



# GETTLER-RYAN INC.

ENVIRONMENTAL PROTECTION

00 JUL -5 AM 10:22

## TRANSMITTAL

June 19, 2000

G-R #: 180047

*SAD 2465*

*Revised 8/16/2000*

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

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

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

RE: Tosco (Unocal) SS #6034  
4700 First Street  
Livermore, California

WE HAVE ENCLOSED THE FOLLOWING:

COPIES	DATED	DESCRIPTION
1	June 13, 2000	Groundwater Monitoring and Sampling Report Semi-Annual 2000 - Event of April 10, 2000

### 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 **June 30, 2000**, this report will be distributed to the following:

Enclosure

cc: Alameda County Health Care Services  
1131 Harbor Bay Parkway  
Alameda, California 94502

*AG*

trans/6034.dbd



# GETTLER - RYAN INC.

June 13, 2000  
G-R Job #180047

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

RE: Semi-Annual 2000 Groundwater Monitoring & Sampling Report  
Tosco (Unocal) Service Station #6034  
4700 First Street  
Livermore, California

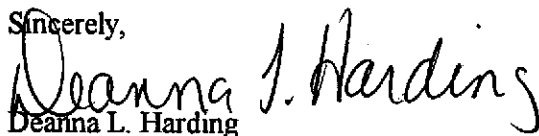
Dear Mr. De Witt:

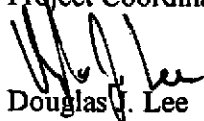
This report documents the semi-annual groundwater monitoring and sampling event performed by Gettler-Ryan Inc. (G-R). On April 10, 2000, field personnel monitored seven wells (MW-1 through MW-7) and sampled two wells (MW-2 and MW-4) at the above referenced site.

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, 2 and 4. 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

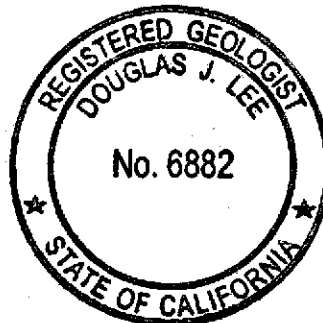
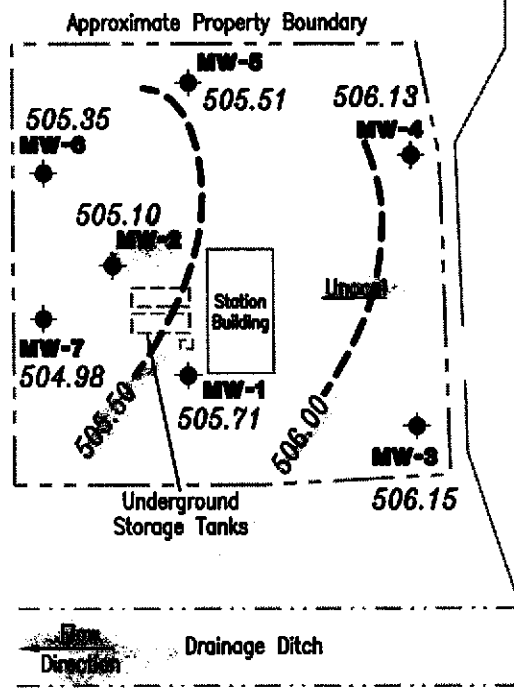


Figure 1: Potentiometric Map  
Figure 2: Concentration Map  
Table 1: Groundwater Monitoring Data and Analytical Results  
Table 2: Groundwater Analytical Results  
Table 3: Dissolved Oxygen Concentrations  
Table 4: Groundwater Analytical Results - Oxygenate Compounds  
Table 5: Joint Groundwater Monitoring Data - Chevron Facility No. 9-1924  
Attachments: Standard Operating Procedure - Groundwater Sampling  
Field Data Sheets  
Chain of Custody Document and Laboratory Analytical Reports

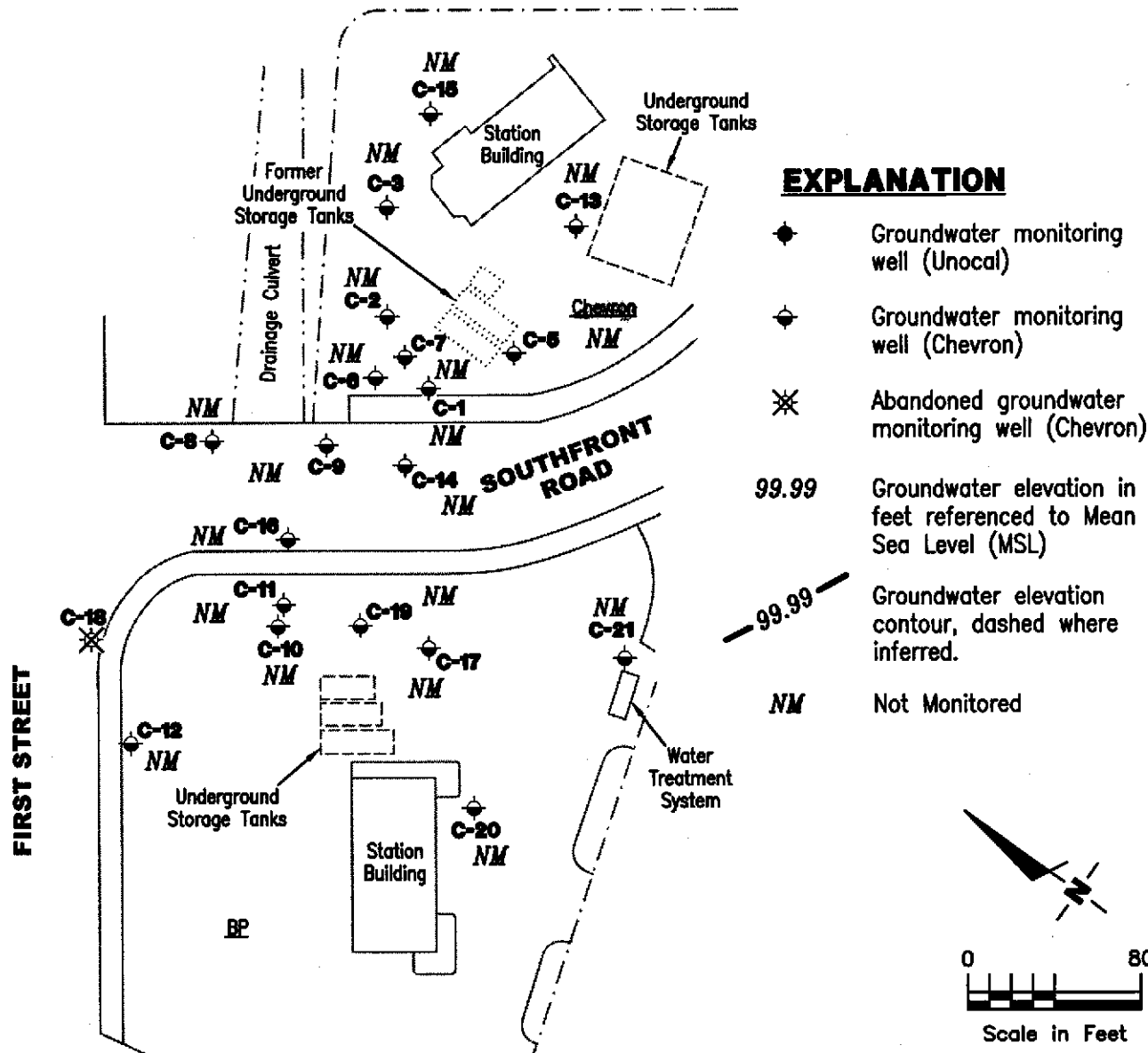
6034.qml



Approximate groundwater flow direction at a gradient of 0.007 Ft./Ft.

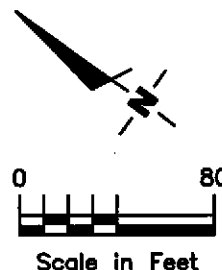


Source: Figure Modified From Drawing Provided By MPDS Services, Inc.



### EXPLANATION

- ◆ Groundwater monitoring well (Unocal)
- ◆ Groundwater monitoring well (Chevron)
- ⊗ Abandoned groundwater monitoring well (Chevron)
- 99.99 Groundwater elevation in feet referenced to Mean Sea Level (MSL)
- - - 99.99 Groundwater elevation contour, dashed where inferred.
- NM Not Monitored



**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

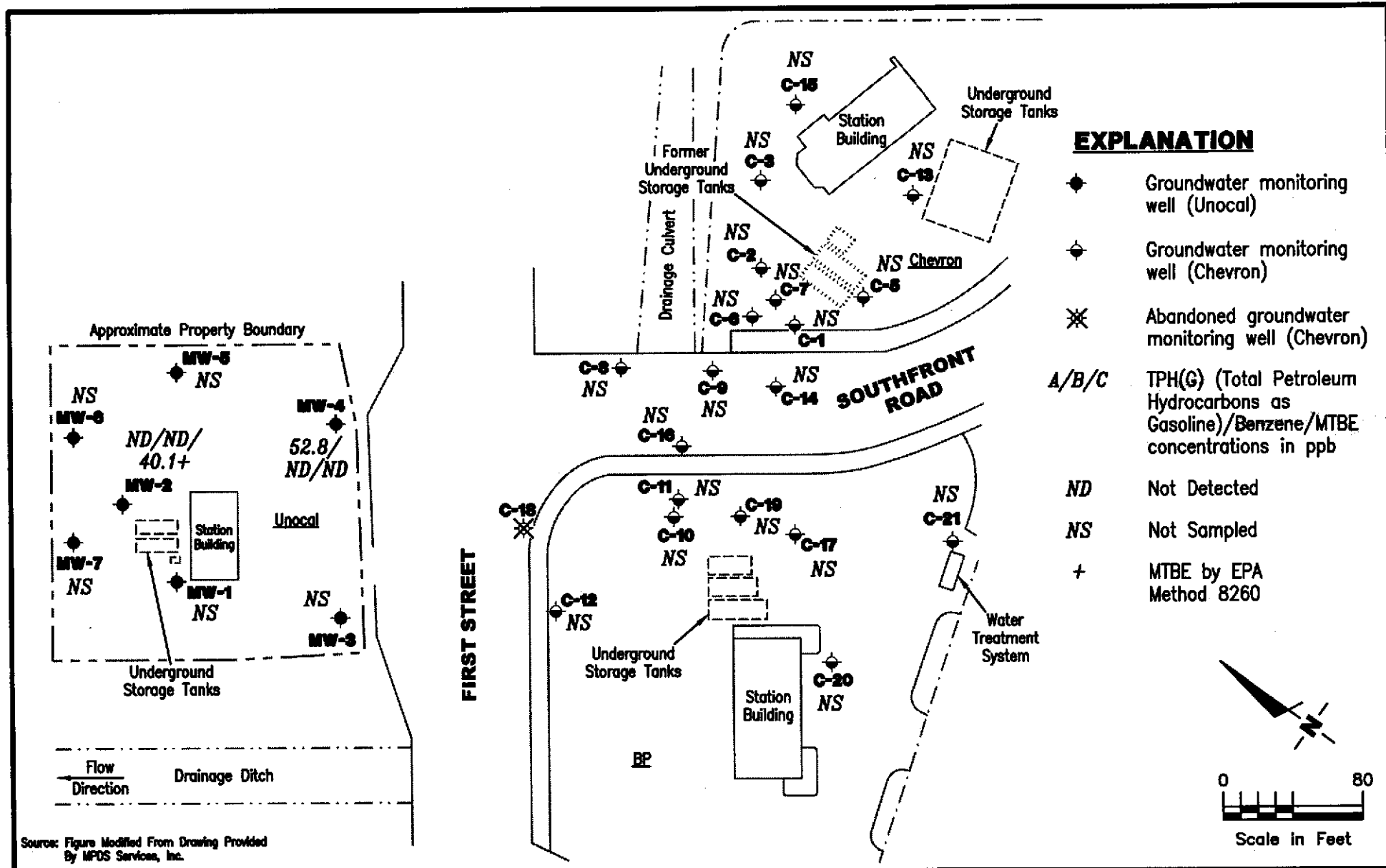
FIGURE 1

JOB NUMBER  
180047

REVIEWED BY

DATE  
April 10, 2000

REVISED DATE



Source: Figure Modified From Drawing Provided By MPDS Services, Inc.



### Gettler - Ryan Inc.

8747 Sierra Ct., Suite J  
Dublin, CA 94568

(925) 551-7555

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

FIGURE

2

JOB NUMBER  
180047

REVIEWED BY

DATE  
April 10, 2000

REVISED DATE

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

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)	TPH(G) (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-1	11/18/89	--	--	ND	ND	ND	ND	ND	--
	03/08/90	--	--	ND	ND	ND	ND	ND	--
	06/05/90	--	--	ND	ND	ND	ND	ND	--
	09/07/90	--	--	ND	ND	1.2	ND	ND	--
	12/24/90	--	--	ND	ND	ND	ND	0.40	--
	04/10/91	--	--	ND	ND	ND	ND	ND	--
	07/10/91	--	--	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	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	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	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	--	--	--	--	--	--

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

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)	TPH(G) (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-2	11/18/89	--	--	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
	10/16/96	14.12	505.70	14,000	28	31	1,600	6,900	9,600
	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>	

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

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)	TPH(G) (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-2	04/14/99	14.54	505.28	720	1.2	ND	29	260	95/57 <sup>6</sup>
(cont)	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>
	<b>04/10/00</b>	<b>14.72</b>	<b>505.10</b>	<b>ND</b>	<b>ND</b>	<b>ND</b>	<b>0.815</b>	<b>2.99</b>	<b>28.540.1<sup>6</sup></b>
MW-3	11/18/89	--	--	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		--	--	--	--
	04/21/94	14.30	505.36	ND	ND	ND	ND	ND	--
	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	--	--	--	--	--	--

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

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)	TPH(G) (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)	
MW-3	04/08/97	13.73	505.93	SAMPLING DISCONTINUED						--
(cont)	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	--	--	--	--	--	--	
	<b>04/10/00</b>	<b>13.51</b>	<b>506.15</b>	--	--	--	--	--	--	
<b>MW-4</b>	11/18/89	--	--	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	--	
	01/14/92	--	--	1,500	4.2	7.1	18	9.2	--	
	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						--



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

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)	TPH(G) (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-4	04/17/96	13.08	506.53	720	3.0	2.6	6.1	6.9	ND
(cont)	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
MW-5	04/10/91	--	--	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

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

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)	TPH(G) (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-5 (cont)	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	--	--	--	--	--	--
	<b>04/10/00</b>	<b>14.76</b>	<b>505.51</b>	--	--	--	--	--	--
MW-6	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	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	--	--	--	--	--	--	--
10/16/96	13.72	505.03	--	--	--	--	--	--	

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

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)	TPH(G) (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)	
MW-6 (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	--	--	--	--	--	--	
MW-7	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	--	
	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	--	
	10/17/95	13.41	505.42	ND	ND	ND	ND	ND	3.5	
	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	--	--	--	--	--	--	

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

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)	TPH(G) (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-7	04/02/98	13.55	505.28	--	--	--	--	--	--
(cont)	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	--	--	--	--	--	--
<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

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

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**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 elevation

DTW = Depth to Water

(ft.) = Feet

GWE = Groundwater Elevation

msl = Relative to 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 Mean Sea Level (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.

1 Laboratory report indicates the hydrocarbons detected did not appear to be gasoline.

2 Annual sampling beginning April, 1996.

3 Detection limit raised. Refer to analytical reports.

4 Laboratory report indicates gasoline and unidentified hydrocarbons <C7.

5 Laboratory report indicates weathered gas C6-C12.

6 MTBE by EPA Method 8260.

7 Laboratory report indicates unidentified hydrocarbons C6-C12.

8 Laboratory report indicates gasoline C6-C12.

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

Well ID	Date	TPH(D) (ppb)	Total Oil & Grease (ppm)	Trichloroethene (ppb)	Chloroform (ppb)
MW-1	11/18/89	--	3.1	0.55	ND
	03/08/90	--	4.7	ND	ND
	06/05/90	--	ND	ND	ND
	09/07/90	--	ND	ND	ND
	12/24/90	--	ND	ND	ND
	04/10/91	--	ND	ND	ND
	07/10/91	--	ND	ND	ND
	04/21/94	--	ND	ND	ND
	04/17/95	ND	ND	ND	0.69
	04/17/96	100	ND	ND	ND

**EXPLANATIONS:**

Groundwater analytical results were compiled from reports prepared by MPDS Services, Inc.

TPH(D) = Total Petroleum Hydrocarbons as Diesel

ppb = Parts per billion

ppm = Parts per million

ND = Not Detected

-- = Not Analyzed

All EPA Method 8010 constituents were ND, except as indicated above.

**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	--
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.

Note: Measurements were taken using a LaMotte DO4000 dissolved oxygen meter.

**Table 4**  
**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
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-Dibromethane  
 ppb = Parts per billion  
 ND = Not Detected  
 -- = Not Analyzed

**ANALYTICAL METHOD:**

EPA Method 8260 for Oxygenate Compounds

<sup>1</sup> Halogenated Volatile Organics by EPA Method 8010.



**Table 5**  
**Joint Groundwater Monitoring Data**  
Chevron Facility No. 9-1924  
4904 South Front Road  
Livermore, California

<b>WELL ID/ TOC*</b>	<b>Date</b>	<b>DTW (ft.)</b>	<b>GWE (msl)</b>
<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
<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

**Table 5**  
**Joint Groundwater Monitoring Data**  
Chevron Facility No. 9-1924  
4904 South Front Road  
Livermore, California

WELL ID/ TOC*	Date	DTW (ft.)	GWE (msl)
C-7 (cont)	04/17/96	10.96	509.34
	07/16/96	11.51	508.79
	10/16/96	12.00	508.30
C-8 519.74	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
C-9 519.72	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
C-10 520.41	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
C-11 520.04	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
	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

**Table 5**  
**Joint Groundwater Monitoring Data**  
Chevron Facility No. 9-1924  
4904 South Front Road  
Livermore, California

<b>WELL ID/ TOC*</b>	<b>Date</b>	<b>DTW (ft.)</b>	<b>GWE (msl)</b>
<b>C-13</b> 522.24	07/18/95	13.33	508.91
	10/17/95	13.78	508.46
<b>C-14</b> 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
<b>C-15</b> 522.41	07/18/95	13.80	508.61
	10/17/95	14.26	508.15
<b>C-16</b>	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	
<b>C-17</b> 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
	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
<b>C-18</b>	04/17/95	ABANDONED	--
<b>C-19</b> 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	--

**Table 5**  
**Joint Groundwater Monitoring Data**  
Chevron Facility No. 9-1924  
4904 South Front Road  
Livermore, California

<b>WELL ID/ TOC*</b>	<b>Date</b>	<b>DTW (ft.)</b>	<b>GWE (msl)</b>
<b>C-20</b> 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
<b>C-21</b> 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 elevations were surveyed relative to mean sea level (msl).

TOC = Top of Casing elevation

DTW = Depth to Water

(ft.) = Feet

GWE = Groundwater Elevation

msl = Relative to mean sea level

-- = Not Measured

## 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 Tosco Marketing Company, the purge water and decontamination water generated during sampling activities is transported to Tosco - San Francisco Area Refinery, located in Rodeo, California.

## WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/  
Facility # 6034

Job#: 180047

Address: 4700 First st.

Date: 4-10-00

City: Livermore

Sampler: Joc

Well ID MW-1

Well Condition: o.k

Well Diameter 2 in.

Hydrocarbon Thickness:  in. Amount Bailed (product/water):  (gal.)

Total Depth 27.90 fr.

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.90	

Depth to Water 14.93 fr.

\_\_\_\_\_ 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
	3 Vol	X	HCL	Sequoia	<del>TPHE, BTEX, MTBE</del>

COMMENTS: W. only

## WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/  
Facility # 6034

Job #: 180047

Address: 4700 First st.

Date: 4-10-00

City: Livermore

Sampler: Joc

Well ID MW-2

Well Condition: o.k

Well Diameter 2 in.

Hydrocarbon Thickness: 0 in. Amount Bailed (product/water): 0 (gal.)

Total Depth 25.65 ft

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

Depth to Water 14.72 ft

10.93 x VF 0.17 = 1.86 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: 11:30

Weather Conditions: clear

Sampling Time: 11:52 A.M.

Water Color: clear Odor: some

Purging Flow Rate: 1 gpm

Sediment Description: none

Did well de-water? \_\_\_\_\_

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

Time	Volume (gal.)	pH	Conductivity $\mu\text{mhos/cm}$ <sup>100</sup>	Temperature $^{\circ}\text{F}$	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>11:37</u>	<u>2</u>	<u>7.37</u>	<u>3.19</u>	<u>73.1</u>	<u>3.47</u>		
<u>11:38</u>	<u>4</u>	<u>7.40</u>	<u>3.14</u>	<u>74.0</u>			
<u>11:40</u>	<u>6</u>	<u>7.32</u>	<u>3.11</u>	<u>74.1</u>			

### LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-2</u>	<u>3 Vol</u>	<u>Y</u>	<u>HCL</u>	<u>Sequoia</u>	<u>TPHG, BTEX, MTBE</u>
	<u>2 Vol</u>	<u> </u>	<u> </u>	<u> </u>	<u>6 Oxy's 1.2</u> CA & EDE

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

## WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/  
Facility # 6034  
Address: 4700 First st.  
City: Livermore

Job#: 180047  
Date: 4-10-00  
Sampler: Joc

Well ID: MW-3  
Well Diameter: 2 in  
Total Depth: 25.43 ft  
Depth to Water: 13.5 ft

Well Condition: o.k

Hydrocarbon Thickness:	<u>0</u> in.	Amount Bailed (product/water):	<u>0</u> (gal.)
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: \_\_\_\_\_  
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
	<u>3 YOA</u>	<u>Y</u>	<u>HCL</u>	<u>Sequoia</u>	<u>TPHC, BTEX, MTBG</u>

COMMENTS: M. only



## WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/  
Facility # 6034  
Address: 4700 First St.  
City: Livermore

Job#: 180047  
Date: 4-10-00  
Sampler: Joc

Well ID: MW-4  
Well Diameter: 2 in.  
Total Depth: 25.48 ft  
Depth to Water: 13.48 ft

Well Condition: o.k  
Hydrocarbon Thickness: 0 in. Amount Bailed (product/water): 0 (gal.)  
Volume Factor (VF) table:  

2" = 0.17	3" = 0.38	4" = 0.66
6" = 1.50	12" = 5.90	

12.0 x VF 0.17 = 2.04 x 3 (case volume) = Estimated Purge Volume: 6.5 (gal.)

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

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

Starting Time: 11:00  
Sampling Time: 11:16 AM  
Purging Flow Rate: 1 gpm  
Did well de-water? \_\_\_\_\_

Weather Conditions: clear  
Water Color: clear Odor: none  
Sediment Description: none  
If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm	Temperature F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>11:06</u>	<u>2</u>	<u>7.56</u>	<u>4.89</u>	<u>74.1</u>			
<u>11:08</u>	<u>4</u>	<u>7.50</u>	<u>4.93</u>	<u>74.2</u>			
<u>11:09</u>	<u>6.5</u>	<u>7.46</u>	<u>4.94</u>	<u>73.7</u>			

### LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-4</u>	<u>3Y0A</u>	<u>Y</u>	<u>HCL</u>	<u>Sequoia</u>	<u>TPHG, BTEX, MTBE</u>

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

## WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/  
Facility # 6034  
Address: 4700 First st.  
City: Livermore

Job#: 180047  
Date: 4-10-00  
Sampler: Joc

Well ID MW-5  
Well Diameter 2 in.  
Total Depth 23.61 ft.  
Depth to Water 14.76 ft.

Well Condition: o.k

Hydrocarbon Thickness:	<u>0</u> in.	Amount Bailed (product/water):	<u>0</u> (gal.)
Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.90	

\_\_\_\_\_ 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: \_\_\_\_\_  
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
	<u>3Y6A</u>	<u>Y</u>	<u>HCL</u>	<u>Sequoia</u>	<u>TRNG, BTEX, MTBC</u>

COMMENTS: M. only

## WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility # 6034 Job#: 180047  
 Address: 4700 First st. Date: 4-10-00  
 City: Livermore Sampler: Joc

Well ID: MW-6 Well Condition: o.k  
 Well Diameter: 2 in. Hydrocarbon Thickness: 0 in. Amount Bailed (product/water): 0 (gal.)  
 Total Depth: 20.40 ft  
 Depth to Water: 13.40 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 $\mu$ hos/cm	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

### LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
	<u>3Y0A</u>	<u>Y</u>	<u>HCL</u>	<u>Sequoia</u>	<u>TPHG, BTEX, MTBE</u>

COMMENTS: M. only

## WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/  
Facility # 6034  
Address: 4700 First st.  
City: Livermore

Job#: 180047  
Date: 4-10-00  
Sampler: Joc

Well ID MW-7

Well Condition: o.k

Well Diameter 2 in.

Hydrocarbon Thickness: 0 in. Amount Bailed (product/water): 0 (gal.)

Total Depth 23.65 ft

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.90	

Depth to Water 13.85 ft

\_\_\_\_\_ 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: \_\_\_\_\_  
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 $\mu\text{mhos/cm}$	Temperature $^{\circ}\text{F}$	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

### LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
	<u>BYOT</u>	<u>Y</u>	<u>HCL</u>	<u>Sequoia</u>	<u>TPH, GTEX, MTBE</u>

COMMENTS: M - only



TOSCO

Tosco Marketing Company  
3030 Cove Canyon Pl., Ste. 400  
San Ramon, California 94583

Facility Number UNOCAL, SS/6034  
Facility Address 4700 FIRST STREET, LIVERMORE, CA  
180047.85  
Consultant Project Number \_\_\_\_\_  
Consultant Name Gettler-Ryan Inc. (G-R Inc.)  
Address 6747 Sierra Court, Suite J, Dublin, CA 94568  
Project Contact (Name) Deanna I. Harding  
(Phone) 925-551-7555 (Fax Number) 925-551-7888

Contact (Name) MR. DAVID DEWITT  
(Phone) 925-277-2384  
Laboratory Name Sequoia Analytical  
Laboratory Release Number \_\_\_\_\_  
Samples Collected by (Name) JOE ASEMAV  
Collection Date 4-10-00  
Signature Joe Dewitt

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil A = Air W = Water C = Charcoal	Type C = Grab C = Composite D = Discrete	Time	Sample Preservation	Iod (Yes or No)	Analytes To Be Performed											Remarks					
								TPH Gas STEK w/MTR (8018)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,NI (ICAP or AA)									
8-LB	10A	W	G	-	HCL	Y	✓	✓																
MW-2	5 10A	"	"	"	11:52	"	"	✓																
MW-4	3 10A	"	"	"	11:16	"	"	✓																

DO NOT BILL TB-LB ANALYSIS

Relinquished By (Signature) <i>Joe Dewitt</i>	Organization G-R Inc.	Date/Time <i>3:00 pm</i> 4-10-00	Received By (Signature) <i>Deanna Harding</i>	Organization	Date/Time 4/10/00
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

Turn Around Time (Circle Choice)

- 24 Hrs.
- 48 Hrs.
- 5 Days
- 10 Days
- As Contracted



# Sequoia Analytical

1551 Industrial Road  
San Carlos, CA 94070-4111  
(650) 232-9600  
FAX (650) 232-9612

April 24, 2000

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

RE: Tosco/L004095

Dear Deanna Harding:

Enclosed are the results of analyses for sample(s) received by the laboratory on April 10, 2000. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Wayne Stevenson  
Project Manager

CA ELAP Certificate Number I2360





Gettler-Ryan/Geostrategies 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco Project Number: Unocal SS#6034 Project Manager: Deanna Harding	Sampled: 4/10/00 Received: 4/10/00 Reported: 4/24/00
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**ANALYTICAL REPORT FOR L004095**

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
TB-LB	L004095-01	Water	4/10/00
MW-2	L004095-02	Water	4/10/00
MW-4	L004095-03	Water	4/10/00





Gettler-Ryan/Geostrategies 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco Project Number: Unocal SS#6034 Project Manager: Deanna Harding	Sampled: 4/10/00 Received: 4/10/00 Reported: 4/24/00
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**Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT  
Sequoia Analytical - San Carlos**

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
				<u>L004095-01</u>			<u>Water</u>	
<b>TB-LB</b> Purgeable Hydrocarbons as Gasoline	0040088	4/18/00	4/18/00		50.0	ND	ug/l	
Benzene	"	"	"		0.500	ND	"	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		0.500	ND	"	
Methyl tert-butyl ether	"	"	"		5.00	ND	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>	"	"	"	70.0-130		88.6	%	
				<u>L004095-02</u>			<u>Water</u>	
<b>MW-2</b> Purgeable Hydrocarbons as Gasoline	0040088	4/18/00	4/19/00		50.0	ND	ug/l	
Benzene	"	"	"		0.500	ND	"	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	0.815	"	
Xylenes (total)	"	"	"		0.500	2.99	"	
Methyl tert-butyl ether	"	"	"		5.00	28.5	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>	"	"	"	70.0-130		92.7	%	
				<u>L004095-03</u>			<u>Water</u>	
<b>MW-4</b> Purgeable Hydrocarbons as Gasoline	0040088	4/18/00	4/19/00		50.0	52.8	ug/l	1
Benzene	"	"	"		0.500	ND	"	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		0.500	ND	"	
Methyl tert-butyl ether	"	"	"		5.00	ND	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>	"	"	"	70.0-130		93.9	%	







Gettler-Ryan/Geostrategies 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco Project Number: Unocal SS#6034 Project Manager: Deanna Harding	Sampled: 4/10/00 Received: 4/10/00 Reported: 4/24/00
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**Volatile Organic Compounds by EPA Method 8260A  
Sequoia Analytical - San Carlos**

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
<b>MW-2</b>				<b>L004095-02</b>			<b>Water</b>	
Ethanol	0040056	4/12/00	4/12/00		1000	ND	ug/l	
1,2-Dibromoethane	"	"	"		2.00	ND	"	
1,2-Dichloroethane	"	"	"		2.00	ND	"	
Di-isopropyl ether	"	"	"		2.00	ND	"	
Ethyl tert-butyl ether	"	"	"		2.00	ND	"	
<b>Methyl tert-butyl ether</b>	"	"	"		2.00	<b>40.1</b>	"	
Tert-amyl methyl ether	"	"	"		2.00	ND	"	
Tert-butyl alcohol	"	"	"		100	ND	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	"	"	"	76.0-114		102	%	





Gettler-Ryan/Geostrategies  
6747 Sierra Court, Suite D  
Dublin, CA 94568

Project: Tosco  
Project Number: Unocal SS#6034  
Project Manager: Deanna Harding

Sampled: 4/10/00  
Received: 4/10/00  
Reported: 4/24/00

**Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUF/Quality Control  
Sequoia Analytical - San Carlos**

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*	
<b>Batch: 0040088</b>			<b>Date Prepared: 4/18/00</b>		<b>Extraction Method: EPA 5030B (P/T)</b>						
<b>Blank</b>			<b>0040088-BLK1</b>								
Purgeable Hydrocarbons as Gasoline	4/18/00			ND	ug/l	50.0					
Benzene	"			ND	"	0.500					
Toluene	"			ND	"	0.500					
Ethylbenzene	"			ND	"	0.500					
Xylenes (total)	"			ND	"	0.500					
Methyl tert-butyl ether	"			ND	"	5.00					
Surrogate: a,a,a-Trifluorotoluene	"	10.0		10.5	"	70.0-130	105				
<b>LCS</b>			<b>0040088-BS1</b>								
Benzene	4/18/00	10.0		9.52	ug/l	70.0-130	95.2				
Toluene	"	10.0		9.31	"	70.0-130	93.1				
Ethylbenzene	"	10.0		9.39	"	70.0-130	93.9				
Xylenes (total)	"	30.0		27.8	"	70.0-130	92.7				
Surrogate: a,a,a-Trifluorotoluene	"	10.0		10.6	"	70.0-130	106				
<b>LCS</b>			<b>0040088-BS2</b>								
Purgeable Hydrocarbons as Gasoline	4/18/00	250		214	ug/l	70.0-130	85.6				
Surrogate: a,a,a-Trifluorotoluene	"	10.0		9.70	"	70.0-130	97.0				
<b>Matrix Spike</b>			<b>0040088-MS1</b>		<b>L004096-03</b>						
Benzene	4/18/00	10.0	ND	9.67	ug/l	60.0-140	96.7				
Toluene	"	10.0	ND	9.32	"	60.0-140	93.2				
Ethylbenzene	"	10.0	ND	9.61	"	60.0-140	96.1				
Xylenes (total)	"	30.0	ND	27.6	"	60.0-140	92.0				
Surrogate: a,a,a-Trifluorotoluene	"	10.0		9.50	"	70.0-130	95.0				
<b>Matrix Spike Dup</b>			<b>0040088-MSD1</b>		<b>L004096-03</b>						
Benzene	4/18/00	10.0	ND	10.5	ug/l	60.0-140	105	25.0	8.23		
Toluene	"	10.0	ND	10.3	"	60.0-140	103	25.0	9.99		
Ethylbenzene	"	10.0	ND	10.2	"	60.0-140	102	25.0	5.96		
Xylenes (total)	"	30.0	ND	30.6	"	60.0-140	102	25.0	10.3		
Surrogate: a,a,a-Trifluorotoluene	"	10.0		9.11	"	70.0-130	91.1				





Gettler-Ryan/Geostrategies 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco Project Number: Unocal SS#6034 Project Manager: Deanna Harding	Sampled: 4/10/00 Received: 4/10/00 Reported: 4/24/00
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**Volatile Organic Compounds by EPA Method 8260A/Quality Control**  
Sequoia Analytical - San Carlos

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
<b>Batch: 0040056</b>		<b>Date Prepared: 4/11/00</b>			<b>Extraction Method: EPA 5030B [P/T]</b>					
<b>Blank 0040056-BLK1</b>										
Ethanol	4/11/00			ND	ug/l	1000				
1,2-Dibromoethane	"			ND	"	2.00				
1,2-Dichloroethane	"			ND	"	2.00				
Di-isopropyl ether	"			ND	"	2.00				
Ethyl tert-butyl ether	"			ND	"	2.00				
Methyl tert-butyl ether	"			ND	"	2.00				
Tert-amyl methyl ether	"			ND	"	2.00				
Tert-butyl alcohol	"			ND	"	100				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	"	50.0		50.1	"	76.0-114	100			
<b>Blank 0040056-BLK2</b>										
Ethanol	4/12/00			ND	ug/l	1000				
1,2-Dibromoethane	"			ND	"	2.00				
1,2-Dichloroethane	"			ND	"	2.00				
Di-isopropyl ether	"			ND	"	2.00				
Ethyl tert-butyl ether	"			ND	"	2.00				
Methyl tert-butyl ether	"			ND	"	2.00				
Tert-amyl methyl ether	"			ND	"	2.00				
Tert-butyl alcohol	"			ND	"	100				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	"	50.0		49.2	"	76.0-114	98.4			
<b>LCS 0040056-BS1</b>										
Methyl tert-butyl ether	4/11/00	50.0		48.6	ug/l	70.0-130	97.2			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	"	50.0		51.3	"	76.0-114	103			
<b>LCS 0040056-BS2</b>										
Methyl tert-butyl ether	4/12/00	50.0		48.5	ug/l	70.0-130	97.0			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	"	50.0		49.5	"	76.0-114	99.0			
<b>Matrix Spike 0040056-MS1 L004083-01</b>										
Methyl tert-butyl ether	4/11/00	50.0	ND	46.6	ug/l	60.0-140	93.2			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	"	50.0		51.3	"	76.0-114	103			
<b>Matrix Spike Dup 0040056-MSD1 L004083-01</b>										
Methyl tert-butyl ether	4/11/00	50.0	ND	55.0	ug/l	60.0-140	110	25.0	16.5	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	"	50.0		50.5	"	76.0-114	101			





Gettler-Ryan/Geostrategies  
6747 Sierra Court, Suite D  
Dublin, CA 94568

Project: Tosco  
Project Number: Unocal SS#6034  
Project Manager: Deanna Harding

Sampled: 4/10/00  
Received: 4/10/00  
Reported: 4/24/00

**Notes and Definitions**

#	Note
1	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
Recov.	Recovery
RPD	Relative Percent Difference





Tosco Marketing Company  
2000 West Canyon Pl., Ste. 200  
San Antonio, California 78243

Facility Number UNOCAL SS#6034 / L004095  
Facility Address 4700 FIRST STREET, LIVERMORE, CA  
Consultant Project Number 180047.85  
Consultant Name Gottler-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) 925-551-7888

Contact (Name) MR. DAVID DEWITT  
(Phone) 925-277-2384  
Laboratory Name Sequoia Analytical  
Laboratory Release Number \_\_\_\_\_  
Samples Collected by (Name) JOE A SEMAN  
Collection Date 4-10-00  
Signature Joe De Witt

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil W = Water C = Charcoal A = Air	Type C = Grab C = Composite D = Discrete	Time	Sample Preservation	Iod (Yes or No)	Analyses To Be Performed												Remarks		
								TPH Gas + BTEX w/MIB (8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Hydrocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd, Cr, Pb, Zn, Ni (ICAP or AA)							
-TB-LB		10A	W	G		HCL	Y	✓	✗													
-mw-2		5 10A	"	"	11:52	"	"	✓														
-mw-4		3 10A	"	"	11:16	"	"	✓														

DO NOT BILL  
TB-LB ANALYSIS

Shipped By (Signature) <u>[Signature]</u>	Organization G-R Inc.	Date/Time 4-10-00 3:00 pm	Received By (Signature) <u>[Signature]</u>	Organization	Date/Time 4/10/00	Turn Around Time (Circle Choice) 24 Hrs. 48 Hrs. 5 Days 10 Days <u>As Contracted</u>
By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	
y (Signature)	Organization	Date/Time	Received For Laboratory Use (Signature)		Date/Time	