



# GETTLER-RYAN INC.

AG

## TRANSMITTAL

MAY 31 2002

May 14, 2002  
G-R #180047

shb  
~~4444~~  
2465

TO: Mr. David B. De Witt  
Phillips 66 Company  
2000 Crow Canyon Place, Suite 400  
San Ramon, California 94583

CC: Mr. Douglas J. Lee  
Gettler-Ryan Inc.  
Dublin, California

*[Handwritten signatures and initials]*

FROM: Deanna L. Harding  
Project Coordinator  
Gettler-Ryan Inc.  
6747 Sierra Court, Suite J  
Dublin, California 94568

RE: **Tosco (Unocal) Service Station  
#6034  
4700 First Street  
Livermore, California**

WE HAVE ENCLOSED THE FOLLOWING:

COPIES	DATED	DESCRIPTION
1	May 13, 2002	Groundwater Monitoring and Sampling Report First Semi-Annual - Event of April 1, 2002

### COMMENTS:

This report is being sent to you for your review/comment, prior to being distributed on your behalf. If no comments are received by **May 28, 2002**, this report will be distributed to the following:

cc: ~~Alameda County Health Care Services, 1131 Harbor Bay Pkwy., Alameda, CA 94502~~

Enclosure

trans/6034-dbd



# GETTLER-RYAN INC.

May 13, 2002  
G-R Job #180047

MAY 31 2002

Mr. David De Witt  
Phillips 66 Company  
2000 Crow Canyon Place, Suite 400  
San Ramon, California 94583

**RE: First Semi-Annual Event April 1, 2002**  
Groundwater Monitoring & Sampling Report  
Tosco (Unocal) Service Station #6034  
4700 First Street  
Livermore, California

Dear Mr. De Witt:

This report documents the most recent groundwater monitoring and sampling event performed by Gettler-Ryan Inc. (G-R) at the referenced site. All field work was conducted in accordance with G-R Standard Operating Procedure - Groundwater Sampling (attached).

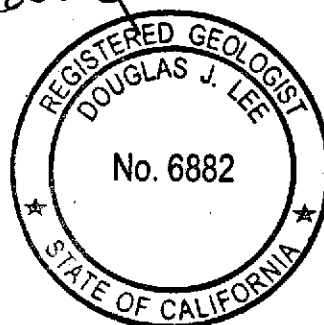
Static groundwater levels were measured and all wells were checked for the presence of separate-phase hydrocarbons. Separate-phase hydrocarbons were not present in the wells. Static water level data and groundwater elevations are summarized in Table 1. Dissolved Oxygen Concentrations are summarized in Table 3. A Potentiometric Map is included as Figure 1.

Groundwater samples were collected from the monitoring wells as specified by G-R Standard Operating Procedure - Groundwater Sampling (attached). The field data sheets are also attached. The samples were analyzed by Sequoia Analytical. Analytical results are summarized in Tables 1 and 2. A Concentration Map is included as Figure 2. The chain of custody document and laboratory analytical reports are also attached.

Sincerely,

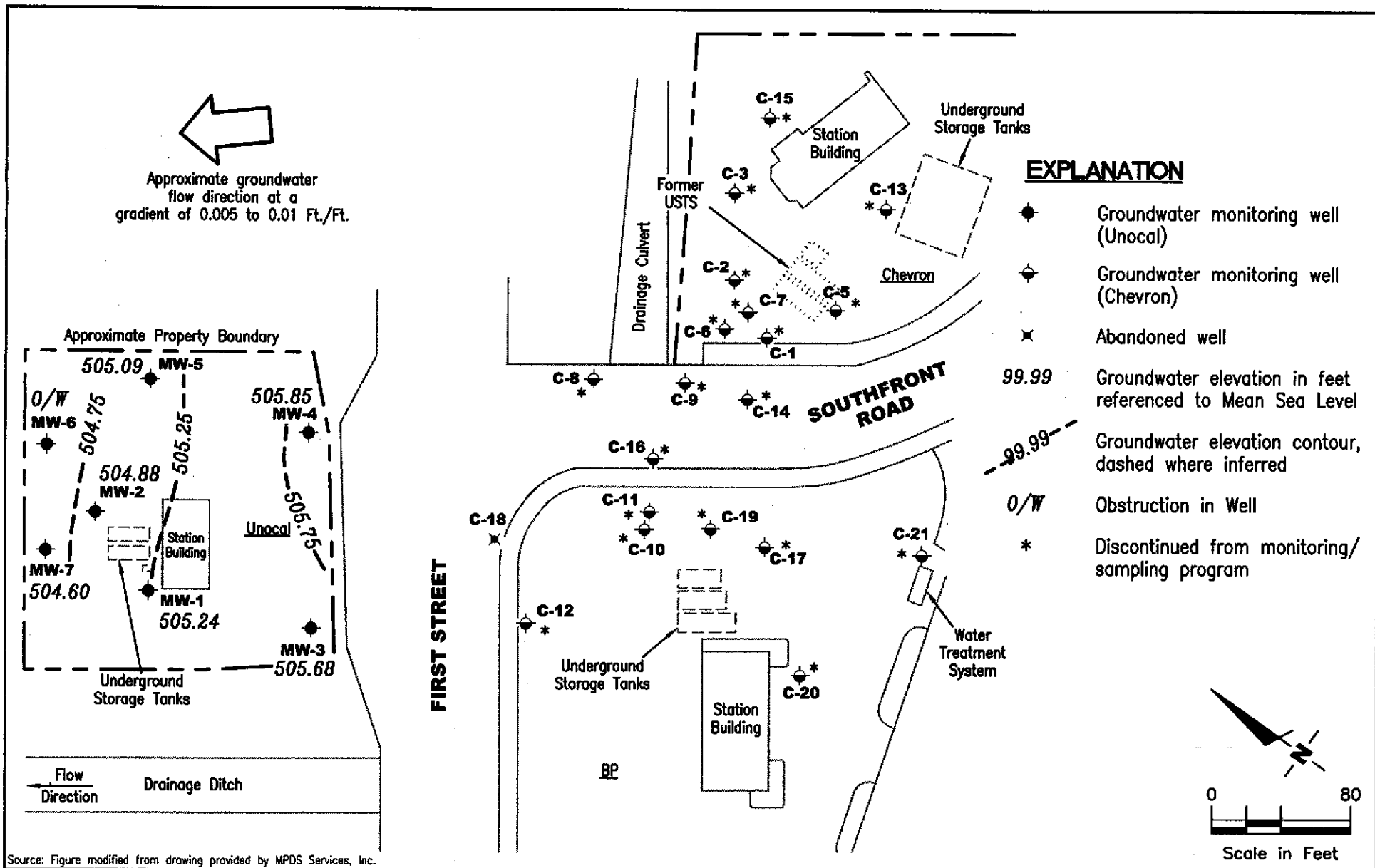
Deanna L. Harding  
Project Coordinator

Douglas J. Lee  
Senior Geologist, R.G. No. 6882



- Figure 1: Potentiometric Map
- Figure 2: Concentration Map
- Table 1: Groundwater Monitoring Data and Analytical Results
- Table 2: Groundwater Analytical Results
- Table 3: Dissolved Oxygen Concentrations
- Table 4: Joint Groundwater Monitoring Data - Chevron Service Station #9-1924
- Attachments: Standard Operating Procedure - Groundwater Sampling  
Field Data Sheets  
Chain of Custody Document and Laboratory Analytical Reports

6034.qml



**GETTLER - RYAN INC.**  
 6747 Sierra Ct., Suite J  
 Dublin, CA 94568 (925) 551-7555

**POTENTIOMETRIC MAP**  
 Tosco (Unocal) Service Station #6034  
 4700 First Street  
 Livermore, California

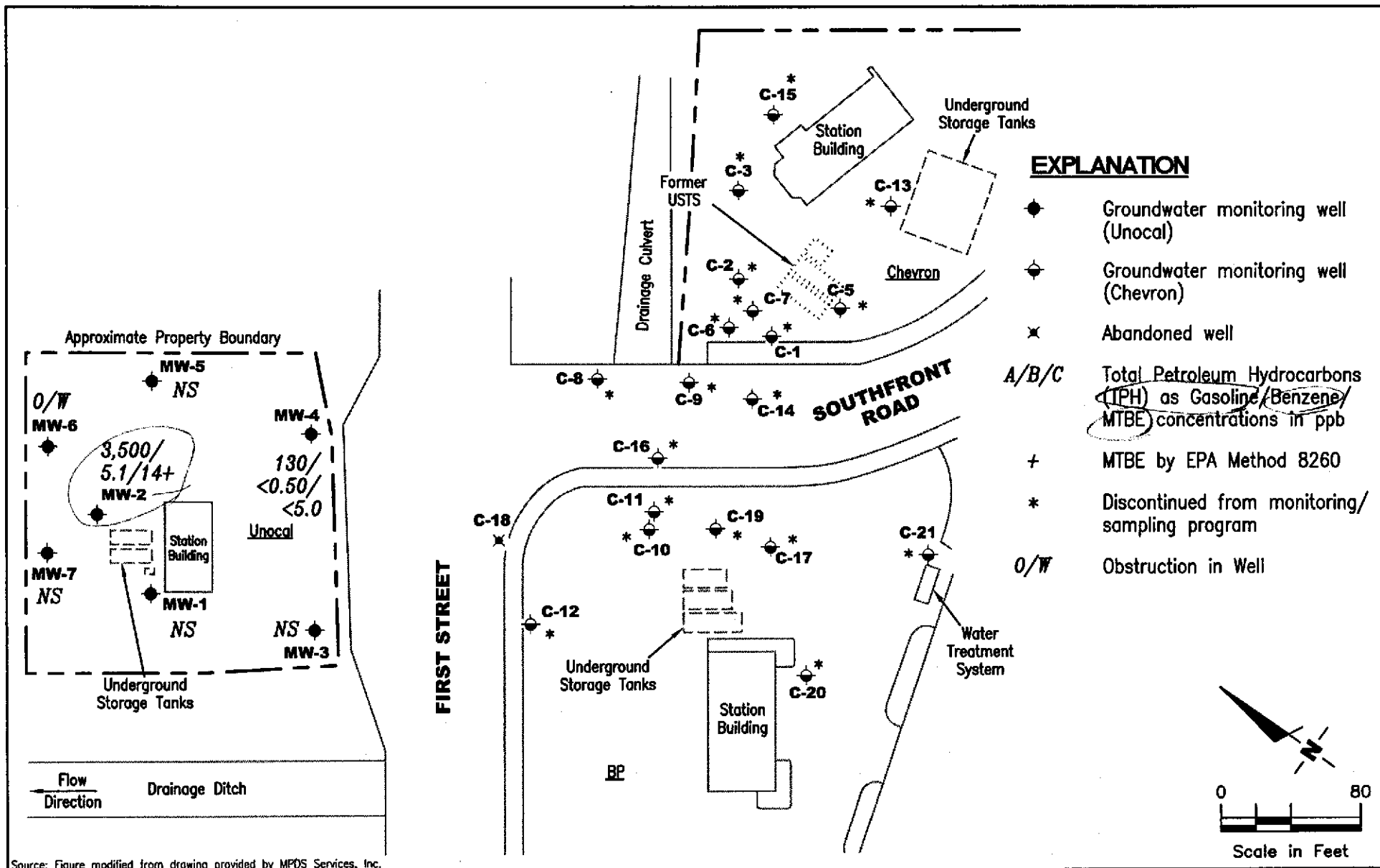
FIGURE  
**1**

PROJECT NUMBER  
 180047

REVIEWED BY

DATE  
 April 1, 2002

REVISED DATE



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 Dublin, CA 94568 (925) 551-7555

**CONCENTRATION MAP**  
 Tosco (Unocal) Service Station #6034  
 4700 First Street  
 Livermore, California

FIGURE

2

PROJECT NUMBER  
 180047

REVIEWED BY

DATE  
 April 1, 2002

REVISED DATE

**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
 Tosco (Unocal) Service Station #6034  
 4700 First Street  
 Livermore, California

WELL ID/ TOC*(f)	DATE	DTW (ft)	S.I. (fl.bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-1	11/18/89 <sup>9</sup>	--	11.0-28.5	--	ND	ND	ND	ND	ND	--
	03/08/90 <sup>10</sup>	--		--	ND	ND	ND	ND	ND	--
	06/05/90 <sup>11</sup>	--		--	ND	ND	ND	ND	ND	--
	09/07/90 <sup>11</sup>	--		--	ND	ND	1.2	ND	ND	--
	12/24/90 <sup>11</sup>	--		--	ND	ND	ND	ND	0.40	--
	04/10/91 <sup>11</sup>	--		--	ND	ND	ND	ND	ND	--
	07/10/91 <sup>11</sup>	--		--	ND	ND	ND	ND	ND	--
	520.88	04/22/93	15.47		505.41	--	--	--	--	--
	07/20/93	18.04		502.84	--	--	--	--	--	--
520.64	10/20/93	15.69		504.95	--	--	--	--	--	--
	01/20/94	15.65		504.99	--	--	--	--	--	--
	04/21/94 <sup>11</sup>	15.58		505.06	ND	ND	ND	ND	ND	--
	07/21/94	15.62		505.02	SAMPLED ANNUALLY		--	--	--	--
	10/19/94	15.28		505.36	--	--	--	--	--	--
	01/18/95	14.56		506.08	--	--	--	--	--	--
	04/17/95 <sup>12</sup>	14.82		505.82	ND	ND	ND	ND	ND	--
	07/18/95	14.78		505.86	--	--	--	--	--	--
	10/17/95	14.83		505.81	--	--	--	--	--	--
	01/17/96	14.96		505.68	--	--	--	--	--	--
	04/17/96 <sup>13</sup>	14.47		506.17	ND	ND	ND	ND	ND	ND
	07/16/96	14.57		506.07	--	--	--	--	--	--
	10/16/96	14.50		506.14	--	--	--	--	--	--
	04/08/97	15.05		505.59	SAMPLING DISCONTINUED		--	--	--	--
	10/06/97	15.00		505.64	--	--	--	--	--	--
	04/02/98	14.80		505.84	--	--	--	--	--	--
	10/07/98	14.72		505.92	--	--	--	--	--	--
	04/14/99	14.89		505.75	--	--	--	--	--	--
	10/12/99	14.79		505.85	--	--	--	--	--	--
	04/10/00	14.93		505.71	--	--	--	--	--	--
	10/02/00	15.18		505.46	--	--	--	--	--	--

**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
 Tosco (Unocal) Service Station #6034  
 4700 First Street  
 Livermore, California

WELL ID/ TOC* (ft)	DATE	DTW (ft.)	S.I. (ft.bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-1	04/02/01	14.72	11.0-28.5	505.92	--	--	--	--	--	--
(cont)	10/05/01	15.51		505.13	--	--	--	--	--	--
	04/01/02	15.40		505.24	--	--	--	--	--	--
<b>MW-2</b>	11/18/89	--	11.0-25.0	--	53,000	540	500	130	22,000	--
	03/08/90	--		--	26,000	230	410	1,300	2,100	--
	06/05/90	--		--	31,000	250	460	950	9,200	--
	09/07/90	--		--	ND	ND	1.5	ND	ND	--
	12/24/90	--		--	32,000	440	340	460	13,000	--
	04/10/91	--		--	22,000	170	190	490	6,200	--
	07/10/91	--		--	14,000	70	160	570	5,400	--
	10/14/91	--		--	11,000	79	130	660	4,700	--
	01/14/92	--		--	5,600	36	120	450	2,600	--
	04/06/92	--		--	760	6.3	2.1	ND	130	--
	07/07/92	--		--	44,000	160	1,100	1,000	17,000	--
	10/16/92	--		--	290	2.3	ND	5.1	15	--
	01/14/93	--		--	19,000	75	430	900	8,400	--
520.17	04/22/93	14.98		505.19	49,000	150	1,000	3,000	18,000	--
	07/20/93	17.41		502.76	25,000	68	94	1,000	6,200	--
519.82	10/20/93	15.08		504.74	12,000	27	10	100	3,000	--
	01/20/94	15.02		504.80	20,000	ND	ND	270	3,300	--
	04/21/94	14.96		504.86	27,000	85	65	880	5,300	--
	07/21/94	14.99		504.83	31,000	58	29	940	6,200	--
	10/19/94	14.80		505.02	4,100	16	3.5	8.6	1,100	--
	01/18/95	14.10		505.72	5,100	6.8	7.3	100	1,500	--
	04/17/95	14.13		505.69	320	1.3	0.67	6.6	74	--
	07/18/95	14.11		505.71	12,000	25	24	550	3,700	--
	10/17/95	14.15		505.67	77,000	60	58	760	8,300	220
	01/17/96	14.35		505.47	7,000	15	ND	150	1,600	370
	04/17/96	13.93		505.89	19,000	ND	ND	600	4,900	6,100
	07/16/96	14.00		505.82	23,000	16	22	900	4,500	410

**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
 Tosco (Unocal) Service Station #6034  
 4700 First Street  
 Livermore, California

WELL ID/ TOC* (ft)	DATE	DTW (ft.)	S.I. (ft.lgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-2	10/16/96	14.12	11.0-25.0	505.70	14,000	28	31	1,600	6,900	9,600
(cont)	01/13/97	--		--	4,300	12	5.0	28	890	1,300
	04/08/97	14.49		505.33	4,700	ND	6.5	170	830	290
	10/06/97	14.41		505.41	5,800	14	ND	19	860	570
	04/02/98	14.26		505.56	24,000	ND <sup>3</sup>	ND <sup>3</sup>	980	5,200	6,800
	10/07/98	14.35		505.47	41,000 <sup>5</sup>	ND <sup>3</sup>	ND <sup>3</sup>	2,100	7,800	3,700/2,700 <sup>6</sup>
	04/14/99	14.54		505.28	720	1.2	ND	29	260	95/57 <sup>6</sup>
	10/12/99	14.50		505.32	2,200 <sup>8</sup>	ND <sup>3</sup>	ND <sup>3</sup>	78	480	52/11 <sup>6</sup>
	04/10/00	14.72		505.10	ND	ND	ND	0.815	2.99	28.5/40.1 <sup>6</sup>
	10/02/00	14.91		504.91	ND	ND	ND	0.71	1.0	9.2/11 <sup>6</sup>
	04/02/01	14.12		505.70	ND	ND	ND	ND	ND	ND/ND <sup>6</sup>
	10/05/01	15.02		504.80	1,300 <sup>5</sup>	4.4	<2.5	29	79	<25/12 <sup>6</sup>
	04/01/02	14.94		504.88	3,500 <sup>5</sup>	5.1	<5.0	120	460	<50/14 <sup>6</sup>
MW-3	11/18/89	--	11.0-25.0	--	ND	0.35	ND	ND	ND	--
	03/08/90	--		--	ND	ND	ND	ND	ND	--
	06/05/90	--		--	ND	ND	ND	ND	ND	--
	09/07/90	--		--	1,100	11	ND	6.6	16	--
	12/24/90	--		--	ND	ND	ND	ND	ND	--
	04/10/91	--		--	ND	ND	ND	ND	ND	--
	07/10/91	--		--	ND	ND	ND	ND	ND	--
	10/14/91	--		--	ND	ND	ND	ND	ND	--
	01/14/92	--		--	ND	ND	ND	ND	ND	--
	04/06/92	--		--	ND	ND	ND	ND	ND	--
	07/07/92	--		--	ND	ND	ND	ND	ND	--
	10/16/92	--		--	ND	ND	ND	ND	ND	--
	01/14/93	--		--	ND	ND	ND	ND	ND	--
519.91	04/22/93	14.33		505.58	ND	ND	ND	ND	ND	--
	07/20/93	16.90		503.01	ND	ND	ND	ND	ND	--
519.66	10/20/93	14.42		505.24	ND	ND	ND	ND	ND	--
	01/20/94	14.37		505.29	SAMPLED ANNUALLY		--	--	--	--

**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
 Tosco (Unocal) Service Station #6034  
 4700 First Street  
 Livermore, California

WELL ID/ TOC* (ft)	DATE	DTW (ft.)	S.I. (ft.bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-3	04/21/94	14.30	11.0-25.0	505.36	ND	ND	ND	ND	ND	--
(cont)	07/21/94	14.34		505.32	SAMPLED SEMI-ANNUALLY		--	--	--	--
	10/19/94	14.08		505.58	ND	ND	0.61	ND	0.51	--
	01/18/95	13.23		506.43	--	--	--	--	--	--
	04/17/95	13.2		506.46	ND	ND	ND	ND	ND	--
	07/18/95	13.19		506.47	--	--	--	--	--	--
	10/17/95	13.24		506.42	ND	ND	ND	ND	ND	ND
	01/17/96	13.68		505.98	SAMPLED ANNUALLY <sup>2</sup>		--	--	--	--
	04/17/96	13.04		506.62	ND	ND	ND	ND	ND	ND
	07/16/96	13.24		506.42	--	--	--	--	--	--
	10/16/96	13.10		506.56	--	--	--	--	--	--
	04/08/97	13.73		505.93	SAMPLING DISCONTINUED		--	--	--	--
	10/06/97	13.70		505.96	--	--	--	--	--	--
	04/02/98	13.43		506.23	--	--	--	--	--	--
	10/07/98	13.33		506.33	--	--	--	--	--	--
	04/14/99	13.47		506.19	--	--	--	--	--	--
	10/12/99	13.38		506.28	--	--	--	--	--	--
	04/10/00	13.51		506.15	--	--	--	--	--	--
	10/02/00	13.62		506.04	--	--	--	--	--	--
	04/02/01	13.38		506.28	--	--	--	--	--	--
	10/05/01	14.10		505.56	--	--	--	--	--	--
	04/01/02	13.98		505.68	--	--	--	--	--	--
MW-4	11/18/89	--	11.0-25.0	--	990	9.8	10	7.1	4.7	--
	03/08/90	--		--	1,200	18	8.4	37	28	--
	06/05/90	--		--	1,400	1.2	4.7	24	12	--
	09/07/90	--		--	15,000	100	140	210	4,600	--
	12/24/90	--		--	1,400	ND	8.7	15	10	--
	04/10/91	--		--	950	0.84	4.3	9.6	5.0	--
	07/10/91	--		--	830	8.4	19	7.7	7.2	--
	10/14/91	--		--	880	3.8	2.2	8.6	5.8	--



**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
 Tosco (Unocal) Service Station #6034  
 4700 First Street  
 Livermore, California

WELL ID/ TOC*(ft)	DATE	DTW (ft.)	S.I. (ft/lgs)	GWE (mst)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)	
MW-4	01/14/92	--	11.0-25.0	--	1,500	4.2	7.1	18	9.2	--	
(cont)	04/06/92	--		--	660	1.3	3.8	2.9	4.1	--	
	07/07/92	--		--	340	ND	2.2	2.4	2.4	--	
	10/16/92	--		--	300	2.1	ND	4.8	13	--	
	01/14/93	--		--	920	ND	6.3	12	3.9	--	
520.12	04/22/93	14.30		505.82	1,100	8.8	1.0	7.2	6.0	--	
	07/20/93	16.35		503.77	NOT SAMPLED - SAMPLING ACCESS DENIED			--	--	--	
519.61	10/20/93	14.16		505.45	640	ND	2.5	2.3	1.9	--	
	01/20/94	14.15		505.46	1,200	ND	2.6	4.7	7.4	--	
	04/21/94	14.13		505.48	380	0.83	1.2	1.2	1.7	--	
	07/21/94	14.26		505.35	320	0.51	1.4	1.0	1.6	--	
	10/19/94	13.95		505.66	750	ND	3.6	4.2	3.4	--	
	01/18/95	13.16		506.45	790	1.5	3.3	1.2	2.6	--	
	04/17/95	13.19		506.42	570	2.8	ND	3.3	3.9	--	
	07/18/95	13.21		506.40	340	1.0	1.9	2.8	2.7	--	
	10/17/95	13.22		506.39	260	1.1	0.57	0.69	1.6	2.0	
	01/17/96	13.02		506.59	SAMPLED SEMI-ANNUALLY			--	--	--	--
	04/17/96	13.08		506.53	720	3.0	2.6	6.1	6.9	ND	
	07/16/96	12.91		506.70	--	--	--	--	--	--	
	10/16/96	12.98		506.63	1,100	6.6	23	24	85	15	
	01/13/97	--		--	--	--	--	--	--	--	
	04/08/97	13.36		506.25	470	1.2	1.9	1.2	6.9	ND	
	10/06/97	13.42		506.19	240	ND	0.85	0.83	2.3	ND	
	04/02/98	12.76		506.85	270 <sup>4</sup>	ND <sup>3</sup>	1.2	ND <sup>3</sup>	4.5	10	
	10/07/98	13.04		506.57	350 <sup>7</sup>	ND	ND	ND	4.8	ND	
	04/14/99	13.21		506.40	250 <sup>7</sup>	1.6	ND	3.1	5.6	ND/16 <sup>6</sup>	
	10/12/99	13.16		506.45	200 <sup>7</sup>	1.4	ND	2.3	3.9	ND	
	04/10/00	13.48		506.13	52.8 <sup>7</sup>	ND	ND	ND	ND	ND	
	10/02/00	13.25		506.36	57 <sup>8</sup>	ND	ND	0.50	0.90	30	
	04/02/01	13.11		506.50	ND	ND	ND	ND	ND	ND	
	10/05/01	14.04		505.57	150 <sup>7</sup>	<0.50	<0.50	<0.50	<0.50	<5.0	
	04/01/02	13.76		505.85	130 <sup>7</sup>	<0.50	<0.50	<0.50	<0.50	<5.0	

**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
 Tosco (Unocal) Service Station #6034  
 4700 First Street  
 Livermore, California

WELL ID/ TOC*(ft)	DATE	DTW (ft.)	S.I. (ft.bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)	
MW-5	04/10/91	--	10.0-24.0	--	630	35	14	47	30	--	
	07/10/91	--		--	220	5.1	8.7	9.1	9.7	--	
	10/14/91	--		--	660	55	4.4	50	66	--	
	01/14/92	--		--	99	1.0	1.2	ND	0.32	1.2	
	04/06/92	--		--	240 <sup>1</sup>	ND	ND	0.35	ND	--	
	07/07/92	--		--	76	0.48	1.1	0.32	1.3	1.5	
	10/16/92	--		--	180	7.8	1.1	17	6.4	2.0	
	01/14/93	--		--	91	ND	0.53	1.2	11	--	
520.58	04/22/93	15.24		505.34	94	1.2	ND	ND	1.3	0.82	
	07/20/93	17.38		503.20	89	1.1	0.51	ND	1.8	2.2	
520.27	10/20/93	15.56		504.71	110	0.8	ND	ND	ND	--	
	01/20/94	15.39		504.88	ND	ND	ND	ND	ND	--	
	04/21/94	15.41		504.86	ND	ND	ND	ND	ND	--	
	07/21/94	15.55		504.72	ND	ND	ND	ND	ND	--	
	10/19/94	15.20		505.07	ND	ND	0.71	ND	0.57	--	
	01/18/95	14.52		505.75	ND	ND	ND	ND	ND	--	
	04/17/95	14.50		505.77	ND	ND	ND	ND	ND	--	
	07/18/95	14.41		505.86	ND	ND	ND	ND	1.1	--	
	10/17/95	14.46		505.81	ND	ND	ND	ND	ND	ND	
	01/17/96	14.48		505.79	SAMPLED ANNUALLY <sup>2</sup>		--	--	--	--	--
	04/17/96	14.22		506.05	ND	ND	ND	ND	ND	ND	
	07/16/96	14.27		506.00	--	--	--	--	--	--	
	10/16/96	14.15		506.12	--	--	--	--	--	--	
	04/08/97	14.71		505.56	SAMPLING DISCONTINUED		--	--	--	--	
	10/06/97	14.71		505.56	--	--	--	--	--	--	
	04/02/98	14.28		505.99	--	--	--	--	--	--	
	10/07/98	14.40		505.87	--	--	--	--	--	--	
	04/14/99	14.63		505.64	--	--	--	--	--	--	
10/12/99	14.48		505.79	--	--	--	--	--	--		
04/10/00	14.76		505.51	--	--	--	--	--	--		

**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
 Tosco (Unocal) Service Station #6034  
 4700 First Street  
 Livermore, California

WELL ID/ TOC*(ft)	DATE	DTW (ft.)	S.I. (ft.bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-5	10/02/00	14.65	10.0-24.0	505.62	--	--	--	--	--	--
(cont)	04/02/01	14.20		506.07	--	--	--	--	--	--
	10/05/01	15.47		504.80	--	--	--	--	--	--
	04/01/02	15.18		505.09	--	--	--	--	--	--
MW-6	04/10/91	--	10.0-24.0	--	ND	ND	ND	ND	ND	--
	07/10/91	--		--	ND	ND	ND	ND	ND	--
	10/14/91	--		--	ND	ND	ND	ND	ND	--
	01/14/92	--		--	ND	ND	ND	ND	ND	--
	04/06/92	--		--	ND	ND	ND	ND	ND	--
	07/07/92	--		--	ND	ND	ND	ND	ND	--
	10/16/92	OBSTRUCTED		--	--	--	--	--	--	--
	01/14/93	OBSTRUCTED		--	--	--	--	--	--	--
519.34	04/22/93	OBSTRUCTED		--	--	--	--	--	--	--
	07/20/93	OBSTRUCTED		--	--	--	--	--	--	--
518.75	10/20/93	14.20		504.55	ND	ND	ND	ND	ND	--
	01/20/94	14.14		504.61	ND	ND	ND	ND	ND	--
	04/21/94	14.10		504.65	ND	ND	ND	ND	ND	--
	07/21/94	14.12		504.63	ND	ND	ND	ND	ND	--
	10/19/94	OBSTRUCTED BY ROOTS		--	--	--	--	--	--	--
	01/18/95	OBSTRUCTED BY ROOTS		--	--	--	--	--	--	--
	04/17/95	13.82		504.93	ND	ND	ND	ND	ND	--
	07/18/95	13.84		504.91	ND	ND	ND	ND	ND	--
	10/17/95	13.90		504.85	ND	ND	ND	ND	ND	2.2
	01/17/96	OBSTRUCTED BY ROOTS		--	SAMPLED ANNUALLY <sup>2</sup>	--	--	--	--	--
	04/17/96	13.66		505.09	ND	ND	ND	ND	ND	ND
	07/16/96	OBSTRUCTED BY ROOTS		--	--	--	--	--	--	--

**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
 Tosco (Unocal) Service Station #6034  
 4700 First Street  
 Livermore, California

WELL ID/ TOC*(f)	DATE	DTW (ft.)	S.I. (ft.bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-6	10/16/96	13.72	10.0-24.0	505.03	--	--	--	--	--	--
(cont)	04/08/97	OBSTRUCTED BY ROOTS			--	--	--	--	--	--
	10/06/97	OBSTRUCTED BY ROOTS			--	--	--	--	--	--
	04/02/98	OBSTRUCTED BY ROOTS			--	--	--	--	--	--
	10/07/98	OBSTRUCTED BY ROOTS			--	--	--	--	--	--
	04/14/99	13.82		504.93	--	--	--	--	--	--
	10/12/99	13.72		505.03	--	--	--	--	--	--
	04/10/00	13.40		505.35	--	--	--	--	--	--
	10/02/00	13.63		505.12	--	--	--	--	--	--
	04/02/01	13.31		505.44	--	--	--	--	--	--
	10/05/01	OBSTRUCTION IN WELL		--	--	--	--	--	--	--
	04/01/02	OBSTRUCTION IN WELL		--	--	--	--	--	--	--
MW-7	04/10/91	--	10.0-24.0	--	ND	ND	ND	ND	ND	--
	07/10/91	--		--	ND	ND	ND	ND	ND	--
	10/14/91	--		--	ND	ND	ND	ND	ND	--
	01/14/92	--		--	ND	ND	ND	ND	ND	--
	4/06/92	--		--	ND	ND	ND	ND	ND	--
	07/07/92	--		--	ND	ND	ND	ND	ND	--
	10/16/92	--		--	ND	ND	ND	ND	ND	--
	01/14/93	--		--	ND	ND	ND	ND	ND	--
519.37	04/22/93	14.25		505.12	ND	ND	ND	ND	ND	--
	07/20/93	16.68		502.69	ND	ND	ND	ND	ND	--
518.83	10/20/93	14.29		504.54	ND	ND	ND	ND	ND	--
	01/20/94	14.22		504.61	ND	ND	ND	ND	ND	--
	04/21/94	14.17		504.66	ND	ND	ND	ND	ND	--
	07/21/94	14.21		504.62	ND	ND	ND	ND	ND	--
	10/19/94	14.05		504.78	ND	ND	0.87	ND	0.61	--
	01/18/95	13.34		505.49	ND	ND	ND	ND	ND	--
	04/17/95	13.38		505.45	ND	ND	ND	ND	ND	--
	07/18/95	13.36		505.47	ND	ND	ND	ND	ND	--

**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
 Tosco (Unocal) Service Station #6034  
 4700 First Street  
 Livermore, California

WELL ID/ TOC* (ft)	DATE	DTW (ft.)	S.I. (ft.bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-7	10/17/95	13.41	10.0-24.0	505.42	ND	ND	ND	ND	ND	3.5
(cont)	01/17/96	13.56		505.27	SAMPLED ANNUALLY <sup>2</sup>		--	--	--	--
	04/17/96	13.21		505.62	ND	ND	ND	ND	ND	ND
	07/16/96	13.22		505.61	--	--	--	--	--	--
	10/16/96	13.58		505.25	--	--	--	--	--	--
	04/08/97	13.73		505.10	SAMPLING DISCONTINUED		--	--	--	--
	10/06/97	13.65		505.18	--	--	--	--	--	--
	04/02/98	13.55		505.28	--	--	--	--	--	--
	10/07/98	13.64		505.19	--	--	--	--	--	--
	04/14/99	13.75		505.08	--	--	--	--	--	--
	10/12/99	13.61		505.22	--	--	--	--	--	--
	04/10/00	13.85		504.98	--	--	--	--	--	--
	10/02/00	14.19		504.64	--	--	--	--	--	--
	04/02/01	13.86		504.97	SAMPLING DISCONTINUED		--	--	--	--
	10/05/01	14.30		504.53	--	--	--	--	--	--
	04/01/02	14.23		504.60	--	--	--	--	--	--
<b>Trip Blank</b>										
TB-LB	04/02/98	--	--	--	ND	ND	ND	ND	ND	ND
	10/07/98	--	--	--	ND	ND	ND	ND	ND	ND
	04/14/99	--	--	--	ND	ND	ND	ND	ND	ND
	10/12/99	--	--	--	ND	ND	ND	ND	ND	ND
	04/10/00	--	--	--	ND	ND	ND	ND	ND	ND
	10/02/00	--	--	--	ND	ND	ND	ND	ND	ND
	04/02/01	--	--	--	ND	ND	ND	ND	ND	ND
	10/05/01	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	<5.0
	04/01/02	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	<5.0

**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
 Tosco (Unocal) Service Station #6034  
 4700 First Street  
 Livermore, California

**EXPLANATIONS:**

Groundwater monitoring data and laboratory analytical results prior to April 2, 1998, were compiled from reports prepared by MPDS Services, Inc.

TOC = Top of Casing

DTW = Depth to Water

(ft.) = Feet

S.I. = Screen Interval

(ft.bgs) = Feet Below Ground Surface

GWE = Groundwater Elevation

(msl) = Mean sea level

TPH-G = Total Petroleum Hydrocarbons as Gasoline

B = Benzene

T = Toluene

E = Ethylbenzene

X = Xylenes

MTBE = Methyl tertiary butyl ether

(ppb) = Parts per billion

ND = Not Detected

-- = Not Measured/Not Analyzed

\* TOC elevations are relative to msl, per the City of Livermore Benchmark No. C-18-5 (Elevation = 551.77 feet msl). Prior to October 20, 1998, DTW measurements were taken from the top of the well covers.

<sup>1</sup> Laboratory report indicates the hydrocarbons detected did not appear to be gasoline.

<sup>2</sup> Annual sampling beginning April, 1996.

<sup>3</sup> Detection limit raised. Refer to analytical reports.

<sup>4</sup> Laboratory report indicates gasoline and unidentified hydrocarbons <C7.

<sup>5</sup> Laboratory report indicates weathered gasoline C6-C12.

<sup>6</sup> MTBE by EPA Method 8260.

<sup>7</sup> Laboratory report indicates unidentified hydrocarbons C6-C12.

<sup>8</sup> Laboratory report indicates gasoline C6-C12.

<sup>9</sup> Laboratory report indicates Total Oil & Grease (TOG) at 3.1 ppm, Trichloroethene (TCE) at 0.55 ppb, and Chloroform was ND.

<sup>10</sup> Laboratory report indicates TOG at 4.7 ppm, TCE and Chloroform were ND.

<sup>11</sup> Laboratory report indicates TOG, TCE and Chloroform were ND.

<sup>12</sup> Laboratory report indicates TPH-Diesel (TPH-D), TOG, and TCE were ND, and Chloroform was 0.69 ppb.

<sup>13</sup> Laboratory report indicates TPH-D at 100 ppb, and TOG, TCE and Chloroform were ND.

**Table 2**  
**Groundwater Analytical Results - Oxygenate Compounds**  
 Tosco (Unocal) Service Station #6034  
 4700 First Street  
 Livermore, California

WELL ID	DATE	ETHANOL (ppb)	TBA (ppb)	MTBE (ppb)	DIPE (ppb)	ETBE (ppb)	TAME (ppb)	1,2-DCA (ppb)	EDB (ppb)
MW-2	04/14/99	ND	ND	57	ND	ND	ND	ND/ND <sup>1</sup>	ND/ND <sup>1</sup>
	10/12/99	ND	ND	11	ND	ND	ND	--	--
	04/10/00	ND	ND	40.1	ND	ND	ND	ND	ND
	10/02/00	ND	ND	11	ND	ND	ND	ND	ND
	04/02/01	ND	ND	ND	ND	ND	ND	ND	ND
	10/05/01	<1,000	<100	12	<2.0	<2.0	<2.0	<2.0	<2.0
	04/01/02	<500	<100	14	<2.0	<2.0	<2.0	<2.0	<2.0
MW-4	04/14/99	ND	ND	16	ND	ND	ND	ND/ND <sup>1</sup>	ND/ND <sup>1</sup>

**EXPLANATIONS:**

TBA = Tertiary butyl alcohol  
 MTBE = Methyl tertiary butyl ether  
 DIPE = Di-isopropyl ether  
 ETBE = Ethyl tertiary butyl ether  
 TAME = Tertiary amyl methyl ether  
 1,2-DCA = 1,2-Dichloroethane  
 EDB = 1,2-Dibromomethane  
 (ppb) = Parts per billion  
 ND = Not Detected  
 -- = Not Analyzed

<sup>1</sup> Halogenated Volatile Organics Compounds (HVOCs) by EPA Method 8010.

**ANALYTICAL METHOD:**

EPA Method 8260 for Oxygenate Compounds

**Table 3**  
**Dissolved Oxygen Concentrations**  
 Tosco (Unocal) Service Station #6034  
 4700 First Street  
 Livermore, California

WELL ID	DATE	Before Purging (mg/L)	After Purging (mg/L)
MW-1	07/16/96	4.24	4.28
MW-2	07/18/95	--	4.22
	10/17/95	--	3.96
	01/17/96	--	5.25
	04/17/96	--	2.59
	07/16/96	4.46	4.35
	10/16/96	3.87	2.92
	01/13/97	4.76	--
	04/08/97	3.76	3.42
	10/06/97	4.13	3.59
	04/02/98	6.32	3.16
	10/07/98 <sup>1</sup>	3.85	--
	04/14/99	3.14	--
	10/12/99	2.96	--
	04/10/00	3.47	--
	10/02/00	3.77	--
	04/02/01	3.95	--
10/05/01	2.89	--	
04/01/02	3.15	--	
MW-3	07/16/96	4.19	4.20
MW-4	07/16/96	4.25	4.30
	01/13/97	4.97	--
MW-5	07/16/96	4.18	4.21
MW-6	07/16/96	OBSTRUCTED BY ROOTS	--
MW-7	07/16/96	4.20	4.19

**EXPLANATIONS:**

Dissolved oxygen concentrations prior to April 2, 1998, were compiled from reports prepared by MPDS Services, Inc.

(mg/L) = Milligrams per liter

-- = Not Measured

<sup>1</sup> ORC removed from well.



**Table 4**  
**Joint Groundwater Monitoring Data**  
Chevron Service Station #9-1924  
4904 South Front Road  
Livermore, California

WELL ID/ TOC*(ft)	DATE	DTW (ft.)	GWE (msl)
<b>C-1</b>			
520.39	04/17/95	11.81	508.58
	07/18/95	12.12	508.27
	10/17/95	12.58	507.81
	04/17/96	10.87	509.52
	07/16/96	11.38	509.01
	10/16/96	11.81	508.58
<b>C-2</b>			
520.76	04/17/95	12.04	508.72
	07/18/95	12.42	508.34
	10/17/95	12.79	507.97
	04/17/96	11.27	509.49
	07/16/96	11.95	508.81
	10/16/96	12.40	508.36
	10/07/98	11.54	509.22
	04/14/99	11.41	509.35
<b>C-3</b>			
521.31	07/18/95	12.89	508.42
	10/17/95	13.26	508.05
<b>C-5</b>			
520.82	04/17/95	12.17	508.65
	07/18/95	12.31	508.51
	10/17/95	12.46	508.36
	04/17/96	11.11	509.71
	07/16/96	11.42	509.40
	10/16/96	12.00	508.82
	10/07/98	11.04	509.78
	04/14/99	11.29	509.53
<b>C-6</b>			
519.62	04/17/95	11.27	508.35
	07/18/95	11.46	508.16
	10/17/95	11.98	507.64
	04/17/96	10.47	509.15
	07/16/96	10.97	508.65
	10/16/96	11.50	508.12
	10/07/98	10.91	508.71
	04/14/99	10.85	508.77

**Table 4**  
**Joint Groundwater Monitoring Data**  
Chevron Service Station #9-1924  
4904 South Front Road  
Livermore, California

WELL ID/ TOC* (ft)	DATE	DTW (ft)	GWE (msl)
<b>C-7</b>			
520.30	04/17/95	11.74	508.56
	07/18/95	11.98	508.32
	10/17/95	12.48	507.82
	04/17/96	10.96	509.34
	07/16/96	11.51	508.79
	10/16/96	12.00	508.30
<b>C-8</b>			
519.74	04/17/95	DRY	--
	07/18/95	DRY	--
	10/17/95	12.20	507.54
	04/17/96	10.87	508.87
	07/16/96	11.48	508.26
	10/16/96	11.96	507.78
<b>C-9</b>			
519.72	04/17/95	11.31	508.41
	07/18/95	11.66	508.06
	10/17/95	11.73	507.99
	04/17/96	10.05	509.67
	07/16/96	10.92	508.80
	10/16/96	11.30	508.42
	10/07/98	10.85	508.87
	04/14/99	10.83	508.89
<b>C-10</b>			
520.41	04/17/95	13.54	506.87
	07/18/95	13.44	506.97
	10/17/95	13.78	506.63
	04/17/96	13.18	507.23
	07/16/96	13.11	507.30
	10/16/96	13.50	506.91
<b>C-11</b>			
520.04	04/17/95	13.01	507.03
	07/18/95	13.00	507.04
	10/17/95	13.32	506.72
	04/17/96	12.48	507.56

**Table 4**  
**Joint Groundwater Monitoring Data**  
Chevron Service Station #9-1924  
4904 South Front Road  
Livermore, California

WELL ID/ TOC*(ft)	DATE	DTW (ft.)	GWE (msl)
C-11 (cont)	07/16/96	12.67	507.37
	10/16/96	13.05	506.99
	10/07/98	12.68	507.36
	04/14/99	13.11	506.84
C-12 519.82	07/18/95	13.12	506.70
	10/17/95	13.52	506.30
C-13 522.24	07/18/95	13.33	508.91
	10/17/95	13.78	508.46
C-14 520.08	04/17/95	DRY	--
	07/18/95	DRY	--
	10/17/95	12.44	507.64
	04/17/96	12.17	507.91
	07/16/96	11.53	508.55
	10/16/96	12.10	507.98
	10/07/98	11.81	508.27
	04/14/99	11.93	508.15
C-15 522.41	07/18/95	13.80	508.61
	10/17/95	14.26	508.15
C-16	04/17/95	INACCESSIBLE - PAVED OVER	--
	07/18/95	INACCESSIBLE - PAVED OVER	--
	10/17/95	--	--
	04/17/96	INACCESSIBLE - PAVED OVER	--
	07/16/96	INACCESSIBLE - PAVED OVER	--
	10/16/96	INACCESSIBLE - UNABLE TO LOCATE	--
C-17 520.82	04/17/95	13.25	507.57
	07/18/95	13.44	507.38
	10/17/95	13.50	507.32
	04/17/96	12.70	508.12

**Table 4**  
**Joint Groundwater Monitoring Data**  
Chevron Service Station #9-1924  
4904 South Front Road  
Livermore, California

WELL ID/ TOC* (ft)	DATE	DTW (ft.)	GWE (msl)
C-17 (cont)	07/16/96	12.67	508.15
	10/16/96	13.70	507.12
	10/07/98	12.93	507.89
	04/14/99	13.05	507.48
C-18	04/17/95	ABANDONED	--
C-19 518.96	04/17/95	13.80	505.16
	07/18/95	13.72	505.24
	10/17/95	14.10	504.86
	04/17/96	13.40	505.56
	07/16/96	13.47	505.49
	10/16/96	13.83	505.13
	10/07/98	13.09	505.87
	04/14/99	INACCESSIBLE	--
C-20 520.67	07/16/96	12.93	507.74
	10/16/96	13.24	507.43
	10/07/98	12.68	507.99
	04/14/99	13.30	507.37
C-21 519.64	07/16/96	11.40	508.24
	10/16/96	11.47	508.17

**EXPLANATIONS:**

Groundwater monitoring data provided by Blaine Tech Services, Inc.

TOC = Top of Casing

DTW = Depth to Water

(ft.) = Feet

GWE = Groundwater Elevation

(msl) = Mean sea level

-- = Not Measured

\* TOC elevations were surveyed relative to msl.

## STANDARD OPERATING PROCEDURE - GROUNDWATER SAMPLING

Gettler-Ryan Inc. field personnel adhere to the following procedures for the collection and handling of groundwater samples prior to analysis by the analytical laboratory. Prior to sample collection, the type of analysis to be performed is determined. Loss prevention of volatile compounds is controlled and sample preservation for subsequent analysis is maintained.

Prior to sampling, the presence or absence of free-phase hydrocarbons is determined using an interface probe. Product thickness, if present, is measured to the nearest 0.01 foot and is noted in the field notes. In addition, static water level measurements are collected with the interface probe and are also recorded in the field notes.

After water levels are collected and prior to sampling, temperature, pH and electrical conductivity are measured. If purging is to occur, each well is purged a minimum of three well casing volumes of water using pre-cleaned pumps (stack, suction, Grundfos), or polyvinyl chloride bailers. The measurements are taken a minimum of three times during the purging. Purging continues until these parameters stabilize.

Groundwater samples are collected using disposable bailers. The water samples are transferred from the bailer into appropriate containers. Pre-preserved containers, supplied by analytical laboratories, are used when possible. When pre-preserved containers are not available, the laboratory is instructed to preserve the sample as appropriate. Duplicate samples are collected for the laboratory to use in maintaining quality assurance/quality control standards. The samples are labeled to include the job number, sample identification, collection date and time, analysis, preservation (if any), and the sample collector's initials. The water samples are placed in a cooler, maintained at 4°C for transport to the laboratory. Once collected in the field, all samples are maintained under chain of custody until delivered to the laboratory.

The chain of custody document includes the job number, type of preservation, if any, analysis requested, sample identification, date and time collected, and the sample collector's name. The chain of custody is signed and dated (including time of transfer) by each person who receives or surrenders the samples, beginning with the field personnel and ending with the laboratory personnel.

A laboratory supplied trip blank accompanies each sampling set. For sampling sets greater than 20 samples, 5% trip blanks are included. The trip blank is analyzed for some or all of the same compounds as the groundwater samples.

As requested by Phillips 66 Company, the purge water and decontamination water generated during sampling activities is transported to Phillips 66 - San Francisco Refinery, located in Rodeo, California.

**WELL MONITORING/SAMPLING  
FIELD DATA SHEET.**

Client/Facility# Tosco # 6034 Job#: 180047.85  
 Address: 4700 First Street Date: 4/1/02  
 City: Livermore, CA Sampler: Verton

Well ID MW-1 Well Condition: oa  
 Well Diameter 2 in. Hydrocarbon Thickness: 0.00 (feet) Amount Bailed (product/water): 0 (Gallons)  
 Total Depth 27.90 ft.  
 Depth to Water 15.40 ft.

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.80	

     X VF      =      X 3 (case volume) = Estimated Purge Volume:      (gal.)

Purge Equipment: Disposable Bailer Bailer Stack Suction Grundfos Other:       
 Sampling Equipment: Disposable Bailer Bailer Pressure Bailer Grab Sample Other:     

Starting Time:      Weather Conditions:       
 Sampling Time:      Water Color:      Odor:       
 Purging Flow Rate:      gpm. Sediment Description:       
 Did well de-water?      If yes; Time:      Volume:      (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

**LABORATORY INFORMATION**

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
	X VOA VIAL	Y	HCL	SEQUOIA	TPH(G)/btex/mtbe

COMMENTS: Monitor only

**WELL MONITORING/SAMPLING  
FIELD DATA SHEET.**

Client/  
Facility # Tosco # 6034  
Address: 4700 First Street  
City: Livermore, CA

Job#: 180047.85  
Date: 4/1/02  
Sampler: Vetter

Well ID MW-2

Well Condition: OK

Well Diameter 2 in.

Hydrocarbon Thickness: 0.00 (feet) Amount Bailed (product/water): 0 (Gallons)

Total Depth 2565 ft.

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.80	

Depth to Water 14.94 ft.

10.71 x VF 0.17 = 1.82 x 3 (case volume) = Estimated Purge Volume: 5.5 (gal.)

Purge Equipment: Disposable Bailer  
Bailer  
Stack  
Suction  
Grundfos  
Other: \_\_\_\_\_

Sampling Equipment: Disposable Bailer  
Bailer  
Pressure Bailer  
Grab Sample  
Other: \_\_\_\_\_

Starting Time: 1015

Weather Conditions: Clear

Sampling Time: 1035

Water Color: hrr. Odor: mild

Purging Flow Rate: \_\_\_\_\_ gpm.

Sediment Description: light silt

Did well de-water? no

If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>1020</u>	<u>2</u>	<u>7.37</u>	<u>810</u>	<u>67.1</u>	<u>3.15</u>		
<u>1026</u>	<u>4</u>	<u>7.24</u>	<u>808</u>	<u>66.7</u>			
<u>1030</u>	<u>5.5</u>	<u>7.20</u>	<u>804</u>	<u>66.8</u>			
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-2</u>	<u>5 X VOA VIAL</u>	<u>Y</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>TPHIG)/btex/mtbe + 8oxy's</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

COMMENTS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**WELL MONITORING/SAMPLING  
FIELD DATA SHEET.**

Client/  
Facility # Tosco # 6034  
Address: 4700 First Street  
City: Livermore, CA

Job#: 180047.85  
Date: 4/1/02  
Sampler: Vactran

Well ID MW-3  
Well Diameter 2 in.  
Total Depth 25.45 ft.  
Depth to Water 13.98 ft.

Well Condition: on  
Hydrocarbon Thickness: 0.22 (feet) Amount Bailed (product/water): 0 (Gallons)  
Volume Factor (VF) 2" = 0.17 3" = 0.38 4" = 0.66  
6" = 1.50 12" = 5.80

1 X VF 1 = 1 X 3 (case volume) = Estimated Purge Volume: 3 (gal.)

Purge Equipment: Disposable Bailer  
Bailer  
Stack  
Suction  
Grundfos  
Other: \_\_\_\_\_

Sampling Equipment: Disposable Bailer  
Bailer  
Pressure Bailer  
Grab Sample  
Other: \_\_\_\_\_

Starting Time: \_\_\_\_\_  
Sampling Time: \_\_\_\_\_  
Purging Flow Rate: \_\_\_\_\_ gpm.  
Did well de-water? \_\_\_\_\_

Weather Conditions: \_\_\_\_\_  
Water Color: \_\_\_\_\_ Odor: \_\_\_\_\_  
Sediment Description: \_\_\_\_\_  
If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
	X VOA VIAL	Y	HCL	SEQUOIA	TPH(G)/bTEX/mtbe

COMMENTS: Monitor only



**WELL MONITORING/SAMPLING  
FIELD DATA SHEET.**

Client/Facility # Tosco # 6034 Job#: 180047.85  
 Address: 4700 First Street Date: 4/1/02  
 City: Livermore, CA Sampler: Vantler

Well ID MW-4 Well Condition: OK  
 Well Diameter 2 in. Hydrocarbon Thickness: 0.00 (feet) Amount Bailed (Gallons) 0  
 Total Depth 25.50 ft. Volume 2" = 0.17 3" = 0.38 4" = 0.66  
 Depth to Water 13.76 ft. Factor (VF) 6" = 1.50 12" = 5.80

11.74 x VF 0.17 = 1.99 x 3 (case volume) = Estimated Purge Volume: 6 (gal.)

Purge Equipment: Disposable Bailer  
 Bailer  
 Stack  
 Suction  
 Grundfos  
 Other: \_\_\_\_\_

Sampling Equipment: Disposable Bailer  
 Bailer  
 Pressure Bailer  
 Grab Sample  
 Other: \_\_\_\_\_

Starting Time: 0935 Weather Conditions: clear  
 Sampling Time: 0956 Water Color: light gray Odor: Mild  
 Purging Flow Rate: \_\_\_\_\_ gpm. Sediment Description: silt (light)  
 Did well de-water? no If yes: Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>0941</u>	<u>2</u>	<u>7.63</u>	<u>704</u>	<u>67.6</u>			
<u>0946</u>	<u>4</u>	<u>7.47</u>	<u>695</u>	<u>68.1</u>			
<u>0951</u>	<u>6</u>	<u>7.42</u>	<u>690</u>	<u>68.3</u>			
_____	_____	_____	_____	_____	_____	_____	_____

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-4</u>	<u>3 X VOA VIAL</u>	<u>Y</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>TPHIG)/btex/mtbe</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**WELL MONITORING/SAMPLING  
FIELD DATA SHEET.**

Client/Facility # Tosco # 6034 Job#: 180047.85  
 Address: 4700 First Street Date: 4/1/02  
 City: Livermore, CA Sampler: Jarthur

Well ID MW-5 Well Condition: OK  
 Well Diameter 2 in. Hydrocarbon Thickness: 0.00 (feet) Amount Bailed (product/water): 0 (Gallons)  
 Total Depth 2360 ft.  
 Depth to Water 15.18 ft.

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.80	

~~\_\_\_\_\_~~ X VF \_\_\_\_\_ = \_\_\_\_\_ X 3 (case volume) = Estimated Purge Volume: \_\_\_\_\_ (gal.)

Purge Equipment: Disposable Bailer Stack Suction Grundfos Other: \_\_\_\_\_  
 Sampling Equipment: Disposable Bailer Pressure Bailer Grab Sample Other: \_\_\_\_\_

Starting Time: \_\_\_\_\_ Weather Conditions: \_\_\_\_\_  
 Sampling Time: \_\_\_\_\_ Water Color: \_\_\_\_\_ Odor: \_\_\_\_\_  
 Purging Flow Rate: \_\_\_\_\_ gpm. Sediment Description: \_\_\_\_\_  
 Did well de-water? \_\_\_\_\_ If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
	X-VOA VIAL	Y	HCL	SEQUOIA	TPH(G)/btex/mtbe

COMMENTS: Monitor only

**WELL MONITORING/SAMPLING  
FIELD DATA SHEET.**

Client/Facility# Tosco # 6034 Job#: 180047.85  
 Address: 4700 First Street Date: 4/1/02  
 City: Livermore, CA Sampler: Vazthel

Well ID MW-6 Well Condition: OK  
 Well Diameter 2 in. Hydrocarbon Amount Bailed  
 Thickness: 0-20 (feet) (product/water): 0 (Gallons)  
 Total Depth \* ft.  
 Depth to Water \_\_\_\_\_ ft.

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.80	

\_\_\_\_\_ X VF \_\_\_\_\_ = \_\_\_\_\_ X 3 (case volume) = Estimated Purge Volume: \_\_\_\_\_ (gal.)

Purge Equipment: Disposable Bailer  
 Bailer  
 Stack  
 Suction  
 Grundfos  
 Other: \_\_\_\_\_

Sampling Equipment: Disposable Bailer  
 Bailer  
 Pressure Bailer  
 Grab Sample  
 Other: \_\_\_\_\_

Starting Time: \_\_\_\_\_ Weather Conditions: \_\_\_\_\_  
 Sampling Time: \_\_\_\_\_ Water Color: \_\_\_\_\_ Odor: \_\_\_\_\_  
 Purging Flow Rate: \_\_\_\_\_ gpm. Sediment Description: \_\_\_\_\_  
 Did well de-water? \_\_\_\_\_ If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
	X VOA VIAL	Y	HCL	SEQUOIA	TRH(G)/btex/mtbe

COMMENTS: \* Obstructed at 13.20'

**WELL MONITORING/SAMPLING  
FIELD DATA SHEET.**

Client/  
Facility # Tosco # 6034  
Address: 4700 First Street  
City: Livermore, CA

Job#: 180047.85  
Date: 4/1/02  
Sampler: Vartner

Well ID MW-7  
Well Diameter 2 in.  
Total Depth 23.65 ft.  
Depth to Water 14.23 ft.

Well Condition: OK

Hydrocarbon Thickness:	<u>0.00</u> (feet)	Amount Bailed (product/water):	<u>4</u> (Gallons)
Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.80	

       X VF        =        X 3 (case volume) = Estimated Purge Volume:        (gal.)

Purge Equipment: Disposable Bailer  
Bailer  
Stack  
Suction  
Grundfos  
Other:       

Sampling Equipment: Disposable Bailer  
Bailer  
Pressure Bailer  
Grab Sample  
Other:       

Starting Time:        Weather Conditions:         
Sampling Time:        Water Color:        Odor:         
Purging Flow Rate:        gpm. Sediment Description:         
Did well de-water?        If yes; Time:        Volume:        (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
	X VOA VIAL	Y	HCL	SEQUOIA	TPH(G)/btex/mtbe

COMMENTS: Monitor only.



Tosco Marketing Company  
2000 Olive Canyon Pl., Ste. 400  
San Ramon, California 94583

Facility Number UNOCAL 887-6034  
 Facility Address 4700 First Street, Livermore, CA  
 Consultant Project Number 180047.85  
 Consultant Name Gettler-Ryan Inc. (G-R Inc.)  
 Address 6747 SIERRA COURT, SUITE J, DUBLIN, CA 94568  
 Project Contact (Name) Deanna L. Harding  
 (Phone) (925) 551-7555 (Fax Number) 925-551-7899

Contact (Name) MR. Dave DeWitt  
 (Phone) 925-277-2384  
 Laboratory Name Sequoia Analytical  
 Laboratory Release Number \_\_\_\_\_  
 Samples Collected by (Name) Vartkes Tashjian  
 Collection Date 4/1/02  
 Signature [Signature]

Sample Number	Lab Sample Number	Number of Containers	Media S = Soil W = Water G = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Load (Yrs or Mo)	Analyses To Be Performed										DO NOT BILL TB-LB ANALYSIS						
								TPH Gas + BTX (8015)	TPH Dissolved (8015)	Oil and Grease (8020)	Purgeable Hydrocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd, Cr, Pb, Zn, Ni (ICAP or AA)	8 Oxy's - MTML TBA, DIPP, RTRR TAME, 1,2DCA EDB, Ethanol								
209008	01	1	W	CG		HCl	Y	X																
	MW-2	02	S	C	1035			X																
	MW-4	03	S	C	0950			X																

Relinquished By (Signature) <u>[Signature]</u>	Organization G-R Inc.	Date/Time 4/1/02 1530	Received By (Signature) <u>[Signature]</u>	Organization Se.	Date/Time 4/1/02 1530	Turn Around Time (Circle Choice) 24 Hrs. 48 Hrs. 6 Days 10 Days
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time	



**Sequoia  
Analytical**

1551 Industrial Road  
San Carlos, CA 94070  
(650) 232-9600  
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15 April, 2002

Deanna Harding  
Gettler-Ryan/Geostrategies(1)  
6747 Sierra Court, Suite J  
Dublin, CA 94568

RE: Tosco(1)  
Sequoia Report: L204008

Enclosed are the results of analyses for samples received by the laboratory on 04/01/02 15:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Wayne Stevenson  
Project Manager

CA ELAP Certificate #2360



Gettler-Ryan/Geostrategies(1)  
6747 Sierra Court, Suite J  
Dublin CA, 94568

Project: Tosco(1)  
Project Number: Unocal SS#6034, Livermore  
Project Manager: Deanna Harding

**Reported:**  
04/15/02 13:04

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-LB	L204008-01	Water	04/01/02 00:00	04/01/02 15:30
MW-2	L204008-02	Water	04/01/02 10:35	04/01/02 15:30
MW-4	L204008-03	Water	04/01/02 09:56	04/01/02 15:30

Sequoia Analytical - San Carlos

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

Wayne Stevenson, Project Manager



Gettler-Ryan/Geostrategies(1)  
6747 Sierra Court, Suite J  
Dublin CA, 94568

Project: Tosco(1)  
Project Number: Unocal SS#6034, Livermore  
Project Manager: Deanna Harding

**Reported:**  
04/15/02 13:04

**Volatile Organic 8 Oxygenated Compounds by EPA Method 8260B  
Sequoia Analytical - San Carlos**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>MW-2 (L204008-02) Water</b> <b>Sampled: 04/01/02 10:35</b> <b>Received: 04/01/02 15:30</b>									
Ethanol	ND	500	ug/l	1	2040012	04/03/02	04/03/02	EPA 8260B	
1,2-Dibromoethane	ND	2.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	2.0	"	"	"	"	"	"	
Di-isopropyl ether	ND	2.0	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	2.0	"	"	"	"	"	"	
<b>Methyl tert-butyl ether</b>	<b>14</b>	2.0	"	"	"	"	"	"	
Tert-amyl methyl ether	ND	2.0	"	"	"	"	"	"	
Tert-butyl alcohol	ND	100	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		103 %		70-130	"	"	"	"	
<i>Surrogate: Toluene-d8</i>		97.0 %		70-130	"	"	"	"	





Gettler-Ryan/Geostrategies(1)  
6747 Sierra Court, Suite J  
Dublin CA, 94568

Project: Tosco(1)  
Project Number: Unocal SS#6034, Livermore  
Project Manager: Deanna Harding

**Reported:**  
04/15/02 13:04

**Total Purgeable Hydrocarbon (C6-C12) by EPA 8015M and BTEX/MTBE by EPA 8021B**  
**Sequoia Analytical - San Carlos**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TB-LB (L204008-01) Water</b> Sampled: 04/01/02 00:00 Received: 04/01/02 15:30									
Purgeable Hydrocarbons as Gasoline	ND	50	ug/l	1	2040025	04/08/02	04/08/02	EPA 8021B	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	5.0	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		89.2 %	70-130		"	"	"	"	
<b>MW-2 (L204008-02) Water</b> Sampled: 04/01/02 10:35 Received: 04/01/02 15:30									
Purgeable Hydrocarbons as Gasoline	3500	500	ug/l	10	2040026	04/08/02	04/08/02	EPA 8021B	P-02
Benzene	5.1	5.0	"	"	"	"	"	"	
Toluene	ND	5.0	"	"	"	"	"	"	
Ethylbenzene	120	5.0	"	"	"	"	"	"	
Xylenes (total)	460	5.0	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	50	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		112 %	70-130		"	"	"	"	
<b>MW-4 (L204008-03) Water</b> Sampled: 04/01/02 09:56 Received: 04/01/02 15:30									
Purgeable Hydrocarbons as Gasoline	130	50	ug/l	1	2040026	04/08/02	04/08/02	EPA 8021B	P-03
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	5.0	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		125 %	70-130		"	"	"	"	

Gettler-Ryan/Geostrategies(1)  
 6747 Sierra Court, Suite J  
 Dublin CA, 94568

 Project: Tosco(1)  
 Project Number: Unocal SS#6034, Livermore  
 Project Manager: Deanna Harding

 Reported:  
 04/15/02 13:04

**Total Purgeable Hydrocarbon (C6-C12) by EPA 8015M and BTEX/MTBE by EPA 8021B - Quality Control  
 Sequoia Analytical - San Carlos**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 2040025 - EPA 5030B (P/T)**
**Blank (2040025-BLK1)**

Prepared &amp; Analyzed: 04/08/02

Purgeable Hydrocarbons as Gasoline	ND	50	ug/l							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Methyl tert-butyl ether	ND	5.0	"							
<i>Surrogate: a,a,a-Trifluorotoluene</i>	8.47		"	10.0		84.7	70-130			

**LCS (2040025-BS1)**

Prepared &amp; Analyzed: 04/08/02

Benzene	9.32	0.50	ug/l	10.0		93.2	70-130			
Toluene	9.77	0.50	"	10.0		97.7	70-130			
Ethylbenzene	10.6	0.50	"	10.0		106	70-130			
Xylenes (total)	31.7	0.50	"	30.0		106	70-130			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	9.07		"	10.0		90.7	70-130			

**LCS (2040025-BS2)**

Prepared &amp; Analyzed: 04/08/02

Purgeable Hydrocarbons as Gasoline	263	50	ug/l	250		105	70-130			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	10.3		"	10.0		103	70-130			

**Matrix Spike (2040025-MS1)**

Source: L204003-06

Prepared &amp; Analyzed: 04/08/02

Purgeable Hydrocarbons as Gasoline	287	50	ug/l	250	ND	115	60-140			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	8.86		"	10.0		88.6	70-130			

**Matrix Spike Dup (2040025-MSD1)**

Source: L204003-06

Prepared &amp; Analyzed: 04/08/02

Purgeable Hydrocarbons as Gasoline	279	50	ug/l	250	ND	112	60-140	2.83	25	
<i>Surrogate: a,a,a-Trifluorotoluene</i>	9.59		"	10.0		95.9	70-130			



Gettler-Ryan/Geostrategies(1)  
6747 Sierra Court, Suite J  
Dublin CA, 94568

Project: Tosco(1)  
Project Number: Unocal SS#6034, Livermore  
Project Manager: Deanna Harding

Reported:  
04/15/02 13:04

**Total Purgeable Hydrocarbon (C6-C12) by EPA 8015M and BTEX/MTBE by EPA 8021B - Quality Control**  
**Sequoia Analytical - San Carlos**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 2040026 - EPA 5030B (P/T)**

**Blank (2040026-BLK1)**

Prepared & Analyzed: 04/08/02

Purgeable Hydrocarbons as Gasoline	ND	50	ug/l							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Methyl tert-butyl ether	ND	5.0	"							
Surrogate: a,a,a-Trifluorotoluene	7.93		"	10.0		79.3	70-130			

**LCS (2040026-BS1)**

Prepared & Analyzed: 04/08/02

Benzene	8.76	0.50	ug/l	10.0		87.6	70-130			
Toluene	9.27	0.50	"	10.0		92.7	70-130			
Ethylbenzene	10.2	0.50	"	10.0		102	70-130			
Xylenes (total)	30.8	0.50	"	30.0		103	70-130			
Surrogate: a,a,a-Trifluorotoluene	9.19		"	10.0		91.9	70-130			

**LCS (2040026-BS2)**

Prepared & Analyzed: 04/08/02

Purgeable Hydrocarbons as Gasoline	271	50	ug/l	250		108	70-130			
Surrogate: a,a,a-Trifluorotoluene	9.65		"	10.0		96.5	70-130			

**Matrix Spike (2040026-MS1)**

Source: L203133-07

Prepared & Analyzed: 04/08/02

Purgeable Hydrocarbons as Gasoline	418	50	ug/l	250	160	103	60-140			
Surrogate: a,a,a-Trifluorotoluene	10.3		"	10.0		103	70-130			

**Matrix Spike Dup (2040026-MSD1)**

Source: L203133-07

Prepared & Analyzed: 04/08/02

Purgeable Hydrocarbons as Gasoline	411	50	ug/l	250	160	100	60-140	1.69	25	
Surrogate: a,a,a-Trifluorotoluene	10.2		"	10.0		102	70-130			



Gettler-Ryan/Geostrategies(1)  
6747 Sierra Court, Suite J  
Dublin CA, 94568

Project: Tosco(1)  
Project Number: Unocal SS#6034, Livermore  
Project Manager: Deanna Harding

Reported:  
04/15/02 13:04

**Volatile Organic 8 Oxygenated Compounds by EPA Method 8260B - Quality Control**  
**Sequoia Analytical - San Carlos**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 2040012 - EPA 5030B [P/T]**

**Blank (2040012-BLK1)**

Prepared & Analyzed: 04/03/02

Ethanol	ND	500	ug/l							
1,2-Dibromoethane	ND	2.0	"							
1,2-Dichloroethane	ND	2.0	"							
Di-isopropyl ether	ND	2.0	"							
Ethyl tert-butyl ether	ND	2.0	"							
Methyl tert-butyl ether	ND	2.0	"							
Tert-amyl methyl ether	ND	2.0	"							
Tert-butyl alcohol	ND	100	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	49.6		"	50.0		99.2	70-130			
<i>Surrogate: Toluene-d8</i>	47.3		"	50.0		94.6	70-130			

**Blank (2040012-BLK2)**

Prepared & Analyzed: 04/04/02

Ethanol	ND	500	ug/l							
1,2-Dibromoethane	ND	2.0	"							
1,2-Dichloroethane	ND	2.0	"							
Di-isopropyl ether	ND	2.0	"							
Ethyl tert-butyl ether	ND	2.0	"							
Methyl tert-butyl ether	ND	2.0	"							
Tert-amyl methyl ether	ND	2.0	"							
Tert-butyl alcohol	ND	100	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	47.0		"	50.0		94.0	70-130			
<i>Surrogate: Toluene-d8</i>	48.9		"	50.0		97.8	70-130			

**LCS (2040012-BS1)**

Prepared & Analyzed: 04/03/02

Methyl tert-butyl ether	50.8	2.0	ug/l	50.0		102	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	49.1		"	50.0		98.2	70-130			
<i>Surrogate: Toluene-d8</i>	46.9		"	50.0		93.8	70-130			



Gettler-Ryan/Geostrategies(1)  
6747 Sierra Court, Suite J  
Dublin CA, 94568

Project: Tosco(1)  
Project Number: Unocal SS#6034, Livermore  
Project Manager: Deanna Harding

Reported:  
04/15/02 13:04

**Volatile Organic 8 Oxygenated Compounds by EPA Method 8260B - Quality Control  
Sequoia Analytical - San Carlos**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 2040012 - EPA 5030B [P/T]</b>										
<b>LCS (2040012-BS2)</b>										
					Prepared & Analyzed: 04/04/02					
Methyl tert-butyl ether	55.0	2.0	ug/l	50.0		110	70-130			
Surrogate: 1,2-Dichloroethane-d4	48.5		"	50.0		97.0	70-130			
Surrogate: Toluene-d8	47.5		"	50.0		95.0	70-130			
<b>Matrix Spike (2040012-MS1)</b>										
					Source: L204005-01		Prepared & Analyzed: 04/03/02			
Methyl tert-butyl ether	54.5	2.0	ug/l	50.0	ND	109	60-140			
Surrogate: 1,2-Dichloroethane-d4	51.2		"	50.0		102	70-130			
Surrogate: Toluene-d8	45.9		"	50.0		91.8	70-130			
<b>Matrix Spike Dup (2040012-MSD1)</b>										
					Source: L204005-01		Prepared & Analyzed: 04/03/02			
Methyl tert-butyl ether	56.3	2.0	ug/l	50.0	ND	113	60-140	3.25	25	
Surrogate: 1,2-Dichloroethane-d4	51.1		"	50.0		102	70-130			
Surrogate: Toluene-d8	46.3		"	50.0		92.6	70-130			



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### Notes and Definitions

P-02      Chromatogram Pattern: Weathered Gasoline C6-C12  
P-03      Chromatogram Pattern: Unidentified Hydrocarbons C6-C12  
DET      Analyte DETECTED  
ND      Analyte NOT DETECTED at or above the reporting limit  
NR      Not Reported  
dry      Sample results reported on a dry weight basis  
RPD      Relative Percent Difference