



# GETTLER-RYAN INC.

2465  
AG

## TRANSMITTAL

May 16, 2001  
G-R #: 180047

AG  
6/1/01

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

CC: Mr. Douglas J. 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	May 4, 2001	Groundwater Monitoring and Sampling Report First Semi-Annual - Event of April 2, 2001

### 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 30, 2001**, 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

JUN 04 2001

JUN 4 0 2001



# GETTLER-RYAN INC.

May 4, 2001  
G-R Job #180047

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

**RE: First Semi-Annual Event April 2, 2001**  
Groundwater Monitoring & Sampling Report  
Tosco (Unocal) Service Station #6034  
4700 First Street  
Livermore, California

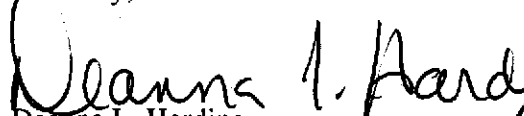
Dear Mr. De Witt:

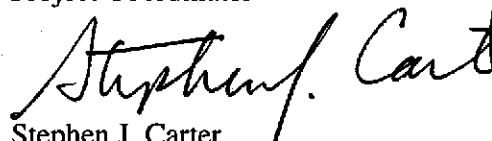
This report documents the most recent groundwater monitoring and sampling event performed by Gettler-Ryan Inc. (G-R) at the referenced site. All field work was conducted in accordance with G-R Standard Operating Procedure - Groundwater Sampling (attached).

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

  
Stephen J. Carter  
Senior Geologist, R.G. No. 5577

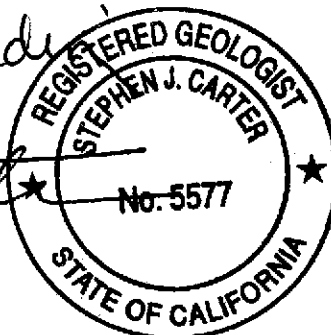
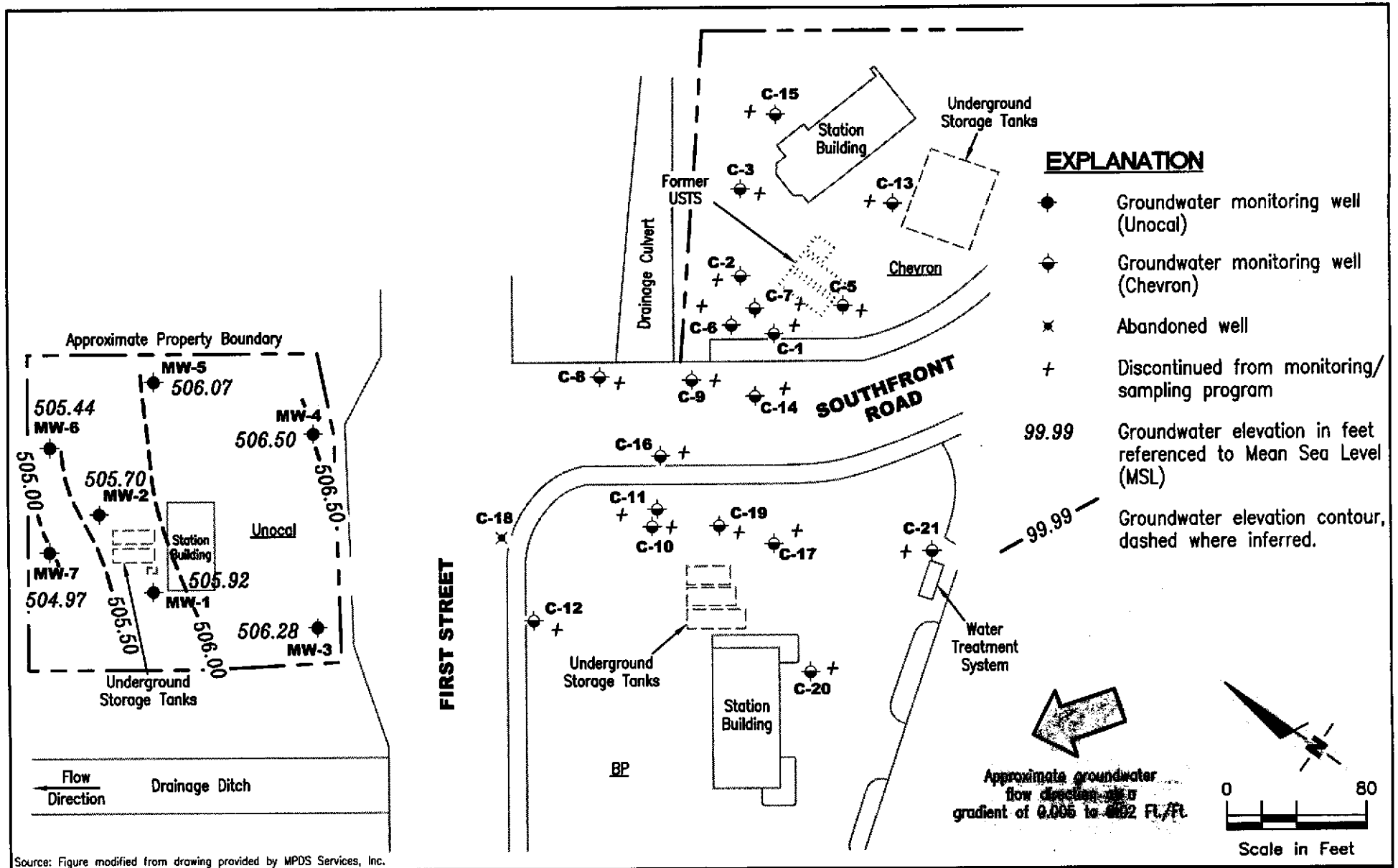


Figure 1: Potentiometric Map  
Figure 2: Concentration Map  
Table 1: Groundwater Monitoring Data and Analytical Results  
Table 2: Groundwater Analytical Results  
Table 3: Dissolved Oxygen Concentrations  
Table 4: Joint Groundwater Monitoring Data - Chevron Service Station #9-1924  
Attachments: Standard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

6034.qml



Source: Figure modified from drawing provided by MPDS Services, Inc.

**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

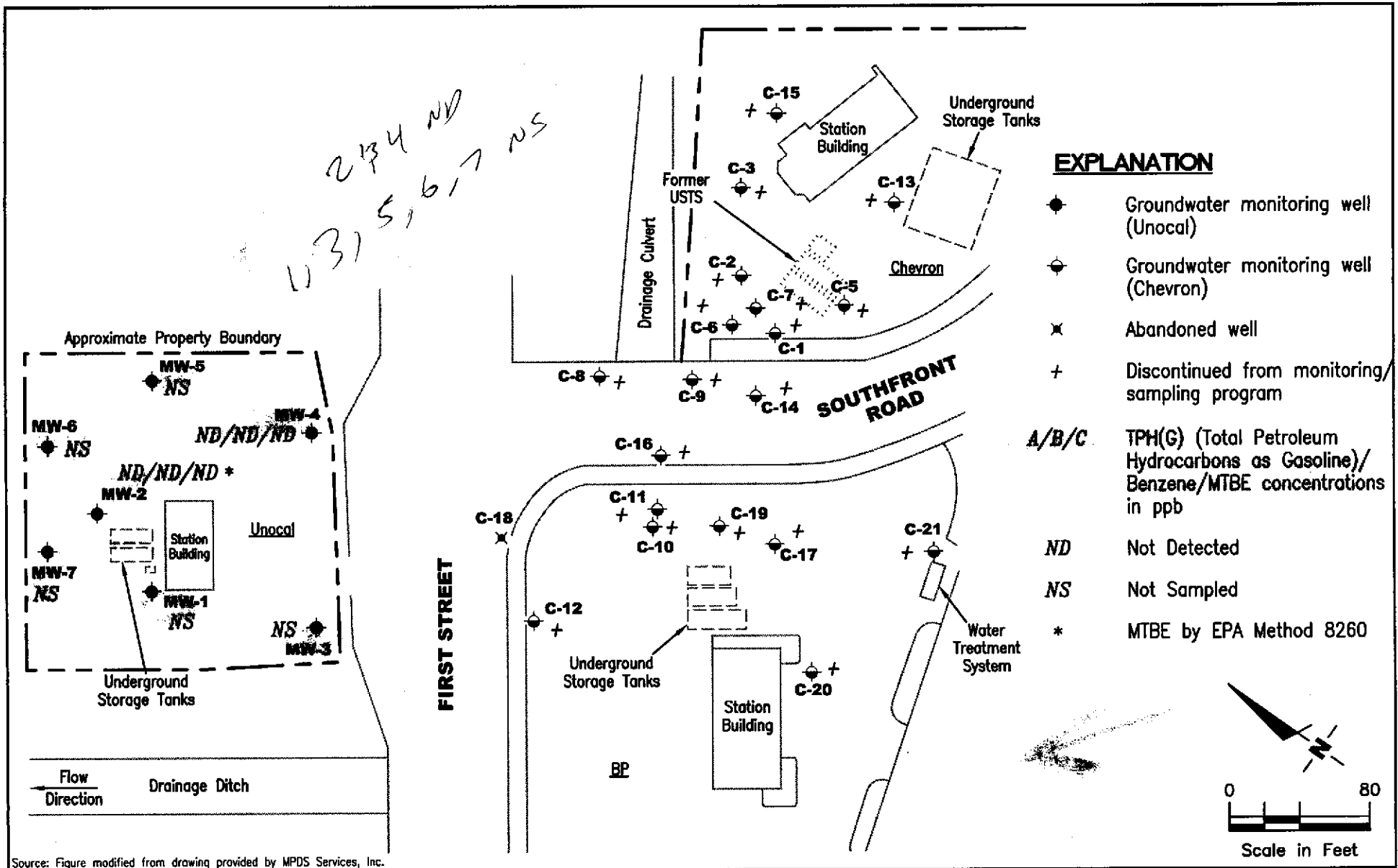
PROJECT NUMBER  
 180047

REVIEWED BY

DATE  
 April 2, 2001

REVISED DATE

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**GETTLER - RYAN INC.**  
 6747 Sierra Ct., Suite J  
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**CONCENTRATION MAP**  
 Tosco (Unocal) Service Station #6034  
 4700 First Street  
 Livermore, California

FIGURE

2

PROJECT NUMBER  
 180047

REVIEWED BY

DATE  
 April 2, 2001

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.)	S.I. (ft.bgs)	GWE (mst)	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	--	--	--	--	--	--
	<b>04/02/01</b>	<b>14.72</b>		<b>505.92</b>	--	--	--	--	--	--

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

WELL ID/ TOC*	DATE	DTW (ft.)	S.I. (ft.bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-2	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
	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	

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

WELL ID/ TOC*	DATE	DTW (ft.)	S.L. (ft.bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-2 (cont)	10/07/98	14.35	11.0-25.0	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>
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		--	--	--	--
	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

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

WELL ID/ TOC*	DATE	DTW (ft.)	S.I. (ft.bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-3	01/17/96	13.68	11.0-25.0	505.98	SAMPLED ANNUALLY <sup>2</sup>		--	--	--	--
(cont)	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	--	--	--	--	--	--
	<b>04/02/01</b>	<b>13.38</b>		<b>506.28</b>	--	--	--	--	--	--
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	--
	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	--



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

WELL ID/ TOC*	DATE	DTW (ft.)	S.L. (ft.bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)	
MW-4 (cont)	04/21/94	14.13	11.0-25.0	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		
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	

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

WELL ID/ TOC*	DATE	DTW (ft.)	S.I. (ft.bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-5	10/16/92	--	10.0-24.0	--	180	7.8	1.1	17	6.4	2.0
(cont)	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	--	--	--	--	--	--
	10/02/00	14.65		505.62	--	--	--	--	--	--
	<b>04/02/01</b>	<b>14.20</b>		<b>506.07</b>	--	--	--	--	--	--
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	--

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

WELL ID/ TOC*	DATE	DTW (ft.)	S.I. (ft.bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-6	04/06/92	--	10.0-24.0	--	ND	ND	ND	ND	ND	--
(cont)	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	--	--	--	--	--	--
	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	--	--	--	--	--	--
	<b>04/02/01</b>	<b>13.31</b>		<b>505.44</b>	--	--	--	--	--	--

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

WELL ID/ TOC*	DATE	DTW (ft.)	S.I. (ft. bgs)	GWE (mst)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
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	--
	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	--	--	--	--	--	--
	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	--	--	--	--	--	--	

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

WELL ID/ TOC*	DATE	DTW (ft.)	S.I. (ft.bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
<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

**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	B = Benzene	(ppb) = Parts per billion
DTW = Depth to Water	T = Toluene	ND = Not Detected
(ft.) = Feet	E = Ethylbenzene	-- = Not Measured/Not Analyzed
S.I. = Screen Interval	X = Xylenes	
(ft.bgs) = Feet Below Ground Surface	MTBE = Methyl tertiary butyl ether	
GWE = Groundwater Elevation		
(msl) = Mean sea level		
TPH-G = Total Petroleum Hydrocarbons as Gasoline		

\* 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.

- 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.
- 9 Laboratory report indicates Total Oil & Grease (TOG) at 3.1 ppm, Trichloroethene (TCE) at 0.55 ppb, and Chloroform was ND.
- 10 Laboratory report indicates TOG at 4.7 ppm, TCE and Chloroform were ND.
- 11 Laboratory report indicates TOG, TCE and Chloroform were ND.
- 12 Laboratory report indicates TPH-Diesel (TPH-D), TOG, and TCE were ND, and Chloroform was 0.69 ppb.
- 13 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
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

<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	--	
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*	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*	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*	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*	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
<b>C-18</b>	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 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: 4-2-01  
 City: Livermore Sampler: Joe

Well ID MW-1 Well Condition: o.k  
 Well Diameter 2 in. Hydrocarbon Thickness: 0 in. Amount Bailed (product/water): 0 (gal.)  
 Total Depth 27.85 ft.  
 Depth to Water 14.72 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 $\times 10^2$	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

LABORATORY INFORMATION					ANALYSES
SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
	3Y0A	Y	HCL	Seq.	TPHG, BTEX, MTBE

COMMENTS: NA only

## WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility # 6034 Job#: 180047  
 Address: 4700 First st. Date: 4-2-01  
 City: Livermore Sampler: Joe

Well ID MW-2 Well Condition: OK  
 Well Diameter 2 in. Hydrocarbon Thickness: 0 in. Amount Bailed (product/water): 0 (gal.)  
 Total Depth 25.63 ft. Volume 2" = 0.17 3" = 0.38 4" = 0.66  
 Depth to Water 14.12 ft. Factor (VF) 6" = 1.50 12" = 5.80

11.51 X VF 0.17 = 1.96 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: 9:35 Weather Conditions: clear/windy  
 Sampling Time: 10:00 a.m. Water Color: clear Odor: Some  
 Purging Flow Rate: 1 gpm Sediment Description: \_\_\_\_\_  
 Did well de-water? \_\_\_\_\_ If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu\text{mhos/cm} \times 10^2$	Temperature F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>9:45</u>	<u>2</u>	<u>7.27</u>	<u>4.29</u>	<u>69.9</u>	<u>3.95</u>		
<u>9:46</u>	<u>4</u>	<u>7.31</u>	<u>4.37</u>	<u>70.5</u>			
<u>9:48</u>	<u>6</u>	<u>7.26</u>	<u>4.42</u>	<u>71.0</u>			

### LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-2</u>	<u>3V0A</u>	<u>Y</u>	<u>HCL</u>	<u>Seq.</u>	<u>TPHG, BTEX, MTBE</u>
	<u>2V0A</u>	<u>''</u>	<u>''</u>	<u>''</u>	<u>(6) oxy's 1.2 DCA/EDS by 8260</u>

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

## WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility # 6034 Job#: 180047  
 Address: 4700 First st. Date: 4-2-01  
 City: Livermore Sampler: Joe

Well ID MW-3 Well Condition: o.k  
 Well Diameter 2 in. Hydrocarbon Amount Bailed  
 Thickness: 0 in. (product/water): 0 (gal.)  
 Total Depth 25.42 ft  
 Depth to Water 13.38 ft

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

0.17 X VF 0.17 = 0.0289 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 X	Temperature F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

### LABORATORY INFORMATION

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

COMMENTS: m. only



**WELL MONITORING/SAMPLING  
FIELD DATA SHEET**

Client/Facility # 6034 Job#: 180047  
 Address: 4700 First st. Date: 4-2-01  
 City: Livermore Sampler: Joe

Well ID MW-4 Well Condition: o.k  
 Well Diameter 2 in. Hydrocarbon Thickness: 0 in. Amount Bailed (product/water): 0 (gal.)  
 Total Depth 25.46 ft.  
 Depth to Water 13.11 ft.

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

12.35 X VF 0.17 = 2.10 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: 8:55 Weather Conditions: clear/windy  
 Sampling Time: 9:25 A.M. Water Color: clear Odor: \_\_\_\_\_  
 Purging Flow Rate: \_\_\_\_\_ | gpm. Sediment Description: \_\_\_\_\_  
 Did well de-water? \_\_\_\_\_ If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm <sup>2</sup>	Temperature F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>9:06</u>	<u>2</u>	<u>8.04</u>	<u>5.88</u>	<u>72.1</u>			
<u>9:08</u>	<u>4</u>	<u>7.41</u>	<u>6.15</u>	<u>71.5</u>			
<u>9:10</u>	<u>65</u>	<u>7.46</u>	<u>6.17</u>	<u>71.4</u>			

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-4</u>	<u>3Y04</u>	<u>Y</u>	<u>HCL</u>	<u>Seq.</u>	<u>TPHG, BTEX, MTBE</u>

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

## WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility # 6034 Job#: 180047  
 Address: 4700 First st. Date: 4-2-01  
 City: Livermore Sampler: Joe

Well ID MW-5 Well Condition: o.k  
 Well Diameter 2 in. Hydrocarbon Thickness: 0 in. Amount Bailed (product/water): 0 (gal.)  
 Total Depth 23.60 ft  
 Depth to Water 14.20 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 $\mu\text{mhos/cm} \times$	Temperature $^{\circ}\text{F}$	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

### LABORATORY INFORMATION

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

COMMENTS: M-only

## WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility # 6034 Job#: 180047  
 Address: 4700 First st. Date: 4-2-01  
 City: Livermore Sampler: Joe

Well ID MW-6  
 Well Diameter 2 in.  
 Total Depth 20.37 ft.  
 Depth to Water 13.31 ft.

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

Volume	2" = 0.17	3" = 0.38	4" = 0.66
Factor (VF)	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 $\times 10^2$	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

### LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
	3Y04	<input checked="" type="checkbox"/>	HCL	Seq.	TPHG, BTEX, MTBE

COMMENTS: AA. Only

## WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/  
Facility # 6034

Job#: 180047

Address: 4700 First st.

Date: 4-2-01

City: Livermore

Sampler: Joe

Well ID MW-7

Well Condition: o.k

Well Diameter 2 in.

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

Total Depth 23.63 ft.

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

Depth to Water 13.86 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: \_\_\_\_\_

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 X	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

### LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
	3Y0A	Y	HCL	Seq.	TPHG, BTEX, MTBE

COMMENTS: M. only





# Sequoia Analytical

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

April 16, 2001

Deanna Harding  
Gettler-Ryan/Geostrategies(1)  
6747 Sierra Court, Suite J  
Dublin, CA 94568  
RE: Tosco(1) / L104016

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

Sincerely,

Latonya Pelt  
Project Manager

CA ELAP Certificate Number 2360



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

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

Reported:  
04/16/01 12:08

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-LB	L104016-01	Water	04/02/01 00:00	04/02/01 17:00
MW-2	L104016-02	Water	04/02/01 10:00	04/02/01 17:00
MW-4	L104016-03	Water	04/02/01 09:25	04/02/01 17:00

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

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

Reported:  
 04/16/01 12:08

**Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT**  
**Sequoia Analytical - San Carlos**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TB-LB (L104016-01) Water</b> Sampled: 04/02/01 00:00 Received: 04/02/01 17:00									
Purgeable Hydrocarbons as Gasoline	ND	50.0	ug/l	1	1040039	04/12/01	04/12/01	DHS LUFT	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	0.500	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	5.00	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		79.8 %		70-130	"	"	"	"	
<b>MW-2 (L104016-02) Water</b> Sampled: 04/02/01 10:00 Received: 04/02/01 17:00									
Purgeable Hydrocarbons as Gasoline	ND	50.0	ug/l	1	1040040	04/12/01	04/12/01	DHS LUFT	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	0.500	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	5.00	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		117 %		70-130	"	"	"	"	
<b>MW-4 (L104016-03) Water</b> Sampled: 04/02/01 09:25 Received: 04/02/01 17:00									
Purgeable Hydrocarbons as Gasoline	ND	50.0	ug/l	1	1040040	04/12/01	04/12/01	DHS LUFT	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	0.500	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	5.00	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		95.3 %		70-130	"	"	"	"	



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

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

Reported:  
 04/16/01 12:08

**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 (L104016-02) Water    Sampled: 04/02/01 10:00    Received: 04/02/01 17:00</b>									
Ethanol	ND	1000	ug/l	1	1040012	04/04/01	04/04/01	EPA 8260B	
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>		<i>90.4 %</i>		<i>76-114</i>	"	"	"	"	
<i>Surrogate: Toluene-d8</i>		<i>98.6 %</i>		<i>88-110</i>	"	"	"	"	

Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite J Dublin CA, 94568	Project: Tosco(1) Project Number: Unocal SS#6034 Project Manager: Deanna Harding	Reported: 04/16/01 12:08
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**Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT - Quality Control**  
**Sequoia Analytical - San Carlos**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 1040039 - EPA 5030B (P/T)</b>										
<b>Blank (1040039-BLK1)</b> <span style="float: right;">Prepared &amp; Analyzed: 04/12/01</span>										
Purgeable Hydrocarbons as Gasoline	ND	50.0	ug/l							
Benzene	ND	0.500	"							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	0.500	"							
Methyl tert-butyl ether	ND	5.00	"							
<i>Surrogate: a,a,a-Trifluorotoluene</i>	9.78		"	10.0		97.8	70-130			
<b>LCS (1040039-BS1)</b> <span style="float: right;">Prepared &amp; Analyzed: 04/12/01</span>										
Benzene	8.59	0.500	ug/l	10.0		85.9	70-130			
Toluene	8.56	0.500	"	10.0		85.6	70-130			
Ethylbenzene	8.43	0.500	"	10.0		84.3	70-130			
Xylenes (total)	25.5	0.500	"	30.0		85.0	70-130			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	8.83		"	10.0		88.3	70-130			
<b>LCS (1040039-BS2)</b> <span style="float: right;">Prepared &amp; Analyzed: 04/12/01</span>										
Purgeable Hydrocarbons as Gasoline	263	50.0	ug/l	250		105	70-130			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	8.29		"	10.0		82.9	70-130			
<b>Matrix Spike (1040039-MS1)</b> <span style="float: right;">Source: L104018-10 Prepared &amp; Analyzed: 04/12/01</span>										
Benzene	8.62	0.500	ug/l	10.0	ND	86.2	60-140			
Toluene	8.73	0.500	"	10.0	ND	87.3	60-140			
Ethylbenzene	8.66	0.500	"	10.0	ND	86.6	60-140			
Xylenes (total)	26.2	0.500	"	30.0	ND	87.3	60-140			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	9.70		"	10.0		97.0	70-130			
<b>Matrix Spike Dup (1040039-MSD1)</b> <span style="float: right;">Source: L104018-10 Prepared &amp; Analyzed: 04/12/01</span>										
Benzene	9.36	0.500	ug/l	10.0	ND	93.6	60-140	8.23	25	
Toluene	9.32	0.500	"	10.0	ND	93.2	60-140	6.54	25	
Ethylbenzene	9.13	0.500	"	10.0	ND	91.3	60-140	5.28	25	
Xylenes (total)	27.7	0.500	"	30.0	ND	92.3	60-140	5.57	25	
<i>Surrogate: a,a,a-Trifluorotoluene</i>	9.85		"	10.0		98.5	70-130			

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.*

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

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

Reported:  
04/16/01 12:08

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 1040040 - EPA 5030B (P/T)</b>										
<b>Blank (1040040-BLK1)</b>										
Prepared & Analyzed: 04/12/01										
Purgeable Hydrocarbons as Gasoline	ND	50.0	ug/l							
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	11.0		"	10.0		110	70-130			
<b>LCS (1040040-BS1)</b>										
Prepared & Analyzed: 04/12/01										
Benzene	8.74	0.500	ug/l	10.0		87.4	70-130			
Toluene	8.67	0.500	"	10.0		86.7	70-130			
Ethylbenzene	8.80	0.500	"	10.0		88.0	70-130			
Xylenes (total)	26.4	0.500	"	30.0		88.0	70-130			
Surrogate: a,a,a-Trifluorotoluene	10.7		"	10.0		107	70-130			
<b>LCS (1040040-BS2)</b>										
Prepared & Analyzed: 04/12/01										
Purgeable Hydrocarbons as Gasoline	223	50.0	ug/l	250		89.2	70-130			
Surrogate: a,a,a-Trifluorotoluene	10.9		"	10.0		109	70-130			
<b>Matrix Spike (1040040-MS1)</b>										
Source: L104016-02										
Prepared & Analyzed: 04/12/01										
Benzene	9.99	0.500	ug/l	10.0	ND	99.9	60-140			
Toluene	10.0	0.500	"	10.0	ND	100	60-140			
Ethylbenzene	10.4	0.500	"	10.0	ND	104	60-140			
Xylenes (total)	31.2	0.500	"	30.0	ND	104	60-140			
Surrogate: a,a,a-Trifluorotoluene	12.4		"	10.0		124	70-130			
<b>Matrix Spike Dup (1040040-MSD1)</b>										
Source: L104016-02										
Prepared & Analyzed: 04/12/01										
Benzene	9.09	0.500	ug/l	10.0	ND	90.9	60-140	9.43	25	
Toluene	9.15	0.500	"	10.0	ND	91.5	60-140	8.88	25	
Ethylbenzene	9.60	0.500	"	10.0	ND	96.0	60-140	8.00	25	
Xylenes (total)	28.4	0.500	"	30.0	ND	94.7	60-140	9.40	25	
Surrogate: a,a,a-Trifluorotoluene	11.8		"	10.0		118	70-130			

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

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

Reported:  
04/16/01 12:08

**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 1040012 - EPA 5030B [P/T]**

**Blank (1040012-BLK1)**

Prepared & Analyzed: 04/03/01

Ethanol	ND	1000	ug/l							
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	"							
Surrogate: 1,2-Dichloroethane-d4	48.3		"	50.0		96.6	76-114			
Surrogate: Toluene-d8	46.1		"	50.0		92.2	88-110			

**Blank (1040012-BLK2)**

Prepared & Analyzed: 04/04/01

Ethanol	ND	1000	ug/l							
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	"							
Surrogate: 1,2-Dichloroethane-d4	46.4		"	50.0		92.8	76-114			
Surrogate: Toluene-d8	52.1		"	50.0		104	88-110			

**LCS (1040012-BS1)**

Prepared & Analyzed: 04/03/01

Methyl tert-butyl ether	48.8	2.00	ug/l	50.0		97.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	49.8		"	50.0		99.6	76-114			
Surrogate: Toluene-d8	50.7		"	50.0		101	88-110			

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

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

Reported:  
 04/16/01 12:08

**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 1040012 - EPA 5030B [P/T]</b>										
<b>LCS (1040012-BS2)</b>										
					Prepared & Analyzed: 04/04/01					
Methyl tert-butyl ether	39.8	2.00	ug/l	50.0		79.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	47.5		"	50.0		95.0	76-114			
Surrogate: Toluene-d8	51.5		"	50.0		103	88-110			
<b>Matrix Spike (1040012-MS1)</b>										
					Source: L104006-05		Prepared & Analyzed: 04/03/01			
Methyl tert-butyl ether	134	2.00	ug/l	50.0	87.3	93.4	60-140			
Surrogate: 1,2-Dichloroethane-d4	48.7		"	50.0		97.4	76-114			
Surrogate: Toluene-d8	48.8		"	50.0		97.6	88-110			
<b>Matrix Spike Dup (1040012-MSD1)</b>										
					Source: L104006-05		Prepared & Analyzed: 04/03/01			
Methyl tert-butyl ether	132	2.00	ug/l	50.0	87.3	89.4	60-140	1.50	25	
Surrogate: 1,2-Dichloroethane-d4	48.5		"	50.0		97.0	76-114			
Surrogate: Toluene-d8	53.7		"	50.0		107	88-110			

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#### Notes and Definitions

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