



GETTLER - RYAN INC.

August 4, 1999
G-R Job #180061

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

RE: Second Quarter 1999 Groundwater Monitoring & Sampling Report
Tosco (Unocal) Service Station #5325
3220 Lakeshore Avenue
Oakland, California

Dear Mr. De Witt:

This report documents the quarterly groundwater monitoring and sampling event performed by Gettler-Ryan Inc. (G-R). On June 9, 1999, field personnel monitored and sampled six wells (U-1 through U-6) at the above referenced site.

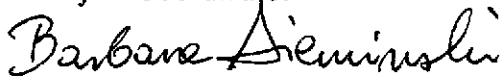
Static groundwater levels were measured and all wells were checked for the presence of separate-phase hydrocarbons. Separate-phase hydrocarbons were not present in any wells. Static water level data and groundwater elevations are summarized in Table 1. Dissolved Oxygen Concentrations are summarized in Table 3. A Potentiometric Map is included as Figure 1.

Groundwater samples were collected from the monitoring wells as specified by 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


Barbara Sieminski

Barbara Sieminski
Project Geologist, R.G. No.6676



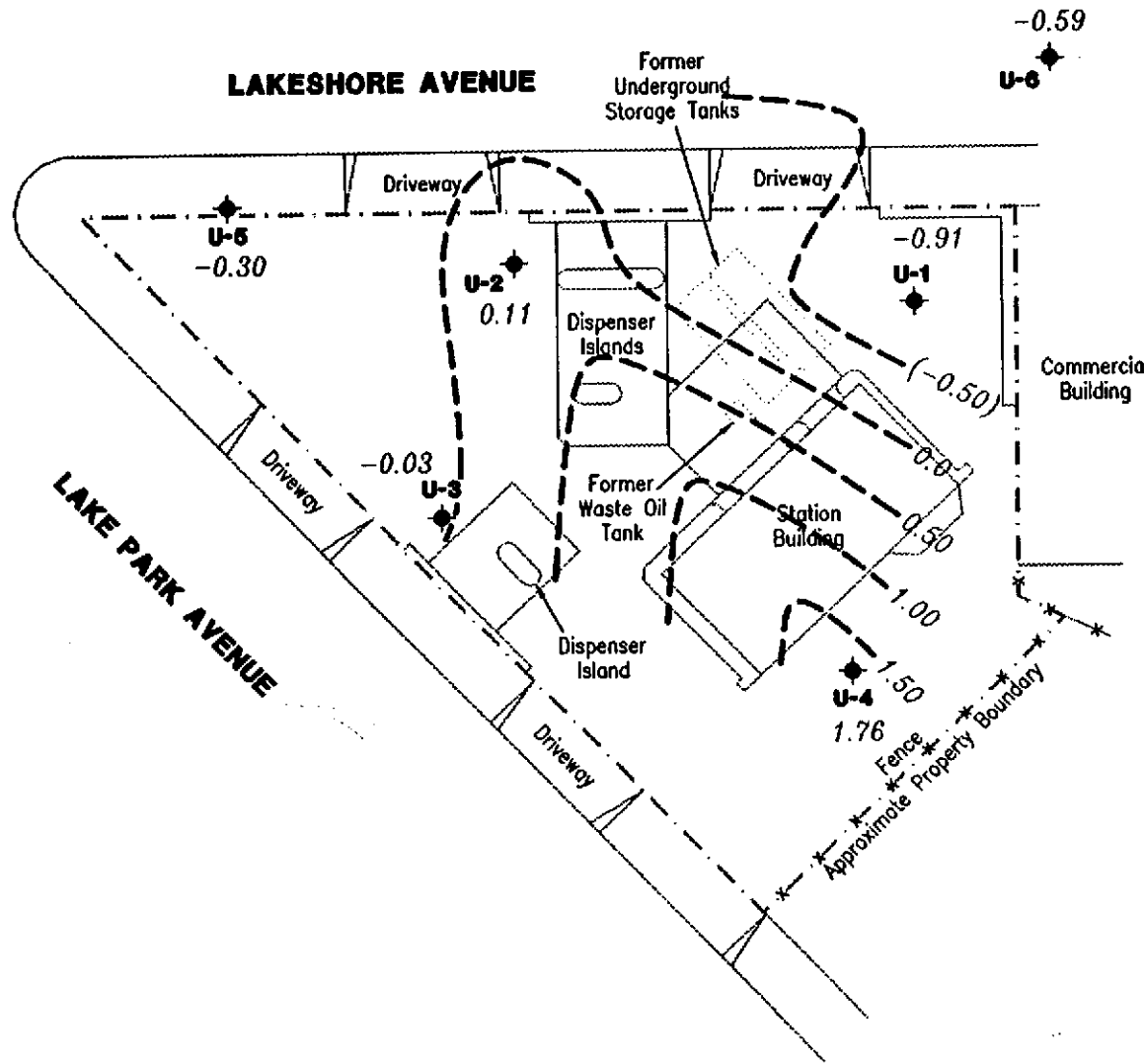
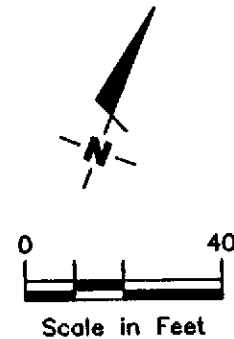
Figure 1: Potentiometric Map
Figure 2: Concentration Map
Table 1: Groundwater Monitoring Data and Analytical Results
Table 2: Groundwater Analytical Results
Table 3: Dissolved Oxygen Concentrations
Attachments: Standard Operating Procedure - Groundwater Sampling
Field Data Sheets
Chain of Custody Document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

5325.qml

EXPLANATION

- ◆ Groundwater monitoring well
- 99.99 Groundwater elevation in feet referenced to City of Oakland Benchmark
- - - 99.99 Groundwater elevation contour, dashed where inferred.

Approximate groundwater flow direction at a gradient of 0.01 to 0.04 Ft./Ft.



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. 5325
 3220 Lakeshore Avenue
 Oakland, California

JOB NUMBER
 180061

REVIEWED BY

DATE
 June 9, 1999

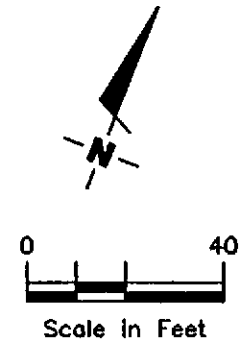
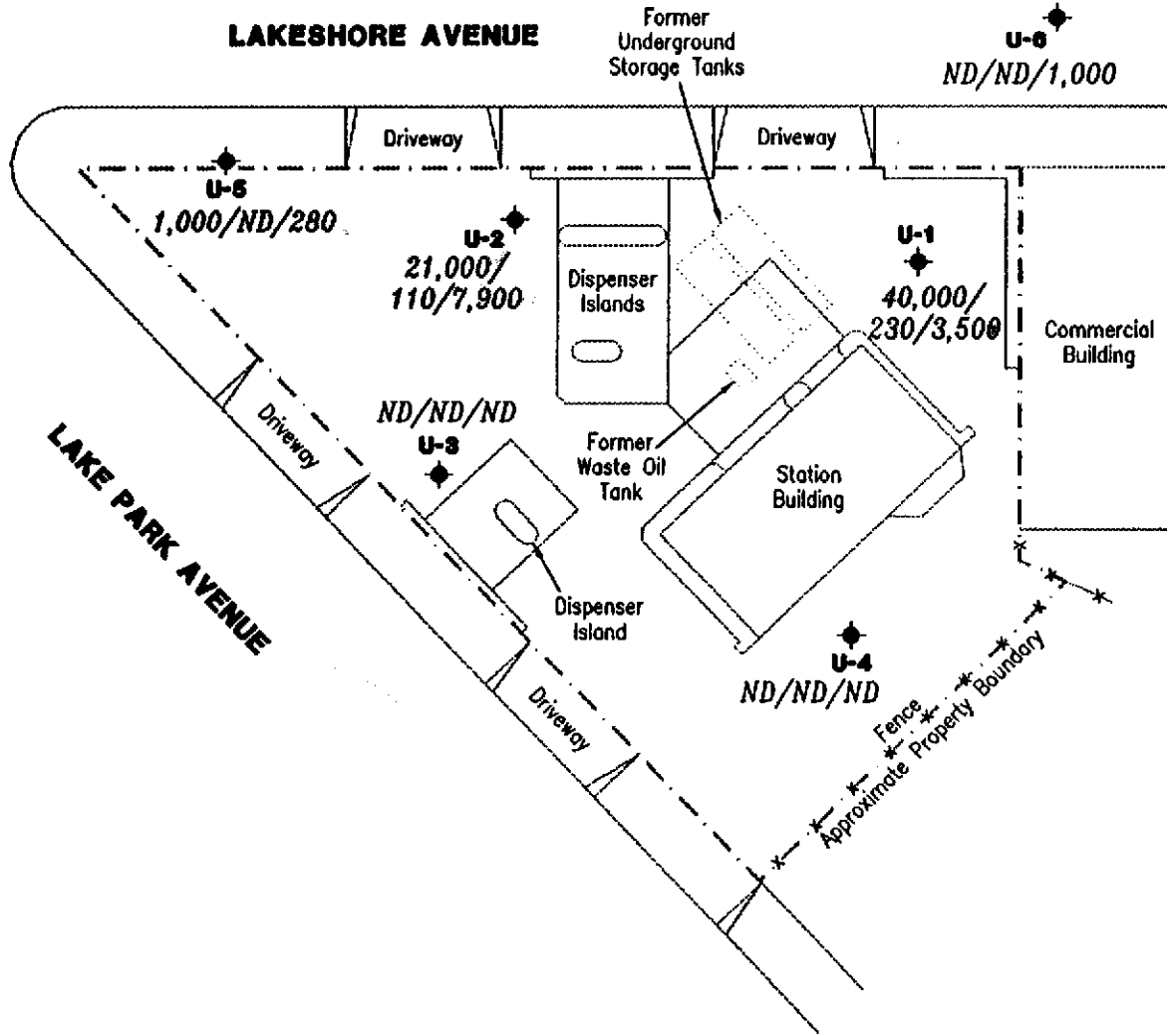
REVISED DATE

FIGURE

1

EXPLANATION

- ◆ Groundwater monitoring well
- A/B/C TPH(G) (Total Petroleum Hydrocarbons as Gasoline)/Benzene/MTBE concentrations in ppb
- ND Not Detected



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



Gettler - Ryan Inc.

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Dublin, CA 94568

CONCENTRATION MAP
Tosco (Unocal) Service Station No. 5325
3220 Lakeshore Avenue
Oakland, California

FIGURE

2

JOB NUMBER
180061

REVIEWED BY

DATE
June 9, 1999

REVISED DATE

Table 1
Groundwater Monitoring Data and Analytical Results
 Tosco (Unocal) Service Station #5325
 3220 Lakeshore Avenue
 Oakland, California

Well ID/ TOC*	Date	DTW (ft.)	GWE (ft.)	Product Thickness (ft.)	TPH(G) (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)	
U-1	08/10/90	--	--	--	690	38	75	8.6	130	--	
	01/07/91	--	--	--	250	22	16	4.2	17	--	
	04/01/91	--	--	--	160	13	8.6	1.0	15	--	
	07/03/91	--	--	--	140	21	4.3	0.36	17	--	
	10/09/91	--	--	--	ND	ND	ND	ND	ND	--	
	02/12/92	--	--	--	250	ND	ND	ND	ND	--	
	05/05/92	--	--	--	230	1.2	ND	ND	ND	--	
	06/11/92	--	--	--	1,000	80	1.4	6.7	41	--	
	08/20/92	--	--	--	400 ¹	1.0	ND	ND	0.6	--	
	02/22/93	--	--	--	34,000	1,400	5,500	910	7,300	--	
	05/07/93	--	--	--	8,700	600	240	650	3,300	--	
	08/08/93	--	--	--	4,900 ²	79	ND	832	270	--	
	5.32	11/16/93	8.61	-3.29	0.00	690 ³	ND	ND	ND	ND	--
02/16/94		8.54	-3.22	0.00	6,800 ⁴	ND	ND	ND	ND	--	
8.46	06/22/94	8.39	0.07	0.00	200	ND	ND	5.9	21	--	
	09/22/94	8.66	-0.20	0.00	6,100 ³	ND	ND	ND	ND	--	
	12/24/94	8.04	0.42	0.00	50,000	2,500	9,700	2,400	17,000	--	
	03/25/95	7.72	1.02**	0.37	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	06/21/95	9.30	-0.69**	0.20	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	09/19/95	9.29	-0.53**	0.40	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	12/19/95	8.98	-0.50**	0.03	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	03/18/96	8.25	0.21	0.00	27,000	ND	2,300	1,400	11,000	4,900	
	06/27/96	7.92	0.54	<0.01	120,000	540	4,300	2,600	26,000	ND	
	09/26/96	9.10	-0.62**	0.02	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	12/09/96	6.88	1.60**	0.03	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	03/14/97	9.02	-0.15**	0.55	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	06/30/97	8.41	0.07**	0.02	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	09/19/97	8.56	-0.08**	0.02	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	12/12/97	8.58	-0.11**	0.01	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	03/03/98	8.23	0.26**	0.04	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	06/15/98	8.37	0.09	Sheen	52,000	ND ⁷	900	1,800	13,000	ND ⁷	
	09/30/98	8.94	-0.48	Sheen	1,000,000 ⁸	ND ⁷	2,600	13,000	83,000	4,800	
	12/28/98	8.57	-0.11	<0.01	1,100,000 ⁹	ND ⁷	1,600	8,600	71,000	5,700	
	03/22/99	8.18	0.28	Sheen	130,000	470	1,100	2,000	28,000	5,700	
06/09/99	9.37	-0.91	0.00	40,000	230	640	590	13,000	3,500/2,100 ¹⁰		

Table 1
Groundwater Monitoring Data and Analytical Results
 Tosco (Unocal) Service Station #5325
 3220 Lakeshore Avenue
 Oakland, California

Well ID/ TOC*	Date	DTW (ft.)	GWE (ft.)	Product Thickness (ft.)	TPH(G) (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)	
U-2	08/10/90	--	--	--	780	27	46	15	130	--	
	01/07/91	--	--	--	1,900	67	5.8	58	69	--	
	04/01/91	--	--	--	1,700	250	89	34	190	--	
	07/03/91	--	--	--	2,100	150	25	3.1	290	--	
	10/09/91	--	--	--	230	7.1	ND	ND	11	--	
	02/12/92	--	--	--	410	1.9	ND	0.36	0.4	--	
	05/05/92	--	--	--	1,600	120	52	6.2	290	--	
	06/11/92	--	--	--	620	17	2.1	ND	37	--	
	08/20/92	--	--	--	700	28	6.5	1.3	4.6	--	
	02/22/93	--	--	--	3,400	2,400	2,100	1,200	5,800	--	
	05/07/93	--	--	--	17,000	1,800	660	1,700	4,000	--	
4.53	08/08/93	--	--	--	5,600 ²	420	ND	410	670	--	
	11/16/93	8.17	-3.64	0.00	510 ³	ND	ND	ND	ND	--	
7.62	02/16/94	7.73	-3.20	0.00	980 ⁴	49	13	2.7	40	--	
	06/22/94	7.60	0.02	0.00	31,000	2,200	62	1,500	3,500	--	
	09/22/94	7.93	-0.31	0.00	8,500 ³	29	ND	ND	ND	--	
	12/24/94	7.27	0.35	0.00	32,000	1,500	890	1,300	5,000	--	
	03/25/95	7.01	0.61	0.00	170,000	1,900	21,000	4,800	33,000	--	
	06/21/95	6.98	0.64	0.00	16,000	2,100	ND	1,800	1,700	--	
	09/19/95	7.70	-0.08	0.00	3,000	610	ND	78	240	-- ⁵	
	12/19/95	7.30	0.32	0.00	1,600	140	55	52	270	-- ⁶	
	03/18/96	6.45	1.17	0.00	12,000	2,200	ND	1,200	2,200	22,000	
	06/27/96	7.41	0.21	0.00	28,000	3,400	ND	2,800	3,100	3,000	
	09/26/96	7.90	-0.28	0.00	5,900	750	ND	ND	ND	18,000	
	12/09/96	6.76	0.86	0.00	13,000	5,100	290	980	370	2,700	
	03/14/97	7.12	0.52**	0.03	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	06/30/97	6.19	1.43	<0.01	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	09/19/97	7.31	0.31	<0.01	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	12/12/97	6.75	0.88**	<0.01	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					--	--
	03/03/98	6.36	1.26	Sheen	80,000	3,000	1,100	820	16,000	16,000	
	06/15/98	6.51	1.11	Sheen	48,000	1,800	330	470	7,900	20,000	
	09/30/98	7.17	0.45	Sheen	60,000	1,300	ND ⁷	500	9,700	19,000	
	12/28/1998	7.06	0.56	0.00	63,000	590	160	320	5,600	16,000	
03/22/99	6.82	0.80	0.00	28,000	1,100	ND ⁷	360	2,900	25,000		
06/09/99	7.51	0.11	0.00	21,000	110	190	310	2,600	7,900/7,800 ¹⁰		

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U-3	08/10/90	--	--	--	ND	ND	ND	ND	ND	--
	01/07/91	--	--	--	ND	ND	ND	ND	1.8	--
	04/01/91	--	--	--	ND	1.0	2.9	0.53	5.4	--
	07/03/91	--	--	--	ND	ND	ND	ND	ND	--
	10/09/91	--	--	--	ND	ND	ND	ND	ND	--
	02/12/92	--	--	--	ND	ND	ND	ND	ND	--
	05/05/92	--	--	--	ND	ND	ND	ND	ND	--
	06/11/92	--	--	--	ND	ND	ND	ND	ND	--
	08/20/92	--	--	--	ND	ND	ND	ND	ND	--
	02/22/93	--	--	--	ND	ND	ND	ND	ND	--
	05/07/93	--	--	--	ND	ND	ND	ND	ND	--
7.86	08/08/93	--	--	--	210	5.0	9.7	0.7	4.1	--
	11/16/93	11.82	-3.96	0.00	ND	ND	ND	ND	ND	--
10.98	02/16/94	11.62	-3.76	0.00	ND	ND	ND	ND	ND	--
	06/22/94	11.64	-0.66	0.00	ND	ND	ND	ND	ND	--
	09/22/94	11.76	-0.78	0.00	ND	ND	ND	ND	ND	--
	12/24/94	11.28	-0.30	0.00	ND	ND	ND	ND	ND	--
	03/25/95	10.96	0.02	0.00	ND	ND	ND	ND	ND	--
	06/21/95	11.37	-0.39	0.00	ND	ND	ND	ND	ND	--
	09/19/95	11.55	-0.57	0.00	ND	ND	ND	ND	ND	-- ⁵
	12/19/95	11.45	-0.47	0.00	ND	ND	ND	ND	ND	--
	03/18/96	11.10	-0.12	0.00	ND	ND	ND	ND	ND	--
	06/27/96	11.16	-0.18	0.00	440	49	50	51	140	50
	09/26/96	11.55	-0.57	0.00	ND	ND	ND	ND	ND	ND
	12/09/96	10.12	0.86	0.00	ND	ND	ND	ND	ND	29
	03/14/97	10.87	0.11	0.00	ND	ND	ND	ND	ND	ND
	06/30/97	11.08	-0.10	0.00	ND	ND	ND	ND	ND	ND
	09/19/97	11.05	-0.07	0.00	ND	ND	ND	ND	ND	ND
	12/12/97	10.58	0.40	0.00	ND	ND	ND	ND	ND	ND
	03/03/98	9.84	1.14	0.00	ND	ND	ND	ND	ND	ND
	06/15/98	10.56	0.42	0.00	ND	ND	ND	ND	ND	ND
	09/30/98	11.12	-0.14	0.00	ND	ND	ND	ND	ND	ND
	12/28/1998	10.96	0.02	0.00	ND	ND	ND	ND	ND	ND
03/22/99	9.46	1.52	0.00	ND	ND	ND	ND	ND	ND	
06/09/99	11.01	-0.03	0.00	ND	ND	ND	ND	ND	ND	

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U-4										
11.15	06/22/94	10.16	0.99	0.00	ND	ND	ND	ND	ND	--
	09/22/94	10.79	0.36	0.00	ND	0.78	1.3	ND	1.4	--
	12/24/94	9.81	1.34	0.00	ND	ND	ND	ND	ND	--
	03/25/95	9.51	1.64	0.00	ND	ND	ND	ND	ND	--
	06/21/95	9.54	1.61	0.00	ND	ND	ND	ND	ND	--
	09/19/95	10.17	0.98	0.00	ND	ND	ND	ND	ND	--
	12/19/95	9.98	1.17	0.00	ND	ND	ND	ND	ND	--
	03/18/96	9.66	1.49	0.00	ND	ND	ND	ND	ND	--
	06/27/96	9.74	1.41	0.00	ND	ND	ND	ND	ND	ND
	09/26/96	10.14	1.01	0.00	ND	ND	ND	ND	ND	ND
	12/09/96	8.67	2.48	0.00	ND	ND	ND	ND	ND	33
	03/14/97	9.35	1.80	0.00	ND	ND	ND	ND	ND	ND
	06/30/97	9.89	1.26	0.00	ND	ND	ND	ND	ND	ND
	09/19/97	9.96	1.19	0.00	ND	ND	ND	ND	ND	ND
	12/12/97	8.56	2.59	0.00	ND	ND	ND	ND	ND	ND
	03/03/98	7.85	3.30	0.00	ND	ND	ND	ND	ND	ND
	06/15/98	9.08	2.07	0.00	ND	ND	ND	ND	ND	ND
	09/30/98	9.75	1.40	0.00	ND	ND	ND	ND	ND	ND
	12/28/1998	9.59	1.56	0.00	ND	ND	ND	ND	ND	ND
	03/22/99	8.34	2.81	0.00	ND	ND	ND	ND	ND	ND
	06/09/99	9.39	1.76	0.00	ND	ND	ND	ND	ND	ND
U-5										
6.98	06/22/94	6.83	0.15	0.00	210	7.1	13	4.5	26	--
	09/22/94	6.90	0.08	0.00	170	8.4	10	8.5	18	--
	12/24/94	6.43	0.55	0.00	8,700	560	70	670	430	--
	03/25/95	6.35	0.63	0.00	44,000	390	960	1,500	7,600	--
	06/21/95	7.11	-0.13	0.00	400	2.3	ND	9.1	3.5	--
	09/19/95	6.99	-0.01	0.00	850	14	7.1	13	66	-- ⁵
	12/19/95	7.17	-0.19	0.00	ND	ND	ND	ND	ND	--
	03/18/96	6.65	0.33	0.00	100	0.67	0.5	0.51	5.4	--
	06/27/96	6.49	0.49	0.00	16,000	280	150	1,400	4,600	530
	09/26/96	7.13	-0.15	0.00	ND	ND	0.57	ND	0.96	ND

Table 1
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 Oakland, California

Well ID/ TOC*	Date	DTW (ft.)	GWE (ft.)	Product Thickness (ft.)	TPH(G) (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
U-5 (cont)	12/09/96	5.90	1.08	0.00	1,300	29	46	ND	140	97
	03/14/97	6.99	-0.01	0.00	ND	ND	ND	ND	ND	14
	06/30/97	7.08	-0.10	0.00	4,200	74	51	180	980	270
	09/19/97	6.78	0.20	0.00	6,300	160	13	370	1000	480
	12/12/97	6.94	0.04	0.00	60	1.3	ND	1.6	2.1	47
	03/03/98	6.50	0.48	0.00	1,700	29	ND ⁷	150	190	330
	06/15/98	6.85	0.13	0.00	1,500	32	ND ⁷	91	83	330
	09/30/98	7.31	-0.33	0.00	1,700	44	ND ⁷	39	150	60
	12/28/1998	7.25	-0.27	0.00	1,400	59	ND ⁷	13	27	150
	03/22/99	6.86	0.12	0.00	780	8.9	ND	0.76	4.5	350
	06/09/99	7.28	-0.30	0.00	1,000	ND ⁷	ND ⁷	10	35	280/350 ¹⁰
U-6 7.14	06/22/94	7.14	0.00	0.00	ND	ND	ND	ND	ND	--
	09/22/94	7.34	-0.20	0.00	130	1.3	0.8	ND	0.73	--
	12/24/94	6.67	0.47	0.00	6,900	500	59	600	380	--
	03/25/95	6.29	0.85	0.00	47,000	450	1,300	1,700	8,200	--
	06/21/95	7.60	-0.46	0.00	ND	ND	ND	ND	ND	--
	09/19/95	7.70	-0.56	0.00	ND	ND	ND	ND	ND	-- ⁵
	12/19/95	7.75	-0.61	0.00	210	2.5	1.0	2.9	17	--
	03/18/96	6.86	0.28	0.00	ND	ND	ND	ND	ND	--
	06/27/96	6.52	0.62	0.00	ND	ND	ND	ND	ND	510
	09/26/96	7.62	-0.48	0.00	ND	ND	ND	ND	ND	1,400
	12/09/96	5.88	1.26	0.00	1,200	29	48	6.4	140	58
	03/14/97	7.30	-0.16	0.00	ND	ND	ND	ND	ND	1,500
	06/30/97	7.35	-0.21	0.00	ND	ND	ND	ND	ND	990
	09/19/97	7.25	-0.11	0.00	ND	ND	ND	ND	ND	1,400
	12/12/97	7.29	-0.15	0.00	ND	ND	ND	ND	ND	680
	03/03/98	7.00	0.14	0.00	ND	ND	ND	ND	ND	1,600
	06/15/98	7.18	-0.04	0.00	ND ⁷	ND ⁷	ND ⁷	ND ⁷	ND ⁷	1,000
	09/30/98	7.90	-0.76	0.00	ND	ND	ND	ND	ND	1,200
	12/28/1998	7.79	-0.65	0.00	ND ⁷	ND ⁷	ND ⁷	ND ⁷	ND ⁷	730
	03/22/99	7.47	-0.33	0.00	ND	ND	ND	ND	ND	1,800
06/09/99	7.73	-0.59	0.00	ND ⁷	ND ⁷	ND ⁷	ND ⁷	ND ⁷	1,000/850 ¹⁰	

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 Oakland, California

Well ID/ TOC*	Date	DTW (ft.)	GWE (ft.)	Product Thickness (ft.)	TPH(G) (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
Trip Blank										
TB-LB	03/03/98	--	--	--	ND	ND	ND	ND	ND	ND
	06/15/98	--	--	--	ND	ND	ND	ND	ND	ND
	09/30/98	--	--	--	ND	ND	1.7	ND	2.2	ND
	12/28/98	--	--	--	ND	ND	0.71	ND	0.72	9.5
	03/22/99	--	--	--	ND	ND	ND	ND	ND	ND
	06/09/99	--	--	--	ND	ND	ND	ND	ND	ND

Table 1
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Tosco (Unocal) Service Station #5325
3220 Lakeshore Avenue
Oakland, California

EXPLANATIONS:

Groundwater monitoring data and laboratory analytical results prior to March 3, 1998, were compiled from reports prepared by MPDS Services, Inc.

TOC = Top of Casing	B = Benzene	ppb = Parts per billion
DTW = Depth to Water (ft.) = Feet	T = Toluene	ppm = Parts per million
GWE = Groundwater Elevation	E = Ethylbenzene	ND = Not Detected
TPH(G) = Total Petroleum Hydrocarbons as Gasoline	X = Xylenes	-- = Not Measured/Not Analyzed
	MTBE = Methyl tertiary butyl ether	

* TOC elevations are surveyed relative to City of Oakland Benchmark, at the northeasterly corner of Weller and Cheney Avenue (Elevation = 9.055 feet, city datum; add 3.00' to U.S.G.S. datum). Prior to November 16, 1993, the DTW measurements were taken from the well cover.

** Groundwater elevation corrected due to the presence of free product; correction factor = [(TOC-DTW)+(Product Thickness x 0.75)].

- 1 The positive result for gasoline does not appear to have a typical gasoline pattern.
- 2 The concentration reported as gasoline is primarily due to the presence of a combination of gasoline and a discrete peak not indicative of gasoline.
- 3 Laboratory report indicates the hydrocarbons detected did not appear to be gasoline
- 4 Laboratory report indicates the hydrocarbons detected appeared to be a gasoline and non-gasoline mixture.
- 5 Laboratory has potentially identified the presence of MTBE at reportable levels in the groundwater sample collected from this well.
- 6 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.
- 7 Detection limit raised. Refer to analytical results.
- 8 Laboratory report indicates unidentified hydrocarbons C6-C12.
- 9 Laboratory report indicates gasoline and unidentified hydrocarbons > C8.
- 10 MTBE by EPA Method 8260.

*Ameliorated
oxide
Fe⁺³ → Fe⁺²*

Table 2
Groundwater Analytical Results
 Tosco (Unocal) Service Station #5325
 3220 Lakeshore Avenue
 Oakland, California

S/B run in field immediately

Well ID	Date	Iron (ppm) ⁺²	Nitrate as NO3 (ppm)	Phosphate as PO4 (ppm)	Redox Potential mV
U-1	06/15/98	39	ND	ND	382
	09/30/98	17	ND	ND	366
	12/28/98	4.3	6.3	28	298
	03/22/99	4.9	ND	3.5	320
	06/09/99	1.2	ND	ND	260
U-2	03/03/98	25	ND	ND	369
	06/15/98	42	ND	ND	341
	09/30/98	25	ND	ND	354
	12/28/98	28	ND	ND	276
	03/22/99	0.68	ND	2.3	320
	06/09/99	0.50	ND	ND	290
U-3	06/30/97	1.4	21	0.86	190
	09/19/97	0.57	19	ND	75
	12/12/97	1.9	23	0.85	390
	03/03/98	0.013	36	ND	358
	06/15/98	0.16	33	ND	318
	09/30/98	0.040	31	ND	295
	12/28/98	ND	29	ND	281
	03/22/99	0.015	30	0.14	310
	06/09/99	ND	26	1.2	350
U-4	06/30/97	0.13	35	0.52	200
	09/19/97	0.35	30	ND	45
	12/12/97	0.68	31	0.73	380
	03/03/98	0.018	3.2	ND	284
	06/15/98	0.14	33	ND	256
	09/30/98	0.049	31	ND	276
	12/28/98	0.36	31	ND	280
	03/22/99	ND	30	0.14	320
	06/09/99	ND	35	0.91	340
U-5	06/30/97	16	ND	ND	160
	09/19/97	0.22	ND	ND	63
	12/12/97	6.7	ND	ND	400
	03/03/98	18	3.1	ND	345
	06/15/98	17	ND	ND	333
	09/30/98	17	ND	ND	318
	12/28/98	17	6.6	ND	305
	03/22/99	0.12	ND	2.4	340
	06/09/99	0.23	ND	ND	320

Table 2
Groundwater Analytical Results
 Tosco (Unocal) Service Station #5325
 3220 Lakeshore Avenue
 Oakland, California

Well ID	Date	Iron (ppm)	Nitrate as NO3 (ppm)	Phosphate as PO4 (ppm)	Redox Potential mV
U-6	06/30/97	88	0.80	ND	190
	09/19/97	2.9	1.80	ND	ND
	12/12/97	51	ND	ND	380
	03/03/98	60	3.5	ND	327
	06/15/98	590	4.8	ND	315
	09/30/98	33	ND	ND	345
	12/28/98	83	7.2	ND	297
	03/22/99	2.1	ND	0.98	330
	06/09/99	0.47	0.20	ND	320

EXPLANATIONS:

Groundwater analytical results prior to March 3, 1998, were compiled from reports prepared by MPDS Services, Inc.

ppm = Parts per million

ND = Not Detected

mV = millivolts

Table 3
Dissolved Oxygen Concentrations
 Tosco (Unocal) Service Station #5325
 3220 Lakeshore Avenue
 Oakland, California

Well ID	Date	Before Purge (mg/L)
U-3	06/30/97	4.1
	09/19/97	4.2
	12/12/97	2.97
	03/03/98	2.63
	06/15/98	2.93
	09/30/98	3.11
	12/28/98	3.59
	03/22/99	4.02
	06/09/99	3.70
U-4	06/30/97	5.4
	09/19/97	5.1
	12/12/97	3.11
	03/03/98	2.94
	06/15/98	3.08
	09/30/98	4.05
	12/28/98	4.57
	03/22/99	4.26
	06/09/99	3.61
U-5	06/30/97	3.4
	09/19/97	0.6
	12/12/97	1.75
	03/03/98	2.36
	06/15/98	2.55
	09/30/98	1.93
	12/28/98	1.64
	03/22/99	1.99
	06/09/99	2.10
U-6	06/30/97	0.30
	09/19/97	0.60
	12/12/97	2.70
	03/03/98	2.18
	06/15/98	2.48
	09/30/98	3.06
	12/28/98	3.42
	03/22/99	3.88
	06/09/99	3.29

EXPLANATIONS:

Dissolved oxygen concentrations prior to March 3, 1998, were compiled from reports prepared by MPDS Services, Inc.

mg/L = milligrams per liter

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/ Tosco
 Facility # 5325
 Address: 3220 Lakeshore Ave.
 City: Oakland

Job#: 180061
 Date: 6/9/99
 Sampler: Vartas

Well ID: U-1
 Well Diameter: 3 in.
 Total Depth: 19.70 ft.
 Depth to Water: 9.37 ft.

Well Condition: OK
 Hydrocarbon Thickness: Φ (feet) Amount Bailed (product/water): Φ (Gallons)

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

10.33 X VF 0.38 = 3.93 X 3 (case volume) = Estimated Purge Volume: 11.77 (gal.)

Purge Equipment: Disposable Bailer
 Bailer Stack
~~Suction~~
 Grundfos
 Other: _____

Sampling Equipment: Disposable Bailer
 Bailer
 Pressure Bailer
 Grab Sample
 Other: _____

Starting Time: 11:40
 Sampling Time: 12:05
 Purging Flow Rate: 1.4 gpm.
 Did well de-water? NO

Weather Conditions: clear
 Water Color: clear Odor: Y
 Sediment Description: _____
 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>11:41</u>	<u>4</u>	<u>7.08</u>	<u>7.94</u>	<u>71.2</u>			
<u>11:48</u>	<u>8</u>	<u>6.91</u>	<u>7.79</u>	<u>70.5</u>			
<u>11:51</u>	<u>12</u>	<u>6.86</u>	<u>7.82</u>	<u>70.7</u>			
11:55							

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESEV. TYPE	LABORATORY	ANALYSES
<u>U-1</u>	<u>3 VOA</u>	<u>Y</u>	<u>HCl</u>	<u>SEQUOIA</u>	<u>TPH(GI)/btex/mtbe</u>
<u>U-1</u>	<u>1L-plastic</u>	<u>.</u>	<u>NONE</u>	<u>"</u>	<u>(Nitrate/Phosphate)</u>
					<u>Redox potential</u>
					<u>Ferrous Iron (unfiltered)</u>

COMMENTS: _____

FIELD DATA SHEET

Client/ Facility# TOSCO 5325 Job#: 18061
 Address: 3220 Lakeshore Ave. Date: 6/9/99
 City: Oakland Sampler: Vanthas

Well ID U-2 Well Condition: OK
 Well Diameter 3 in. Hydrocarbon Thickness: Ø (feet) Amount Bailed: Ø (Gallons)
 Total Depth 19.62 ft. Volume 2" = 0.17 3" = 0.38 4" = 0.66
 Depth to Water 7.51 ft. Factor (VF) 6" = 1.50 12" = 5.80

12.11 x VF 0.38 = 4.60 x 3 (case volume) = Estimated Purge Volume: 13.80 (gal.)

Purge Equipment: Disposable Bailer Bailer Stack SUCTION Grundfos Other: _____
 Sampling Equipment: Disposable Bailer Bailer Pressure Bailer Grab Sample Other: _____

Starting Time: 11:16 Weather Conditions: clear
 Sampling Time: 11:30 Water Color: clear Odor: 4
 Purging Flow Rate: 1.5 gpm. Sediment Description: _____
 Did well de-water? no If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity µmhos/cmX100	Temperature °F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>11:13</u>	<u>4.5</u>	<u>7.18</u>	<u>8.12</u>	<u>71.4</u>			
<u>11:16</u>	<u>9</u>	<u>7.02</u>	<u>8.19</u>	<u>70.4</u>			
<u>11:20</u>	<u>14</u>	<u>6.98</u>	<u>8.24</u>	<u>70.2</u>			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-2</u>	<u>3 VOA</u>	<u>Y</u>	<u>HCl</u>	<u>SEQUOIA</u>	<u>TPH(G)/btex/mtbe</u>
<u>U-2</u>	<u>1L-plastic</u>	<u>"</u>	<u>NONE</u>	<u>"</u>	<u>Nitrate/Phosphate</u>
					<u>Redox potential</u>
					<u>Ferrous Iron(unfiltered)</u>

COMMENTS: _____

**WELL MONITORING/SAMPLING
FIELD DATA SHEET**

Client/ Tosco
 Facility # 5325
 Address: 3220 Lakeshore Ave.
 City: Oakland

Job#: 180061
 Date: 6/9/99
 Sampler: Vanthas

Well ID: U-3

Well Condition: OK

Well Diameter: 4.3 in.

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

Total Depth: 19.40 ft.

Depth to Water: 11.01 ft.

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

8.39 X VF 0.38 = 3.19 X 3 (case volume) = Estimated Purge Volume: 9.56 (gal.)

Purge Equipment: Disposable Bailer
 Bailer
 Stack
~~Suction~~
 Grundfos
 Other: _____

Sampling Equipment: Disposable Bailer
 Bailer
 Pressure Bailer
 Grab Sample
 Other: _____

Starting Time: 9:24

Weather Conditions: clear

Sampling Time: 9:45

Water Color: clear Odor: NO

Purging Flow Rate: 1 gpm.

Sediment Description: _____

Did well de-water? _____

If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu\text{mhos/cm} \times 100$	Temperature $^{\circ}\text{F}$	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>9:27</u>	<u>3</u>	<u>7.76</u>	<u>6.51</u>	<u>70.3</u>	<u>3.70</u>		
<u>9:30</u>	<u>6.5</u>	<u>7.59</u>	<u>6.43</u>	<u>69.3</u>			
<u>9:34</u>	<u>10</u>	<u>7.54</u>	<u>6.39</u>	<u>68.6</u>			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-3</u>	<u>3 VOA</u>	<u>Y</u>	<u>HCl</u>	<u>SEQUOIA</u>	<u>TPH(GI)/btex/mtbe</u>
<u>U-3</u>	<u>1L-plastic</u>	<u>Y</u>	<u>NONE</u>	<u>"</u>	<u>(Nitrate/Phosphate</u>
					<u>Redox potential</u>
					<u>Ferrous Iron (unfiltered)</u>

COMMENTS: _____

**WELL MONITORING/SAMPLING
FIELD DATA SHEET**

Client/ TOSCO
 Facility# 5325
 Address: 3220 Lakeshore Ave.
 City: Oakland

Job#: 180061
 Date: 6/9/99
 Sampler: Varttas

Well ID U-4
 Well Diameter 8.4 in.
 Total Depth 20.15 ~~9.79~~ ft.
 Depth to Water 9.39 ft.

Well Condition: OK

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

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

10.76 X VF 0.66 = 7.10 X 3 (case volume) = Estimated Purge Volume: 21.30 (gal.)

Purge Equipment: Disposable Bailer
 Bailer
 Stack
~~Suction~~
 Grundfos
 Other: _____

Sampling Equipment: Disposable Bailer
 Bailer
 Pressure Bailer
 Grab Sample
 Other: _____

Starting Time: 8:50
 Sampling Time: 9:10
 Purging Flow Rate: 2 gpm.
 Did well de-water? no

Weather Conditions: clear
 Water Color: clear Odor: no
 Sediment Description: _____
 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)
8:53	7	7.68	6.23	68.2	3.61		
8:57	14	7.53	6.11	68.6			
9:01	21.5	7.51	6.08	68.9			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
U-4	3 VOA	Y	HCl	SEQUOIA	TPH(G)/btex/mtbe
U-4	1L-plastic	"	NONE	"	Nitrate/Phosphate Redox potential Ferrous Iron (unfiltered)

COMMENTS: _____

FIELD DATA SHEET

Client/ Tosco
 Facility# 5325
 Address: 3220 Lakeshore Ave.
 City: Oakland

Job#: 180061
 Date: 6/9/99
 Sampler: Ventres

Well ID U-5
 Well Diameter 4 in.
 Total Depth 2005 ft.
 Depth to Water 7.28 ft.

Well Condition: OK
 Hydrocarbon Thickness: Φ (feet) Amount Bailed (product/water): Φ (Gallons)

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

12.77 X VF 0.66 = 8.43 X 3 (case volume) = Estimated Purge Volume: 25.28 (gal.)

Purge Equipment: Disposable Bailer
 Bailer
 Stack
~~Suction~~
 Grundfos
 Other: _____

Sampling Equipment: Disposable Bailer
 Bailer
 Pressure Bailer
 Grab Sample
 Other: _____

Starting Time: 10:35
 Sampling Time: 11:00
 Purging Flow Rate: 2 gpm.
 Did well de-water? no

Weather Conditions: clear
 Water Color: du Odor: y
 Sediment Description: _____
 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>10:39</u>	<u>8.5</u>	<u>7.40</u>	<u>3.25</u>	<u>70.4</u>	<u>2.10</u>		
<u>10:43</u>	<u>17</u>	<u>7.24</u>	<u>3.16</u>	<u>70.2</u>			
<u>10:48</u>	<u>25.5</u>	<u>7.18</u>	<u>3.08</u>	<u>70.0</u>			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-5</u>	<u>3 VOA</u>	<u>Y</u>	<u>HCl</u>	<u>SEQUOIA</u>	<u>TPH(GI)/btex/mtbe</u>
<u>U-5</u>	<u>1L-plastic</u>	<u>"</u>	<u>NONE</u>	<u>"</u>	<u>Nitrate/Phosphate</u>
					<u>Redox potential</u>
					<u>Ferrous Iron (unfiltered)</u>

COMMENTS: _____

**WELL MONITORING/SAMPLING
FIELD DATA SHEET**

Client/ Tosco
 Facility# 5325 Job#: 180061
 Address: 3220 Lakeshore Ave. Date: 6/9/99
 City: Oakland Sampler: Vertes

Well ID U-6 Well Condition: OK
 Well Diameter 2 in. Hydrocarbon Thickness: Ø (feet) Amount Bailed (product/water): Ø (Gallons)
 Total Depth 23.80 ft. Volume 2" = 0.17 3" = 0.38 4" = 0.66
 Depth to Water 7.73 ft. Factor (VF) 6" = 1.50 12" = 5.80

16.07 X VF 0.17 = 2.73 X 3 (case volume) = Estimated Purge Volume: 8.19 (gal.)

Purge Equipment: Disposable Bailer Stack Suction Grundfos Other: _____
 Sampling Equipment: Disposable Bailer Bailer Pressure Bailer Grab Sample Other: _____

Starting Time: 10:05 Weather Conditions: clear
 Sampling Time: 10:21 Water Color: brn Odor: no
 Purging Flow Rate: 1 gpm. Sediment Description: silt
 Did well de-water? no If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu\text{mhos/cm}/100$	Temperature $^{\circ}\text{F}$	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>10:08</u>	<u>3</u>	<u>7.58</u>	<u>5.24</u>	<u>70.6</u>	<u>3.29</u>		
<u>10:11</u>	<u>6</u>	<u>7.42</u>	<u>5.17</u>	<u>69.7</u>			
<u>10:14</u>	<u>8.5</u>	<u>7.38</u>	<u>5.14</u>	<u>69.5</u>			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-6</u>	<u>3 VOA</u>	<u>Y</u>	<u>HCl</u>	<u>SEQUOIA</u>	<u>TPH(GI)/btex/mtbe</u>
<u>U-6</u>	<u>1L-plastic</u>	<u>Y</u>	<u>NONE</u>	<u>"</u>	<u>Nitrate/Phosphate</u>
					<u>Redox potential</u>
					<u>Ferrous Iron (unfiltered)</u>

COMMENTS: _____



Sequoia Analytical

680 Chesapeake Drive
404 N. Wiget Lane
819 Striker Avenue, Suite 8
1455 McDowell Blvd. North, Ste. D
1551 Industrial Road

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834
Petaluma, CA 94954
San Carlos, CA 94070-4111

(650) 364-9600
(925) 988-9600
(916) 921-9600
(707) 792-1865
(650) 232-9600

FAX (650) 364-9233
FAX (925) 988-9673
FAX (916) 921-0100
FAX (707) 792-0342
FAX (650) 232-9612

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

Client Project ID: Unocal SS#5325, Oakland
Sample Matrix: Water
Analysis Method: EPA 5030/8015 Mod./8020
First Sample #: 906-0991

Sampled: Jun 9, 1999
Received: Jun 9, 1999
Reported: Jul 2, 1999

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX / MTBE

Analyte	Reporting Limit µg/L	Sample I.D. 906-0991 TB-LB	Sample I.D. 906-0992 U-1	Sample I.D. 906-0993 U-2	Sample I.D. 906-0994 U-3	Sample I.D. 906-0995 U-4	Sample I.D. 906-0996 U-5
Purgeable Hydrocarbons	50	N.D.	40,000	21,000	N.D.	N.D.	1,000
Benzene	0.50	N.D.	230	110	N.D.	N.D.	N.D.
Toluene	0.50	N.D.	640	190	N.D.	N.D.	N.D.
Ethyl Benzene	0.50	N.D.	590	310	N.D.	N.D.	10
Total Xylenes	0.50	N.D.	13,000	2,600	N.D.	N.D.	35
MTBE	2.5	N.D.	3,500	7,900	N.D.	N.D.	280
Chromatogram Pattern:		--	Gasoline	Gasoline	--	--	Gasoline

Quality Control Data

Report Limit Multiplication Factor:	1.0	100	100	1.0	1.0	10
Date Analyzed:	6/16/99	6/16/99	6/16/99	6/16/99	6/16/99	6/16/99
Instrument Identification:	HP-5	HP-5	HP-5	HP-5	HP-5	HP-5
Surrogate Recovery, %: (QC Limits = 70-130%)	87	88	86	88	89	83

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

680 Chesapeake Drive
404 N. Wiget Lane
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(916) 921-9600
(707) 792-1865
(650) 232-9600

FAX (650) 364-9233
FAX (925) 988-9673
FAX (916) 921-0100
FAX (707) 792-0342
FAX (650) 232-9612

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

Client Project ID: Unocal SS#5325, Oakland
Sample Matrix: Water
Analysis Method: EPA 5030/8015 Mod./8020
First Sample #: 906-0997

Sampled: Jun 9, 1999
Received: Jun 9, 1999
Reported: Jul 2, 1999

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX / MTBE

Analyte	Reporting Limit µg/L	Sample I.D. 906-0997 U-6
Purgeable Hydrocarbons	50	N.D.
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Total Xylenes	0.50	N.D.
MTBE	2.5	1,000

Chromatogram Pattern: --

Quality Control Data

Report Limit Multiplication Factor:	5.0
Date Analyzed:	6/16/99
Instrument Identification:	HP-5
Surrogate Recovery, %: (QC Limits = 70-130%)	86

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
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#5325, Oakland
Sample Descript: Water, U-1
Analysis Method: EPA 8260
Lab Number: 906-0992

Sampled: Jun 9, 1999
Received: Jun 9, 1999
Analyzed: Jul 1, 1999
Reported: Jul 2, 1999

MTBE by EPA 8260

Analyte	Detection Limit µg/L	Sample Results µg/L
Methyl t-Butyl Ether (MTBE).....	100	2,100

Surrogates	Control Limit %	% Recovery
Dibromofluoromethane.....	50	150
		81

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

SEQUOIA ANALYTICAL, #1271

Julianne Fegley
Julianne Fegley
Project Manager

Please Note:

* Analyzed past holding time 7/1/99.



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

Client Project ID: Unocal SS#5325, Oakland
Sample Descript: Water, U-2
Analysis Method: EPA 8260
Lab Number: 906-0993

Sampled: Jun 9, 1999
Received: Jun 9, 1999
Analyzed: Jul 1, 1999
Reported: Jul 2, 1999

MTBE by EPA 8260

Analyte	Detection Limit µg/L	Sample Results µg/L
Methyl t-Butyl Ether (MTBE).....	200	7,800

Surrogates	Control Limit %	% Recovery
Dibromofluoromethane.....	50	150
		89

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

SEQUOIA ANALYTICAL, #1271

Julianne Fegley
Project Manager

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

Client Project ID: Unocal SS#5325, Oakland
Sample Descript: Water, U-5
Analysis Method: EPA 8260
Lab Number: 906-0996

Sampled: Jun 9, 1999
Received: Jun 9, 1999
Analyzed: Jul 1, 1999
Reported: Jul 2, 1999

MTBE by EPA 8260

Analyte	Detection Limit µg/L	Sample Results µg/L
Methyl t-Butyl Ether (MTBE).....	10	350

Surrogates	Control Limit %	% Recovery
Dibromofluoromethane.....	50	150
		94

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

SEQUOIA ANALYTICAL, #1271

Julianne Fegley
Julianne Fegley
Project Manager

Please Note:
* Analyzed past holding time 7/1/99.





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Gettler-Ryan - Dublin 6747 Sierra Court, Suite J Dublin, CA 94568 Attention: Deanna Harding	Client Project ID: Unocal SS#5325, Oakland Sample Descript: Water, U-6 Analysis Method: EPA 8260 Lab Number: 906-0997	Sampled: Jun 9, 1999 Received: Jun 9, 1999 Analyzed: Jul 1, 1999 Reported: Jul 2, 1999
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MTBE by EPA 8260

Analyte	Detection Limit µg/L	Sample Results µg/L
Methyl t-Butyl Ether (MTBE).....	20	850

Surrogates	Control Limit %	% Recovery
Dibromofluoromethane.....	50	150
		86

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

SEQUOIA ANALYTICAL, #1271

Julianne Fegley
Julianne Fegley
Project Manager

Please Note:
* Analyzed past holding time 7/1/99.



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

Client Project ID: Unocal SS#5325, Oakland
Sample Descript: Water
Analysis for: Nitrate as NO3
First Sample #: 906-0992

Sampled: Jun 9, 1999
Received: Jun 9, 1999
Analyzed: Jun 10, 1999
Reported: Jul 2, 1999

LABORATORY ANALYSIS FOR: Nitrate as NO3

Sample Number	Sample Description	Detection Limit mg/L	Sample Result mg/L
906-0992	U-1	0.10	N.D.
906-0993	U-2	0.10	N.D.
906-0994	U-3	1.0	26
906-0995	U-4	1.0	35
906-0996	U-5	0.10	N.D.
906-0997	U-6	0.10	0.20

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

SEQUOIA ANALYTICAL, #1271

Julianne Fegley
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#5325, Oakland
Sample Descript: Water
Analysis for: Phosphate as PO4
First Sample #: 906-0992

Sampled: Jun 9, 1999
Received: Jun 9, 1999
Analyzed: Jun 10, 1999
Reported: Jul 2, 1999

LABORATORY ANALYSIS FOR: Phosphate as PO4

Sample Number	Sample Description	Detection Limit mg/L	Sample Result mg/L
906-0992	U-1	0.50	N.D.
906-0993	U-2	0.50	N.D.
906-0994	U-3	0.50	1.2
906-0995	U-4	0.50	0.91
906-0996	U-5	0.50	N.D.
906-0997	U-6	0.50	N.D.

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

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#5325, Oakland
 Sample Descript: Water
 Analysis for: Redox Potential
 First Sample #: 906-0992

Sampled: Jun 9, 1999
 Received: Jun 9, 1999
 Analyzed: Jun 11, 1999
 Reported: Jul 2, 1999

LABORATORY ANALYSIS FOR: Redox Potential

Sample Number	Sample Description	Detection Limit	Sample Result mv
906-0992	U-1	N/A	260
906-0993	U-2	N/A	290
906-0994	U-3	N/A	350
906-0995	U-4	N/A	340
906-0996	U-5	N/A	320
906-0997	U-6	N/A	320

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

SEQUOIA ANALYTICAL, #1210

Julianne Fegley
 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#5325, Oakland
Sample Descript: Water
Analysis for: Ferrous Iron
First Sample #: 906-0992

Sampled: Jun 9, 1999
Received: Jun 9, 1999
Analyzed: Jun 22, 1999
Reported: Jul 2, 1999

LABORATORY ANALYSIS FOR: Ferrous Iron

Sample Number	Sample Description	Detection Limit mg/L	Sample Result mg/L
906-0992	U-1	0.010	1.2
906-0993	U-2	0.010	0.50
906-0994	U-3	0.010	N.D.
906-0995	U-4	0.010	N.D.
906-0996	U-5	0.010	0.23
906-0997	U-6	0.010	0.47

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

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#5325, Oakland
Matrix: Liquid

QC Sample Group: 9060991-997

Reported: Jul 2, 1999

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes	MTBE
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8260
Analyst:	D. Newcomb	D. Newcomb	D. Newcomb	D. Newcomb	N. Nelson

MS/MSD	Benzene	Toluene	Ethyl Benzene	Xylenes	MTBE
Batch#:	9060876	9060876	9060876	9060876	9061845
Date Prepared:	6/16/99	6/16/99	6/16/99	6/16/99	6/30/99
Date Analyzed:	6/16/99	6/16/99	6/16/99	6/16/99	6/30/99
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5	GC/MS-2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	50 µg/L
Matrix Spike % Recovery:	95	95	95	98	114
Matrix Spike Duplicate % Recovery:	95	95	95	97	130
Relative % Difference:	0.0	0.0	0.0	1.7	13

LCS Batch#:	5LCS061699	5LCS061699	5LCS061699	5LCS061699	LCS070199
Date Prepared:	6/16/99	6/16/99	6/16/99	6/16/99	7/1/99
Date Analyzed:	6/16/99	6/16/99	6/16/99	6/16/99	7/1/99
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5	GC/MS-2
LCS % Recovery:	100	100	95	98	80

% Recovery Control Limits:	70-130	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.

SEQUOIA ANALYTICAL, #1271

Julianne Fegley
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#5325, Oakland
Matrix: Liquid

QC Sample Group: 9060991-997

Reported: Jul 2, 1999

QUALITY CONTROL DATA REPORT

ANALYTE	Nitrate as NO3	Phosphate as PO4	Iron
Method:	EPA 300.0	EPA 300.0	EPA 200.7
Analyst:	K. Anderson	K. Anderson	J. Kelly

MS/MSD			
Batch#:	9060929	9060929	9061783
Date Prepared:	6/10/99	6/10/99	6/17/99
Date Analyzed:	6/10/99	6/10/99	6/22/99
Instrument I.D.#:	INIC-1	INIC-1	MV-4
Conc. Spiked:	10 mg/L	20 mg/L	1.0 mg/L
Matrix Spike			
% Recovery:	100	89	99
Matrix Spike Duplicate %			
Recovery:	100	94	99
Relative % Difference:	0.0	5.1	0.0

LCS Batch#:	LCS061099	LCS061099	LCS061799
Date Prepared:	6/10/99	6/10/99	6/17/99
Date Analyzed:	6/10/99	6/10/99	6/22/99
Instrument I.D.#:	INIC-1	INIC-1	MV-4
LCS %			
Recovery:	100	95	95

% Recovery Control Limits:	80-120	80-120	80-120
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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.

SEQUOIA ANALYTICAL, #1271

Julianne Fegley
Julianne Fegley
Project Manager

