



# GETTLER-RYAN INC.

September 8, 1998  
G-R Job #180066

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 #0752  
800 Harrison Street  
Oakland, California

Dear Ms. Berry:

This report documents the semi-annual groundwater monitoring and sampling event performed by Gettler-Ryan Inc. (G-R). On July 3, 1998, field personnel monitored and sampled eight wells (MW-1 through MW-8) at the above referenced site.

Static groundwater levels were measured and all wells were checked for the presence of separate-phase hydrocarbons. Separate-phase hydrocarbons were not present in the wells. Static water level data and groundwater elevations are summarized in Table 1. Dissolved oxygen concentrations are summarized in Table 4. A Potentiometric Map is included as Figure 1.

Groundwater samples were collected from the monitoring wells as specified by G-R Standard Operating Procedure - Groundwater Sampling (attached). The field data sheets are also attached. The samples were analyzed by Sequoia Analytical. Analytical results are summarized in Tables 1, 2 and 3. A Concentration Map is included as Figure 2. The chain of custody document and laboratory analytical reports are also attached.

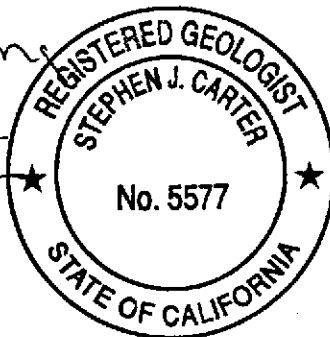
Sincerely,

*Deanna L. Harding*

Deanna L. Harding  
Project Coordinator

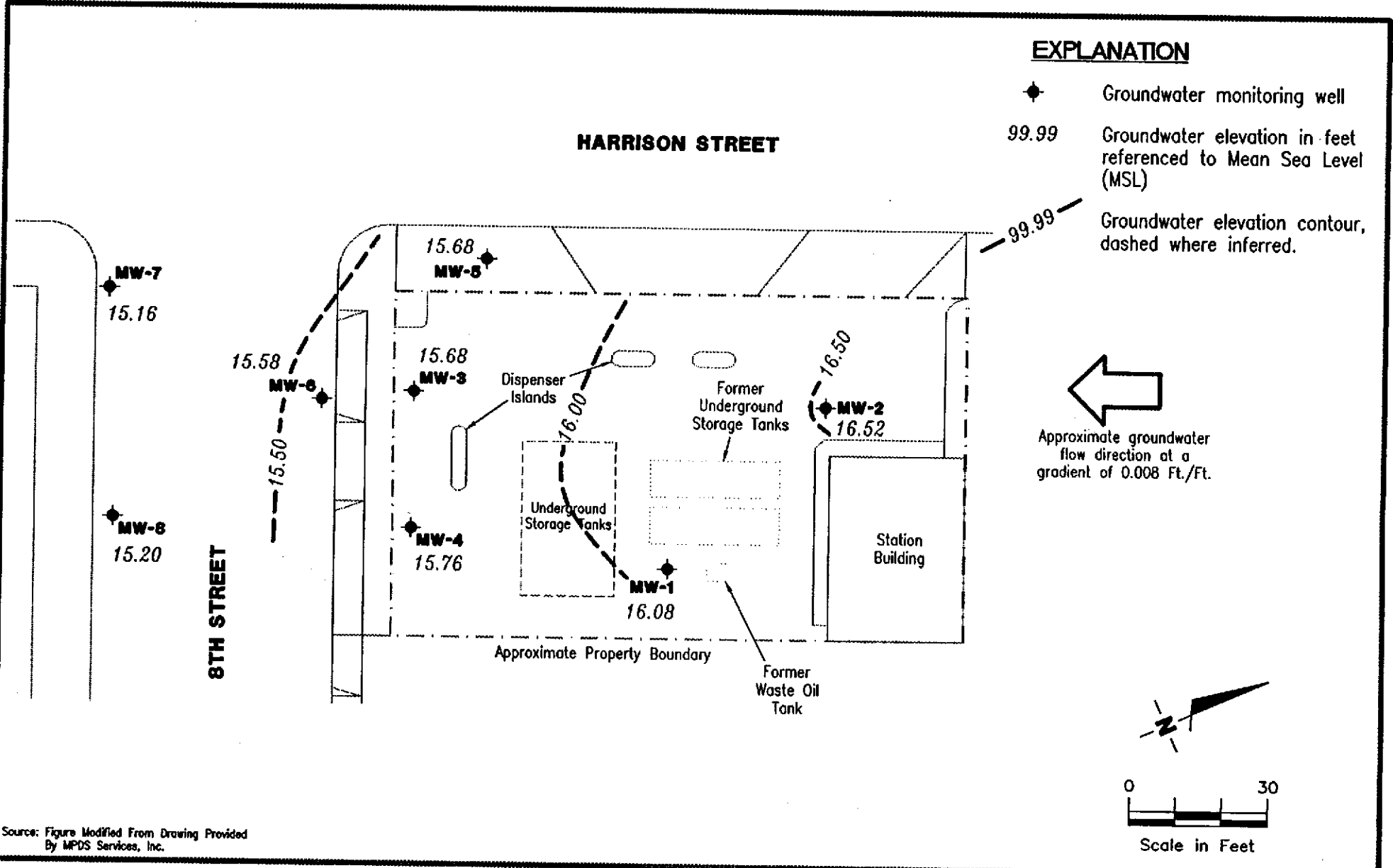
*Stephen J. Carter*

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: Groundwater Analytical Results
- Table 4: Dissolved Oxygen Concentrations
- Attachments: Standard Operating Procedure - Groundwater Sampling  
Field Data Sheets  
Chain of Custody Document and Laboratory Analytical Reports

0752.qml



**Gettler - Ryan Inc.**

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

**POTENTIOMETRIC MAP**  
Tosco (Unocal) Service Station No. 0752  
800 Harrison Street  
Oakland, California

FIGURE

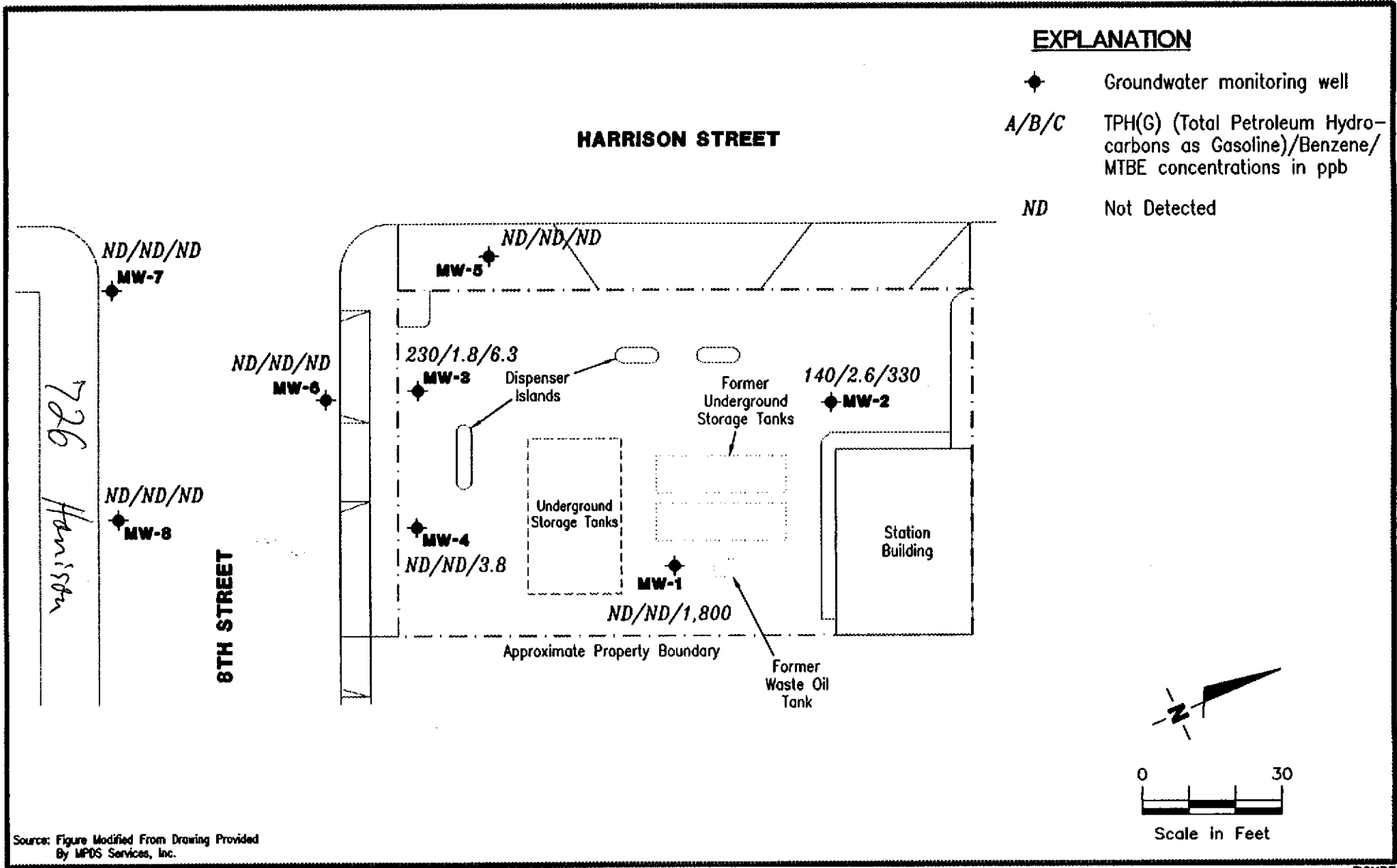
**1**

JOB NUMBER  
180066

REVIEWED BY

DATE  
July 3, 1998

REVISED DATE



**Gettler - Ryan Inc.**  
 6747 Sierra Ct., Suite J (925) 551-7555  
 Dublin, CA 94568

**CONCENTRATION MAP**  
 Tosco (Unocal) Service Station No. 0752  
 800 Harrison Street  
 Oakland, California

FIGURE  
**2**

JOB NUMBER  
 180066

REVIEWED BY

DATE  
 July 3, 1998

REVISED DATE

**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
 Tosco (Unocal) Service Station #0752  
 800 Harrison Street  
 Oakland, California

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)	TPH(D) <-----	TPH(G)	B	T	E	X	MTBE	Chloro-	PCE**	TCE**
											form**		
-----ppb----->													
MW-1	06/05/91	--	--	ND	47	ND	ND	ND	ND	--	7.8	2.9	1.3
	09/30/91	--	--	ND	ND	ND	ND	ND	ND	--	--	--	--
	12/30/91	--	--	ND	ND	ND	ND	ND	ND	--	6.4	2.1	0.9
	04/02/92	--	--	94	ND	ND	ND	ND	ND	--	7.1	2.6	1.4
	06/30/92	--	--	120	ND	ND	ND	ND	ND	--	9.5	2.2	1.3
	09/15/92	--	--	ND	76	1.0	ND	ND	ND	--	12	2.2	1.3
34.94	12/21/92	21.17	13.77	ND	95	0.69	ND	ND	1.0	--	12	1.4	0.83
	04/28/93 <sup>1</sup>	--	--	470 <sup>2</sup>	920	3.1	2.3	1.2	9.7	--	12	0.89	0.85
	07/23/93	20.13	14.81	ND	ND	0.5	0.66	ND	ND	--	16	1.3	0.91
34.69	10/05/93	20.30	14.39	57 <sup>3</sup>	92 <sup>5</sup>	1.5	ND	ND	0.72	--	13	1.3	0.66
	01/03/94 <sup>6</sup>	20.52	14.17	ND	ND	ND	ND	ND	ND	--	18	1.4	0.93
	04/02/94	20.16	14.53	ND	ND	ND	ND	ND	ND	--	15	1.1	0.68
	07/05/94	19.27	15.42	--	250	4.8	13	1.2	7.3	--	--	--	--
	10/06/94	20.87	13.82	--	540	1.4	ND	0.66	11	--	--	--	--
	01/02/95	19.67	15.02	--	140	ND	ND	ND	ND	--	--	--	--
	04/03/95	17.61	17.08	--	580	3.6	0.75	ND	4.0	--	--	--	--
	07/14/95	18.58	16.11	--	260	2.1	ND	ND	1.2	--	--	--	--
	10/10/95	19.60	15.09	--	220	2.0	ND	25	5.6	29	--	--	--
	01/03/96	19.69	15.00	--	190	2.4	ND	0.71	1.2	--	--	--	--
	04/10/96	17.65	17.04	--	540	8.9	1.7	1.5	7.4	50	--	--	--
	07/09/96	18.52	16.17	--	490	3.0	1.4	1.3	2.5	150	--	--	--
	01/24/97	17.72	16.97	--	760	27	0.89	5.2	10	510	--	--	--
	07/23/97	19.42	15.27	--	ND	ND	ND	ND	ND	550	--	--	--
NP	01/26/98	17.46	17.23	--	1,800 <sup>8</sup>	ND <sup>9</sup>	ND <sup>9</sup>	ND <sup>9</sup>	ND <sup>9</sup>	4,800	--	--	--
NP	07/03/98	18.61	16.08	--	ND <sup>9</sup>	ND <sup>9</sup>	ND <sup>9</sup>	ND <sup>9</sup>	ND <sup>9</sup>	1,800	--	--	--
MW-2	06/05/91	--	--	--	49	ND	ND	ND	ND	--	--	--	--
	09/30/91	--	--	--	130	18	0.53	14	9.6	--	--	--	--
	12/30/91	--	--	--	91	16	0.89	11	1.9	--	--	--	--
	04/02/92	--	--	--	88	12	0.32	6.3	7.2	--	--	--	--
	06/30/92	--	--	--	76	9.3	0.76	4.8	6.9	--	--	--	--
	09/15/92	--	--	--	1,300	91	5.7	80	110	--	--	--	--
34.97	12/21/92	20.85	14.12	--	960	97	3.2	74	96	--	--	--	--

**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
 Tosco (Unocal) Service Station #0752  
 800 Harrison Street  
 Oakland, California

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)	TPH(D)	TPH(G)	B	T	E	X	MTBE	Chloro-			
											form**	PCE**	TCE**	
												ppb		
MW-2	04/28/93	--	--	--	1,300	76	1.9	130	87	--	--	--	--	
(cont)	07/23/93	19.81	15.16	--	66	1.8	ND	2.5	2.0	--	--	--	--	
34.72	10/05/93	19.95	14.77	--	120	12	ND	2.1	12	--	--	--	--	
	01/03/94	20.21	14.51	--	260	25	ND	5.5	26	--	--	--	--	
	04/02/94	19.88	14.84	--	ND	0.65	ND	ND	0.99	--	--	--	--	
	07/05/94	19.07	15.65	--	160	16	ND	0.73	10	--	--	--	--	
	10/06/94	20.55	14.17	--	170	15	ND	1.4	11	--	--	--	--	
	01/02/95	19.25	15.47	--	190	27	ND	0.95	11	--	--	--	--	
	04/03/95	17.49	17.23	--	2,400	65	6.6	19	63	--	--	--	--	
	07/14/95	18.30	16.42	--	750	270	ND	ND	13	--	--	--	--	
	10/10/95	19.25	15.47	--	50	1.6	ND	ND	ND	200	--	--	--	
	01/03/96	19.40	15.32	--	ND	ND	ND	ND	ND	--	--	--	--	
	04/10/96	17.35	17.37	--	300	42	ND	2.4	9.0	620	--	--	--	
	07/09/96	18.22	16.50	--	760	230	ND	1.3	2.4	1,500	--	--	--	
	01/24/97	17.59	17.13	--	2,900	400	350	190	720	1,300	--	--	--	
	07/23/97	19.13	15.59	--	ND	ND	ND	ND	ND	65	--	--	--	
NP	01/26/98	17.12	17.60	--	ND	ND	ND	ND	0.58	13	--	--	--	
NP	07/03/98	18.20	16.52	--	140	26	ND	0.95	5.0	330	--	--	--	
MW-3	06/05/91	--	--	--	5,800	1,200	40	140	97	--	--	--	--	
	09/30/91	--	--	--	6,800	1,400	130	290	240	--	--	--	--	
	12/30/91	--	--	--	7,200	2,100	690	410	550	--	--	--	--	
	04/02/92	--	--	--	8,000	1,400	200	300	310	--	--	--	--	
	06/30/92	--	--	--	8,900	1,900	210	430	550	--	--	--	--	
	09/15/92	--	--	--	10,000	1,900	330	400	580	--	--	--	--	
33.39	12/21/92	20.02	13.37	--	8,500	1,500	150	310	330	--	--	--	--	
	04/28/93	--	--	--	2,600	220	7.6	41	27	--	--	--	--	
	07/23/93	19.00	14.39	--	4,400	660	26	160	82	--	--	--	--	
33.14	10/05/93	19.20	13.94	--	9,200	720	88	140	140	--	--	--	--	
	01/03/94	19.40	13.74	--	4,900	830	100	170	150	--	--	--	--	
	04/02/94	19.01	14.13	--	6,000	800	30	140	110	--	--	--	--	
	07/05/94	18.14	15.00	--	25,000 <sup>5</sup>	ND	ND	ND	ND	--	--	--	--	
	10/06/94	19.73	13.41	--	49,000 <sup>4</sup>	1,300	200	280	300	--	--	--	--	
	01/02/95	18.36	14.78	--	480	1.6	ND	1.4	ND	--	--	--	--	

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 Oakland, California

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)	TPH(D) <-----	TPH(G)	B	T	E	X	MTBE	Chloro-		
											form**	PCE**	TCE**
											-----ppb----->		
MW-3	04/03/95	16.38	16.76	--	8,100 <sup>5</sup>	65	ND	ND	ND	--	--	--	--
(cont)	07/14/95	17.49	15.65	--	ND	1,300	ND	ND	ND	--	--	--	--
	10/10/95	18.50	14.64	--	3,100	1,400	36	50	53	190,000	--	--	--
	01/03/96 <sup>7</sup>	18.54	14.60	--	ND	2,300	110	150	140	--	--	--	--
	04/10/96	16.40	16.74	--	940	38	33	39	47	69,000	--	--	--
	07/09/96	17.43	15.71	--	ND	2,000	ND	150	160	140,000	--	--	--
	01/24/97	16.57	16.57	--	540	8.0	ND	11	9.9	45	--	--	--
	07/23/97	18.38	14.76	--	7,400	1,900	180	140	340	45,000	--	--	--
NP	01/26/98	16.22	16.92	--	250	2.2	1.9	0.87	1.9	4.0	--	--	--
NP	07/03/98	17.46	15.68	--	230	1.8	2.5	1.5	3.4	6.3	--	--	--
MW-4	10/19/92	--	--	--	480	0.51	2.1	2.8	6.8	--	--	--	--
33.12	12/21/92	19.73	13.39	--	220 <sup>4</sup>	ND	ND	0.97	0.74	--	--	--	--
	04/28/93	--	--	--	ND	ND	ND	ND	ND	--	--	--	--
	07/23/93	18.72	14.40	--	85 <sup>4</sup>	ND	ND	ND	ND	--	--	--	--
32.71	10/05/93	18.74	13.97	--	130 <sup>5</sup>	ND	ND	ND	ND	--	--	--	--
	01/03/94	18.93	13.78	--	210	ND	ND	0.76	1.6	240	9.0	1.0	ND
	04/02/94	18.53	14.18	--	89	ND	ND	ND	ND	--	--	--	--
	07/05/94	17.67	15.04	--	190 <sup>5</sup>	ND	ND	ND	ND	--	--	--	--
	10/06/94	19.25	13.46	--	170	0.85	ND	ND	0.74	--	--	--	--
	01/02/95	17.75	14.96	--	ND	ND	ND	ND	ND	--	--	--	--
	04/03/95	15.87	16.84	--	98 <sup>5</sup>	ND	ND	ND	ND	--	--	--	--
	07/14/95	17.01	15.70	--	ND	ND	ND	ND	ND	--	--	--	--
	10/10/95	18.03	14.68	--	ND	ND	ND	ND	ND	120	--	--	--
	01/03/96 <sup>7</sup>	18.05	14.66	--	ND	ND	ND	ND	ND	--	--	--	--
	04/10/96	16.00	16.71	--	ND	ND	ND	ND	ND	240	--	--	--
	07/09/96	16.96	15.75	--	ND	ND	ND	ND	ND	480	--	--	--
	01/24/97	16.04	16.67	--	ND	ND	ND	ND	ND	270	--	--	--
	07/23/97	17.87	14.84	--	ND	ND	ND	ND	ND	460	--	--	--
NP	01/26/98	16.05	16.66	--	ND	ND	ND	ND	ND	17	--	--	--
NP	07/03/98	16.95	15.76	--	ND	ND	ND	ND	ND	3.8	--	--	--

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											form**	PCE**	TCE**
MW-5	10/19/92	--	--	--	2,700	61	5.0	100	61	--	--	--	--
33.25	12/21/92	19.75	13.50	--	1,700	51	4.7	83	34	--	--	--	--
	04/28/93	--	--	--	6,700	200	190	250	430	--	--	--	--
	07/23/93	18.74	14.51	--	2,000	122	8.0	68	47	--	--	--	--
32.95	10/05/93	18.83	14.12	--	1,700	70	6.2	54	40	--	--	--	--
	01/03/94	19.05	13.90	--	1,500	44	ND	42	46	--	--	--	--
	04/02/94	18.68	14.27	--	1,800	46	5.1	38	35	--	--	--	--
	07/05/94	17.90	15.05	--	2,200	97	8.4	37	36	--	--	--	--
	10/06/94	19.37	13.58	--	1,600	79	5.7	28	22	--	--	--	--
	01/02/95	17.92	15.03	--	1,700	50	8.6	30	28	--	--	--	--
	04/03/95	16.15	16.80	--	5,400 <sup>5</sup>	190	240	170	420	--	--	--	--
	07/14/95	17.18	15.77	--	3,800	210	100	130	190	--	--	--	--
	10/10/95	18.15	14.80	--	1,300	92	14	15	39	1,100	--	--	--
	01/03/96 <sup>7</sup>	18.20	14.75	--	630	53	4.4	8.3	13	--	--	--	--
	04/10/96	16.05	16.90	--	500	25	18	7.0	20	640	--	--	--
	07/09/96	17.11	15.84	--	1,000	44	20	10	34	150	--	--	--
	01/24/97	16.36	16.59	--	4,000	190	400	160	430	600	--	--	--
	07/23/97	18.08	14.87	--	1,700	200	23	18	45	2,500	--	--	--
NP	01/26/98	16.27	16.68	--	ND	ND	ND	ND	ND	ND	--	--	--
NP	07/03/98	17.27	15.68	--	ND	ND	ND	ND	ND	ND	--	--	--
MW-6	10/19/92	--	--	--	3,900	420	12	60	28	--	--	--	--
32.42	12/21/92	19.17	13.25	--	2,300	370	11	39	15	--	--	--	--
	04/28/93	--	--	--	1,200	54	1.5	11	5.3	--	--	--	--
	07/23/93	18.17	14.25	--	580	19	0.99	3.4	2.7	--	--	--	--
32.16	10/05/93	18.35	13.81	--	1,400	34	ND	5.3	7.3	--	--	--	--
	01/03/94	18.54	13.62	--	1,400	57	ND	8.5	11	--	--	--	--
	04/02/94	18.15	14.01	--	5,300 <sup>4</sup>	ND	ND	ND	ND	--	--	--	--
	07/05/94	17.25	14.91	--	ND	ND	ND	ND	ND	--	--	--	--
	10/06/94	18.85	13.31	--	11,000 <sup>5</sup>	ND	ND	ND	ND	--	--	--	--
	01/02/95	17.51	14.65	--	550	18	0.92	2.0	1.8	--	--	--	--
	04/03/95	15.48	16.68	--	6,600 <sup>5</sup>	ND	ND	ND	ND	--	--	--	--
	07/14/95	16.63	15.53	--	ND	ND	ND	ND	ND	--	--	--	--
	10/10/95	17.68	14.48	--	ND	81	ND	ND	ND	75,000	--	--	--

**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
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 Oakland, California

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)	TPH(D)	TPH(G)	B	T	E	X	MTBE	Chloro-		
											form**	PCE**	TCE**
<i>ppb</i>												<	>
MW-6	01/03/96 <sup>7</sup>	17.66	14.50	--	70	9.9	0.58	ND	0.81	--	--	--	--
(cont)	04/10/96	15.56	16.60	--	300	25	4.7	0.94	2.7	53,000	--	--	--
	07/09/96	16.59	15.57	--	1,800	410	ND	12	ND	76,000	--	--	--
	01/24/97	15.69	16.47	--	ND	0.80	ND	ND	ND	390	--	--	--
	07/23/97	17.53	14.63	--	5,700	1,100	240	240	700	16,000	--	--	--
NP	01/26/98	15.44	16.72	--	ND	ND	ND	ND	ND	ND	--	--	--
NP	07/03/98	16.58	15.58	--	ND	ND	ND	ND	ND	ND	--	--	--
MW-7													
32.49	04/28/93	--	--	--	110	2.8	1.3	1.4	1.7	--	--	--	--
	07/23/93	18.60	13.89	--	790	23	3.3	28	5.4	--	--	--	--
32.20	10/05/93	18.76	13.44	--	360	10	1.2	0.91	0.99	--	--	--	--
	01/03/94	18.91	13.29	--	ND	0.93	ND	0.75	1.9	--	--	--	--
	04/02/94	18.50	13.70	--	360	2.0	ND	ND	0.8	--	--	--	--
	07/05/94	17.52	14.68	--	ND	ND	ND	ND	ND	--	--	--	--
	10/06/94	19.25	12.95	--	340	5.6	0.85	ND	1.2	--	--	--	--
	01/02/95	17.67	14.53	--	ND	ND	ND	ND	ND	--	--	--	--
	04/03/95	15.81	16.39	--	570	24	ND	3.4	5.8	--	--	--	--
	07/14/95	17.05	15.15	--	ND	14	ND	ND	ND	--	--	--	--
	10/10/95	18.08	14.12	--	740	170	ND	ND	ND	13,000	--	--	--
	01/03/96 <sup>7</sup>	18.02	14.18	--	360	16	1.3	2.7	1.4	--	--	--	--
	04/10/96	15.81	16.39	--	120	4.1	1.5	ND	0.88	3,200	--	--	--
	07/09/96	16.99	15.21	--	ND	ND	ND	ND	ND	3,400	--	--	--
	01/24/97	16.08	16.12	--	ND	16	ND	ND	ND	6,600	--	--	--
	07/23/97	17.99	14.21	--	ND	1.5	ND	ND	0.62	10,000	--	--	--
NP	01/26/98	15.56	16.64	--	ND	ND	ND	ND	0.56	ND	--	--	--
NP	07/03/98	17.04	15.16	--	ND	ND	ND	ND	ND	ND	--	--	--
MW-8													
32.33	04/28/93	--	--	--	450	18	1.8	1.8	1.4	--	--	--	--
	07/23/93	18.45	13.88	--	260	5.1	ND	0.6	ND	--	--	--	--
32.00	10/05/93	18.57	13.43	--	120 <sup>5</sup>	1.7	ND	ND	ND	--	--	--	--
	01/03/94 <sup>1</sup>	18.73	13.27	--	ND	ND	ND	ND	ND	51	1.5	1.2	ND



**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
Tosco (Unocal) Service Station #0752  
800 Harrison Street  
Oakland, California

**EXPLANATIONS:**

Groundwater monitoring data and laboratory analytical results prior to January 26, 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(D) = Total Petroleum Hydrocarbons as Diesel

TPH(G) = Total Petroleum Hydrocarbons as Gasoline

B = Benzene

T = Toluene

E = Ethylbenzene

X = Xylenes

MTBE = Methyl tertiary butyl ether

PCE = Tetrachloroethene

TCE = Trichloroethene

ppb = Parts per billion

ND = Not Detected

-- = Not Measured/Not Analyzed

NP = No Purge

\* TOC elevations are relative to mean sea level (msl), per the City of Oakland benchmark disk stamped "25/A" at the northeast corner of 7th and Harrison (Elevation = 28.81 feet msl). Prior to October 5, 1993, the DTW measurements were taken from the top of well covers.

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

<sup>1</sup> 1,2-dichloroethane (1,2-DCA) was detected in MW-8 at a concentration of 4.0 ppb on 01/03/94, and 1.1 ppb in MW-1 on 04/28/93.

<sup>2</sup> Laboratory report indicates the hydrocarbons detected did not appear to be diesel.

<sup>3</sup> Laboratory report indicates the hydrocarbons detected appeared to be a diesel and non-diesel mixture.

<sup>4</sup> Laboratory report indicates the hydrocarbons detected appeared to be a gasoline and non-gasoline mixture.

<sup>5</sup> Laboratory report indicates the hydrocarbons detected did not appear to be gasoline.

<sup>6</sup> A fuel fingerprint analysis was conducted on this sample. Laboratory report indicates total extractable petroleum hydrocarbons in this sample were not detected in high enough concentrations to compare with known standards and approximate their makeup.

<sup>7</sup> Laboratory has identified the presence of MTBE at a level above or equal to the taste and odor threshold of 40 ppb in the sample collected from this well.

<sup>8</sup> Laboratory report indicates gas and unidentified hydrocarbons C6-C8.

<sup>9</sup> Detection limit raised. Refer to analytical results.

**Table 2**  
**Groundwater Analytical Results**  
 Tosco (Unocal) Service Station #0752  
 800 Harrison Street  
 Oakland, California

Well ID	Date	TOG	Cadmium	Chromium	Lead	Nickel	Zinc
		←————— ppm —————→					
MW-1	06/05/91	ND	ND	0.0083	0.011	0.063	0.023
	09/30/91	ND	ND	0.019	ND	ND	0.11
	12/30/91	ND	ND	0.0078	0.0057	ND	0.046
	04/02/92	ND	ND	0.015	0.016	ND	0.02
	06/30/92	ND	ND	0.079	0.009	0.1	0.087

**EXPLANATIONS:**

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

TOG = Total Oil and Grease

ppm = Parts per million

ND = Not Detected

**Table 3**  
**Groundwater Analytical Results**  
 Tosco (Unocal) Service Station #0752  
 800 Harrison Street  
 Oakland, California

Well ID	Date	BOD	Bicarbonate	Calcium	Iron	Manganese	Nitrate	Sulfate	Heterotrophic Plate Count (CFU/mL)
			Alkalinity						
		←-----ppm----->							
MW-1	04/10/96	--	160	21	15	2.6	--	--	--
MW-2	01/03/96	2.2	130	27	77	3.0	0.22	97	>5,700
	04/10/96	--	460	58	60	7.0	--	--	--
MW-3	01/03/96	4.3	430	43	61	5.4	0.23	16	350
	04/10/96	--	360	40	60	3.7	--	--	--
MW-4	01/03/96	ND	120	20	61	3.3	10	44	1,000
	04/10/96	--	160	25	43	2.0	--	--	--
MW-5	01/03/96	3.4	240	31	80	3.3	ND	17	>5,700
	04/10/96	--	240	22	18	2.4	--	--	--
MW-6	04/10/96	--	240	35	61	3.7	--	--	--
MW-7	04/10/96	--	210	44	120	4.8	--	--	--
MW-8	01/03/96	ND	310	37	62	3.3	0.57	20	>5,700
	04/10/96	--	380	37	63	3.6	--	--	--

**EXPLANATIONS:**

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

BOD = Biochemical Oxygen Demand

-- = Not Analyzed

ppm = Parts per million

ND = Not Detected

CFU/mL = Colony Forming Units per milliliter

**Table 4**  
**Dissolved Oxygen Concentrations**  
 Tosco (Unocal) Service Station #0752  
 800 Harrison Street  
 Oakland, California

Well ID	Date	Before Purging (mg/L)	After Purging (mg/L)
MW-1	04/10/96	--	3.04
	07/09/96	--	3.13
	01/24/97	--	2.56
	07/23/97	2.26	2.81
	01/26/98	3.97	--
	07/03/98	3.58	--
MW-2	01/03/96		1.80
	04/10/96	--	5.88
	07/09/96	--	0.71
	01/24/97	--	2.37
	07/23/97	1.40	0.97
	01/26/98	4.12	--
	07/03/98	3.99	--
MW-3	01/03/96		1.50
	04/10/96	--	4.63
	07/09/96	--	1.04
	01/24/97	--	1.46
	07/23/97	3.84	1.37
	01/26/98	1.84	--
	07/03/98	2.16	--
MW-4	01/03/96		1.20
	04/10/96	--	5.23
	07/09/96	--	4.91
	01/24/97	--	3.04
	07/23/97	9.28	3.68
	01/26/98	3.36	--
	07/03/98	4.07	--
MW-5	01/03/96		2.80
	04/10/96	--	3.73
	07/09/96	--	3.25
	01/24/97	--	1.47
	07/23/97	7.96	4.56
	01/26/98	5.30	--
	07/03/98	4.73	--
MW-6	04/10/96		4.50
	07/09/96	--	3.62
	01/24/97	--	6.21
	07/23/97	10.90	3.31
	01/26/98	2.55	--
	07/03/98	3.11	--

**Table 4**  
**Dissolved Oxygen Concentrations**  
 Tosco (Unocal) Service Station #0752  
 800 Harrison Street  
 Oakland, California

Well ID	Date	Before Purging (mg/L)	After Purging (mg/L)
MW-7	04/10/96	--	5.10
	07/09/96	--	2.34
	01/24/97	--	1.91
	07/23/97	3.25	2.83
	01/26/98	3.44	--
	<b>07/03/98</b>	<b>3.83</b>	--
MW-8	01/03/96	--	1.30
	04/10/96	--	4.80
	07/09/96	--	1.32
	01/24/97	--	2.09
	07/23/97	4.08	3.27
	01/26/98	4.71	--
	<b>07/03/98</b>	<b>5.16</b>	--

**EXPLANATIONS:**

Dissolved oxygen concentrations prior to January 26, 1998, were compiled from reports prepared by MPDS Services, Inc.

mg/L = milligrams per liter

-- = Not Measured

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

## 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 # 0752  
Address: 800 Harrison st.  
City: Oakland

Job#: 180066  
Date: 7-3-98  
Sampler: Joe

Well ID MW-1

Well Condition: O.K.

Well Diameter 2 in.

Hydrocarbon Thickness: 0 (feet) Amount Bailed 0 (Gallons)

Total Depth 33.56 ft.

Depth to Water 18.61 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: clear

Sampling Time: 1:25 P.M.

Water Color: clear Odor: None

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

Sediment Description: None

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

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

Time	Volume (gal.)	pH	Conductivity $\mu\text{mhos/cm} \times 100$	Temperature $^{\circ}\text{F}$	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
		<u>7.14</u>	<u>3.59</u>	<u>65.1</u>	<u>3.58</u>		

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-1</u>	<u>3VOA</u>	<u>Y</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>TPH(G)/btex/mtbe</u>

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

**WELL MONITORING/SAMPLING  
FIELD DATA SHEET**

Client/  
Facility # 0752 Job#: 180066  
Address: 800 Harrison st. Date: 7-3-98  
City: Oakland Sampler: Joe

Well ID MW-2 Well Condition: O.K.

Well Diameter 2 in. Hydrocarbon Thickness: Ø (feet) Amount Bailed (product/water): Ø (Gallons)  
Total Depth 30.40 ft.  
Depth to Water 18.20 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: clear  
Sampling Time: 1:00 P.M. Water Color: clear Odor: None  
Purging Flow Rate: \_\_\_\_\_ gpm. Sediment Description: None  
Did well de-water? \_\_\_\_\_ If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu\text{mhos/cm} \times 100$	Temperature $^{\circ}\text{F}$	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
		<u>7.36</u>	<u>4.44</u>	<u>65.7</u>	<u>3.99</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>SEQUOIA</u>	<u>TPH(G)/btex/mtbe</u>

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



**WELL MONITORING/SAMPLING  
FIELD DATA SHEET**

Client/  
Facility # 0752 Job#: 180066  
Address: 800 Harrison st. Date: 7-3-98  
City: Oakland Sampler: Joe

Well ID MW-3 Well Condition: O.K.  
Well Diameter 2 in. Hydrocarbon Amount Bailed  
Thickness: 0 (feet) (product/water): 0 (Gallons)  
Total Depth 30.53 ft.  
Depth to Water 17.46 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: clear  
Sampling Time: 12:30 P.M. Water Color: clear Odor: None  
Purging Flow Rate: \_\_\_\_\_ gpm. Sediment Description: None  
Did well de-water? \_\_\_\_\_ If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu\text{mhos/cm} \times 10^3$	Temperature $^{\circ}\text{F}$	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
		<u>7.17</u>	<u>2.83</u>	<u>65.1</u>	<u>2.16</u>		

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-3</u>	<u>3 VOA</u>	<u>Y</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>TPH(GI)/btex/mtbe</u>

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

**WELL MONITORING/SAMPLING  
FIELD DATA SHEET**

Client/  
Facility # 0752  
Address: 800 Harrison st.  
City: Oakland

Job#: 180066  
Date: 7-3-98  
Sampler: Joe

Well ID MW-4

Well Condition: O.K.

Well Diameter 2 in.

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

Total Depth 32.30 ft.

Depth to Water 16.95 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: clear

Sampling Time: 11:50 AM

Water Color: clear Odor: None

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

Sediment Description: None

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

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

Time	Volume (gal.)	pH	Conductivity $\mu\text{hos/cm} \times 100$	Temperature $^{\circ}\text{F}$	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
		<u>7.50</u>	<u>4.66</u>	<u>65.3</u>	<u>4.07</u>		

**LABORATORY INFORMATION**

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

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

**WELL MONITORING/SAMPLING  
FIELD DATA SHEET**

Client/  
Facility # 0752

Job#: 180066

Address: 800 Harrison St.

Date: 7-3-98

City: Oakland

Sampler: Joe

Well ID MW-5

Well Condition: O.K.

Well Diameter 2 in.

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

Total Depth 3171 ft.

Depth to Water 17.27 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: clear

Sampling Time: 11:18 a.m.

Water Color: clear Odor: Some

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

Sediment Description: None

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

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

Time	Volume (gal.)	pH	Conductivity $\mu\text{mhos/cm} \times 100$	Temperature °F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
		<u>7.63</u>	<u>2.38</u>	<u>65.0</u>	<u>4.73</u>		

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-5</u>	<u>3V0A</u>	<u>Y</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>TPH(G)/btex/mtbe</u>

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

**WELL MONITORING/SAMPLING  
FIELD DATA SHEET**

Client/  
Facility # 0752 Job#: 180066  
Address: 800 Harrison st. Date: 7-3-98  
City: Oakland Sampler: Joe

Well ID MW-6 Well Condition: O.K.  
Well Diameter 2 in. Hydrocarbon Amount Bailed  
Thickness: 0 (feet) (product/water): 0 (Gallons)  
Total Depth 30.92 ft.  
Depth to Water 16.59 ft.

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: \_\_\_\_\_ Weather Conditions: clear  
Sampling Time: 10:43 A.M. Water Color: clear Odor: little  
Purging Flow Rate: \_\_\_\_\_ gpm. Sediment Description: None  
Did well de-water? \_\_\_\_\_ If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu\text{mhos/cm} \times 100$	Temperature $^{\circ}\text{F}$	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
		<u>7.34</u>	<u>3.46</u>	<u>65.2</u>	<u>3.11</u>		

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-6</u>	<u>3V0A</u>	<u>Y</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>TPH(G)/btex/mtbe</u>

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

**WELL MONITORING/SAMPLING  
FIELD DATA SHEET**

Client/  
Facility # 0752  
Address: 800 Harrison st.  
City: Oakland

Job#: 180066  
Date: 7-3-98  
Sampler: Joe

Well ID MW-7  
Well Diameter 2 in.  
Total Depth 31.53 ft.  
Depth to Water 17.04 ft.

Well Condition: O.K.  
Hydrocarbon  
Thickness: 0 (feet) Amount Bailed 0 (Gallons)  
Volume Factor (VF) 2" = 0.17 3" = 0.38 4" = 0.66  
6" = 1.50 12" = 5.80

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

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

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

Starting Time: \_\_\_\_\_  
Sampling Time: 10:15 AM  
Purging Flow Rate: \_\_\_\_\_ gpm.  
Did well de-water? \_\_\_\_\_

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

Time	Volume (gal.)	pH	Conductivity $\mu\text{mhos/cm} \times 10^6$	Temperature $^{\circ}\text{F}$	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
		<u>7.27</u>	<u>4.22</u>	<u>65.7</u>	<u>3.83</u>		

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-7</u>	<u>3V0A</u>	<u>Y</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>TPH(G)/btex/mtbe</u>

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

**WELL MONITORING/SAMPLING  
FIELD DATA SHEET**

Client/  
Facility # 0752  
Address: 800 Harrison st.  
City: Oakland

Job#: 180066  
Date: 7-3-98  
Sampler: Joe

Well ID MW-8  
Well Diameter 2 in.  
Total Depth 27.87 ft  
Depth to Water 16.80 ft

Well Condition: O.K.  
Hydrocarbon Thickness: 0 (feet) Amount Bailed (product/water): 0 (Gallons)  

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

\_\_\_\_\_ 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: clear  
Sampling Time: 9:46 A.M. 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 $\mu\text{mhos/cm} \times 100$	Temperature $^{\circ}\text{F}$	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
		<u>7.31</u>	<u>5.38</u>	<u>65.5</u>	<u>5.16</u>		

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-8</u>	<u>3VOA</u>	<u>Y</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>TPH(GI)/btax/mtbe</u>

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



Tosco Marketing Company  
2000 Crow Canyon PL, Ste. 400  
San Ramon, California 94583

Facility Number UNocal #0752  
 Facility Address 800 Harrison Street, Oakland  
180066  
 Consultant Project Number \_\_\_\_\_  
 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) (510) 277-2321  
 Laboratory Name Sequoia Analytical  
 Laboratory Release Number \_\_\_\_\_  
 Samples Collected by (Name) JOE ASENIAN  
 Collection Date 7-3-98  
 Signature Joe Asenian 9807096

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	Lead (Yes or No)	Analytes To Be Performed											Remarks
								TPH Gas + BTEX w/MATBE (8015)	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)				
TB-LB		1 40A	W	-	-	HCL	Y	✓											8070392
MW-1		3 40A	/	G	1:25 P.M.	/	/	✓											8070393
MW-2		/	/	/	1:20 P.M.	/	/	✓											8070394
MW-3		/	/	/	12:30 P.M.	/	/	✓											8070395
MW-4		/	/	/	11:50 A.M.	/	X	✓											8070396
MW-5		/	/	/	11:18 A.M.	/	/	✓											8070397
MW-6		/	/	/	10:43 A.M.	/	/	✓											8070398
MW-7		/	/	/	10:15 A.M.	/	/	✓											8070399
MW-8		/	/	/	9:46 A.M.	/	/	✓											8070400

DO NOT BILL  
TB-LB ANALYSIS

Relinquished By (Signature) <u>Joe Asenian</u>	Organization G-R Inc.	Date/Time 7-6-98	Received By (Signature) <u>[Signature]</u>	Organization CBC	Date/Time 7-6-98	Turn Around Time (Circle Choice) 24 Hrs. 48 Hrs. 6 Days 10 Days <u>As Contracted</u>
Relinquished By (Signature) <u>Joe Asenian</u>	Organization Sequoia	Date/Time 7-6-98	Received By (Signature) <u>[Signature]</u>	Organization CBC	Date/Time 7-6-98	
Relinquished By (Signature) <u>[Signature]</u>	Organization CBC	Date/Time 7-6-16-98	Received For Laboratory By (Signature) <u>[Signature]</u>	Organization CBC	Date/Time 7/6/98	



# Sequoia Analytical

680 Chesapeake Drive  
404 N. Wiget Lane  
819 Striker Avenue, Suite 8  
1455 McDowell Blvd. North, Ste. D

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Walnut Creek, CA 94598  
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FAX (707) 792-0342

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

Client Project ID: Unocal SS#0752, Oakland  
Sample Matrix: Water  
Analysis Method: EPA 5030/8015 Mod./8020  
First Sample #: 807-0392

Sampled: Jul 3, 1998  
Received: Jul 6, 1998  
Reported: Jul 22, 1998

## TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX / MTBE

Analyte	Reporting Limit µg/L	Sample I.D. 807-0392 TB-LB	Sample I.D. 807-0393 MW-1	Sample I.D. 807-0394 MW-2	Sample I.D. 807-0395 MW-3	Sample I.D. 807-0396 MW-4	Sample I.D. 807-0397 MW-5
Purgeable Hydrocarbons	50	N.D.	N.D.	140	230	N.D.	N.D.
Benzene	0.50	N.D.	N.D.	26	1.8	N.D.	N.D.
Toluene	0.50	N.D.	N.D.	N.D.	2.5	N.D.	N.D.
Ethyl Benzene	0.50	N.D.	N.D.	0.95	1.5	N.D.	N.D.
Total Xylenes	0.50	N.D.	N.D.	5.0	3.4	N.D.	N.D.
MTBE	2.5	N.D.	1,800	330	6.3	3.8	N.D.
Chromatogram Pattern:		--	--	Gasoline	Gasoline	--	--

### Quality Control Data

Report Limit Multiplication Factor:	1.0	20	1.0	1.0	1.0	1.0
Date Analyzed:	7/17/98	7/17/98	7/17/98	7/17/98	7/17/98	7/17/98
Instrument Identification:	HP-2	HP-2	HP-2	HP-2	HP-2	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	111	111	115	126	108	108

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271

  
Julianne Fegley  
Project Manager

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# Sequoia Analytical

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

Client Project ID: Unocal SS#0752, Oakland  
Sample Matrix: Water  
Analysis Method: EPA 5030/8015 Mod./8020  
First Sample #: 807-0398

Sampled: Jul 3, 1998  
Received: Jul 6, 1998  
Reported: Jul 22, 1998

## TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX / MTBE

Analyte	Reporting Limit µg/L	Sample I.D. 807-0398 MW-6	Sample I.D. 807-0399 MW-7	Sample I.D. 807-0400 MW-8
Purgeable Hydrocarbons	50	N.D.	N.D.	N.D.
Benzene	0.50	N.D.	N.D.	N.D.
Toluene	0.50	N.D.	N.D.	N.D.
Ethyl Benzene	0.50	N.D.	N.D.	N.D.
Total Xylenes	0.50	N.D.	N.D.	N.D.
MTBE	2.5	N.D.	N.D.	N.D.
Chromatogram Pattern:		--	--	--

### Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0
Date Analyzed:	7/20/98	7/20/98	7/20/98
Instrument Identification:	HP-2	HP-2	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	111	105	114

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271

  
Julianne Fegley  
Project Manager





# Sequoia Analytical

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

Client Project ID: Unocal SS#0752, Oakland  
Matrix: Liquid

QC Sample Group: 8070392-400

Reported: Jul 22, 1998

## QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC071798 802002A	GC071798 802002A	GC071798 802002A	GC071798 802002A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	C. Westwater	C. Westwater	C. Westwater	C. Westwater
MS/MSD #:	8070334	8070334	8070334	8070334
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	7/17/98	7/17/98	7/17/98	7/17/98
Analyzed Date:	7/17/98	7/17/98	7/17/98	7/17/98
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Result:	19	19	20	59
MS % Recovery:	95	95	100	98
Dup. Result:	20	20	21	62
MSD % Recov.:	100	100	105	103
RPD:	5.1	5.1	4.9	5.0
RPD Limit:	0-20	0-20	0-20	0-20

LCS #:	2LCS071798	2LCS071798	2LCS071798	2LCS071798
Prepared Date:	7/17/98	7/17/98	7/17/98	7/17/98
Analyzed Date:	7/17/98	7/17/98	7/17/98	7/17/98
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
LCS Result:	19	19	20	60
LCS % Recov.:	95	95	100	100

MS/MSD LCS Control Limits	70-130	70-130	70-130	70-130
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**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

SEQUOIA ANALYTICAL, #1271

Julianne Fegley  
Project Manager





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

Client Project ID: Unocal SS#0752, Oakland  
Matrix: Liquid

QC Sample Group: 8070392-400

Reported: Jul 22, 1998

## QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC072098 802002A	GC072098 802002A	GC072098 802002A	GC072098 802002A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	D. Newcomb	D. Newcomb	D. Newcomb	D. Newcomb
MS/MSD #:	8070427	8070427	8070427	8070427
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	7/20/98	7/20/98	7/20/98	7/20/98
Analyzed Date:	7/20/98	7/20/98	7/20/98	7/20/98
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Result:	20	20	19	60
MS % Recovery:	100	100	95	100
Dup. Result:	20	19	19	60
MSD % Recov.:	100	95	95	100
RPD:	0.0	5.1	0.0	0.0
RPD Limit:	0-20	0-20	0-20	0-20

LCS #:	2LCS072098	2LCS072098	2LCS072098	2LCS072098
Prepared Date:	7/20/98	7/20/98	7/20/98	7/20/98
Analyzed Date:	7/20/98	7/20/98	7/20/98	7/20/98
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
LCS Result:	17	17	18	54
LCS % Recov.:	85	85	90	90

MS/MSD LCS Control Limits	70-130	70-130	70-130	70-130
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**Please Note:**

The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagent 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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SEQUOIA ANALYTICAL, #1271

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Project Manager

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