



GETTLER-RYAN INC.

TRANSMITTAL

March 2, 2001

G-R #180064

Ro251

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

CC: Mr. David Vossler
Gettler-Ryan Inc.
Petaluma, California

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

RE: **Tosco (Unocal) SS #3538**
411 West MacArthur Blvd.
Oakland, California

WE HAVE ENCLOSED THE FOLLOWING:

COPIES	DATED	DESCRIPTION
1	February 21, 2001	Groundwater Monitoring and Sampling Report First Semi-Annual - Event of January 4, 2001

COMMENTS:

This report is being sent to you for your review/comment, prior to being distributed on your behalf. If no comments are received by **March 14, 2001**, this report will be distributed to the following:

cc: Ms. Susan Hugo, Alameda County Health Care Services, 1131 Harbor Bay Pkwy., Alameda, CA 94502

Enclosure

trans/3538-DBD



GETTLER-RYAN INC.

February 21, 2001
G-R Job #180064

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

RE: First Semi-Annual Event of January 4, 2001
Groundwater Monitoring & Sampling Report
Tosco (Unocal) Service Station #3538
411 West MacArthur Boulevard
Oakland, California

Dear Mr. De Witt:

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

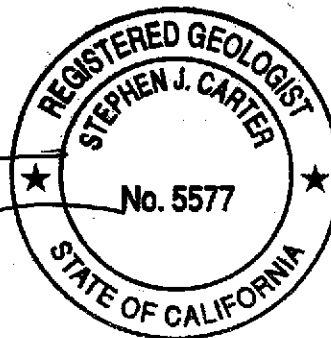
Static groundwater levels were measured and all wells were checked for the presence of separate-phase hydrocarbons. Separate-phase hydrocarbons were not present in the wells. Static water level data and groundwater elevations are summarized in Table 1. A Potentiometric Map is included as Figure 1.

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.

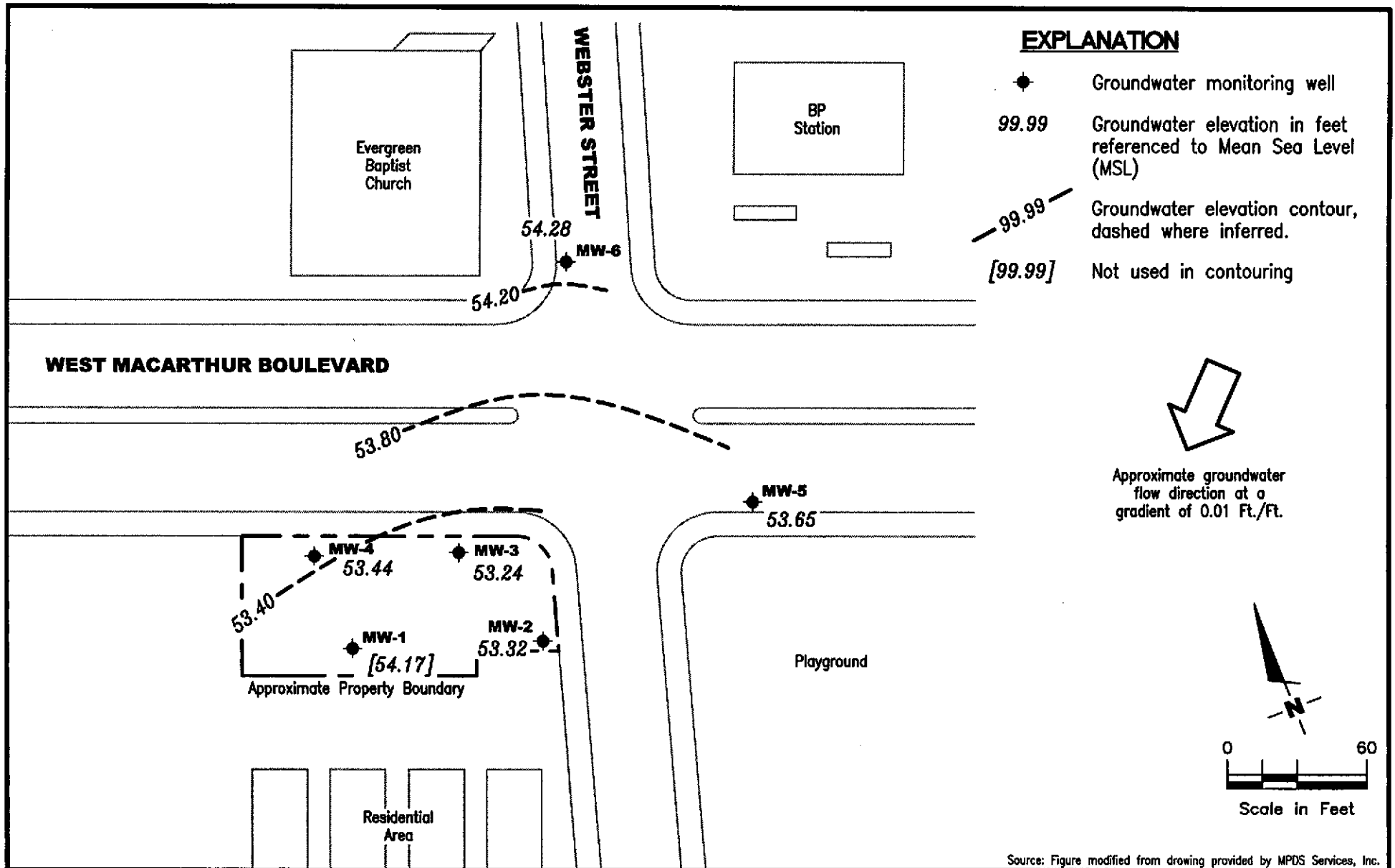
Sincerely,

Deanna L. Harding
Project Coordinator

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



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



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POTENTIOMETRIC MAP
Tosco (Unocal) Service Station #3538
411 West MacArthur Boulevard
Oakland, California

FIGURE

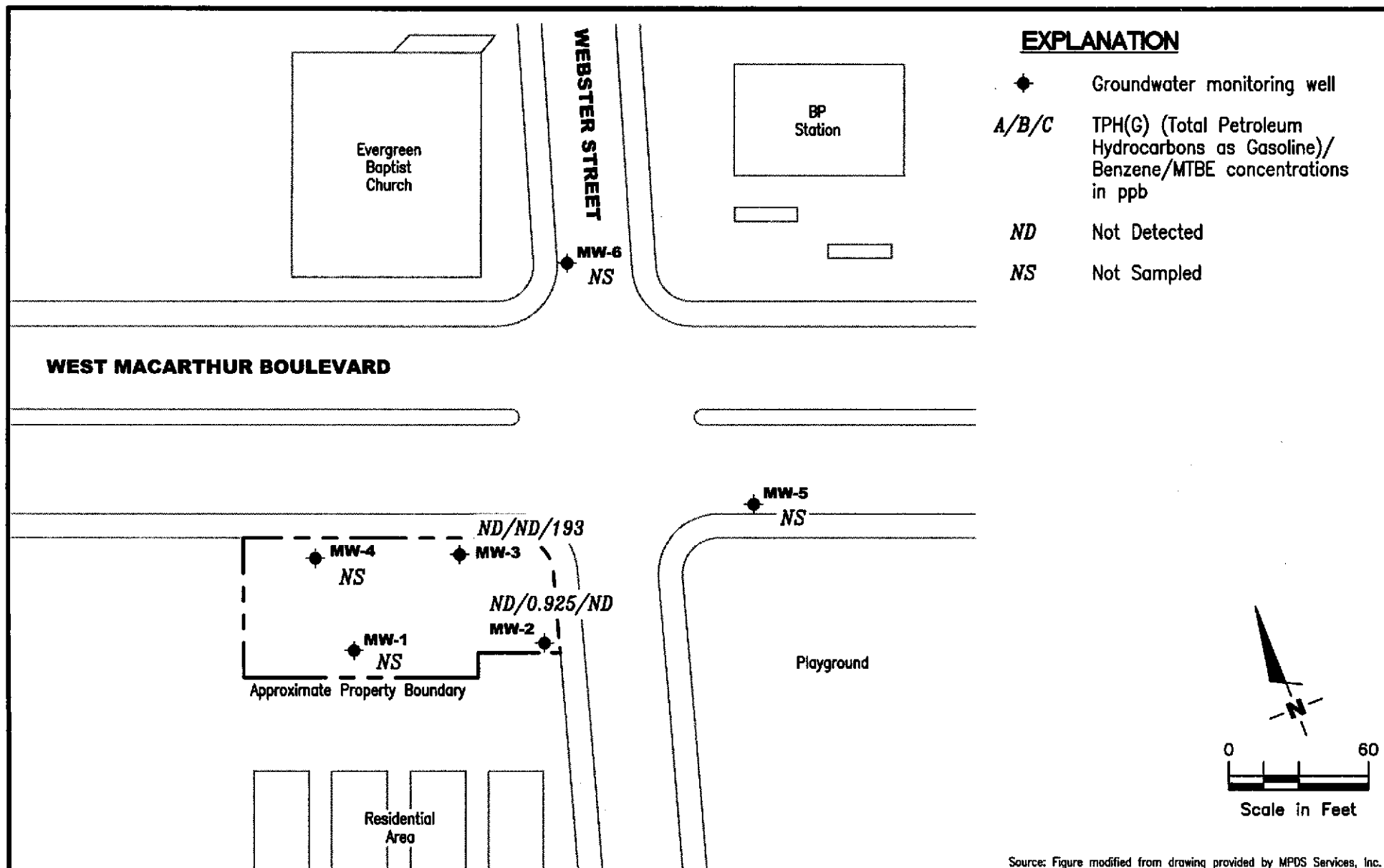
1

PROJECT NUMBER
180064

REVIEWED BY

DATE
January 4, 2001

REVISED DATE



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

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 Dublin, CA 94568 (925) 551-7555

CONCENTRATION MAP
 Tosco (Unocal) Service Station #3538
 411 West MacArthur Boulevard
 Oakland, California

FIGURE
2

PROJECT NUMBER: 180064 REVIEWED BY: DATE: January 4, 2001 REVISED DATE:

Table 1
Groundwater Monitoring Data and Analytical Results
 Tosco (Unocal) Service Station #2909
 1300 Sonoma Boulevard
 Vallejo, California

WELL ID/ TOC*	DATE	DTW (ft.)	S.L. (ft. bgs)	GWE (msl)	TPH-D (ppb)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)	TDS (ppm)
MW-1	02/04/89	--	5.0-25.0	--	160	77	ND	ND	0.78	0.83	--	--
	04/14/89	--		--	340	270	2.5	3.4	0.6	3.4	--	--
	07/10/89	--		--	110	76	ND	ND	ND	ND	--	--
	11/24/89	--		--	2,200	1,200	4.5	3.1	ND	ND	--	--
	02/09/90	--		--	460	500	1.1	ND	1.7	4.4	--	--
	05/31/90	--		--	460	530	0.58	6.6	1.1	2.4	--	--
	08/29/90	--		--	280	530	2.9	ND	1.1	6.0	--	--
	11/19/90	--		--	270	410	9.1	ND	2.2	4.6	--	--
	02/18/91	--		--	280	620	0.53	8	1.8	12	--	--
	05/17/91	--		--	550	440	3.2	0.58	ND	1.0	--	--
	08/19/91	--		--	310	290	0.64	0.85	1.1	2.5	--	--
	12/16/91	--		--	220	800	9.4	0.64	1.6	3.1	--	--
	03/18/92	--		--	490	680	12	ND	1.2	2.3	--	--
	06/17/92	--		--	260	800	6.5	1.1	0.66	2.5	--	--
	09/15/92	--		--	340 ¹	490 ²	ND	0.99	0.83	1.7	--	--
12/18/92	--		--	500 ³	450 ²	1.4	ND	ND	1.1	--	--	
12.09	03/15/93	9.73		2.36	ND	72 ²	ND	ND	ND	ND	--	--
	06/26/93	9.49		2.60	190 ³	340 ²	1.0	1.6	1.0	1.0	--	--
	09/25/93	9.77		2.32	200 ³	240 ⁴	ND	ND	ND	ND	--	--
11.58	12/22/93	8.70		2.88	260 ³	350	ND	0.94	1.1	1.3	--	--
	03/28/94	8.86		2.72	SAMPLED ANNUALLY		--	--	--	--	--	--
	06/23/94	9.01		2.57	--	--	--	--	--	--	--	--
	09/20/94	8.93		2.65	--	--	--	--	--	--	--	--
	12/15/94	8.13		3.45	170 ³	620 ⁴	ND	ND	ND	ND	--	--
	04/04/95	8.14		3.44	--	--	--	--	--	--	--	--
	06/22/95	8.58		3.00	--	--	--	--	--	--	--	--
	09/18/95	8.95		2.63	--	--	--	--	--	--	--	--
	12/12/95	8.36		3.22	320	ND	ND	ND	ND	ND	-- ⁶	--
	11/18/96	8.62		2.96	87 ³	76 ⁴	ND	ND	ND	ND	5,900	--
	04/02/97	8.96		2.62	--	--	--	--	--	--	--	--
	11/04/97	8.84		2.74	72 ¹	ND	ND	ND	ND	ND	2,000	--
	04/14/98	8.30		3.28	220 ⁷	ND ¹¹	ND ¹¹	ND ¹¹	ND ¹¹	ND ¹¹	860	--

Table 1
Groundwater Monitoring Data and Analytical Results
 Tosco (Unocal) Service Station #3538
 411 West MacArthur Boulevard
 Oakland, California

WELL ID/ TOC*	DATE	DTW (ft.)	S.L. (ft. bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)	
MW-1	09/15/89	--	5.0-29.0	--	ND	ND	0.61	ND	ND	--	
	01/23/90	--		--	ND	1.5	2.3	ND	4.3	--	
	04/19/90	--		--	ND	ND	ND	ND	ND	--	
	07/17/90	--		--	ND	ND	ND	ND	ND	--	
	10/16/90	--		--	ND	ND	ND	ND	ND	--	
	01/15/91	--		--	ND	ND	ND	ND	ND	--	
	04/12/91	--		--	ND	ND	ND	ND	ND	--	
	07/15/91	--		--	ND	ND	ND	ND	ND	--	
	07/14/92	--		--	ND	ND	ND	ND	ND	--	
72.43	04/13/93	17.70		54.73	SAMPLED ANNUALLY		--	--	--	--	
	07/14/93	18.49		53.94	ND	2.2	2.1	1.1	6.2	--	
72.10	10/14/93	18.32		53.78	--	--	--	--	--	--	
	01/12/94	18.18		53.92	--	--	--	--	--	--	
	04/11/94	17.80		54.30	--	--	--	--	--	--	
	07/07/94	18.28		53.82	ND	ND	ND	ND	ND	--	
	10/05/94	18.55		53.55	--	--	--	--	--	--	
	01/09/95	17.90		54.20	--	--	--	--	--	--	
	04/17/95	17.22		54.88	--	--	--	--	--	--	
	07/19/95	18.03		54.07	ND	ND	ND	ND	ND	--	
	10/26/95	18.67		53.43	--	--	--	--	--	--	
	01/16/95	17.20		54.90	--	--	--	--	--	--	
	04/15/96	17.40		54.70	--	--	--	--	--	--	
	07/11/96	18.03		54.07	ND	ND	ND	ND	ND	ND	
	01/17/97	16.54		55.56	--	--	--	--	--	--	
	07/21/97	18.16		53.94	ND	ND	ND	ND	ND	ND	
	01/14/98	16.05		56.05	--	--	--	--	--	--	
	07/06/98 ⁵	16.46		55.64	ND	ND	ND	ND	ND	ND	
	01/13/99	17.37		54.73	--	--	--	--	--	--	
	72.12	08/31/99	17.00		55.12	ND	ND	ND	ND	ND	ND
		01/21/00	17.04		55.08	--	--	--	--	--	--
07/10/00 ⁵		18.10		54.02	ND	ND	ND	ND	ND	ND	
01/04/01		17.95		54.17	--	--	--	--	--	--	

Table 1
Groundwater Monitoring Data and Analytical Results
 Tosco (Unocal) Service Station #3538
 411 West MacArthur Boulevard
 Oakland, California

WELL ID/ TOC*	DATE	DTW (ft.)	S.L. (ft. bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-2	09/15/89	--	3.5-28.5	--	290	ND	12	ND	ND	--
	01/23/90	--		--	400	73	36	10	40	--
	04/19/90	--		--	3,900	550	5.1	91	390	--
	07/17/90	--		--	490	76	0.59	11	46	--
	10/16/90	--		--	1,400	430	2.0	48	240	--
	01/15/91	--		--	680	170	0.7	19	81	--
	04/12/91	--		--	2,200	160	4.3	23	62	--
	07/15/91	--		--	2,200	770	12	72	370	--
	10/15/91	--		--	140	44	0.56	1.5	12	--
	01/15/92	--		--	220	37	0.52	1.1	7	--
	04/14/92	--		--	150	6.2	ND	ND	1.4	--
	07/14/92	--		--	130	3.7	ND	ND	ND	--
	10/12/92	--		--	370	3.4	0.56	ND	11	--
	01/08/93	--		--	510 ¹	ND	ND	ND	ND	--
	71.63	04/13/93	17.86		53.77	410 ²	42	7.7	6.4	28
	07/14/93	18.38		53.25	110 ¹	6.5	ND	ND	1.1	250
71.38	10/14/93	18.20		53.18	230 ¹	5.3	ND	ND	2.1	--
	01/12/94	18.08		53.30	300	7.8	3.8	1.8	10	--
	04/09/94	17.97		53.41	120	10	0.88	1.1	4.9	--
	04/11/94	17.88		53.50	--	--	--	--	--	--
	07/07/94	17.81		53.57	110 ¹	4.4	ND	ND	ND	--
	10/05/94	18.33		53.05	720 ¹	20	ND	ND	3.1	--
	01/09/95	17.40		53.98	ND	ND	ND	ND	ND	--
	04/17/95	17.50		53.88	93	5.6	0.62	1.7	5.5	--
	07/19/95	18.01		53.37	77	32	0.58	1.7	4.1	--
	10/26/95	18.21		53.17	54 ²	13	ND	ND	0.72	220
	01/16/96 ³	16.58		54.80	120	23	ND	ND	0.99	--
	04/15/96	17.61		53.77	340	21	ND	2.2	3.7	45
	07/11/96	17.98		53.40	540	34	ND	4.3	12	150
	01/17/97	17.08		54.30	320	63	2.4	9.4	26	260
	07/21/97	18.06		53.32	160	13	ND	1.3	1.6	180
	01/14/98	16.52		54.86	66	6.3	ND	ND	0.98	100

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Groundwater Monitoring Data and Analytical Results
 Tosco (Unocal) Service Station #3538
 411 West MacArthur Boulevard
 Oakland, California

WELL ID/ TOC*	DATE	DTW (ft.)	S.I. (ft. bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-2	07/06/98	16.87	3.5-28.5	54.51	ND	2.3	ND	ND	ND	11
(cont)	01/13/99	17.88		53.50	53	24	ND	0.52	0.98	120
71.34	08/31/99	18.45		52.89	86 ¹⁰	14	ND	0.63	ND	21
	01/21/00	17.73		53.61	ND	1.94	ND	ND	ND	10.1
	07/10/00	18.14		53.20	ND	ND	ND	ND	ND	46.6
	01/04/01	18.02		53.32	ND	0.925	ND	ND	ND	ND
MW-3	09/15/89	--	5.0-29.0	--	32	ND	ND	ND	ND	--
	01/23/90	--		--	450	110	1.2	4.4	11	--
	04/19/90	--		--	3,100	600	27	54	220	--
	07/17/90	--		--	4,000	270	48	130	250	--
	10/16/90	--		--	740	210	1.4	2.5	82	--
	01/15/91	--		--	3,200	460	1.5	120	270	--
	04/12/91	--		--	880	170	1.1	34	110	--
	07/15/91	--		--	9,200	1,300	230	490	1,900	--
	10/15/91	--		--	3,100	390	34	150	390	--
	01/15/92	--		--	3,000	590	14	310	750	--
	04/14/92	--		--	14,000	660	48	560	2,000	--
	07/14/92	--		--	21,000	890	200	1,200	4,300	--
	10/12/92	--		--	3,200	160	10	230	540	--
	01/08/93	--		--	1,100 ²	48	0.99	0.9	93	--
72.06	04/13/93	17.96		54.10	12,000 ²	290	38	760	2,300	1,400
	07/14/93	18.54		53.52	6,300	190	ND	430	1,000	860
71.86	10/14/93	18.45		53.41	2,500	52	ND	110	250	--
	01/12/94	18.34		53.52	3,800	78	ND	180	390	--
	04/09/94	18.19		53.67	1,800	22	ND	140	280	--
	04/11/94	18.12		53.74	--	--	--	--	--	--
	07/07/94	18.21		53.65	110 ¹	4.5	ND	ND	ND	--
	10/05/94	18.58		53.28	ND	ND	ND	ND	ND	--
	01/09/95	17.69		54.17	ND	0.68	ND	ND	ND	--
	04/17/95	17.68		54.18	3,700	80	10	270	510	--
	07/19/95	18.20		53.66	15,000	330	27	990	2,400	--
	10/26/95	18.32		53.54	14,000	420	180	750	1,600	4,800

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Groundwater Monitoring Data and Analytical Results
 Tosco (Unocal) Service Station #3538
 411 West MacArthur Boulevard
 Oakland, California

WELL ID/ TOC*	DATE	DTW (ft.)	S.I. (ft. bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-3	01/16/96 ³	17.95	5.0-29.0	53.91	920	38	ND	30	57	--
(cont)	04/15/96	17.78		54.08	9,700	240	ND	570	860	3,200
	07/11/96	18.19		53.67	13,000	69	5.5	430	900	740
	01/17/97	17.23		54.63	4,400	25	ND	270	580	1,600
	07/21/97	18.29		53.57	9,000	36	ND	450	800	950
	01/14/98	16.71		55.15	7,100	40	ND ⁴	380	360	930
	07/06/98	17.03		54.83	6,800 ⁶	39	ND ⁴	320	360	370
	01/13/99 ⁷	18.00		53.86	1,800	9.4	ND ⁴	58	36	180
71.40	08/31/99	-- ⁸		--	--	--	--	--	--	--
	01/21/00	17.58		53.82	ND	ND	ND	ND	ND	21.4
	07/10/00	18.05		53.35	ND	ND	ND	ND	ND	162
	08/25/00	17.82		53.58	--	--	--	--	--	180 ¹¹
	01/04/01	18.16		53.24	ND	ND	ND	ND	ND	193
MW-4	09/15/89	--	5.0-29.0	--	ND	ND	ND	ND	ND	--
	01/23/90	--		--	ND	ND	0.4	ND	ND	--
	04/19/90	--		--	ND	ND	0.48	ND	ND	--
	07/17/90	--		--	ND	ND	ND	ND	ND	--
	10/16/90	--		--	ND	ND	ND	ND	ND	--
	01/15/91	--		--	ND	ND	ND	--	ND	--
	04/12/91	--		--	ND	ND	ND	ND	ND	--
	07/15/91	--		--	ND	ND	ND	ND	ND	--
	07/14/92	--		--	ND	1.3	2.5	ND	1.0	--
71.98	04/13/93	17.67		54.31	SAMPLED ANNUALLY	--	--	--	--	--
	07/14/93	18.31		53.67	ND	ND	ND	ND	ND	--
71.64	10/14/93	18.08		53.56	--	--	--	--	--	--
	01/12/94	17.97		53.67	--	--	--	--	--	--
	04/11/94	17.70		53.94	--	--	--	--	--	--
	07/07/94	17.80		53.84	ND	ND	ND	ND	ND	--
	10/05/94	18.28		53.36	--	--	--	--	--	--
	01/09/95	17.38		54.26	--	--	--	--	--	--
	04/17/95	17.21		54.43	--	--	--	--	--	--
	07/19/95	17.82		53.82	ND	ND	ND	ND	ND	--

Table 1
Groundwater Monitoring Data and Analytical Results
 Tosco (Unocal) Service Station #3538
 411 West MacArthur Boulevard
 Oakland, California

WELL ID/ TOC*	DATE	DTW (ft.)	S.I. (ft. bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-4 (cont)	10/26/95	18.17	5.0-29.0	53.47	--	--	--	--	--	--
	01/16/96	16.45		55.19	--	--	--	--	--	--
	04/15/96	17.35		54.29	--	--	--	--	--	--
	07/11/96	17.81		53.83	ND	ND	ND	ND	ND	ND
	01/17/97	16.73		54.91	--	--	--	--	--	--
	07/21/97	17.91		53.73	ND	ND	ND	ND	ND	ND
	01/14/98	16.18		55.46	--	--	--	--	--	--
	07/06/98	16.49		55.15	ND	ND	ND	ND	ND	ND
	01/13/99	17.29		54.35	--	--	--	--	--	--
	71.54	08/31/99		-- ⁹	--	--	--	--	--	--
01/21/00		17.51	54.03	--	--	--	--	--	--	
07/10/00		17.93	53.61	ND	ND	ND	ND	ND	ND	
01/04/01		18.10	53.44	--	--	--	--	--	--	
MW-5	11/30/92	--	13.0-30.0	--	ND	ND	ND	ND	ND	--
	01/08/93	--		--	ND	ND	ND	ND	ND	--
71.51	04/13/93	17.49	54.02	ND	ND	ND	ND	ND	ND	--
	07/14/93	18.02	53.49	ND	ND	0.57	ND	ND	ND	--
71.23	10/14/93	17.82	53.41	ND	ND	ND	ND	ND	ND	--
	01/12/94	17.74	53.49	ND	ND	0.84	ND	ND	1.6	--
	04/11/94	17.56	53.67	SAMPLED ANNUALLY			--	--	--	--
	07/07/94	17.50	53.73	ND	ND	ND	ND	ND	ND	--
	10/05/94	17.98	53.25	--	--	--	--	--	--	--
	01/09/95	17.13	54.10	--	--	--	--	--	--	--
	04/17/95	17.05	54.18	--	--	--	--	--	--	--
	07/19/95	17.59	53.64	ND	ND	ND	ND	ND	ND	--
	10/26/95	18.10	53.13	--	--	--	--	--	--	--
	01/16/96	17.11	54.12	--	--	--	--	--	--	--
	04/15/96	17.22	54.01	--	--	--	--	--	--	--
	07/11/96	17.59	53.64	ND	ND	ND	ND	ND	ND	ND
	01/17/97	16.75	54.48	--	--	--	--	--	--	--
	07/21/97	17.59	53.64	ND	ND	ND	ND	ND	ND	ND
	01/14/98	16.16	55.07	--	--	--	--	--	--	--

Table 1
Groundwater Monitoring Data and Analytical Results
 Tosco (Unocal) Service Station #3538
 411 West MacArthur Boulevard
 Oakland, California

WELL ID/ TOC*	DATE	DTW (ft.)	S.I. (ft. bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-5	07/06/98	16.52	13.0-30.0	54.71	ND	ND	ND	ND	ND	ND
(cont)	01/13/99	17.62		53.61	--	--	--	--	--	--
71.16	08/31/99	17.76		53.40	ND	ND	ND	ND	ND	ND
	01/21/00	16.83		54.33	--	--	--	--	--	--
	07/10/00	17.46		53.70	ND	ND	ND	ND	ND	ND
	01/04/01	17.51		53.65	--	--	--	--	--	--
MW-6	11/30/92	--	13.0-30.0	--	ND	ND	ND	ND	ND	--
	01/08/93	--		--	ND	ND	ND	ND	ND	--
71.79	04/13/93	11.94		59.85	ND	ND	ND	ND	ND	--
	07/14/93	17.20		54.59	ND	0.99	2.4	ND	1.9	--
71.44	10/14/93	17.21		54.23	ND	ND	0.64	ND	ND	--
	01/12/94	17.44		54.00	ND	ND	1.2	ND	2.9	--
	04/11/94	13.66		57.78	SAMPLED ANNUALLY		--	--	--	--
	07/07/94	14.05		57.39	ND	ND	ND	ND	ND	--
	10/05/94	14.16		57.28	--	--	--	--	--	--
	01/09/95	13.73		57.71	--	--	--	--	--	--
	04/17/95	11.30		60.14	--	--	--	--	--	--
	07/19/95	12.32		59.12	ND	ND	ND	ND	ND	--
	10/26/95	17.88		53.56	--	--	--	--	--	--
	01/16/96	16.38		55.06	--	--	--	--	--	--
	04/15/96	14.00		57.44	--	--	--	--	--	--
	07/11/96	13.58		57.86	ND	ND	ND	ND	ND	ND
	01/17/97	15.42		56.02	--	--	--	--	--	--
	07/21/97	13.78		57.66	ND	ND	ND	ND	ND	ND
	01/14/98	13.65		57.79	--	--	--	--	--	--
	07/06/98	13.90		57.54	ND	ND	ND	ND	ND	ND
	01/13/99	14.93		56.51	--	--	--	--	--	--
71.37	08/31/99	15.81		55.56	ND	ND	ND	ND	ND	ND
	01/21/00	16.13		55.24	--	--	--	--	--	--
	07/10/00	16.95		54.42	ND	ND	ND	ND	ND	ND
	01/04/01	17.09		54.28	--	--	--	--	--	--

Table 1
Groundwater Monitoring Data and Analytical Results
 Tosco (Unocal) Service Station #3538
 411 West MacArthur Boulevard
 Oakland, California

WELL ID/ TOC*	DATE	DTW (ft.)	S.I. (ft. bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
Trip Blank										
TB-LB	01/14/98	--	--	--	ND	ND	ND	ND	ND	ND
	07/06/98	--		--	ND	ND	ND	ND	ND	ND
	01/13/99	--		--	ND	ND	ND	ND	ND	ND
	08/31/99	--		--	ND	ND	1.5	ND	2.3	39
	01/21/00	--		--	ND	ND	ND	ND	ND	ND
	07/10/00	--		--	ND	ND	ND	ND	ND	ND
	01/04/01	--		--	ND	ND	ND	ND	ND	ND

Table 1
Groundwater Monitoring Data and Analytical Results
 Tosco (Unocal) Service Station #3538
 411 West MacArthur Boulevard
 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	B = Benzene	(ppb) = Parts per billion
DTW = Depth to Water	T = Toluene	ND = Not Detected
(ft.) = Feet	E = Ethylbenzene	-- = Not Measured/Not Analyzed
S.I. = Screen Interval	X = Xylenes	
(ft. bgs) = Feet Below Ground Surface	MTBE = Methyl tertiary butyl ether	
GWE = Groundwater Elevation		
(msl) = Mean sea level		
TPH-G = Total Petroleum Hydrocarbons as Gasoline		

* TOC elevations are relative to msl, per the City of Oakland Benchmark #9NW10. (Elevation = 75.50 feet msl). Prior to October 14, 1994, the DTW measurements were taken from the top of well covers. On September 15, 1999, TOC elevations were resurveyed City of Oakland Benchmark being a square brass pin in the concrete gutter at the southwest corner of Webster & MacArthur. The stationing data is with reference to the back of sidewalk on MacArthur in front of the site. Benchmark (Elevation = 71.055 feet, msl)

- 1 Laboratory report indicates the hydrocarbons detected did not appear to be gasoline.
- 2 Laboratory report indicates the hydrocarbons detected appeared to be a gasoline and a non-gasoline mixture.
- 3 Laboratory report indicates the presence of MTBE at a level above or equal to the taste and odor threshold of 40 ppb.
- 4 Detection limit raised. Refer to analytical reports.
- 5 All EPA Method 8010 constituents were ND.
- 6 Laboratory report indicates gasoline and unidentified hydrocarbons <C7.
- 7 TOC measurement may have been altered due to damaged casing.
- 8 Well was obstructed by a solid at 0.5 feet.
- 9 Well was obstructed by a solid (concrete or soil) at 10.4 feet.
- 10 Laboratory report indicates gasoline C6-C12.
- 11 MTBE by EPA Method 8260.

Table 2
Groundwater Analytical Results
 Tosco (Unocal) Service Station #3538
 411 West MacArthur Boulevard
 Oakland, California

WELL ID	DATE	TPH-D (ppb)	TOG (ppb)	Tetrachloroethene ¹ (ppb)
MW-1	09/15/89	ND	ND	2.7
	01/23/90	ND	1.5	2.1
	04/19/90	ND	ND	2.2
	07/17/90	ND	ND	1.7
	10/16/90	ND	ND	2.0
	01/15/91	ND	ND	2.1
	04/12/91	ND	ND	2.0
	07/15/91	ND	ND	1.8
	07/14/92	--	--	1.4
	07/14/93	--	--	0.95
	07/07/94	--	--	0.83
	07/19/95	--	--	0.52
	07/11/96 ²	--	--	0.73
	07/21/97 ³	--	--	0.70
	08/31/99	--	--	ND

EXPLANATIONS:

Groundwater laboratory analytical results prior to January 14, 1998, were compiled from reports prepared by MPDS Services, Inc.

TPH-D = Total Petroleum Hydrocarbons as Diesel

TOG = Total Oil and Grease

(ppb) = Parts per billion

ND = Not Detected

-- = Not Analyzed

¹ All other EPA Method 8010 constituents were ND.

² Chloroform was detected at a concentration of 0.96 ppb.

³ Chloroform was detected at a concentration of 1.0 ppb.

Table 3
Groundwater Analytical Results - Oxygenate Compounds
 Tosco (Unocal) Service Station #3538
 411 West MacArthur Boulevard
 Oakland, California

WELL ID	DATE	TBA (ppb)	MTBE (ppb)	DIPE (ppb)	ETBE (ppb)	TAME (ppb)	1,2-DCA (ppb)	EDB (ppb)
MW-3	08/25/00	ND ¹	180	ND ¹	ND ¹	ND ¹	ND ¹	ND ¹

EXPLANATIONS:

TBA = Tertiary butyl alcohol
 MTBE = Methyl tertiary butyl ether
 DIPE = Di-isopropyl ether
 ETBE = Ethyl tertiary butyl ether
 TAME = Tertiary amyl methyl ether
 1,2-DCA = 1,2-Dichloroethane
 EDB = 1,2-Dibromoethane
 (ppb) = Parts per billion
 ND = Not Detected

ANALYTICAL METHOD:

EPA Method 8260 for Oxygenate Compounds

¹ Detection limit raised. Refer to analytical reports.

STANDARD OPERATING PROCEDURE - GROUNDWATER SAMPLING

Gettler-Ryan Inc. field personnel adhere to the following procedures for the collection and handling of groundwater samples prior to analysis by the analytical laboratory. Prior to sample collection, the type of analysis to be performed is determined. Loss prevention of volatile compounds is controlled and sample preservation for subsequent analysis is maintained.

Prior to sampling, the presence or absence of free-phase hydrocarbons is determined using an interface probe. Product thickness, if present, is measured to the nearest 0.01 foot and is noted in the field notes. In addition, static water level measurements are collected with the interface probe and are also recorded in the field notes.

After water levels are collected and prior to sampling, temperature, pH and electrical conductivity are measured. If purging is to occur, each well is purged a minimum of three well casing volumes of water using pre-cleaned pumps (stack, suction, Grundfos), or polyvinyl chloride bailers. The measurements are taken a minimum of three times during the purging. Purging continues until these parameters stabilize.

Groundwater samples are collected using disposable bailers. The water samples are transferred from the bailer into appropriate containers. Pre-preserved containers, supplied by analytical laboratories, are used when possible. When pre-preserved containers are not available, the laboratory is instructed to preserve the sample as appropriate. Duplicate samples are collected for the laboratory to use in maintaining quality assurance/quality control standards. The samples are labeled to include the job number, sample identification, collection date and time, analysis, preservation (if any), and the sample collector's initials. The water samples are placed in a cooler, maintained at 4°C for transport to the laboratory. Once collected in the field, all samples are maintained under chain of custody until delivered to the laboratory.

The chain of custody document includes the job number, type of preservation, if any, analysis requested, sample identification, date and time collected, and the sample collector's name. The chain of custody is signed and dated (including time of transfer) by each person who receives or surrenders the samples, beginning with the field personnel and ending with the laboratory personnel.

A laboratory supplied trip blank accompanies each sampling set. For sampling sets greater than 20 samples, 5% trip blanks are included. The trip blank is analyzed for some or all of the same compounds as the groundwater samples.

As requested by Tosco Marketing Company, the purge water and decontamination water generated during sampling activities is transported to Tosco - San Francisco Area Refinery, located in Rodeo, California.

**WELL MONITORING/SAMPLING
FIELD DATA SHEET**

Client/
Facility # 3538
Address: 411 W. MacArthur Blvd.
City: Oakland

Job#: 180064
Date: 1-4-01
Sampler: Joe

Well ID MW-1
Well Diameter 2 in.
Total Depth 23.32 ft.
Depth to Water 17.95 ft.

Well Condition: OK

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

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.50	

 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:
Sampling Time:
Purging Flow Rate: gpm
Did well de-water?

Weather Conditions: clear
Water Color: clear Odor:
Sediment Description: none
If yes; Time: Volume: (gal)

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

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-1</u>	<u>3VCA</u>	<u>Y</u>	<u>HCL</u>	<u>Sequoia</u>	<u>TPH, BTEX, MTBE</u>

COMMENTS: M. only

**WELL MONITORING/SAMPLING
FIELD DATA SHEET**

Client/
Facility # 3538
Address: 411 W. MacArthur Blvd.
City: Oakland

Job#: 180064
Date: 1-4-01
Sampler: Joc

Well ID MW-2

Well Condition: OK

Well Diameter 2 in

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

Total Depth 24.26 ft

Volume	2" = 0.17	3" = 0.38	4" = 0.66
Factor (VF)	6" = 1.50	12" = 5.50	

Depth to Water 18.02 ft

6.24 x VF 0.17 = 1.06 x 3 (case volume) = Estimated Purge Volume: 3.5 (gal)

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

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

Starting Time: 7:50
Sampling Time: 8:15 A.M.
Purging Flow Rate: 1 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 (µhos/cm)	Temperature (F)	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>8:00</u>	<u>1</u>	<u>7.25</u>	<u>7.70</u>	<u>64.6</u>			
<u>8:04</u>	<u>2</u>	<u>7.26</u>	<u>7.61</u>	<u>64.5</u>			
<u>8:08</u>	<u>3.5</u>	<u>7.30</u>	<u>7.62</u>	<u>64.2</u>			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-2</u>	<u>3VCA</u>	<u>Y</u>	<u>HCL</u>	<u>Sequoia</u>	<u>TPHG, BTEX, MTBE</u>

COMMENTS: _____

**WELL MONITORING/SAMPLING
FIELD DATA SHEET**

Client/Facility # 3538 Job#: 180064
 Address: 411 W. MacArthur Blvd. Date: 1-4-01
 City: Oakland Sampler: Joe

Well ID: MW-3 Well Condition: OK
 Well Diameter: 2 in Hydrocarbon Amount Bailed
 Thickness: 0 in (product/water): 0 (gal.)
 Total Depth: 27.18 ft
 Depth to Water: 18.16 ft

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.50	

9.02 x VF 0.17 = 1.53 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: 7:10 Weather Conditions: clear
 Sampling Time: 7:35 A.M. Water Color: clear Odor: none
 Purging Flow Rate: 1 gpm Sediment Description: none
 Did well de-water? _____ If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity (µmhos/cm)	Temperature (F)	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>7:20</u>	<u>1.5</u>	<u>7.55</u>	<u>4.45</u>	<u>69.8</u>			
<u>7:22</u>	<u>3</u>	<u>7.50</u>	<u>4.62</u>	<u>70.2</u>			
<u>7:23</u>	<u>5</u>	<u>7.59</u>	<u>4.67</u>	<u>70.5</u>			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-3</u>	<u>3 YEA</u>	<u>Y</u>	<u>HCL</u>	<u>Sequoia</u>	<u>TPH, BTEX, MTBE</u>

COMMENTS: _____

**WELL MONITORING/SAMPLING
FIELD DATA SHEET**

Client/
Facility # 3538
Address: 411 W. MacArthur Blvd.
City: Oakland

Job#: 180064
Date: 1-4-01
Sampler: Joe

Well ID MW-4
Well Diameter 2 in.
Total Depth 24.82 ft.
Depth to Water 18.10 ft.

Well Condition: OK
Hydrocarbon Thickness: 0 in. Amount Bailed (product/water): 0 (gal.)
Volume Factor (VF)

2" = 0.17	3" = 0.38	4" = 0.66
6" = 1.50	12" = 5.50	

0.17 X VF = 0.17 X 3 (case volume) = Estimated Purge Volume: _____ (gal.)

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

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

Starting Time: _____ Weather Conditions: clear
Sampling Time: _____ Water Color: clear Odor: _____
Purging Flow Rate: _____ gpm Sediment Description: none
Did well de-water? _____ if yes; Time: _____ Volume: _____ (gal.)

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

LABORATORY INFORMATION

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

COMMENTS: M. only

**WELL MONITORING/SAMPLING
FIELD DATA SHEET**

Client/Facility # 3538 Job#: 180064
 Address: 411 W. MacArthur Blvd. Date: 1-4-01
 City: Oakland Sampler: Joe

Well ID MW-5 Well Condition: OK
 Well Diameter 2 in Hydrocarbon Thickness: 0 in Amount Bailed (product/water): 0 (gal)
 Total Depth 30.12 ft
 Depth to Water 17.51 ft

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.50	

_____ X VF 0.17 = _____ X 3 (case volume) = Estimated Purge Volume: _____ (gal)

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

Starting Time: _____ Weather Conditions: clear
 Sampling Time: _____ Water Color: clear Odor: _____
 Purging Flow Rate: _____ gpm Sediment Description: none
 Did well de-water? _____ If yes; Time: _____ Volume: _____ (gal)

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

LABORATORY INFORMATION

SAMPLE ID	(?) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-5</u>	<u>3VSA</u>	<u>X</u>	<u>HCL</u>	<u>Sequoia</u>	<u>TPH, BTEX, MTBE</u>

COMMENTS: M. Only

**WELL MONITORING/SAMPLING
FIELD DATA SHEET**

Client/Facility # 3538 Job#: 180064
 Address: 411 W. MacArthur Blvd. Date: 1-4-01
 City: Oakland Sampler: Joc

Well ID: MW-6 Well Condition: O.K.
 Well Diameter: 2 in. Hydrocarbon Thickness: 0 in. Amount Bailed (product/water): 0 (gal.)
 Total Depth: 30.06 ft.
 Depth to Water: 17.09 ft.

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.50	

_____ X VF 0.17 = _____ X 3 (case volume) = Estimated Purge Volume: _____ (gal.)

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

Starting Time: _____ Weather Conditions: clear
 Sampling Time: _____ Water Color: clear Odor: _____
 Purging Flow Rate: _____ gpm Sediment Description: none
 Did well de-water? _____ If yes; Time: _____ Volume: _____ (gal.)

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

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-</u>	<u>3YCA</u>	<u>X</u>	<u>HCL</u>	<u>Sequoia</u>	<u>TPH, BTEX, MTBE</u>

COMMENTS: M. only



Sequoia Analytical

1551 Industrial Road
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January 16, 2001

Deanna Harding
Gettler-Ryan/Geostrategies(1)
6747 Sierra Court, Suite J
Dublin, CA 94568
RE: Tosco(1) / L101022

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

Sincerely,

Latonya K. Pelt

Latonya Pelt
Project Manager

CA ELAP Certificate Number 2360





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

Project: Tosco(1)
Project Number: UNOCAL SS#3538/411 W. MACARTHU
Project Manager: Deanna Harding

Reported:
01/16/01 07:01

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-LB	L101022-01	Water	01/04/01 00:00	01/04/01 16:15
MW-2	L101022-02	Water	01/04/01 08:15	01/04/01 16:15
MW-3	L101022-03	Water	01/04/01 07:35	01/04/01 16:15





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

Project: Tosco(1)
Project Number: UNOCAL SS#3538/411 W. MACARTHU
Project Manager: Deanna Harding

Reported:
01/16/01 07:01

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TB-LB (L101022-01) Water Sampled: 01/04/01 00:00 Received: 01/04/01 16:15									
Purgeable Hydrocarbons as Gasoline	ND	50.0	ug/l	1	1010033	01/09/01	01/09/01	DHS LUFT	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	0.500	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	5.00	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		78.8 %		70-130	"	"	"	"	
MW-2 (L101022-02) Water Sampled: 01/04/01 08:15 Received: 01/04/01 16:15									
Purgeable Hydrocarbons as Gasoline	ND	50.0	ug/l	1	1010033	01/09/01	01/09/01	DHS LUFT	
Benzene	0.925	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	0.500	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	5.00	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		76.5 %		70-130	"	"	"	"	
MW-3 (L101022-03) Water Sampled: 01/04/01 07:35 Received: 01/04/01 16:15									
Purgeable Hydrocarbons as Gasoline	ND	50.0	ug/l	1	1010033	01/09/01	01/09/01	DHS LUFT	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	0.500	"	"	"	"	"	"	
Methyl tert-butyl ether	193	5.00	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		71.9 %		70-130	"	"	"	"	





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

Project: Tosco(1)
Project Number: UNOCAL SS#3538/411 W. MACARTHU
Project Manager: Deanna Harding

Reported:
01/16/01 07:01

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1010033 - EPA 5030B (P/T)

Blank (1010033-BLK1)

Prepared & Analyzed: 01/09/01

Purgeable Hydrocarbons as Gasoline	ND	50.0	ug/l							
Benzene	ND	0.500	"							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	0.500	"							
Methyl tert-butyl ether	ND	5.00	"							
Surrogate: a,a,a-Trifluorotoluene	8.36		"	10.0		83.6	70-130			

LCS (1010033-BS1)

Prepared & Analyzed: 01/09/01

Benzene	8.93	0.500	ug/l	10.0		89.3	70-130			
Toluene	8.35	0.500	"	10.0		83.5	70-130			
Ethylbenzene	8.52	0.500	"	10.0		85.2	70-130			
Xylenes (total)	25.3	0.500	"	30.0		84.3	70-130			
Surrogate: a,a,a-Trifluorotoluene	8.42		"	10.0		84.2	70-130			

LCS (1010033-BS2)

Prepared & Analyzed: 01/09/01

Purgeable Hydrocarbons as Gasoline	225	50.0	ug/l	250		90.0	70-130			
Surrogate: a,a,a-Trifluorotoluene	7.74		"	10.0		77.4	70-130			

Matrix Spike (1010033-MS1)

Source: L101031-03

Prepared & Analyzed: 01/09/01

Purgeable Hydrocarbons as Gasoline	258	50.0	ug/l	250	ND	103	60-140			
Surrogate: a,a,a-Trifluorotoluene	8.26		"	10.0		82.6	70-130			

Matrix Spike Dup (1010033-MSD1)

Source: L101031-03

Prepared & Analyzed: 01/09/01

Purgeable Hydrocarbons as Gasoline	267	50.0	ug/l	250	ND	107	60-140	3.43	25	
Surrogate: a,a,a-Trifluorotoluene	8.33		"	10.0		83.3	70-130			





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Project: Tosco(1)
Project Number: UNOCAL SS#3538/411 W. MACARTHU
Project Manager: Deanna Harding

Reported:
01/16/01 07:01

Notes and Definitions

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

MAR 19 2001

