ETBE[b] (ug/l)	TAME[b] (ug/l)	TBA[b] (ug/l)	Methanol[b] (ug/l)	Ethanol[b] (ug/l)	1,2-DCA[b] (ug/l)	EDB[b] (ug/l)
MW-7	12/31/00	620	1.8	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	--	--	--	--	--
(cont.)	3/27/01	1,200	4.8	ND<0.5	6.7	0.94	ND<0.5	--	--	--	--	--	--	--	--
	6/30/01	2,800	10	1.7	75	170	ND<0.5	--	--	--	--	--	--	--	--
	9/26/01	1,900	16	0.89	2.3	25	ND<0.5	--	--	--	--	--	--	--	--
	12/18/01	3,000	13	0.88	3.4	3.4	ND<0.5	--	--	--	--	--	--	--	--
	1/22/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/18/02	3,100	7.3	1.5	38	110	ND<0.5	--	--	--	--	--	--	--	--
	6/5/02	1,800	7.6	1.0	39	20	ND<0.5	--	--	--	--	--	--	--	--
	8/21/02	3,300	7.6	0.7	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	0.8	ND<0.5	ND<0.5	ND<0.5	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] (ug/l)	Benzene[b] (ug/l)	Toluene[b] (ug/l)	Ethylbenzene[b] (ug/l)	Total Xylenes[b] (ug/l)	MTBE[b] (ug/l)	DIPE[b] (ug/l)	ETBE[b] (ug/l)	TAME[b] (ug/l)	TBA[b] (ug/l)	Methanol[b] (ug/l)	Ethanol[b] (ug/l)	1,2-DCA[b] (ug/l)	EDB[b] (ug/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
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
	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

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HISTORICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (ug/l)	Benzene[b] (ug/l)	Toluene[b] (ug/l)	Ethylbenzene[b] (ug/l)	Total Xylenes[b] (ug/l)	MTBE[b] (ug/l)	DIPE[b] (ug/l)	ETBE[b] (ug/l)	TAME[b] (ug/l)	TBA[b] (ug/l)	Methanol[b] (ug/l)	Ethanol[b] (ug/l)	1,2-DCA[b] (ug/l)	EDB[b] (ug/l)
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	0.8	0.8	2.1	ND<0.5	ND<0.5	ND<0.5	5.9	ND<50	ND<5	ND<0.5	ND<0.5
	3/23/04	760	8.5	ND<0.5	4.9	0.95	18	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/10/04	1,100	4.4	ND<0.5	1.3	0.67	11	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/4/04	1,200	3.4	0.59	16	7.6	6.1	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/4/04	610	0.52	ND<0.5	1.3	ND<0.5	2	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	1000	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
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
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Monitoring Well	Sample Date[a]	TPHg[b] (ug/l)	Benzene[b] (ug/l)	Toluene[b] (ug/l)	Ethylbenzene[b] (ug/l)	Total Xylenes[b] (ug/l)	MTBE[b] (ug/l)	DIPE[b] (ug/l)	ETBE[b] (ug/l)	TAME[b] (ug/l)	TBA[b] (ug/l)	Methanol[b] (ug/l)	Ethanol[b] (ug/l)	1,2-DCA[b] (ug/l)	EDB[b] (ug/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
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
VW-2	8/4/04	5,700	480	ND<20	600	ND<20	12,000	ND<20	ND<20	110	ND<90	ND<2,000	ND<200	ND<20	ND<20
	11/4/04	5,800	340	ND<20	38	ND<20	10,000	ND<20	ND<20	120	ND<90	ND<2,000	ND<200	ND<20	ND<20
	1/12/05	3,800	210	ND<5	90	54	2,900	ND<5	ND<5	33	26[f]	ND<500	ND<50	ND<5	ND<5
	5/2/05	2,600	84	ND<2	13	7.0	960	ND<2	ND<2	12	57	ND<500	ND<20	ND<2	ND<2
	7/20/05	6,200	240	13	290	480	6,600	ND<2	ND<2	56	59[f]	ND<2,000	ND<20	ND<2	ND<2
	11/21/05	3,100	100	ND<9	22	10	5,300	ND<9	ND<9	54	76[f]	ND<900	ND<90	ND<9	ND<9
	2/9/06	3,500	140	ND<25	130	36	12,000	ND<25	ND<25	65	2,800	ND<2,500	ND<250	ND<25	ND<25
	5/17/06	1,800	90	2.6	39	11	1,200	ND<2.5	ND<2.5	12	700	ND<250	ND<25	ND<2.5	ND<2.5

TABLE D-1

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

TABLE D-1

HISTORICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (ug/l)	Benzene[b] (ug/l)	Toluene[b] (ug/l)	Ethylbenzene[b] (ug/l)	Total Xylenes[b] (ug/l)	MTBE[b] (ug/l)	DIPE[b] (ug/l)	ETBE[b] (ug/l)	TAME[b] (ug/l)	TBA[b] (ug/l)	Methanol[b] (ug/l)	Ethanol[b] (ug/l)	1,2-DCA[b] (ug/l)	EDB[b] (ug/l)
VW-3	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
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
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
	11/12/07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/14/08	12,000	920	28	850	740	17,000	ND<25	ND<25	120	5,900	ND<4,000	ND<250	ND<25	ND<25

TABLE D-1

HISTORICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (ug/l)	Benzene[b] (ug/l)	Toluene[b] (ug/l)	Ethylbenzene[b] (ug/l)	Total Xylenes[b] (ug/l)	MTBE[b] (ug/l)	DIPE[b] (ug/l)	ETBE[b] (ug/l)	TAME[b] (ug/l)	TBA[b] (ug/l)	Methanol[b] (ug/l)	Ethanol[b] (ug/l)	1,2-DCA[b] (ug/l)	EDB[b] (ug/l)
TP-2	5/8/08	7,400	710	10	510	110	6,400	ND<8	ND<8	64	5,200	ND<12,000	ND<80	ND<8	ND<8
(cont.)	7/23/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/13/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/11/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/27/09	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
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
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
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
DW-4	5/22/08	1,200	4.2	8.6	16	200	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/23/08	91	0.79	ND<0.5	6.5	7.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	10/13/08	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	43	ND<0.5	ND<0.5
	2/11/09	ND<50	0.68	ND<0.5	1.4	1.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	4/27/09	ND<50	0.5	ND<0.5	1.1	1.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/5/09	52	1.7	ND<0.5	1.4	0.83	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-A	1/17/99	5,800	1,700	85	65	320	ND<5	--	--	--	--	--	--	--	--

TABLE D-1

HISTORICAL GROUNDWATER ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (ug/l)	Benzene[b] (ug/l)	Toluene[b] (ug/l)	Ethylbenzene[b] (ug/l)	Total Xylenes[b] (ug/l)	MTBE[b] (ug/l)	DIPE[b] (ug/l)	ETBE[b] (ug/l)	TAME[b] (ug/l)	TBA[b] (ug/l)	Methanol[b] (ug/l)	Ethanol[b] (ug/l)	1,2-DCA[b] (ug/l)	EDB[b] (ug/l)
MW-B	1/17/99	4,400	240	30	21	39	ND<5	--	--	--	--	--	--	--	--
MW-C	1/17/99	1,800	0.8	ND<0.5	ND<0.5	0.55	ND<5	--	--	--	--	--	--	--	--
MW-D	1/17/99	5,600	1,600	130	66	220	ND<5	--	--	--	--	--	--	--	--
MW-E	1/17/99	5,700	1,600	180	180	310	ND<50	--	--	--	--	--	--	--	--
	6/10/99	5,000	1,300	130	320	450	ND<25	--	--	--	--	--	--	--	--
MW-W	1/17/99	23,000	7,600	760	1,400	5,000	ND<50	--	--	--	--	--	--	--	--
	6/10/99	16,000	4,100	420	1,300	4,000	ND<50	--	--	--	--	--	--	--	--

(a) Samples collected before July 2005 collected by others; data provided by Delta Environmental Consultants, Inc., Second Quarter 2005 Groundwater Monitoring Report dated 31 July 2005.
(b) Total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, xylenes, methyl tert-butyl ether (MTBE), di-isopropyl ether (DIPE), ethyl tert-butyl ether (ETBE), tert-amyl methyl ether (TAME), tert-butyl alcohol (TBA), 1,2-dichloroethane (1,2-DCA), and 1,2-dibromoethane (EDB) analyzed by EPA Method 8260; reported in micrograms per liter (μg/l).
(c) ND - Not detected at the reporting limit listed.
(d) "-" Not analyzed.
(e) NS - Not sampled.
(f) TBA results may be biased slightly high. A fraction of MTBE (typically less than 10 percent) converts to TBA during the analysis of water samples. This conversion effect is considered to be mathematically significant in samples that contain MTBE/TBA ratios of over 20:1.

ATTACHMENT E

LABORATORY ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY FORMS

KIFF Analytical LLC

Report Number : 69544
Date : 08/12/2009

Mike Purchase
Arctos Environmental
1332 Peralta Avenue
Berkeley, CA 94702

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

Dear Mr. Purchase,

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.

Kiff Analytical is certified by the State of California (# 2236). If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

Joel Kiff

KIFF Analytical LLC

Report Number : 69544
Date : 08/12/2009

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

Case Narrative

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

Matrix Spike/Matrix Spike Duplicate results associated with sample DW-1 for the analyte Methyl-t-butyl ether were affected by the analyte concentrations already present in the un-spiked sample.

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

KIFF Analytical LLC

Report Number : 69544
Date : 08/12/2009

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

Sample : **DW-3** Matrix : Water Lab Number : 69544-01
Sample Date :08/04/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**6.8**	0.50	ug/L	EPA 8260B	08/06/2009
Toluene	**0.99**	0.50	ug/L	EPA 8260B	08/06/2009
Ethylbenzene	**4.3**	0.50	ug/L	EPA 8260B	08/06/2009
Total Xylenes	**3.4**	0.50	ug/L	EPA 8260B	08/06/2009
Methyl-t-butyl ether (MTBE)	**18**	0.50	ug/L	EPA 8260B	08/06/2009
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	08/06/2009
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	08/06/2009
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	08/06/2009
Tert-Butanol	**35**	5.0	ug/L	EPA 8260B	08/06/2009
Methanol	**< 50**	50	ug/L	EPA 8260B	08/06/2009
Ethanol	**< 5.0**	5.0	ug/L	EPA 8260B	08/06/2009
TPH as Gasoline	**1200**	50	ug/L	EPA 8260B	08/06/2009
1,2-Dichloroethane	**< 0.50**	0.50	ug/L	EPA 8260B	08/06/2009
1,2-Dibromoethane	**< 0.50**	0.50	ug/L	EPA 8260B	08/06/2009
1,2-Dichloroethane-d4 (Surr)	98.8		% Recovery	EPA 8260B	08/06/2009
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	08/06/2009

KIFF Analytical LLC

Report Number : 69544
Date : 08/12/2009

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

Sample : **DW-2** Matrix : Water Lab Number : 69544-02
Sample Date :08/04/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**910**	1.5	ug/L	EPA 8260B	08/08/2009
Toluene	**19**	1.0	ug/L	EPA 8260B	08/07/2009
Ethylbenzene	**37**	1.0	ug/L	EPA 8260B	08/07/2009
Total Xylenes	**27**	1.0	ug/L	EPA 8260B	08/07/2009
Methyl-t-butyl ether (MTBE)	**200**	1.0	ug/L	EPA 8260B	08/07/2009
Diisopropyl ether (DIPE)	**< 1.0**	1.0	ug/L	EPA 8260B	08/07/2009
Ethyl-t-butyl ether (ETBE)	**< 1.0**	1.0	ug/L	EPA 8260B	08/07/2009
Tert-amyl methyl ether (TAME)	**2.7**	1.0	ug/L	EPA 8260B	08/07/2009
Tert-Butanol	**530**	5.0	ug/L	EPA 8260B	08/07/2009
Methanol	**< 200**	200	ug/L	EPA 8260B	08/07/2009
Ethanol	**< 10**	10	ug/L	EPA 8260B	08/07/2009
TPH as Gasoline	**6800**	100	ug/L	EPA 8260B	08/07/2009
1,2-Dichloroethane	**< 1.0**	1.0	ug/L	EPA 8260B	08/07/2009
1,2-Dibromoethane	**< 1.0**	1.0	ug/L	EPA 8260B	08/07/2009
1,2-Dichloroethane-d4 (Surr)	89.2		% Recovery	EPA 8260B	08/07/2009
Toluene - d8 (Surr)	95.6		% Recovery	EPA 8260B	08/07/2009

KIFF Analytical LLC

Report Number : 69544
Date : 08/12/2009

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

Sample : **MW-1** Matrix : Water Lab Number : 69544-03
Sample Date :08/04/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	08/06/2009
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	08/06/2009
Ethylbenzene	**1.7**	0.50	ug/L	EPA 8260B	08/06/2009
Total Xylenes	**1.4**	0.50	ug/L	EPA 8260B	08/06/2009
Methyl-t-butyl ether (MTBE)	**< 0.50**	0.50	ug/L	EPA 8260B	08/06/2009
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	08/06/2009
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	08/06/2009
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	08/06/2009
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	08/06/2009
Methanol	**< 50**	50	ug/L	EPA 8260B	08/06/2009
Ethanol	**< 8.0**	8.0	ug/L	EPA 8260B	08/06/2009
TPH as Gasoline	**890**	50	ug/L	EPA 8260B	08/06/2009
1,2-Dichloroethane	**< 0.50**	0.50	ug/L	EPA 8260B	08/06/2009
1,2-Dibromoethane	**< 0.50**	0.50	ug/L	EPA 8260B	08/06/2009
1,2-Dichloroethane-d4 (Surr)	100		% Recovery	EPA 8260B	08/06/2009
Toluene - d8 (Surr)	96.8		% Recovery	EPA 8260B	08/06/2009

KIFF Analytical LLC

Report Number : 69544
Date : 08/12/2009

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

Sample : **MW-2** Matrix : Water Lab Number : 69544-04
Sample Date :08/04/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**5800**	15	ug/L	EPA 8260B	08/12/2009
Toluene	**170**	9.0	ug/L	EPA 8260B	08/07/2009
Ethylbenzene	**1500**	9.0	ug/L	EPA 8260B	08/07/2009
Total Xylenes	**370**	9.0	ug/L	EPA 8260B	08/07/2009
Methyl-t-butyl ether (MTBE)	**1400**	9.0	ug/L	EPA 8260B	08/07/2009
Diisopropyl ether (DIPE)	**< 9.0**	9.0	ug/L	EPA 8260B	08/07/2009
Ethyl-t-butyl ether (ETBE)	**< 9.0**	9.0	ug/L	EPA 8260B	08/07/2009
Tert-amyl methyl ether (TAME)	**18**	9.0	ug/L	EPA 8260B	08/07/2009
Tert-Butanol	**670**	50	ug/L	EPA 8260B	08/07/2009
Methanol	**< 3000**	3000	ug/L	EPA 8260B	08/07/2009
Ethanol	**< 90**	90	ug/L	EPA 8260B	08/07/2009
TPH as Gasoline	**30000**	900	ug/L	EPA 8260B	08/07/2009
1,2-Dichloroethane	**< 9.0**	9.0	ug/L	EPA 8260B	08/07/2009
1,2-Dibromoethane	**< 9.0**	9.0	ug/L	EPA 8260B	08/07/2009
1,2-Dichloroethane-d4 (Surr)	94.1		% Recovery	EPA 8260B	08/07/2009
Toluene - d8 (Surr)	99.5		% Recovery	EPA 8260B	08/07/2009

KIFF Analytical LLC

Report Number : 69544
Date : 08/12/2009

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

Sample : **MW-3** Matrix : Water Lab Number : 69544-05
Sample Date :08/04/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	08/07/2009
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	08/07/2009
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	08/07/2009
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	08/07/2009
Methyl-t-butyl ether (MTBE)	**< 0.50**	0.50	ug/L	EPA 8260B	08/07/2009
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	08/07/2009
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	08/07/2009
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	08/07/2009
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	08/07/2009
Methanol	**< 50**	50	ug/L	EPA 8260B	08/07/2009
Ethanol	**< 5.0**	5.0	ug/L	EPA 8260B	08/07/2009
TPH as Gasoline	**190**	50	ug/L	EPA 8260B	08/07/2009
1,2-Dichloroethane	**< 0.50**	0.50	ug/L	EPA 8260B	08/07/2009
1,2-Dibromoethane	**< 0.50**	0.50	ug/L	EPA 8260B	08/07/2009
1,2-Dichloroethane-d4 (Surr)	102		% Recovery	EPA 8260B	08/07/2009
Toluene - d8 (Surr)	98.5		% Recovery	EPA 8260B	08/07/2009

KIFF Analytical LLC

Report Number : 69544
Date : 08/12/2009

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

Sample : **DW-4** Matrix : Water Lab Number : 69544-06
Sample Date :08/05/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**1.7**	0.50	ug/L	EPA 8260B	08/06/2009
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	08/06/2009
Ethylbenzene	**1.4**	0.50	ug/L	EPA 8260B	08/06/2009
Total Xylenes	**0.83**	0.50	ug/L	EPA 8260B	08/06/2009
Methyl-t-butyl ether (MTBE)	**< 0.50**	0.50	ug/L	EPA 8260B	08/06/2009
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	08/06/2009
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	08/06/2009
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	08/06/2009
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	08/06/2009
Methanol	**< 50**	50	ug/L	EPA 8260B	08/06/2009
Ethanol	**< 5.0**	5.0	ug/L	EPA 8260B	08/06/2009
TPH as Gasoline	**52**	50	ug/L	EPA 8260B	08/06/2009
1,2-Dichloroethane	**< 0.50**	0.50	ug/L	EPA 8260B	08/06/2009
1,2-Dibromoethane	**< 0.50**	0.50	ug/L	EPA 8260B	08/06/2009
1,2-Dichloroethane-d4 (Surr)	98.6		% Recovery	EPA 8260B	08/06/2009
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	08/06/2009

KIFF Analytical LLC

Report Number : 69544
Date : 08/12/2009

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

Sample : **DW-1** Matrix : Water Lab Number : 69544-07
Sample Date :08/05/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**330**	0.50	ug/L	EPA 8260B	08/07/2009
Toluene	**17**	0.50	ug/L	EPA 8260B	08/07/2009
Ethylbenzene	**87**	0.50	ug/L	EPA 8260B	08/07/2009
Total Xylenes	**53**	0.50	ug/L	EPA 8260B	08/07/2009
Methyl-t-butyl ether (MTBE)	**220**	0.50	ug/L	EPA 8260B	08/07/2009
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	08/07/2009
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	08/07/2009
Tert-amyl methyl ether (TAME)	**2.0**	0.50	ug/L	EPA 8260B	08/07/2009
Tert-Butanol	**310**	5.0	ug/L	EPA 8260B	08/07/2009
Methanol	**< 50**	50	ug/L	EPA 8260B	08/07/2009
Ethanol	**< 5.0**	5.0	ug/L	EPA 8260B	08/07/2009
TPH as Gasoline	**2100**	50	ug/L	EPA 8260B	08/07/2009
1,2-Dichloroethane	**< 0.50**	0.50	ug/L	EPA 8260B	08/07/2009
1,2-Dibromoethane	**< 0.50**	0.50	ug/L	EPA 8260B	08/07/2009
1,2-Dichloroethane-d4 (Surr)	97.8		% Recovery	EPA 8260B	08/07/2009
Toluene - d8 (Surr)	99.2		% Recovery	EPA 8260B	08/07/2009

Report Number : 69544

Date : 08/12/2009

QC Report : Method Blank Data

Project Name : **Tesoro - Livermore**

Project Number : **01LV**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	08/07/2009
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Toluene	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	08/06/2009
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Methanol	< 50	50	ug/L	EPA 8260B	08/06/2009
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	08/06/2009
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	08/06/2009
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
1,2-Dichloroethane-d4 (Surr)	105		%	EPA 8260B	08/06/2009
Toluene - d8 (Surr)	99.2		%	EPA 8260B	08/06/2009
Benzene	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Toluene	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	08/06/2009
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Methanol	< 50	50	ug/L	EPA 8260B	08/06/2009
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	08/06/2009
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	08/06/2009
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
1,2-Dichloroethane-d4 (Surr)	101		%	EPA 8260B	08/06/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Toluene - d8 (Surr)	101		%	EPA 8260B	08/06/2009
Benzene	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Toluene	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	08/06/2009
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Methanol	< 50	50	ug/L	EPA 8260B	08/06/2009
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	08/06/2009
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	08/06/2009
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
1,2-Dichloroethane-d4 (Surr)	103		%	EPA 8260B	08/06/2009
Toluene - d8 (Surr)	103		%	EPA 8260B	08/06/2009
Benzene	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Toluene	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	08/06/2009
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Methanol	< 50	50	ug/L	EPA 8260B	08/06/2009
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	08/06/2009
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	08/06/2009
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	08/06/2009

KIFF ANALYTICAL, LLC

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

Report Number : 69544

Date : 08/12/2009

QC Report : Method Blank Data

Project Name : **Tesoro - Livermore**

Project Number : **01LV**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
1,2-Dichloroethane-d4 (Surr)	102		%	EPA 8260B	08/06/2009
Toluene - d8 (Surr)	95.8		%	EPA 8260B	08/06/2009
Benzene	< 0.50	0.50	ug/L	EPA 8260B	08/07/2009
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	08/07/2009
Toluene	< 0.50	0.50	ug/L	EPA 8260B	08/07/2009
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	08/07/2009
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	08/07/2009
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	08/07/2009
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	08/07/2009
Methanol	< 50	50	ug/L	EPA 8260B	08/07/2009
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	08/07/2009
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	08/07/2009
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	08/07/2009
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	08/07/2009
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	08/07/2009
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	08/07/2009
1,2-Dichloroethane-d4 (Surr)	103		%	EPA 8260B	08/07/2009
Toluene - d8 (Surr)	99.1		%	EPA 8260B	08/07/2009
Benzene	< 0.50	0.50	ug/L	EPA 8260B	08/11/2009

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 : 69544

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 08/12/2009

Project Name : **Tesoro - Livermore**

Project Number : **01LV**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Benzene	69569-01	<0.50	40.6	40.6	39.8	40.2	ug/L	EPA 8260B	8/7/09	98.0	99.1	1.09	70-130	25
1,2-Dichloroethane	69541-10	<0.50	40.0	40.1	39.3	39.8	ug/L	EPA 8260B	8/7/09	98.2	99.1	0.904	70-130	25
Methyl-t-butyl ether	69541-10	180	40.0	40.1	216	214	ug/L	EPA 8260B	8/7/09	87.2	81.9	6.31	70-130	25
Tert-Butanol	69541-10	850	198	198	1020	1020	ug/L	EPA 8260B	8/7/09	85.8	83.3	3.04	70-130	25
Toluene	69541-10	3.6	39.4	39.5	42.5	43.1	ug/L	EPA 8260B	8/7/09	98.7	100	1.38	70-130	25
1,2-Dichloroethane	69522-12	<0.50	40.8	40.8	37.6	36.8	ug/L	EPA 8260B	8/6/09	92.4	90.3	2.29	70-130	25
Benzene	69522-12	<0.50	40.6	40.6	38.9	38.4	ug/L	EPA 8260B	8/6/09	95.7	94.5	1.35	70-130	25
Methyl-t-butyl ether	69522-12	1.2	40.7	40.7	39.7	39.3	ug/L	EPA 8260B	8/6/09	94.6	93.6	1.02	70-130	25
Tert-Butanol	69522-12	72	201	201	259	261	ug/L	EPA 8260B	8/6/09	92.9	94.1	1.24	70-130	25
Toluene	69522-12	<0.50	40.1	40.1	40.2	39.5	ug/L	EPA 8260B	8/6/09	100	98.6	1.57	70-130	25
1,2-Dichloroethane	69541-10	<0.50	40.8	40.8	37.8	37.7	ug/L	EPA 8260B	8/6/09	92.8	92.5	0.242	70-130	25
Benzene	69541-10	13	40.6	40.6	47.7	47.2	ug/L	EPA 8260B	8/6/09	84.7	83.6	1.29	70-130	25
Methyl-t-butyl ether	69541-10	170	40.7	40.7	165	164	ug/L	EPA 8260B	8/6/09	0.00	0.00	0.00	70-130	25
Tert-Butanol	69541-10	810	201	201	962	962	ug/L	EPA 8260B	8/6/09	77.0	77.1	0.0647	70-130	25
Toluene	69541-10	3.6	40.1	40.1	42.4	42.3	ug/L	EPA 8260B	8/6/09	96.8	96.5	0.242	70-130	25
1,2-Dichloroethane	69546-03	<0.50	40.8	40.8	36.7	38.2	ug/L	EPA 8260B	8/7/09	90.2	93.6	3.76	70-130	25
Benzene	69546-03	<0.50	40.6	40.6	38.1	38.5	ug/L	EPA 8260B	8/7/09	93.9	94.8	1.00	70-130	25
Methyl-t-butyl ether	69546-03	0.50	40.7	40.7	39.6	39.4	ug/L	EPA 8260B	8/7/09	96.0	95.4	0.647	70-130	25

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Report Number : 69544

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 08/12/2009

Project Name : **Tesoro - Livermore**

Project Number : **01LV**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Tert-Butanol	69546-03	5.1	201	201	200	203	ug/L	EPA 8260B	8/7/09	96.8	98.5	1.73	70-130	25
Toluene	69546-03	<0.50	40.1	40.1	36.6	35.6	ug/L	EPA 8260B	8/7/09	91.4	88.8	2.83	70-130	25
Benzene	69603-05	<0.50	40.6	40.6	40.7	39.1	ug/L	EPA 8260B	8/11/09	100	96.3	4.03	70-130	25
1,2-Dichloroethane	69522-13	<0.50	40.8	40.8	39.4	39.1	ug/L	EPA 8260B	8/6/09	96.8	95.9	0.903	70-130	25
Benzene	69522-13	<0.50	40.6	40.6	40.4	39.5	ug/L	EPA 8260B	8/6/09	99.6	97.4	2.18	70-130	25
Methyl-t-butyl ether	69522-13	<0.50	40.7	40.7	38.6	38.7	ug/L	EPA 8260B	8/6/09	94.8	95.0	0.146	70-130	25
Tert-Butanol	69522-13	<5.0	201	201	202	204	ug/L	EPA 8260B	8/6/09	100	102	1.01	70-130	25
Toluene	69522-13	<0.50	40.1	40.1	38.1	37.3	ug/L	EPA 8260B	8/6/09	95.0	93.1	2.04	70-130	25

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QC Report : Laboratory Control Sample (LCS)

Project Name : **Tesoro - Livermore**

Project Number : **01LV**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	40.6	ug/L	EPA 8260B	8/7/09	97.0	70-130
1,2-Dichloroethane	40.8	ug/L	EPA 8260B	8/6/09	105	70-130
Methyl-t-butyl ether	40.7	ug/L	EPA 8260B	8/6/09	104	70-130
Tert-Butanol	201	ug/L	EPA 8260B	8/6/09	99.0	70-130
Toluene	40.1	ug/L	EPA 8260B	8/6/09	101	70-130
1,2-Dichloroethane	40.8	ug/L	EPA 8260B	8/6/09	90.9	70-130
Benzene	40.7	ug/L	EPA 8260B	8/6/09	94.6	70-130
Methyl-t-butyl ether	40.8	ug/L	EPA 8260B	8/6/09	93.7	70-130
Tert-Butanol	202	ug/L	EPA 8260B	8/6/09	93.9	70-130
Toluene	40.2	ug/L	EPA 8260B	8/6/09	100	70-130
1,2-Dichloroethane	40.8	ug/L	EPA 8260B	8/6/09	92.7	70-130
Benzene	40.6	ug/L	EPA 8260B	8/6/09	94.6	70-130
Methyl-t-butyl ether	40.7	ug/L	EPA 8260B	8/6/09	94.5	70-130
Tert-Butanol	201	ug/L	EPA 8260B	8/6/09	95.4	70-130
Toluene	40.1	ug/L	EPA 8260B	8/6/09	101	70-130
1,2-Dichloroethane	40.9	ug/L	EPA 8260B	8/6/09	94.1	70-130
Benzene	40.8	ug/L	EPA 8260B	8/6/09	98.7	70-130

QC Report : Laboratory Control Sample (LCS)

Project Name : **Tesoro - Livermore**

Project Number : **01LV**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Methyl-t-butyl ether	40.9	ug/L	EPA 8260B	8/6/09	96.5	70-130
Tert-Butanol	202	ug/L	EPA 8260B	8/6/09	102	70-130
Toluene	40.3	ug/L	EPA 8260B	8/6/09	97.0	70-130
1,2-Dichloroethane	40.8	ug/L	EPA 8260B	8/7/09	91.8	70-130
Benzene	40.7	ug/L	EPA 8260B	8/7/09	93.8	70-130
Methyl-t-butyl ether	40.8	ug/L	EPA 8260B	8/7/09	103	70-130
Tert-Butanol	202	ug/L	EPA 8260B	8/7/09	96.3	70-130
Toluene	40.2	ug/L	EPA 8260B	8/7/09	92.3	70-130
Benzene	40.8	ug/L	EPA 8260B	8/11/09	95.1	70-130

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

KIFF Analytical LLC

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

SRG # / Lab No. 69544

Page ___ of ___

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To): Mike Purchase

Company / Address: Orion Environmental, Inc.
1332 Peralta Ave., Berkeley, CA 95702

Phone Number: 510-525-2180

Fax Number: 562-988-2759

Project #: 01LV

P.O. #:

Project Name: Tesoro - Livermore

Project Address: 1619 1st Street Livermore, CA

California EDF Report? ☐ Yes ☐ No

Sampling Company Log Code:

Global ID: T0600101410

EDF Deliverable To (Email Address):

Bill to: Mike Purchase

Sampler Signature: [signature]

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

Sample Designation	Sampling Date	Sampling Time	40 ml VOA	Sleeve	Poly	Glass	Tedlar	HCl	HNO_3	None	H_2SO_4	$ZnAc_2$ & NaOH	Water	Soil	Air	BTEX (EPA 8260B)	TPH Gas (EPA 8260B)	7 Oxygenates (5 oxy + EtOH, MeOH) (EPA 8260B)	Lead Scav. (1,2 DCA & 1,2 EDB) (EPA 8260B)	TAT	For Lab Use Only
DW-3	8/4/09	12:04	3					3								X	X	X	X	std	01
DW-2	8/4/09	12:35	3					3								X	X	X	X	std	02
MW-1	8/4/09	12:45	3					3								X	X	X	X	std	03
MW-2	8/4/09	12:55	3					3								X	X	X	X	std	04
MW-3	8/4/09	13:05	3					3								X	X	X	X	std	05
DW-4	8/5/09	11:10	3					3								X	X	X	X	std	06
DW-1	8/5/09	11:30	3					3								X	X	X	X	std	07

Relinquished by	Date	Time	Received by
[signature]	8/5/09	12:51	[signature]
	080509	1251	Received by Laboratory: [signature] Kiff Analytical

Remarks:

For Lab Use Only: Sample Receipt

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

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

KIFF Analytical LLC

SAMPLE RECEIPT CHECKLIST

RECEIVER: LJR (Initials)

SRG#: 69544 Date: 080509

Project ID: Tesoro - Livermore

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

COC Inspection

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

Sample Inspection

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

Temperature °C 5.4 Therm. ID# IR-5 Initial LJR Date/Time 080509/1818 [ ] N/A

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

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

Receipt Details

Matrix WA	Container type VOA	# of containers received 21
Matrix	Container type	# of containers received
Matrix	Container type	# of containers received

Date and Time Sample Put into Temp Storage Date: 080509 Time: 1821

Quicklog

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

COMMENTS:

ATTACHMENT F

WASTE MANIFESTS

NON-HAZARDOUS WASTE MANIFEST

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

NON-HAZARDOUS WASTE MANIFEST

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

Manifest Document No.

2. Page 1 of 1

3. Generator's Name and Mailing Address
Tesoro Environmental Resources Company
3460 S. 334th Ave Suite 201
Auburn, WA 98001

4. Generator's Phone ( )

Tesoro # 670076
1619 First St. Livermore, CA

5. Transporter 1 Company Name
Exce/Environmental Services

6. US EPA ID Number
CAL000209350

A. State Transporter's ID

B. Transporter 1 Phone 800-376-0088

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address
ROT
5300 Claus Rd.
Riverbank CA. 95367

10. US EPA ID Number
CAL000190816

E. State Facility's ID

F. Facility's Phone 209-863-8181

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS waste water	001	TT	80gal.	G
b.				
c.				
d.				

G. Additional Descriptions for Materials Listed Above
NON-HAZ water

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Gloves ERG 171

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name	Signature	Date Month	Day	Year
Peter Arroyo	Peter Arroyo	8	5	09

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year
Tim Liggett	Tim Liggett	08	5	09

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name	Signature	Date Month	Day	Year

NON-HAZARDOUS WASTE

Rev. 3/95