GETTLER-RYAN INC.

ENVIRONMENTAL PROTECTION
FEB -3 PM 2:43

TRANSMITTAL

January 21, 1999
G-R #:180065

#521

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

CC: Mr. Doug Lee
Gettler-Ryan Inc.
6747 Sierra Court, Suite J
Dublin, California 94568

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

RE: Tosco (Unocal) SS#5043
449 Hegenberger Road
Oakland, California

• continue to evaluate TP/Skimmer in MW 6 where a Skimmer is in place otherwise action is static

WE HAVE ENCLOSED THE FOLLOWING:

COPIES	DATED	DESCRIPTION
1	January 18,1999	Groundwater Monitoring and Sampling Report Fourth Quarter 1998 - Event of October 16, 1998

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 ***February 2, 1999***, this report will be distributed to the following:

Enclosure

cc: **Mr. Barney M. Chan, Alameda County Health Care Services, 1131 Harbor Bay Parkway, Suite 250, Alameda, California 94502**

agency/5043dbd.qmt

GETTLER-RYAN INC.

January 18, 1999
G-R Job #180065

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

RE: Fourth Quarter 1998 Groundwater Monitoring & Sampling Report
Tosco (Unocal) Service Station #5043
449 Hegenberger Road
Oakland, California

Dear Mr. De Witt:

This report documents the monthly site visits and the quarterly groundwater monitoring and sampling event performed by Gettler-Ryan Inc. (G-R). On August 21 and September 30, 1998, field personnel monitored one well (MW-6). On October 16, 1998, field personnel monitored six wells (MW-3, MW-6, MW-7, MW-8, MW-9, and MW-10) and sampled five wells (MW-3, MW-7, MW-8, MW-9 and MW-10) 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 present in one well (MW-6). Static water level data and groundwater elevations are summarized in Table 1. Product Thickness/Removal Data is summarized in Table 2. 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 Table 1, and a Concentration Map is included as Figure 2. The chain of custody document and laboratory analytical reports are also attached.

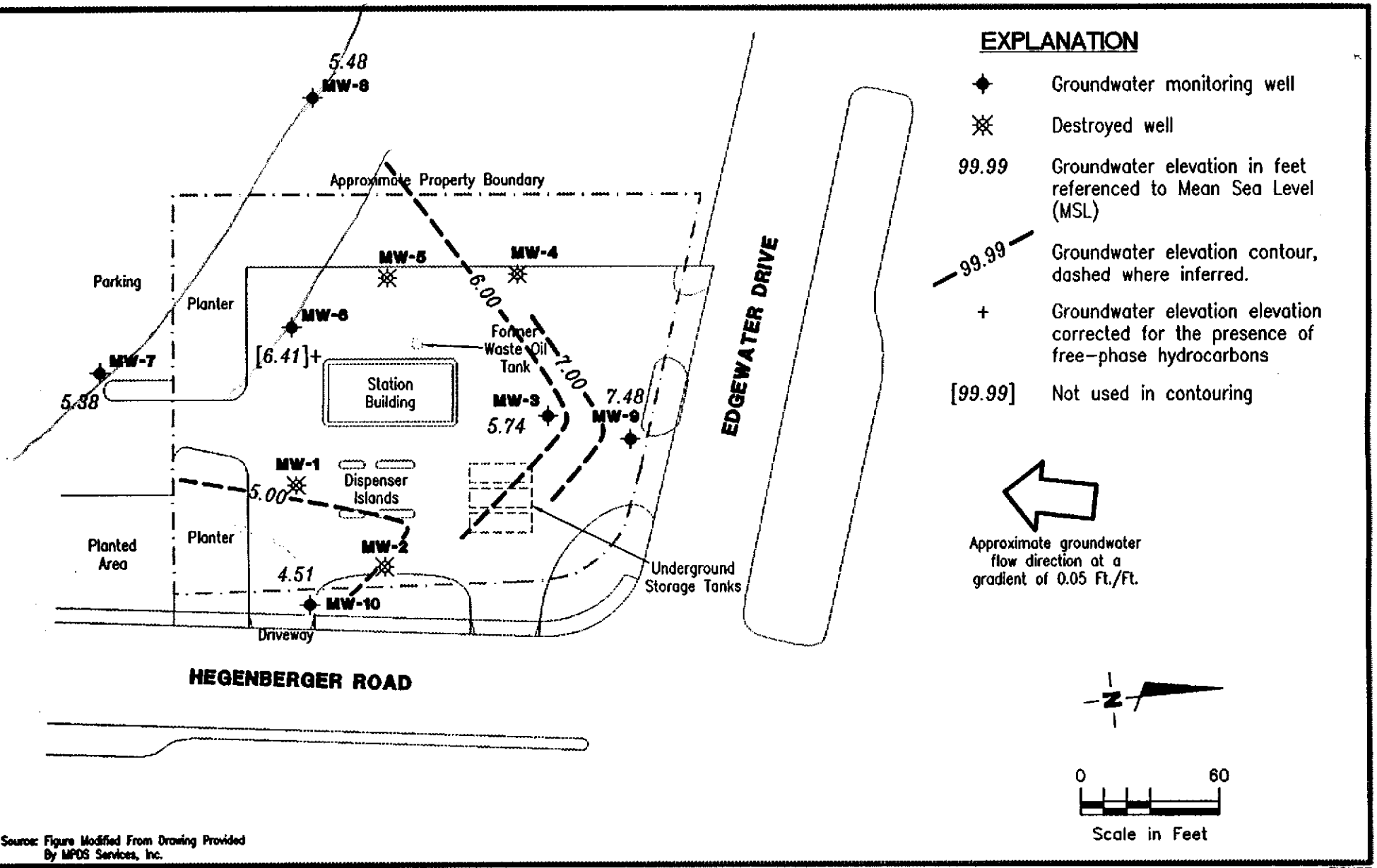
Sincerely,

Deanna L. Harding
Project Coordinator

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

REGISTERED GEOLOGIST
STEPHEN J. CARTER
No. 5577
STATE OF CALIFORNIA

Figure 1: Potentiometric Map
Figure 2: Concentration Map
Table 1: Groundwater Monitoring Data and Analytical Results
Table 2: Product Thickness/Removal Data
Attachments: Standard Operating Procedure - Groundwater Sampling
Field Data Sheets
5043.qml Chain of Custody Document and Laboratory Analytical Reports



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

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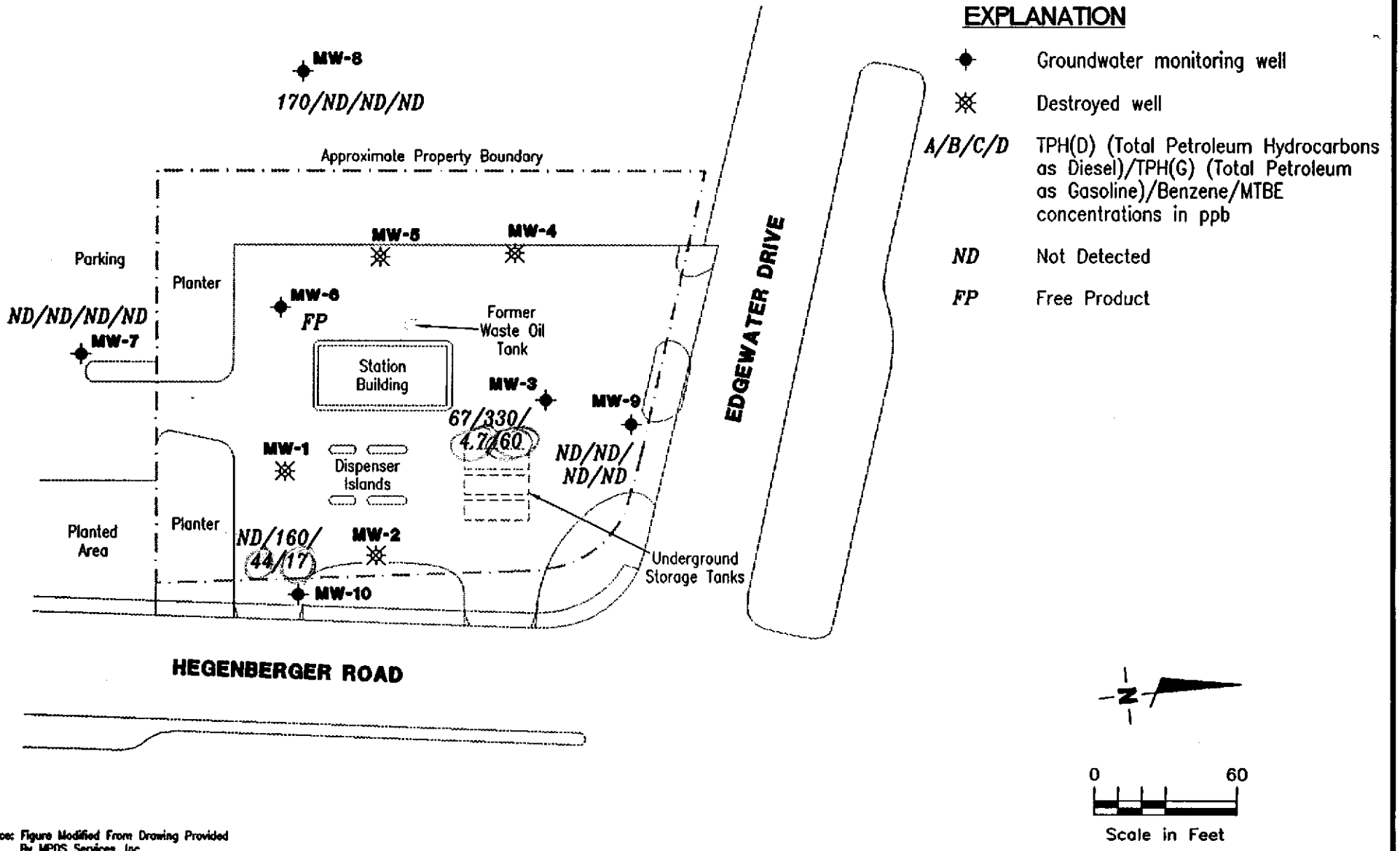
Dublin, CA 94568

POTENTIOMETRIC MAP
Tosco (Unocal) Service Station No. 5043
449 Hegenberger Road
Oakland, California

FIGURE
1

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
180065		October 16, 1998	



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

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

CONCENTRATION MAP
Tosco (Unocal) Service Station No. 5043
449 Hegenberger Road
Oakland, California

FIGURE
2

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
180065		October 16, 1998	

Table 1

Groundwater Monitoring Data and Analytical Results

Tosco (Unocal) Service Station #5043

449 Hegenberger Road

Oakland, California

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)	Product Thickness (ft.)	TPH(D) (ppb)	TPH(G) (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-1	02/18/92	--	--	--	13,000	150,000	17,000	26,000	5,200	26,000	--
	05/20/92	--	--	--	--	--	--	--	--	--	--
	08/31/92	--	--	--	8,900[1]	64,000	13,000	12,000	2,500	22,000	--
	11/30/92	--	--	--	--	--	--	--	--	--	--
	02/04/93	--	--	--	--	--	--	--	--	--	--
8.96*	05/04/93	2.13	5.73**	0.10	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	08/04/93	2.92	4.88**	0.03	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
7.38	11/03/93	3.04	4.74	<0.01	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	02/07/94	2.55	4.85**	0.03	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	05/19/94	2.23	5.16**	0.01	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	06/25/94	2.49	4.90**	0.01	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	07/27/94	3.10	4.28	0.00	--	--	--	--	--	--	--
	08/15/94	2.85	4.61**	0.11	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	11/14/94	2.97	4.50**	0.12	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	02/21/95	1.53	5.87**	0.02	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	05/18/95	DESTROYED (3/95)	--	--	--	--	--	--	--	--	--
MW-2	02/18/92	--	--	--	4,300	29,000	1,000	5,300	260	7,900	--
	05/20/92	--	--	--	4,300[1]	24,000	2,200	7,600	630	11,000	--
	08/31/92	--	--	--	1,600[1]	9,000	1,800	640	140	2,000	--
	11/30/92	--	--	--	5,700[1]	29,000	2,000	3,400	1,200	6,900	--
	02/04/93	--	--	--	6,100[1]	18,000	1,600	3,000	ND	6,900	--
8.96*	05/04/93	2.48	6.48	0.00	7,100[1]	63,000	3,200	17,000	470	17,000	--
	08/04/93	3.20	5.76	0.00	1,800[2]	45,000	2,100	6,600	1,400	12,000	--
8.58	11/03/93	3.37	5.21	0.00	2,600[2]	72,000	3,700	16,000	3,700	20,000	--
	02/07/94	2.40	6.18	<0.01	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	05/19/94	2.13	6.45	0.00	3,000[2]	42,000	2,500	1,300	2,300	13,000	--
	06/25/94	2.65	5.93	0.00	--	--	--	--	--	--	--
	07/27/94	3.44	5.14	0.00	--	--	--	--	--	--	--
	08/15/94	3.25	5.33	0.00	2,800[2]	35,000	2,400	850	1,700	15,000	--
	11/14/94	2.13	6.45	0.00	10,000[1]	43,000	2,200	6,500	1,800	14,000	--
	02/21/95	1.65	6.93	0.00	2,000[2]	44,000	2,200	3,200	1,300	1,500	--
	05/18/95	DESTROYED (3/95)	--	--	--	--	--	--	--	--	--

Table 1

Groundwater Monitoring Data and Analytical Results

Tosco (Unocal) Service Station #5043

449 Hegenberger Road

Oakland, California

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)	Product Thickness (ft.)	TPH(D) *(ppb)*	TPH(G) *(ppb)*	B *(ppb)*	T *(ppb)*	E *(ppb)*	X *(ppb)*	MTBE *(ppb)*
MW-3	02/18/92	--	--	--	ND	230	4.8	22	1.8	33	--
	05/20/92	INACCESSIBLE	--	--	--	--	--	--	--	--	--
	08/31/92	--	--	--	92[2]	210[4]	1	ND	ND	ND	--
	11/30/92	--	--	--	94	790[4]	ND	ND	ND	ND	--
	02/04/93	--	--	--	550[2]	3,300	320	ND	96	6.1	--
7.84◆	05/04/93	4.32	3.52	0.00	250[2]	1,800[3]	95	ND	ND	ND	--
	08/04/93	4.94	2.90	0.00	100	210[4]	ND	ND	ND	ND	--
7.42	11/03/93	4.53	2.89	0.00	160	640[4]	ND	ND	ND	ND	--
	02/07/94	2.40	5.02	0.00	620[2]	2,700	110	ND	17	ND	--
	05/19/94	3.60	3.82	0.00	480[2]	1,800	83	ND	6.2	9.1	--
	06/25/94	4.58	2.84	0.00	--	--	--	--	--	--	--
	07/27/94	4.58	2.84	0.00	--	--	--	--	--	--	--
	08/15/94	4.65	2.77	0.00	110[2]	130	1.1	0.54	ND	0.97	--
	11/14/94	3.18	4.24	0.00	150[2]	1,600[4]	ND	ND	ND	ND	--
	02/21/95	1.81	5.61	0.00	850[2]	3,800	350	ND	130	22	--
	05/18/95	4.56	2.86	0.00	150[1]	1,300[3]	42	ND	ND	ND	--
	08/17/95	INACCESSIBLE	--	--	--	--	--	--	--	--	--
	07/26/96	INACCESSIBLE	--	--	--	--	--	--	--	--	--
	10/28/96[6]	INACCESSIBLE	--	--	--	--	--	--	--	--	--
	01/29/97	INACCESSIBLE	--	--	--	--	--	--	--	--	--
	04/15/97	INACCESSIBLE	--	--	--	--	--	--	--	--	--
	05/27/97	3.45	4.59	0.00	--	670	6.5	ND	ND	ND	250
	06/01/97	3.50	4.54	0.00	610[2]	--	--	--	--	--	--
8.04	07/15/97	3.71	4.33	0.00	240[2]	240	ND	ND	ND	ND	490
	10/09/97	3.70	4.34	0.00	500[2]	270	1.1	ND	2.4	1.4	910
	01/14/98	2.16	5.88	0.00	340[7]	310	ND	ND	0.62	0.65	140
	04/01/98	2.20	5.84	0.00	320[7]	370	5.7	ND[9]	ND[9]	ND[9]	93
	07/15/98	3.38	4.66	0.00	510[10]	460[11]	ND[9]	ND[9]	ND[9]	ND[9]	230
	10/16/98	**2.30**	**5.74**	**0.00**	**67[13]**	**330[14]**	**4.7**	**ND[9]**	**ND[9]**	**ND[9]**	**60**

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Groundwater Monitoring Data and Analytical Results

Tosco (Unocal) Service Station #5043

449 Hegenberger Road

Oakland, California

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)	Product Thickness (ft.)	TPH(D) *(ppb)*	TPH(G) *(ppb)*	B *(ppb)*	T *(ppb)*	E *(ppb)*	X *(ppb)*	MTBE *(ppb)*
MW-4	08/31/92	--	--	--	90[2]	240[4]	ND	ND	ND	0.54	--
	11/30/92	--	--	--	61	420[4]	ND	ND	ND	ND	--
	02/04/93	--	--	--	ND	ND	ND	ND	ND	ND	--
9.00•	05/04/93	4.09	4.91	0.00	ND	110[3]	0.95	ND	ND	ND	--
	08/04/93	5.01	3.99	0.00	81	250[4]	ND	3.5	ND	4.1	--
8.41	11/03/93	4.23	4.18	0.00	68	130[4]	ND	ND	ND	ND	--
	02/07/94	3.35	5.06	0.00	ND	56[4]	ND	ND	ND	ND	--
	05/19/94	3.92	4.49	0.00	90[2]	140[4]	ND	ND	ND	ND	--
	06/25/94	4.35	4.06	0.00	--	--	--	--	--	--	--
	07/27/94	4.28	4.13	0.00	--	--	--	--	--	--	--
	08/15/94	4.27	4.14	0.00	72[2]	59[4]	ND	0.6	ND	ND	--
	11/14/94	4.05	4.36	0.00	ND	130[4]	ND	ND	ND	ND	--
	02/21/95	DESTROYED (1/95)	--	--	--	--	--	--	--	--	--
MW-5	08/31/92	--	--	--	690[1]	78	0.89	ND	ND	13	--
	11/30/92[5]	--	--	--	470[2]	930	70	290	0.79	14	--
	02/04/93[5]	--	--	--	5,500[2]	5,700	38	ND	620	170	--
	05/04/93[5]	4.37	4.90	0.00	4,600[1]	7,400	41	ND	1,000	35	--
	08/04/93[5]	5.81	3.46	0.00	970[2]	1,500	130	1	460	11	--
8.95	11/03/93	5.68	3.27	0.00	2,100[2]	13,000	350	ND	3,500	530	--
	02/07/94	5.11	3.84	0.00	830[2]	2,000	87	ND	370	110	--
	05/19/94	5.09	3.86	0.00	600[2]	260	44	ND	32	4.1	--
	06/25/94	4.55	4.40	0.00	--	--	--	--	--	--	--
	07/27/94	5.72	3.23	0.00	--	--	--	--	--	--	--
	08/15/94	5.68	3.27	0.00	860[2]	1,600	110	ND	340	72	--
	11/14/94	5.63	3.32	0.00	290[1]	250	40	ND	ND	5	--
	02/21/95	DESTROYED (1/95)	--	--	--	--	--	--	--	--	--
MW-6	08/31/92	--	--	--	750[2]	ND	ND	ND	ND	ND	--
	11/30/92	--	--	--	1,400[1]	9,200	550	ND	740	1,600	--
	02/04/93	--	--	--	890[2]	3,600	340	ND	290	550	--
9.12•	05/04/93	3.72	5.40	0.00	1,800[1]	4,900	360	18	450	430	--
	08/04/93	5.15	3.97	0.00	1,100[2]	3,400	390	ND	440	190	--
8.87	11/03/93	5.25	3.62	0.00	390[2]	1,400	320	ND	200	7.7	--

Table 1

Groundwater Monitoring Data and Analytical Results

Tosco (Unocal) Service Station #5043

449 Hegenberger Road

Oakland, California

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)	Product Thickness (ft.)	TPH(D) (ppb)	TPH(G) (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-6	02/07/94	4.55	4.32	0.00	970[2]	4,900	650	ND	250	35	--
(cont)	05/19/94	4.62	4.25	0.00	1,400[2]	3,600	300	1.7	210	41	--
	08/15/94	5.08	3.79	0.00	790[2]	1,300	130	6.7	54	57	--
	11/14/94	5.30	3.57	0.00	800[2]	730	50	ND	ND	39	--
	02/21/95	5.37	3.50	0.00	730[2]	2,000	250	4.6	25	30	--
	05/18/95	INACCESSIBLE	--	--	--	--	--	--	--	--	--
	08/17/95	INACCESSIBLE	--	--	--	--	--	--	--	--	--
	07/26/96	6.40	5.03**	3.33	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	10/28/96	4.10	4.93**	0.21	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	11/13/96	4.02	5.04**	0.25	--	--	--	--	--	--	--
	11/25/96	4.01	5.44**	0.75	--	--	--	--	--	--	--
	12/04/96	3.65	5.61**	0.50	--	--	--	--	--	--	--
	12/19/96	4.80	5.76**	2.20	--	--	--	--	--	--	--
	01/08/97	4.84	5.38**	1.75	--	--	--	--	--	--	--
	01/14/97	4.51	5.25**	1.15	--	--	--	--	--	--	--
	01/27/97	4.00	6.22**	1.75	--	--	--	--	--	--	--
	01/29/97	3.24	5.87**	0.31	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	02/11/97	4.65	5.14**	1.20	--	--	--	--	--	--	--
	02/24/97	4.81	4.91**	1.10	--	--	--	--	--	--	--
	03/10/97	4.60	5.00**	0.95	--	--	--	--	--	--	--
	03/17/97	4.50	5.06**	0.89	--	--	--	--	--	--	--
	03/31/97	4.65	4.99**	1.00	--	--	--	--	--	--	--
	04/15/97	4.90	4.76**	1.03	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	04/28/97	4.78	4.11**	0.03	--	--	--	--	--	--	--
	05/15/97	4.60	4.46**	0.25	--	--	--	--	--	--	--
	05/27/97	4.50	4.56**	0.25	--	--	--	--	--	--	--
	06/09/97	4.60	4.42**	0.20	--	--	--	--	--	--	--
	06/24/97	4.50	4.56**	0.25	--	--	--	--	--	--	--
	07/09/97	4.80	4.53**	0.60	--	--	--	--	--	--	--
	07/15/97	4.63	4.56**	0.42	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	07/21/97	4.75	4.31**	0.25	--	--	--	--	--	--	--
	08/06/97	4.50	4.45**	0.10	--	--	--	--	--	--	--
	08/20/97	4.55	4.40**	0.10	--	--	--	--	--	--	--
	09/02/97	4.75	4.16**	0.05	--	--	--	--	--	--	--
	10/09/97	4.84	4.06**	0.04	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	01/14/98	3.90	5.69**	0.94	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--

Table 1

Groundwater Monitoring Data and Analytical Results

Tosco (Unocal) Service Station #5043

449 Hegenberger Road

Oakland, California

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)	Product Thickness (ft.)	TPH(D) *(ppb)*	TPH(G) *(ppb)*	B *(ppb)*	T *(ppb)*	E *(ppb)*	X *(ppb)*	MTBE *(ppb)*
MW-6	02/12/98	3.35	6.01**	0.64	--	--	--	--	--	--	--
(cont)	03/03/98	4.51	4.38**	0.02	--	--	--	--	--	--	--
	04/01/98	3.67	6.43**	1.60	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	05/26/98	4.11	5.15**	0.50	--	--	--	--	--	--	--
	06/15/98	5.03	4.07**	0.30	--	--	--	--	--	--	--
	07/15/98	4.56	4.35**	0.05	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	08/21/98	**4.77**	**4.12****	**0.02**	**NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT**					**--**	**--**
	09/30/98	**5.08**	**3.81****	**0.03**	**NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT**					**--**	**--**
	10/16/98	**4.31**	**6.41****	**2.40**	**NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT**					**--**	**--**
MW-7	05/27/97	4.50	4.33	0.00	--	68	ND	ND	ND	ND	ND
8.83	06/01/97	4.54	4.29	0.00	69[2]	--	--	--	--	--	--
	07/15/97	4.70	4.13	0.00	ND	ND	ND	ND	ND	ND	ND
	10/09/97	4.30	4.53	0.00	190[1]	ND	ND	ND	ND	ND	ND
	01/14/98	2.88	5.95	0.00	65[7]	ND	ND	ND	ND	ND	36
	04/01/98	3.13	5.70	0.00	ND	ND	ND	ND	ND	ND	ND
	07/15/98	4.45	4.38	0.00	74[12]	ND	ND	ND	ND	ND	ND
	10/16/98	**3.45**	**5.38**	**0.00**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
MW-8	05/27/97	3.42	5.10	0.00	--	310	0.88	0.67	15	70	ND
8.52	06/01/97	3.46	5.06	0.00	320[2]	--	--	--	--	--	--
	07/15/97	3.49	5.03	0.00	ND	ND	ND	ND	2.7	3.8	ND
	10/09/97	3.73	4.79	0.00	390[1]	590	1.4	ND	32	4.1	ND
	01/14/98	1.92	6.60	0.00	230[7]	ND	ND	ND	ND	ND	ND
	04/01/98	2.38	6.14	0.00	510[7]	ND	ND	ND	ND	ND	4.7
	07/15/98	3.53	4.99	0.00	140[12]	ND	ND	ND	0.56	1.1	ND
	10/16/98	**3.04**	**5.48**	**0.00**	**170[15]**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
MW-9	02/21/95	1.98	6.31	0.00	71[2]	70[4]	ND	ND	ND	ND	--
8.29	05/18/95	3.47	4.82	0.00	ND	52	ND	1.1	ND	1.9	--
	08/17/95	1.49	6.80	0.00	ND	ND	ND	ND	ND	ND	--
	07/26/96	0.28	8.01	0.00	98	ND	ND	ND	ND	ND	ND
	10/28/96	1.15	7.14	0.00	99[1]	ND	ND	ND	ND	ND	7.6

Table 1

Groundwater Monitoring Data and Analytical Results

Tosco (Unocal) Service Station #5043

449 Hegenberger Road

Oakland, California

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)	Product Thickness (ft.)	TPH(D) (ppb)	TPH(G) (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-9	01/29/97	1.05	7.24	0.00	54	ND	ND	ND	ND	ND	5.4
(cont)	04/15/97	1.88	6.41	0.00	94[1]	ND	ND	ND	ND	ND	5.4
	05/27/97	1.05	7.24	0.00	--	--	--	--	--	--	--
	07/15/97	1.90	6.39	0.00	ND	ND	ND	ND	ND	ND	ND
	10/09/97	1.76	6.53	0.00	160[1]	ND	ND	ND	ND	ND	ND
	01/14/98	1.26	7.03	0.00	110[7]	ND	ND	ND	ND	ND	3.0
	04/01/98	0.85	7.44	0.00	110[7]	ND	ND	ND	ND	ND	ND
	07/15/98	1.52	6.77	0.00	200[12]	ND	ND	ND	ND	ND	ND
	10/16/98	**0.81**	**7.48**	**0.00**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
MW-10	02/21/95	4.69	3.93	0.00	270[2]	1,500	250	26	9.1	160	--
8.62	05/18/95	4.92	3.70	0.00	75[1]	810	520	ND	18	23	--
	08/17/95	4.05	4.57	0.00	ND	67	25	ND	2.4	ND	--
	07/26/96	4.08	4.54	0.00	ND	ND	3.7	ND	ND	ND	ND
	10/28/96	4.09	4.53	0.00	ND	ND	1.1	ND	ND	ND	ND
	01/29/97	2.94	5.68	0.00	ND	210	41	0.67	7.2	4.8	11
	04/15/97	4.07	4.55	0.00	ND	110	12	ND	0.77	ND	9.7
	05/27/97	4.40	4.22	0.00	--	--	--	--	--	--	--
	07/15/97	4.19	4.43	0.00	ND	ND	2.1	ND	0.67	0.73	ND
	10/09/97	4.75	3.87	0.00	ND	190	38	0.92	6.6	7.6	ND
	01/14/98	2.66	5.96	0.00	--[8]	59	9.5	0.85	1.2	1.7	4.5
	04/01/98	3.45	5.17	0.00	62[7]	230	66	1.7	12	17	6.4
	07/15/98	4.21	4.41	0.00	78[12]	290	98	45	21	38	21
	10/16/98	**4.11**	**4.51**	**0.00**	**ND**	**160[16]**	**44**	**0.96**	**2.5**	**10**	**17**
Trip Blank											
TB-LB	01/14/98	--	--	--	--	ND	ND	ND	ND	ND	ND
	04/01/98	--	--	--	--	ND	ND	ND	ND	ND	ND
	07/15/98	--	--	--	--	ND	ND	ND	ND	ND	ND
	10/16/98	**--**	**--**	**--**	**--**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**

Table 1

Groundwater Monitoring Data and Analytical Results

Tosco (Unocal) Service Station #5043
449 Hegenberger Road
Oakland, California

EXPLANATIONS:

Groundwater monitoring data and laboratory analytical results prior to January 14, 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
TOG = Total Oil and Grease

* TOC elevations are relative to msl, per the City of Oakland Benchmark #3880 (Elevation = 20.37 feet msl).

** Groundwater elevation corrected for the presence of free product [(TOC-DTW)+(Product Thickness x 0.77)].

♦ Elevations were based on the top of the well covers, and were surveyed relative to msl, per the City of Oakland Benchmark #3880 (Elevation = 20.37 feet).

[1] Laboratory report indicates the hydrocarbons detected did not appear to be diesel.

[2] Laboratory report indicates the hydrocarbons detected appeared to be a diesel and non-diesel mixture.

[3] Laboratory report indicates the hydrocarbons detected appeared to be a gasoline and non-gasoline mixture.

[4] Laboratory report indicates the hydrocarbons detected did not appear to be gasoline.

[5] TOG was ND.

[6] The well was obstructed with debris at 0.55 feet. A water sample was collected but was not analyzed as it was considered not representative of groundwater in this well.

[7] Laboratory report indicates unidentified hydrocarbons C9-C24

[8] Sample bottle broken at Laboratory.

[9] Detection limit raised. Refer to analytical results.

[10] Laboratory report indicates unidentified hydrocarbons >C14 and <C12.

[11] Laboratory report indicates gasoline and unidentified hydrocarbons >C8.

[12] Laboratory report indicates unidentified hydrocarbons >C14.

[13] Laboratory report indicates non diesel mix >C14.

[14] Laboratory report indicates unidentified hydrocarbons C6-C12.

[15] Laboratory report indicates non diesel mix C9-C27.

[16] Laboratory report indicates unidentified hydrocarbons <C7.

Table 2

Product Thickness/Removal Data

Tosco (Unocal) Service Station #5043

449 Hegenberger Road

Oakland, California

Well ID	Date	DTW (ft.)	Product Thickness (ft.)	Amount Bailed (Product + Water) Gallons
MW-6	07/26/96	6.40	3.33	2.10
	10/28/96	4.10	0.21	0.14
	11/13/96	4.02	0.25	0.09
	11/25/96	4.01	0.75	0.47
	12/04/96	3.65	0.50	0.43
	12/19/96	4.80	2.20	1.02
	01/08/97	4.84	1.75	0.59
	01/14/97	4.51	1.15	0.66
	01/27/97	4.00	1.75	0.78
	01/29/97	3.24	0.31	0.25
	02/11/97	4.65	1.20	0.62
	02/24/97	4.81	1.10	0.50
	03/10/97	4.60	0.95	0.47
	03/17/97	4.50	0.89	0.35
	03/31/97	4.65	1.00	0.50
	04/15/97	4.90	1.03	0.51
	04/28/97	4.78	0.03	0.20
	05/15/97	4.60	0.25	0.20
	05/27/97	4.50	0.25	0.00
	06/09/97	4.60	0.20	0.23
	06/24/97	4.50	0.25	0.25
	07/09/97	4.80	0.60	0.25
	07/15/97	4.63	0.42	0.20
	07/21/97	4.75	0.25	0.27
	08/06/97	4.50	0.10	0.16
	08/20/97	4.55	0.10	0.20
	09/02/97	4.75	0.05	0.12
	10/09/97	4.84	0.04	0.12
	01/14/98[1]	3.90	0.94	1.50
	02/12/98[1]	3.35	0.64	0.32
	03/03/98[1]	4.51	0.02	2.00
	04/01/98[1]	3.67	1.60	0.50
	05/26/98[1]	4.11	0.50	0.08
	06/15/98[1]	5.03	0.30	0.060
	07/15/98[1]	4.56	0.05	0.10
	08/21/98[1]	**4.77**	**0.02**	**0.040** ✓
	09/30/98[1]	**5.08**	**0.03**	**0.027** ✓
	10/16/98[1]	**4.32**	**2.40**	**0.98** ✓

EXPLANATIONS:

Product Thickness/Removal Data prior to January 14, 1998, were compiled from reports prepared by MPDS Services, Inc.

DTW = Depth to Water
(ft.) = Feet

[1] Skimmer present in well.

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 #5043 Job#: 180065

Address: 449 Hegenberger Rd. Date: 10-16-98

City: Oakland Sampler: Joe

Well ID MW-3 Well Condition: O.K.

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

Total Depth 14.09 ft.

Depth to Water 2.30 ft.

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

11.79 X VF 0.17 = 2.00 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: 9:20 Weather Conditions: clear

Sampling Time: 9:40 A.m Water Color: clear Odor: yes

Purging Flow Rate: 0.5 gpm. Sediment Description: none

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

Time	Volume (gal.)	pH	Conductivity µmhos/cm X100	Temperature °F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
9:30	2	7.32	2.87	65.7			
9:32	4	7.22	2.95	66.0			
9:34	6	7.14	2.92	66.3			

LABORATORY INFORMATION

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

COMMENTS: _____

WELL MONITORING/SAMPLING
FIELD DATA SHEET

Client/
Facility #5043 Job#: 180065

Address: 449 Hegenberger Rd. Date: 8-21-98

City: Oakland Sampler: Joe

Well ID MW-6 Well Condition: o.k.

Well Diameter 2 in. Hydrocarbon Thickness: 0.02 (feet) Amount Bailed (product/water): Approx 2 ounces of FP in skimmer 3 ounces bailed from well (Gallons)

Total Depth 12.75 ft.

Depth to Water 4.77 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:	Sampling Equipment:
Disposable Bailer	Disposable Bailer
Bailer	Bailer
Stack	Pressure Bailer
Suction	Grab Sample
Grundfos	Other: _____
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 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: Total of 5 ounces of FP removed from well.

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WELL MONITORING/SAMPLING
FIELD DATA SHEET

Client/
Facility #5023 Job#: 180065

Address: 149 Hegenberger Rd. Date: 9-30-97

City: Oakland Sampler: SA

Well ID MW-6 Well Condition: o.k.

Well Diameter 2 in. Hydrocarbon Thickness: 0.03 (feet) Amount Bailed (product/water): _____ (Gallons)

Approx. 1 ounce in skimmer
2.5 ounces in well

Total Depth 12.84 ft.

Depth to Water 5.08 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 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: Total of 3.5 ounces of FP removed from well.

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WELL MONITORING/SAMPLING
FIELD DATA SHEET

Client/
Facility #5043 Job#: 180065

Address: 449 Hegenberger Rd. Date: 10-16-98

City: Oakland Sampler: Joe

Well ID MW-6 Well Condition: O.K.

Well Diameter 2 in. Hydrocarbon Thickness: 2.4' (feet) Amount Bailed (product/water): approx. 126 ounces of FP / 3 gal. w (Gallons)

Total Depth 12.84 ft.

Depth to Water 4.31 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 X100	Temperature °F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
~~MW-~~	3 VOA	Y	HCL	SEQUOIA	~~TPH(G)/btex/mtbe~~
~~"~~	1 Amb.	"	—	"	TPHD

COMMENTS: Approximately 30 ounces of FP in skimmer, 96 ounces of FP in well. A total of 126 ounces removed from well. Well has a skimmer.

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WELL MONITORING/SAMPLING
FIELD DATA SHEET

Client/
Facility #5043 Job#: 180065

Address: 449 Hegenberger Rd. Date: 10-16-98

City: Oakland Sampler: Joe

Well ID MW-7 Well Condition: O.K.

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

Total Depth 13.19 ft.

Depth to Water 3.45 ft.

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

9.74 X VF 0.17 = 1.66 X 3 (case volume) = Estimated Purge Volume: 5 (gal.)

Purge Equipment: (Disposable Bailer) Bailer, Stack, Suction, Grundfos, Other: _____

Sampling Equipment: (Disposable Bailer) ~~Bailer~~, Pressure Bailer, Grab Sample, Other: _____

Starting Time: 7:22 Weather Conditions: clear

Sampling Time: 7:40 A.M. Water Color: clear Odor: none

Purging Flow Rate: 0.5 gpm. Sediment Description: none

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

Time	Volume (gal.)	pH	Conductivity µmhos/cm X100	Temperature °F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
7:26	1.5	7.58	4.57	66.2			
7:28	3	7.47	4.61	66.3			
7:29	5	7.42	4.64	66.1			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-7	3 VOA	Y	HCL	SEQUOIA	TPH(G)/btex/mtbe
"	1 Amb.	"	—	"	TPHD

COMMENTS: _____

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WELL MONITORING/SAMPLING
FIELD DATA SHEET

Client/
Facility #5043 Job#: 180065

Address: 449 Hegenberger Rd. Date: 10-16-98

City: Oakland Sampler: Joe

Well ID MW-8 Well Condition: O.K.

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

Total Depth 14.87 ft.

Depth to Water 3.04 ft.

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

11.83 X VF 0.17 = 2.01 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: 8:00 Weather Conditions: clear

Sampling Time: 8:25 A.M. Water Color: Clear Odor: none

Purging Flow Rate: 0.3 gpm. Sediment Description: none

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

Time	Volume (gal.)	pH	Conductivity µmhos/cm X100	Temperature °F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
8:12	2	7.39	4.12	65.9			
8:14	4	7.45	4.16	66.2			
8:16	6	7.45	4.21	66.2			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-8	3 VOA	Y	HCL	SEQUOIA	TPH(G)/btex/mtbe
"	1 Amb.	"	—	"	TPHD

COMMENTS: _____

WELL MONITORING/SAMPLING
FIELD DATA SHEET

Client/
Facility #5043 Job#: 180065

Address: 449 Hegenberger Rd. Date: 10-16-98

City: Oakland Sampler: Joe

Well ID MW-9 Well Condition: O.K.

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

Total Depth 11.95 ft.

Depth to Water 0.81 ft.

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

11.14 X VF 0.17 = 1.89 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: 8:42 Weather Conditions: clear

Sampling Time: 9:02 A.m Water Color: Clear Odor: none

Purging Flow Rate: 0.5 gpm. Sediment Description: none

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

Time	Volume (gal.)	pH	Conductivity µmhos/cm X100	Temperature °F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
8:50	2	7.66	4.18	66.5			
8:52	4	7.37	4.20	66.2			
8:52	6	7.34	4.14	66.1			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-9	3 VOA	Y	HCL	SEQUOIA	TPH(G)/btex/mtbe
"	1 Amb.	"	—	"	TPHD

COMMENTS: _____

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WELL MONITORING/SAMPLING
FIELD DATA SHEET

Client/
Facility #5043 Job#: 180065

Address: 449 Hegenberger Rd. Date: 10-16-98

City: Oakland Sampler: Joe

Well ID MW-10 Well Condition: O.K.

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

Total Depth 12.81 ft.

Depth to Water 4.11 ft.

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

8.7 X VF 0.17 = 1.48 X 3 (case volume) = Estimated Purge Volume: 4.5 (gal.)

Purge Equipment:
- (Disposable Bailer)
- Bailer
- Stack
- Suction
- Grundfos
- Other: _____

Sampling Equipment:
- (Disposable Bailer)
- ~~Bailer~~
- Pressure Bailer
- Grab Sample
- Other: _____

Starting Time: 9:52 Weather Conditions: clear

Sampling Time: 10:15 A.M Water Color: Clear Odor: yes

Purging Flow Rate: 0.5 gpm. Sediment Description: none

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

Time	Volume (gal.)	pH	Conductivity µmhos/cm X100	Temperature °F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
10:00	1.5	7.51	5.12	66.2			
10:03	3	7.33	5.08	66.3			
10:05	4.5	7.25	5.03	66.3			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-10	3 VOA	Y	HCL	SEQUOIA	TPH(G)/btex/mtbe
"	1 Amb.	"	—	"	TPHD

COMMENTS: _____

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Chain of Custody Record

TOSCO

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

Facility Number: UNOCAL SS# 5043
Facility Address: 449 Hegenberger Road, Oakland, CA
Consultant Project Number: 180065.85
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 AJEMIAN
Collection Date: 10-16-98
Signature: Joe Ajemian

Analyses To Be Performed 9810D37

Sample Number	Lab Sample Number	Number of Containers	Matrix: S = Soil A = Air W = Water 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
TB-LB	01	1 VOA	W	—	—	HCL	Y	✓												
MW-3	02	3 VOA 1 Amb.	"	G	9:40 A.M	"	"	✓	✓											
MW-7	03	"	"	"	7:40 A.M	"	"	✓	✓											
MW-8	04	"	"	"	8:25 A.M	"	"	✓	✓											
MW-9	05	"	"	"	9:02 A.M	"	✓	✓	✓											
MW-10	06	"	"	"	10:15 A.M	"	"	✓	✓											

Remarks: 0 16 3 5

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Joe Ajemian	G-R Inc.	10-16-98 1415	John Welker	G-R Inc	10-16-98 1415
John Welker	G-R Inc.	10-16-98 1415		SEQUOIA	10.16.98 1637
	SEQUOIA	10.16.98	Received For Laboratory By (Signature) Anna DeLeon		10/16/98 1556

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: Unocal SS#5043	Sampled: 10/16/98
6747 Sierra Court Suite J	Sample Descript: TB-LB	Received: 10/16/98
Dublin, CA 94568	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 10/26/98
Attention: Deanna Harding	Lab Number: 9810D37-01	Reported: 11/05/98

Instrument ID: HP4

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	99

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

SEQUOIA ANALYTICAL - ELAP #1271

Tod Granicher
Project Manager

Sequoia Analytical

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Gettler Ryan/Geostrategies	Client Proj. ID: Unocal SS#5043	Sampled: 10/16/98
6747 Sierra Court Suite J	Sample Descript: MW-3	Received: 10/16/98
Dublin, CA 94568	Matrix: LIQUID	Extracted: 10/22/98
	Analysis Method: EPA 8015 Mod	Analyzed: 10/27/98
Attention: Deanna Harding	Lab Number: 9810D37-02	Reported: 11/05/98

Instrument ID: HP3

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel	50	67
Chromatogram Pattern:		
Non Diesel Mix		>C14

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	100

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

SEQUOIA ANALYTICAL - ELAP #1271

Tod Granicher
Project Manager

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Gettler Ryan/Geostrategies	Client Proj. ID: Unocal SS#5043	Sampled: 10/16/98
6747 Sierra Court Suite J	Sample Descript: MW-3	Received: 10/16/98
Dublin, CA 94568	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 10/26/98
Attention: Deanna Harding	Lab Number: 9810D37-02	Reported: 11/05/98

Instrument ID: HP4

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**100**	**330**
Methyl t-Butyl Ether	**5.0**	**60**
Benzene	**1.0**	**4.7**
Toluene	1.0	N.D.
Ethyl Benzene	1.0	N.D.
Xylenes (Total)	1.0	N.D.
Chromatogram Pattern:		
Unidentified HC		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	64 Q

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

SEQUOIA ANALYTICAL - ELAP #1271

Tod Granicher
Project Manager

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Gettler Ryan/Geostrategies	Client Proj. ID: Unocal SS#5043	Sampled: 10/16/98
6747 Sierra Court Suite J	Sample Descript: MW-7	Received: 10/16/98
Dublin, CA 94568	Matrix: LIQUID	Extracted: 10/22/98
	Analysis Method: EPA 8015 Mod	Analyzed: 10/27/98
Attention: Deanna Harding	Lab Number: 9810D37-03	Reported: 11/05/98

Instrument ID: HP3

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel	50	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	89

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

SEQUOIA ANALYTICAL - ELAP #1271

Tod Granicher
Project Manager

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Gettler Ryan/Geostrategies	Client Proj. ID: Unocal SS#5043	Sampled: 10/16/98
6747 Sierra Court Suite J	Sample Descript: MW-7	Received: 10/16/98
Dublin, CA 94568	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 10/26/98
Attention: Deanna Harding	Lab Number: 9810D37-03	Reported: 11/05/98

Instrument ID: HP4

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	99

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

SEQUOIA ANALYTICAL - ELAP #1271

Tod Granicher
Project Manager

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Gettler Ryan/Geostrategies	Client Proj. ID: Unocal SS#5043	Sampled: 10/16/98
6747 Sierra Court Suite J	Sample Descript: MW-8	Received: 10/16/98
Dublin, CA 94568	Matrix: LIQUID	Extracted: 10/22/98
	Analysis Method: EPA 8015 Mod	Analyzed: 10/27/98
Attention: Deanna Harding	Lab Number: 9810D37-04	Reported: 11/05/98

Instrument ID: HP3

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel	**50**	**170**
Chromatogram Pattern:		
Non Diesel Mix		**C9-C27**

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	51

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

SEQUOIA ANALYTICAL - ELAP #1271

Tod Granicher
Project Manager

Sequoia Analytical

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Gettler Ryan/Geostrategies	Client Proj. ID: Unocal SS#5043	Sampled: 10/16/98
6747 Sierra Court Suite J	Sample Descript: MW-8	Received: 10/16/98
Dublin, CA 94568	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 10/26/98
Attention: Deanna Harding	Lab Number: 9810D37-04	Reported: 11/05/98

Instrument ID: HP4

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	93

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

SEQUOIA ANALYTICAL - ELAP #1271

Tod Granicher
Project Manager

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Gettler Ryan/Geostrategies	Client Proj. ID: Unocal SS#5043	Sampled: 10/16/98
6747 Sierra Court Suite J	Sample Descript: MW-9	Received: 10/16/98
Dublin, CA 94568	Matrix: LIQUID	Extracted: 10/22/98
	Analysis Method: EPA 8015 Mod	Analyzed: 10/28/98
Attention: Deanna Harding	Lab Number: 9810D37-05	Reported: 11/05/98

Instrument ID: HP3

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel	50	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	59

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

SEQUOIA ANALYTICAL - ELAP #1271

Tod Granicher
Project Manager

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Gettler Ryan/Geostrategies	Client Proj. ID: Unocal SS#5043	Sampled: 10/16/98
6747 Sierra Court Suite J	Sample Descript: MW-9	Received: 10/16/98
Dublin, CA 94568	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 10/26/98
Attention: Deanna Harding	Lab Number: 9810D37-05	Reported: 11/05/98

Instrument ID: HP4

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	97

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

SEQUOIA ANALYTICAL - ELAP #1271

Tod Granicher
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Gettler Ryan/Geostrategies	Client Proj. ID: Unocal SS#5043	Sampled: 10/16/98
6747 Sierra Court Suite J	Sample Descript: MW-10	Received: 10/16/98
Dublin, CA 94568	Matrix: LIQUID	Extracted: 10/22/98
	Analysis Method: EPA 8015 Mod	Analyzed: 10/23/98
Attention: Deanna Harding	Lab Number: 9810D37-06	Reported: 11/05/98

Instrument ID: HP3

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel	50	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	118

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

SEQUOIA ANALYTICAL - ELAP #1271

Tod Granicher
Project Manager

Sequoia Analytical

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Gettler Ryan/Geostrategies	Client Proj. ID: Unocal SS#5043	Sampled: 10/16/98
6747 Sierra Court Suite J	Sample Descript: MW-10	Received: 10/16/98
Dublin, CA 94568	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 10/26/98
Attention: Deanna Harding	Lab Number: 9810D37-06	Reported: 11/05/98

Instrument ID: HP4

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**50**	**160**
Methyl t-Butyl Ether	**2.5**	**17**
Benzene	**0.50**	**44**
Toluene	**0.50**	**0.96**
Ethyl Benzene	**0.50**	**2.5**
Xylenes (Total)	**0.50**	**10**
Chromatogram Pattern:		**Gasoline**
Unidentified HC		**<C7**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	101

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

SEQUOIA ANALYTICAL - ELAP #1271

Tod Granicher
Project Manager

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

Client Project ID: Unocal SS#5043
Matrix: Liquid
Work Order #: 9810D37 01-06

Reported: Nov 6, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	BTEX as TPH
QC Batch#:	GC102698802004A	GC102698802004A	GC102698802004A	GC102698802004A	GC102698802004A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015M
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	D. Newcomb	D. Newcomb	D. Newcomb	D. Newcomb	D. Newcomb
MS/MSD #:	8101502	8101502	8101502	8101502	8101502
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Prepared Date:	10/26/98	10/26/98	10/26/98	10/26/98	10/26/98
Analyzed Date:	10/26/98	10/26/98	10/26/98	10/26/98	10/26/98
Instrument I.D.#:	HP4	HP4	HP4	HP4	HP4
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	340 µg/L
Result:	23	19	20	67	360
MS % Recovery:	115	95	100	112	106
Dup. Result:	23	19	19	66	340
MSD % Recov.:	115	95	95	110	100
RPD:	0.0	0.0	5.1	1.5	5.7
RPD Limit:	0-20	0-20	0-20	0-20	0-50
LCS #:	LCS102698	LCS102698	LCS102698	LCS102698	LCS102698
Prepared Date:	10/26/98	10/26/98	10/26/98	10/26/98	10/26/98
Analyzed Date:	10/26/98	10/26/98	10/26/98	10/26/98	10/26/98
Instrument I.D.#:	HP4	HP4	HP4	HP4	HP4
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	340 µg/L
LCS Result:	20	17	19	65	320
LCS % Recov.:	100	85	95	108	94
MS/MSD LCS Control Limits	70-130	70-130	70-130	70-130	60-140

SEQUOIA ANALYTICAL
ELAP #1271

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

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Gettler Ryan/Geostrategies	Client Project ID:	Unocal SS#5043	
6747 Sierra Court, Ste J	Matrix:	Liquid	
Dublin, CA 94568			
Attention: Deanna Harding	Work Order #:	9810D37 01-06	Reported: Nov 6, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Diesel
QC Batch#:	SP1022988015EXB
Analy. Method:	EPA 8015
Prep. Method:	EPA 3510
Analyst:	K. Grubb
MS/MSD #:	BLK102298
Sample Conc.:	N.D.
Prepared Date:	10/22/98
Analyzed Date:	10/23/98
Instrument I.D.#:	HP3A
Conc. Spiked:	500 µg/L
Result:	400
MS % Recovery:	80
Dup. Result:	410
MSD % Recov.:	82
RPD:	2.5
RPD Limit:	0-50

LCS #:	LCS102298	LCS102298
Prepared Date:	10/22/98	10/22/98
Analyzed Date:	10/23/98	10/23/98
Instrument I.D.#:	HP3A	HP3A
Conc. Spiked:	500 µg/L	500 µg/L
LCS Result:	390	360
LCS % Recov.:	78	72

MS/MSD	50-150	50-150
LCS	60-140	60-140
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

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Gettler Ryan/Geostrategies	Client Proj. ID: Unocal SS#5043	Received: 10/16/98
6747 Sierra Court Suite J		
Dublin, CA 94568	Lab Proj. ID: 9810D37	Reported: 11/05/98
Attention: Deanna Harding		

LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 15 pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

Note: Sample MW-3 coeluted with the internal standard for Gas/BTEX analysis. This caused the surrogate recovery to drop below normal acceptance limits.

SEQUOIA ANALYTICAL

Tod Granicher
Project Manager