

STIP 1120
DH



GETTLER-RYAN INC.

TRANSMITTAL

September 29, 2000

G-R #: 180068

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 (Former Unocal) SS #1871
96 MacArthur Blvd.
Oakland, California

WE HAVE ENCLOSED THE FOLLOWING:

COPIES	DATED	DESCRIPTION
1	September 12, 2000	Groundwater Monitoring and Sampling Report Semi-Annual - Event of July 10, 2000

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 **October 11, 2000**, this report will be distributed to the following:

Enclosure

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

trans/1871.dbd



GETTLER-RYAN INC.

September 12, 2000
G-R Job #180068

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

RE: Semi-Annual 2000 Groundwater Monitoring & Sampling Report
Tosco (Former Unocal) Service Station #1871
96 MacArthur Boulevard
Oakland, California

Dear Mr. De Witt:

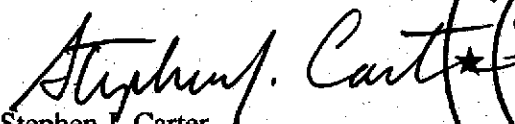
This report documents the semi-annual groundwater monitoring and sampling event performed by Gettler-Ryan Inc. (G-R). On July 10, 2000, field personnel monitored and sampled four wells (MW-1, MW-6, MW-7, and MW-8) at the above referenced site.

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

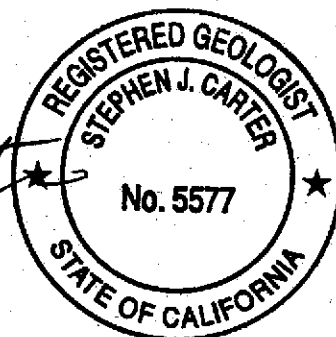
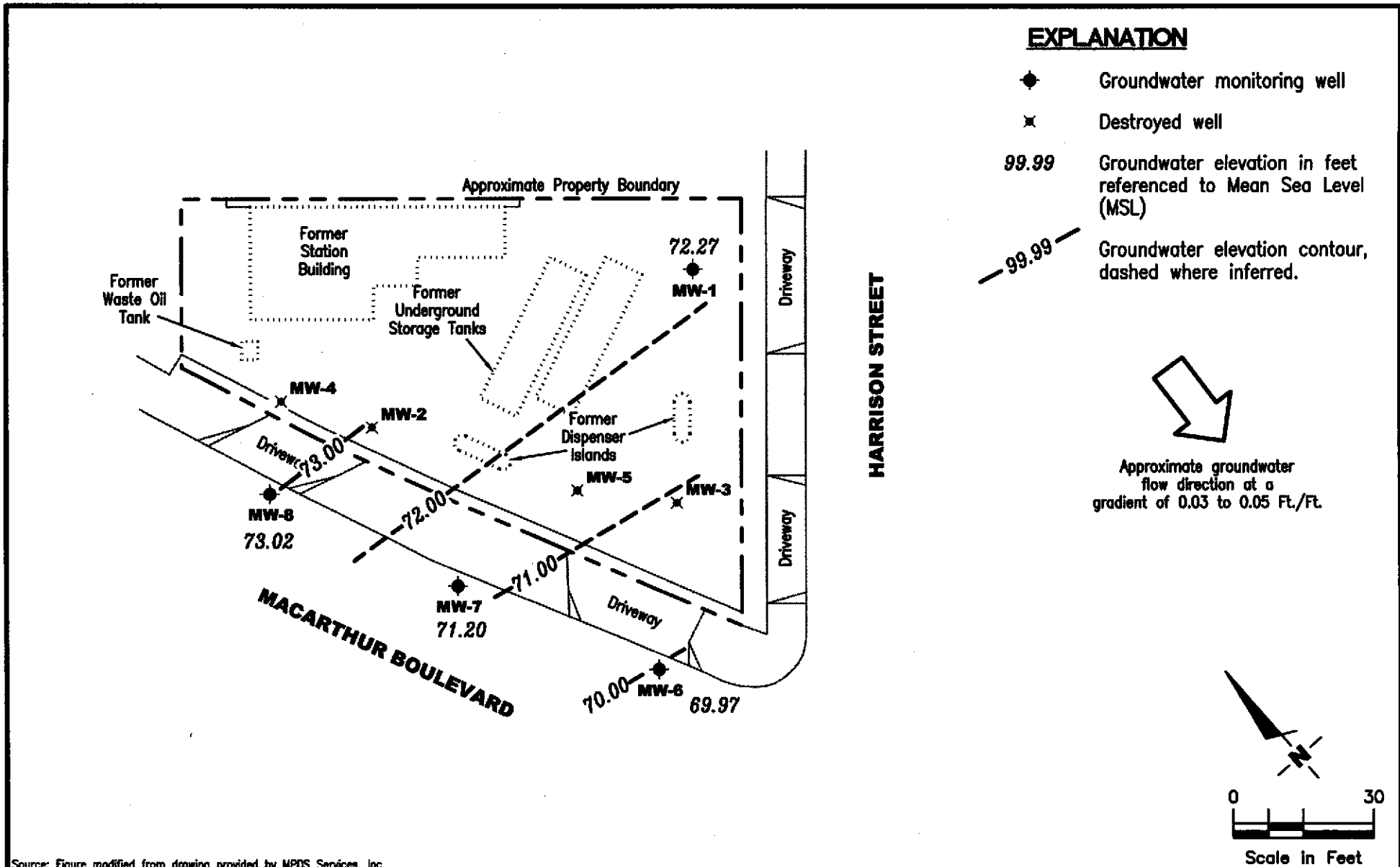


Figure 1: Potentiometric Map
Figure 2: Concentration Map
Table 1: Groundwater Monitoring Data and Analytical Results
Table 2: Groundwater Analytical Results
Table 3: Groundwater Analytical Results - Oxygenate Compounds
Attachments: Standard Operating Procedure - Groundwater Sampling
Field Data Sheets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

1871.qml

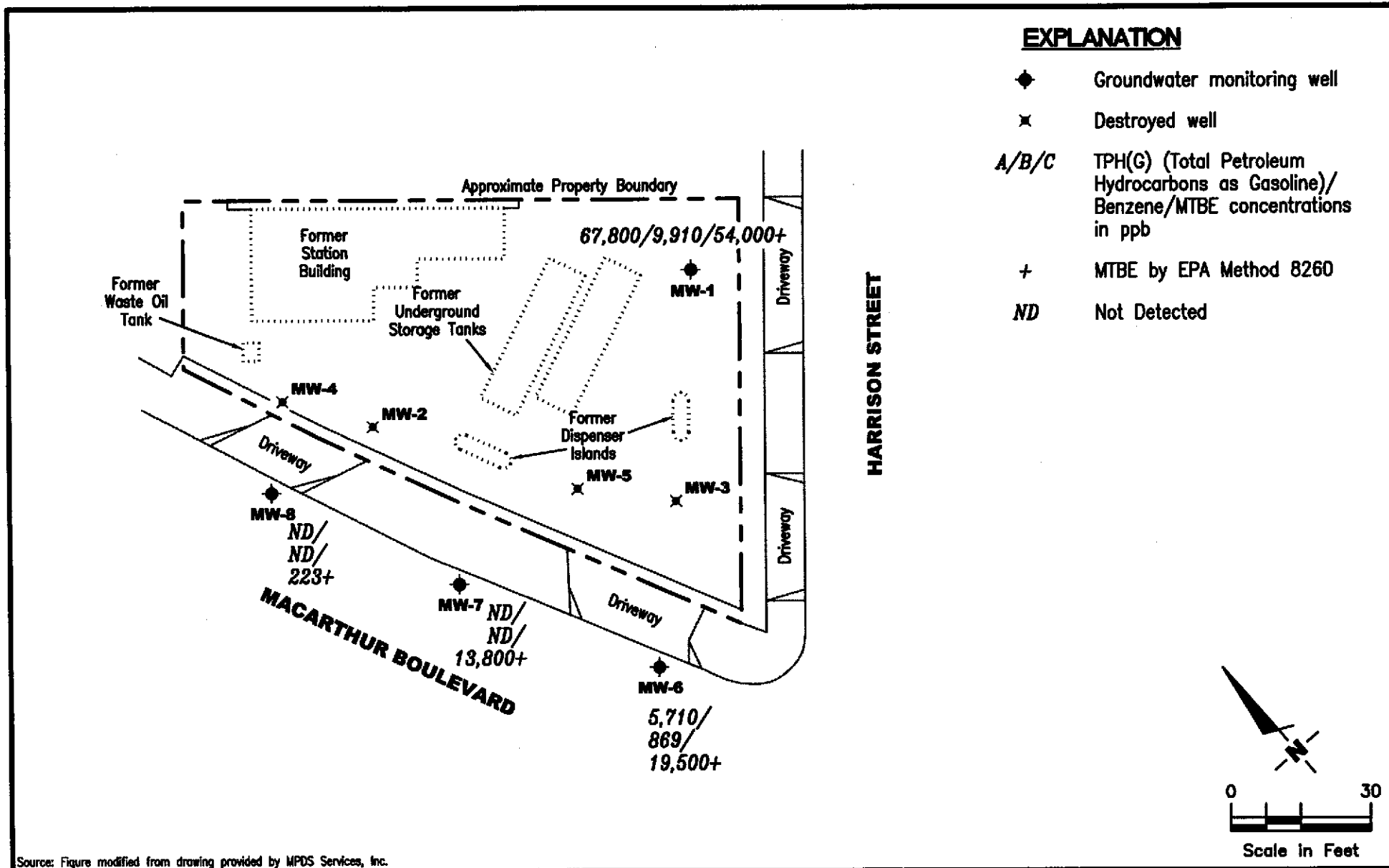


Gettler - Ryan Inc.
 6747 Sierra Ct., Suite J
 Dublin, CA 94568 (925) 551-7555

POTENTIOMETRIC MAP
 Tosco (Former Unocal) Service Station #1871
 96 MacArthur Boulevard
 Oakland, California

FIGURE
1

PROJECT NUMBER: 180068 REVIEWED BY: DATE: July 10, 2000 REVISED DATE:



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



Gettler - Ryan Inc.

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

CONCENTRATION MAP
Tosco (Former Unocal) Service Station #1871
96 MacArthur Boulevard
Oakland, California

FIGURE
2

PROJECT NUMBER
180068

REVIEWED BY

DATE
July 10, 2000

REVISED DATE

Table 1
Groundwater Monitoring Data and Analytical Results
 Tosco (Former Unocal) Service Station #1871
 96 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	11/03/92	--	9.5-24.5	--	260,000	2,300	4,600	3,700	17,000	--
	01/25/93	--		--	120,000	2,100	4,600	4,900	22,000	--
81.18	04/29/93	13.71		67.47	100,000	850	2,000	4,300	19,000	--
	07/16/93	14.51		66.67	29,000	590	560	980	4,200	--
	10/19/93	15.20		65.98	67,000	1,400	2,600	2,900	5,000	--
	01/20/94	15.17		66.01	92,000	1,200	3,000	3,400	17,000	--
	04/13/94	14.44		66.74	51,000	1,000	2,600	3,200	15,000	--
	07/13/94	14.88		66.30	35,000	550	150	1,400	5,700	--
	10/10/94	15.55		65.63	52,000	1,000	810	3,300	12,000	--
	01/10/95	12.44		68.74	810	16	18	59	250	--
	04/17/95	12.68		68.50	48,000	880	530	2,500	11,000	--
	07/24/95	13.97		67.21	48,000	1,500	420	2,700	9,700	--
86.24	10/23/95	14.85		66.33	47,000	780	210	2,100	11,000	270
	01/18/96	14.21		66.97	30,000	1,500	500	3,500	13,000	2,400
	04/18/96	13.40		72.84	66,000	2,700	2,200	3,100	13,000	57,000
	07/24/96	14.15		72.09	5,600	2,100	ND	160	160	24,000
	10/24/96	14.85		71.39	110,000	7,500	8,000	3,300	14,000	58,000
	01/28/97	11.25		74.99	94,000	7,700	19,000	3,100	15,000	120,000
	07/29/97	14.67		71.57	ND	ND	ND	ND	ND	70,000
	01/14/98	12.27		73.97	85,000	6,100	10,000	3,000	17,000	110,000
	07/01/98	14.32		71.92	110,000	8,700	12,000	2,700	15,000	110,000
	06/18/99	13.93		72.31	49,000	6,900	6,500	380	12,000	72,000/47,000 ⁴
MW-2	01/21/00	15.05		71.19	63,700 ⁵	5,520	2,000	2,640	13,100	57,100
	07/10/00	13.97		72.27	67,800 ⁵	9,910	4,120	3,330	16,100	67,400/54,000 ⁴
81.18	11/03/92	--	--	--	140	2.2	ND	ND	2.0	--
	01/25/93	--	--	--	2,100	56	1.1	90	140	--
76.61	04/29/93	9.73		66.88	1,500	290	ND	33	11	--
	07/16/93	10.17		66.44	510 ¹	17	0.60	3.2	2.5	--
	10/19/93	11.18		65.43	670	24	1.1	7.7	23	--
	01/20/94	11.12		65.49	820	97	ND	12	ND	--
	04/13/94	10.12		66.49	550	71	ND	5.1	1.3	--
	07/13/94	10.86		65.75	2,000	490	ND	17	13	--

Table 1
Groundwater Monitoring Data and Analytical Results
 Tosco (Former Unocal) Service Station #1871
 96 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	10/10/94	11.48	--	65.13	2,300	340	ND	25	ND	--
(cont)	01/10/95	8.71		67.90	850	3.8	ND	8.5	1.3	--
	04/17/95	8.90		67.71	1,300	4.7	ND	8.3	1.2	--
	07/24/95	9.94		66.67	960	20	ND	4.2	6.2	--
	10/23/95	10.70		65.91	ND	ND	ND	ND	ND	19
	01/18/96	10.11		66.50	900	300	86	7.6	18	4,300
81.66	04/18/96	9.27		72.39	18,000	3,600	680	890	4,100	19,000
	07/24/96	10.02		71.64	100,000	13,000	21,000	2,700	16,000	120,000
	10/24/96	10.78		70.88	800	110	17	11	20	20,000
	01/28/97	7.70		73.96	45,000	2,400	2,900	2,000	7,600	29,000
	07/29/97	10.28		71.38	ND	1.2	0.72	0.63	0.62	17,000
	01/14/98	8.63		73.03	14,000	1,000	150	790	3,300	23,000
	07/01/98	9.53		72.13	2,700	100	ND ³	180	78	7,100
	06/18/99	DESTROYED		--	--	--	--	--	--	--
MW-3	11/03/92	--	--	--	2,100	120	15	38	200	--
	01/25/93	--		--	2,300	80	1	55	52	--
77.48	04/29/93	11.37		66.11	4,500	1,700	ND	200	140	--
	07/16/93	12.09		65.39	4,000 ¹	1,100	28	52	70	--
	10/19/93	12.69		64.79	3,800	42	ND	50	56	--
	01/20/94	12.65		64.83	4,200	11	ND	21	15	--
	04/13/94	12.02		65.46	4,200	210	ND	36	53	--
	07/13/94	12.46		65.02	1,800 ²	16	16	ND	21	--
	10/10/94	12.98		64.50	4,300	11	ND	12	ND	--
	01/10/95	10.42		67.06	310	4.6	ND	3.5	2.1	--
	04/17/95	10.42		67.06	7,800	ND	4.6	300	450	--
	07/24/95	11.76		65.72	3,200	170	ND	22	16	--
	10/23/95	12.50		64.98	3,900	55	ND	19	11	4,500
	01/18/96	11.79		65.69	2,200	270	33	26	18	5,500
82.55	04/18/96	11.30		71.25	6,000	1,800	ND	100	230	48,000
	07/24/96	12.17		70.38	ND	2,500	ND	ND	ND	71,000
	10/24/96	12.65		69.90	3,800	660	ND	15	ND	65,000
	01/28/97	9.50		73.05	4,400	250	13	87	47	54,000

Table 1
Groundwater Monitoring Data and Analytical Results
 Tosco (Former Unocal) Service Station #1871
 96 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-3	07/29/97	11.99	--	70.56	ND	3,500	ND	220	ND	75,000
(cont)	01/14/98	10.30		72.25	ND ³	430	ND ³	100	380	37,000
	07/01/98	11.70		70.85	ND ³	430	ND ³	ND ³	ND ³	45,000
	06/18/99	DESTROYED		--	--	--	--	--	--	--
MW-4										
82.04	04/18/96	9.83	--	72.21	ND	630	ND	ND	ND	18,000
	07/24/96	10.47		71.57	ND	ND	ND	ND	5.2	3,900
	10/24/96	11.14		70.90	ND	ND	ND	ND	ND	6,300
	01/28/97	7.94		74.10	1,200	490	ND	17	6.8	16,000
	07/29/97	10.86		71.18	50	1.5	0.61	0.73	0.78	15,000
	01/14/98	8.73		73.31	ND ³	ND ³	ND ³	ND ³	ND ³	5,200
	07/01/98	10.51		71.53	ND	ND	ND	ND	ND	640
	06/18/99	DESTROYED		--	--	--	--	--	--	--
MW-5										
81.80	04/18/96	9.65	--	72.15	31,000	5,500	1,400	1,700	8,100	66,000
	07/24/96	10.80		71.00	32,000	6,400	ND	1,600	6,100	120,000
	10/24/96	11.40		70.40	17,000	6,900	ND	970	130	84,000
	01/28/97	7.76		74.04	19,000	6,100	62	82	310	160,000
	07/29/97	11.58		70.22	ND	ND	ND	ND	ND	71,000
	01/14/98	9.08		72.72	ND ³	3,600	ND ³	ND ³	ND ³	80,000
	07/01/98	11.25		70.55	6,400	2,100	21	120	330	61,000
	06/18/99	DESTROYED		--	--	--	--	--	--	--
MW-6										
78.91	06/18/99	9.30	5.0-25.0	69.61	2,100	21	29	ND ³	47	97,000/71,000 ⁴
	01/21/00	9.37		69.54	1,880 ⁵	143	31.2	106	196	41,200/48,800 ⁴
	07/10/00	8.94		69.97	5,710 ⁵	869	209	301	1,430	22,200/19,500 ⁴

Table 1
Groundwater Monitoring Data and Analytical Results
 Tosco (Former Unocal) Service Station #1871
 96 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-7										
79.92	06/18/99	8.70	5.0-25.0	71.22	ND	ND	ND	ND	ND	16,000/13,000 ⁴
	01/21/00	9.30		70.62	ND ³	ND ³	ND ³	ND ³	ND ³	12,300/18,200 ⁴
	07/10/00	8.72		71.20	ND ³	ND ³	ND ³	ND ³	ND ³	16,900/13,800 ⁴
MW-8										
80.96	06/18/99	9.10	5.0-25.0	71.86	ND	ND	ND	ND	ND	290/160 ⁴
	01/21/00	10.00		70.96	ND	ND	ND	ND	1.09	224/221 ⁴
	07/10/00	7.94		73.02	ND	ND	ND	ND	ND	234/223 ⁴
Trip Blank										
TB-LB	01/14/98	--	--	--	ND	ND	ND	ND	ND	ND
	07/01/98	--		--	ND	ND	ND	ND	ND	ND
	06/18/99	--		--	ND	ND	ND	ND	ND	ND
	01/21/00	--		--	ND	ND	ND	ND	ND	14.6
	07/10/00	--		--	ND	ND	ND	ND	ND	ND

Table 1
Groundwater Monitoring Data and Analytical Results
Tosco (Former Unocal) Service Station #1871
96 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

DTW = Depth to Water

(ft.) = Feet

S. I. = Screen Interval

(ft. bgs.) = Feet Below Ground Surface

GWE = Groundwater Elevation

(msl) = Mean sea level

TPH(G) = Total Petroleum Hydrocarbons as Gasoline

B = Benzene

T = Toluene

E = Ethylbenzene

X = Xylenes

MTBE = Methyl tertiary butyl ether

ppb = Parts per billion

ND = Not Detected

-- = Not Measured/Not Analyzed

* TOC elevations were re-surveyed by Kier & Wright in May, 1996, per City of Oakland Benchmark No. 2310, a cut square in concrete curb at mid point of return at the northeast corner of El Dorado and Fairmont Street. (Elevation = 77.53 feet msl).

¹ Laboratory report indicates the presence of discrete peaks not indicative of gasoline.

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

³ Detection limit raised. Refer to analytical reports.

⁴ MTBE by EPA Method 8260.

⁵ Laboratory report indicates gasoline C6-C12.

Table 2
Groundwater Analytical Results
 Tosco (Former Unocal) Service Station #1871
 96 MacArthur Boulevard
 Oakland, California

WELL ID	DATE	TPH(D) (ppb)	TOG (ppb)	HVOC (ppb)	SVOC (ppb)
MW-1	06/18/99	--	--	ND	--
MW-4	04/18/96	110 ¹	ND	ND	--
	07/24/96	ND	ND	ND	ND
	10/24/96	ND	ND	ND	ND ²
	01/28/97	210 ³	ND	ND	ND ⁴
	07/29/97	ND	ND	ND	ND
	01/14/98	ND	ND	ND	ND
	07/01/98	ND	ND	ND	ND
	06/18/99	DESTROYED	--	--	--
MW-6	06/18/99	--	--	ND	--
MW-7	06/18/99	--	--	ND	--
MW-8	06/18/99	--	--	ND	ND ⁵

EXPLANATIONS:

Groundwater 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

HVOC = Halogenated Volatile Organic Compounds by EPA Method 8010

SVOC = Semi-Volatile Organic Compounds by EPA Method 8270

ppb = Parts per billion

-- = Not Analyzed

ND = Not Detected

¹ Laboratory report indicates the hydrocarbons detected did not appear to contain diesel.

² Bis (2-ethylhexyl) phthalate was detected at a concentration of 14 ppb.

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

⁴ Naphthalene was detected at a concentration of 17 ppb.

⁵ All SVOCs were ND except for Bis(2-ethylhexy)phthalate at 11 ppb.

All EPA Method 8010 and 8270 constituents were ND, unless noted.

Table 3
Groundwater Analytical Results - Oxygenate Compounds
 Tosco (Former Unocal) Service Station #1871
 96 MacArthur Boulevard
 Oakland, California

WELL ID	DATE	ETHANOL (ppb)	TBA (ppb)	MTBE (ppb)	DIPE (ppb)	ETBE (ppb)	TAME (ppb)	EDB (ppb)	1,2-DCA (ppb)
MW-1	06/18/99	ND ¹	ND ¹	47,000	ND ¹	ND ¹	ND ¹	ND ¹	ND ¹
	07/10/00	--	--	54,000	--	--	--	--	--
MW-6	06/18/99	ND ¹	ND ¹	71,000	ND ¹	ND ¹	ND ¹	ND ¹	ND ¹
	01/21/00	--	--	48,800	--	--	--	--	--
	07/10/00	--	--	19,500	--	--	--	--	--
MW-7	06/18/99	ND ¹	ND ¹	13,000	ND ¹	ND ¹	ND ¹	ND ¹	ND ¹
	01/21/00	--	--	18,200	--	--	--	--	--
	07/10/00	--	--	13,800	--	--	--	--	--
MW-8	06/18/99	ND ¹	ND ¹	160	ND ¹	ND ¹	ND ¹	ND ¹	ND ¹
	01/21/00	--	--	221	--	--	--	--	--
	07/10/00	--	--	223	--	--	--	--	--

EXPLANATIONS:

TBA = Tertiary butyl alcohol
 MTBE = Methyl tertiary butyl ether
 DIPE = Di-isopropyl ether
 ETBE = Ethyl tertiary butyl ether
 TAME = Tertiary amyl methyl ether
 EDB = 1,2-Dibromoethane
 1,2-DCA = 1,2-Dichloroethane
 ppb = Parts per billion
 -- = Not Analyzed
 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 # 1871
Address: 96 MacArthur Blvd.
City: Oakland

Job#: 180068
Date: 7-10-00
Sampler: Joe

Well ID MW-1
Well Diameter 4 in.
Total Depth 24.10 ft.
Depth to Water 13.97 ft.

Well Condition: o.k.
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" = 5.80

10.13 x VF 0.66 = 6.69 x 3 (case volume) = Estimated Purge Volume: 21 (gal.)

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

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

Starting Time: 8:48
Sampling Time: 9:08 AM
Purging Flow Rate: 2 gpm
Did well de-water? _____

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

Time	Volume (gal.)	pH	Conductivity $\mu\text{mhos/cm}$	Temperature $^{\circ}\text{F}$	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>8:55</u>	<u>7</u>	<u>6.94</u>	<u>2.51</u>	<u>71.2</u>			
<u>8:57</u>	<u>14</u>	<u>7.05</u>	<u>2.42</u>	<u>71.7</u>			
<u>8:59</u>	<u>21</u>	<u>7.03</u>	<u>2.47</u>	<u>72.0</u>			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW 1</u>	<u>3Vea</u>	<u>Y</u>	<u>HCL</u>	<u>Sequoia</u>	<u>TPHG, BTEX, MTBE by 8260</u>

COMMENTS: _____

**WELL MONITORING/SAMPLING
FIELD DATA SHEET**

Client/
Facility # 1871
Address: 96 MacArthur Blvd.
City: Oakland

Job#: 180068
Date: 7-10-00
Sampler: Joe

Well ID MW-6
Well Diameter 2 in
Total Depth 24.75 ft
Depth to Water 8.94 ft

Well Condition: O.K.

Hydrocarbon Thickness:	<u>0</u> in.	Amount Bailed (product/water):	<u>0</u> (gal)
Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.90	

15.81 X VF 0.17 = 2.69 X 3 (case volume) = Estimated Purge Volume: 8.5 (gal)

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

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

Starting Time: 8:15
Sampling Time: 8:35 AM
Purging Flow Rate: 1 gpm
Did well de-water? _____

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

Time	Volume (gal)	pH	Conductivity μ mhos/cm	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>8:22</u>	<u>2.5</u>	<u>7.33</u>	<u>3.76</u>	<u>69.8</u>			
<u>8:24</u>	<u>5</u>	<u>7.30</u>	<u>4.12</u>	<u>72.5</u>			
<u>8:25</u>	<u>8.5</u>	<u>7.24</u>	<u>4.14</u>	<u>72.4</u>			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW 6</u>	<u>3 YCA</u>	<u>Y</u>	<u>HCL</u>	<u>Sequoia</u>	<u>TPH, BTEX, MTBE by 8260</u>

COMMENTS: _____

**WELL MONITORING/SAMPLING
FIELD DATA SHEET**

Client/
Facility # 1871
Address: 96 MacArthur Blvd.
City: Oakland

Job#: 180068
Date: 7-10-00
Sampler: Joc

Well ID MW-7
Well Diameter 2 in.
Total Depth 24.55 ft.
Depth to Water 8.72 ft.

Well Condition: O.K.

Hydrocarbon Thickness:	<u>0</u> in.	Amount Bailed (product/water):	<u>0</u> (gal.)
Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.80	

15.83 x VF 0.17 = 2.69 x 3 (case volume) = Estimated Purge Volume: 8.5 (gal.)

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

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

Starting Time: 7:35
Sampling Time: 7:58 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 $\mu\text{mhos/cm}$	Temperature $^{\circ}\text{F}$	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>7:46</u>	<u>3</u>	<u>7.37</u>	<u>4.85</u>	<u>73.1</u>			
<u>7:47</u>	<u>5</u>	<u>7.41</u>	<u>4.90</u>	<u>73.2</u>			
<u>7:49</u>	<u>8.5</u>	<u>7.35</u>	<u>4.86</u>	<u>72.9</u>			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW 7</u>	<u>3 YCA</u>	<u>Y</u>	<u>HCL</u>	<u>Sequoia</u>	<u>TPH, BTEX, MTBE 8260</u>

COMMENTS: _____

**WELL MONITORING/SAMPLING
FIELD DATA SHEET**

Client/ Facility # 1871 Job#: 180068
 Address: 96 MacArthur Blvd. Date: 7-10-00
 City: Oakland Sampler: Joc

Well ID MW-8 Well Condition: O.K.
 Well Diameter 2 in. Hydrocarbon Thickness: 0 in. Amount Bailed (product/water): 0 (gal.)
 Total Depth 24.80 ft. Volume Factor (VF) 2" = 0.17 3" = 0.38 4" = 0.66
 Depth to Water 7.94 ft. 6" = 1.50 12" = 5.90

16.86 x VF 0.17 = 2.87 x 3 (case volume) = Estimated Purge Volume: 8.61 (gal.)

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

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

Starting Time: 7:00 Weather Conditions: clear
 Sampling Time: 7:25 AM 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 $\mu\text{mhos/cm}$	Temperature $^{\circ}\text{F}$	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
7:10	3	7.48	4.97	71.9			
7:11	6	7.52	4.96	72.5			
7:13	9	7.55	5.02	72.8			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW 8	3 YEA	Y	HCL	Sequoia	TPH, BTEX, MTBE by 8260

COMMENTS: _____

L007066

Chain-of-Custody-Record



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

Facility Number UNOCAL SS# 1871
 Facility Address 96 MacArthur Blvd, Oakland
 Consultant Project Number 180068
 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) MR. DAVID DEWITT
 (Phone) (925) 277-2384
 Laboratory Name Sequoia Analytical
 Laboratory Release Number _____
 Samples Collected by (Name) JOE ASEMIAN
 Collection Date 7-10-00
 Signature [Signature]

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil W = Water C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	Analyses To Be Performed										DO NOT BILL TB-LB ANALYSIS	Remarks
								TPH Gas + BTEX w/MTBE (8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd, Cr, Pb, Zn, Ni (CAP or AA)				
✓ TB-LB		20A	W	G	—	HCC	Y	✓											MTBE by
✓ MW-1		20A			9:08	/	/	✓											8260
✓ MW-6		"			8:35	/	/	✓											(all wells)
✓ MW-7		"			7:58	/	/	✓											
✓ MW-8		"			7:25	/	/	✓											

Relinquished By (Signature) <u>[Signature]</u>	Organization G-R Inc.	Date/Time 7.10.00 2:30 PM	Received By (Signature) <u>[Signature]</u>	Organization	Date/Time 7/10/00 15:30	Turn Around Time (Circle Choice) 24 Hrs. 48 Hrs. 5 Days 10 Days <u>As Contracted</u>
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)	Organization	Date/Time	



Sequoia Analytical

1551 Industrial Road
San Carlos, CA 94070-4111
(650) 232-9600
FAX (650) 232-9612
www.sequoialabs.com

July 25, 2000

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

RE: Tosco(4)/L007066

Dear Deanna Harding:

Enclosed are the results of analyses for sample(s) received by the laboratory on July 10, 2000. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Wayne Stevenson
Project Manager

CA ELAP Certificate Number I-2360





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

Project: Tosco(4)
Project Number: Unocal SS#1871
Project Manager: Deanna Harding

Sampled: 7/10/00
Received: 7/10/00
Reported: 7/25/00

ANALYTICAL REPORT FOR L007066

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
TB-LB	L007066-01	Water	7/10/00
MW-1	L007066-02	Water	7/10/00
MW-6	L007066-03	Water	7/10/00
MW-7	L007066-04	Water	7/10/00
MW-8	L007066-05	Water	7/10/00





Gettler-Ryan/Geostrategies(1)	Project: Tosco(4)	Sampled: 7/10/00
6747 Sierra Court, Suite J	Project Number: Unocal SS#1871	Received: 7/10/00
Dublin, CA 94568	Project Manager: Deanna Harding	Reported: 7/25/00

Sample Description: TB-LB
Laboratory Sample Number: L007066-01

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method/ Surrogate Limits	Reporting Limit	Result	Units	Notes*
---------	--------------	---------------	---------------	--------------------------------------	-----------------	--------	-------	--------

Sequoia Analytical - San Carlos

Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT

Purgeable Hydrocarbons as Gasoline	0070058	7/14/00	7/14/00		50.0	ND	ug/l	
Benzene	"	"	"		0.500	ND	"	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		0.500	ND	"	
Methyl tert-butyl ether	"	"	"		5.00	ND	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>	"	"	"	70.0-130		103	%	





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite J Dublin, CA 94568	Project: Tosco(4) Project Number: Unocal SS#1871 Project Manager: Deanna Harding	Sampled: 7/10/00 Received: 7/10/00 Reported: 7/25/00
---	--	--

Sample Description: MW-1
Laboratory Sample Number: L007066-02

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method/ Surrogate Limits	Reporting Limit	Result	Units	Notes*
---------	--------------	---------------	---------------	--------------------------------------	-----------------	--------	-------	--------

Sequoia Analytical - San Carlos

Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT

Purgeable Hydrocarbons as Gasoline	0070068	7/18/00	7/18/00		10000	67800	ug/l	1
Benzene	"	"	"		100	9910	"	
Toluene	"	"	"		100	4120	"	
Ethylbenzene	"	"	"		100	3330	"	
Xylenes (total)	"	"	"		100	16100	"	
Methyl tert-butyl ether	"	"	"		2000	67400	"	2
Surrogate: a,a,a-Trifluorotoluene	"	"	"	70.0-130		121	%	

MTBE by EPA Method 8260A

Methyl tert-butyl ether	0070050	7/12/00	7/13/00		2000	54000	ug/l	
Surrogate: 1,2-Dichloroethane-d4	"	"	"	76.0-114		103	%	





Gettler-Ryan/Geostrategies(1)	Project: Tosco(4)	Sampled: 7/10/00
6747 Sierra Court, Suite J	Project Number: Unocal SS#1871	Received: 7/10/00
Dublin, CA 94568	Project Manager: Deanna Harding	Reported: 7/25/00

Sample Description: MW-6
Laboratory Sample Number: L007066-03

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method/ Surrogate Limits	Reporting Limit	Result	Units	Notes*
---------	--------------	---------------	---------------	--------------------------------------	-----------------	--------	-------	--------

Sequoia Analytical - San Carlos

Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT								
Purgeable Hydrocarbons as Gasoline	0070068	7/18/00	7/18/00		1000	5710	ug/l	1
Benzene	"	"	"		10.0	869	"	
Toluene	"	"	"		10.0	209	"	
Ethylbenzene	"	"	"		10.0	301	"	
Xylenes (total)	"	"	"		10.0	1430	"	
Methyl tert-butyl ether	"	"	"		500	22200	"	2
Surrogate: a,a,a-Trifluorotoluene	"	"	"	70.0-130		117	%	

MTBE by EPA Method 8260A								
Methyl tert-butyl ether	0070050	7/13/00	7/13/00		1000	19500	ug/l	
Surrogate: 1,2-Dichloroethane-d4	"	"	"	76.0-114		100	%	





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite J Dublin, CA 94568	Project: Tosco(4) Project Number: Unocal SS#1871 Project Manager: Deanna Harding	Sampled: 7/10/00 Received: 7/10/00 Reported: 7/25/00
---	--	--

Sample Description: MW-7
Laboratory Sample Number: L007066-04

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method/ Surrogate Limits	Reporting Limit	Result	Units	Notes*
---------	--------------	---------------	---------------	--------------------------------------	-----------------	--------	-------	--------

Sequoia Analytical - San Carlos

Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT

Purgeable Hydrocarbons as Gasoline	0070068	7/18/00	7/18/00		1000	ND	ug/l	
Benzene	"	"	"		10.0	ND	"	
Toluene	"	"	"		10.0	ND	"	
Ethylbenzene	"	"	"		10.0	ND	"	
Xylenes (total)	"	"	"		10.0	ND	"	
Methyl tert-butyl ether	"	"	"		500	16900	"	2
Surrogate: a,a,a-Trifluorotoluene	"	"	"	70.0-130		108	%	

MTBE by EPA Method 8260A

Methyl tert-butyl ether	0070050	7/13/00	7/13/00		500	13800	ug/l	
Surrogate: 1,2-Dichloroethane-d4	"	"	"	76.0-114		102	%	





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite J Dublin, CA 94568	Project: Tosco(4) Project Number: Unocal SS#1871 Project Manager: Deanna Harding	Sampled: 7/10/00 Received: 7/10/00 Reported: 7/25/00
---	--	--

Sample Description: MW-8
Laboratory Sample Number: L007066-05

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method/ Surrogate Limits	Reporting Limit	Result	Units	Notes*
---------	--------------	---------------	---------------	--------------------------------------	-----------------	--------	-------	--------

Sequoia Analytical - San Carlos

Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT

Purgeable Hydrocarbons as Gasoline	0070068	7/18/00	7/18/00		50.0	ND	ug/l	
Benzene	"	"	"		0.500	ND	"	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		0.500	ND	"	
Methyl tert-butyl ether	"	"	"		5.00	234	"	
Surrogate: a,a,a-Trifluorotoluene	"	"	"	70.0-130		118	%	

MTBE by EPA Method 8260A

Methyl tert-butyl ether	0070050	7/13/00	7/13/00		4.00	223	ug/l	
Surrogate: 1,2-Dichloroethane-d4	"	"	"	76.0-114		102	%	





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

Project: Tosco(4)
Project Number: Unocal SS#1871
Project Manager: Deanna Harding

Sampled: 7/10/00
Received: 7/10/00
Reported: 7/25/00

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

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0070058		Date Prepared: 7/14/00		Extraction Method: EPA 5030B [P/T]						
Blank		0070058-BLK1								
Purgeable Hydrocarbons as Gasoline	7/14/00			ND	ug/l	50.0				
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>	"	10.0		11.3	"	70.0-130	113			
LCS		0070058-BS1								
Benzene	7/14/00	10.0		8.49	ug/l	70.0-130	84.9			
Toluene	"	10.0		8.02	"	70.0-130	80.2			
Ethylbenzene	"	10.0		7.67	"	70.0-130	76.7			
Xylenes (total)	"	30.0		23.2	"	70.0-130	77.3			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	"	10.0		11.5	"	70.0-130	115			
LCS		0070058-BS2								
Purgeable Hydrocarbons as Gasoline	7/14/00	250		216	ug/l	70.0-130	86.4			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	"	10.0		10.8	"	70.0-130	108			
Matrix Spike		0070058-MS1		L007051-10						
Benzene	7/14/00	10.0	ND	9.54	ug/l	60.0-140	95.4			
Toluene	"	10.0	ND	9.16	"	60.0-140	91.6			
Ethylbenzene	"	10.0	ND	9.02	"	60.0-140	90.2			
Xylenes (total)	"	30.0	ND	26.8	"	60.0-140	89.3			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	"	10.0		10.7	"	70.0-130	107			
Matrix Spike Dup		0070058-MSD1		L007051-10						
Benzene	7/14/00	10.0	ND	10.0	ug/l	60.0-140	100	25.0	4.71	
Toluene	"	10.0	ND	9.66	"	60.0-140	96.6	25.0	5.31	
Ethylbenzene	"	10.0	ND	9.52	"	60.0-140	95.2	25.0	5.39	
Xylenes (total)	"	30.0	ND	28.6	"	60.0-140	95.3	25.0	6.50	
<i>Surrogate: a,a,a-Trifluorotoluene</i>	"	10.0		10.6	"	70.0-130	106			
Batch: 0070068		Date Prepared: 7/18/00		Extraction Method: EPA 5030B [P/T]						
Blank		0070068-BLK1								
Purgeable Hydrocarbons as Gasoline	7/18/00			ND	ug/l	50.0				
Benzene	"			ND	"	0.500				
Toluene	"			ND	"	0.500				
Ethylbenzene	"			ND	"	0.500				
Xylenes (total)	"			ND	"	0.500				





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite J Dublin, CA 94568	Project: Tosco(4) Project Number: Unocal SS#1871 Project Manager: Deanna Harding	Sampled: 7/10/00 Received: 7/10/00 Reported: 7/25/00
---	--	--

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

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)										
0070068-BLK1										
Methyl tert-butyl ether	7/18/00			ND	ug/l	5.00				
Surrogate: a,a,a-Trifluorotoluene	"	10.0		11.5	"	70.0-130	115			
LCS										
0070068-BS1										
Benzene	7/18/00	10.0		8.11	ug/l	70.0-130	81.1			
Toluene	"	10.0		7.47	"	70.0-130	74.7			
Ethylbenzene	"	10.0		7.40	"	70.0-130	74.0			
Xylenes (total)	"	30.0		22.6	"	70.0-130	75.3			
Surrogate: a,a,a-Trifluorotoluene	"	10.0		10.5	"	70.0-130	105			
LCS										
0070068-BS2										
Purgeable Hydrocarbons as Gasoline	7/18/00	250		257	ug/l	70.0-130	103			
Surrogate: a,a,a-Trifluorotoluene	"	10.0		11.3	"	70.0-130	113			
Matrix Spike										
0070068-MS1		L007067-05								
Benzene	7/18/00	10.0	ND	10.6	ug/l	60.0-140	106			
Toluene	"	10.0	ND	9.75	"	60.0-140	97.5			
Ethylbenzene	"	10.0	ND	9.83	"	60.0-140	98.3			
Xylenes (total)	"	30.0	ND	30.0	"	60.0-140	100			
Surrogate: a,a,a-Trifluorotoluene	"	10.0		10.8	"	70.0-130	108			
Matrix Spike Dup										
0070068-MSD1		L007067-05								
Benzene	7/18/00	10.0	ND	10.7	ug/l	60.0-140	107	25.0	0.939	
Toluene	"	10.0	ND	10.0	"	60.0-140	100	25.0	2.53	
Ethylbenzene	"	10.0	ND	10.1	"	60.0-140	101	25.0	2.71	
Xylenes (total)	"	30.0	ND	30.9	"	60.0-140	103	25.0	2.96	
Surrogate: a,a,a-Trifluorotoluene	"	10.0		10.9	"	70.0-130	109			





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite J Dublin, CA 94568	Project: Tosco(4) Project Number: Unocal SS#1871 Project Manager: Deanna Harding	Sampled: 7/10/00 Received: 7/10/00 Reported: 7/25/00
---	--	--

**MTBE by EPA Method 8260A/Quality Control
Sequoia Analytical - San Carlos**

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0070050			Date Prepared: 7/12/00			Extraction Method: EPA 5030B [P/T]				
Blank										
0070050-BLK1										
Methyl tert-butyl ether	7/12/00			ND	ug/l	2.00				
Surrogate: 1,2-Dichloroethane-d4	"	50.0		48.7	"	76.0-114	97.4			
Blank										
0070050-BLK2										
Methyl tert-butyl ether	7/13/00			ND	ug/l	2.00				
Surrogate: 1,2-Dichloroethane-d4	"	50.0		49.4	"	76.0-114	98.8			
LCS										
0070050-BS1										
Methyl tert-butyl ether	7/12/00	50.0		43.8	ug/l	70.0-130	87.6			
Surrogate: 1,2-Dichloroethane-d4	"	50.0		45.8	"	76.0-114	91.6			
LCS										
0070050-BS2										
Methyl tert-butyl ether	7/13/00	50.0		45.4	ug/l	70.0-130	90.8			
Surrogate: 1,2-Dichloroethane-d4	"	50.0		49.9	"	76.0-114	99.8			
Matrix Spike										
0070050-MS1 L007044-04										
Methyl tert-butyl ether	7/13/00	50.0	ND	53.2	ug/l	60.0-140	106			
Surrogate: 1,2-Dichloroethane-d4	"	50.0		52.6	"	76.0-114	105			
Matrix Spike Dup										
0070050-MSD1 L007044-04										
Methyl tert-butyl ether	7/13/00	50.0	ND	49.1	ug/l	60.0-140	98.2	25.0	7.64	
Surrogate: 1,2-Dichloroethane-d4	"	50.0		50.1	"	76.0-114	100			





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite J Dublin, CA 94568	Project: Tosco(4)	Sampled: 7/10/00
	Project Number: Unocal SS#1871	Received: 7/10/00
	Project Manager: Deanna Harding	Reported: 7/25/00

Notes and Definitions

#	Note
---	------

- 1 Chromatogram Pattern: Gasoline C6-C12
- 2 MTBE was reported from second analysis.
- 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
- Recov. Recovery
- RPD Relative Percent Difference

ENVIRONMENTAL
 PROTECTION
 00 OCT 12 PM 3:42

