GETTLER-RYAN INC.

TRANSMITTAL

STID 2465

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

DATE: December 30, 1998
G-R #: 180047

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	December 21, 1998	Groundwater Monitoring and Sampling Report Semi-Annual 1998 - Event of October 7, 1998

COMMENTS:

At the request of Tosco Marketing Company, we are providing you a copy of the above referenced report. The site is monitored and sampled on a semi-annual basis. If you have questions please contact the Tosco Project Manager, Ms. Tina R. Berry at (925) 277-2321.

Enclosure

cc: Mr. Doug Lee, Gettler-Ryan Inc., Dublin, CA

agency/6034trb.qmt

GETTLER-RYAN INC.

December 21, 1998
G-R Job #180047

Ms. Tina R. Berry
Tosco Marketing Company
2000 Crow Canyon Place, Suite 400
San Ramon, California 94583

RE: Semi-Annual 1998 Groundwater Monitoring & Sampling Report
Tosco (Unocal) Service Station #6034
4700 First Street
Livermore, California

Dear Ms. Berry:

This report documents the semi-annual groundwater monitoring and sampling event performed by Gettler-Ryan Inc. (G-R). On October 7, 1998, field personnel monitored seven wells (MW-1 through MW-7) and sampled two wells (MW-2 and MW-4) at the above referenced site. One well MW-6 was dry. A joint groundwater monitoring was conducted at the Chevron Facility No. 9-1924 located at 4904 South Front Road, Livermore, California.

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.

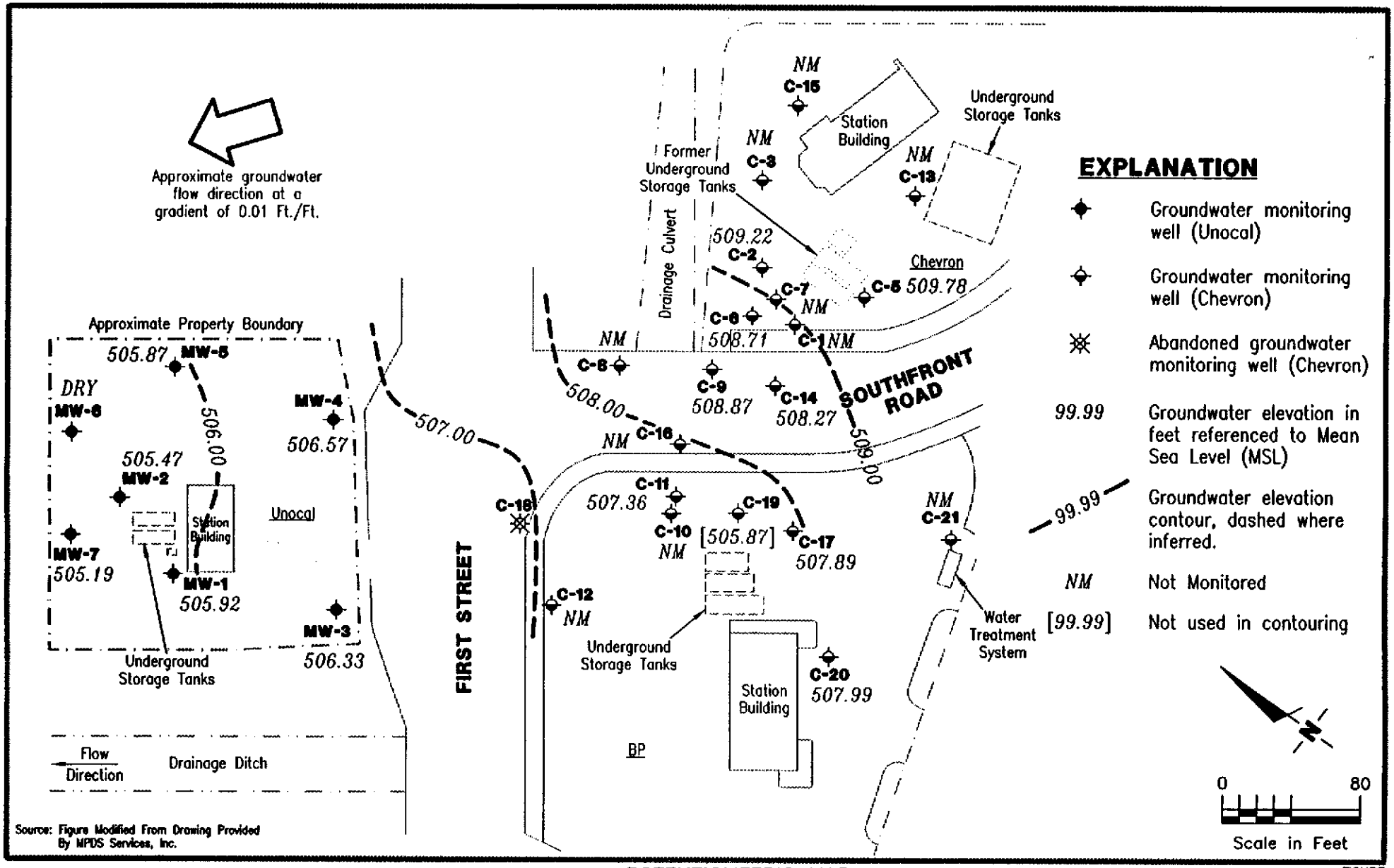
Sincerely,

Deanna L. Harding
Project Coordinator

REGISTERED GEOLOGIST
RICKY L. FEARS
No. 6728
STATE OF CALIFORNIA

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 Facility No. 9-1924
Attachments: Standard Operating Procedure - Groundwater Sampling
Field Data Sheets
6034.qml Chain of Custody Document and Laboratory Analytical Reports



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

Gettler - Ryan Inc.
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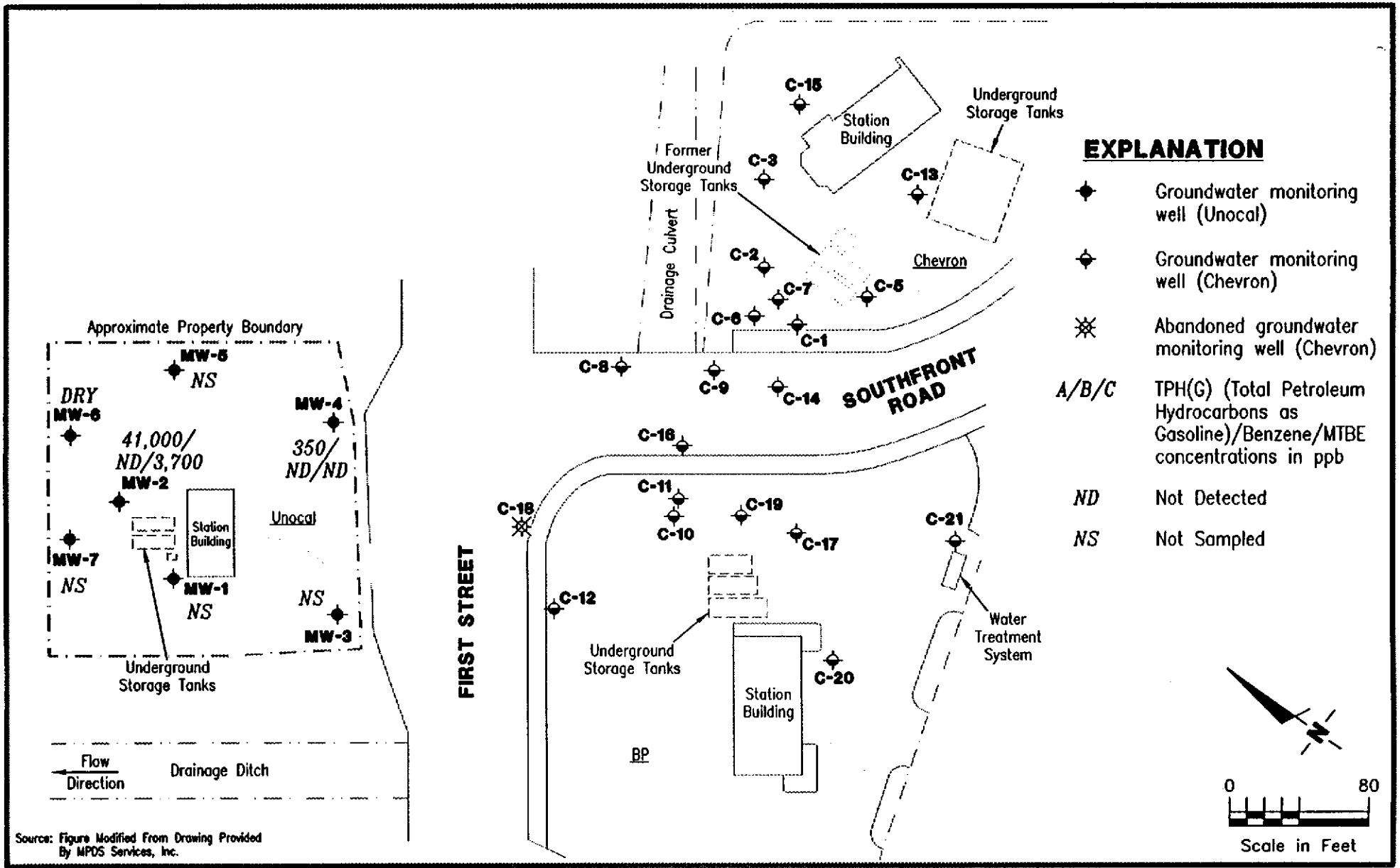
Dublin, CA 94568

POTENTIOMETRIC MAP
Tosco (Unocal) Service Station No. 6034
4700 First Street
Livermore, California

FIGURE 1

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
180047		October 7, 1998	



Gettler - Ryan Inc.
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CONCENTRATION MAP
Tosco (Unocal) Service Station No. 6034
4700 First Street
Livermore, California

FIGURE
2

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
180047		October 7, 1998	

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**	--	--	--	--	--	--
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	--

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	01/14/92	--	--	5,600	36	120	450	2,600	--
(cont)	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[3]	ND[3]	980	5,200	[illegible]
	10/07/98	**14.35**	**505.47**	[illegible]	**ND[3]**	**ND[3]**	**2,100**	**7,800**	**2,700/2,700[6]**
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	--

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	04/06/92	--	--	ND	ND	ND	ND	ND	--
(cont)	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[2]		--	--	--	--
	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**	**--**	**--**	**--**	**--**	**--**	**--**
MW-4	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	--

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	10/16/92	--	--	300	2.1	ND	4.8	13	--
(cont)	01/14/93	--	--	920	ND	6.3	12	3.9	--
520.12	04/22/93	14.30	505.82	1,100	8.8	1.0	7.2	6.0	--
	07/20/93	16.35	503.77	NOT SAMPLED - SAMPLING ACCESS DENIED			--	--	--
519.61	10/20/93	14.16	505.45	640	ND	2.5	2.3	1.9	--
	01/20/94	14.15	505.46	1,200	ND	2.6	4.7	7.4	--
	04/21/94	14.13	505.48	380	0.83	1.2	1.2	1.7	--
	07/21/94	14.26	505.35	320	0.51	1.4	1.0	1.6	--
	10/19/94	13.95	505.66	750	ND	3.6	4.2	3.4	--
	01/18/95	13.16	506.45	790	1.5	3.3	1.2	2.6	--
	04/17/95	13.19	506.42	570	2.8	ND	3.3	3.9	--
	07/18/95	13.21	506.40	340	1.0	1.9	2.8	2.7	--
	10/17/95	13.22	506.39	260	1.1	0.57	0.69	1.6	2.0
	01/17/96	13.02	506.59	SAMPLED SEMI-ANNUALLY			--	--	--
	04/17/96	13.08	506.53	720	3.0	2.6	6.1	6.9	ND
	07/16/96	12.91	506.70	--	--	--	--	--	--
	10/16/96	12.98	506.63	1,100	6.6	23	24	85	15
	01/13/97	--	--	--	--	--	--	--	--
	04/08/97	13.36	506.25	470	1.2	1.9	1.2	6.9	ND
	10/06/97	13.42	506.19	240	ND	0.85	0.83	2.3	ND
	04/02/98	12.76	506.85	270[4]	ND[3]	1.2	ND[3]	4.5	10
	10/07/98	**13.04**	**506.57**	**350[7]**	**ND**	**ND**	**ND**	**4.8**	**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[1]	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	--

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	04/21/94	15.41	504.86	ND	ND	ND	ND	ND	--
(cont)	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[2]		--	--	--	--
	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**	**--**	**--**	**--**	**--**	**--**	**--**
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

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	01/17/96	OBSTRUCTED BY ROOTS		SAMPLED ANNUALLY[2]		--	--	--	--
(cont)	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	DRY	--	--	--	--	--	--	--
	10/07/98	DRY[8]	--	--	--	--	--	--	--
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[2]		--	--	--	--
	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**	--	--	--	--	--	--
Trip Blank									
TB-LB	04/02/98	--	--	ND	ND	ND	ND	ND	ND
	10/07/98	--	--	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**

Table 1

Groundwater Monitoring Data and Analytical Results

Tosco (Unocal) Service Station #6034

4700 First Street

Livermore, California

EXPLANATIONS:

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

TOC = Top of Casing 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 results.
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 Well obstructed by roots, however field tech was able to cut root to allow for DTW measurement.

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[1]	**3.85**	**--**
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

[1] ORC removed from well.

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

Table 4

Joint Groundwater Monitoring Data

Chevron Facility No. 9-1924

4904 South Front Road

Livermore, California

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)
C-1			
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
C-2			
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**
C-3			
521.31	07/18/95	12.89	508.42
	10/17/95	13.26	508.05
C-5			
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**
C-6			
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**
C-7			
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

Table 4

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	07/16/96	11.51	508.79
(cont)	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**
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**
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

Table 4

Joint Groundwater Monitoring Data

Chevron Facility No. 9-1924

4904 South Front Road

Livermore, California

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)
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**
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
	07/16/96	12.67	508.15
	10/16/96	13.70	507.12
	10/07/98	**12.93**	**507.89**
C-18	04/17/95	ABANDONED	--
C-19			
518.96	04/17/95	13.80	505.16
	07/18/95	13.72	505.24
	10/17/95	14.10	504.86
	04/17/96	13.40	505.56
	07/16/96	13.47	505.49
	10/16/96	13.83	505.13
	10/07/98	**13.09**	**505.87**
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**

Table 4

Joint Groundwater Monitoring Data

Chevron Facility No. 9-1924

4904 South Front Road

Livermore, California

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)
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 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 a MMC flexi-dip 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, each well is purged a minimum of three well casing volumes of water using pre-cleaned pumps (stack, suction, Grundfos), or polyvinyl chloride bailers. Temperature, pH and electrical conductivity are measured 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: 10-7-98

City: Livermore Sampler: Joe

Well ID MW-1 Well Condition: O.K

Well Diameter 2 in. Hydrocarbon Thickness: 0 (feet) Amount Bailed (product/water): _____ (Gallons)

Total Depth 27.90 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 0.17 = _____ 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: clear

Sampling Time: _____ Water Color: clear Odor: _____

Purging Flow Rate: _____ gpm. Sediment Description: none

Did well de-water? _____ If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity µmhos/cm	Temperature °F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

LABORATORY INFORMATION

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

COMMENTS: monitored only.

9/97-fieldst.frm

WELL MONITORING/SAMPLING
FIELD DATA SHEET

Client/
Facility #6034 Job#: 180047

Address: 4700 First st: Date: 10-7-98

City: Livermore Sampler: Joe

Well ID mw-2 Well Condition: O.K

Well Diameter 2 in. Hydrocarbon Thickness: 0 (feet) Amount Bailed (product/water): _____ (Gallons)

Total Depth 25.65 ft.

Depth to Water 14.35 ft.

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

11.3 X VF 0.17 = 1.92 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: 11:08 Weather Conditions: clear

Sampling Time: 11:20 A.M Water Color: clear Odor: yes

Purging Flow Rate: 1 gpm. Sediment Description: none

Did well de-water? _____ If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity (1000) µmhos/cm	Temperature °F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
11:15	2	7.05	3.77	69.5	3.85		
11:17	4	6.96	3.78	69.8			
11:18	6	6.98	7.75	69.8			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
mw-2	3 VOA	Y	HCL	SEQUOIA	TPH(G)/btex/mtbe (8260)

COMMENTS: Removed ORC From well.

9/97-fieldat.frm

WELL MONITORING/SAMPLING
FIELD DATA SHEET

Client/
Facility #6034 Job#: 180047

Address: 4700 First st: Date: 10-7-98

City: Livermore Sampler: Joe

Well ID MW-3 Well Condition: O.K

Well Diameter 2 in. Hydrocarbon Thickness: 0 (feet) Amount Bailed (product/water): _____ (Gallons)

Total Depth 25.43 ft.

Depth to Water 13.33 ft.

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

_____ X VF 0.17 = _____ 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: clear

Sampling Time: _____ Water Color: clear Odor: _____

Purging Flow Rate: _____ gpm. Sediment Description: none

Did well de-water? _____ If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity 1600 µmhos/cm	Temperature °F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

LABORATORY INFORMATION

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

COMMENTS: Monitored only

WELL MONITORING/SAMPLING
FIELD DATA SHEET

Client/
Facility #6034 Job#: 180047

Address: 4700 First st: Date: 10-7-98

City: Livermore Sampler: Joe

Well ID MW-4 Well Condition: O.K

Well Diameter 2 in. Hydrocarbon Thickness: 0 (feet) Amount Bailed (product/water): _____ (Gallons)

Total Depth 25.48 ft.

Depth to Water 13.04 ft.

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

12.44 X VF 0.17 = 2.11 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: 10:35 Weather Conditions: clear

Sampling Time: 10:55 A.M Water Color: clear Odor: yes

Purging Flow Rate: 1 gpm. Sediment Description: none

Did well de-water? _____ If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity (µmhos/cm)	Temperature °F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
10:45	2	7.19	4.17	70.1			
10:47	4	7.38	4.27	69.7			
10:48	6.5	7.42	4.24	69.8			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-4	3 VOA	Y	HCL	SEQUOIA	TPH(G)/btex/mtbe

COMMENTS: _____

WELL MONITORING/SAMPLING
FIELD DATA SHEET

Client/
Facility #6034 Job#: 180047

Address: 4700 First st: Date: 10-7-98

City: Livermore Sampler: Joe

Well ID MW-5 Well Condition: O.K

Well Diameter 2 in. Hydrocarbon Thickness: 0 (feet) Amount Bailed (product/water): _____ (Gallons)

Total Depth 23.61 ft.

Depth to Water 14.40 ft.

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

_____ X VF 0.17 = _____ 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: clear

Sampling Time: _____ Water Color: clear Odor: _____

Purging Flow Rate: _____ gpm. Sediment Description: none

Did well de-water? _____ If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity µmhos/cm	Temperature °F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

LABORATORY INFORMATION

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

COMMENTS: Monitored only

WELL MONITORING/SAMPLING
FIELD DATA SHEET

Client/
Facility #6034 Job#: 180047

Address: 4700 First st: Date: 10-7-98

City: Livermore Sampler: Joe

Well ID MW-6 Well Condition: O.K

Well Diameter 2 in. Hydrocarbon Thickness: 0 (feet) Amount Bailed (product/water): _____ (Gallons)

Total Depth (23.41) ft.

Depth to Water DRY ft.

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

_____ X VF 0.17 = _____ 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: clear

Sampling Time: _____ Water Color: clear Odor: _____

Purging Flow Rate: _____ gpm. Sediment Description: none

Did well de-water? _____ If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity µmhos/cm	Temperature °F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

LABORATORY INFORMATION

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

COMMENTS: Monitored only.
Well is obstructed by heavy roots.

WELL MONITORING/SAMPLING
FIELD DATA SHEET

Client/
Facility #6034 Job#: 180047

Address: 4700 First st: Date: 10-7-98

City: Livermore Sampler: Joe

Well ID MW-7 Well Condition: O.K

Well Diameter 2 in. Hydrocarbon Thickness: 0 (feet) Amount Bailed (product/water): _____ (Gallons)

Total Depth 23.65 ft.

Depth to Water 13.64 ft.

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

_____ X VF 0.17 = _____ 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: clear

Sampling Time: _____ Water Color: clear Odor: _____

Purging Flow Rate: _____ gpm. Sediment Description: none

Did well de-water? _____ If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity µmhos/cm	Temperature °F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

LABORATORY INFORMATION

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

COMMENTS: monitored only

TOSCO

Tosco Marketing Company
3000 Crow Canyon Pl., Ste. 400
San Ramon, California 94583

Facility Number UNOCAL SS#6034
Facility Address 4700 FIRST STREET, LIVERMORE, CA
Consultant Project Number 180047.85
Consultant Name Gettler-Ryan Inc. (G-R Inc.)
Address 6747 Sierra Court, Suite J, Dublin, CA 94568
Project Contact (Name) Deanna L. Harding
(Phone) 510-551-7555 (Fax Number) 510-551-7888

Contact (Name) MS. TINA BERRY
(Phone) 925-277-2321
Laboratory Name Sequoia Analytical
Laboratory Release Number
Samples Collected by (Name) JOE ATEMIAN
Collection Date 10-7-98
Signature Joe

9810564

Analyses To Be Performed

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	TPH Gas + BTEX w/MTBE (8020)	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)					DO NOT BILL TB-LB ANALYSIS Remarks
TB-LB	01	1 VOA	W	-	-	HCl	Y	✓												Confirm MTBE hit in MW-2 by 8260.
MW-2	02	3 VOA	/	G	11:20 A.M	/	/	✓												
MW-4	03	3 VOA	/	/	10:55 A.M	/	/	✓												

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Joe Ojeda	G-R Inc.	10-7-98 1200	Joan Weber	G-R INC.	10-7-98 1200
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Joan Weber	G-R Inc.	10-7-98 1516		Seq.	10/7/98 1516
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time
	Seq.	10/7/98	Tom Grant		10.7.98/1740

Turn Around Time (Circle Choice)
24 Hrs.
48 Hrs.
5 Days
10 Days
As Contracted

Sequoia Analytical

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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Gettler Ryan/Geostrategies	Client Proj. ID: 6034/180047.85, 4700 First St	Sampled: 10/07/98
6747 Sierra Court Suite J	Sample Descript: TB-LB	Received: 10/07/98
Dublin, CA 94568	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 10/13/98
Attention: Deanna Harding	Lab Number: 9810564-01	Reported: 10/19/98

QC Batch Number: GC101398BTEX03A
Instrument ID: GCHP03

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Methyl t-Butyl Ether	2.5	N.D.
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	88

GETTLER-RYAN INC.
GENERAL CONTRACTORS

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Tod Granicher
Project Manager

Sequoia Analytical

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Gettler Ryan/Geostrategies	Client Proj. ID: 6034/180047.85, 4700 First St	Sampled: 10/07/98
6747 Sierra Court Suite J	Sample Descript: MW-2	Received: 10/07/98
Dublin, CA 94568	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 10/13/98
Attention: Deanna Harding	Lab Number: 9810564-02	Reported: 10/19/98

QC Batch Number: GC101398BTEX17A
Instrument ID: GCHP17

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**5000**	**41000**
Methyl t-Butyl Ether	**250**	**3700**
Benzene	50	N.D.
Toluene	50	N.D.
Ethyl Benzene	**50**	**2100**
Xylenes (Total)	**50**	**7800**
Chromatogram Pattern:		
Weathered Gas		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	91

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Tod Granicher
Project Manager

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Gettler Ryan/Geostrategies	Client Proj. ID: 6034/180047.85, 4700 First St	Sampled: 10/07/98
6747 Sierra Court Suite J	Sample Descript: MW-2	Received: 10/07/98
Dublin, CA 94568	Matrix: LIQUID	
	Analysis Method: EPA 8260	Analyzed: 10/14/98
Attention: Deanna Harding	Lab Number: 9810564-02	Reported: 10/19/98

QC Batch Number: MS101498MTBEH6A
Instrument ID: H6

Methyl t-Butyl Ether (MTBE)

Analyte	Detection Limit ug/L	Sample Results ug/L
Methyl t-Butyl Ether	200	2700

Surrogates	Control Limits %		% Recovery
1,2-Dichloroethane-d4	76	114	98

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Tod Granicher
Project Manager

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Gettler Ryan/Geostrategies	Client Proj. ID: 6034/180047.85, 4700 First St	Sampled: 10/07/98
6747 Sierra Court Suite J	Sample Descript: MW-4	Received: 10/07/98
Dublin, CA 94568	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 10/13/98
Attention: Deanna Harding	Lab Number: 9810564-03	Reported: 10/19/98

QC Batch Number: GC101398BTEX17A
Instrument ID: GCHP17

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**50**	**350**
Methyl t-Butyl Ether	2.5	N.D.
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	**0.50**	**4.8**
Chromatogram Pattern:		
Unidentified HC		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	128

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Tod Granicher
Project Manager

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Gettler Ryan/Geostrategies
6747 Sierra Court, Suite J
Dublin, CA 94568
Attention: Deanna Harding

Client Project ID: 6034/180047.85, 4700 First St.

QC Sample Group: 9810564

Reported: Oct 19, 1998

QUALITY CONTROL DATA REPORT

Matrix:	Liquid			
Method:	EPA 8020			
Analyst:	NC			
ANALYTE	Benzene	Toluene	Ethylbenzene	Xylenes
QC Batch #:	GC101398BTEX17A			
Sample No.:	GW9809H95-5			
Date Prepared:	10/13/98	10/13/98	10/13/98	10/13/98
Date Analyzed:	10/13/98	10/13/98	10/13/98	10/13/98
Instrument I.D.#:	GCHP17	GCHP17	GCHP17	GCHP17
Sample Conc., ug/L:	N.D.	N.D.	N.D.	N.D.
Conc. Spiked, ug/L:	10	10	10	30
Matrix Spike, ug/L:	11	11	11	32
% Recovery:	110	110	110	107
Matrix Spike Duplicate, ug/L:	11	10	11	32
% Recovery:	110	100	110	107
Relative % Difference:	0.0	9.5	0.0	0.0
RPD Control Limits:	0-25	0-25	0-25	0-25

LCS Batch#:	GWLCS101398A			
Date Prepared:	10/13/98	10/13/98	10/13/98	10/13/98
Date Analyzed:	10/13/98	10/13/98	10/13/98	10/13/98
Instrument I.D.#:	GCHP17	GCHP17	GCHP17	GCHP17
Conc. Spiked, ug/L:	10	10	10	30
LCS Recovery, ug/L:	11	11	11	31
LCS % Recovery:	110	110	110	103

Percent Recovery Control Limits:

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Tod Granicher
Project Manager

Please Note:
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

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Gettler Ryan/Geostrategies
6747 Sierra Court, Suite J
Dublin, CA 94568
Attention: Deanna Harding

Client Project ID: 6034/180047.85, 4700 First St.

QC Sample Group: 9810564

Reported: Oct 19, 1998

QUALITY CONTROL DATA REPORT

Matrix:	Liquid			
Method:	EPA 8020			
Analyst:	MM			
ANALYTE	Benzene	Toluene	Ethylbenzene	Xylenes
QC Batch #:	GC101398BTEX03A			
Sample No.:	GW9810024-1			
Date Prepared:	10/13/98	10/13/98	10/13/98	10/13/98
Date Analyzed:	10/13/98	10/13/98	10/13/98	10/13/98
Instrument I.D.#:	GCHP03	GCHP03	GCHP03	GCHP03
Sample Conc., ug/L:	N.D.	N.D.	N.D.	N.D.
Conc. Spiked, ug/L:	10	10	10	30
Matrix Spike, ug/L:	11	11	11	34
% Recovery:	110	110	110	113
Matrix Spike Duplicate, ug/L:	11	11	11	34
% Recovery:	110	110	110	113
Relative % Difference:	0.0	0.0	0.0	0.0
RPD Control Limits:	0-25	0-25	0-25	0-25

LCS Batch#:	GWLCS101398A			
Date Prepared:	10/13/98	10/13/98	10/13/98	10/13/98
Date Analyzed:	10/13/98	10/13/98	10/13/98	10/13/98
Instrument I.D.#:	GCHP03	GCHP03	GCHP03	GCHP03
Conc. Spiked, ug/L:	10	10	10	30
LCS Recovery, ug/L:	9.4	9.1	9.0	27
LCS % Recovery:	94	91	90	90

Percent Recovery Control Limits:

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Tod Granicher
Project Manager

Please Note:
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

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Gettler Ryan/Geostrategies	Client Project ID:	6034/180047.85, 4700 First St.	
6747 Sierra Court, Ste J	Matrix:	Liquid	
Dublin, CA 94568			
Attention: Deanna Harding	Work Order #:	9810564 01-03	Reported: Oct 20, 1998

QUALITY CONTROL DATA REPORT

Analyte:	MTBE
QC Batch#:	MS101498MTBEH6A
Analy. Method:	EPA 8260
Prep. Method:	

Analyst:	M. Williams
MS/MSD #:	981076814
Sample Conc.:	N.D.
Prepared Date:	10/14/98
Analyzed Date:	10/14/98
Instrument I.D.#:	H6
Conc. Spiked:	50 µg/L
Result:	45
MS % Recovery:	90
Dup. Result:	45
MSD % Recov.:	90
RPD:	0.0
RPD Limit:	0-25

LCS #:	LCS101498
Prepared Date:	10/14/98
Analyzed Date:	10/14/98
Instrument I.D.#:	H6
Conc. Spiked:	50 µg/L
LCS Result:	44
LCS % Recov.:	88

MS/MSD	60-140
LCS	70-130
Control Limits	

SEQUOIA ANALYTICAL

Tod Granicher
Project Manager

Please Note:
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

** MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference