20434

TESORO

Tesoro Petroleum Companies, Inc.
Corporate Environmental Affairs
3450 South 344th Way, Suite 100
Auburn, WA 98001-5931
253 896 8700
253 896 8887 Fax

August 8, 2003

Ms. Eva Chu
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, room 250
Alameda, California 94502

Mr. Cecil Fox
Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

RE: Tesoro Station No. 67076 1619 West First Street, Livermore, California Groundwater Monitoring Report Second Quarter 2003

Dear Ms. Chu and Mr. Fox:

Tesoro Petroleum Companies, Inc., on behalf of Tesoro Refining and Marketing Company (Tesoro), submits the referenced report for your review. Groundwater monitoring data continue to indicate BTEX and MTBE concentrations within the historical monitoring range for this site.

Benzene and MTBE concentrations in downgradient monitoring well MW-6 indicate that the lateral extent of the impacted groundwater plume is not adequately assessed.

Tesoro recommends the following:

- Monitor the site to continue assessment of plume stability and attenuation of constituents of concern,
- Install three downgradient monitoring wells to the west/northwest of MW-6 as identified in the approved Work Plan approved on June 15, 2001 to complete MTBE and benzene plume delineation. Access to off-site locations should be received within two weeks of the date of this letter.
- Perform over-purging on monitoring wells MW-2 and MW-6 during quarterly sampling to effect MTBE and benzene mass removal from the water table. Collect pre and post purge water quality samples to determine the effectiveness of over-purging to reduce contaminant mass.

Please review the report and recommendations above and provide project direction. Please contact me with any questions or concerns regarding this project at (253) 896-8708. Thank you for your continued cooperation concerning this project.

Sincerely,

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

Attachment

CC: TRC – Mark Trevor
Brian Kelleher – Kelleher & Associates
File – Remediation, Livermore
Green Valley Gasoline LLC – Owner
Chuck Miller - USA Petroleum Corporation

TRC

Customer-Focused Solutions

August 1, 2003

Project No. 41-0362-04

Mr. Jeffrey Baker
Tesoro Petroleum Companies, Inc.
3450 South 344th Way, Suite 100
Auburn, Washington 98001-5931

SITE: TESORO STATION 67076
FORMER BEACON STATION 3604
1619 WEST FIRST STREET
LIVERMORE, CALIFORNIA

RE: SECOND QUARTER 2003 GROUNDWATER MONITORING REPORT

Dear Mr. Baker:

On Behalf of Tesoro Refining and Marketing Company (Tesoro), TRC has prepared this report to document the results of the Second Quarter groundwater-monitoring event conducted on June 10, 2003 at the subject site (Figure 1). The monitoring, conducted by Doulos Environmental (Doulos), included measurements of depth to groundwater, visual observation for the presence or absence of free product, groundwater purging, and collection of groundwater samples. According to Doulos, all field activities were conducted in accordance with the Field Procedures described in Attachment A.

1.0 GROUNDWATER ELEVATIONS

Pursuant to Alameda County Health Care correspondence dated January 18, 2002, Doulos sounds all wells and purges and samples wells MW-2, -6, and -7 on a quarterly basis. Well MW-5 is sampled semi-annually during the First and Third quarters. Wells MW-1, -3, and -4 are no longer sampled.

Prior to purging, Doulos collected depth-to-groundwater measurements. Copies of Doulos' field data sheets are included in Attachment B. Groundwater elevation data collected since June 1993 are summarized in Table 1. Based on groundwater levels measured on June 10, 2003, groundwater flows toward the northwest at a gradient of 0.02 foot per foot (Figure 2). Groundwater levels have increased an average of 1.18 feet as compared to the First Quarter 2002 monitoring event.

5052 Commercial Circle • Concord, California 94520-1248
Telephone 925-688-1200 • Fax 925-688-0388

2.0 GROUNDWATER SAMPLING AND ANALYSIS

Groundwater samples were collected from three monitoring wells (MW-2, MW-6 and MW-7) on June 10, 2003. All groundwater samples were analyzed using EPA Method 8260B for the following constituents:

- Total petroleum hydrocarbons as gasoline (TPH-G);
- Benzene, toluene, ethyl benzene, and total xylenes (BTEX); and
- Methyl Tert Butyl Ether (MTBE).

The distribution of dissolved-phase benzene and MTBE based on the current data is shown in Figures 3 and 4, respectively.

Analytical results collected since June 1993 are summarized in Table 1. The laboratory reports and chain-of-custody forms for the current sampling event are contained in Attachment C.

3.0 CONCLUSIONS

Benzene was detected in all three wells sampled. MW-6 had the highest benzene concentration detected at 860 micrograms per liter (µg/l). These levels are consistent with historical data.

TPH-G was detected in all three wells sampled. MW-6 had the highest TPH-G concentration detected at 9,500 µg/l. These levels are consistent with historical data.

MTBE was detected in MW-2 and MW-6. The highest MTBE concentration was detected at MW-6 (2,600µg/l). MTBE was not detected in MW-7 above the reporting limit. These levels are consistent with historical data.

The Method Reporting Limit for Tert-Amyl methyl ether has been increased due to the presence of an interfering compound for samples MW-2 and MW-6.

4.0 RECOMMENDATIONS

TRC recommends that groundwater monitoring and sampling of selected wells be continued to assess plume stability and concentration trends at key wells.

The interpretations and/or conclusions that may be contained within this report represent our professional opinions. These opinions are based on currently available information. Other than this, no warranty is implied or intended. This report has been prepared solely for the use of Tesoro Refining and Marketing Company. Any reliance on this report by third parties will be at such parties' sole risk.

TRC recommends you submit copies of this report to:

1. Ms. Eva Chu
   Alameda County Health Care Services Agency
   1131 Harbor Bay Parkway, Room 250
   Alameda, CA 94502

2. Mr. Cecil Fox
   Regional Water Quality Control Board
   San Francisco Bay Region
   1515 Clay Street, Suite 1400
   Oakland, CA 94612

If you have any questions or comments, please contact me at (925) 688-2473.

Sincerely,
TRC

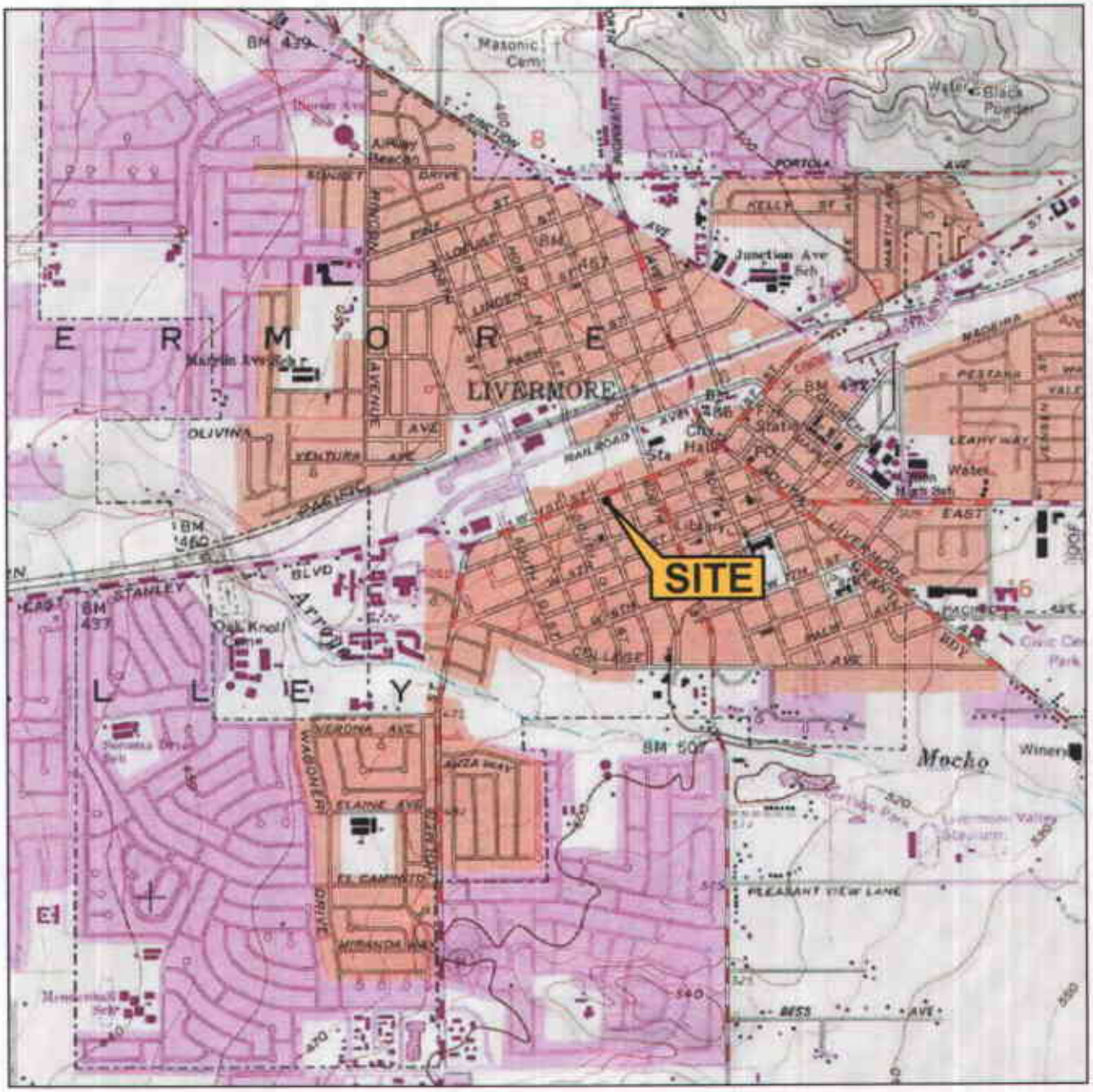
Jonathan Scheiner
Associate

Amy Wilson, P.E.
Senior Project Engineer

ATTACHMENTS:

Figure 1:	Vicinity Map
Figure 2:	Groundwater Elevation Contour Map – June 10, 2003
Figure 3:	Dissolved-Phase Benzene Concentrations – June 10, 2003
Figure 4:	Dissolved-Phase MTBE Concentrations – June 10, 2003
Table 1:	Summary of Groundwater Monitoring and Chemical Analysis
Appendix A:	Field Procedures
Appendix B:	Doulos Environmental Field Data Sheets
Appendix C:	Official Laboratory Reports and Chain-of-Custody Records

cc: Brian Kelleher



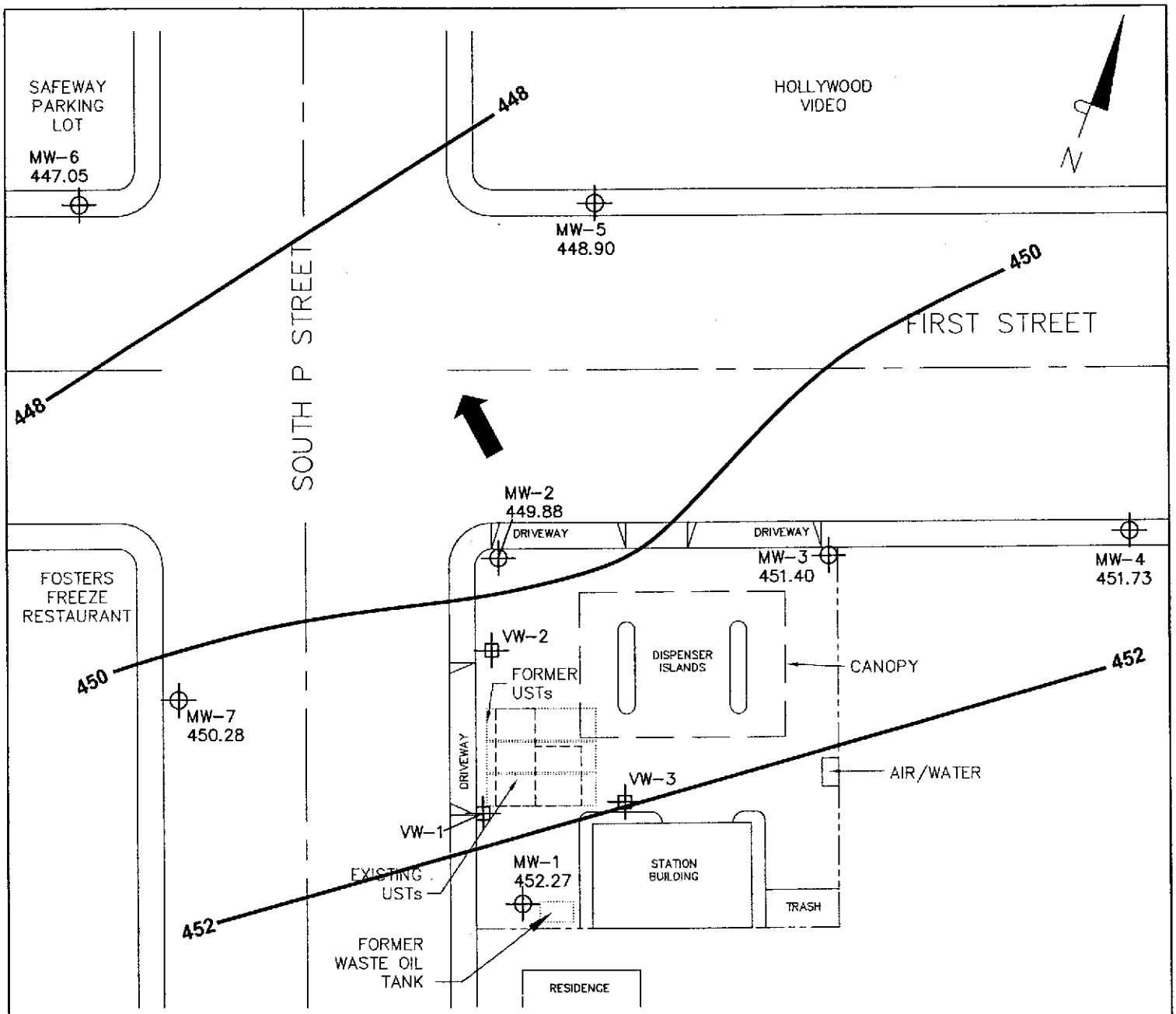
SOURCE:
United States Geological Survey
7.5 Minute Topographic Maps:
Livermore Quadrangle

VICINITY MAP

Tesoro Station No. 67076
(Former Beacon Station No. 3604)
1619 West First Street
Livermore, California

TRC

FIGURE 1



LEGEND

- Property line
- Groundwater monitoring well
- Vapor extraction well
- 452.27 — Groundwater elevation (in feet above mean sea level)
- 450 — Groundwater elevation contour line
- General direction of groundwater gradient

NOTES: Contour lines are interpretive based on fluid level measurements taken on June 10, 2003. Contour interval = 2 feet.

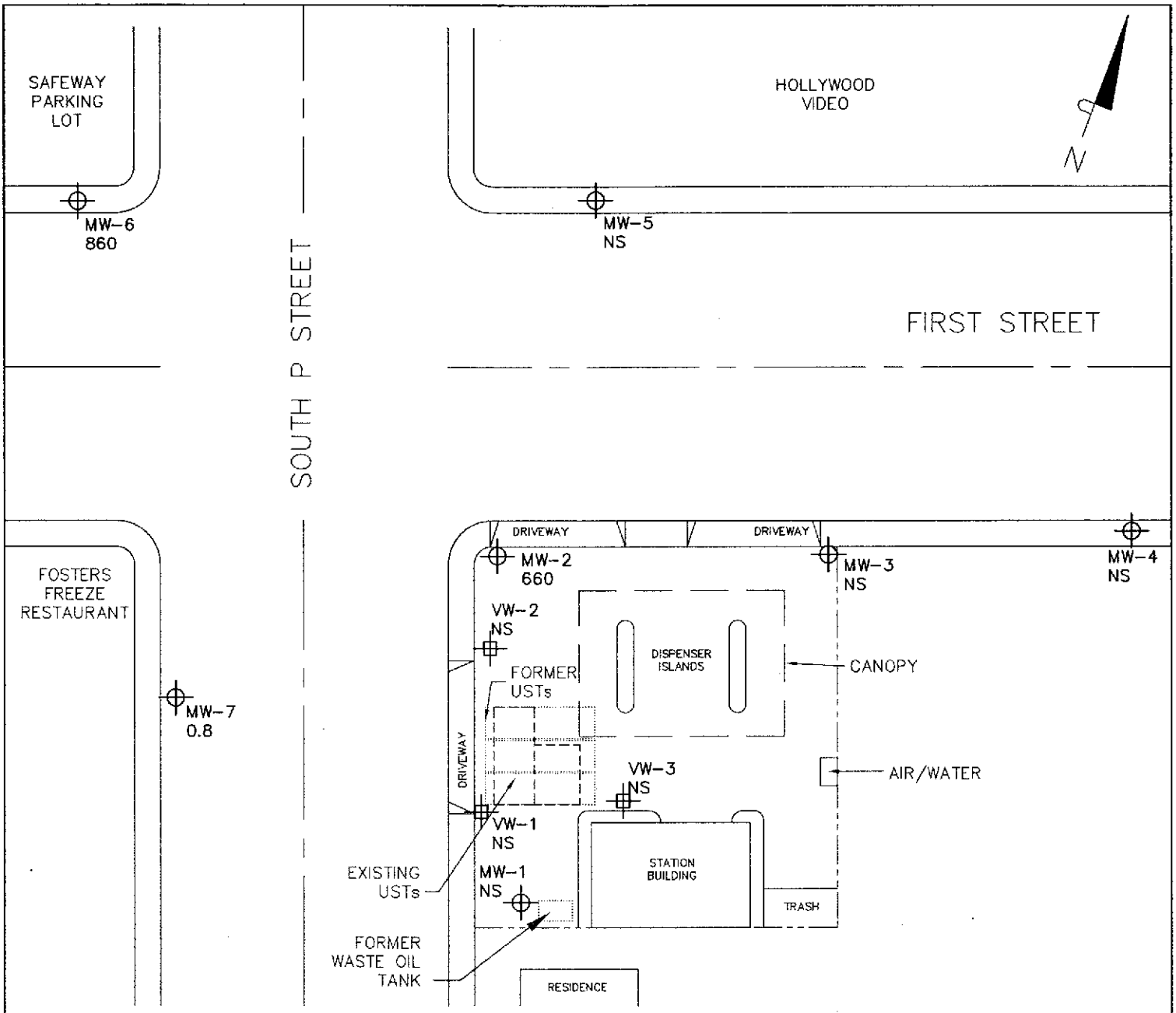
APPROXIMATE SCALE (FEET)

0 40 80

SOURCE: Doulos Environmental, Inc. site plan. Wells resurveyed by Advanced Geomatic Engineering on 1/22/02.

GROUNDWATER ELEVATION CONTOUR MAP
June 10, 2003
Tesoro Station No. 67076
(Former Beacon Station 3604)
1619 West First Street
Livermore, California

TRC | **FIGURE 2**



NOTES: Results are based on laboratory analysis of groundwater samples collected on June 10, 2003. µg/l = micrograms per liter (parts per billion); < = not detected at or above the stated method detection limit; NS = not sampled.

LEGEND

- Property line
- Groundwater monitoring well
- Vapor extraction well
- 860 — Dissolved-phase benzene concentration (µg/l)

APPROXIMATE SCALE (FEET)

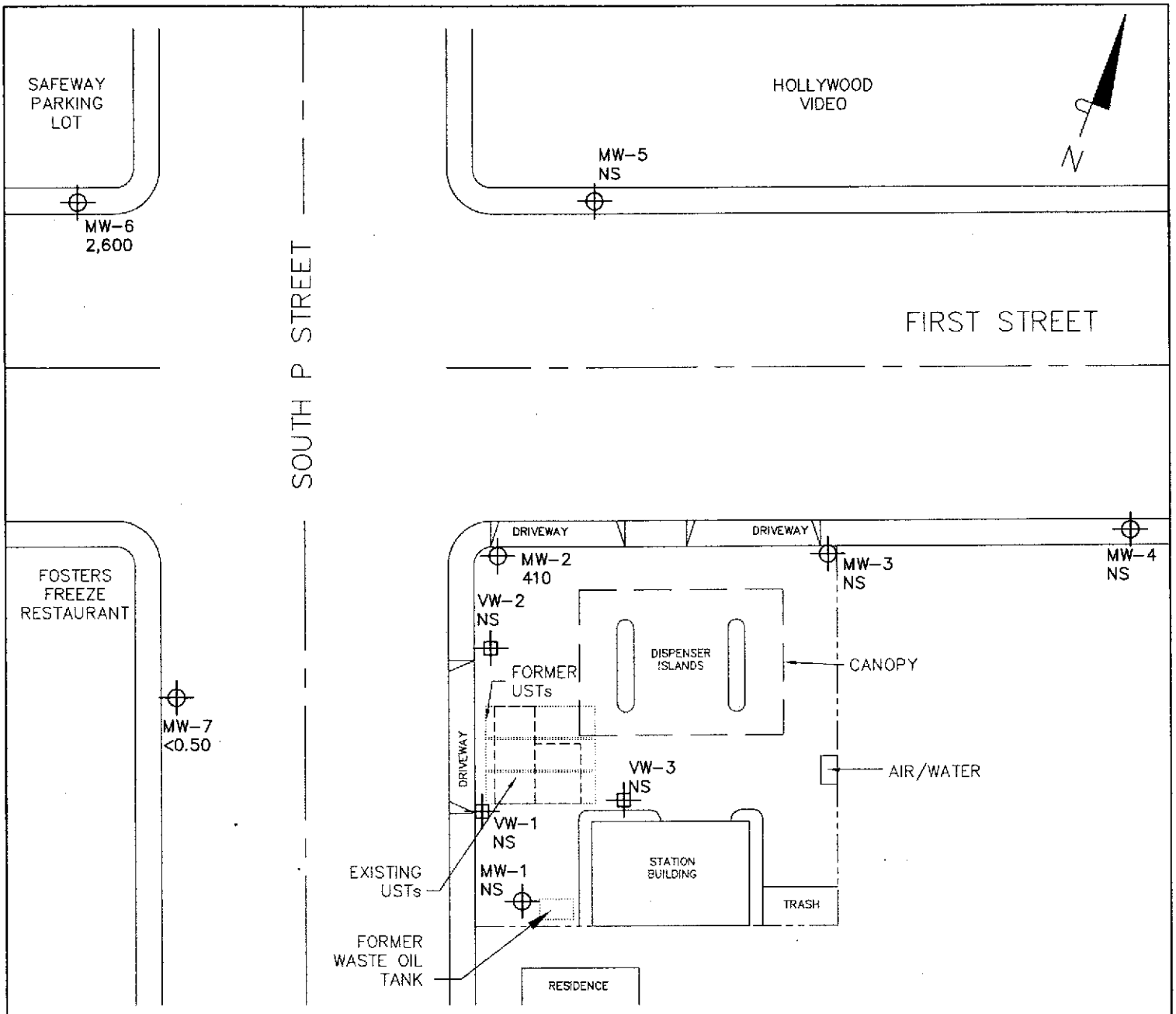
0 40 80

SOURCE: Doulos Environmental, Inc. site plan. Wells resurveyed by Advanced Geomatic Engineering on 1/22/02.

DISSOLVED-PHASE BENZENE CONCENTRATIONS
June 10, 2003
Tesoro Station No. 67076
(Former Beacon Station 3604)
1619 West First Street
Livermore, California

TRC

FIGURE 3



NOTES: Results are based on laboratory analysis of groundwater samples collected on June 10, 2003. MTBE = methyl tert butyl ether; µg/l = micrograms per liter (parts per billion); < = not detected at or above the stated method detection limit; NS = not sampled.

LEGEND

- Property line
- Groundwater monitoring well
- Vapor extraction well
- 410 — Dissolved-phase MTBE concentration (µg/l)

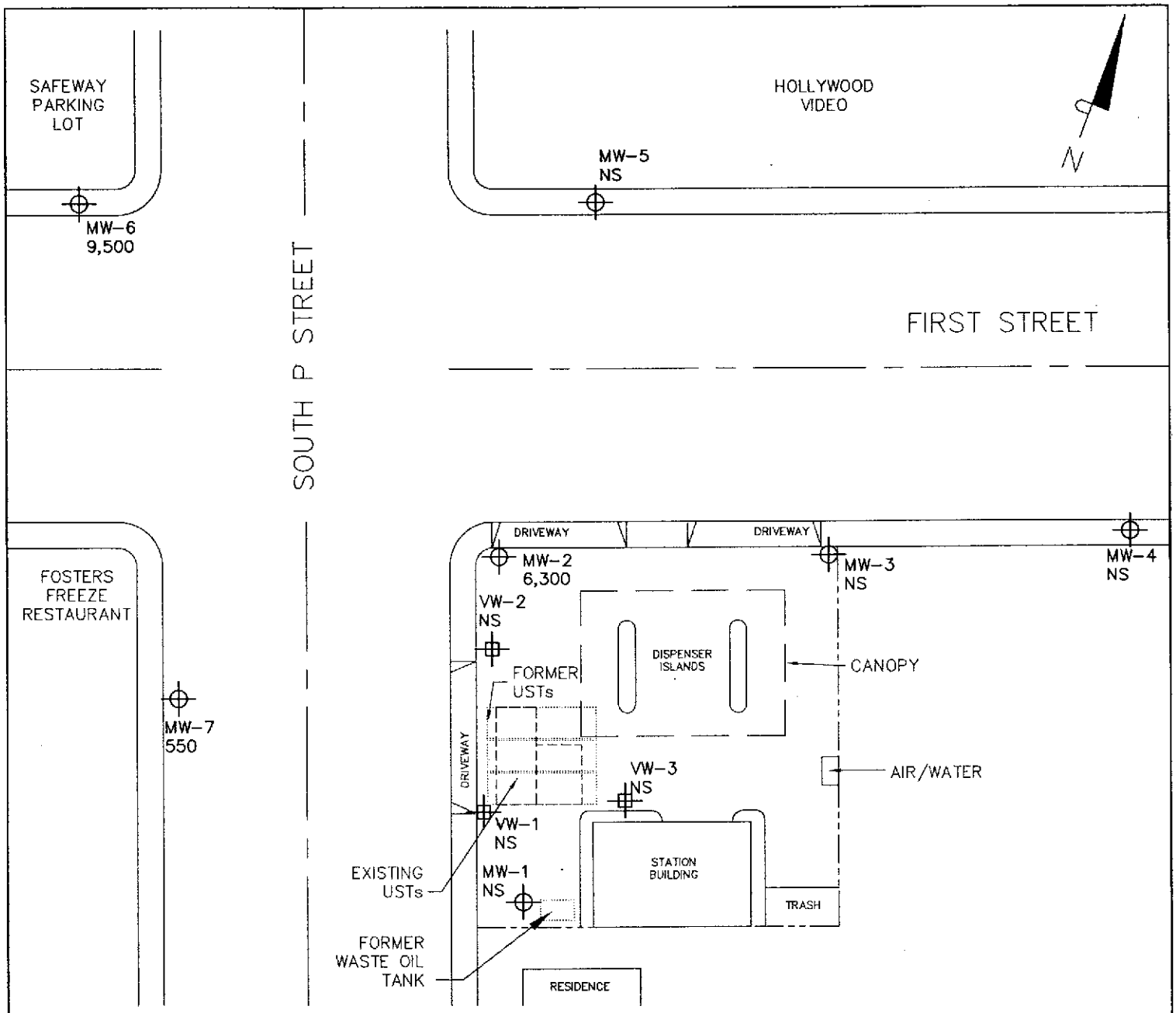
APPROXIMATE SCALE (FEET)

0 40 80

SOURCE: Doulos Environmental, Inc. site plan. Wells resurveyed by Advanced Geomatic Engineering on 1/22/02.

DISSOLVED-PHASE MTBE CONCENTRATIONS
June 10, 2003
Tesoro Station No. 67076
(Former Beacon Station 3604)
1619 West First Street
Livermore, California

TRC | **FIGURE 4**



NOTES: Results are based on laboratory analysis of groundwater samples collected on June 10, 2003. TPH-G = total petroleum hydrocarbons as gasoline; µg/l = micrograms per liter (parts per billion); NS = not sampled.

LEGEND

- Property line
- Groundwater monitoring well
- Vapor extraction well
- 6,300 — Dissolved-phase TPH-G concentration (µg/l)

APPROXIMATE SCALE (FEET)

0 40 80

SOURCE: Doulos Environmental, Inc. site plan. Wells resurveyed by Advanced Geomatic Engineering on 1/22/02.

DISSOLVED-PHASE TPH-G CONCENTRATIONS
June 10, 2003
Tesoro Station No. 67076
(Former Beacon Station 3604)
1619 West First Street
Livermore, California

TRC | **FIGURE 5**

Table 1

Summary of Groundwater Levels and Chemical Analysis

Tesoro Station 67076 - Former Beacon Station 3604 - 1619 West First Street, Livermore

Well ID	Date	Reference Elevation[1] (feet)	Depth to Water[1] (feet)	Groundwater Elevation (feet-MSL)	TPH-G (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	MTBE 8260 (µg/l)	DIPE (µg/l)	ETBE (µg/l)	TAME (µg/l)	TBA (µg/l)	Methanol (µg/l)	Ethanol (µg/l)	1,2 DCA (µg/l)	1,2 DBE (µg/l)
MW-1	06/01/93	100.00	37.50	62.50	27,000	2,200	400	<0.50	4,900	—	—	—	—	—	—	—	—	—
MW-1	06/22/93	100.00	38.46	61.54	87,000	8,000	10,000	260	10,000	—	—	—	—	—	—	—	—	—
MW-1	10/06/93	100.00	42.22	57.78	40,000	4,700	6,500	740	5,300	—	—	—	—	—	—	—	—	—
MW-1	01/13/94	100.00	34.52	65.48	9,400	1,300	9,500	110	850	—	—	—	—	—	—	—	—	—
MW-1	03/30/94	100.00	31.93	68.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-1	04/25/94	100.00	33.49	66.51	11,000	1,500	1,800	290	1,700	—	—	—	—	—	—	—	—	—
MW-1	08/12/94	100.00	41.03	58.97	11,000	550	330	260	1,400	—	—	—	—	—	—	—	—	—
MW-1	12/14/94	100.00	38.63	61.37	11,000	1,000	1,200	320	1,500	—	—	—	—	—	—	—	—	—
MW-1	02/10/95	100.00	30.80	69.20	9,300	1,200	1,500	280	1,500	—	—	—	—	—	—	—	—	—
MW-1	06/15/95	100.00	25.46	74.54	140	5.6	<0.50	<0.50	<0.50	—	—	—	—	—	—	—	—	—
MW-1	09/26/95	100.00	31.05	68.95	410	140	<0.50	<0.50	43	—	—	—	—	—	—	—	—	—
MW-1	12/15/95	100.00	28.11	71.89	740	250	<1.3	<1.3	87	—	—	—	—	—	—	—	—	—
MW-1	03/21/96	100.00	17.67	82.33	<50	0.52	<0.50	<0.50	0.51	—	—	—	—	—	—	—	—	—
MW-1	06/13/96	100.00	22.86	77.14	240*	<0.50	<0.50	<0.50	<0.50	—	—	—	—	—	—	—	—	—
MW-1	09/16/96	100.00	30.04	69.96	720	70	<0.50	1.0	5.1	<5.0	—	—	—	—	—	—	—	—
MW-1	12/02/96	100.00	26.74	73.26	<50	<0.50	<0.50	<0.50	<0.50	<5.0	—	—	—	—	—	—	—	—
MW-1	03/07/97	100.00	20.84	79.16	600	6.7	<0.50	1.2	1.8	<5.0	—	—	—	—	—	—	—	—
MW-1	06/12/97	100.00	28.71	71.29	18,000	180	800	410	1,800	<5.0	—	—	—	—	—	—	—	—
MW-1	09/29/97	100.00	33.91	66.09	350	120	1.5	<0.50	12	<50	—	—	—	—	—	—	—	—
MW-1	12/01/97	100.00	34.88	65.12	<50	7.0	<0.50	<0.50	<0.50	<5.0	—	—	—	—	—	—	—	—
MW-1	03/19/98	100.00	19.83	80.17	<50	<0.50	<0.50	<0.50	<0.50	<5.0	—	—	—	—	—	—	—	—
MW-1	05/29/98	100.00	21.57	78.43	<50	<0.50	<0.50	<0.50	<0.50	<5.0	—	—	—	—	—	—	—	—
MW-1	09/15/98	100.00	31.68	68.32	<50	<0.50	<0.50	<0.50	<0.50	<5.0	—	—	—	—	—	—	—	—
MW-1	11/30/98	100.00	36.80	63.20	<50	<0.50	<0.50	<0.50	<0.50	<5.0	—	—	—	—	—	—	—	—
MW-1	01/17/99	100.00	30.02	69.98	<50	<0.50	<0.50	<0.50	<0.50	<5.0	—	—	—	—	—	—	—	—
MW-1	06/10/99	100.00	29.30	70.70	<50	<0.50	<0.50	<0.50	<0.50	<5.0	—	—	—	—	—	—	—	—
MW-1	09/07/99	100.00	31.41	68.59	<50	<0.50	<0.50	<0.50	<0.50	<5.0	—	—	—	—	—	—	—	—
MW-1	12/13/99	100.00	32.95	67.05	<50	<0.50	<0.50	<0.50	<0.50	<5.0	—	—	—	—	—	—	—	—
MW-1	03/13/00	100.00	25.74	74.26	<50	<0.50	<0.50	<0.50	<0.50	<5.0	—	—	—	—	—	—	—	—
MW-1	06/12/00	100.00	28.24	71.76	<50	<0.50	<0.50	<0.50	<0.50	<5.0	—	—	—	—	—	—	—	—
MW-1	11/10/00	100.00	30.56	69.44	<50	<0.50	<0.50	<0.50	<0.50	<0.50	—	—	—	—	—	—	—	—
MW-1	12/31/00	100.00	31.71	68.29	<50	<0.50	<0.50	<0.50	<0.50	<0.50	—	—	—	—	—	—	—	—
MW-1	03/27/01	100.00	30.43	69.57	<50	<0.50	<0.50	<0.50	<0.50	<0.50	—	—	—	—	—	—	—	—
MW-1	06/30/01	100.00	36.61	63.39	<50	<0.50	<0.50	<0.50	<0.50	<0.50	—	—	—	—	—	—	—	—

Table 1

Summary of Groundwater Levels and Chemical Analysis

Tesoro Station 67076 - Former Beacon Station 3604 - 1619 West First Street, Livermore

Well ID	Date	Reference Elevation[1] (feet)	Depth to Water[1] (feet)	Groundwater Elevation (feet-MSL)	TPH-G (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	MTBE 8260 (µg/l)	DIPE (µg/l)	ETBE (µg/l)	TAME (µg/l)	TBA (µg/l)	Methanol (µg/l)	Ethanol (µg/l)	1,2 DCA (µg/l)	1,2 DBE (µg/l)
MW-1	09/26/01	100.00	45.10	54.90	90	<0.50	<0.50	<0.50	<0.50	<0.50	—	—	—	—	—	—	—	—
MW-1	12/18/01	100.00	39.39	60.61	<50	<0.50	<0.50	<0.50	<0.50	<0.50	—	—	—	—	—	—	—	—
MW-1	01/22/02	483.58	Well resurveyed to new reference point								—	—	—	—	—	—	—	—
MW-1	03/18/02	483.58	38.24	445.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-1	06/05/02	483.58	Well inaccessible								—	—	—	—	—	—	—	—
MW-1	08/21/02	483.58	36.71	446.87	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-1	12/03/02	483.58	36.85	446.73	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-1	03/04/03	483.58	33.72	449.86	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-1	06/10/03	483.58	31.31	452.27	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-2	06/01/93	98.68	38.02	60.66	170,000	20,000	21,000	3,300	18,000	—	—	—	—	—	—	—	—	—
MW-2	06/22/93	98.68	39.07	59.61	160,000	19,000	22,000	3,500	18,000	—	—	—	—	—	—	—	—	—
MW-2	10/06/93	98.68	43.72	54.96	110,000	17,000	17,000	3,000	15,000	—	—	—	—	—	—	—	—	—
MW-2	01/13/94	98.68	35.85	62.83	93,000	20,000	19,000	2,300	14,000	—	—	—	—	—	—	—	—	—
MW-2	03/30/94	98.68	32.82	65.86	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-2	04/25/94	98.68	34.76	63.92	41,000	9,600	7,300	840	7,800	—	—	—	—	—	—	—	—	—
MW-2	08/12/94	98.68	44.33	54.35	59,000	11,000	11,000	2,300	11,000	—	—	—	—	—	—	—	—	—
MW-2	12/14/94	98.68	40.00	58.68	63,000	13,000	13,000	2,200	12,000	—	—	—	—	—	—	—	—	—
MW-2	02/10/95	98.68	32.16	66.52	63,000	12,000	12,000	2,200	11,000	—	—	—	—	—	—	—	—	—
MW-2	06/15/95	98.68	25.93	72.75	61,000	11,000	12,000	1,900	11,000	—	—	—	—	—	—	—	—	—
MW-2	09/26/95	98.68	32.42	66.26	61,000	9,400	11,000	2,300	12,000	—	—	—	—	—	—	—	—	—
MW-2	12/15/95	98.68	29.41	69.27	48,000	8,000	8,300	2,200	12,000	—	—	—	—	—	—	—	—	—
MW-2	03/21/96	98.68	17.47	81.21	48,000	8,000	7,700	2,400	12,000	—	—	—	—	—	—	—	—	—
MW-2	06/13/96	98.68	23.69	74.99	33,000	7,300	8,800	1,900	12,000	<250	—	—	—	—	—	—	—	—
MW-2	09/16/96	98.68	31.24	67.44	8,600	510	640	180	1,300	<250	—	—	—	—	—	—	—	—
MW-2	12/02/96	98.68	26.90	71.78	29,000	4,400	4,000	1,300	6,100	<130	—	—	—	—	—	—	—	—
MW-2	03/07/97	98.68	21.33	77.35	13,000	1,800	1,100	270	2,000	<250	—	—	—	—	—	—	—	—
MW-2	06/12/97	98.68	29.94	68.74	68,000	7,800	6,600	2,300	11,000	<500	—	—	—	—	—	—	—	—
MW-2	09/29/97	98.68	34.22	64.46	15,000	1,500	97	740	1,800	<250	—	—	—	—	—	—	—	—
MW-2	12/01/97	98.68	35.94	62.74	13,000	900	37	860	2,400	<250	—	—	—	—	—	—	—	—
MW-2	03/19/98	98.68	20.34	78.34	42,000	5,000	3,600	2,000	8,300	<250	—	—	—	—	—	—	—	—
MW-2	05/29/98	98.68	22.63	76.05	68,000	5,600	4,700	2,400	11,000	<250	—	—	—	—	—	—	—	—
MW-2	09/15/98	98.68	32.30	66.38	36,000	3,900	1,200	1,400	7,800	<250	—	—	—	—	—	—	—	—
MW-2	11/30/98	98.68	36.90	61.78	16,000	2,200	59	1,200	1,500	<250	—	—	—	—	—	—	—	—

Table 1

Summary of Groundwater Levels and Chemical Analysis

Tesoro Station 67076 - Former Beacon Station 3604 - 1619 West First Street, Livermore

Well ID	Date	Reference Elevation[1] (feet)	Depth to Water[1] (feet)	Groundwater Elevation (feet-MSL)	TPH-G (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	MTBE 8260 (µg/l)	DIPE (µg/l)	ETBE (µg/l)	TAME (µg/l)	TBA (µg/l)	Methanol (µg/l)	Ethanol (µg/l)	1,2 DCA (µg/l)	1,2 DBE (µg/l)
MW-2	01/17/99	98.68	30.17	68.51	30,000	4,000	2,200	2,100	9,500	<250	—	—	—	—	—	—	—	—
MW-2	06/10/99	98.68	29.98	68.70	70,000	6,300	1,800	3,600	14,000	<500	—	—	—	—	—	—	—	—
MW-2	09/07/99	98.68	31.85	66.83	42,000	3,800	840	1,900	8,000	150	—	—	—	—	—	—	—	—
MW-2	12/13/99	98.68	33.72	64.96	14,000	1,400	87	690	110	34	—	—	—	—	—	—	—	—
MW-2	03/13/00	98.68	26.54	72.14	38,000	2,400	2,300	1,600	6,400	2,400	—	—	—	—	—	—	—	—
MW-2	06/12/00	98.68	28.44	70.24	56,000	4,000	950	2,300	7,200	<50	—	—	—	—	—	—	—	—
MW-2	11/10/00	98.68	31.31	67.37	35,000	5,100	850	1,500	3,200	230	—	—	—	—	—	—	—	—
MW-2	12/31/00	98.68	32.68	66.00	21,000	3,200	420	1,300	1,200	440	—	—	—	—	—	—	—	—
MW-2	03/27/01	98.68	30.81	67.87	3,500	420	64	16	280	120	—	—	—	—	—	—	—	—
MW-2	06/30/01	98.68	37.58	61.10	1,200	88	4.5	65	37	29	—	—	—	—	—	—	—	—
MW-2	09/26/01	98.68	44.97	53.71	53,000	8,500	1,500	2,400	4,600	270	—	—	—	—	—	—	—	—
MW-2	12/18/01	98.68	40.67	58.01	26,000	5,400	900	1,500	2,200	430	—	—	—	—	—	—	—	—
MW-2	01/22/02	482.77	Well resurveyed to new reference point								—	—	—	—	—	—	—	—
MW-2	03/18/02	482.77	38.94	443.83	4,200	240	7.3	200	53	89	—	—	—	—	—	—	—	—
MW-2	06/05/02	482.77	36.45	446.32	25,000	3,500	390.0	1,400	2,400	550	—	—	—	—	—	—	—	—
MW-2	08/21/02	482.77	37.15	445.62	10,000	1,200	32.0	620	300	160	—	—	—	—	—	—	—	—
MW-2	12/03/02	482.77	36.76	446.01	3,700	110	2.5	130	11	29	—	—	—	—	—	—	—	—
MW-2	03/04/03	482.77	33.60	449.17	8,700	1,100	77.0	350	540	230	<0.50	<0.50	<10	21	<150	<5.0	<0.50	<0.50
MW-2	06/10/03	482.77	32.89	449.88	6,300	660	35.0	190	120	410	<2.5	<2.5	<5.0	<25	<250	<25	<2.5	<2.5
MW-3	06/01/93	97.08	36.18	60.90	270	4.6	<0.50	<0.50	1.9	—	—	—	—	—	—	—	—	—
MW-3	06/22/93	97.08	37.11	59.97	160	8.2	<0.50	<0.50	0.72	—	—	—	—	—	—	—	—	—
MW-3	10/06/93	97.08	41.15	55.93	740	57	110	24	120	—	—	—	—	—	—	—	—	—
MW-3	01/13/94	97.08	33.95	63.13	83	2.6	0.67	0.78	4.2	—	—	—	—	—	—	—	—	—
MW-3	03/30/94	97.08	30.97	66.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	04/25/94	97.08	32.46	64.62	60	0.75	3.2	0.50	3.6	—	—	—	—	—	—	—	—	—
MW-3	08/12/94	97.08	41.72	55.36	310	7.3	14	2.6	13	—	—	—	—	—	—	—	—	—
MW-3	12/14/94	97.08	37.62	59.46	75	<0.50	<0.50	<0.50	<0.50	—	—	—	—	—	—	—	—	—
MW-3	02/10/95	97.08	29.96	67.12	96	1.4	<0.50	<0.50	1.8	—	—	—	—	—	—	—	—	—
MW-3	06/15/95	97.08	23.66	73.42	<50	<0.50	<0.50	<0.50	<0.50	—	—	—	—	—	—	—	—	—
MW-3	09/26/95	97.08	29.62	67.46	<50	<0.50	<0.50	<0.50	<0.50	—	—	—	—	—	—	—	—	—
MW-3	12/15/95	97.08	27.10	69.98	<50	<0.50	<0.50	<0.50	<0.50	—	—	—	—	—	—	—	—	—
MW-3	03/21/96	97.08	15.85	81.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	06/13/96	97.08	21.31	75.77	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 1

Summary of Groundwater Levels and Chemical Analysis

Tesoro Station 67076 - Former Beacon Station 3604 - 1619 West First Street, Livermore

Well ID	Date	Reference Elevation[1] (feet)	Depth to Water[1] (feet)	Groundwater Elevation (feet-MSL)	TPH-G (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	MTBE 8260 (µg/l)	DIPE (µg/l)	ETBE (µg/l)	TAME (µg/l)	TBA (µg/l)	Methanol (µg/l)	Ethanol (µg/l)	1,2 DCA (µg/l)	1,2 DBE (µg/l)
MW-3	09/16/96	97.08	28.62	68.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	12/02/96	97.08	25.55	71.53	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	03/07/97	97.08	19.77	77.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	06/12/97	97.08	27.67	69.41	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	09/29/97	97.08	29.60	67.48	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	12/01/97	97.08	33.37	63.71	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	03/19/98	97.08	18.76	78.32	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	05/29/98	97.08	20.64	76.44	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	09/15/98	97.08	30.70	66.38	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	11/30/98	97.08	34.96	62.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	01/17/99	97.08	28.81	68.27	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	06/10/99	97.08	28.10	68.98	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	09/07/99	97.08	30.38	66.70	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	12/13/99	97.08	31.46	65.62	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	03/13/00	97.08	24.28	72.80	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	06/12/00	97.08	26.80	70.28	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	11/10/00	97.08	29.47	67.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	12/31/00	97.08	31.38	65.70	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	03/27/01	97.08	29.94	67.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	06/30/01	97.08	37.54	59.54	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	09/26/01	97.08	45.17	51.91	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	12/18/01	97.08	39.41	57.67	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	01/22/02	482.66	ed to new reference point															
MW-3	03/18/02	482.66	37.73	444.93	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	06/05/02	482.66	35.35	447.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	08/21/02	482.66	36.21	446.45	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	12/03/02	482.66	35.92	446.74	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	03/04/03	482.66	32.75	449.91	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-3	06/10/03	482.66	31.26	451.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	03/30/94	99.35	31.56	67.79	120	4.2	15	2.5	26	—	—	—	—	—	—	—	—	—
MW-4	04/25/94	99.35	32.73	66.62	65	<0.50	1.8	<0.50	2.1	—	—	—	—	—	—	—	—	—
MW-4	08/12/94	99.35	41.61	57.74	<50	<0.50	<0.50	<0.50	<0.50	—	—	—	—	—	—	—	—	—
MW-4	12/14/94	99.35	38.11	61.24	<50	<0.50	<0.50	<0.50	<0.50	—	—	—	—	—	—	—	—	—

Table 1

Summary of Groundwater Levels and Chemical Analysis

Tesoro Station 67076 - Former Beacon Station 3604 - 1619 West First Street, Livermore

Well ID	Date	Reference Elevation[1] (feet)	Depth to Water[1] (feet)	Groundwater Elevation (feet-MSL)	TPH-G (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	MTBE 8260 (µg/l)	DIPE (µg/l)	ETBE (µg/l)	TAME (µg/l)	TBA (µg/l)	Methanol (µg/l)	Ethanol (µg/l)	1,2 DCA (µg/l)	1,2 DBE (µg/l)
MW-4	02/10/95	99.35	30.50	68.85	<50	<0.50	<0.50	<0.50	<0.50	—	—	—	—	—	—	—	—	—
MW-4	06/15/95	99.35	23.63	75.72	<50	<0.50	<0.50	<0.50	<0.50	—	—	—	—	—	—	—	—	—
MW-4	09/26/95	99.35	29.70	69.65	<50	<0.50	<0.50	<0.50	<0.50	—	—	—	—	—	—	—	—	—
MW-4	12/15/95	99.35	27.56	71.79	<50	<0.50	<0.50	<0.50	<0.50	—	—	—	—	—	—	—	—	—
MW-4	03/21/96	99.35	15.63	83.72	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	06/13/96	99.35	21.07	78.28	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	09/16/96	99.35	28.99	70.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	12/02/96	99.35	26.04	73.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	03/07/97	99.35	19.69	79.66	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	06/12/97	99.35	28.04	71.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	09/29/97	99.35	29.91	69.44	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	12/01/97	99.35	33.88	65.47	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	03/19/98	99.35	18.67	80.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	05/29/98	99.35	20.16	79.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	09/15/98	99.35	30.46	68.89	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	11/30/98	99.35	34.50	64.85	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	01/17/99	99.35	28.30	71.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	06/10/99	99.35	27.60	71.75	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	09/07/99	99.35	30.79	68.56	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	12/13/99	99.35	31.60	67.75	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	03/13/00	99.35	24.35	75.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	06/12/00	99.35	26.91	72.44	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	11/10/00	99.35	29.71	69.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	12/31/00	99.35	31.79	67.56	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	03/27/01	99.35	29.98	69.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	06/30/01	99.35	36.88	62.47	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	09/26/01	99.35	43.87	55.48	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	12/18/01	99.35	39.30	60.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	01/22/02	482.93	ed to new reference point															
MW-4	03/18/02	482.93	37.75	445.18	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	06/05/02	482.93	35.68	447.25	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	08/21/02	482.93	36.58	446.35	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	12/03/02	482.93	35.90	447.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-4	03/04/03	482.93	32.73	450.20	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 1

Summary of Groundwater Levels and Chemical Analysis

Tesoro Station 67076 - Former Beacon Station 3604 - 1619 West First Street, Livermore

Well ID	Date	Reference Elevation[1] (feet)	Depth to Water[1] (feet)	Groundwater Elevation (feet-MSL)	TPH-G (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	MTBE 8260 (µg/l)	DIPE (µg/l)	ETBE (µg/l)	TAME (µg/l)	TBA (µg/l)	Methanol (µg/l)	Ethanol (µg/l)	1,2 DCA (µg/l)	1,2 DBE (µg/l)
MW-4	06/10/03	482.93	31.20	451.73	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-5	03/30/94	98.37	32.07	66.30	7,500	1,300	20	<13	160	—	—	—	—	—	—	—	—	—
MW-5	04/25/94	98.37	33.65	64.72	6,500	1,100	41	130	740	—	—	—	—	—	—	—	—	—
MW-5	08/12/94	98.37	42.73	55.64	4,000	420	2.9	41	98	—	—	—	—	—	—	—	—	—
MW-5	12/14/94	98.37	38.89	59.48	4,800	660	<2.5	33	13	—	—	—	—	—	—	—	—	—
MW-5	02/10/95	98.37	31.44	66.93	5,200	490	<13	23	19	—	—	—	—	—	—	—	—	—
MW-5	06/15/95	98.37	24.99	73.38	460	<0.50	<0.50	<0.50	<0.50	—	—	—	—	—	—	—	—	—
MW-5	09/26/95	98.37	30.20	68.17	1,400	61	<0.50	3.1	<0.50	—	—	—	—	—	—	—	—	—
MW-5	12/15/95	98.37	28.56	69.81	2,100	77	1.5	10	1.5	—	—	—	—	—	—	—	—	—
MW-5	03/21/96	98.37	16.82	81.55	930	35	2.0	2.0	18	—	—	—	—	—	—	—	—	—
MW-5	06/13/96	98.37	22.61	75.76	610	38	0.72	1.9	2.0	<5.0	—	—	—	—	—	—	—	—
MW-5	09/16/96	98.37	29.78	68.59	380	29	<0.50	0.95	<0.50	<5.0	—	—	—	—	—	—	—	—
MW-5	12/02/96	98.37	26.51	71.86	200	1.1	0.64	<0.50	<0.50	<5.0	—	—	—	—	—	—	—	—
MW-5	03/07/97	98.37	21.91	76.46	520	74	<0.50	0.58	1.5	<5.0	—	—	—	—	—	—	—	—
MW-5	06/12/97	98.37	—	—	140	5.3	<0.50	<0.50	<0.50	<5.0	—	—	—	—	—	—	—	—
MW-5	09/29/97	98.37	31.74	66.63	<50	<0.50	<0.50	<0.50	<0.50	<5.0	—	—	—	—	—	—	—	—
MW-5	12/01/97	98.37	34.05	64.32	<50	<0.50	<0.50	<0.50	<0.50	<5.0	—	—	—	—	—	—	—	—
MW-5	03/19/98	98.37	20.93	77.44	<50	<0.50	<0.50	<0.50	<0.50	<5.0	—	—	—	—	—	—	—	—
MW-5	05/29/98	98.37	21.30	77.07	540	4.1	<0.50	<0.50	0.52	<5.0	—	—	—	—	—	—	—	—
MW-5	09/15/98	98.37	31.32	67.05	67	<0.50	<0.50	<0.50	<0.50	<5.0	—	—	—	—	—	—	—	—
MW-5	11/30/98	98.37	35.44	62.93	430	<0.50	<0.50	<0.50	<0.50	<5.0	—	—	—	—	—	—	—	—
MW-5	01/17/99	98.37	29.59	68.78	500	<0.50	<0.50	<0.50	<0.50	<5.0	—	—	—	—	—	—	—	—
MW-5	06/10/99	98.37	28.05	70.32	66	<0.50	<0.50	<0.50	<0.50	<5.0	—	—	—	—	—	—	—	—
MW-5	09/07/99	98.37	31.11	67.26	820	46	1.7	10	21	<5.0	—	—	—	—	—	—	—	—
MW-5	12/13/99	98.37	32.66	65.71	<50	<0.50	<0.50	<0.50	<0.50	<5.0	—	—	—	—	—	—	—	—
MW-5	03/13/00	98.37	25.87	72.50	270	<0.50	<0.50	<0.50	<0.50	<5.0	—	—	—	—	—	—	—	—
MW-5	06/12/00	98.37	28.15	70.22	<50	<0.50	<0.50	<0.50	<0.50	<5.0	—	—	—	—	—	—	—	—
MW-5	11/10/00	98.37	30.05	68.32	2,200	42	1.1	25	30	8.6	—	—	—	—	—	—	—	—
MW-5	12/31/00	98.37	31.81	66.56	1,300	21	<0.50	4.3	2.6	10	—	—	—	—	—	—	—	—
MW-5	03/27/01	98.37	30.57	67.80	1,200	11	<0.50	2.6	<0.50	21	—	—	—	—	—	—	—	—
MW-5	06/30/01	98.37	37.24	61.13	1,400	4.8	<0.50	1.5	0.56	14	—	—	—	—	—	—	—	—
MW-5	09/26/01	98.37	44.53	53.84	660	<0.50	<0.50	<0.50	<0.50	3.0	—	—	—	—	—	—	—	—
MW-5	12/18/01	98.37	40.65	57.72	240	<0.50	<0.50	<0.50	<0.50	<0.50	—	—	—	—	—	—	—	—

Table 1

Summary of Groundwater Levels and Chemical Analysis

Tesoro Station 67076 - Former Beacon Station 3604 - 1619 West First Street, Livermore

Well ID	Date	Reference Elevation[1] (feet)	Depth to Water[1] (feet)	Groundwater Elevation (feet-MSL)	TPH-G (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	MTBE 8260 (µg/l)	DIPE (µg/l)	ETBE (µg/l)	TAME (µg/l)	TBA (µg/l)	Methanol (µg/l)	Ethanol (µg/l)	1,2 DCA (µg/l)	1,2 DBE (µg/l)
MW-5	01/22/02	481.94	Well resurveyed to new reference point															
MW-5	03/18/02	481.94	38.75	443.19	890	0.65	<0.50	<0.50	<0.50	3.1	—	—	—	—	—	—	—	—
MW-5	06/05/02	481.94	36.21	445.73	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-5	08/21/02	481.94	36.76	445.18	2,100	20	<0.50	63	4	7	—	—	—	—	—	—	—	—
MW-5	12/03/02	481.94	36.12	445.82	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-5	03/04/03	481.94	32.90	449.04	490	10	<0.50	2	<0.50	1	<0.50	<0.50	<0.50	<5.0	<50	<5.0	<0.50	<0.50
MW-5	06/10/03	481.94	33.04	448.90	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-6	03/30/94	97.62	33.38	64.24	63,000	21,000	8,600	1,700	12,000	—	—	—	—	—	—	—	—	—
MW-6	04/25/94	97.62	35.49	62.13	77,000	22,000	12,000	2,300	16,000	—	—	—	—	—	—	—	—	—
MW-6	08/12/94	97.62	45.14	52.48	65,000	12,000	8,100	2,200	16,000	—	—	—	—	—	—	—	—	—
MW-6	12/14/94	97.62	40.99	56.63	65,000	18,000	9,500	2,200	14,000	—	—	—	—	—	—	—	—	—
MW-6	02/10/95	97.62	33.34	64.28	63,000	21,000	8,400	2,000	14,000	—	—	—	—	—	—	—	—	—
MW-6	06/15/95	97.62	26.88	70.74	75,000	20,000	11,000	2,100	15,000	—	—	—	—	—	—	—	—	—
MW-6	09/26/95	97.62	33.55	64.07	62,000	15,000	9,600	1,700	12,000	—	—	—	—	—	—	—	—	—
MW-6	12/15/95	97.62	30.32	67.30	61,000	15,000	9,000	2,300	15,000	—	—	—	—	—	—	—	—	—
MW-6	03/21/96	97.62	18.89	78.73	65,000	18,000	9,800	2,400	16,000	—	—	—	—	—	—	—	—	—
MW-6	06/13/96	97.62	24.62	73.00	29,000	8,600	3,300	2,200	12,000	<250	—	—	—	—	—	—	—	—
MW-6	09/16/96	97.62	32.64	64.98	42,000	6,400	1,800	2,100	11,000	<250	—	—	—	—	—	—	—	—
MW-6	12/02/96	97.62	27.42	70.20	28,000	3,000	1,100	970	8,300	<500	—	—	—	—	—	—	—	—
MW-6	03/07/97	97.62	22.13	75.49	12,000	2,000	190	520	2,300	<250	—	—	—	—	—	—	—	—
MW-6	06/12/97	97.62	31.02	66.60	37,000	3,900	470	1,600	6,200	<100	—	—	—	—	—	—	—	—
MW-6	09/29/97	97.62	35.77	61.85	34,000	3,500	370	1,600	5,200	<100	—	—	—	—	—	—	—	—
MW-6	12/01/97	97.62	37.14	60.48	20,000	2,100	<10	1,200	2,200	<100	—	—	—	—	—	—	—	—
MW-6	03/19/98	97.62	21.10	76.52	24,000	2,900	460	1,100	3,400	<100	—	—	—	—	—	—	—	—
MW-6	05/29/98	97.62	23.26	74.36	38,000	3,500	700	1,800	5,200	<100	—	—	—	—	—	—	—	—
MW-6	09/15/98	97.62	33.50	64.12	22,000	1,900	110	1,400	3,000	<100	—	—	—	—	—	—	—	—
MW-6	11/30/98	97.62	38.73	58.89	9,900	770	16	820	710	<100	—	—	—	—	—	—	—	—
MW-6	01/17/99	97.62	32.05	65.57	14,000	2,200	160	1,700	3,600	<100	—	—	—	—	—	—	—	—
MW-6	06/10/99	97.62	31.44	66.18	22,000	1,600	160	1,400	2,900	5.5	—	—	—	—	—	—	—	—
MW-6	09/07/99	97.62	33.94	63.68	17,000	1,400	33	1,300	1,800	<50	—	—	—	—	—	—	—	—
MW-6	12/13/99	97.62	35.84	61.78	16,000	790	9.2	840	780	<25	—	—	—	—	—	—	—	—
MW-6	03/13/00	97.62	28.45	69.17	16,000	790	85	780	1,600	<25	—	—	—	—	—	—	—	—
MW-6	06/12/00	97.62	30.52	67.10	24,000	1,100	150	1,300	2,300	5,600	—	—	—	—	—	—	—	—

Table 1

Summary of Groundwater Levels and Chemical Analysis

Tesoro Station 67076 - Former Beacon Station 3604 - 1619 West First Street, Livermore

Well ID	Date	Reference Elevation[1] (feet)	Depth to Water[1] (feet)	Groundwater Elevation (feet-MSL)	TPH-G (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	MTBE 8260 (µg/l)	DIPE (µg/l)	ETBE (µg/l)	TAME (µg/l)	TBA (µg/l)	Methanol (µg/l)	Ethanol (µg/l)	1,2 DCA (µg/l)	1,2 DBE (µg/l)
MW-6	11/10/00	97.62	32.99	64.63	13,000	440	6.6	760	350	1,000	—	—	—	—	—	—	—	—
MW-6	12/31/00	97.62	34.95	62.67	12,000	680	7.6	820	190	1,400	—	—	—	—	—	—	—	—
MW-6	03/27/01	97.62	32.72	64.90	14,000	330	17	940	670	380	—	—	—	—	—	—	—	—
MW-6	06/30/01	97.62	39.86	57.76	750	45	0.93	47	14	54	—	—	—	—	—	—	—	—
MW-6	09/26/01	97.62	Dry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MW-6	12/18/01	97.62	43.36	54.26	43,000	3,800	350	1,900	3,000	900	—	—	—	—	—	—	—	—
MW-6	01/22/02	481.20	ed to new reference point															
MW-6	03/18/02	481.20	41.29	439.91	33,000	2,600	120	1,800	2,800	740	—	—	—	—	—	—	—	—
MW-6	06/05/02	481.20	38.35	442.85	10,000	1,100	16	700	180	600	—	—	—	—	—	—	—	—
MW-6	08/21/02	481.20	39.02	442.18	10,000	1,200	23	710	290	370	—	—	—	—	—	—	—	—
MW-6	12/03/02	481.20	38.76	442.44	16,000	1,700	63	970	630	1,500	—	—	—	—	—	—	—	—
MW-6	03/04/03	481.20	35.13	446.07	16,000	1,700	25	1,200	40	7,700	<20	<20	<70	<200	<2000	<200	<20	<20
MW-6	06/10/03	481.20	34.15	447.05	9,500	860	15	380	47	2,600	<5.0	<5.0	18	<50	<500	<50	<5.0	<5.0
MW-7	03/30/94	98.03	31.98	66.05	43,000	7,200	2,400	1,600	11,000	—	—	—	—	—	—	—	—	—
MW-7	04/25/94	98.03	33.56	64.47	30,000	3,900	1,000	940	6,900	—	—	—	—	—	—	—	—	—
MW-7	08/12/94	98.03	43.35	54.68	30,000	3,800	1,400	1,300	7,500	—	—	—	—	—	—	—	—	—
MW-7	12/14/94	98.03	39.34	58.69	31,000	3,600	1,200	900	6,400	—	—	—	—	—	—	—	—	—
MW-7	02/10/95	98.03	32.11	65.92	27,000	4,000	900	890	5,100	—	—	—	—	—	—	—	—	—
MW-7	06/15/95	98.03	25.51	72.52	17,000	920	680	740	4,100	—	—	—	—	—	—	—	—	—
MW-7	09/26/95	98.03	31.43	66.60	7,000	200	150	170	810	—	—	—	—	—	—	—	—	—
MW-7	12/15/95	98.03	28.97	69.06	11,000	350	170	540	1,900	—	—	—	—	—	—	—	—	—
MW-7	03/21/96	98.03	17.36	80.67	12,000	320	100	730	2,500	—	—	—	—	—	—	—	—	—
MW-7	06/13/96	98.03	23.47	74.56	5,900	98	19	370	620	<50	—	—	—	—	—	—	—	—
MW-7	09/16/96	98.03	31.35	66.68	7,800	140	43	440	590	<25	—	—	—	—	—	—	—	—
MW-7	12/02/96	98.03	27.11	70.92	6,300	87	29	290	430	<50	—	—	—	—	—	—	—	—
MW-7	03/07/97	98.03	21.33	76.70	4,500	35	19	360	470	<25	—	—	—	—	—	—	—	—
MW-7	06/12/97	98.03	29.90	68.13	3,900	29	5.2	170	48	<5.0	—	—	—	—	—	—	—	—
MW-7	09/29/97	98.03	34.37	63.66	6,100	56	9	340	190	<25	—	—	—	—	—	—	—	—
MW-7	12/01/97	98.03	36.46	61.57	6,500	24	<2.5	400	250	<25	—	—	—	—	—	—	—	—
MW-7	03/19/98	98.03	20.33	77.70	2,000	20	<2.5	73	79	<25	—	—	—	—	—	—	—	—
MW-7	05/29/98	98.03	22.30	75.73	5,700	22	7.3	290	350	<25	—	—	—	—	—	—	—	—
MW-7	09/15/98	98.03	32.54	65.49	1,700	15	<2.5	44	5.1	<25	—	—	—	—	—	—	—	—
MW-7	11/30/98	98.03	37.96	60.07	4,800	42	12	270	640	<25	—	—	—	—	—	—	—	—

Table 1

Summary of Groundwater Levels and Chemical Analysis

Tesoro Station 67076 - Former Beacon Station 3604 - 1619 West First Street, Livermore

Well ID	Date	Reference Elevation[1] (feet)	Depth to Water[1] (feet)	Groundwater Elevation (feet-MSL)	TPH-G (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	MTBE 8260 (µg/l)	DIPE (µg/l)	ETBE (µg/l)	TAME (µg/l)	TBA (µg/l)	Methanol (µg/l)	Ethanol (µg/l)	1,2 DCA (µg/l)	1,2 DBE (µg/l)
MW-7	01/17/99	98.03	31.04	66.99	3,400	33	<5.0	200	190	<50	—	—	—	—	—	—	—	—
MW-7	06/10/99	98.03	29.89	68.14	1,700	7.8	1.5	23	4.1	<5.0	—	—	—	—	—	—	—	—
MW-7	09/07/99	98.03	32.38	65.65	1,900	9.7	2.1	70	2.9	<5.0	—	—	—	—	—	—	—	—
MW-7	12/13/99	98.03	33.98	64.05	1,900	8.0	1.1	10	1.1	<5.0	—	—	—	—	—	—	—	—
MW-7	03/13/00	98.03	27.09	70.94	1,500	7.5	<0.50	6.7	2.9	<5.0	—	—	—	—	—	—	—	—
MW-7	06/12/00	98.03	28.76	69.27	1,200	5.4	<0.50	5.2	1.0	<5.0	—	—	—	—	—	—	—	—
MW-7	11/10/00	98.03	31.54	66.49	1,000	3.9	<0.50	<0.50	<0.50	<0.50	—	—	—	—	—	—	—	—
MW-7	12/31/00	98.03	32.76	65.27	620	1.8	<0.50	<0.50	<0.50	<0.50	—	—	—	—	—	—	—	—
MW-7	03/27/01	98.03	30.97	67.06	1,200	4.8	<0.50	6.7	0.94	<0.50	—	—	—	—	—	—	—	—
MW-7	06/30/01	98.03	37.50	60.53	2,800	10	1.7	75	170	<0.50	—	—	—	—	—	—	—	—
MW-7	09/26/01	98.03	45.11	52.92	1,900	16	0.89	2.3	25	<0.50	—	—	—	—	—	—	—	—
MW-7	12/18/01	98.03	41.13	56.90	3,000	13	0.88	3.4	3.4	<0.50	—	—	—	—	—	—	—	—
MW-7	01/22/02	481.61	Well resurveyed to new reference point															
MW-7	03/18/02	481.61	39.22	442.39	3,100	7.3	1.5	38	110	<0.50	—	—	—	—	—	—	—	—
MW-7	06/05/02	481.61	36.55	445.06	1,800	7.6	1.0	39	20	<0.50	—	—	—	—	—	—	—	—
MW-7	08/21/02	481.61	36.81	444.80	3,300	7.6	0.7	85	36	<0.50	—	—	—	—	—	—	—	—
MW-7	12/03/02	481.61	36.52	445.09	1,700	5.4	<0.50	15	5.5	<0.50	—	—	—	—	—	—	—	—
MW-7	03/04/03	481.61	32.60	449.01	440	1.8	<0.50	0.54	2.9	<0.50	<0.50	<0.50	<0.50	<5.0	<50	<5.0	<0.50	<0.50
MW-7	06/10/03	481.61	31.33	450.28	550	0.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<50	<5.0	<0.50	<0.50
MW-A	01/17/99	—	30.13	—	5,800	1,700	85	65	320	<5.0								
MW-A	06/10/99	Well abandoned																
MW-B	01/17/99	—	30.29	—	4,400	240	30	21	39	<5.0								
MW-B	06/10/99	Well abandoned																
MW-C	01/17/99	—	30.60	—	—	—	—	—	—	—								
MW-C	06/10/99	Well abandoned																
MW-D	01/17/99	—	31.32	—	5,600	1,600	130	66	220	<5.0								
MW-D	06/10/99	Well abandoned																
MW-E	01/17/99	—	31.36	—	5,700	1,600	180	180	310	<50								
MW-E	06/10/99	—	—	—	5,000	1,300	130	320	450	<25								

Table 1

Summary of Groundwater Levels and Chemical Analysis

Tesoro Station 67076 - Former Beacon Station 3604 - 1619 West First Street, Livermore

Well ID	Date	Reference Elevation[1] (feet)	Depth to Water[1] (feet)	Groundwater Elevation (feet-MSL)	TPH-G (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	MTBE 8260 (µg/l)	DIPE (µg/l)	ETBE (µg/l)	TAME (µg/l)	TBA (µg/l)	Methanol (µg/l)	Ethanol (µg/l)	1,2 DCA (µg/l)	1,2 DBE (µg/l)
MW-E	09/07/99	Well abandoned																
MW-W	01/17/99	—	30.91	—	23,000	7,600	760	1,400	5,000	<50								
MW-W	06/10/99	—	—	—	16,000	4,100	420	1,300	4,000	<50								
MW-W	09/07/99	Well abandoned																

NOTES:

1 Measurement and reference elevation taken from notch/mark on top of well casing.
MSL = Mean sea level
µg/l = micrograms per liter (parts per billion)
— = not measured / not analyzed
TPH-G = total petroleum hydrocarbons as gasoline
MTBE = methyl tert butyl ether
< = not detected at or above the stated method detection limit
* = product is not typical gasoline
1,2 DBE= 1,2-Dibromothane

APPENDIX A

FIELD PROCEDURES

FIELD PROCEDURES

The following section describes procedures used by field personnel in the performance of groundwater sampling.

Groundwater Level and Total Depth Determination

A water level indicator is lowered down the well and a measurement of the depth to water from an established reference point on the casing is taken. The indicator probe is used to sound the bottom of the well and a measurement of the total depth of the well is taken. Both the water level and total depth measurements are taken to the nearest 0.01-foot.

Visual Analysis of Groundwater

Prior to purging and sampling groundwater monitoring wells, a water sample is collected from each well for subjective analysis. The visual analysis involves gently lowering a clean, disposable polyethylene bailer to approximately one-half the bailer length past the water table interface. The bailer is then retrieved, and the sample contained within the bailer is examined for floating product or the appearance of a petroleum product sheen. If measurable free product is noted in the bailer, a water/product interface probe is used to determine the thickness of the free product to the nearest 0.01-foot. The thickness of free product is determined by subtracting the depth to product from the depth to water.

Monitoring Well Purging and Sampling

Monitoring wells are purged by removing approximately four casing volumes of water from the well using a clean disposable bailer or electrical submersible purge pump. Purge volumes are calculated prior to purging. During purging, the temperature, pH, and electrical conductivity of the purge water are monitored. The well is considered to be sufficiently purged when the four casing volumes have been removed; the temperature, pH, and conductivity values have stabilized to within 10% of the initial readings; and the groundwater being removed is relatively free of suspended solids. After purging, groundwater levels are allowed to stabilize to within 80% of the initial water level reading. A water sample is then collected from each well with a clean, disposable polyethylene bailer. If the well is bailed or pumped dry prior to removing the minimum amount of water, the groundwater is allowed to recharge. If the well has recharged to within 80% of the initial depth to water reading within two hours, the well will continue to be purged until the minimum volume of water has been removed. If the well has not recharged to at least 80% of the initial depth to water reading within two hours, the well is considered to contain formational water and a groundwater sample is collected. Groundwater removed from the well is stored in 55-gallon drums at the site and labeled pending disposal.

In wells where free product is detected, the wells will be bailed to remove the free product. An estimate of the volume of product and water will be recorded. If the free product thickness is reduced to the point where a measurable thickness is no longer present in the well, a groundwater sample will be collected. If free product persists throughout the purging process, a final free product thickness measurement will be taken and a groundwater sample will not be collected.

Groundwater samples are stored in 40-milliliter vials so that air passage through the sample is minimized (to prevent volatilization of the sample). The vial is tilted and filled slowly until an upward convex meniscus forms over the mouth of the vial. The Teflon™ side of the septum (in cap) is then placed against the meniscus, and the cap is screwed on tightly. The sample is then inverted and the bottle is tapped lightly to check for air bubbles. If an air bubble is present in the vial, the cap is removed and more sample is transferred from the bailer. The vial is then resealed and rechecked for air bubbles. The sample is then appropriately labeled and stored on ice from the time of collection through the time of delivery to the laboratory. The chain-of-custody form is completed to ensure sample integrity. Groundwater samples are transported to a state-certified laboratory and analyzed within the U.S. Environmental Protection Agency-specified hold times for the specified analytes.

APPENDIX B

DOULOS ENVIRONMENTAL FIELD DATA SHEETS

DOULOS ENVIRONMENTAL, INC.
GROUNDWATER/LIQUID LEVEL DATA
(measurements in feet)

Project Address: 1619 First St.
Livermore

Date: 6-10-03

Project No.: 67076

Recorded by:

Well No.	Time	Well Elev. TOC	Depth to Groundwater	Measured Total Depth	Groundwater Elevation	Depth to Product	Product Thickness	Comments
mw-1	7:05		31.31	69.56				
mw-2	7:06		32.89	67.89				
mw-3	7:10		31.26	67.15				
mw-4	7:14		31.20	69.39				
mw-5	6:50		33.04	67.80				
mw-6	6:53		34.15	64.90				
mw-7	7:00		31.33	67.05				

Notes:

DOULOS ENVIRONMENTAL, INC. **SAMPLING INFORMATION SHEET**

Client: Tesoro 67076 Sampling Date: 6-10-03

Site: 1619 First St. Project No.:

Livermore, Ca. Well Designation: MW-2

Is setup of traffic control devices required?	(NO)	YES	time: _____ hours
Is there standing water in the well box?	(NO)	YES	Above TOC Below TOC
Is top of casing cut level?	NO	(YES)	If no, see remarks
Is well cap sealed and locked?	NO	(YES)	If no, see remarks

Height of well casing riser (in inches): 4

Well cover type: 8" or 12" UV_____ 12" EMCO_____ 8" or 12" BK_____ 8" Christy_____
12" Christy_____ 8" M&D_____ 12" M&D_____ 12" DWP _____
12" CNI _____ 36" CNI _____ 12" Pomeco X Other: _____

General condition of wellhead assembly: Excellent _____ Good X Fair_____ Poor_____

Purging Equipment: _____2" disposable bailer _____Submersible pump
_____2" PVC bailer _____Dedicated bailer
_____4" PVC bailer _____Centrifugal pump

Sampled with: Disposable bailer X Teflon bailer _____ Disposable Tubing_____

Well Diameter: 2" _____ 4" X 6" _____ 8" _____

Purge Vol. Multiplier: 0.16 0.65 1.47 2.61 gal/ft.

Initial Measurement
Time: 7:06
Depth of well: 67.89
Depth to water: 32.89

Recharge Measurement
Time: NA
Depth to water: NA

Calculated purge: NA
Actual purge: NA

Start purge: NA Sampling time: 7:25

Time	Temperature	E.C.	pH	Turbidity	Volume
		NA	NA		

Sample appearance: Clear Lock: Dolphin

Equipment replaced: (check all that apply) Note condition of replaced item(s)

2" Locking Cap: _____ Lock: _____ 7/32 Allenhead: _____
4" Locking Cap: _____ Lock-Dolphin: _____ 9/16 Bolt: _____
6" Locking Cap: _____ Pinned Allenhead (DWP): _____

Remarks: _____

Signature: _____

DOULOS ENVIRONMENTAL, INC. **SAMPLING INFORMATION SHEET**

Client: Tesoro 67076 Sampling Date: 6-10-03

Site: 1619 First St. Project No.:

Livermore, Ca. Well Designation: MW-6

Is setup of traffic control devices required? (NO) YES time: _____ hours
Is there standing water in the well box? (NO) YES Above TOC Below TOC
Is top of casing cut level? NO (YES) If no, see remarks
Is well cap sealed and locked? NO (YES) If no, see remarks
Height of well casing riser (in inches): 5
Well cover type: 8" or 12" UV_____ 12" EMCO_____ 8" or 12" BK_____ 8" Christy_____
12" Christy_____ 8" M&D X 12" M&D_____ 12" DWP _____
12" CNI _____ 36" CNI _____ 12" Pomeco_____ Other: _____
General condition of wellhead assembly: Excellent_____ Good X Fair_____ Poor_____

Purging Equipment: _____2" disposable bailer _____Submersible pump
_____2" PVC bailer _____Dedicated bailer
_____4" PVC bailer _____Centrifugal pump
Sampled with: Disposable bailer X Teflon bailer _____ Disposable Tubing_____

Well Diameter: 2" X 4" _____ 6" _____ 8" _____
Purge Vol. Multiplier: 0.16 0.65 1.47 2.61 gal/ft.

Initial Measurement
Time: 6:53
Depth of well: 64.90
Depth to water: 34.15

Recharge Measurement
Time: NA
Depth to water: NA

Calculated purge: _____
Actual purge: NA

Start purge: NA Sampling time: 7:20

Time	Temperature	E.C.	pH	Turbidity	Volume
		NA	NA		

Sample appearance: clear Lock: DG Thin

Equipment replaced: (check all that apply) Note condition of replaced item(s)
2" Locking Cap: _____ Lock: _____ 7/32 Allenhead: _____
4" Locking Cap: _____ Lock-Dolphin: _____ 9/16 Bolt: _____
6" Locking Cap: _____ Pinned Allenhead (DWP): _____

Remarks: _____

Signature: _____

DOULOS ENVIRONMENTAL, INC. **SAMPLING INFORMATION SHEET**

Client: Tesoro 67076 Sampling Date: 6-10-03

Site: 1619 First St. Project No.:

Livermore, Ca. Well Designation: MW-7

Is setup of traffic control devices required? (NO) YES time: _____ hours
Is there standing water in the well box? (NO) YES Above TOC Below TOC
Is top of casing cut level? NO (YES) If no, see remarks
Is well cap sealed and locked? NO (YES) If no, see remarks
Height of well casing riser (in inches): 4
Well cover type: 8" or 12" UV X 12" EMCO_____ 8" or 12" BK_____ 8" Christy_____
12" Christy_____ 8" M&D_____ 12" M&D_____ 12" DWP _____
12" CNI _____ 36" CNI _____ 12" Pomeco_____ Other: _____
General condition of wellhead assembly: Excellent_____ Good X Fair_____ Poor_____

Purging Equipment: _____2" disposable bailer _____Submersible pump
_____2" PVC bailer _____Dedicated bailer
_____4" PVC bailer _____Centrifugal pump
Sampled with: Disposable bailer X Teflon bailer _____ Disposable Tubing_____

Well Diameter: 2" X 4" _____ 6" _____ 8" _____
Purge Vol. Multiplier: 0.16 0.65 1.47 2.61 gal/ft.

Initial Measurement
Time: 7:00
Depth of well: 67.05
Depth to water: 31.33

Recharge Measurement
Time: NA
Depth to water: NA

Calculated purge: _____
Actual purge: NA

Start purge: NA Sampling time: 7:15

Time	Temperature	E.C.	pH	Turbidity	Volume
		NA			

Sample appearance: Clear Lock: Dolphin

Equipment replaced: (check all that apply) Note condition of replaced item(s)
2" Locking Cap: _____ Lock: _____ 7/32 Allenhead: _____
4" Locking Cap: _____ Lock-Dolphin: _____ 9/16 Bolt: _____
6" Locking Cap: _____ Pinned Allenhead (DWP): _____

Remarks: _____

Signature: _____

APPENDIX C

OFFICIAL LABORATORY REPORTS AND CHAIN-OF-CUSTODY RECORDS

KIFF ANALYTICAL LLC

Report Number : 33678
Date : 6/24/2003

Tracy Walker
TRC Alton Geoscience
5052 Commercial Circle
Concord, CA 94520

Subject : 3 Water Samples
Project Name : Tesoro
Project Number : 67076 Livermore
P.O. Number : AFE 023139615

Dear Mr. Walker,

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 : 33678
Date : 6/24/2003

Subject : 3 Water Samples
Project Name : Tesoro
Project Number : 67076 Livermore
P.O. Number : AFE 023139615

Case Narrative

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

Approved By: Joel Kiff

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

KIFF ANALYTICAL LLC

Report Number : 33678
Date : 6/24/2003

Project Name : **Tesoro**
Project Number : **67076 Livermore**

Sample : **MW-2** Matrix : Water Lab Number : 33678-01
Sample Date :6/10/2003

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**660**	2.5	ug/L	EPA 8260B	6/18/2003
Toluene	**35**	2.5	ug/L	EPA 8260B	6/18/2003
Ethylbenzene	**190**	2.5	ug/L	EPA 8260B	6/18/2003
Total Xylenes	**120**	2.5	ug/L	EPA 8260B	6/18/2003
Methyl-t-butyl ether (MTBE)	**410**	2.5	ug/L	EPA 8260B	6/18/2003
Diisopropyl ether (DIPE)	**< 2.5**	2.5	ug/L	EPA 8260B	6/18/2003
Ethyl-t-butyl ether (ETBE)	**< 2.5**	2.5	ug/L	EPA 8260B	6/18/2003
Tert-amyl methyl ether (TAME)	**< 5.0**	5.0	ug/L	EPA 8260B	6/18/2003
Tert-Butanol	**< 25**	25	ug/L	EPA 8260B	6/18/2003
Methanol	**< 250**	250	ug/L	EPA 8260B	6/18/2003
Ethanol	**< 25**	25	ug/L	EPA 8260B	6/18/2003
1,2-Dichloroethane	**< 2.5**	2.5	ug/L	EPA 8260B	6/18/2003
1,2-Dibromoethane	**< 2.5**	2.5	ug/L	EPA 8260B	6/18/2003
TPH as Gasoline	**6300**	250	ug/L	EPA 8260B	6/18/2003
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	6/18/2003
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	6/18/2003

Approved By: Joel Kiff

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

KIFF ANALYTICAL LLC

Report Number : 33678
Date : 6/24/2003

Project Name : **Tesoro**
Project Number : **67076 Livermore**

Sample : **MW-6** Matrix : Water Lab Number : 33678-02
Sample Date :6/10/2003

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**860**	5.0	ug/L	EPA 8260B	6/19/2003
Toluene	**15**	5.0	ug/L	EPA 8260B	6/19/2003
Ethylbenzene	**380**	5.0	ug/L	EPA 8260B	6/19/2003
Total Xylenes	**47**	5.0	ug/L	EPA 8260B	6/19/2003
Methyl-t-butyl ether (MTBE)	**2600**	5.0	ug/L	EPA 8260B	6/19/2003
Diisopropyl ether (DIPE)	**< 5.0**	5.0	ug/L	EPA 8260B	6/19/2003
Ethyl-t-butyl ether (ETBE)	**< 5.0**	5.0	ug/L	EPA 8260B	6/19/2003
Tert-amyl methyl ether (TAME)	**18**	5.0	ug/L	EPA 8260B	6/19/2003
Tert-Butanol	**< 50**	50	ug/L	EPA 8260B	6/19/2003
Methanol	**< 500**	500	ug/L	EPA 8260B	6/19/2003
Ethanol	**< 50**	50	ug/L	EPA 8260B	6/19/2003
1,2-Dichloroethane	**< 5.0**	5.0	ug/L	EPA 8260B	6/19/2003
1,2-Dibromoethane	**< 5.0**	5.0	ug/L	EPA 8260B	6/19/2003
TPH as Gasoline	**9500**	500	ug/L	EPA 8260B	6/19/2003
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	6/19/2003
4-Bromofluorobenzene (Surr)	96.1		% Recovery	EPA 8260B	6/19/2003

Approved By: Joel Kiff

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

KIFF ANALYTICAL LLC

Report Number : 33678
Date : 6/24/2003

Project Name : **Tesoro**
Project Number : **67076 Livermore**

Sample : **MW-7** Matrix : Water Lab Number : 33678-03
Sample Date :6/10/2003

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**0.80**	0.50	ug/L	EPA 8260B	6/18/2003
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	6/18/2003
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	6/18/2003
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	6/18/2003
Methyl-t-butyl ether (MTBE)	**< 0.50**	0.50	ug/L	EPA 8260B	6/18/2003
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	6/18/2003
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	6/18/2003
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	6/18/2003
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	6/18/2003
Methanol	**< 50**	50	ug/L	EPA 8260B	6/18/2003
Ethanol	**< 5.0**	5.0	ug/L	EPA 8260B	6/18/2003
1,2-Dichloroethane	**< 0.50**	0.50	ug/L	EPA 8260B	6/18/2003
1,2-Dibromoethane	**< 0.50**	0.50	ug/L	EPA 8260B	6/18/2003
TPH as Gasoline	**550**	50	ug/L	EPA 8260B	6/18/2003
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	6/18/2003
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	6/18/2003

Approved By: Joel Kiff

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

Report Number : 33678

Date : 6/24/2003

QC Report : Method Blank Data

Project Name : **Tesoro**

Project Number : **67076 Livermore**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	6/17/2003
Toluene	< 0.50	0.50	ug/L	EPA 8260B	6/17/2003
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	6/17/2003
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	6/17/2003
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	6/17/2003
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	6/17/2003
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	6/17/2003
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	6/17/2003
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	6/17/2003
Methanol	< 50	50	ug/L	EPA 8260B	6/17/2003
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	6/17/2003
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	6/17/2003
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	6/17/2003
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	6/17/2003
Toluene - d8 (Surr)	104		%	EPA 8260B	6/17/2003
4-Bromofluorobenzene (Surr)	99.6		%	EPA 8260B	6/17/2003
Benzene	< 0.50	0.50	ug/L	EPA 8260B	6/16/2003
Toluene	< 0.50	0.50	ug/L	EPA 8260B	6/16/2003
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	6/16/2003
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	6/16/2003
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	6/16/2003
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	6/16/2003
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	6/16/2003
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	6/16/2003
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	6/16/2003
Methanol	< 50	50	ug/L	EPA 8260B	6/16/2003
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	6/16/2003
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	6/16/2003
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	6/16/2003
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	6/16/2003
Toluene - d8 (Surr)	103		%	EPA 8260B	6/16/2003
4-Bromofluorobenzene (Surr)	90.7		%	EPA 8260B	6/16/2003

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	6/18/2003
Toluene	< 0.50	0.50	ug/L	EPA 8260B	6/18/2003
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	6/18/2003
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	6/18/2003
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	6/18/2003
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	6/18/2003
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	6/18/2003
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	6/18/2003
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	6/18/2003
Methanol	< 50	50	ug/L	EPA 8260B	6/18/2003
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	6/18/2003
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	6/18/2003
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	6/18/2003
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	6/18/2003
Toluene - d8 (Surr)	104		%	EPA 8260B	6/18/2003
4-Bromofluorobenzene (Surr)	93.1		%	EPA 8260B	6/18/2003

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

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

Report Number : 33678

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 6/24/2003

Project Name : **Tesoro**

Project Number : **67076 Livermore**

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	33690-01	<0.50	40.0	40.0	34.3	38.2	ug/L	EPA 8260B	6/17/03	85.8	95.6	10.8	70-130	25
Toluene	33690-01	<0.50	40.0	40.0	35.8	39.4	ug/L	EPA 8260B	6/17/03	89.4	98.4	9.64	70-130	25
Tert-Butanol	33690-01	<5.0	200	200	170	205	ug/L	EPA 8260B	6/17/03	85.2	102	18.3	70-130	25
Methyl-t-Butyl Ether	33690-01	<0.50	40.0	40.0	38.9	44.7	ug/L	EPA 8260B	6/17/03	97.2	112	13.8	70-130	25
Benzene	33676-01	<0.50	40.0	40.0	39.3	38.2	ug/L	EPA 8260B	6/17/03	98.2	95.5	2.74	70-130	25
Toluene	33676-01	<0.50	40.0	40.0	40.1	38.9	ug/L	EPA 8260B	6/17/03	100	97.2	3.04	70-130	25
Tert-Butanol	33676-01	<5.0	200	200	194	192	ug/L	EPA 8260B	6/17/03	97.3	96.1	1.25	70-130	25
Methyl-t-Butyl Ether	33676-01	<0.50	40.0	40.0	36.7	39.0	ug/L	EPA 8260B	6/17/03	91.7	97.5	6.10	70-130	25
Benzene	33700-01	<0.50	40.0	40.0	38.2	37.4	ug/L	EPA 8260B	6/18/03	95.5	93.4	2.25	70-130	25
Toluene	33700-01	<0.50	40.0	40.0	38.6	37.6	ug/L	EPA 8260B	6/18/03	96.6	94.0	2.70	70-130	25
Tert-Butanol	33700-01	<5.0	200	200	187	190	ug/L	EPA 8260B	6/18/03	93.6	95.2	1.77	70-130	25
Methyl-t-Butyl Ether	33700-01	<0.50	40.0	40.0	36.3	36.8	ug/L	EPA 8260B	6/18/03	90.7	91.9	1.26	70-130	25

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

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

Report Number : 33678

Date : 6/24/2003

QC Report : Laboratory Control Sample (LCS)

Project Name : **Tesoro**

Project Number : **67076 Livermore**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	40.0	ug/L	EPA 8260B	6/17/03	85.6	70-130
Toluene	40.0	ug/L	EPA 8260B	6/17/03	90.3	70-130
Tert-Butanol	200	ug/L	EPA 8260B	6/17/03	87.3	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	6/17/03	97.3	70-130
Benzene	40.0	ug/L	EPA 8260B	6/16/03	96.7	70-130
Toluene	40.0	ug/L	EPA 8260B	6/16/03	99.0	70-130
Tert-Butanol	200	ug/L	EPA 8260B	6/16/03	97.6	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	6/16/03	95.5	70-130
Benzene	40.0	ug/L	EPA 8260B	6/18/03	99.8	70-130
Toluene	40.0	ug/L	EPA 8260B	6/18/03	99.7	70-130
Tert-Butanol	200	ug/L	EPA 8260B	6/18/03	97.9	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	6/18/03	94.2	70-130

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

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

KIFF ANALYTICAL LLC

720 Olive Drive, Suite D
Davis, CA 95616
Lab: 530.297.4800
Fax: 530.297.4808

Lab No. 33678 Page 1 of 1

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF to): Tracy Walker	EDF Report? [X] Yes [ ] No
Company/Address: TRC	Recommended but not mandatory to complete this section: Sampling Company Log Code: DEIO
Phone No.: 925-688-1200 / FAX No.: 925+688-0388	Global ID: T0600101410
Project Number: 67076 Livermore / P.O. No.: AFE 023139615	EDF Deliverable to (Email Address): twalker@trcsolutions.com
Project Name: Tesoro	Project Address: Livermore
Sampler Signature (below): Edgar Alineta	

Sample Designation	Sampling Date	Sampling Time	Container: 40 ml VOA	Container: SLEEVE	Preservative: HCl	Preservative: HNO_3	Preservative: ICE	Preservative: NONE	Matrix: WATER	Matrix: SOIL	Analysis Request: BTEX (8021B)	BTEX/TPH Gas/MTBE (8021B/M8015)	TPH as Diesel (M8015)	TPH as Motor Oil (M8015)	TPH Gas/BTEX/MTBE (8260B)	5 Oxygenates/TPH Gas/BTEX (8260B)	7 Oxygenates/TPH Gas/BTEX (8260B)	5 Oxygenates (8260B)	7 Oxygenates (8260B)	Lead Scav. (1,2 DCA & 1,2 EDB - 8260B)	EPA 8260B (Full List)	Volatile Halocarbons (EPA 8260B)	Lead (7421/239.2) TOTAL (X) W.E.T. (X)	TAT: 12 hr/24 hr/48 hr/72 hr/1 wk	For Lab Use Only
MW-2	6-10-03	7:25	3		X		X		X								X			X				72hr	
MW-6	"	7:20	"		"		"		"								"			"				"	
MW-7	"	7:15	"		"		"		"								"			"				"	

	Date	Time		
Relinquished by:			Received by:	Remarks:
Relinquished by:			Received by:	
Relinquished by:	Date: 061303	Time: 1751	Received by Laboratory:	Bill to: ROB DONOVAN

Distribution: White - Lab, Yellow - File, Pink - Originator

Forms/coc 121001.fh9