ARCTOS

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15 December 2006
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 2006 Status Report
1619 1st Street, Livermore, California
Tesoro No. 67076 (Former Beacon 3604); ACEH Case No. RO0000434

Dear Mr. Wickham:

Arctos Environmental (Arctos), on behalf of Tesoro Companies, Inc. (Tesoro), has prepared this letter report summarizing project activities for the third quarter 2006 at the subject site (Figure 1). From July through September 2006, Arctos completed the following tasks:

- Quarterly groundwater monitoring
- Microbiological testing.

Groundwater Monitoring

Arctos performed groundwater monitoring at the site on 9 August 2006. Samples were collected from wells MW-1 through MW-10, VW-2, VW-3, TP-1, and TP-2 (Figure 2). Groundwater monitoring was performed in accordance with the guidelines of the Regional Water Quality Control Board, San Francisco Bay Region (RWQCB).

Field Activities for Groundwater Sampling
The depth to groundwater of each well was measured and recorded on field data sheets before sampling (Appendix A). Depth to groundwater and groundwater elevations are summarized on Table 1.

During purging, pH, specific conductivity, and temperature were measured and recorded for the evacuated groundwater. Groundwater samples were collected after the temperature, pH, and specific conductivity of the groundwater had stabilized to within

approximately 10 percent of the previous reading and at least 3 casing volumes of groundwater were removed from the well, unless the well purged dry. Well purge water was stored temporarily on site in 55-gallon drums.

Analytical Program

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 and alcohols using EPA Method 8260B.

In addition to the standard groundwater analyses, Kiff analyzed selected samples from groundwater wells located upgradient (wells MW-3 and MW-4) and through the centerline of the plume (wells MW-2, MW-6, and MW-9) for the natural attenuation and general groundwater chemistry parameters listed in Table 2.

Arctos, as Tesoro's Authorized Responsible Party for the site, also has 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.

Summary of Groundwater Results

As indicated in Table 1, the depth to groundwater was approximately 30 to 36 feet below ground surface (435 to 444 feet above mean sea level). Water levels had decreased by 7 to 8 feet since May 2006. The water level data indicate that the general direction of water flow is toward the northwest with an estimated gradient of 0.03 (1 foot/35 feet; Figure 3).

The highest MTBE concentration of 56,000 micrograms per liter (µg/l) was at well TP-2. The highest TPHg and benzene concentrations of 34,000 and 4,200 µg/l, respectively, were at well MW-2. Elevated benzene and MTBE concentrations in groundwater (440 and 670 µg/l, respectively) are also present approximately 140 feet downgradient of the site at well MW-6.

The following results for natural attenuation parameters show the presence of biological activity in the groundwater to potentially degrade TPHg, benzene, and MTBE:

- Decreasing concentrations of nitrate and sulfate in the source area (well MW-2) and downgradient (wells MW-6 and MW-9)
- Increasing concentrations of ferrous iron

- Decreasing values of ORP.

Historical analytical results for the groundwater samples are summarized in Table 3. Figures 4 and 5 show the isoconcentration contours for benzene and MTBE, respectively. The laboratory report and chain-of-custody form are in Appendix B.

Microbiological Testing

Results for natural attenuation parameters indicate the presence of biological activity in the groundwater to potentially degrade TPHg, benzene, and MTBE. To assess the active microbiological populations for degradation of site compounds, Arctos installed biotraps provided by Microbial Insights, Inc. (MI), of Rockford, Tennessee. Biotraps are small passive diffusion samplers that contain Bio-Sep beads used as the sampling matrix. The beads include powdered activated carbon (PAC) that allow for adsorption of nutrients and contaminants present within the aquifer. The adsorbed nutrients and contaminants provide a matrix for microbiological populations present in the aquifer to grow on the beads. To allow for adequate growth at sites with no previous data, biotraps were placed in groundwater wells for a period of 30 days.

Arctos installed biotraps at the site on 23 June 2006 in impacted wells MW-2, TW-2, and MW-6. Biotraps were placed at a depth of 2 to 3 feet below the top of the water table within the most impacted portion of petroleum-impacted groundwater. The biotraps were removed on 24 July 2006 and submitted to MI for analyses.

The analyses included testing for (1) universal bacteria, (2) PM-1 (an indicator of MTBE degrading bacteria), and (3) toluene dioxygenase by polymerase chain reaction (PCR) methods. Toluene dioxygenase is an enzyme produced by bacteria containing a specific gene that triggers its production. Detection of the enzyme is an indirect method of determining the presence of bacteria capable of degrading dissolved hydrocarbons. The following table summarizes the analytical results.

Well	Sample Date	Universal Bacteria (cells/bead)	PM-1 (cells/bead)	Toluene Dioxygenase (cells/bead)
MW-2	7/24/2006	1.04 E+05	1.78 E+00 (J)[a]	ND<8.62 E+00
TP-1	7/24/2006	8.07 E+04	1.78 E+00 (J)	ND<8.7 E+00
MW-6	7/24/2006	4.38 E+04	ND<8.26 E+00[b]	ND<8.26 E+00

(a) Estimated gene copies below practical quantitation limit (PQL) but above lower quantitation limit (LQL).
(b) Not detected at the reporting limit listed.

Universal bacteria were detected at all three wells sampled with the highest concentration in source area well MW-2. The absence, or low concentrations, of PM-1 and toluene dioxygenase could be due to limiting growth factors including low oxygen or nutrient concentrations. The laboratory report and the chain-of-custody form are in Appendix B.

Proposed Groundwater Assessment

As requested in the Alameda County Environmental Health (ACEH) letter to Tesoro dated 23 June 2006, Arctos submitted a work plan, dated 30 September 2006, for lateral assessment of MTBE-impacted groundwater downgradient of boring DB-6. ACEH approved the work plan in a letter dated 9 October 2006. Arctos will complete the boring and provide results in the fourth quarter 2006 status report.

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

Very truly yours,

ARCTOS ENVIRONMENTAL

FOR Michael P. Purchase
Senior Project Manager

Jeffrey P. Gwinn, P.E.
Vice President

REGISTERED PROFESSIONAL ENGINEER
JEFFREY P. GWINN
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Copy: Jeffrey M. Baker, P.E. – Tesoro Companies, Inc.
Chuck Miller – USA Petroleum Corporation
Colleen Winey – Zone 7 Water Agency

Attachments: Table 1 – Well and Groundwater Elevations
Table 2 – Groundwater Natural Attenuation Parameters
Table 3 – Groundwater Monitoring Analytical Results
Figure 1 – Site Location Map
Figure 2 – Groundwater Elevation Contours
Figure 3 – Benzene Concentration Contours
Figure 4 – MTBE Concentration Contour
Appendix A – Field Data Sheets
Appendix B – Laboratory Analytical Reports and Chain-of-Custody Form

TABLE 1

WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Monitoring Well	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(b)] (feet MSL)	Water Table Elevation[(c)] (feet MSL)
MW-1	6/1/1993	37.50	474.29	436.79
	6/22/1993	38.46		435.83
	10/6/1993	42.22		432.07
	1/13/1994	34.52		439.77
	3/30/1994	31.93		442.36
	4/25/1994	33.49		440.80
	8/12/1994	41.03		433.26
	12/14/1994	38.63		435.66
	2/10/1995	30.80		443.49
	6/15/1995	25.46		448.83
	9/26/1995	31.05		443.24
	12/15/1995	28.11		446.18
	3/21/1996	17.67		456.62
	6/13/1996	22.86		451.43
	9/16/1996	30.04		444.25
	12/2/1996	26.74		447.55
	3/7/1997	20.84		453.45
	6/12/1997	28.71		445.58
	9/29/1997	33.91		440.38
	12/1/1997	34.88		439.41
	3/19/1998	19.83		454.46
	5/29/1998	21.57		452.72
	9/15/1998	31.68		442.61
	11/30/1998	36.80		437.49
	1/17/1999	30.02		444.27
	6/10/1999	29.30		444.99
	9/7/1999	31.41		442.88
	12/13/1999	32.95		441.34
	3/13/2000	25.74		448.55
	6/12/2000	28.24		446.05
	11/10/2000	30.56		443.73
	12/31/2000	31.71		442.58
	3/27/2001	30.43		443.86
	6/30/2001	36.61		437.68
	9/26/2001	45.10		429.19

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TESORO - LIVERMORE, 67076

Monitoring Well	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(b)] (feet MSL)	Water Table Elevation[(c)] (feet MSL)
MW-1	12/18/2001	39.39	474.29	434.90
(cont.)	3/18/2002	38.24		436.05
	8/21/2002	36.71		437.58
	12/3/2002	36.85		437.44
	3/4/2003	33.72		440.57
	6/10/2003	31.31		442.98
	9/9/2003	35.05		439.24
	12/23/2003	30.15		444.14
	3/23/2004	26.61		447.68
	5/10/2004	30.31		443.98
	8/4/2004	34.77		439.52
	11/4/2004	33.93		440.36
	1/12/2005	27.82		446.47
	5/2/2005	24.87		449.42
	7/19/2005	29.26		445.03
	11/21/2005	31.15		443.14
	2/9/2006	26.24		448.05
	5/16/2006	24.87		449.42
	8/9/2006	31.64		442.65
MW-2	6/1/1993	38.02	472.98	434.96
	6/22/1993	39.07		433.91
	10/6/1993	43.72		429.26
	1/13/1994	35.85		437.13
	3/30/1994	32.82		440.16
	4/25/1994	34.76		438.22
	8/12/1994	44.33		428.65
	12/14/1994	40.00		432.98
	2/10/1995	32.16		440.82
	6/15/1995	25.93		447.05
	9/26/1995	32.42		440.56
	12/15/1995	29.41		443.57
	3/21/1996	17.47		455.51
	6/13/1996	23.69		449.29
	9/16/1996	31.24		441.74
	12/2/1996	26.90		446.08

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TESORO - LIVERMORE, 67076

Monitoring Well	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(b)] (feet MSL)	Water Table Elevation[(c)] (feet MSL)
MW-2	3/7/1997	21.33	472.98	451.65
(cont.)	6/12/1997	29.94		443.04
	9/29/1997	34.22		438.76
	12/1/1997	35.94		437.04
	3/19/1998	20.34		452.64
	5/29/1998	22.63		450.35
	9/15/1998	32.30		440.68
	11/30/1998	36.90		436.08
	1/17/1999	30.17		442.81
	6/10/1999	29.98		443.00
	9/7/1999	31.85		441.13
	12/13/1999	33.72		439.26
	3/13/2000	26.54		446.44
	6/12/2000	28.44		444.54
	11/10/2000	31.31		441.67
	12/31/2000	32.68		440.30
	3/27/2001	30.81		442.17
	6/30/2001	37.58		435.40
	9/26/2001	44.97		428.01
	12/18/2001	40.67		432.31
	3/18/2002	38.94		434.04
	6/5/2002	36.45		436.53
	8/21/2002	37.15		435.83
	12/3/2002	36.76		436.22
	3/4/2003	33.60		439.38
	6/10/2003	32.89		440.09
	9/9/2003	35.45		437.53
	12/23/2003	31.79		441.19
	3/23/2004	28.25		444.73
	5/10/2004	30.91		442.07
	8/4/2004	35.36		437.62
	11/4/2004	34.92		438.06
	1/12/2005	29.46		443.52
	5/2/2005	25.61		447.37
	7/19/2005	30.11		442.87

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Monitoring Well	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(b)] (feet MSL)	Water Table Elevation[(c)] (feet MSL)
MW-2	11/21/2005	32.04	472.98	440.94
(cont.)	2/9/2006	27.11		445.87
	5/17/2006	25.18		447.80
	8/9/2006	32.69		440.29
MW-3	6/1/1993	36.18	473.37	437.19
	6/22/1993	37.11		436.26
	10/6/1993	41.15		432.22
	1/13/1994	33.95		439.42
	3/30/1994	30.97		442.40
	4/25/1994	32.46		440.91
	8/12/1994	41.72		431.65
	12/14/1994	37.62		435.75
	2/10/1995	29.96		443.41
	6/15/1995	23.66		449.71
	9/26/1995	29.62		443.75
	12/15/1995	27.10		446.27
	3/21/1996	15.85		457.52
	6/13/1996	21.31		452.06
	9/16/1996	28.62		444.75
	12/2/1996	25.55		447.82
	3/7/1997	19.77		453.60
	6/12/1997	27.67		445.70
	9/29/1997	29.60		443.77
	12/1/1997	33.37		440.00
	3/19/1998	18.76		454.61
	5/29/1998	20.64		452.73
	9/15/1998	30.70		442.67
	11/30/1998	34.96		438.41
	1/17/1999	28.81		444.56
	6/10/1999	28.10		445.27
	9/7/1999	30.38		442.99
	12/13/1999	31.46		441.91
	3/13/2000	24.28		449.09
	6/12/2000	26.80		446.57
	11/10/2000	29.47		443.90

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Monitoring Well	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(b)] (feet MSL)	Water Table Elevation[(c)] (feet MSL)
MW-3	12/31/2000	31.38	473.37	441.99
(cont.)	3/27/2001	29.94		443.43
	6/30/2001	37.54		435.83
	9/26/2001	45.17		428.20
	12/18/2001	39.41		433.96
	3/18/2002	37.73		435.64
	6/5/2002	35.35		438.02
	8/21/2002	36.21		437.16
	12/3/2002	35.92		437.45
	3/4/2003	32.75		440.62
	6/10/2003	31.26		442.11
	9/9/2003	34.72		438.65
	12/23/2003	30.47		442.90
	3/23/2004	26.67		446.70
	5/10/2004	30.25		443.12
	8/4/2004	34.70		438.67
	11/4/2004	33.94		439.43
	1/12/2005	28.21		445.16
	5/2/2005	24.56		448.81
	7/19/2005	29.39		443.98
	11/21/2005	31.30		442.07
	2/9/2006	26.21		447.16
	5/16/2006	24.36		449.01
	8/9/2006	31.90		441.47
MW-4	3/30/1994	31.56	473.64	442.08
	4/25/1994	32.73		440.91
	8/12/1994	41.61		432.03
	12/14/1994	38.11		435.53
	2/10/1995	30.50		443.14
	6/15/1995	23.63		450.01
	9/26/1995	29.70		443.94
	12/15/1995	27.56		446.08
	3/21/1996	15.63		458.01
	6/13/1996	21.07		452.57
	9/16/1996	28.99		444.65

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WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Monitoring Well	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(b)] (feet MSL)	Water Table Elevation[(c)] (feet MSL)
MW-4	12/2/1996	26.04	473.64	447.60
(cont.)	3/7/1997	19.69		453.95
	6/12/1997	28.04		445.60
	9/29/1997	29.91		443.73
	12/1/1997	33.88		439.76
	3/19/1998	18.67		454.97
	5/29/1998	20.16		453.48
	9/15/1998	30.46		443.18
	11/30/1998	34.50		439.14
	1/17/1999	28.30		445.34
	6/10/1999	27.60		446.04
	9/7/1999	30.79		442.85
	12/13/1999	31.60		442.04
	3/13/2000	24.35		449.29
	6/12/2000	26.91		446.73
	11/10/2000	29.71		443.93
	12/31/2000	31.79		441.85
	3/27/2001	29.98		443.66
	6/30/2001	36.88		436.76
	9/26/2001	43.87		429.77
	12/18/2001	39.30		434.34
	3/18/2002	37.75		435.89
	6/5/2002	35.68		437.96
	8/21/2002	36.58		437.06
	12/3/2002	35.90		437.74
	3/4/2003	32.73		440.91
	6/10/2003	31.20		442.44
	9/9/2003	34.64		439.00
	12/23/2003	31.30		442.34
	3/23/2004	26.71		446.93
	5/10/2004	30.33		443.31
	8/4/2004	34.87		438.77
	11/4/2004	34.28		439.36
	1/12/2005	28.67		444.97
	5/2/2005	24.46		449.18

TABLE 1

WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Monitoring Well	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(b)] (feet MSL)	Water Table Elevation[(c)] (feet MSL)
MW-4	7/19/2005	29.36	473.64	444.28
(cont.)	11/21/2005	31.80		441.84
	2/9/2006	26.34		447.30
	5/16/2006	24.30		449.34
	8/9/2006	32.05		441.59
MW-5	3/30/1994	32.07	472.67	440.60
	4/25/1994	33.65		439.02
	8/12/1994	42.73		429.94
	12/14/1994	38.89		433.78
	2/10/1995	31.44		441.23
	6/15/1995	24.99		447.68
	9/26/1995	30.20		442.47
	12/15/1995	28.56		444.11
	3/21/1996	16.82		455.85
	6/13/1996	22.61		450.06
	9/16/1996	29.78		442.89
	12/2/1996	26.51		446.16
	3/7/1997	21.91		450.76
	9/29/1997	31.74		440.93
	12/1/1997	34.05		438.62
	3/19/1998	20.93		451.74
	5/29/1998	21.30		451.37
	9/15/1998	31.32		441.35
	11/30/1998	35.44		437.23
	1/17/1999	29.59		443.08
	6/10/1999	28.05		444.62
	9/7/1999	31.11		441.56
	12/13/1999	32.66		440.01
	3/13/2000	25.87		446.80
	6/12/2000	28.15		444.52
	11/10/2000	30.05		442.62
	12/31/2000	31.81		440.86
	3/27/2001	30.57		442.10
	6/30/2001	37.24		435.43
	9/26/2001	44.53		428.14

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WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Monitoring Well	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(b)] (feet MSL)	Water Table Elevation[(c)] (feet MSL)
MW-5	12/18/2001	40.65	472.67	432.02
(cont.)	3/18/2002	38.75		433.92
	6/5/2002	36.21		436.46
	8/21/2002	36.76		435.91
	12/3/2002	36.12		436.55
	3/4/2003	32.90		439.77
	6/10/2003	33.04		439.63
	9/9/2003	34.20		438.47
	12/23/2003	31.38		441.29
	3/23/2004	27.51		445.16
	5/10/2004	31.12		441.55
	8/4/2004	35.09		437.58
	11/4/2004	34.34		438.33
	1/12/2005	29.19		443.48
	5/2/2005	25.31		447.36
	7/19/2005	30.49		442.18
	11/21/2005	32.35		440.32
	2/9/2006	27.19		445.48
	5/16/2006	25.30		447.37
	8/9/2006	32.68		439.99
MW-6	3/30/1994	33.38	471.93	438.55
	4/25/1994	35.49		436.44
	8/12/1994	45.14		426.79
	12/14/1994	40.99		430.94
	2/10/1995	33.34		438.59
	6/15/1995	26.88		445.05
	9/26/1995	33.55		438.38
	12/15/1995	30.32		441.61
	3/21/1996	18.89		453.04
	6/13/1996	24.62		447.31
	9/16/1996	32.64		439.29
	12/2/1996	27.42		444.51
	3/7/1997	22.13		449.80
	6/12/1997	31.02		440.91
	9/29/1997	35.77		436.16

TABLE 1

WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Monitoring Well	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(b)] (feet MSL)	Water Table Elevation[(c)] (feet MSL)
MW-6	12/1/1997	37.14	471.93	434.79
(cont.)	3/19/1998	21.10		450.83
	5/29/1998	23.26		448.67
	9/15/1998	33.50		438.43
	11/30/1998	38.73		433.20
	1/17/1999	32.05		439.88
	6/10/1999	31.44		440.49
	9/7/1999	33.94		437.99
	12/13/1999	35.84		436.09
	3/13/2000	28.45		443.48
	6/12/2000	30.52		441.41
	11/10/2000	32.99		438.94
	12/31/2000	34.95		436.98
	3/27/2001	32.72		439.21
	6/30/2001	39.86		432.07
	9/26/2001	Dry		Dry
	12/18/2001	43.36		428.57
	3/18/2002	41.29		430.64
	6/5/2002	38.35		433.58
	8/21/2002	39.02		432.91
	12/3/2002	38.76		433.17
	3/4/2003	35.13		436.80
	6/10/2003	34.15		437.78
	9/9/2003	37.66		434.27
	12/23/2003	33.43		438.50
	3/23/2004	29.96		441.97
	5/10/2004	32.98		438.95
	8/4/2004	37.02		434.91
	11/4/2004	37.03		434.90
	1/12/2005	32.01		439.92
	5/2/2005	27.30		444.63
	7/19/2005	32.27		439.66
	11/21/2005	33.23		438.70
	2/9/2006	29.07		442.86

TABLE 1

WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Monitoring Well	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(b)] (feet MSL)	Water Table Elevation[(c)] (feet MSL)
MW-6	5/17/2006	27.23	471.93	444.70
(cont.)	8/9/2006	35.22		436.71
MW-7	3/30/1994	31.98	472.33	440.35
	4/25/1994	33.56		438.77
	8/12/1994	43.35		428.98
	12/14/1994	39.34		432.99
	2/10/1995	32.11		440.22
	6/15/1995	25.51		446.82
	9/26/1995	31.43		440.90
	12/15/1995	28.97		443.36
	3/21/1996	17.36		454.97
	6/13/1996	23.47		448.86
	9/16/1996	31.35		440.98
	12/2/1996	27.11		445.22
	3/7/1997	21.33		451.00
	6/12/1997	29.90		442.43
	9/29/1997	34.37		437.96
	12/1/1997	36.46		435.87
	3/19/1998	20.33		452.00
	5/29/1998	22.30		450.03
	9/15/1998	32.54		439.79
	11/30/1998	37.96		434.37
	1/17/1999	31.04		441.29
	6/10/1999	29.89		442.44
	9/7/1999	32.38		439.95
	12/13/1999	33.98		438.35
	3/13/2000	27.09		445.24
	6/12/2000	28.76		443.57
	11/10/2000	31.54		440.79
	12/31/2000	32.76		439.57
	3/27/2001	30.97		441.36
	6/30/2001	37.50		434.83
	9/26/2001	45.11		427.22
	12/18/2001	41.13		431.20
	3/18/2002	39.22		433.11

TABLE 1

WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Monitoring Well	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(b)] (feet MSL)	Water Table Elevation[(c)] (feet MSL)
MW-7	6/5/2002	36.55	472.33	435.78
(cont.)	8/21/2002	36.81		435.52
	12/3/2002	36.52		435.81
	3/4/2003	32.60		439.73
	6/10/2003	31.33		441.00
	9/9/2003	34.71		437.62
	12/23/2003	30.80		441.53
	3/23/2004	26.41		445.92
	5/10/2004	29.86		442.47
	8/4/2004	34.06		438.27
	11/4/2004	34.12		438.21
	1/12/2005	28.83		443.50
	5/2/2005	24.66		447.67
	7/19/2005	29.07		443.26
	11/21/2005	30.42		441.91
	2/9/2006	26.15		446.18
	5/16/2006	24.44		447.89
	8/9/2006	31.77		440.56
MW-8	12/23/2003	32.01	471.18	439.17
	3/23/2004	28.50		442.68
	5/10/2004	31.44		439.74
	8/4/2004	35.11		436.07
	11/4/2004	34.77		436.41
	1/12/2005	29.66		441.52
	5/2/2005	25.91		445.27
	7/19/2005	30.56		440.62
	11/21/2005	32.48		438.70
	2/9/2006	27.40		443.78
	5/16/2006	25.60		445.58
	8/9/2006	32.77		438.41
MW-9	12/23/2003	34.03	470.78	436.75
	3/23/2004	30.01		440.77
	5/10/2004	33.61		437.17
	8/4/2004	37.47		433.31
	11/4/2004	37.44		433.34

TABLE 1

WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Monitoring Well	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(b)] (feet MSL)	Water Table Elevation[(c)] (feet MSL)
MW-9	5/2/2005	27.73	470.78	443.05
(cont.)	7/19/2005	32.90		437.88
	11/21/2005	34.15		436.63
	2/9/2006	29.44		441.34
	5/16/2006	27.50		443.28
	8/9/2006	35.85		434.93
MW-10	12/23/2003	33.80	471.63	437.83
	3/23/2004	28.68		442.95
	5/10/2004	32.15		439.48
	8/4/2004	36.40		435.23
	11/4/2004	36.21		435.42
	1/12/2005	31.64		439.99
	5/2/2005	27.01		444.62
	7/19/2005	31.59		440.04
	11/21/2005	32.96		438.67
	2/9/2006	28.36		443.27
	5/16/2006	26.83		444.80
	8/9/2006	34.37		437.26
VW-2	8/4/2004	34.13	473.28	439.15
	11/4/2004	34.75		438.53
	1/12/2005	29.35		443.93
	5/2/2005	25.34		447.94
	7/19/2005	29.76		443.52
	11/21/2005	31.81		441.47
	2/9/2006	27.21		446.07
	5/17/2006	25.26		448.02
	8/9/2006	31.74		441.54
VW-3	8/4/2004	32.89	474.38	441.49
	11/4/2004	34.78		439.60
	1/12/2005	29.51		444.87
	5/2/2005	24.79		449.59
	7/19/2005	28.91		445.47
	11/21/2005	31.07		443.31
	2/9/2006	26.60		447.78

TABLE 1

WELL AND GROUNDWATER ELEVATIONS
TESORO - LIVERMORE, 67076

Monitoring Well	Date of Measurement	Depth to Water (feet below casing)	PVC Casing Elevation[(b)] (feet MSL)	Water Table Elevation[(c)] (feet MSL)
VW-3	5/16/2006	24.19	474.38	450.19
(cont.)	8/9/2006	30.53		443.85
TP-1	7/19/2005	29.91	472.82	442.91
	11/21/2005	32.28		440.54
	2/9/2006	28.02		444.80
	5/17/2006	25.18		447.64
	8/9/2006	32.81		440.01
TP-2	7/19/2005	29.67	472.93	443.26
	11/21/2005	31.43		441.50
	2/9/2006	27.27		445.66
	5/17/2006	25.00		447.93
	8/9/2006	31.74		441.19
MW-A	1/17/1999	30.13	NM[(d)]	NM
MW-B	1/17/1999	30.29	NM	NM
MW-C	1/17/1999	30.60	NM	NM
MW-D	1/17/1999	31.32	NM	NM
MW-E	1/17/1999	31.36	NM	NM
MW-W	1/17/1999	30.91	NM	NM

(a) Difference between Depth to Water and Depth to Free Product.
(b) 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 on 31 August 2005.
Benchmark K2-741, elevation is 467.835 feet above MSL.
(c) Potentiometric Surface Elevation = (Casing Elevation - Depth to Water) + (0.89)(Free Product Thickness)
assuming a free product specific gravity of 0.89.
(d) NM = Well not surveyed.

TABLE 2

GROUNDWATER NATURAL ATTENUATION PARAMETERS
TESORO - LIVERMORE, 67076

Monitoring Well	Location[a]	Sample Date	DO[b] (mg/l)	ORP[b] (mV)	Conductivity[b] (µS)	Temp[b] (°C)	pH[b]	TOC[c] (mg/l)	COD[d] (mg/l)	Alkalinity[e] (mg/l)	Chloride[f] (mg/l)	Ferrous Iron[g] (mg/l)	Nitrate[f] (mg/l)	Nitrite[f] (mg/l)	Sulfate[f] (mg/l)	Sulfide[h] (mg/l)	Phosphorus[i] (mg/l)	Carbon Dioxide[j] (mg/l)
MW-4	170 ft CG	2/9/2006	0.96	39	1,137	19.4	7.38	8.0	61	430	75	ND<0.1[k]	32	ND<0.1	70	ND<0.05	0.54	41
		8/9/2006	0.5	-8	1,013	23.1	8.20	--	46	400	--	ND<0.1	30	--	61	--	0.10	--
MW-3	80 ft CG	2/9/2006	0.90	35	1,052	19.6	7.31	7.0	56	390	98	ND<0.1	4.3	ND<0.1	57	ND<0.05	0.34	70
		8/9/2006	0.31	243	1,041	69.2	7.30	--	21	390	--	ND<0.1	15	--	61	--	0.06	--
MW-2	source	2/9/2006	0.89	-82	1,133	19.5	7.07	37	150	530	72	1.4	0.65	ND<0.1	1.5	ND<0.05	0.27	99
		8/9/2006	0.23	-117	1,112	71.1	7.00	--	160	550	--	1.5	ND<0.5	--	1.8	--	0.16	--
MW-6	145 ft DG	2/9/2006	1.01	-53	1,182	20.1	6.97	21	110	550	68	0.87	ND<0.5	ND<0.1	ND<0.5	ND<0.05	0.62	130
		8/9/2006	0.92	-165	1,194	22.4	7.90	--	83	590	--	2.4	ND<0.5	--	ND<0.5	--	0.12	--
MW-9	325 ft DG	2/9/2006	1.00	-51	1,159	22.2	7.32	12	87	450	94	0.20	ND<0.5	ND<0.1	11	ND<0.05	0.59	62
		8/9/2006	1.16	-294	1,014	23.0	8.00	--	110	450	--	0.35	ND<0.5	--	5.5	--	0.06	--

(a) Samples collected from wells MW-4 (170 feet cross gradient [CG] of source), MW-3 (80 feet CG of source), MW-2 (source area), MW-6 (145 feet downgradient [DG] of source), and MW-9 (325 feet DG of source).
(b) Dissolved oxygen (DO), oxidation reduction potential (ORP), conductivity, temperature, and pH measured using field instruments; reported in milligrams per liter (mg/l), millivolts, micro siemens, and degrees Celsius.
(c) Total organic carbon (TOC) analyzed by EPA Method 415.1.
(d) Chemical oxygen demand (COD) analyzed by EPA Method 410.4.
(e) Alkalinity analyzed by Method SM2320B.
(f) Chloride, nitrate (NO_3), nitrite (NO_2), and sulfate (SO_4) analyzed by EPA Method 300.
(g) Ferrous Iron analyzed by Method SM3500-Fe D.
(h) Sulfide (S_2) analyzed by EPA Method 376.2
(i) Phosphorus analyzed by EPA Method 365.3.
(j) Carbon Dioxide (CO_2) analyzed by Method SM 4500C.
(k) ND - Not detected at the reporting limit indicated.

TABLE 3

GROUNDWATER MONITORING ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-1	6/1/1993	27,000	2,200	400	ND<0.5[d]	4,900	-[e]	-	-	-	-	-	-	-	-
	6/22/1993	87,000	8,000	10,000	260	10,000	-	-	-	-	-	-	-	-	-
	10/6/1993	40,000	4,700	6,500	740	5,300	-	-	-	-	-	-	-	-	-
	1/13/1994	9,400	1,300	9,500	110	850	-	-	-	-	-	-	-	-	-
	3/30/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/25/1994	11,000	1,500	1,800	290	1,700	-	-	-	-	-	-	-	-	-
	8/12/1994	11,000	550	330	260	1,400	-	-	-	-	-	-	-	-	-
	12/14/1994	11,000	1,000	1,200	320	1,500	-	-	-	-	-	-	-	-	-
	2/10/1995	9,300	1,200	1,500	280	1,500	-	-	-	-	-	-	-	-	-
	6/15/1995	140	5.6	ND<0.5	ND<0.5	ND<0.5	-	-	-	-	-	-	-	-	-
	9/26/1995	410	140	ND<0.5	ND<0.5	43	-	-	-	-	-	-	-	-	-
	12/15/1995	740	250	ND<1.3	ND<1.3	87	-	-	-	-	-	-	-	-	-
	3/21/1996	ND<50	0.52	ND<0.5	ND<0.5	0.51	-	-	-	-	-	-	-	-	-
	6/13/1996	240	ND<0.5	ND<0.5	ND<0.5	ND<0.5	-	-	-	-	-	-	-	-	-
	9/16/1996	720	70	ND<0.5	1.0	5.1	ND<5	-	-	-	-	-	-	-	-
	12/2/1996	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	-	-	-	-	-	-	-	-
	3/7/1997	600	6.7	ND<0.5	1.2	1.8	ND<5	-	-	-	-	-	-	-	-
	6/12/1997	18,000	180	800	410	1,800	ND<5	-	-	-	-	-	-	-	-
	9/29/1997	350	120	1.5	ND<0.5	12	ND<5	-	-	-	-	-	-	-	-
	12/1/1997	ND<50	7.0	ND<0.5	ND<0.5	ND<0.5	ND<5	-	-	-	-	-	-	-	-
	3/19/1998	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	-	-	-	-	-	-	-	-
	5/29/1998	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	-	-	-	-	-	-	-	-
	9/15/1998	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	-	-	-	-	-	-	-	-
	11/30/1998	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	-	-	-	-	-	-	-	-
	1/17/1999	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	-	-	-	-	-	-	-	-
	6/10/1999	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	-	-	-	-	-	-	-	-
	9/7/1999	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	-	-	-	-	-	-	-	-
	12/13/1999	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	-	-	-	-	-	-	-	-

TABLE 3

GROUNDWATER MONITORING ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-1	3/13/2000	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	-	-	-	-	-	-	-	-
(cont.)	6/12/2000	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	-	-	-	-	-	-	-	-
	11/10/2000	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	-	-	-	-	-	-	-	-
	12/31/2000	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	-	-	-	-	-	-	-	-
	3/27/2001	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	-	-	-	-	-	-	-	-
	6/30/2001	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	-	-	-	-	-	-	-	-
	9/26/2001	90	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	-	-	-	-	-	-	-	-
	12/18/2001	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	-	-	-	-	-	-	-	-
	11/4/2004	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
	1/12/2005	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/2/2005	78	0.80	0.70	0.86	2.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<40	ND<5	ND<0.5	ND<0.5
	7/19/2005	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
	11/21/2005	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
	2/9/2006	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
	5/16/2006	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/9/2006	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
MW-2	6/1/1993	170,000	20,000	21,000	3,300	18,000	-	-	-	-	-	-	-	-	-
	6/22/1993	160,000	19,000	22,000	3,500	18,000	-	-	-	-	-	-	-	-	-
	10/6/1993	110,000	17,000	17,000	3,000	15,000	-	-	-	-	-	-	-	-	-
	1/13/1994	93,000	20,000	19,000	2,300	14,000	-	-	-	-	-	-	-	-	-
	3/30/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/25/1994	41,000	9,600	7,300	840	7,800	-	-	-	-	-	-	-	-	-
	8/12/1994	59,000	11,000	11,000	2,300	11,000	-	-	-	-	-	-	-	-	-
	12/14/1994	63,000	13,000	13,000	2,200	12,000	-	-	-	-	-	-	-	-	-
	2/10/1995	63,000	12,000	12,000	2,200	11,000	-	-	-	-	-	-	-	-	-
	6/15/1995	61,000	11,000	12,000	1,900	11,000	-	-	-	-	-	-	-	-	-
	9/26/1995	61,000	9,400	11,000	2,300	12,000	-	-	-	-	-	-	-	-	-
	12/15/1995	48,000	8,000	8,300	2,200	12,000	-	-	-	-	-	-	-	-	-

TABLE 3

GROUNDWATER MONITORING ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-2	3/21/1996	48,000	8,000	7,700	2,400	12,000	-	-	-	-	-	-	-	-	-
(cont.)	6/13/1996	33,000	7,300	8,800	1,900	12,000	ND<250	-	-	-	-	-	-	-	-
	9/16/1996	8,600	510	640	180	1,300	ND<250	-	-	-	-	-	-	-	-
	12/2/1996	29,000	4,400	4,000	1,300	6,100	ND<130	-	-	-	-	-	-	-	-
	3/7/1997	13,000	1,800	1,100	270	2,000	ND<250	-	-	-	-	-	-	-	-
	6/12/1997	68,000	7,800	6,600	2,300	11,000	ND<500	-	-	-	-	-	-	-	-
	9/29/1997	15,000	1,500	97	740	1,800	ND<250	-	-	-	-	-	-	-	-
	12/1/1997	13,000	900	37	860	2,400	ND<250	-	-	-	-	-	-	-	-
	3/19/1998	42,000	5,000	3,600	2,000	8,300	ND<250	-	-	-	-	-	-	-	-
	5/29/1998	68,000	5,600	4,700	2,400	11,000	ND<250	-	-	-	-	-	-	-	-
	9/15/1998	36,000	3,900	1,200	1,400	7,800	ND<250	-	-	-	-	-	-	-	-
	11/30/1998	16,000	2,200	59	1,200	1,500	ND<250	-	-	-	-	-	-	-	-
	1/17/1999	30,000	4,000	2,200	2,100	9,500	ND<250	-	-	-	-	-	-	-	-
	6/10/1999	70,000	6,300	1,800	3,600	14,000	ND<500	-	-	-	-	-	-	-	-
	9/7/1999	42,000	3,800	840	1,900	8,000	150	-	-	-	-	-	-	-	-
	12/13/1999	14,000	1,400	87	690	110	34	-	-	-	-	-	-	-	-
	3/13/2000	38,000	2,400	2,300	1,600	6,400	2,400	-	-	-	-	-	-	-	-
	6/12/2000	56,000	4,000	950	2,300	7,200	ND<50	-	-	-	-	-	-	-	-
	11/10/2000	35,000	5,100	850	1,500	3,200	230	-	-	-	-	-	-	-	-
	12/31/2000	21,000	3,200	420	1,300	1,200	440	-	-	-	-	-	-	-	-
	3/27/2001	3,500	420	64	16	280	120	-	-	-	-	-	-	-	-
	6/30/2001	1,200	88	4.5	65	37	29	-	-	-	-	-	-	-	-
	9/26/2001	53,000	8,500	1,500	2,400	4,600	270	-	-	-	-	-	-	-	-
	12/18/2001	26,000	5,400	900	1,500	2,200	430	-	-	-	-	-	-	-	-
	1/22/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3/18/2002	4,200	240	7.3	200	53	89	-	-	-	-	-	-	-	-
	6/5/2002	25,000	3,500	390	1,400	2,400	550	-	-	-	-	-	-	-	-
	8/21/2002	10,000	1,200	32	620	300	160	-	-	-	-	-	-	-	-

TABLE 3

GROUNDWATER MONITORING ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-2	12/3/2002	3,700	110	2.5	130	11	29	-	-	-	-	-	-	-	-
(cont.)	3/4/2003	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
	6/10/2003	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
	9/9/2003	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
	12/23/2003	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
	3/23/2004	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
	5/10/2004	7,300	1,000	51	240	290	1,800	ND<5	ND<5	14	ND<50	ND<500	ND<50	ND<5	ND<5
	8/4/2004	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
	11/4/2004	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
	1/12/2005	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
	5/2/2005	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
	7/20/2005	21,000	3,000	500	1,000	1,500	4,400	ND<7	ND<7	32	74[f]	ND<700	ND<70	ND<7	ND<7
	11/22/2005	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
	2/9/2006	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
	5/17/2006	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
	8/9/2006	34,000	4,200	830	1,300	2,400	2,900	ND<9	ND<9	25.00	1,600	ND<900	ND<90	ND<9	ND<9
MW-3	6/1/1993	270	4.6	ND<0.5	ND<0.5	1.9	-	-	-	-	-	-	-	-	-
	6/22/1993	160	8.2	ND<0.5	ND<0.5	0.72	-	-	-	-	-	-	-	-	-
	10/6/093	740	57	110	24	120	-	-	-	-	-	-	-	-	-
	1/13/1994	83	2.6	0.67	0.78	4.2	-	-	-	-	-	-	-	-	-
	3/30/1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/25/1994	60	0.75	3.2	0.50	3.6	-	-	-	-	-	-	-	-	-
	8/12/1994	310	7.3	14	2.6	13	-	-	-	-	-	-	-	-	-
	12/14/1994	75	ND<0.5	ND<0.5	ND<0.5	ND<0.5	-	-	-	-	-	-	-	-	-
	2/10/1995	96	1.4	ND<0.5	ND<0.5	1.8	-	-	-	-	-	-	-	-	-
	6/15/1995	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	-	-	-	-	-	-	-	-	-
	9/26/1995	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	-	-	-	-	-	-	-	-	-
	12/15/1995	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	-	-	-	-	-	-	-	-	-

TABLE 3

GROUNDWATER MONITORING ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-3	11/4/2004	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
(cont.)	1/12/2005	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
	5/2/2005	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
	7/19/2005	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
	11/21/2005	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
	2/9/2006	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
	5/16/2006	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/9/2006	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
MW-4	3/30/1994	120	4.2	15	2.5	26	-	-	-	-	-	-	-	-	-
	4/25/1994	65	ND<0.5	1.8	ND<0.5	2.1	-	-	-	-	-	-	-	-	-
	8/12/1994	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	-	-	-	-	-	-	-	-	-
	12/14/1994	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	-	-	-	-	-	-	-	-	-
	2/10/1995	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	-	-	-	-	-	-	-	-	-
	6/15/1995	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	-	-	-	-	-	-	-	-	-
	9/26/1995	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	-	-	-	-	-	-	-	-	-
	12/15/1995	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	-	-	-	-	-	-	-	-	-
	11/4/2004	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/12/2005	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/2/2005	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
	7/19/2005	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/21/2005	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/9/2006	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/16/2006	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/9/2006	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-5	3/30/1994	7,500	1,300	20	ND<13	160	-	-	-	-	-	-	-	-	-
	4/25/1994	6,500	1,100	41	130	740	-	-	-	-	-	-	-	-	-
	8/12/1994	4,000	420	2.9	41	98	-	-	-	-	-	-	-	-	-
	12/14/1994	4,800	660	ND<2.5	33	13	-	-	-	-	-	-	-	-	-

TABLE 3

GROUNDWATER MONITORING ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-5	2/10/1995	5,200	490	ND<13	23	19	-	-	-	-	-	-	-	-	-
(cont.)	6/15/1995	460	ND<0.5	ND<0.5	ND<0.5	ND<0.5	-	-	-	-	-	-	-	-	-
	9/26/1995	1,400	61	ND<0.5	3.1	ND<0.5	-	-	-	-	-	-	-	-	-
	12/15/1995	2,100	77	1.5	10	1.5	-	-	-	-	-	-	-	-	-
	3/21/1996	930	35	2.0	2.0	18	-	-	-	-	-	-	-	-	-
	6/13/1996	610	38	0.72	1.9	2.0	ND<5	-	-	-	-	-	-	-	-
	9/16/1996	380	29	ND<0.5	0.95	ND<0.5	ND<5	-	-	-	-	-	-	-	-
	12/2/1996	200	1.1	0.64	ND<0.5	ND<0.5	ND<5	-	-	-	-	-	-	-	-
	3/7/1997	520	74	ND<0.5	0.58	1.5	ND<5	-	-	-	-	-	-	-	-
	6/12/1997	140	5.3	ND<0.5	ND<0.5	ND<0.5	ND<5	-	-	-	-	-	-	-	-
	9/29/1997	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	-	-	-	-	-	-	-	-
	12/1/1997	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	-	-	-	-	-	-	-	-
	3/19/1998	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	-	-	-	-	-	-	-	-
	5/29/1998	540	4.1	ND<0.5	ND<0.5	0.52	ND<5	-	-	-	-	-	-	-	-
	9/15/1998	67	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	-	-	-	-	-	-	-	-
	11/30/1998	430	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	-	-	-	-	-	-	-	-
	1/17/1999	500	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	-	-	-	-	-	-	-	-
	6/10/1999	66	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	-	-	-	-	-	-	-	-
	9/7/1999	820	46	1.7	10	21	ND<5	-	-	-	-	-	-	-	-
	12/13/1999	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	-	-	-	-	-	-	-	-
	3/13/2000	270	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	-	-	-	-	-	-	-	-
	6/12/2000	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	-	-	-	-	-	-	-	-
	11/10/2000	2,200	42	1.1	25	30	8.6	-	-	-	-	-	-	-	-
	12/31/2000	1,300	21	ND<0.5	4.3	2.6	10	-	-	-	-	-	-	-	-
	3/27/2001	1,200	11	ND<0.5	2.6	ND<0.5	21	-	-	-	-	-	-	-	-
	6/30/2001	1,400	4.8	ND<0.5	1.5	0.56	14	-	-	-	-	-	-	-	-
	9/26/2001	660	ND<0.5	ND<0.5	ND<0.5	ND<0.5	3.0	-	-	-	-	-	-	-	-
	12/18/2001	240	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	-	-	-	-	-	-	-	-

TABLE 3

GROUNDWATER MONITORING ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-5	3/18/2002	890	0.65	ND<0.5	ND<0.5	ND<0.5	3.1	-	-	-	-	-	-	-	-
(cont.)	8/21/2002	2,100	20	ND<0.5	63	4	7	-	-	-	-	-	-	-	-
	3/4/2003	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
	9/9/2003	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	3/23/2004	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
	8/4/2004	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
	11/4/2004	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
	1/12/2005	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
	5/2/2005	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
	7/20/2005	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
	11/21/2005	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
	2/9/2006	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
	5/16/2006	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
	8/9/2006	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
MW-6	3/30/1994	63,000	21,000	8,600	1,700	12,000	-	-	-	-	-	-	-	-	-
	4/25/1994	77,000	22,000	12,000	2,300	16,000	-	-	-	-	-	-	-	-	-
	8/12/1994	65,000	12,000	8,100	2,200	16,000	-	-	-	-	-	-	-	-	-
	12/14/1994	65,000	18,000	9,500	2,200	14,000	-	-	-	-	-	-	-	-	-
	2/10/1995	63,000	21,000	8,400	2,000	14,000	-	-	-	-	-	-	-	-	-
	6/15/1995	75,000	20,000	11,000	2,100	15,000	-	-	-	-	-	-	-	-	-
	9/26/1995	62,000	15,000	9,600	1,700	12,000	-	-	-	-	-	-	-	-	-
	12/15/1995	61,000	15,000	9,000	2,300	15,000	-	-	-	-	-	-	-	-	-
	3/21/1996	65,000	18,000	9,800	2,400	16,000	-	-	-	-	-	-	-	-	-
	6/13/1996	29,000	8,600	3,300	2,200	12,000	ND<250	-	-	-	-	-	-	-	-
	9/16/1996	42,000	6,400	1,800	2,100	11,000	ND<250	-	-	-	-	-	-	-	-
	12/2/1996	28,000	3,000	1,100	970	8,300	ND<500	-	-	-	-	-	-	-	-
	3/7/1997	12,000	2,000	190	520	2,300	ND<250	-	-	-	-	-	-	-	-
	6/12/1997	37,000	3,900	470	1,600	6,200	ND<100	-	-	-	-	-	-	-	-

TABLE 3

GROUNDWATER MONITORING ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-6	9/29/1997	34,000	3,500	370	1,600	5,200	ND<100	-	-	-	-	-	-	-	-
(cont.)	12/1/1997	20,000	2,100	ND<10	1,200	2,200	ND<100	-	-	-	-	-	-	-	-
	3/19/1998	24,000	2,900	460	1,100	3,400	ND<100	-	-	-	-	-	-	-	-
	5/29/1998	38,000	3,500	700	1,800	5,200	ND<100	-	-	-	-	-	-	-	-
	9/15/1998	22,000	1,900	110	1,400	3,000	ND<100	-	-	-	-	-	-	-	-
	11/30/1998	9,900	770	16	820	710	ND<100	-	-	-	-	-	-	-	-
	1/17/1999	14,000	2,200	160	1,700	3,600	ND<100	-	-	-	-	-	-	-	-
	6/10/1999	22,000	1,600	160	1,400	2,900	5.5	-	-	-	-	-	-	-	-
	9/7/1999	17,000	1,400	33	1,300	1,800	ND<50	-	-	-	-	-	-	-	-
	12/13/1999	16,000	790	9.2	840	780	ND<25	-	-	-	-	-	-	-	-
	3/13/2000	16,000	790	85	780	1,600	ND<25	-	-	-	-	-	-	-	-
	6/12/2000	24,000	1,100	150	1,300	2,300	5,600	-	-	-	-	-	-	-	-
	11/10/2000	13,000	440	7	760	350	1,000	-	-	-	-	-	-	-	-
	12/31/2000	12,000	680	8	820	190	1,400	-	-	-	-	-	-	-	-
	3/27/2001	14,000	330	17	940	670	380	-	-	-	-	-	-	-	-
	6/30/2001	750	45	0.93	47	14	54	-	-	-	-	-	-	-	-
	9/26/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/18/2001	43,000	3,800	350	1,900	3,000	900	-	-	-	-	-	-	-	-
	1/22/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3/18/2002	33,000	2,600	120	1,800	2,800	740	-	-	-	-	-	-	-	-
	6/5/2002	10,000	1,100	16	700	180	600	-	-	-	-	-	-	-	-
	8/21/2002	10,000	1,200	23	710	290	370	-	-	-	-	-	-	-	-
	12/3/2002	16,000	1,700	63	970	630	1,500	-	-	-	-	-	-	-	-
	3/4/2003	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
	6/10/2003	9,500	860	15	380	47	2,600	ND<5	ND<5	18	ND<50	ND<500	ND<50	ND<5	ND<5
	9/9/2003	11,000	1,000	16	630	120	2,500	ND<5	ND<5	20	52	ND<500	ND<50	ND<5	ND<5
	12/23/2003	18,000	2,100	41	1,100	390	4,900	ND<10	ND<10	42	ND<100	ND<1,000	ND<100	ND<10	ND<10
	3/23/2004	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

TABLE 3

GROUNDWATER MONITORING ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-6	5/10/2004	6,500	550	<10	71	43	3,700	ND<10	ND<10	31	ND<100	ND<1,000	ND<100	ND<10	ND<10
(cont.)	8/4/2004	8,200	990	19	300	120	3,300	ND<5	ND<5	23	ND<50	ND<500	ND<50	ND<5	ND<5
	11/4/2004	9,600	1,100	30	320	160	2,200	ND<4	ND<4	18	22[f]	ND<400	ND<40	ND<4	ND<4
	1/12/2005	12,000	1,100	34	600	500	3,600	ND<4	ND<4	31	30[f]	ND<400	ND<40	ND<4	ND<4
	5/2/2005	14,000	630	22	610	920	4,000	ND<10	ND<10	32	120[f]	ND<3,000	ND<100	ND<10	ND<10
	7/20/2005	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
	11/21/2005	6,600	150	26	580	640	100	ND<1	ND<1	ND<1	13	ND<100	ND<10	ND<1	ND<1
	2/9/2006	7,100	340	11	370	360	910	ND<2	ND<2	9.3	120	ND<200	ND<20	ND<2	ND<2
	5/17/2006	7,100	270	5.1	320	290	930	ND<2	ND<2	8.4	260	ND<200	ND<20	ND<2	ND<2
	8/9/2006	5,800	440	7.5	120	45	670	ND<2	ND<2	7.3	380	ND<2,000	ND<50	ND<2	ND<2
MW-7	3/30/1994	43,000	7,200	2,400	1,600	11,000	-	-	-	-	-	-	-	-	-
	4/25/1994	30,000	3,900	1,000	940	6,900	-	-	-	-	-	-	-	-	-
	8/12/1994	30,000	3,800	1,400	1,300	7,500	-	-	-	-	-	-	-	-	-
	12/14/1994	31,000	3,600	1,200	900	6,400	-	-	-	-	-	-	-	-	-
	2/10/1995	27,000	4,000	900	890	5,100	-	-	-	-	-	-	-	-	-
	6/15/1995	17,000	920	680	740	4,100	-	-	-	-	-	-	-	-	-
	9/26/1995	7,000	200	150	170	810	-	-	-	-	-	-	-	-	-
	12/15/1995	11,000	350	170	540	1,900	-	-	-	-	-	-	-	-	-
	3/21/1996	12,000	320	100	730	2,500	-	-	-	-	-	-	-	-	-
	6/13/1996	5,900	98	19	370	620	ND<50	-	-	-	-	-	-	-	-
	9/16/1996	7,800	140	43	440	590	ND<25	-	-	-	-	-	-	-	-
	12/2/1996	6,300	87	29	290	430	ND<50	-	-	-	-	-	-	-	-
	3/7/1997	4,500	35	19	360	470	ND<25	-	-	-	-	-	-	-	-
	6/12/1997	3,900	29	5.2	170	48	ND<5	-	-	-	-	-	-	-	-
	9/29/1997	6,100	56	9	340	190	ND<25	-	-	-	-	-	-	-	-
	12/1/1997	6,500	24	ND<2.5	400	250	ND<25	-	-	-	-	-	-	-	-
	3/19/1998	2,000	20	ND<2.5	73	79	ND<25	-	-	-	-	-	-	-	-
	5/29/1998	5,700	22.0	7.3	290	350	ND<25	-	-	-	-	-	-	-	-

TABLE 3

GROUNDWATER MONITORING ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-7	9/15/1998	1,700	15	ND<2.5	44	5.1	ND<25	-	-	-	-	-	-	-	-
(cont.)	11/30/1998	4,800	42	12	270	640	ND<25	-	-	-	-	-	-	-	-
	1/17/1999	3,400	33	ND<5	200	190	ND<50	-	-	-	-	-	-	-	-
	6/10/1999	1,700	7.8	1.5	23	4.1	ND<5	-	-	-	-	-	-	-	-
	9/7/1999	1,900	9.7	2.1	70	2.9	ND<5	-	-	-	-	-	-	-	-
	12/13/1999	1,900	8.0	1.1	10	1.1	ND<5	-	-	-	-	-	-	-	-
	3/13/2000	1,500	7.5	ND<0.5	6.7	2.9	ND<5	-	-	-	-	-	-	-	-
	6/12/2000	1,200	5.4	ND<0.5	5.2	1.0	ND<5	-	-	-	-	-	-	-	-
	11/10/2000	1,000	3.9	ND<0.5	ND<0.5	ND<0.5	ND<0.5	-	-	-	-	-	-	-	-
	12/31/2000	620	1.8	ND<0.5	ND<0.5	ND<0.5	ND<0.5	-	-	-	-	-	-	-	-
	3/27/2001	1,200	4.8	ND<0.5	6.7	0.94	ND<0.5	-	-	-	-	-	-	-	-
	6/30/2001	2,800	10	1.7	75	170	ND<0.5	-	-	-	-	-	-	-	-
	9/26/2001	1,900	16	0.89	2.3	25	ND<0.5	-	-	-	-	-	-	-	-
	12/18/2001	3,000	13	0.88	3.4	3.4	ND<0.5	-	-	-	-	-	-	-	-
	1/22/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3/18/2002	3,100	7.3	1.5	38	110	ND<0.5	-	-	-	-	-	-	-	-
	6/5/2002	1,800	7.6	1.0	39	20	ND<0.5	-	-	-	-	-	-	-	-
	8/21/2002	3,300	7.6	0.7	85	36	ND<0.5	-	-	-	-	-	-	-	-
	12/3/2002	1,700	5.4	ND<0.5	15	5.5	ND<0.5	-	-	-	-	-	-	-	-
	3/4/2003	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
	6/10/2003	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
	9/9/2003	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
	12/23/2003	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	3/23/2004	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/10/2004	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
	8/4/2004	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
	11/4/2004	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
	1/12/2005	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

TABLE 3

GROUNDWATER MONITORING ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-7	5/2/2005	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
(cont.)	7/20/2005	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
	11/21/2005	1,100	0.6	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
	2/9/2006	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
	5/16/2006	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
	8/9/2006	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
MW-8	9/5/2003	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	-	-	-	-
	12/23/2003	ND<50	ND<0.5	ND<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
	3/23/2004	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/10/2004	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/4/2004	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
	11/4/2004	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/12/2005	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/2/2005	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/19/2005	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/21/2005	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/9/2006	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
	5/16/2006	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/9/2006	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
MW-9	9/5/2003	3,400	23	1.5	110	10	10	ND<0.5	ND<0.5	ND<0.5	ND<5	-	-	-	-
	12/23/2003	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
	3/23/2004	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
	5/10/2004	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
	8/4/2004	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
	11/4/2004	610	0.52	ND<0.5	1.3	ND<0.5	2.0	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/12/2005	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
	5/2/2005	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
	7/20/2005	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

TABLE 3

GROUNDWATER MONITORING ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-9	11/21/2005	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
(cont.)	2/9/2006	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
	5/16/2006	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
	8/9/2006	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
MW-10	9/5/2003	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	-	-	-	-
	12/23/2003	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	3/23/2004	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/10/2004	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/4/2004	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
	11/4/2004	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/12/2005	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/2/2005	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/19/2005	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/21/2005	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/9/2006	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/16/2006	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/9/2006	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
VW-2	8/4/2004	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
	11/4/2004	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
	1/12/2005	3,800	210	ND<5	90	54	2,900	ND<5	ND<5	33	26[f]	ND<500	ND<50	ND<5	ND<5
	5/2/2005	2,600	84	ND<2	13	7.0	960	ND<2	ND<2	12	57	ND<500	ND<20	ND<2	ND<2
	7/20/2005	6,200	240	13	290	480	6,600	ND<2	ND<2	56	59[f]	ND<2,000	ND<20	ND<2	ND<2
	11/21/2005	3,100	100	ND<9	22	10	5,300	ND<9	ND<9	54	76[f]	ND<900	ND<90	ND<9	ND<9
	2/9/2006	3,500	140	ND<25	130	36	12,000	ND<25	ND<25	65	2800	ND<2,500	ND<250	ND<25	ND<25
	5/17/2006	1,800	90	2.6	39	11	1,200	ND<2.5	ND<2.5	12	700	ND<250	ND<25	ND<2.5	ND<2.5
	8/9/2006	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

TABLE 3

GROUNDWATER MONITORING ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
VW-3	8/4/2004	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/4/2004	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	1/12/2005	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/2/2005	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	7/20/2005	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	11/21/2005	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	2/9/2006	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	5/16/2006	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
	8/9/2006	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5
TP-1	7/20/2005	42,000	2,800	1,100	1,700	4,800	12,000	ND<20	ND<20	92	130[f]	ND<2,000	ND<200	ND<20	ND<20
	11/22/2005	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
	2/9/2006	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
	5/17/2006	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
	8/9/2006	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
TP-2	7/20/2005	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
	11/22/2005	16,000	1,200	140	840	820	52,000	ND<90	ND<90	340	1,200[f]	ND<9,000	ND<900	ND<90	ND<90
	2/9/2006	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
	5/17/2006	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
	8/9/2006	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
MW-A	1/17/1999	5,800	1,700	85	65	320	ND<5	-	-	-	-	-	-	-	-
MW-B	1/17/1999	4,400	240	30	21	39	ND<5	-	-	-	-	-	-	-	-
MW-C	1/17/1999	1800	0.8	ND<0.5	ND<0.5	0.55	ND<5	-	-	-	-	-	-	-	-
MW-D	1/17/1999	5,600	1,600	130	66	220	ND<5	-	-	-	-	-	-	-	-
MW-E	1/17/1999	5,700	1,600	180	180	310	ND<50	-	-	-	-	-	-	-	-
	6/10/1999	5,000	1,300	130	320	450	ND<25	-	-	-	-	-	-	-	-

TABLE 3

GROUNDWATER MONITORING ANALYTICAL RESULTS
TESORO - LIVERMORE, 67076

Monitoring Well	Sample Date[a]	TPHg[b] (µg/l)	Benzene[b] (µg/l)	Toluene[b] (µg/l)	Ethylbenzene[b] (µg/l)	Xylenes[b] (µg/l)	MTBE[b] (µg/l)	DIPE[b] (µg/l)	ETBE[b] (µg/l)	TAME[b] (µg/l)	TBA[b] (µg/l)	Methanol[b] (µg/l)	Ethanol[b] (µg/l)	1,2-DCA[b] (µg/l)	EDB[b] (µg/l)
MW-W	1/17/1999	23,000	7,600	760	1,400	5,000	ND<50	-	-	-	-	-	-	-	-
	6/10/1999	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.

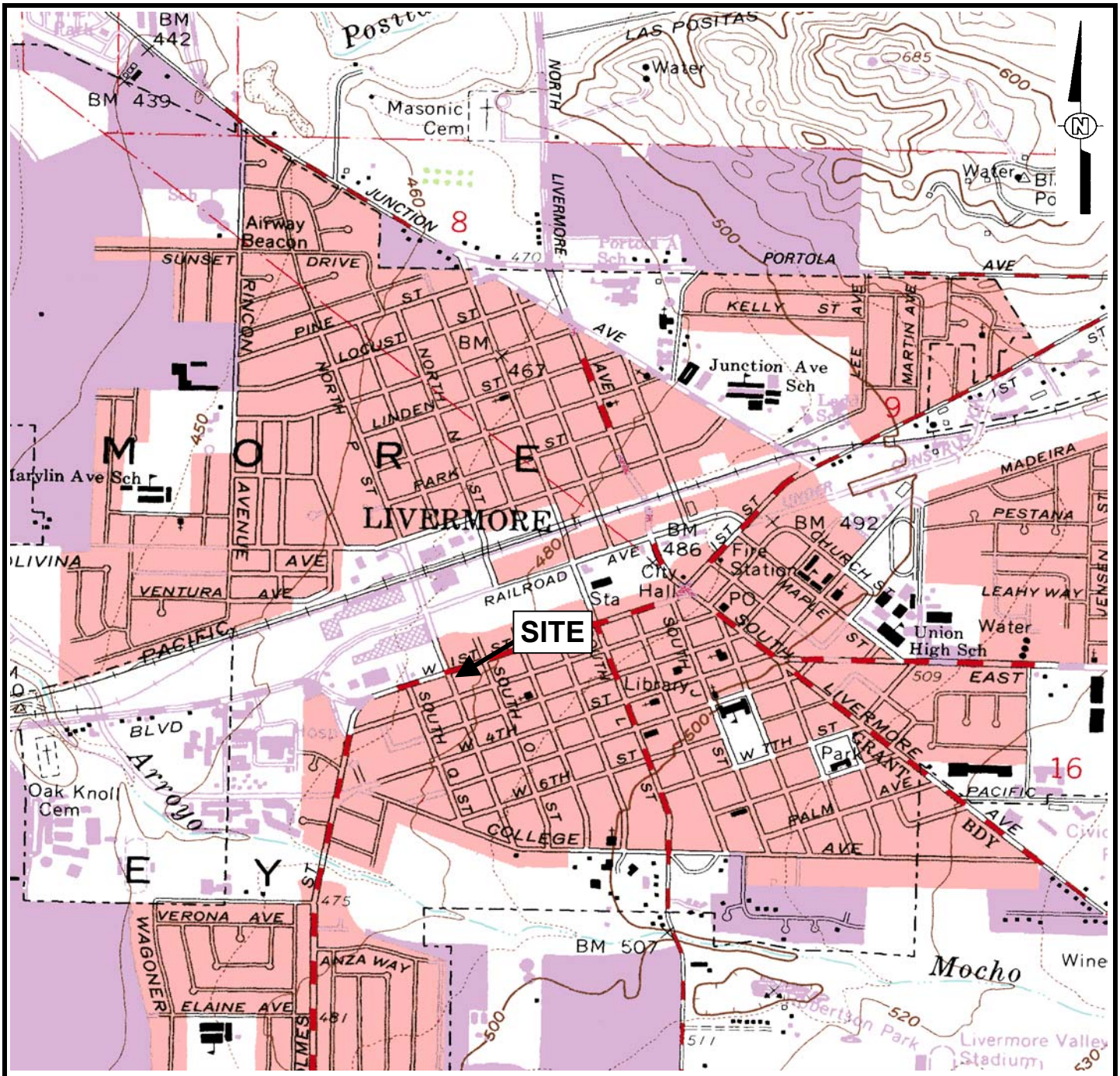
(b) Total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, xylenes, methyl tert-butyl ether (MTBE), di-isopropyl ether (DIPE), ethyl tert-butyl ether (ETBE), tert-amyl methyl ether (TAME), tert-butyl alcohol (TBA), 1,2-dichloroethane (1,2-DCA), and 1,2-dibromoethane (EDB) analyzed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

(c) Field measurement, reported in milligrams per liter (mg/l).

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

(e) "-" Not analyzed.

(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.



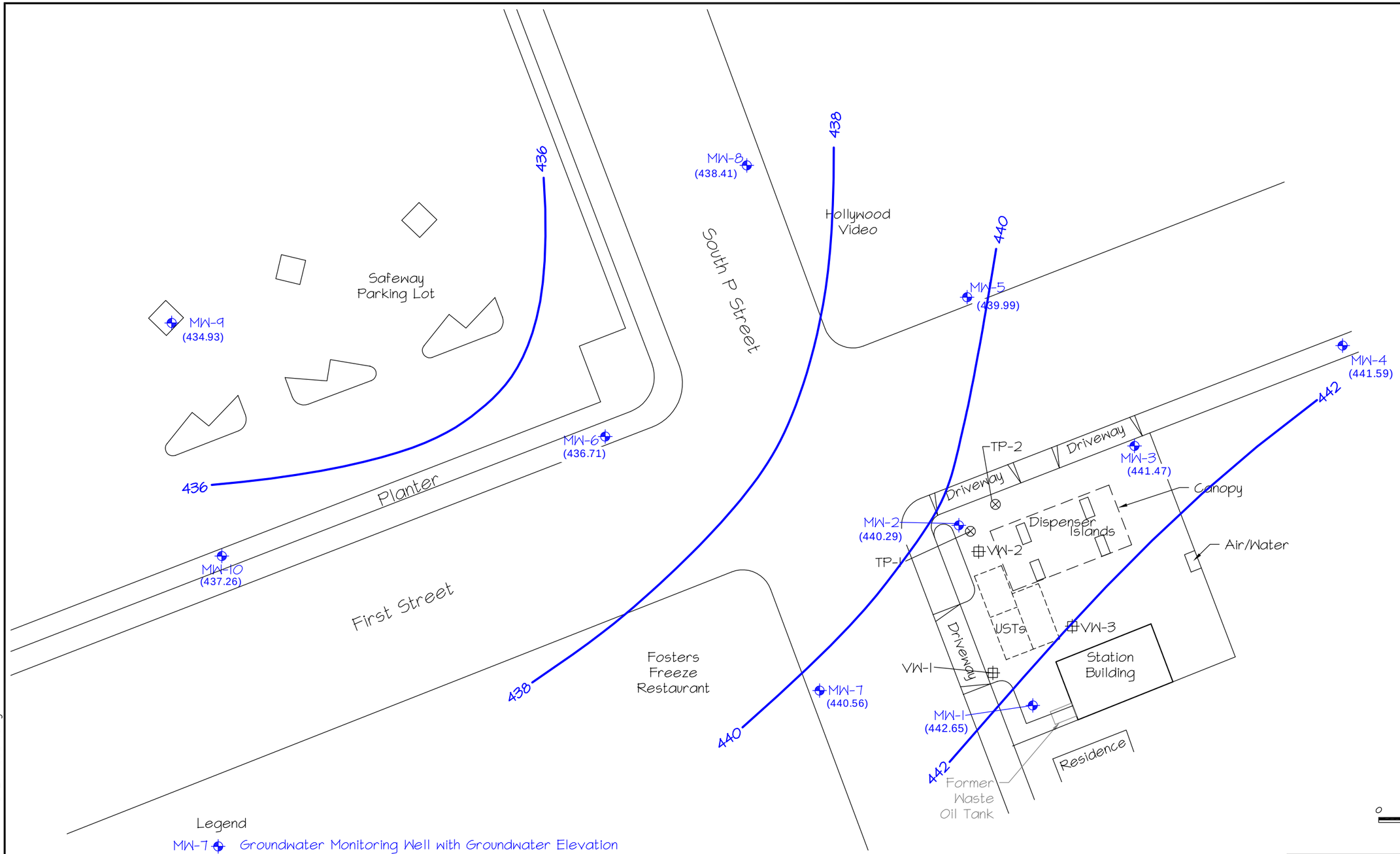
SCALE

0 2000 4000 FEET

REFERENCE

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

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



REVISION	NO.	BY	DATE	DESCRIPTION
4	0	MY	8/24/05	Third Quarter 2005 Monitoring Report
	1	MY	12/15/05	Fourth Quarter 2005 Monitoring Report
	2	MY	4/28/06	Investigation Report
	3	MY	7/15/06	Second Quarter 2006 Monitoring Report
	4	MY	12/15/06	Third Quarter 2006 Monitoring Report

ARCTOS ENVIRONMENTAL

TESORO - LIVERMORE

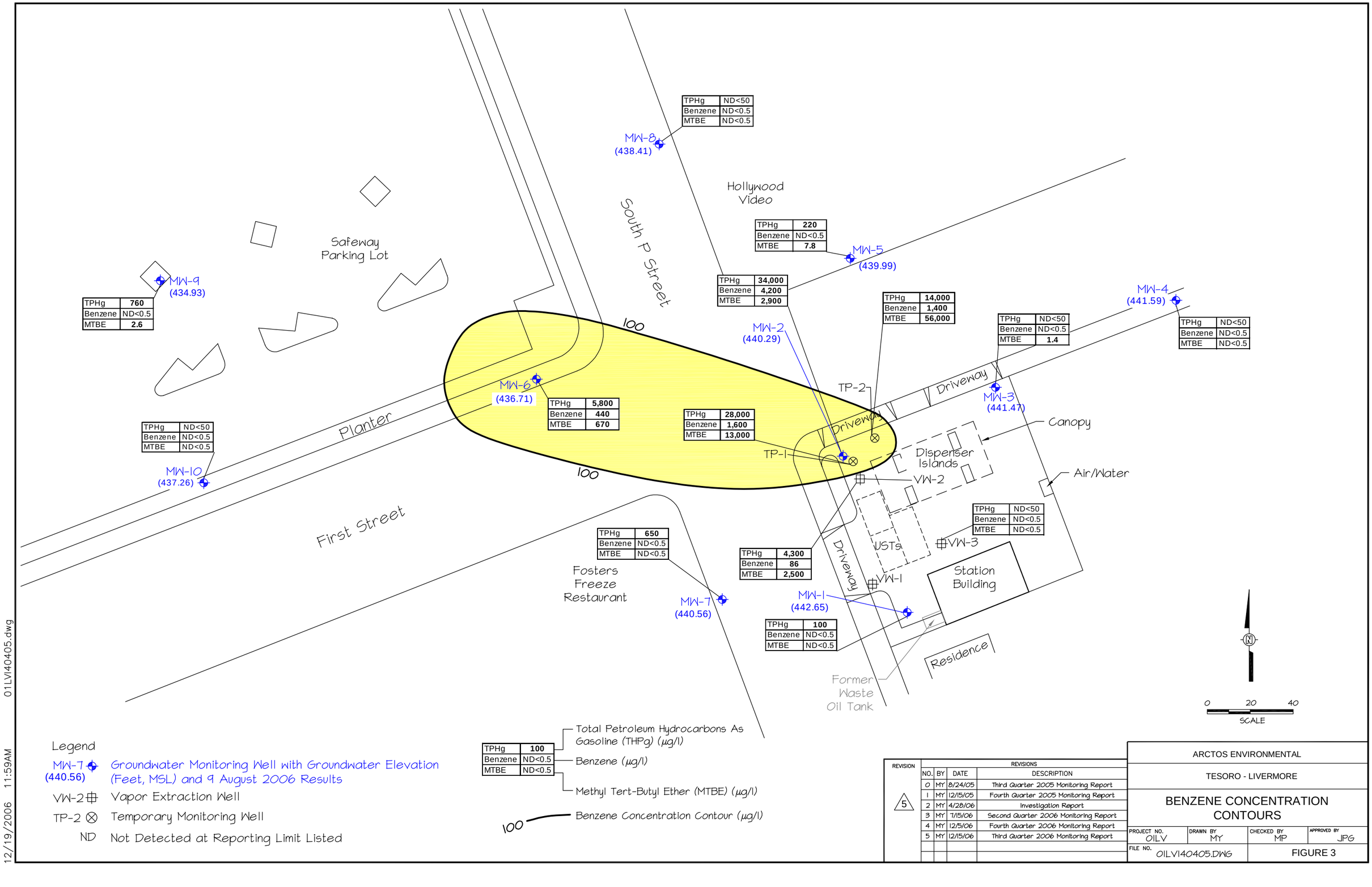
GROUNDWATER ELEVATION CONTOURS

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

FILE NO. 01LV140604.DWG

FIGURE 2

12/19/2006 11:31AM 01LV140604.dwg



REVISION	NO.	BY	DATE	DESCRIPTION
5	0	MY	8/24/05	Third Quarter 2005 Monitoring Report
	1	MY	12/15/05	Fourth Quarter 2005 Monitoring Report
	2	MY	4/28/06	Investigation Report
	3	MY	7/15/06	Second Quarter 2006 Monitoring Report
	4	MY	12/5/06	Fourth Quarter 2006 Monitoring Report
	5	MY	12/15/06	Third Quarter 2006 Monitoring Report

ARCTOS ENVIRONMENTAL

TESORO - LIVERMORE

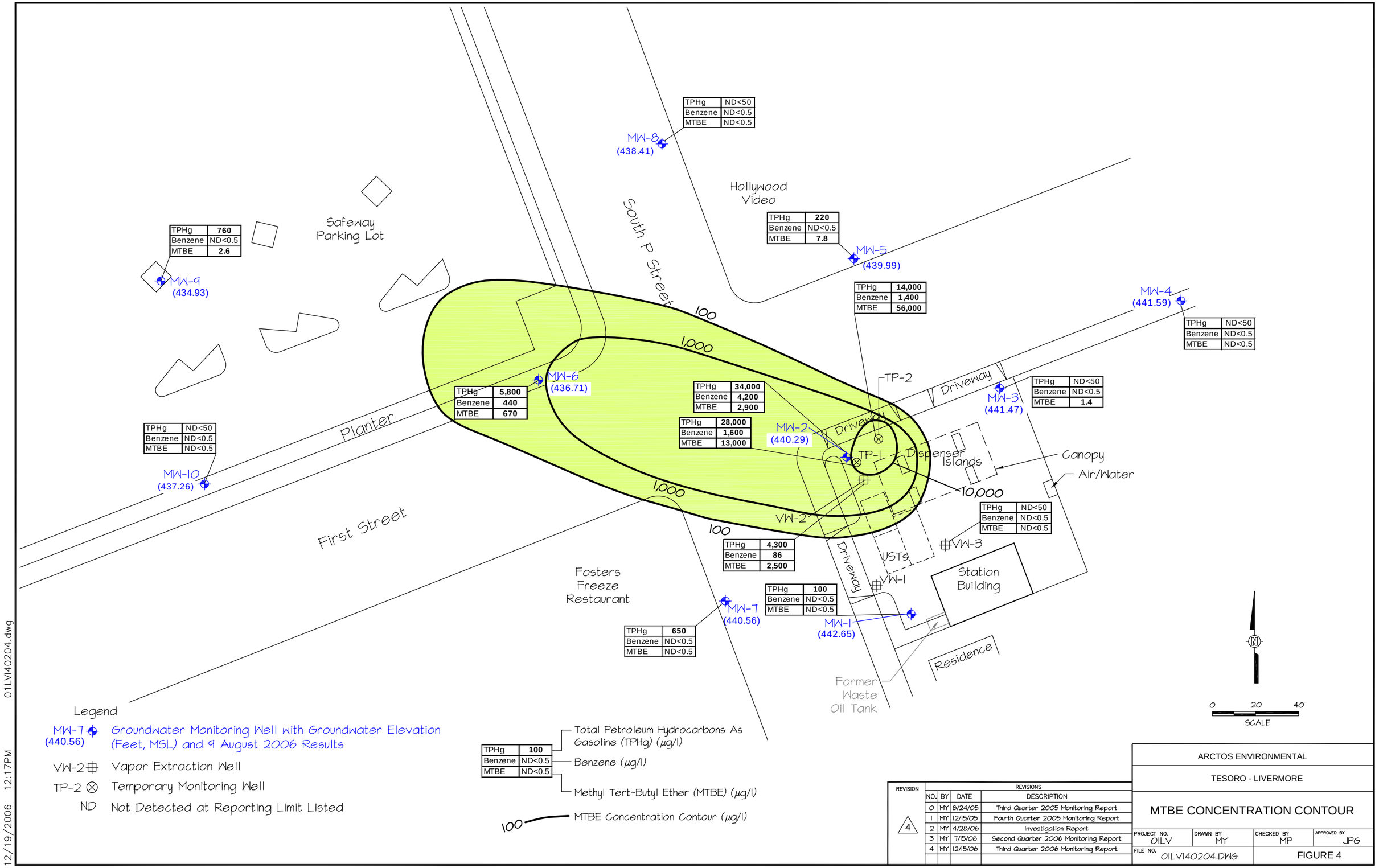
BENZENE CONCENTRATION CONTOURS

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

FILE NO. 01LV140405.DWG

FIGURE 3

12/19/2006 11:59AM 01LV140405.dwg



REVISION	NO.	BY	DATE	DESCRIPTION
4	0	MY	8/24/05	Third Quarter 2005 Monitoring Report
	1	MY	12/15/05	Fourth Quarter 2005 Monitoring Report
	2	MY	4/28/06	Investigation Report
	3	MY	7/15/06	Second Quarter 2006 Monitoring Report
	4	MY	12/15/06	Third Quarter 2006 Monitoring Report

ARCTOS ENVIRONMENTAL

TESORO - LIVERMORE

MTBE CONCENTRATION CONTOUR

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

FILE NO. 01LV140204.DWG

FIGURE 4

01LV140204.dwg 12:17PM 12/19/2006

APPENDIX A

FIELD DATA SHEETS

(SF)

WELL GAUGING DATA

Project # 060809-~~SC~~ PC 1 Date 08/09/06 Client ARCTOS Environmental

Site 1619 1st St. Livermore, CA

Well ID	Time	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or TOC	Notes
MW-1	900	4					31.64	55.93		
MW-2	900	4					32.69	56.38		
MW-3	835	4					31.90	52.60		
MW-4	830	2					32.05	46.85		
MW-5	905	2					32.68	46.31		
MW-6	859	2					35.22	47.70		
MW-7	1140	2					31.77	46.62		
MW-8	911	2					32.77	44.36		
MW-9	850	2					35.85	44.81		
MW-10	854	2					34.37	45.02		
VW-2	910	2					31.74	37.25		
VW-3	838	2					30.53	36.08		NP
TP-1	915	2					32.81	43.10		NP
TP-2	919	2					31.74	42.33		

WELL MONITORING DATA SHEET

Project #: 060809-PC1	Client: Arctos @ Tesoro #67076
Sampler: PC, SC	Date: 8/9/06
Well I.D.: MW-1	Well Diameter: 2 3 (4) 6 8 ___
Total Well Depth (TD): 55.93	Depth to Water (DTW): 31.64
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) ~~YSI~~ HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 36.50	

Purge Method: Bailer; Disposable Bailer; Positive Air Displacement; X Electric Submersible; Waterra; Peristaltic; Extraction Pump; Other___

3 HCL Voa's

Sampling Method: Bailer; ✓ Disposable Bailer; Extraction Port; Dedicated Tubing; Other: ___

15.8 (Gals.) X 3 = 47.4 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius^2 * 0.163

Time (1041)	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1044	69.6	7.4	980	75	15.8	clear/no odor
1048	69.2	7.1	1009	118	31.6	" " "
1051	69.0	7.2	976	268	47.4	cloudy brownish

Did well dewater? Yes (No) Gallons actually evacuated: 47.4

Sampling Date: 8/9/06 Sampling Time: 1110 Depth to Water: 36.50

Sample I.D.: MW-1 Laboratory: (Kiff) CalScience Other___

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see COC

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 060809-PC1	Client: Arctos @ Tesoro #67076
Sampler: PC, SC	Date: 8/9/06
Well I.D.: MW-2	Well Diameter: 2 3 (4) 6 8 ___
Total Well Depth (TD): 56.38	Depth to Water (DTW): 32.69
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 37.43	

Purge Method: Bailer; Disposable Bailer; Positive Air Displacement; X Electric Submersible; Waterra; Peristaltic; Extraction Pump; Other ___

Sampling Method: Bailer; ↙ Disposable Bailer; Extraction Port; Dedicated Tubing; Other: ___

3 vol's
3 250ml HDPE NP 1 250ml H_2SO_4

15.4 (Gals.) X 3 = 46.2 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

1137 Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1136	72.5	6.9	1158	159	15.4	greyish/color
1140	71.2	6.9	1134	214	30.8	" "
1143	71.1	7.0	1112	269	46.2	" "
				(SC) ~~Fe++~~		

Did well dewater? Yes (No) Gallons actually evacuated: 46.2

Sampling Date: 8/9/06 Sampling Time: 1155 Depth to Water: 37.40

Sample I.D.: MW-2 Laboratory: (Kiff) CalScience Other ___

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see COC

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) ~~Other:~~

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	0.23	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	-117	mV

WELL MONITORING DATA SHEET

Project #: 060809-PC1	Client: Arctos @ Tesoro #67076
Sampler: PC, SC	Date: 8/9/06
Well I.D.: MW-3	Well Diameter: 2 3 (4) 6 8 ____
Total Well Depth (TD): 52.80	Depth to Water (DTW): 31.90
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 36.08	

Purge Method: Bailer; Disposable Bailer; Positive Air Displacement; X Electric Submersible; Waterra; Peristaltic; Extraction Pump; Other ____

3 HCl vials; 1 125mL H_2SO_4; 3 250mL NP

Sampling Method: Bailer; ✓ Disposable Bailer; Extraction Port; Dedicated Tubing; Other: ____

1 Case Volume		Specified Volumes		Calculated Volume
13.6 (Gals.)	X	3	=	40.8 Gals.

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1006						
1009	70.0	8.1	1063	563	13.6	cloudy brownish
1012	69.2	7.3	1040	575	27.2	" "
1019	69.2	7.3	1041	167	40.8	" "
				(SCF) pH T		

Did well dewater? Yes (No) Gallons actually evacuated: 40.8

Sampling Date: 8/9/06 Sampling Time: 1025 Depth to Water: 35.10

Sample I.D.: MW-3 Laboratory: (Kiff) CalScience Other ____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see COC

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	0.31	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	243	mV

WELL MONITORING DATA SHEET

Project #: 060809-PC1	Client: Arctos @ Tesoro #67076
Sampler: RC, SC	Date: 8/9/06
Well I.D.: MW-4	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 46.85	Depth to Water (DTW): 32.05
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 35.01	

Purge Method: Bailer; (Disposable Bailer); Positive Air Displacement; Electric Submersible; Waterra; Peristaltic; Extraction Pump; Other____

Sampling Method: Bailer; (Disposable Bailer); Extraction Port; Dedicated Tubing; Other: ____

2.4 (Gals.) X	3	=	7.2 Gals.
1 Case Volume	Specified Volumes		Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
955	21.4	8.6	1017	>1000	2.5	silty, brown
1000	22.2	8.2	1012	>1000	5	↓ ↓
1006	23.1	8.2	1013	>1000	7.2	

Did well dewater? Yes (No) Gallons actually evacuated: 7.2

Sampling Date: 8/9/06 Sampling Time: 1012 Depth to Water: 34.05

Sample I.D.: MW-4 Laboratory: (Kiff) CalScience Other____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see COC

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	0.50	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	-8	mV

WELL MONITORING DATA SHEET

Project #: 060809-PCS	Client: Arctos @ Tesoro #67076
Sampler: RC, SC	Date: 8/9/06
Well I.D.: MW-5	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 46.31	Depth to Water (DTW): 32.68
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 35.41	

Purge Method: Bailer; (Disposable Bailer); Positive Air Displacement; Electric Submersible; Waterra; Peristaltic; Extraction Pump; Other____

Sampling Method: Bailer; (Disposable Bailer); Extraction Port; Dedicated Tubing; Other: ____

2.2 (Gals.) X 3 = 6.6 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1114	22.9	8.0	1153	>1000	2.2	
1120	23.0	8.1	1163	>1000	4.4	
1128	23.1	8.0	1158	>1000	6.6	

Did well dewater? Yes (No) Gallons actually evacuated: 6.6

Sampling Date: 8/9/06 Sampling Time: 1135 Depth to Water: ~~35.44~~ 33.59 (12)

Sample I.D.: MW-5 Laboratory: (Kiff) CalScience Other____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see COC

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 060809-pcs	Client: Arctos @ Tesoro #67076
Sampler: PC, SC	Date: 8/9/06
Well I.D.: MW-6	Well Diameter: (2) 3 4 6 8
Total Well Depth (TD): 47.70	Depth to Water (DTW): 35.22
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 37.72	

Purge Method: Bailer; (Disposable Bailer); Positive Air Displacement; Electric Submersible; Waterra; Peristaltic; Extraction Pump; Other_____

Sampling Method: Bailer; (Disposable Bailer); Extraction Port; Dedicated Tubing; Other:_____

2 (Gals.) X	3	= 6 Gals.
1 Case Volume	Specified Volumes	Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1251	23.0	~~8.0~~ 7.8	1194	>1000	2	cloudy/light sediment
1258	22.5	7.7	1197	964	4	↓
1305	22.4	7.9	1194	971	6	

Did well dewater? Yes (No) Gallons actually evacuated: 6

Sampling Date: 8/9/06 Sampling Time: 1310 Depth to Water: 34.85

Sample I.D.: MW-6 Laboratory: (Kiff) CalScience Other_____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see COC

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	0.92	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	-165	mV

WELL MONITORING DATA SHEET

Project #: 060809-PCS	Client: Arctos @ Tesoro #67076
Sampler: PC, SC	Date: 8/9/06
Well I.D.: MW-7	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 46.62	Depth to Water (DTW): 31.77
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 34.74	

Purge Method: Bailer; (Disposable Bailer); Positive Air Displacement; Electric Submersible; Waterra; Peristaltic; Extraction Pump; Other ____

Sampling Method: Bailer; (Disposable Bailer); Extraction Port; Dedicated Tubing; Other: ____

24 (Gals.) X 3 = 7.2 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1149	23.9	7.6	1125	>1000	2.4	cloudy
1156	23.3	7.8	1111	>100	4.8	↓
1202	23.3	7.5	1113	>1000	7.2	

Did well dewater? Yes (No) Gallons actually evacuated: 7.2

Sampling Date: 8/9/06 Sampling Time: 1206 Depth to Water: 33.74

Sample I.D.: MW-7 Laboratory: (Kiff) CalScience Other ____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see COC

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 060809-PC1	Client: Arctos @ Tesoro #67076
Sampler: PC, SC	Date: 8/9/06
Well I.D.: MW-8	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 44.36	Depth to Water (DTW): 32.77
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 35.00	

Purge Method: Bailer / ✔ Disposable Bailer / Positive Air Displacement / Electric Submersible / Waterra / Peristaltic / Extraction Pump / Other_____

Sampling Method: Bailer / ✔ Disposable Bailer / Extraction Port / Dedicated Tubing / Other: _____

1.9 (Gals.) X 3 = 5.7 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
0920	21.9	7.4	1038	477	1.9	cloudy/light sediment
0927	21.5	7.7	1024	>1000	3.8	silty, dark
0935	21.3	8.2	1032	>1000	5.7	" " Brown

Did well dewater? Yes (No) Gallons actually evacuated: 5.7

Sampling Date: 8/9/06 Sampling Time: 0940 Depth to Water: 34.72

Sample I.D.: MW-8 Laboratory: (Kiff) CalScience Other_____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see COC

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 060809-PC1	Client: Arctos @ Tesoro #67076
Sampler: PC, SC	Date: 8/9/06
Well I.D.: MW-9	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 44.81	Depth to Water (DTW): 35.85
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 37.64	

Purge Method: Bailer; (Disposable Bailer); Positive Air Displacement; Electric Submersible; Waterra; Peristaltic; Extraction Pump; Other ____

Sampling Method: Bailer; (Disposable Bailer); Extraction Port; Dedicated Tubing; Other: ____

1.64 (Gals.) X	3	=	4.2 Gals.
1 Case Volume	Specified Volumes		Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1218	23.4	8.2	1015	>1000	1.4	
1225	23.0	7.7	1021	>1000	2.8	
1232	23.0	8.0	1014	>1000	4.2	

Did well dewater? Yes (No) Gallons actually evacuated: 4.2

Sampling Date: 8/9/06 Sampling Time: 1240 Depth to Water: 37.44

Sample I.D.: ~~MW-9~~ MW-9 Laboratory: (Kiff) CalScience Other ____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see COC

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	1.16	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	-294	mV

WELL MONITORING DATA SHEET

Project #: 060809-PC1	Client: Arctos @ Tesoro #67076
Sampler: RC, SC	Date: 8/9/06
Well I.D.: MW-10	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 45.02	Depth to Water (DTW): 34.37
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 36.50	

Purge Method: Bailer; (Disposable Bailer); Positive Air Displacement; Electric Submersible; Waterra; Peristaltic; Extraction Pump; Other____

Sampling Method: Bailer; (Disposable Bailer); Extraction Port; Dedicated Tubing; Other: ____

1.7 (Gals.) X	3	= 5.1 Gals.
1 Case Volume	Specified Volumes	Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1039	23.6	7.9	1162	>1000	1.7	Cloudy
1041	22.0	7.9	1189	>1000	3.4	↓
1043	22.4	7.9	1192	>1000	5.1	

Did well dewater? Yes (No) Gallons actually evacuated: 5.1

Sampling Date: 8/9/06 Sampling Time: 1047 Depth to Water: 36.21

Sample I.D.: MW-10 Laboratory: (Kiff) CalScience Other____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see COC

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 060809-PC1	Client: Arctos @ Tesoro #67076
Sampler: PC, SC	Date: 8/9/06
Well I.D.: VW-2	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 37.25	Depth to Water (DTW): 31.74
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): ~~YSI~~ ~~(SC)~~ HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: ——	

Purge Method: ~~Bailer, Disposable Bailer, Positive Air Displacement, Electric Submersible, Waterra, Peristaltic, Extraction Pump, Other ______~~

3 HCL vo(a's)

Sampling Method: Bailer, ✓ Disposable Bailer, Extraction Port, Dedicated Tubing, Other: ______

______ (Gals.) X NP ______ = ______ Gals.
1 Case Volume, Specified Volumes, Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius^2 * 0.163

Time	Temp ((°F) or °C)	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1125	71.8	7.0	1089	210	——	grey, odor

Did well dewater? Yes (No)	Gallons actually evacuated: ——	
Sampling Date: 8/9/06	Sampling Time: 1130	Depth to Water: ——
Sample I.D.: VW-2	Laboratory: (Kiff) CalScience Other ______	
Analyzed for: TPH-G BTEX MTBE TPH-D	Oxygenates (5) Other: see COC	
EB I.D. (if applicable): @ Time	Duplicate I.D. (if applicable):	
Analyzed for: TPH-G BTEX MTBE TPH-D	Oxygenates (5) Other:	
D.O. (if req'd): Pre-purge: ______ mg/L	Post-purge: ______ mg/L	
O.R.P. (if req'd): Pre-purge: ______ mV	Post-purge: ______ mV	

WELL MONITORING DATA SHEET

Project #: 060809-RC1	Client: Arctos @ Tesoro #67076
Sampler: RC, SC	Date: 8/9/06
Well I.D.: VW-3	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 36.08	Depth to Water (DTW): 30.53
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (SC) ~~YSI~~ HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: ~~Bailer~~ / (SC) ~~Disposable Bailer~~ / ~~Positive Air Displacement~~ / ~~Electric Submersible~~ / Waterra / Peristaltic / Extraction Pump / Other____

Sampling Method: Bailer / ✓ Disposable Bailer / Extraction Port / Dedicated Tubing / Other: ____

NP (Gals.) X ____ = ____ Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
0845	68.4	6.9	1670	15	—	clear; no odor

Did well dewater? Yes (No) Gallons actually evacuated: —

Sampling Date: 8/9/06 Sampling Time: 0850 Depth to Water: —

Sample I.D.: VW-3 Laboratory: (Kiff) CalScience Other____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see COC

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	(SC) ~~YSI~~ 9	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:		mV

WELL MONITORING DATA SHEET

Project #: 060809-PC1	Client: Arctos @ Tesoro #67076
Sampler: PC, SC	Date: 8/9/06
Well I.D.: TP-1	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 43.10	Depth to Water (DTW): 32.81
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (SC) ~~YSI~~ HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 34.87	

Purge Method: Bailer, Disposable Bailer, Positive Air Displacement, Electric Submersible, Waterra, Peristaltic, Extraction Pump, Other____

Sampling Method: Bailer, ↙Disposable Bailer, Extraction Port, Dedicated Tubing, Other: ____

3 vol.'s

1.7 (Gals.) X 3 = 5.1 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1219	71.1	7.0	1199	71000	1.7	cloudy/grey/odor.
1218	70.9	6.9	2001	>1000	3.4	" " "
1221	70.5	6.9	1198	>1000	5.1	" " "

Did well dewater? Yes (No) Gallons actually evacuated: 5.1

Sampling Date: 8/9/06 Sampling Time: 1230 Depth to Water: 34.87

Sample I.D.: TP-1 Laboratory: (Kiff) CalScience Other____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see COC

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 060809-PC1	Client: Arctos @ Tesoro #67076
Sampler: PC, SC	Date: 8/9/06
Well I.D.: TP-2	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 4233	Depth to Water (DTW): 31.74
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): ~~YSI~~ (HACH)
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 33.86	

Purge Method: Bailer; (Disposable Bailer); Positive Air Displacement; Electric Submersible; Waterra; Peristaltic; Extraction Pump; Other ____

Sampling Method: Bailer; (Disposable Bailer); Extraction Port; Dedicated Tubing; Other: ____

3 Vols

1.7 (Gals.) X	3	= 5.1 Gals.
1 Case Volume	Specified Volumes	Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1237	70.6	7.0	1197	>1000	1.7	cloudy grey, odor
1241	71.1	7.0	1194	>1000	3.4	" " "
1245	70.6	~~8~~ 7.0	1192	>1000	5.1	" " "

Did well dewater? Yes (No) Gallons actually evacuated: 5.1

Sampling Date: 8/9/06 Sampling Time: 1250 Depth to Water: 33.38

Sample I.D.: TP-2 Laboratory: (Kiff) CalScience Other ____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see COC

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

APPENDIX B

LABORATORY ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY FORM

Electronic Submittal Information

Main Menu | View/Add Facilities | Upload EDD | Check EDD

Your EDF file has been successfully uploaded!

Confirmation Number: 1011491119
Date/Time of Submittal: 12/14/2006 10:21:56 PM
Facility Global ID: T0600101410
Facility Name: BEACON #3604
Submittal Title: 01LV 3Q06 Status Report
Submittal Type: GW Monitoring Report

Click here to view the detections report for this upload.

BEACON #3604
1619 1ST
LIVERMORE, CA 94550

Regional Board - Case #: 01-1527
SAN FRANCISCO BAY RWQCB (REGION 2)
Local Agency (lead agency) - Case #: RO0000434
ALAMEDA COUNTY LOP - **(JTW)**

CONF #	TITLE	QUARTER
1011491119	01LV 3Q06 Status Report	Q3 2006

SUBMITTED BY	SUBMIT DATE	STATUS
Miguel Tseng	12/14/2006	PENDING REVIEW

SAMPLE DETECTIONS REPORT

# FIELD POINTS SAMPLED	14
# FIELD POINTS WITH DETECTIONS	10
# FIELD POINTS WITH WATER SAMPLE DETECTIONS ABOVE MCL	9
SAMPLE MATRIX TYPES	WATER

METHOD QA/QC REPORT

METHODS USED	SW8260B
TESTED FOR REQUIRED ANALYTES?	Y
LAB NOTE DATA QUALIFIERS	Y

QA/QC FOR 8021/8260 SERIES SAMPLES

TECHNICAL HOLDING TIME VIOLATIONS	0
METHOD HOLDING TIME VIOLATIONS	0
LAB BLANK DETECTIONS ABOVE REPORTING DETECTION LIMIT	0
LAB BLANK DETECTIONS	0
DO ALL BATCHES WITH THE 8021/8260 SERIES INCLUDE THE FOLLOWING?	
- LAB METHOD BLANK	Y
- MATRIX SPIKE	Y
- MATRIX SPIKE DUPLICATE	Y
- BLANK SPIKE	Y
- SURROGATE SPIKE - NON-STANDARD SURROGATE USED	N

WATER SAMPLES FOR 8021/8260 SERIES

MATRIX SPIKE / MATRIX SPIKE DUPLICATE(S) % RECOVERY BETWEEN 65-135%	Y

MATRIX SPIKE / MATRIX SPIKE DUPLICATE(S) RPD LESS THAN 30%	Y
SURROGATE SPIKES % RECOVERY BETWEEN 85-115%	Y
BLANK SPIKE / BLANK SPIKE DUPLICATES % RECOVERY BETWEEN 70-130%	Y

SOIL SAMPLES FOR 8021/8260 SERIES

MATRIX SPIKE / MATRIX SPIKE DUPLICATE(S) % RECOVERY BETWEEN 65-135%	n/a
MATRIX SPIKE / MATRIX SPIKE DUPLICATE(S) RPD LESS THAN 30%	n/a
SURROGATE SPIKES % RECOVERY BETWEEN 70-125%	n/a
BLANK SPIKE / BLANK SPIKE DUPLICATES % RECOVERY BETWEEN 70-130%	n/a

FIELD QC SAMPLES

SAMPLE	COLLECTED	DETECTIONS > REPDL
QCTB SAMPLES	N	0
QCEB SAMPLES	N	0
QCAB SAMPLES	N	0

Logged in as ORIONENV (AUTH_RP) CONTACT SITE ADMINISTRATOR.

Electronic Submittal Information

UPLOADING A GEO_WELL FILE

Processing is complete. No errors were found!
Your file has been successfully submitted!

Submittal Title:	**01LV 3Q06 Status Report**
Submittal Date/Time:	**12/14/2006 10:27:19 PM**
Confirmation Number:	**9541521966**

Back to Main Menu

Logged in as ORIONENV (AUTH_RP)

CONTACT SITE ADMINISTRATOR.

KIFF Analytical LLC

Report Number : 51562
Date : 8/15/2006

Mike Purchase
Arctos Environmental
1332 Peralta Avenue
Berkeley, CA

Subject : 14 Water Samples
Project Name : Tesoro - Livermore
Project Number : 060809-PC1

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 : 51562
Date : 8/15/2006

Subject : 14 Water Samples
Project Name : Tesoro - Livermore
Project Number : 060809-PC1

Case Narrative

The Method Reporting Limit for Methanol has been increased due to the presence of an interfering compound for samples MW-2, MW-6, VW-2 and TP-2.

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

Approved By: Joel Kiff

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

KIFF Analytical LLC

Report Number : 51562

Date : 8/15/2006

Project Name : **Tesoro - Livermore**

Project Number : **060809-PC1**

Sample : **MW-1** Matrix : Water Lab Number : 51562-01

Sample Date :8/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Methyl-t-butyl ether (MTBE)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	8/10/2006
Methanol	**< 50**	50	ug/L	EPA 8260B	8/10/2006
Ethanol	**< 5.0**	5.0	ug/L	EPA 8260B	8/10/2006
1,2-Dichloroethane	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
1,2-Dibromoethane	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
TPH as Gasoline	**190**	50	ug/L	EPA 8260B	8/10/2006
Toluene - d8 (Surr)	97.7		% Recovery	EPA 8260B	8/10/2006
4-Bromofluorobenzene (Surr)	100		% Recovery	EPA 8260B	8/10/2006

Approved By: Joel Kiff

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KIFF Analytical LLC

Report Number : 51562

Date : 8/15/2006

Project Name : **Tesoro - Livermore**

Project Number : **060809-PC1**

Sample : **MW-2** Matrix : Water Lab Number : 51562-02

Sample Date :8/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**4200**	9.0	ug/L	EPA 8260B	8/10/2006
Toluene	**830**	9.0	ug/L	EPA 8260B	8/10/2006
Ethylbenzene	**1300**	9.0	ug/L	EPA 8260B	8/10/2006
Total Xylenes	**2400**	9.0	ug/L	EPA 8260B	8/10/2006
Methyl-t-butyl ether (MTBE)	**2900**	9.0	ug/L	EPA 8260B	8/10/2006
Diisopropyl ether (DIPE)	**< 9.0**	9.0	ug/L	EPA 8260B	8/10/2006
Ethyl-t-butyl ether (ETBE)	**< 9.0**	9.0	ug/L	EPA 8260B	8/10/2006
Tert-amyl methyl ether (TAME)	**25**	9.0	ug/L	EPA 8260B	8/10/2006
Tert-Butanol	**1600**	50	ug/L	EPA 8260B	8/10/2006
Methanol	**< 900**	900	ug/L	EPA 8260B	8/10/2006
Ethanol	**< 90**	90	ug/L	EPA 8260B	8/10/2006
1,2-Dichloroethane	**< 9.0**	9.0	ug/L	EPA 8260B	8/10/2006
1,2-Dibromoethane	**< 9.0**	9.0	ug/L	EPA 8260B	8/10/2006
TPH as Gasoline	**34000**	900	ug/L	EPA 8260B	8/10/2006
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	8/10/2006
4-Bromofluorobenzene (Surr)	99.3		% Recovery	EPA 8260B	8/10/2006

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Report Number : 51562

Date : 8/15/2006

Project Name : **Tesoro - Livermore**

Project Number : **060809-PC1**

Sample : **MW-3** Matrix : Water Lab Number : 51562-03

Sample Date :8/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Methyl-t-butyl ether (MTBE)	**1.4**	0.50	ug/L	EPA 8260B	8/10/2006
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	8/10/2006
Methanol	**< 50**	50	ug/L	EPA 8260B	8/10/2006
Ethanol	**< 5.0**	5.0	ug/L	EPA 8260B	8/10/2006
1,2-Dichloroethane	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
1,2-Dibromoethane	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	8/10/2006
Toluene - d8 (Surr)	99.7		% Recovery	EPA 8260B	8/10/2006
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	8/10/2006

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Report Number : 51562
Date : 8/15/2006

Project Name : **Tesoro - Livermore**
Project Number : **060809-PC1**

Sample : **MW-4** Matrix : Water Lab Number : 51562-04
Sample Date :8/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Methyl-t-butyl ether (MTBE)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	8/10/2006
Methanol	**< 50**	50	ug/L	EPA 8260B	8/10/2006
Ethanol	**< 5.0**	5.0	ug/L	EPA 8260B	8/10/2006
1,2-Dichloroethane	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
1,2-Dibromoethane	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	8/10/2006
Toluene - d8 (Surr)	99.7		% Recovery	EPA 8260B	8/10/2006
4-Bromofluorobenzene (Surr)	99.7		% Recovery	EPA 8260B	8/10/2006

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Project Name : **Tesoro - Livermore**

Project Number : **060809-PC1**

Sample : **MW-5** Matrix : Water Lab Number : 51562-05

Sample Date :8/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Methyl-t-butyl ether (MTBE)	**7.8**	0.50	ug/L	EPA 8260B	8/10/2006
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	8/10/2006
Methanol	**< 50**	50	ug/L	EPA 8260B	8/10/2006
Ethanol	**< 5.0**	5.0	ug/L	EPA 8260B	8/10/2006
1,2-Dichloroethane	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
1,2-Dibromoethane	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
TPH as Gasoline	**220**	50	ug/L	EPA 8260B	8/10/2006
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	8/10/2006
4-Bromofluorobenzene (Surr)	99.6		% Recovery	EPA 8260B	8/10/2006

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Report Number : 51562

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Project Name : **Tesoro - Livermore**

Project Number : **060809-PC1**

Sample : **MW-6** Matrix : Water Lab Number : 51562-06

Sample Date :8/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**440**	2.0	ug/L	EPA 8260B	8/10/2006
Toluene	**7.5**	2.0	ug/L	EPA 8260B	8/10/2006
Ethylbenzene	**120**	2.0	ug/L	EPA 8260B	8/10/2006
Total Xylenes	**45**	2.0	ug/L	EPA 8260B	8/10/2006
Methyl-t-butyl ether (MTBE)	**670**	2.0	ug/L	EPA 8260B	8/10/2006
Diisopropyl ether (DIPE)	**< 2.0**	2.0	ug/L	EPA 8260B	8/10/2006
Ethyl-t-butyl ether (ETBE)	**< 2.0**	2.0	ug/L	EPA 8260B	8/10/2006
Tert-amyl methyl ether (TAME)	**7.3**	2.0	ug/L	EPA 8260B	8/10/2006
Tert-Butanol	**380**	9.0	ug/L	EPA 8260B	8/10/2006
Methanol	**< 2000**	2000	ug/L	EPA 8260B	8/10/2006
Ethanol	**< 50**	50	ug/L	EPA 8260B	8/10/2006
1,2-Dichloroethane	**< 2.0**	2.0	ug/L	EPA 8260B	8/10/2006
1,2-Dibromoethane	**< 2.0**	2.0	ug/L	EPA 8260B	8/10/2006
TPH as Gasoline	**5800**	200	ug/L	EPA 8260B	8/10/2006
Toluene - d8 (Surr)	95.6		% Recovery	EPA 8260B	8/10/2006
4-Bromofluorobenzene (Surr)	103		% Recovery	EPA 8260B	8/10/2006

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Report Number : 51562

Date : 8/15/2006

Project Name : **Tesoro - Livermore**

Project Number : **060809-PC1**

Sample : **MW-7** Matrix : Water Lab Number : 51562-07

Sample Date :8/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Ethylbenzene	**1.2**	0.50	ug/L	EPA 8260B	8/10/2006
Total Xylenes	**1.0**	0.50	ug/L	EPA 8260B	8/10/2006
Methyl-t-butyl ether (MTBE)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	8/10/2006
Methanol	**< 50**	50	ug/L	EPA 8260B	8/10/2006
Ethanol	**< 5.0**	5.0	ug/L	EPA 8260B	8/10/2006
1,2-Dichloroethane	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
1,2-Dibromoethane	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
TPH as Gasoline	**650**	50	ug/L	EPA 8260B	8/10/2006
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	8/10/2006
4-Bromofluorobenzene (Surr)	99.8		% Recovery	EPA 8260B	8/10/2006

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Report Number : 51562
Date : 8/15/2006

Project Name : **Tesoro - Livermore**
Project Number : **060809-PC1**

Sample : **MW-8** Matrix : Water Lab Number : 51562-08
Sample Date :8/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Methyl-t-butyl ether (MTBE)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	8/10/2006
Methanol	**< 50**	50	ug/L	EPA 8260B	8/10/2006
Ethanol	**< 5.0**	5.0	ug/L	EPA 8260B	8/10/2006
1,2-Dichloroethane	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
1,2-Dibromoethane	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	8/10/2006
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	8/10/2006
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	8/10/2006

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Report Number : 51562

Date : 8/15/2006

Project Name : **Tesoro - Livermore**

Project Number : **060809-PC1**

Sample : **MW-9** Matrix : Water Lab Number : 51562-09

Sample Date :8/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Ethylbenzene	**1.0**	0.50	ug/L	EPA 8260B	8/10/2006
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Methyl-t-butyl ether (MTBE)	**2.6**	0.50	ug/L	EPA 8260B	8/10/2006
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	8/10/2006
Methanol	**< 50**	50	ug/L	EPA 8260B	8/10/2006
Ethanol	**< 5.0**	5.0	ug/L	EPA 8260B	8/10/2006
1,2-Dichloroethane	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
1,2-Dibromoethane	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
TPH as Gasoline	**760**	50	ug/L	EPA 8260B	8/10/2006
Toluene - d8 (Surr)	99.7		% Recovery	EPA 8260B	8/10/2006
4-Bromofluorobenzene (Surr)	103		% Recovery	EPA 8260B	8/10/2006

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Report Number : 51562

Date : 8/15/2006

Project Name : **Tesoro - Livermore**

Project Number : **060809-PC1**

Sample : **MW-10** Matrix : Water Lab Number : 51562-10

Sample Date :8/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Methyl-t-butyl ether (MTBE)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	8/10/2006
Methanol	**< 50**	50	ug/L	EPA 8260B	8/10/2006
Ethanol	**< 5.0**	5.0	ug/L	EPA 8260B	8/10/2006
1,2-Dichloroethane	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
1,2-Dibromoethane	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	8/10/2006
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	8/10/2006
4-Bromofluorobenzene (Surr)	97.7		% Recovery	EPA 8260B	8/10/2006

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Report Number : 51562

Date : 8/15/2006

Project Name : **Tesoro - Livermore**

Project Number : **060809-PC1**

Sample : **VW-2** Matrix : Water Lab Number : 51562-11

Sample Date :8/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**86**	2.5	ug/L	EPA 8260B	8/10/2006
Toluene	**3.5**	2.5	ug/L	EPA 8260B	8/10/2006
Ethylbenzene	**200**	2.5	ug/L	EPA 8260B	8/10/2006
Total Xylenes	**16**	2.5	ug/L	EPA 8260B	8/10/2006
Methyl-t-butyl ether (MTBE)	**2500**	5.0	ug/L	EPA 8260B	8/10/2006
Diisopropyl ether (DIPE)	**< 2.5**	2.5	ug/L	EPA 8260B	8/10/2006
Ethyl-t-butyl ether (ETBE)	**< 2.5**	2.5	ug/L	EPA 8260B	8/10/2006
Tert-amyl methyl ether (TAME)	**28**	2.5	ug/L	EPA 8260B	8/10/2006
Tert-Butanol	**2800**	15	ug/L	EPA 8260B	8/10/2006
Methanol	**< 5000**	5000	ug/L	EPA 8260B	8/10/2006
Ethanol	**< 25**	25	ug/L	EPA 8260B	8/10/2006
1,2-Dichloroethane	**< 2.5**	2.5	ug/L	EPA 8260B	8/10/2006
1,2-Dibromoethane	**< 2.5**	2.5	ug/L	EPA 8260B	8/10/2006
TPH as Gasoline	**4300**	250	ug/L	EPA 8260B	8/10/2006
Toluene - d8 (Surr)	98.1		% Recovery	EPA 8260B	8/10/2006
4-Bromofluorobenzene (Surr)	106		% Recovery	EPA 8260B	8/10/2006

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Report Number : 51562
Date : 8/15/2006

Project Name : **Tesoro - Livermore**
Project Number : **060809-PC1**

Sample : **VW-3** Matrix : Water Lab Number : 51562-12
Sample Date :8/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Methyl-t-butyl ether (MTBE)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	8/10/2006
Methanol	**< 50**	50	ug/L	EPA 8260B	8/10/2006
Ethanol	**< 5.0**	5.0	ug/L	EPA 8260B	8/10/2006
1,2-Dichloroethane	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
1,2-Dibromoethane	**< 0.50**	0.50	ug/L	EPA 8260B	8/10/2006
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	8/10/2006
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	8/10/2006
4-Bromofluorobenzene (Surr)	97.4		% Recovery	EPA 8260B	8/10/2006

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Project Name : **Tesoro - Livermore**

Project Number : **060809-PC1**

Sample : **TP-1** Matrix : Water Lab Number : 51562-13

Sample Date :8/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**1600**	15	ug/L	EPA 8260B	8/10/2006
Toluene	**150**	15	ug/L	EPA 8260B	8/10/2006
Ethylbenzene	**1200**	15	ug/L	EPA 8260B	8/10/2006
Total Xylenes	**2200**	15	ug/L	EPA 8260B	8/10/2006
Methyl-t-butyl ether (MTBE)	**13000**	25	ug/L	EPA 8260B	8/11/2006
Diisopropyl ether (DIPE)	**< 15**	15	ug/L	EPA 8260B	8/10/2006
Ethyl-t-butyl ether (ETBE)	**< 15**	15	ug/L	EPA 8260B	8/10/2006
Tert-amyl methyl ether (TAME)	**84**	15	ug/L	EPA 8260B	8/10/2006
Tert-Butanol	**4900**	70	ug/L	EPA 8260B	8/10/2006
Methanol	**< 2500**	2500	ug/L	EPA 8260B	8/11/2006
Ethanol	**< 150**	150	ug/L	EPA 8260B	8/10/2006
1,2-Dichloroethane	**< 15**	15	ug/L	EPA 8260B	8/10/2006
1,2-Dibromoethane	**< 15**	15	ug/L	EPA 8260B	8/10/2006
TPH as Gasoline	**28000**	1500	ug/L	EPA 8260B	8/10/2006
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	8/10/2006
4-Bromofluorobenzene (Surr)	100		% Recovery	EPA 8260B	8/10/2006

Approved By: Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

KIFF Analytical LLC

Report Number : 51562

Date : 8/15/2006

Project Name : **Tesoro - Livermore**

Project Number : **060809-PC1**

Sample : **TP-2** Matrix : Water Lab Number : 51562-14

Sample Date :8/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**1400**	2.5	ug/L	EPA 8260B	8/10/2006
Toluene	**86**	2.5	ug/L	EPA 8260B	8/10/2006
Ethylbenzene	**1200**	2.5	ug/L	EPA 8260B	8/10/2006
Total Xylenes	**830**	2.5	ug/L	EPA 8260B	8/10/2006
Methyl-t-butyl ether (MTBE)	**56000**	90	ug/L	EPA 8260B	8/11/2006
Diisopropyl ether (DIPE)	**< 2.5**	2.5	ug/L	EPA 8260B	8/10/2006
Ethyl-t-butyl ether (ETBE)	**< 2.5**	2.5	ug/L	EPA 8260B	8/10/2006
Tert-amyl methyl ether (TAME)	**350**	2.5	ug/L	EPA 8260B	8/10/2006
Tert-Butanol	**2800**	200	ug/L	EPA 8260B	8/11/2006
Methanol	**< 4000**	4000	ug/L	EPA 8260B	8/11/2006
Ethanol	**< 25**	25	ug/L	EPA 8260B	8/10/2006
1,2-Dichloroethane	**< 2.5**	2.5	ug/L	EPA 8260B	8/10/2006
1,2-Dibromoethane	**< 2.5**	2.5	ug/L	EPA 8260B	8/10/2006
TPH as Gasoline	**14000**	250	ug/L	EPA 8260B	8/10/2006
Toluene - d8 (Surr)	94.7		% Recovery	EPA 8260B	8/10/2006
4-Bromofluorobenzene (Surr)	106		% Recovery	EPA 8260B	8/10/2006

Approved By: Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

Report Number : 51562

Date : 8/15/2006

QC Report : Method Blank Data

Project Name : **Tesoro - Livermore**

Project Number : **060809-PC1**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
Toluene	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	8/10/2006
Methanol	< 50	50	ug/L	EPA 8260B	8/10/2006
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	8/10/2006
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	8/10/2006
Toluene - d8 (Surr)	97.2		%	EPA 8260B	8/10/2006
4-Bromofluorobenzene (Surr)	108		%	EPA 8260B	8/10/2006
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	8/11/2006
Methanol	< 50	50	ug/L	EPA 8260B	8/11/2006
Benzene	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
Toluene	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	8/10/2006
Methanol	< 50	50	ug/L	EPA 8260B	8/10/2006
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	8/10/2006
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	8/10/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Toluene - d8 (Surr)	99.8		%	EPA 8260B	8/10/2006
4-Bromofluorobenzene (Surr)	95.8		%	EPA 8260B	8/10/2006
Benzene	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
Toluene	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	8/10/2006
Methanol	< 50	50	ug/L	EPA 8260B	8/10/2006
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	8/10/2006
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	8/10/2006
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	8/10/2006
Toluene - d8 (Surr)	99.9		%	EPA 8260B	8/10/2006
4-Bromofluorobenzene (Surr)	101		%	EPA 8260B	8/10/2006
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	8/10/2006
Methanol	< 50	50	ug/L	EPA 8260B	8/10/2006

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

Report Number : 51562

Date : 8/15/2006

QC Report : Method Blank Data

Project Name : **Tesoro - Livermore**

Project Number : **060809-PC1**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	8/11/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

Report Number : 51562

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 8/15/2006

Project Name : **Tesoro - Livermore**

Project Number : **060809-PC1**

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	51548-05	<0.50	40.0	39.8	42.2	42.0	ug/L	EPA 8260B	8/10/06	106	106	0.0501	70-130	25
Toluene	51548-05	<0.50	40.0	39.8	41.8	41.1	ug/L	EPA 8260B	8/10/06	104	103	0.972	70-130	25
Tert-Butanol	51548-05	<5.0	200	199	200	196	ug/L	EPA 8260B	8/10/06	100	98.9	1.41	70-130	25
Methyl-t-Butyl Ether	51548-05	5.9	40.0	39.8	55.7	56.1	ug/L	EPA 8260B	8/10/06	124	126	1.39	70-130	25
Benzene	51565-04	2.3	39.9	39.7	45.9	44.4	ug/L	EPA 8260B	8/11/06	109	106	2.94	70-130	25
Toluene	51565-04	2.3	39.9	39.7	44.0	42.9	ug/L	EPA 8260B	8/11/06	105	102	2.09	70-130	25
Tert-Butanol	51565-04	<5.0	200	198	206	201	ug/L	EPA 8260B	8/11/06	103	101	1.56	70-130	25
Methyl-t-Butyl Ether	51565-04	2.0	39.9	39.7	37.6	37.2	ug/L	EPA 8260B	8/11/06	89.1	88.7	0.459	70-130	25
Benzene	51548-02	<0.50	40.0	40.0	43.2	43.2	ug/L	EPA 8260B	8/10/06	108	108	0.149	70-130	25
Toluene	51548-02	<0.50	40.0	40.0	42.9	42.6	ug/L	EPA 8260B	8/10/06	107	106	0.682	70-130	25
Tert-Butanol	51548-02	<5.0	200	200	199	191	ug/L	EPA 8260B	8/10/06	99.6	95.3	4.39	70-130	25
Methyl-t-Butyl Ether	51548-02	12	40.0	40.0	50.8	50.8	ug/L	EPA 8260B	8/10/06	97.0	96.9	0.0742	70-130	25
Benzene	51548-07	2.2	40.0	40.0	43.3	42.6	ug/L	EPA 8260B	8/10/06	103	101	1.50	70-130	25
Toluene	51548-07	6.9	40.0	40.0	48.0	47.5	ug/L	EPA 8260B	8/10/06	103	101	1.39	70-130	25
Tert-Butanol	51548-07	<5.0	200	200	199	198	ug/L	EPA 8260B	8/10/06	99.5	98.9	0.624	70-130	25
Methyl-t-Butyl Ether	51548-07	0.56	40.0	40.0	40.7	40.7	ug/L	EPA 8260B	8/10/06	100	100	0.117	70-130	25
Benzene	51525-06	0.50	40.0	40.0	40.3	40.2	ug/L	EPA 8260B	8/10/06	99.4	99.2	0.188	70-130	25
Toluene	51525-06	<0.50	40.0	40.0	39.9	38.9	ug/L	EPA 8260B	8/10/06	99.8	97.2	2.65	70-130	25

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

Report Number : 51562

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 8/15/2006

Project Name : **Tesoro - Livermore**

Project Number : **060809-PC1**

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	51525-06	<5.0	200	200	184	196	ug/L	EPA 8260B	8/10/06	92.1	98.3	6.44	70-130	25
Methyl-t-Butyl Ether	51525-06	<0.50	40.0	40.0	38.8	38.5	ug/L	EPA 8260B	8/10/06	97.1	96.2	0.910	70-130	25
Benzene	51544-03	<0.50	40.0	40.0	42.0	41.1	ug/L	EPA 8260B	8/11/06	105	103	2.02	70-130	25
Toluene	51544-03	<0.50	40.0	40.0	41.6	40.0	ug/L	EPA 8260B	8/11/06	104	99.9	4.09	70-130	25
Tert-Butanol	51544-03	92	200	200	295	304	ug/L	EPA 8260B	8/11/06	101	106	4.53	70-130	25
Methyl-t-Butyl Ether	51544-03	2.2	40.0	40.0	42.5	41.1	ug/L	EPA 8260B	8/11/06	101	97.3	3.54	70-130	25

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

Report Number : 51562

QC Report : Laboratory Control Sample (LCS)

Date : 8/15/2006

Project Name : **Tesoro - Livermore**

Project Number : **060809-PC1**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	40.0	ug/L	EPA 8260B	8/10/06	105	70-130
Toluene	40.0	ug/L	EPA 8260B	8/10/06	105	70-130
Tert-Butanol	200	ug/L	EPA 8260B	8/10/06	103	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	8/10/06	94.5	70-130
Benzene	40.0	ug/L	EPA 8260B	8/11/06	109	70-130
Toluene	40.0	ug/L	EPA 8260B	8/11/06	105	70-130
Tert-Butanol	200	ug/L	EPA 8260B	8/11/06	96.1	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	8/11/06	83.7	70-130
Benzene	40.0	ug/L	EPA 8260B	8/10/06	99.2	70-130
Toluene	40.0	ug/L	EPA 8260B	8/10/06	101	70-130
Tert-Butanol	200	ug/L	EPA 8260B	8/10/06	96.5	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	8/10/06	92.2	70-130
Benzene	40.0	ug/L	EPA 8260B	8/10/06	101	70-130
Toluene	40.0	ug/L	EPA 8260B	8/10/06	101	70-130
Tert-Butanol	200	ug/L	EPA 8260B	8/10/06	96.8	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	8/10/06	99.4	70-130
Benzene	40.0	ug/L	EPA 8260B	8/10/06	98.1	70-130

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

Report Number : 51562

QC Report : Laboratory Control Sample (LCS)

Date : 8/15/2006

Project Name : **Tesoro - Livermore**

Project Number : **060809-PC1**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Toluene	40.0	ug/L	EPA 8260B	8/10/06	97.7	70-130
Tert-Butanol	200	ug/L	EPA 8260B	8/10/06	96.9	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	8/10/06	94.9	70-130
Benzene	40.0	ug/L	EPA 8260B	8/11/06	103	70-130
Toluene	40.0	ug/L	EPA 8260B	8/11/06	102	70-130
Tert-Butanol	200	ug/L	EPA 8260B	8/11/06	96.8	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	8/11/06	98.3	70-130

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

August 18, 2006

CLS Work Order #: CPH0354
COC #: 51562

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

Project Name: Tesoro-Livermore

Enclosed are the results of analyses for samples received by the laboratory on 08/10/06 09:14. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

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

Sincerely,

James Liang, Ph.D.
Laboratory Director

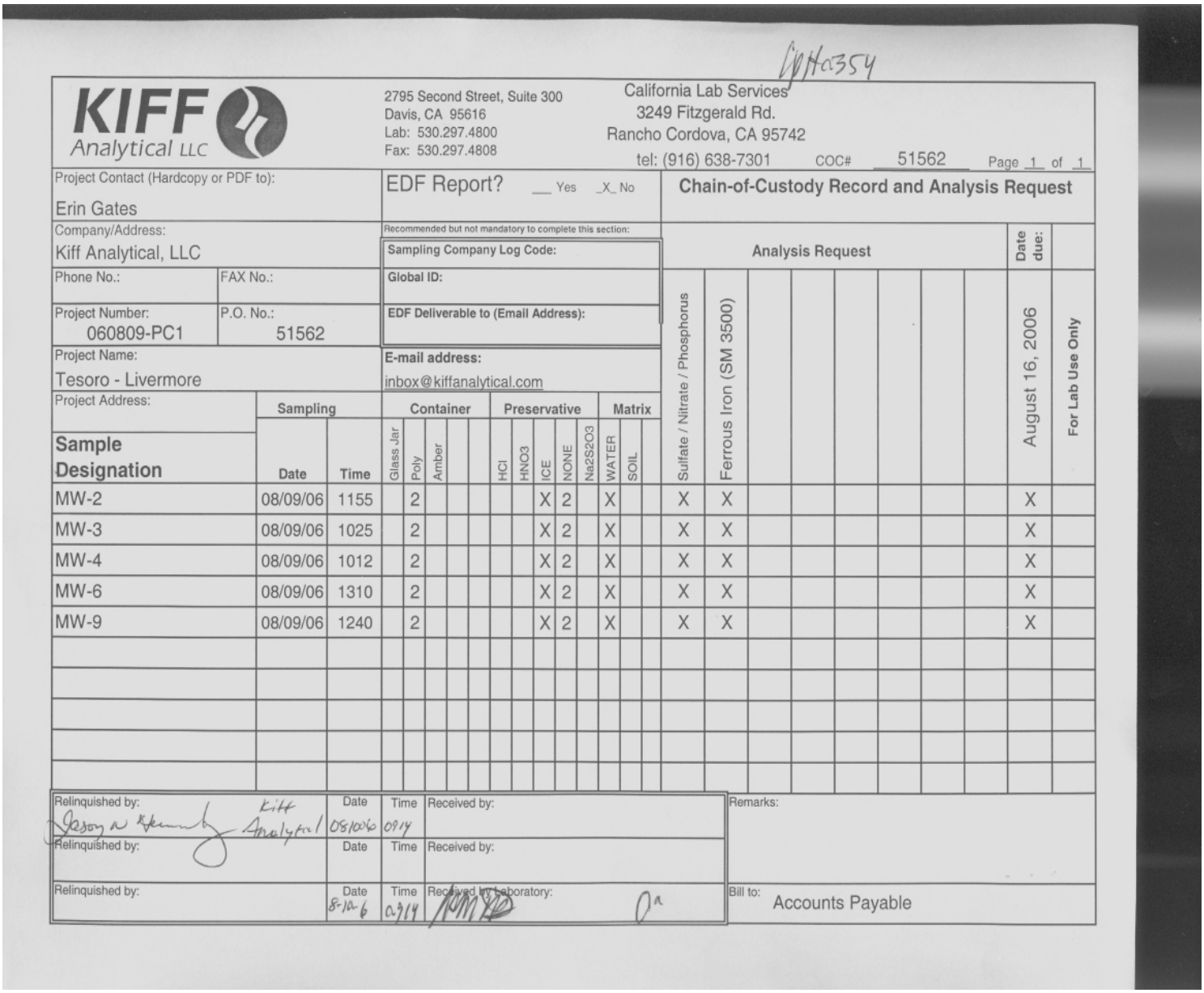
CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

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

Project: Tesoro-Livermore
Project Number: 060809-PC1
Project Manager: Erin Gates

CLS Work Order #: CPH0354
COC #: 51562



CPH0354

KIFF Analytical LLC
2795 Second Street, Suite 300
Davis, CA 95616
Lab: 530.297.4800
Fax: 530.297.4808

California Lab Services
3249 Fitzgerald Rd.
Rancho Cordova, CA 95742
tel: (916) 638-7301 COC# 51562 Page 1 of 1

Project Contact (Hardcopy or PDF to): Erin Gates
EDF Report? __ Yes _X_ No
Chain-of-Custody Record and Analysis Request

Company/Address: Kiff Analytical, LLC
Recommended but not mandatory to complete this section:
Sampling Company Log Code:
Global ID:
EDF Deliverable to (Email Address):
E-mail address: inbox@kiffanalytical.com

Phone No.: FAX No.:
Project Number: 060809-PC1 P.O. No.: 51562
Project Name: Tesoro - Livermore
Project Address:

Analysis Request

Sample Designation	Sampling Date	Sampling Time	Container: Glass Jar	Container: Poly	Container: Amber	Preservative: HCl	Preservative: HNO3	Preservative: ICE	Preservative: NONE	Preservative: Na2S2O3	Matrix: WATER	Matrix: SOIL	Sulfate / Nitrate / Phosphorus	Ferrous Iron (SM 3500)	Date due: August 16, 2006	For Lab Use Only
MW-2	08/09/06	1155		2				X	2		X		X	X	X	
MW-3	08/09/06	1025		2				X	2		X		X	X	X	
MW-4	08/09/06	1012		2				X	2		X		X	X	X	
MW-6	08/09/06	1310		2				X	2		X		X	X	X	
MW-9	08/09/06	1240		2				X	2		X		X	X	X	

Relinquished by	Date	Time	Received by
Jason W Kiff Analytical	08/10/06	0914	
	8-10-6	0914	Received by Laboratory:

Remarks:

Bill to: Accounts Payable

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

Project: Tesoro-Livermore
Project Number: 060809-PC1
Project Manager: Erin Gates

CLS Work Order #: CPH0354
COC #: 51562

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-2 (CPH0354-01) Water	**Sampled: 08/09/06 11:55**	**Received: 08/10/06 09:14**							
Ferrous Iron	**1.5**	0.10	mg/L	1	CP06040	08/10/06	08/10/06	SM3500-Fe D	
Nitrate as NO3	ND	0.50	"	"	CP06030	08/10/06	08/10/06	EPA 300.0	
Total Phosphorus as P	**0.16**	0.050	"	"	CP06123	08/14/06	08/14/06	EPA 365.2	
Sulfate as SO4	**1.8**	0.50	"	"	CP06093	08/14/06	08/15/06	EPA 300.0	
MW-3 (CPH0354-02) Water	**Sampled: 08/09/06 10:25**	**Received: 08/10/06 09:14**							
Ferrous Iron	ND	0.10	mg/L	1	CP06040	08/10/06	08/10/06	SM3500-Fe D	
Nitrate as NO3	**15**	0.50	"	"	CP06030	08/10/06	08/10/06	EPA 300.0	
Total Phosphorus as P	**0.059**	0.050	"	"	CP06123	08/14/06	08/14/06	EPA 365.2	
Sulfate as SO4	**61**	5.0	"	10	CP06030	08/10/06	08/11/06	EPA 300.0	
MW-4 (CPH0354-03) Water	**Sampled: 08/09/06 10:12**	**Received: 08/10/06 09:14**							
Ferrous Iron	ND	0.10	mg/L	1	CP06040	08/10/06	08/10/06	SM3500-Fe D	
Nitrate as NO3	**30**	0.50	"	"	CP06030	08/10/06	08/10/06	EPA 300.0	
Total Phosphorus as P	**0.10**	0.050	"	"	CP06123	08/14/06	08/14/06	EPA 365.2	
Sulfate as SO4	**61**	5.0	"	10	CP06030	08/10/06	08/11/06	EPA 300.0	
MW-6 (CPH0354-04) Water	**Sampled: 08/09/06 13:10**	**Received: 08/10/06 09:14**							
Ferrous Iron	**2.4**	0.50	mg/L	5	CP06040	08/10/06	08/10/06	SM3500-Fe D	
Nitrate as NO3	ND	0.50	"	1	CP06030	08/10/06	08/11/06	EPA 300.0	
Total Phosphorus as P	**0.12**	0.050	"	"	CP06123	08/14/06	08/14/06	EPA 365.2	
Sulfate as SO4	ND	0.50	"	"	CP06030	08/10/06	08/11/06	EPA 300.0	
MW-9 (CPH0354-05) Water	**Sampled: 08/09/06 12:40**	**Received: 08/10/06 09:14**							
Ferrous Iron	**0.35**	0.10	mg/L	1	CP06040	08/10/06	08/10/06	SM3500-Fe D	
Nitrate as NO3	ND	0.50	"	"	CP06030	08/10/06	08/11/06	EPA 300.0	
Total Phosphorus as P	**0.055**	0.050	"	"	CP06123	08/14/06	08/14/06	EPA 365.2	
Sulfate as SO4	**5.5**	0.50	"	"	CP06030	08/10/06	08/11/06	EPA 300.0	

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

Project: Tesoro-Livermore
Project Number: 060809-PC1
Project Manager: Erin Gates

CLS Work Order #: CPH0354
COC #: 51562

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CP06030 - General Prep										
Blank (CP06030-BLK1)				Prepared & Analyzed: 08/10/06						
Sulfate as SO4	ND	0.50	mg/L							
Nitrate as NO3	ND	0.50	"							
LCS (CP06030-BS1)				Prepared & Analyzed: 08/10/06						
Nitrate as NO3	2.10	0.50	mg/L	2.00		105	80-120		20	
Sulfate as SO4	4.50	0.50	"	5.00		90.0	80-120		20	
LCS Dup (CP06030-BSD1)				Prepared & Analyzed: 08/10/06						
Nitrate as NO3	2.22	0.50	mg/L	2.00		111	80-120	5.56	20	
Sulfate as SO4	4.84	0.50	"	5.00		96.8	80-120	7.28	20	
Matrix Spike (CP06030-MS1)		**Source: CPH0322-01**		Prepared & Analyzed: 08/10/06						
Nitrate as NO3	20.6	0.50	mg/L	2.00	19	80.0	75-125		25	
Sulfate as SO4	26.9	0.50	"	5.00	23	78.0	75-125		25	
Matrix Spike Dup (CP06030-MSD1)		**Source: CPH0322-01**		Prepared & Analyzed: 08/10/06						
Nitrate as NO3	20.8	0.50	mg/L	2.00	19	90.0	75-125	0.966	25	
Sulfate as SO4	27.1	0.50	"	5.00	23	82.0	75-125	0.741	25	
Batch CP06040 - General Preparation										
Blank (CP06040-BLK1)				Prepared & Analyzed: 08/10/06						
Ferrous Iron	ND	0.10	mg/L							
LCS (CP06040-BS1)				Prepared & Analyzed: 08/10/06						
Ferrous Iron	0.241	0.10	mg/L	0.250		96.4	80-120		25	

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

Project: Tesoro-Livermore
Project Number: 060809-PC1
Project Manager: Erin Gates

CLS Work Order #: CPH0354
COC #: 51562

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CP06040 - General Preparation										
LCS Dup (CP06040-BSD1)				Prepared & Analyzed: 08/10/06						
Ferrous Iron	0.236	0.10	mg/L	0.250		94.4	80-120	2.10	25	
Matrix Spike (CP06040-MS1)		**Source: CPH0354-02**		Prepared & Analyzed: 08/10/06						
Ferrous Iron	0.241	0.10	mg/L	0.250	0.0	96.4	75-125		30	
Matrix Spike Dup (CP06040-MSD1)		**Source: CPH0354-02**		Prepared & Analyzed: 08/10/06						
Ferrous Iron	0.241	0.10	mg/L	0.250	0.0	96.4	75-125	0.00	30	
Batch CP06093 - General Prep										
Blank (CP06093-BLK1)				Prepared & Analyzed: 08/14/06						
Sulfate as SO4	ND	0.50	mg/L							
LCS (CP06093-BS1)				Prepared & Analyzed: 08/14/06						
Sulfate as SO4	4.70	0.50	mg/L	5.00		94.0	80-120		20	
LCS Dup (CP06093-BSD1)				Prepared & Analyzed: 08/14/06						
Sulfate as SO4	4.70	0.50	mg/L	5.00		94.0	80-120	0.00	20	
Matrix Spike (CP06093-MS1)		**Source: CPH0426-05**		Prepared: 08/14/06 Analyzed: 08/15/06						
Sulfate as SO4	276	5.0	mg/L	50.0	220	112	75-125		25	
Matrix Spike Dup (CP06093-MSD1)		**Source: CPH0426-05**		Prepared: 08/14/06 Analyzed: 08/15/06						
Sulfate as SO4	277	5.0	mg/L	50.0	220	114	75-125	0.362	25	
Batch CP06123 - General Preparation										
Blank (CP06123-BLK1)				Prepared & Analyzed: 08/14/06						
Total Phosphorus as P	ND	0.050	mg/L							

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

Project: Tesoro-Livermore
Project Number: 060809-PC1
Project Manager: Erin Gates

CLS Work Order #: CPH0354
COC #: 51562

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CP06123 - General Preparation										
LCS (CP06123-BS1)				Prepared & Analyzed: 08/14/06						
Total Phosphorus as P	0.310	0.050	mg/L	0.300		103	80-120		25	
LCS Dup (CP06123-BSD1)				Prepared & Analyzed: 08/14/06						
Total Phosphorus as P	0.311	0.050	mg/L	0.300		104	80-120	0.322	25	
Matrix Spike (CP06123-MS1)		**Source: CPH0426-01**		Prepared & Analyzed: 08/14/06						
Total Phosphorus as P	0.350	0.050	mg/L	0.300	0.091	86.3	75-125		30	
Matrix Spike Dup (CP06123-MSD1)		**Source: CPH0426-01**		Prepared & Analyzed: 08/14/06						
Total Phosphorus as P	0.349	0.050	mg/L	0.300	0.091	86.0	75-125	0.286	30	

KIFF Analytical	Project: Tesoro-Livermore	
2795 Second St. Suite 300	Project Number: 060809-PC1	**CLS Work Order #: CPH0354**
Davis, CA 95616	Project Manager: Erin Gates	COC #: 51562

Notes and Definitions

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

Calscience
Environmental
Laboratories, Inc.

August 16, 2006

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

Subject: **Calscience Work Order No.: 06-08-0666**
Client Reference: Tesoro-Livermore

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 8/11/2006 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

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

Sincerely,

Calscience Environmental
Laboratories, Inc.
Stephen Nowak
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 08/11/06
Work Order No: 06-08-0666

Project: Tesoro-Livermore

Client Sample Number	Lab Sample Number	Date Collected	Matrix
MW-2	**06-08-0666-1**	**08/09/06**	**Aqueous**

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chemical Oxygen Demand	160	20	1		mg/L	N/A	08/14/06	EPA 410.4
Alkalinity, Total (as CaCO3)	550	5.0	1		mg/L	N/A	08/11/06	SM 2320B

Client Sample Number	Lab Sample Number	Date Collected	Matrix
MW-3	**06-08-0666-2**	**08/09/06**	**Aqueous**

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chemical Oxygen Demand	21	20	1		mg/L	N/A	08/14/06	EPA 410.4
Alkalinity, Total (as CaCO3)	390	5.0	1		mg/L	N/A	08/11/06	SM 2320B

Client Sample Number	Lab Sample Number	Date Collected	Matrix
MW-4	**06-08-0666-3**	**08/09/06**	**Aqueous**

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chemical Oxygen Demand	46	20	1		mg/L	N/A	08/14/06	EPA 410.4
Alkalinity, Total (as CaCO3)	400	5.0	1		mg/L	N/A	08/11/06	SM 2320B

Client Sample Number	Lab Sample Number	Date Collected	Matrix
MW-6	**06-08-0666-4**	**08/09/06**	**Aqueous**

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chemical Oxygen Demand	83	20	1		mg/L	N/A	08/14/06	EPA 410.4
Alkalinity, Total (as CaCO3)	590	5.0	1		mg/L	N/A	08/11/06	SM 2320B

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 08/11/06
Work Order No: 06-08-0666

Project: Tesoro-Livermore

Client Sample Number	Lab Sample Number	Date Collected	Matrix
MW-9	**06-08-0666-5**	**08/09/06**	**Aqueous**

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chemical Oxygen Demand	110	20	1		mg/L	N/A	08/14/06	EPA 410.4
Alkalinity, Total (as CaCO3)	450	5.0	1		mg/L	N/A	08/11/06	SM 2320B

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

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Chemical Oxygen Demand	ND	20	1		mg/L	N/A	08/14/06	EPA 410.4
Alkalinity, Total (as CaCO3)	ND	1.0	1		mg/L	N/A	08/11/06	SM 2320B

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

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

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

Date Received: N/A
Work Order No: 06-08-0666

Project: Tesoro-Livermore

Matrix: Aqueous

Parameter	Method	QC Sample ID	Date Analyzed	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Alkalinity, Total (as CaCO3)	SM 2320B	MW-6	08/11/06	590	590	0	0-25	
Chemical Oxygen Demand	EPA 410.4	06-08-0547-2	08/14/06	780	780	0	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 06-08-0666

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike or Matrix Spike Duplicate compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

KIFF Analytical LLC

2795 Second Street, Suite 300
Davis, CA 95616
Lab: 530.297.4800
Fax: 530.297.4808

Cal Science Environmental
7440 Lincoln Way
Garden Grove, CA 92841
714-895-5494

Lab No. 0666

Page 1 of 1

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF to): Erin Gates

EDF Report? ___ Yes _X_No

Company/Address: Kiff Analytical, LLC

Recommended but not mandatory to complete this section:

Sampling Company Log Code:

Global ID:

EDF Deliverable to (Email Address):

Phone No.: | FAX No.:

Project Number: 060809-PC1 | P.O. No.: 51562

Project Name: Tesoro - Livermore

E-mail address: inbox@kiffanalytical.com

Project Address:

Sample Designation	Sampling Date	Sampling Time	Container: Glass	Container: Poly	Container: Amber	Container:	Container:	Preservative: HCl	Preservative:	Preservative: ICE	Preservative: NONE	Preservative: H2SO4	Matrix: WATER	Matrix: SOIL	Matrix:	Analysis Request: Chemical Oxygen Demand (EPA 410.4)	Analysis Request: Total Alkalinity (SM2320B)							Date due: August 16, 2006	For Lab Use Only
MW-2	08/09/06	1155	1	1						X	X	X	X			X	X							X	
MW-3	08/09/06	1025	1	1						X	X	X	X			X	X							X	
MW-4	08/09/06	1012	1	1						X	X	X	X			X	X							X	
MW-6	08/09/06	1310	1	1						X	X	X	X			X	X							X	
MW-9	08/09/06	1240	1	1						X	X	X	X			X	X							X	

Relinquished by:	Date	Time	Received by:
Kiff Analytical	080906	1900	
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory:
	8/11/06	0900	

Remarks:

Bill to: Accounts Payable

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 06 - 08 - 0666

Cooler 1 of 1

SAMPLE RECEIPT FORM

CLIENT: Kiff DATE: 8/11/06

TEMPERATURE – SAMPLES RECEIVED BY:

CALSCIENCE COURIER:

_____ Chilled, cooler with temperature blank provided.
_____ Chilled, cooler without temperature blank.
_____ Chilled and placed in cooler with wet ice.
_____ Ambient and placed in cooler with wet ice.
_____ Ambient temperature.
_____ °C Temperature blank.

LABORATORY (Other than Calscience Courier):

3.9 °C Temperature blank.
_____ °C IR thermometer.
_____ Ambient temperature.

Initial: JP

CUSTODY SEAL INTACT:

Sample(s): _____ Cooler: ✓ No (Not Intact) : _____ Not Applicable (N/A): _____

Initial: JP

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody document(s) received with samples	✓		
Sampler's name indicated on COC		✓	
Sample container label(s) consistent with custody papers	✓		
Sample container(s) intact and good condition	✓		
Correct containers and volume for analyses requested	✓		
Proper preservation noted on sample label(s)	✓		
VOA vial(s) free of headspace.			✓
Tedlar bag(s) free of condensation			✓

Initial: JP

COMMENTS:

BLAINE
TECH SERVICES, INC.

1680 ROGERS AVENUE
SAN JOSE, CALIFORNIA 95112-1105
FAX (408) 573-7771
PHONE (408) 573-0555

LAB KIFF 51562 | DHS #

ALL ANALYSES MUST MEET SPECIFICATIONS AND DETECTION LIMITS SET BY CALIFORNIA DHS AND
☐ EPA ☐ RWQCB REGION
☐ LIA
☐ OTHER

CHAIN OF CUSTODY
BTS # 060809-PC1

CLIENT: Arctos Environmental, Inc.

SITE: Tesoro - Livermore
1619 1st Street
Livermore, CA

SPECIAL INSTRUCTIONS

Invoice and Report to : Arctos Environmental, Inc.
Attn: Mike Purchase
1332 Peralta Ave. Berkeley, CA 94702
Ph. 510-525-2180
mpurchase@arctosenv.com

CONDUCT ANALYSIS TO DETECT

SAMPLE I.D.	DATE	TIME	MATRIX S= SOIL W=H_2O	CONTAINERS TOTAL	CONTAINERS 3x40ml HCl Voas	C = COMPOSITE ALL CONTAINERS	TPH-G + BTEX + MTBE (8260)	(7) Oxygenates (8260)	Lead Scavengers	Ferrous Iron (24 hr. Hold time)	Nitrate, Sulfate, Phosphorous	Major anions (Chloride, Nitrite, Sulfide)	Total Alkalinity (SM2320B)	COD (410.4)	ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
✓ MW-1	8/9/06	1110	W	3			x	x	x									01
✓ MW-2	↓	1155	↓	7	3x250ml HDPE 1x250ml glass H2SO4		x	x	x	x	x		x	x				02
MW-3	↓	1025	↓	7	↓		x	x	x	x	x		x	x				03
✓ MW-4	↓	1012	↓	7	↓		x	x	x	x	x		x	x				04
✓ MW-5	↓	1135	↓	3			x	x	x									05
✓ MW-6	↓	1310	↓	7	see above		x	x	x	x	x		x	x				06
✓ MW-7	↓	1206	↓	3			x	x	x									07
✓ MW-8	↓	940	↓	3			x	x	x									08
✓ MW-9	↓	1240	↓	7	see above		x	x	x	x	x		x	x				09
✓ MW-10	↓	1044	↓	3	↓		x	x	x									10

SAMPLING COMPLETED: DATE 8/9/06 TIME 1330
SAMPLING PERFORMED BY: P. Cornish, S. Cormack

RESULTS NEEDED NO LATER THAN: Standard TAT

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
Pet uj	8/9/06	1505			
			[signature] Kiff Analytical LLC	08/9/06	1505

SHIPPED VIA | DATE SENT | TIME SENT | COOLER #

SAMPLE RECEIPT
Temp °C 1.8 Therm. ID# TR-5
Initial [initials] Date 080806
Time 1925 Coolant present Yes / No

1 of 2

BLAINE
TECH SERVICES, INC.

1680 ROGERS AVENUE
SAN JOSE, CALIFORNIA 95112-1105
FAX (408) 573-7771
PHONE (408) 573-0555

CHAIN OF CUSTODY
BTS # 060809-PC1

CLIENT: Arctos Environmental, Inc.
SITE: Tesoro - Livermore
1619 1st Street
Livermore, CA

CONDUCT ANALYSIS TO DETECT

LAB: KIFF 51562 | DHS #

ALL ANALYSES MUST MEET SPECIFICATIONS AND DETECTION LIMITS SET BY CALIFORNIA DHS AND
☐ EPA ☐ RWQCB REGION
☐ LIA
☐ OTHER

SPECIAL INSTRUCTIONS

Invoice and Report to : Arctos Environmental, Inc.
Attn: Mike Purchase
1332 Peralta Ave. Berkeley, CA 94702
Ph. 510-525-2180
mpurchase@arctosenv.com

	SAMPLE I.D.	DATE	TIME	MATRIX S= SOIL W=H_2O	CONTAINERS TOTAL		C = COMPOSITE ALL CONTAINERS	TPH-G + BTEX + MTBE (8260)	(7) Oxygenates (8260)	Lead Scavengers	Ferrous Iron (24 hr. Hold time)	Nitrate, Sulfate, Phosphorous	Major anions (Chloride, Nitrite, Sulfide)	Total Alkalinity (SM2320B)	COD (410.4)	ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
✓	VW-2	8/9/06	1130	V	3			X	X	X									11
✓	VW-3	↓	850	↓	3			X	X	X									12
✓	TP-1	↓	1230	↓	3			X	X	X									13
✓	TP-2	↓	1250	↓	3			X	X	X									14

SAMPLING COMPLETED	DATE 8/9/06	TIME 1330	SAMPLING PERFORMED BY D. Cornish, S. Cormack	RESULTS NEEDED NO LATER THAN Standard TAT

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
[signature]	8/9/06	1505			
			[signature] Kiff Analytical LLC	08/09/06	1505

SHIPPED VIA	DATE SENT	TIME SENT	COOLER #

2 of 2

2340 Stock Creek Blvd.
Rockford TN 37853-3044
Phone: (865) 573-8188
Fax: (865) 573-8133
Email: info@microbe.com

Analysis Report

Client: Mike Purchase
Arctos Environmental
1332 Peralta Avenue
Berkeley, CA 94702

Phone: (510) 525-2180

Fax: (510) 525-2392

MI Identifier: 044DG **Date Rec:** 07/25/2006 **Report Date:** 10/03/2006

Client Project #: 01LV **Client Project Name:** Tesoro - Livermore

Purchase Order #: 01LV-I2

Analysis Requested: q Expression (RNA)

Comments:

All samples within this data package were analyzed under U.S. EPA Good Laboratory Practice Standards: Toxic Substances Control Act (40 CFR part 790). All samples were processed according to standard operating procedures. Test results submitted in this data package meet the quality assurance requirements established by Microbial Insights, Inc.

Reported By: Anita Biernacki

Reviewed By: Dora M Ogles

MICROBIAL INSIGHTS, INC.

2340 Stock Creek Blvd. Rockford, TN 37853-3044
Tel: (865) 573-8188; Fax: (865) 573-8133

Q Expression (RNA)

Client: **Arctos Environmental**
Project: Tesoro - Livermore

MI Project Number: **044DG**
Date Received: 07/25/2006

Sample Information

Client Sample ID:		MW-2	TP-1	MW-6
Sample Date:		07/24/2006	07/24/2006	07/24/2006
Units:		gene copies/bead	gene copies/bead	ene copies/bea
MTBE degrading Bacteria PM1	PM1	**1.78E+00 (J)**	**1.57E+00 (J)**	<8.26E+00
Functional Genes (mRNA)				
Phenol Monooxygenase	PHE	<8.62E+00	<8.7E+00	<8.26E+00
Toluene Dioxygenase	TOD	<8.62E+00	<8.7E+00	<8.26E+00
Phylogenetic Group (rRNA)				
Eubacteria	EBAC	**1.04E+05**	**8.07E+04**	**4.38E+04**

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

Notes:
1 Bio-Dechlor Census technology was developed by Dr. Loeffler and colleagues at Georgia Institute of Technology and was licensed for use through Regenesis.

REPORT TO:

Reports will be provided to the contact(s) listed below. Parties other than the contact(s) listed below will require prior approval.

Name: MIKE PURCHASE
Company: ARCTOS ENVIRONMENTAL
Address: 1332 PERALTA AVE
BERKELEY, CA 94702

email: mpurchase@arctosenv.com
Phone: (510) 525-2180
Fax: (510) 525-2392

Project Manager: MIKE PURCHASE
Project Name: TESORO - LIVERMORE
Project No.: 01LV

INVOICE TO:

For Invoices paid by a third party it is imperative that contact information & corresponding reference No. be provided.

Name: ORION ENVIRONMENTAL INC.
Company: MIKE PURCHASE
Address: 3450 E SPRING ST #212
LONG BEACH, CA 90806

email: mpurchase@arctosenv.com
Phone: (562) 988-2755
Fax: (562) 988-2759

Purchase Order No. 01LV-I2
Subcontract No.

microbialinsight
2340 Stock Creek Blvd.
Rockford, TN 37853-3044
phone (865) 573-8188
fax: (865) 573-8133
email: info@microbe.com

Please Check :
X Mark samples to ID

Saturday Delivery
Please see sampling protocol for instruc.

Report Type: ☒ Standard (default) ☐ Comprehensive (15% surcharge) ☐ Historical (30% surcharge)

Please contact us prior to submitting samples regarding questions about the analyses you are requesting at (865) 573-8188 (8:00 am to 4:00 pm M-F). After these hours please call (865) 300-8053.

Sample Information									Q-Targets: Prior to selecting targets mark either Q-Potential for DNA or Q-Expression for RNA																									
MI ID (Laboratory Use Only)	Sample Name	Date Sampled	Time Sampled	Matrix	PLFA	VFA	MEJE	DGGE-16D	DGGE-18D	Q-Potential (DNA)	Q-Expression (RNA)*	qDHC (Dehalococcoides)	qTCE R-Dase	qBAV1 VC R-Dase	qDHB (Dehalobacter)	qDSM (Desulfuromonas)	qDSB (Desulfitobacterium)	qEBAC (Total)	qDSR (SRBs only)	qSRB/RB	qMGN (methanogens)	qMOB (methanotrophs)	qDNF (Denitrifying)	qAOB (ammonia oxidizing)	qPM1 (MTBE aerobic)	qTOD (total PAHs aerobic)	qCAT (Intermediate PAHs aerobic)	qBSS (Toluen:Xylene Anaerobic)	qNAH (Naphalene aerobic)	add. qPCR:	add. qPCR:	add. qPCR:	Other:	Other:	Other:
060726-1	MW-2	7/24/06	1415	Biotreat							X							X							X	X								
060726-2	TP-1	↓	1425								X							X							X	X								
060726-3	MW-6	↓	1440	↓							X							X							X	X								

Relinquished by: [signature] Date: 7/24/06
Received by: B.C.J. Date 07/20/06 8:00 a.m. 18°C

In order for analysis to be completed correctly, it is vital that chain of custody is filled out correctly & that all relative information is provided. Failure to provide sufficient and/or correct information regarding reporting, invoicing & analyses requested information may result in delays for which MI will not be liable. * additional cost and sample preservation are associated with RNA samples.