20-434

TRC

Customer-Focused Solutions

August 8, 2002

Project No. 41-0362

Mr. Robert Donovan
Tesero Refining and Marketing Company
3450 South 344th Way #100
Auburn, Washington 98001

AUG 2 9 2002

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

RE: QUARTERLY GROUNDWATER MONITORING REPORT
SECOND QUARTER 2002

Dear Mr. Donovan:

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 5, 2002 at the subject site (Figure 1). The monitoring, conducted by Doulos Environmental (Doulos), included measurements of depth to groundwater, subjective analysis 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 1-18-02, 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 1st and 3rd 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 5, 2002, groundwater flows toward the west at a gradient of 0.02 foot per foot (Figure 2). Groundwater levels have increased an average of 2.51 feet compared to the First Quarter 2002 monitoring event.

2.0 GROUNDWATER SAMPLING AND ANALYSIS

Groundwater samples were collected from three monitoring wells (MW-2, MW-6 and MW-7) on June 5, 2002. All groundwater samples were analyzed using EPA Method 8260B for concentrations of:

- total petroleum hydrocarbons as gasoline (TPH-G);

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

Kelleher & Associates
Environmental Management

1658 E. Capitol Expy PMB 293
San Jose, CA 95121
Phone: (408) 528-7719
Fax: (408) 528-7720
bkellehr@ix.netcom.com

August 23, 2002

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

Cecil Fox
San Francisco Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Site: TESORO STATION # 67076 (former Beacon # 3604), 1619 West First Street, Livermore, CA

Dear Ms. Chu and Mr. Fox:

Please find enclosed herewith a copy of the following technical report prepared by TRC, Concord, CA:

Quarterly Groundwater Monitoring Report Second Quarter 2002 dated August 8, 2002.

As an authorized representative of Tesoro Petroleum and Refining Company (Tesoro), I have reviewed the enclosed report and declare under penalty of perjury, that to the best of my knowledge the information contained in the report is true and correct.

The report covers the groundwater-monitoring event Doulas Environmental conducted on June 5, 2002 during which they sounded six monitoring wells, purged and sampled three wells, and provided for certified analyses of total petroleum hydrocarbon constituents, BTEX, and MTBE via EPA Method 8260B. The next quarterly monitoring event is scheduled for the third quarter 2002.

With respect to Alameda County correspondence dated January 18, 2002, Tesoro has contracted TRC to install three additional offsite wells as called for in the Doulas Environmental April 2001 "Workplan for Additional Subsurface Assessment Activities." We are currently assisting Tesoro in entering into a site access agreement with the owner of the associated property. We anticipate that TRC will complete the associated well-installation work during the forth quarter 2002 and that we will be submitting the associated report by the end of the year.

Sincerely,

Brian T. Kelleher
Project Coordinator
Enclosure: CC with enclosure: Robert Donovan, Tesoro; Glenn Dembroff, Ultramar; Tracy Walker, TRC (cover letter only).

- benzene, toluene, ethyl benzene, and total xylenes (BTEX); and
- methyl tert butyl ether (MTBE).

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.

Benzene was detected in all three sampled wells. MW-2 had the highest benzene concentration at 3,500 micrograms per liter (µg/l). Figure 3 shows the distribution of dissolved-phase benzene based on the current data.

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

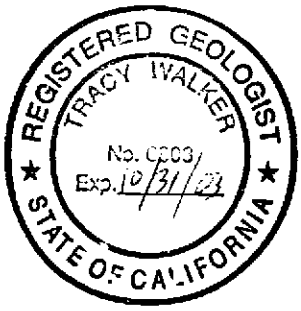
2. Mr. Cecil Fox
Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

If you have any questions or comments, please contact me at (925) 688-2476.

Sincerely,

Tracy L. Walker

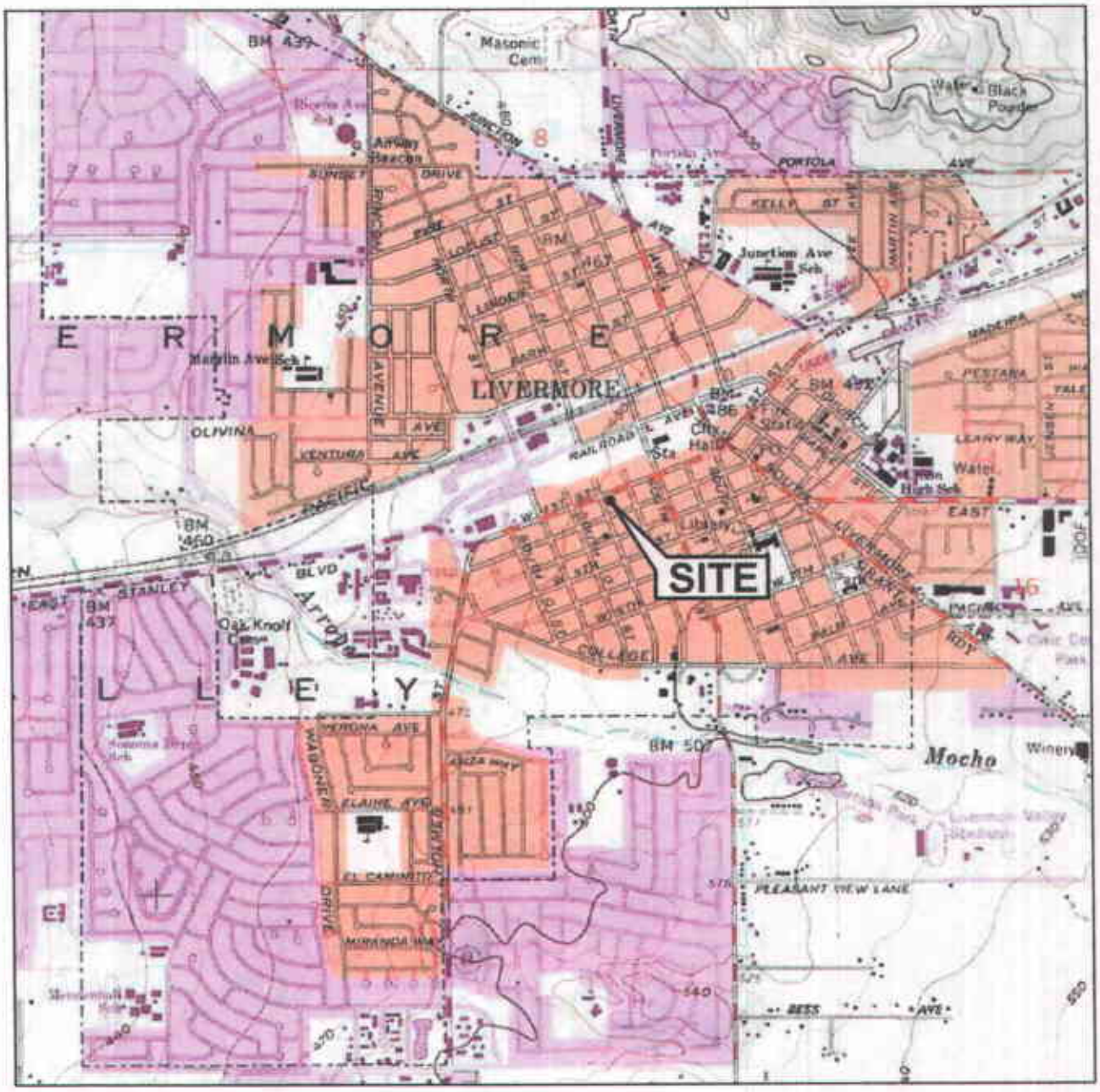
Tracy L. Walker, RG
Associate



ATTACHMENTS:

Figure 1:	Vicinity Map
Figure 2:	Groundwater Elevation Contour Map – June 5, 2002
Figure 3:	Dissolved-Phase Benzene Concentrations – June 5, 2002
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: Ms. Eva Chu, Alameda County Health Care Services Agency
Mr. Cecil Fox, Regional Water Quality Control Board, San Francisco Bay Region

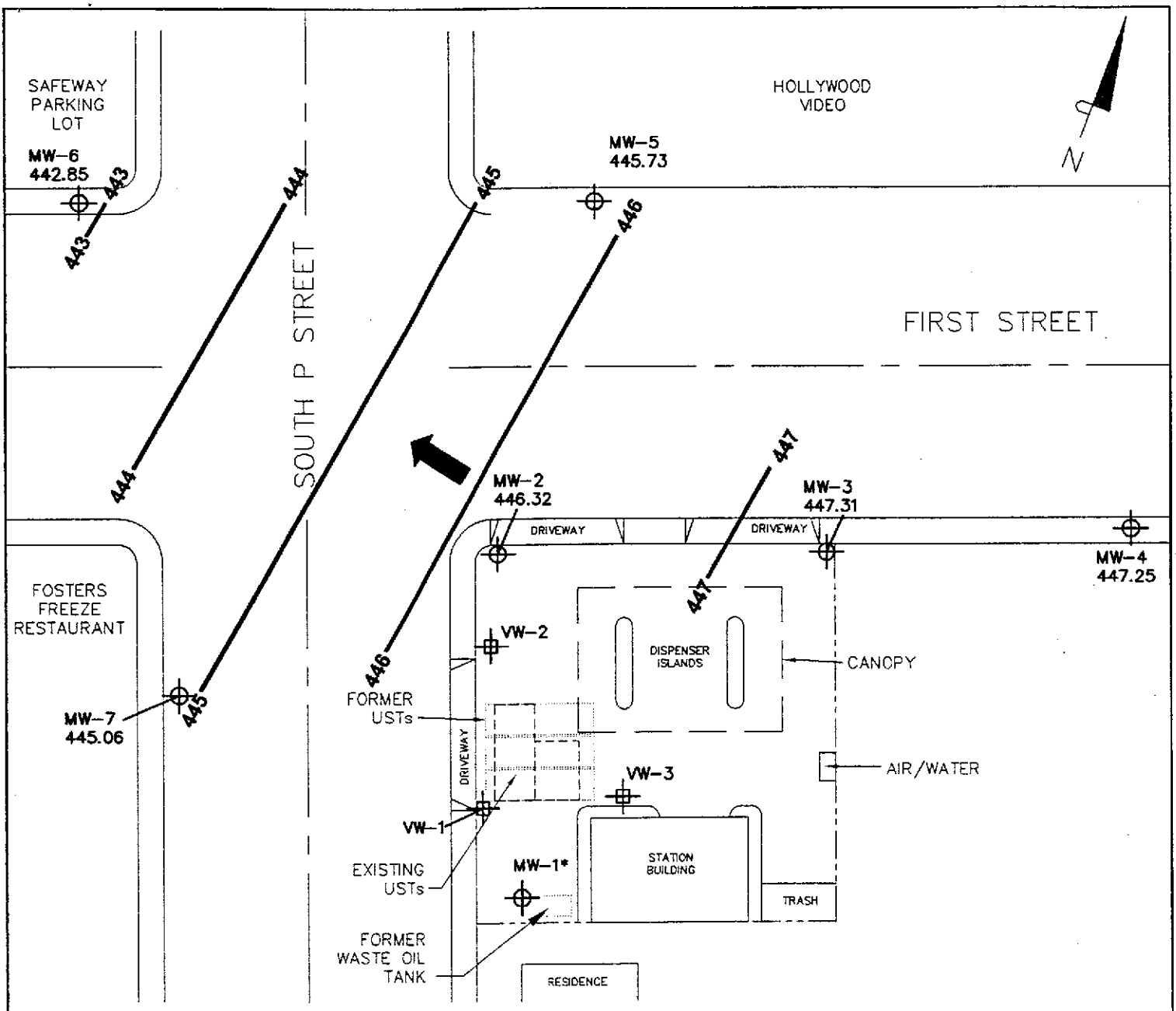


SOURCE:
United States Geological Survey
7.5 Minute Topographic Maps:
Livermore Quadrangle

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
- 445.34 — Groundwater elevation (in feet above mean sea level)
- 445 — Groundwater elevation contour line
- General direction of groundwater gradient

NOTES: Contour lines are interpretive based on fluid level measurements taken on June 5, 2002. Contour interval = 1 foot. * = Well inaccessible.

APPROXIMATE SCALE (FEET)

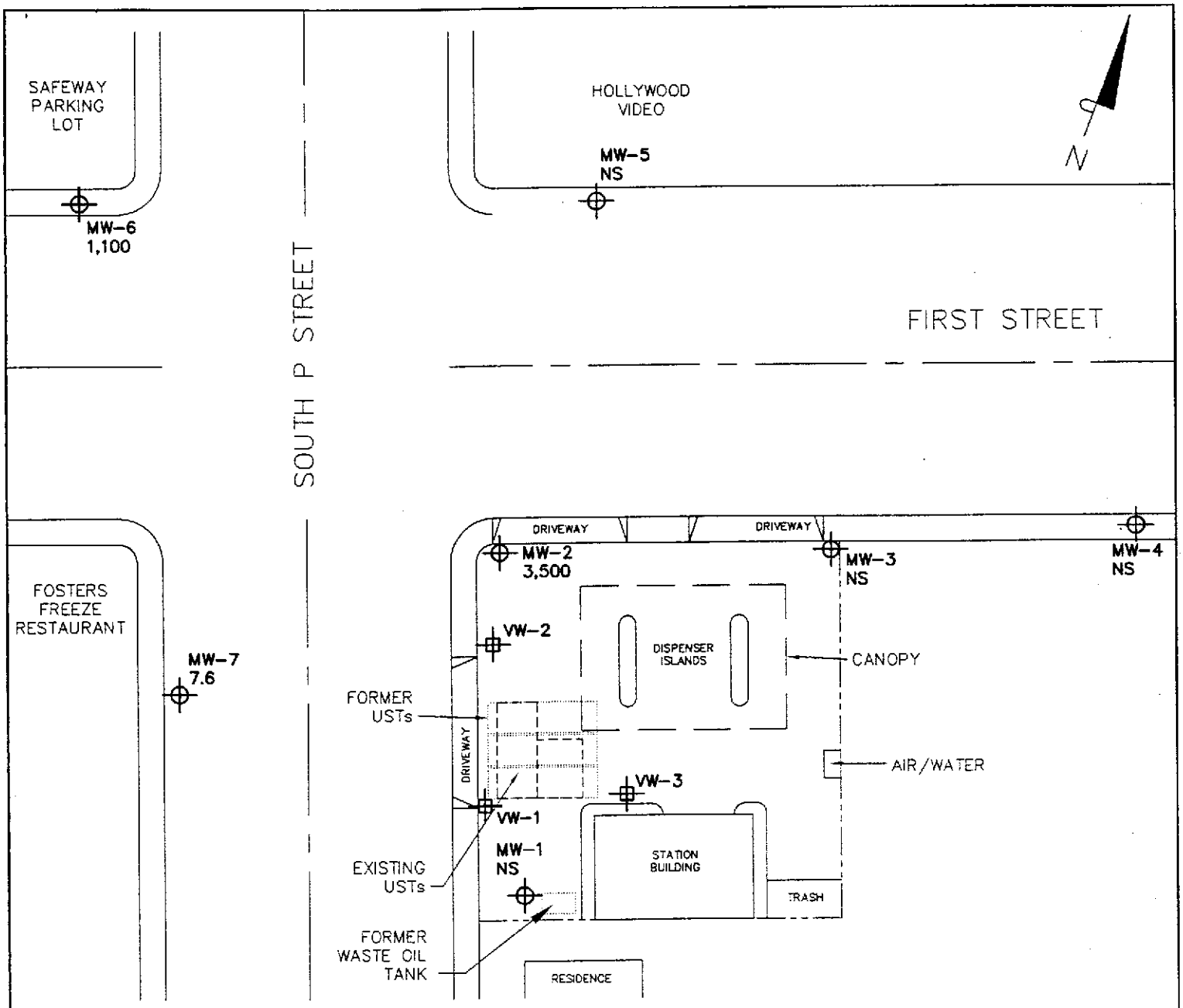
0 40 80

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

GROUNDWATER ELEVATION CONTOUR MAP
June 5, 2002
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 5, 2002. µg/l = micrograms per liter (parts per billion); < = not detected at or above the stated method detection limit; NS = not sampled.

APPROXIMATE SCALE (FEET)

0 40 80

LEGEND

- Property line
- Groundwater monitoring well
- Vapor extraction well
- <0.50 Dissolved-phase benzene concentration (µg/l)

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

DISSOLVED-PHASE BENZENE CONCENTRATIONS
June 5, 2002
Tesoro Station No. 67076
(Former Beacon Station 3604)
1619 West First Street
Livermore, California

TRC

FIGURE 3

Table 1

Summary of Groundwater Levels and Chemical Analysis

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)
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

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)
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-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
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

Table 1

Summary of Groundwater Levels and Chemical Analysis

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)
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-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	—	—	—	—	—	—
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	—	—	—	—	—	—

Table 1

Summary of Groundwater Levels and Chemical Analysis

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)
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	Well resurveyed 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-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	—
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	—	—	—	—	—	—

Table 1

Summary of Groundwater Levels and Chemical Analysis

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)
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	Well resurveyed 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-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

Table 1

Summary of Groundwater Levels and Chemical Analysis

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)
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
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-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

Table 1

Summary of Groundwater Levels and Chemical Analysis

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)
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
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	Well resurveyed 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-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

Table 1

Summary of Groundwater Levels and Chemical Analysis

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)
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
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-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								

Table 1

Summary of Groundwater Levels and Chemical Analysis

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)
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
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

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

TRC

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

Project Address: Beacon # 3604 1619 First St. 10299 Folsom Blvd.

Livermore, Ca.

Date: 6-5-02

Project No.: 3604-63

Recorded by:

Well No.	Time	Well Elev. TOC	Depth to Groundwater	Measured Total Depth	Groundwater Elevation	Depth to Product	Product Thickness	Comments
MW-1	12:45			69.56				Gate. Locked
MW-2	12:48		36.45	67.89				
MW-3	12:54		35.35	67.15				
MW-4	13:00		35.68	69.36				
MW-5	13:04		36.21	67.80				
MW-6	13:18		38.35	64.90				
MW-7	13:10		36.55	67.05				

Notes:

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

Client: Ultramar
Site: Beacon #3604
1619 First St.
Livermore,Ca.

Sampling Date: 6-5-02
Project No.: _____
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 _____ 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: 12:48
Depth of well: 67.89
Depth to water: 36.45

Recharge Measurement
Time: NA
Depth to water: NA

Calculated purge: _____
Actual purge: NA

Start purge: NA Sampling time: 13:40

Time	Temperature	E.C.	pH	Turbidity	Volume
		NP			

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: Ultramar Sampling Date: 6-5-02

Site: Beacon #3604 Project No.: _____

1619 First St. Well Designation: MW 6

Livermore, Ca.

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 _____ 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: 13:18
Depth of well: 64.90
Depth to water: 38.35

Recharge Measurement
Time: N/A
Depth to water: NA

Calculated purge: _____
Actual purge: NA

Start purge: NA Sampling time: 13:30

Time	Temperature	E.C.	pH	Turbidity	Volume

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: Ultramar
Site: Beacon #3604
1619 First St.
Livermore, Ca.

Sampling Date: 6-5-02
Project No.:
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): 6

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: 13:10
Depth of well: 67.05
Depth to water: 56.55

Recharge Measurement
Time: NA
Depth to water: NA

Calculated purge: _____
Actual purge: NA

Start purge: _____ Sampling time: 13:50

Time	Temperature	E.C.	pH	Turbidity	Volume
	"				

Sample appearance: clear Lock: Dolphin

Equipment replaced: (check all that apply)
2" Locking Cap: _____
4" Locking Cap: _____
6" Locking Cap: _____
Lock: _____
Lock-Dolphin: _____

Note condition of replaced item(s)
7/32 Allenhead: _____
9/16 Bolt: _____
Pinned Allenhead (DWP): _____

Remarks: _____

Signature: _____

APPENDIX C

OFFICIAL LABORATORY REPORTS AND CHAIN-OF-CUSTODY RECORDS

TRC

KIFF ANALYTICAL LLC

Report Number : 26796
Date : 6/17/02

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

Subject : 3 Water Samples
Project Name : Livermore Beacon #3604
Project Number : 3604

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

Joel Kiff

KIFF ANALYTICAL LLC

Report Number : 26796
Date : 6/17/02

Subject : 3 Water Samples
Project Name : Livermore Beacon #3604
Project Number : 3604

Case Narrative

Matrix Spike/Matrix Spike Duplicate Results associated with samples MW-2, MW17, MW-6 for the analyte Methyl-t-butyl ether were affected by the analyte concentrations already present in the un-spiked sample.

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 916-297-4800

KIFF ANALYTICAL LLC

Report Number : 26796
Date : 6/17/02

Project Name : **Livermore Beacon #3604**
Project Number : **3604**

Sample : **MW-2** Matrix : Water Lab Number : 26796-01
Sample Date :6/5/02

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**3500**	20	ug/L	EPA 8260B	6/14/02
Toluene	**390**	20	ug/L	EPA 8260B	6/14/02
Ethylbenzene	**1400**	20	ug/L	EPA 8260B	6/14/02
Total Xylenes	**2400**	20	ug/L	EPA 8260B	6/14/02
Methyl-t-butyl ether (MTBE)	**550**	20	ug/L	EPA 8260B	6/14/02
TPH as Gasoline	**25000**	2000	ug/L	EPA 8260B	6/14/02
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	6/14/02
4-Bromofluorobenzene (Surr)	98.0		% Recovery	EPA 8260B	6/14/02

Sample : **MW-6** Matrix : Water Lab Number : 26796-02
Sample Date :6/5/02

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**1100**	5.0	ug/L	EPA 8260B	6/15/02
Toluene	**16**	5.0	ug/L	EPA 8260B	6/15/02
Ethylbenzene	**700**	5.0	ug/L	EPA 8260B	6/15/02
Total Xylenes	**180**	5.0	ug/L	EPA 8260B	6/15/02
Methyl-t-butyl ether (MTBE)	**600**	5.0	ug/L	EPA 8260B	6/15/02
TPH as Gasoline	**10000**	500	ug/L	EPA 8260B	6/15/02
Toluene - d8 (Surr)	99.7		% Recovery	EPA 8260B	6/15/02
4-Bromofluorobenzene (Surr)	103		% Recovery	EPA 8260B	6/15/02

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

KIFF ANALYTICAL LLC

Report Number : 26796
Date : 6/17/02

Project Name : **Livermore Beacon #3604**
Project Number : **3604**

Sample : **MW17** Matrix : Water Lab Number : 26796-03
Sample Date :6/5/02

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**7.6**	0.50	ug/L	EPA 8260B	6/14/02
Toluene	**1.0**	0.50	ug/L	EPA 8260B	6/14/02
Ethylbenzene	**39**	0.50	ug/L	EPA 8260B	6/14/02
Total Xylenes	**20**	0.50	ug/L	EPA 8260B	6/14/02
Methyl-t-butyl ether (MTBE)	**< 0.50**	0.50	ug/L	EPA 8260B	6/14/02
TPH as Gasoline	**1800**	50	ug/L	EPA 8260B	6/14/02
Toluene - d8 (Surr)	97.2		% Recovery	EPA 8260B	6/14/02
4-Bromofluorobenzene (Surr)	106		% Recovery	EPA 8260B	6/14/02

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

Report Number : 26796

Date : 6/17/02

QC Report : Method Blank Data

Project Name : **Livermore Beacon #3604**

Project Number : **3604**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	6/14/02
Toluene	< 0.50	0.50	ug/L	EPA 8260B	6/14/02
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	6/14/02
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	6/14/02
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	6/14/02
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	6/14/02
Toluene - d8 (Surr)	102		%	EPA 8260B	6/14/02
4-Bromofluorobenzene (Surr)	100		%	EPA 8260B	6/14/02

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

Report Number : 26796

Date : 6/17/02

QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Name : **Livermore Beacon #3604**

Project Number : **3604**

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	26799-01	<0.50	39.8	39.9	39.2	39.0	ug/L	EPA 8260B	6/14/02	98.4	97.8	0.611	70-130	25
Toluene	26799-01	<0.50	39.8	39.9	39.9	39.7	ug/L	EPA 8260B	6/14/02	100	99.4	0.726	70-130	25
Tert-Butanol	26799-01	120	199	200	328	349	ug/L	EPA 8260B	6/14/02	102	113	9.53	70-130	25
Methyl-t-Butyl Ether	26799-01	220	39.8	39.9	233	239	ug/L	EPA 8260B	6/14/02	26.7	42.8	46.5	70-130	25

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

Report Number : 26796

Date : 6/17/02

QC Report : Laboratory Control Sample (LCS)

Project Name : **Livermore Beacon #3604**

Project Number : **3604**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	40.0	ug/L	EPA 8260B	6/14/02	99.1	70-130
Toluene	40.0	ug/L	EPA 8260B	6/14/02	101	70-130
Tert-Butanol	200	ug/L	EPA 8260B	6/14/02	108	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	6/14/02	83.6	70-130

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

720 Olive Drive, Suite D 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. 26796 Page 1 of 1

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To): TRC

Company/Address:

Phone No.: FAX No.:

Project Number: 3604

P.O. No:

Project Name: Beacon #3604

California EDF Report? ☒ Yes ☐ No

Recommended but not mandatory to complete this section:

Sampling Company Log Code: K-C-I-0

Global ID: T-0-6-0-0-1-0-1-4-1-0

EDF Deliverable To (Email Address): kwalker@etcsolutions.com

Sampler Signature: Joe Gonzales

Project Address: Livermore 3604

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	6-5-02	1540	3		X		X		X						X									STAT	-01
MW-6	"	1330	1		—		—		—						—									—	-02
MW-7	"	1550	1		—		—		—						—									—	-03

	Date	Time		
Relinquished by: Joe Gonzales	6-7-02		Received by:	
Relinquished by:			Received by:	
Relinquished by:	6-7-02	1745	Received by Laboratory:	

Remarks:

Bill to: ROD DONOVAN

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

Forms/coc 121001.fh9