



GETTLER-RYAN INC.

TRANSMITTAL

November 10, 1999

G-R #:180022

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4104

Response to Deely

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

CC: Mr. Keith Romstad
ERI
73 Digital Drive, Suite 100
Novato, California 94949

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

RE: Tosco(Unocal) SS #7176
7850 Amador Valley Blvd.
Dublin, California

WE HAVE ENCLOSED THE FOLLOWING:

COPIES	DATED	DESCRIPTION
1	November 9, 1999	Groundwater Monitoring and Sampling Report Fourth Quarter 1999 - Event of September 30, 1999

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 *November 23, 1999*, this report will be distributed to the following:

Enclosure

cc: Mr. Amir K. Gholami, REHS
Alameda County Health Care Services
1131 Harbor Bay Parkway
Alameda, California 94502

59 NOV 24 PM 2:51
NOI/DBL/OWJ
TY LNE/DBL/OWJ

agency/7176dbd.qmt



GETTLER - RYAN INC.

November 9, 1999
G-R Job #180022

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

FILE COPY

RE: Fourth Quarter 1999 Groundwater Monitoring & Sampling Report
Tosco (Unocal) Service Station #7176
7850 Amador Valley Boulevard
Dublin, California

Dear Mr. De Witt:

This report documents the quarterly groundwater monitoring and sampling event performed by Gettler-Ryan Inc. (G-R). On September 30, 1999, field personnel monitored and sampled five wells (U-1, U-2, U-3, MW-4, and MW-5) at the above referenced site.

Static groundwater levels were measured and all wells were checked for the presence of separate-phase hydrocarbons. Separate-phase hydrocarbons were not present in the wells. Static water level data and groundwater elevations are summarized in Table 1. Dissolved Oxygen Concentrations are summarized in Table 2. A Potentiometric Map is included as Figure 1.

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

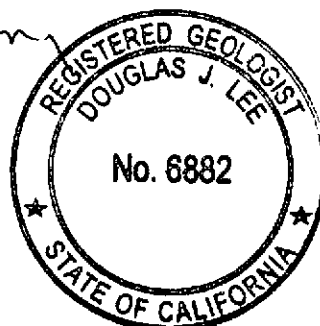
Sincerely,

Deanna L. Harding

Deanna L. Harding
Project Coordinator

Douglas J. Lee

Douglas J. Lee
Senior Geologist, R.G. No. 6882



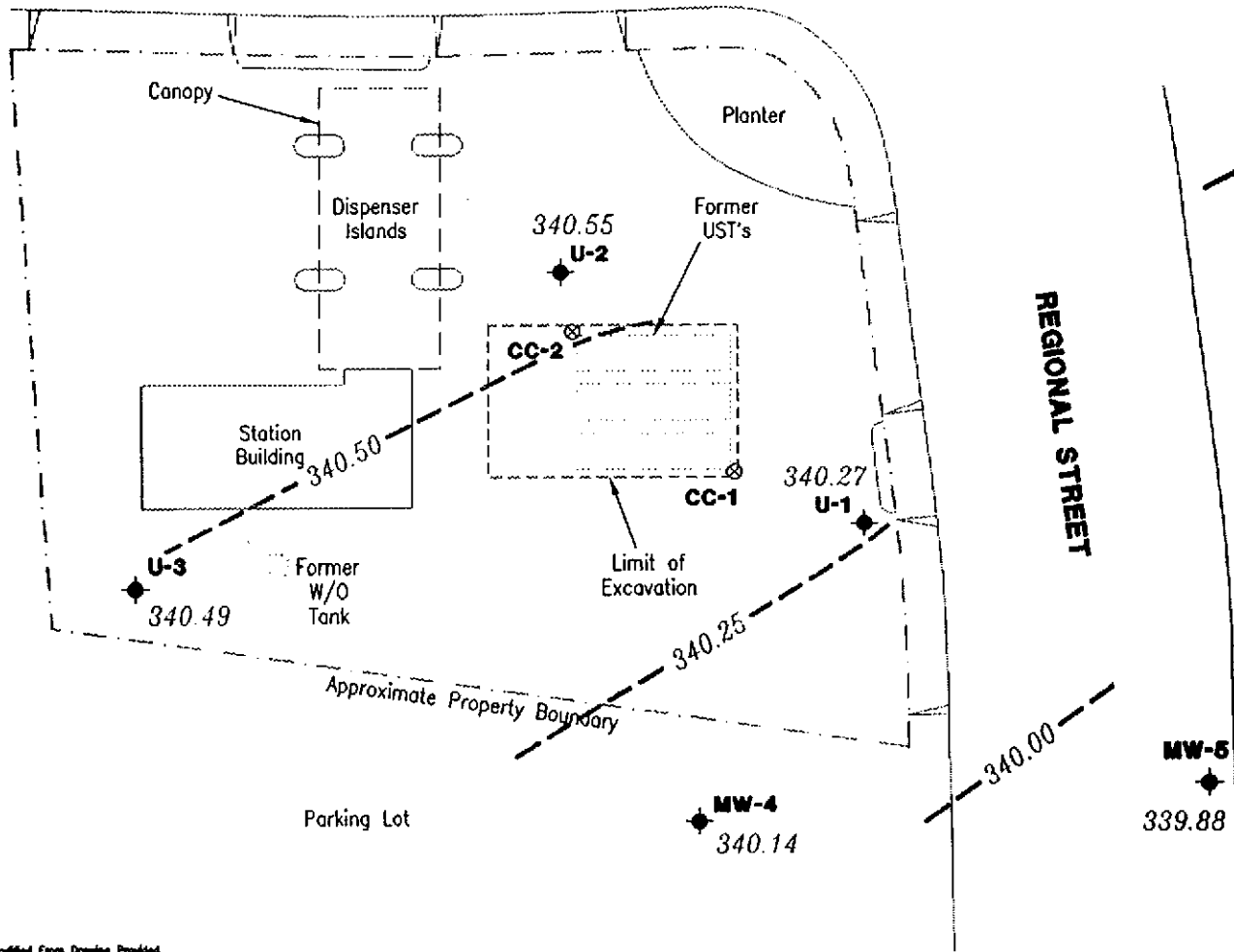
- Figure 1: Potentiometric Map
- Figure 2: Concentration Map
- Table 1: Groundwater Monitoring Data and Analytical Results
- Table 2: Dissolved Oxygen Concentrations
- Table 3: Groundwater Analytical Results - Oxygenate Compounds
- Attachments: Standard Operating Procedure - Groundwater Sampling
Field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

7176.qml

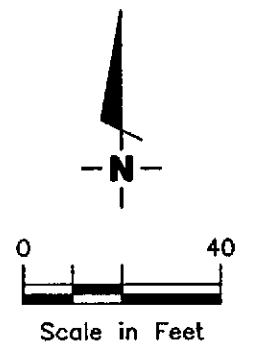
AMADOR VALLEY BOULEVARD

EXPLANATION

- ◆ Groundwater monitoring well
- ⊗ Conductor casing
- 99.99 Groundwater elevation in feet referenced to Mean Sea Level (MSL)
- 99.99 Groundwater elevation contour, dashed where inferred.



Approximate groundwater flow direction at a gradient of 0.004 Ft./Ft.



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



Gettler - Ryan Inc.

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Dublin, CA 94568

POTENTIOMETRIC MAP
Tosco (Unocal) Service Station No. 7176
7850 Amador Valley Boulevard
Dublin, California

FIGURE
1

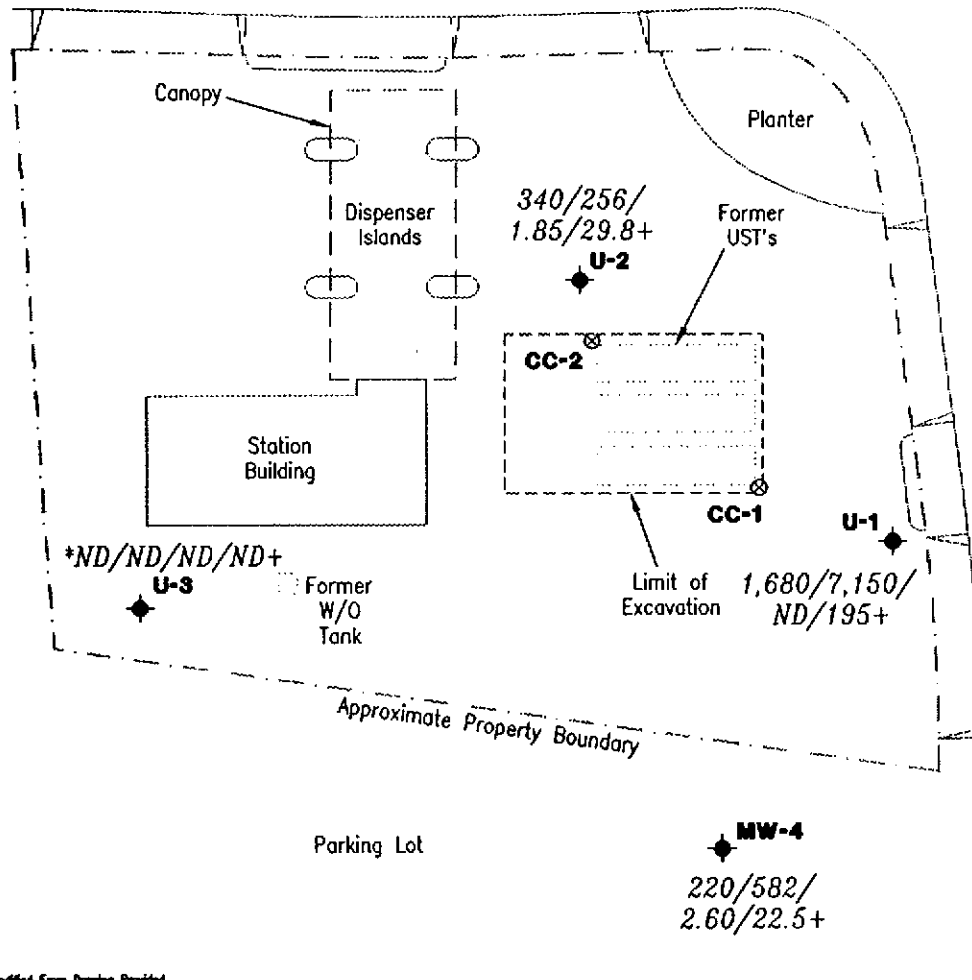
JOB NUMBER
180022

REVIEWED BY

DATE
September 30, 1999

REVISED DATE

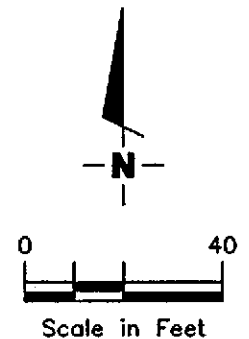
AMADOR VALLEY BOULEVARD



EXPLANATION

- ◆ Groundwater monitoring well
- ⊗ Conductor casing
- A/B/C/D TPH(D) (Total Petroleum Hydrocarbons as Diesel) with silica gel/TPH(G) (Total Petroleum Hydrocarbons as Gasoline)/Benzene/MTBE concentrations in ppb
- ND Not Detected
- * TPH(D) w/o silica gel clean-up
- + MTBE by EPA Method 8260

REGIONAL STREET



Source: Figures 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. 7176
 7850 Amador Valley Boulevard
 Dublin, California

FIGURE

2

JOB NUMBER
180022

REVIEWED BY

DATE
September 30, 1999

REVISED DATE

Table 1
Groundwater Monitoring Data and Analytical Results
 Tosco (Unocal) Service Station #7176
 7850 Amador Valley Boulevard
 Dublin, California

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)	TPH(D)♦ (ppb)	TPH(G) (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)	
U-1											
355.62		07/08/95	12.59	343.03	9,400 ³	39,000	1,500	19	1,600	5,200	--
		10/12/95	15.38	340.24	4,200 ⁵	33,000	1,400	ND	1,400	3,100	-- ⁷
		01/11/96 ¹	16.33	339.29	8,200 ⁵	8,300	690	11	680	1,500	-- ⁸
		04/11/96 ²	12.20	343.42	630 ⁵	3,200	110	ND	180	290	790
		07/10/96	13.84	341.78	2,200 ⁵	2,600	81	4.4	210	230	510
		10/30/96	15.85	339.77	560 ⁵	2,200	67	19	140	150	360
		01/27/97	12.20	343.42	2,300 ⁵	4,600	98	ND	360	290	150
		04/08/97	13.46	342.16	1,300 ⁵	2,800	50	ND	220	140	ND
		07/17/97	15.30	340.32	460 ⁶	2,300	30	4.5	140	94	190
		10/17/97	16.33	339.29	510 ⁶	1,500	31	6.7	110	88	220
	01/19/98	14.34	341.28	¹⁰ 1,900/1,300 ¹⁰	3,100	46	3.4	310	200	170	
355.59	NP	04/23/98	11.16	344.43	--/1,700 ¹¹	3,400	72	3.8	470	350	280
	NP	07/08/98	12.67	342.92	2,000 ¹⁴	4,500	51	ND ¹²	590	430	190
		10/05/98	14.57	341.02	--/2,500 ¹⁰	7,500 ¹⁶	53	ND ¹²	680	350	190/180 ¹⁷
		01/04/99	15.35	340.24	¹¹ 2,700/2,500 ¹¹	10,000 ¹⁹	ND ¹²	ND ¹²	1,200	540	ND ¹²
		04/05/99	13.64	341.95	¹⁰ 920/570 ¹⁰	4,900	34	ND ¹²	350	150	150/55 ¹⁷
		07/01/99	14.39	341.20	¹⁰ 2,700/3,600 ²⁶	10,000	45	ND ¹²	850	420	260/110 ¹⁷
		09/30/99	15.32	340.27	¹⁰ 2,360/1,680 ¹⁰	7,150 ²⁷	ND ¹²	ND ¹²	415	84.4	¹² ND/195 ¹⁷
U-2											
356.59		07/08/95	12.68	343.91	4,700 ³	17,000	430	ND	2,200	590	--
		10/12/95	16.01	340.58	3,600 ⁵	24,000	310	60	1,900	190	-- ⁷
		01/11/96 ¹	17.06	339.53	8,600 ⁵	10,000	210	55	1,400	240	-- ⁸
		04/11/96 ²	12.75	343.84	1,900 ⁵	7,700	130	27	1,100	110	340
		07/10/96	14.42	342.17	2,300 ⁵	5,600	59	15	610	42	250
		10/30/96	16.82	339.77	1,800 ⁵	7,700	67	35	1,000	54	260
		01/27/97	12.91	343.68	660 ⁵	1,600	14	ND	130	7.0	100
		04/08/97	14.07	342.52	2,000 ⁵	4,300	35	ND	400	16	ND
		07/17/97	15.96	340.63	1,300 ⁶	6,200	17	22	410	ND	130
		10/17/97	17.03	339.56	1,400 ⁶	7,100	71	26	520	50	ND
	01/19/98	15.10	341.49	¹⁰ 2,100/1,500 ¹⁰	5,300	46	11	350	16	110	
356.55	NP	04/23/98	11.74	344.81	--/1,200 ¹¹	3,200	23	11	210	38	160
	NP	07/08/98	13.27	343.28	1,100 ¹⁴	1,600	34	8.5	100	7.4	190
		10/05/98	14.90	341.65	--/1,300 ¹⁰	2,900 ¹⁸	37	8.4	110	7.3	78

Table 1
Groundwater Monitoring Data and Analytical Results
 Tosco (Unocal) Service Station #7176
 7850 Amador Valley Boulevard
 Dublin, California

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)	TPH(D) ♦ (ppb)	TPH(G) (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)	
U-2 (cont)	01/04/99	15.94	340.61	¹¹ 670/250 ²⁰	2,200 ²¹	35	ND ¹²	17	ND ¹²	86	
	04/05/99	14.19	342.36	¹⁰ 660/490 ¹⁰	4,900	21	77	130	310	100/6.9 ¹⁷	
	07/01/99	14.98	341.57	²⁴ 210/440 ²⁶	1,500 ²⁵	7.6	ND ¹²	ND ¹²	ND ¹²	¹² ND/35 ¹⁷	
	09/30/99	16.00	340.55	¹⁰ 483/340 ¹⁰	256 ²⁷	1.85	ND ¹²	2.42	ND ¹²	26.3/29.8 ¹⁷	
U-3 358.13	07/08/95	14.58	343.55	710 ³	1,100 ⁴	0.57	2.1	1.7	2.4	--	
	10/12/95	17.60	340.53	470 ⁶	560	ND	0.87	0.7	1.1	--	
	01/11/96 ¹	18.65	339.48	260 ⁶	230	0.62	0.91	0.97	1.9	--	
	04/11/96	13.20	344.93	ND	68 ⁹	ND	ND	ND	ND	ND	
	07/10/96	15.98	342.15	ND	ND	ND	ND	ND	ND	ND	
	10/30/96	18.24	339.89	ND	70	ND	ND	ND	ND	ND	
	01/27/97	14.41	343.72	ND	ND	ND	ND	ND	ND	ND	
	04/08/97	15.73	342.40	ND	ND	ND	ND	ND	ND	ND	
	07/17/97	17.54	340.59	ND	ND	ND	ND	ND	ND	ND	
	10/17/97	18.64	339.49	63 ⁶	ND	ND	ND	ND	ND	ND	
	01/19/98	16.67	341.46	¹⁰ 68/ND	ND	ND	ND	ND	ND	ND	
	358.09	NP	04/23/98	13.28	--/ND	ND	ND	ND	ND	ND	ND
			07/08/98	14.90	80 ¹⁵	ND	ND	ND	ND	ND	ND
		NP	10/05/98	16.50	341.59	--/ND	ND	ND	ND	ND	ND
			01/04/99	17.70	340.39	ND	ND	ND	ND	ND	ND
			04/05/99	15.67	342.42	ND	ND	ND	ND	ND	ND
			07/01/99	16.79	341.30	ND	ND	ND	ND	ND	ND/ND ¹⁷
09/30/99			17.60	340.49	ND	ND	ND	ND	ND	ND	
MW-4 356.41	04/23/98	12.11	344.30	--/1,400 ¹¹	2,500	5.9	6.4	16	31	ND ¹²	
	07/08/98	13.70	342.71	1,400 ¹¹	1,000 ¹³	ND ¹²	ND ¹²	ND ¹²	ND ¹²	ND ¹²	
	10/05/98	15.18	341.23	--/230 ¹⁰	890 ¹⁶	ND ¹²	ND ¹²	ND ¹²	14	ND ¹²	
	01/04/99	16.39	340.02	¹⁰ 71/71 ¹⁰	230 ²²	0.56	1.3	1.4	1.8	10	
	04/05/99	14.61	341.80	¹⁰ 340/210 ¹⁰	620 ²³	ND ¹²	1.8	2.1	ND ¹²	6.0/9.3 ¹⁷	
	07/01/99	15.43	340.98	²⁴ 260/310 ²⁶	700 ¹⁹	2.1	ND ¹²	1.9	2.4	¹² ND/21 ¹⁷	
	09/30/99	16.27	340.14	¹⁰ 420/220 ¹⁰	582 ²⁷	2.60	1.30	1.98	ND ¹²	23.1/22.5 ¹⁷	

Table 1
Groundwater Monitoring Data and Analytical Results
Tosco (Unocal) Service Station #7176
7850 Amador Valley Boulevard
Dublin, California

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)	TPH(D) ♦ (ppb)	TPH(G) (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-5										
355.03	04/23/98	11.15	343.88	--/100 ¹¹	120	0.53	0.90	1.0	3.8	13
	07/08/98	12.63	342.40	170 ¹⁰	ND	ND	ND	ND	ND	12
	10/05/98	14.00	341.03	--/100 ¹⁰	ND	ND	ND	ND	ND	12
	01/04/99	15.21	339.82	ND	ND	ND	ND	ND	ND	ND
	04/05/99	13.76	341.27	ND	ND	ND	ND	ND	ND	ND/ND ¹⁷
	07/01/99	14.48	340.55	ND	ND	ND	ND	ND	ND	¹² ND/2.3 ¹⁷
	09/30/99	15.15	339.88	¹⁰ 60.4/ND	50.8 ²⁷	ND	ND	ND	ND	ND/ND ¹⁷
Trip Blank										
TB-LB	01/19/98	--	--	--	ND	ND	ND	ND	ND	ND
	04/23/98	--	--	--	ND	ND	ND	ND	ND	ND
	07/08/98	--	--	--	ND	ND	ND	ND	ND	ND
	10/05/98	--	--	--	ND	ND	0.70	ND	0.71	ND
	01/04/99	--	--	--	ND	ND	0.74	ND	0.92	ND
	04/05/99	--	--	--	ND	ND	ND	ND	ND	ND
	07/01/99	--	--	--	ND	ND	ND	ND	ND	ND
	09/30/99	--	--	--	ND	ND	ND	ND	ND	ND

Table 1
Groundwater Monitoring Data and Analytical Results
 Tosco (Unocal) Service Station #7176
 7850 Amador Valley Boulevard
 Dublin, California

EXPLANATIONS:

Groundwater monitoring data and laboratory analytical results prior to January 19, 1998, were compiled from reports prepared by MPDS Services, Inc.

TOC = Top of Casing elevation	TPH(G) = Total Petroleum Hydrocarbons as Gasoline	
DTW = Depth to Water	B = Benzene	ppb = Parts per billion
(ft.) = Feet	T = Toluene	ND = Not Detected
GWE = Groundwater Elevation	E = Ethylbenzene	-- = Not Measured/Not Analyzed
msl = Relative to mean sea level	X = Xylenes	NP = No purge
TPH(D) = Total Petroleum Hydrocarbons as Diesel	MTBE = Methyl tertiary butyl ether	PNA = Polynuclear Aromatic Hydrocarbons

- * TOC elevations were surveyed relative to msl, per the Benchmark AM-STW1977 located at the easterly return at the most easterly corner of intersection at Amador Valley Boulevard and Starward Street (Elevation = 344.17 feet msl).
- ◆ Analytical results reported as follows: TPH(D)/TPH(D) with silica gel cleanup.
- 1 PNA compound naphthalene was detected in well U-1 at a concentration of 320 ppb, and at a concentration of 310 ppb in well U-2. All other PNA compounds were ND in both wells.
- 2 PNA compounds were ND.
- 3 Laboratory report indicates unidentified hydrocarbons C9-C26.
- 4 Laboratory report indicates gasoline and unidentified hydrocarbons >C12.
- 5 Laboratory report indicates the hydrocarbons detected appeared to be a diesel and non-diesel mixture.
- 6 Laboratory report indicates the hydrocarbons detected did not appear to be diesel.
- 7 Laboratory has potentially identified the presence of MTBE at reportable levels in the groundwater sample collected from this well.
- 8 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.
- 9 Laboratory report indicates the hydrocarbons detected did not appear to be gasoline.
- 10 Laboratory report indicates unidentified hydrocarbons C9-C24.
- 11 Laboratory report indicates diesel and unidentified hydrocarbons <C14.
- 12 Detection limit raised. Refer to analytical reports.
- 13 Laboratory report indicates unidentified hydrocarbons >C8.
- 14 Laboratory report indicates unidentified hydrocarbons <C14.
- 15 Laboratory report indicates discrete peaks.
- 16 Laboratory report indicates weathered gas C6-C12.
- 17 MTBE by EPA Method 8260.
- 18 Laboratory report indicates unidentified hydrocarbons <C8.
- 19 Laboratory report indicates gasoline and unidentified hydrocarbons C6-C12.
- 20 Laboratory report indicates diesel and unidentified hydrocarbons <C16.
- 21 Laboratory report indicates unidentified hydrocarbons C6-C12.
- 22 Laboratory report indicates gasoline and unidentified hydrocarbons >C10.
- 23 Laboratory report indicates gasoline and unidentified hydrocarbons <C7.
- 24 Laboratory report indicates unidentified hydrocarbons C10-C24.
- 25 Laboratory report indicates gasoline and unidentified hydrocarbons <C6.
- 26 Laboratory report indicates and unidentified hydrocarbons <C16.
- 27 Laboratory report indicates gasoline C6-C12.

Table 2
Dissolved Oxygen Concentrations
 Tosco (Unocal) Service Station #7176
 7850 Amador Valley Boulevard
 Dublin, California

Well ID	Date	Before Purging (mg/L)	After Purging (mg/L)
U-1	01/11/96	--	3.41
	04/11/96	3.77	3.78
	07/10/96 ¹	1.22	--
	10/30/96 ¹	1.41	--
	01/27/97 ¹	1.34	--
	04/08/97 ¹	2.09	--
	07/17/97 ¹	2.00	--
	10/17/97 ¹	1.86	--
	01/19/98 ¹	2.91	--
	04/23/98 ¹	0.59	--
	07/08/98 ¹	1.10	--
U-2	01/11/96	--	3.99
	04/11/96	3.32	3.41
	07/10/96 ¹	1.01	--
	10/30/96 ¹	1.42	--
	01/27/97 ¹	1.29	--
	04/08/97 ¹	1.69	--
	07/17/97 ¹	2.08	--
	10/17/97 ¹	1.80	--
	01/19/98 ¹	2.95	--
	04/23/98 ¹	0.55	--
	07/08/98 ¹	1.36	--
U-3	01/11/96	--	5.05
	04/11/96	5.16	4.96
	07/10/96 ¹	3.44	--
	10/30/96 ¹	2.18	--
	01/27/97 ¹	2.61	--
	04/08/97 ¹	3.73	--
	07/17/97 ¹	2.65	--
	10/17/97 ¹	2.44	--
	01/19/98 ¹	6.51	--
	04/23/98 ¹	4.72	--
	07/08/98 ¹	4.35	--
CC-1	10/02/95	2.83	--

EXPLANATIONS:

Dissolved oxygen concentrations prior to January 19, 1998, were compiled from reports prepared by MPDS Services, Inc.

CC-1 = Conductor casing in the underground storage tank backfill

-- = Not Measured

mg/L = milligrams per liter

¹ The wells were not purged on this date.

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

Table 3
Groundwater Analytical Results - Oxygenate Compounds
 Tosco (Unocal) Service Station #7176
 7850 Amador Valley Boulevard
 Dublin, California

Well ID	Date	Ethanol (ppb)	TBA (ppb)	MTBE (ppb)	DIPE (ppb)	ETBE (ppb)	TAME (ppb)	EDB (ppb)	1,2-DCA (ppb)
U-1	04/05/99	ND ¹	ND ¹	55	ND ¹	ND ¹	ND ¹	ND ¹	ND ¹
	07/01/99	ND	ND	110	ND	ND	ND	ND	ND
	09/30/99	ND ¹	ND ¹	195	ND ¹	ND ¹	ND ¹	ND ¹	ND ¹
U-2	04/05/99	ND ¹	ND ¹	6.9	ND ¹	ND ¹	ND ¹	ND ¹	ND ¹
	07/01/99	ND	ND	35	ND	ND	ND	ND	ND
	09/30/99	ND	ND	29.8	ND	ND	ND	ND	ND
U-3	04/05/99	ND	ND	ND	ND	ND	ND	ND	ND
	07/01/99	ND	ND	ND	ND	ND	ND	ND	ND
	09/30/99	ND	ND	ND	ND	ND	ND	ND	ND
MW-4	04/05/99	ND	ND	9.3	ND	ND	ND	ND	ND
	07/01/99	ND	ND	21	ND	ND	ND	ND	ND
	09/30/99	ND	ND	22.5	ND	ND	ND	ND	ND
MW-5	04/05/99	ND	ND	ND	ND	ND	ND	ND	ND
	07/01/99	ND	ND	2.3	ND	ND	ND	ND	ND
	09/30/99	ND	ND	ND	ND	ND	ND	ND	ND

Table 3
Groundwater Analytical Results - Oxygenate Compounds
Tosco (Unocal) Service Station #7176
7850 Amador Valley Boulevard
Dublin, California

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-Dibromomethane
1,2-DCA = 1,2-Dichloroethane
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 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, 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 # 7176
Address: 7850 Amador Valley Blvd.
City: Dublin

Job#: 180022
Date: 9-30-99
Sampler: Joe

Well ID U-1

Well Condition: O.K.

Well Diameter 2 in.

Hydrocarbon Thickness: 0 (feet) Amount Bailed (product/water): 0 (Gallons)

Total Depth 27.90 ft.

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

Depth to Water 15.32 ft.

12.58 x VF 0.17 = 2.14 x 3 (case volume) = Estimated Purge Volume: 6.5 (gal.)

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

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

Starting Time: 10:30
Sampling Time: 10:55 A.M.
Purging Flow Rate: 1 gpm.
Did well de-water? _____

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

Time	Volume (gal.)	pH	Conductivity $\mu\text{mhos/cm}^2 @ 25^\circ\text{C}$	Temperature $^\circ\text{F}$	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>10:40</u>	<u>2</u>	<u>7.15</u>	<u>1.35</u>	<u>73.6</u>			
<u>10:42</u>	<u>4</u>	<u>7.22</u>	<u>1.17</u>	<u>74.0</u>			
<u>10:43</u>	<u>6.5</u>	<u>7.27</u>	<u>1.22</u>	<u>73.1</u>			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-1</u>	<u>3 vol A</u>	<u>Y</u>	<u>KCL</u>	<u>SEQUOIA</u>	<u>TPHG, AT&T, MT&E</u>
<u>"</u>	<u>2 vol A</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>8260 oxy's EDB&EC</u>
<u>"</u>	<u>1 Amb</u>	<u>"</u>	<u>-</u>	<u>"</u>	<u>TPHD - Silica Gel</u>

COMMENTS: _____

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/
Facility # 7176
Address: 7850 Amador Valley Blvd.
City: Dublin

Job#: 180022
Date: 9-30-99
Sampler: Joe

Well ID U-2

Well Condition: O.K.

Well Diameter 2 in.

Hydrocarbon Thickness: 0 (feet) Amount Bailed (product/water): 0 (Gallons)

Total Depth 26.50 ft.

Depth to Water 16.00 ft.

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

10.5 X VF 0.17 = 1.79 X 3 (case volume) = Estimated Purge Volume: 6 (gal.)

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

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

Starting Time: 10:00

Weather Conditions: clear/hot

Sampling Time: 10:20 A.M.

Water Color: clear Odor: yes

Purging Flow Rate: 1 gpm.

Sediment Description: none

Did well de-water? _____

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

Time	Volume (gal.)	pH	Conductivity $\mu\text{mhos/cm}^2$	Temperature °F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>10:07</u>	<u>2</u>	<u>7.25</u>	<u>2.30</u>	<u>72.9</u>	_____	_____	_____
<u>10:09</u>	<u>4</u>	<u>7.31</u>	<u>2.32</u>	<u>73.6</u>	_____	_____	_____
<u>10:10</u>	<u>6</u>	<u>7.31</u>	<u>2.35</u>	<u>73.7</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-2</u>	<u>3 vol A</u>	<u>Y</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>TPHG, BTEX, MTBE</u>
<u>"</u>	<u>2 vol A</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>8260 Oxy's EDB/EDC</u>
<u>"</u>	<u>1 Amb</u>	<u>"</u>	<u>—</u>	<u>"</u>	<u>TPHD - Silica Gel</u>
_____	_____	_____	_____	_____	_____

COMMENTS: _____

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/
Facility # 7176
Address: 7850 Amador Valley Blvd.
City: Dublin

Job#: 180022
Date: 9-30-99
Sampler: Joe

Well ID U-3
Well Diameter 2 in.
Total Depth 28.50 ft.
Depth to Water 17.60 ft.

Well Condition: O.K.

Hydrocarbon Thickness:	(feet)	Amount Bailed (product/water):	(Gallons)
Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.80	

10.9 X VF 0.17 = 1.85 X 3 (case volume) = Estimated Purge Volume: 6 (gal.)

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

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

Starting Time: 8:10
Sampling Time: 8:35 A.M.
Purging Flow Rate: 1 gpm.
Did well de-water? _____

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

Time	Volume (gal.)	pH	Conductivity, $\mu\text{mhos/cm}^2$	Temperature $^{\circ}\text{F}$	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>8:20</u>	<u>2</u>	<u>7.48</u>	<u>7.17</u>	<u>74.1</u>			
<u>8:21</u>	<u>4</u>	<u>7.50</u>	<u>7.22</u>	<u>74.2</u>			
<u>8:23</u>	<u>6</u>	<u>7.45</u>	<u>7.25</u>	<u>74.1</u>			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-3</u>	<u>3 v o t</u>	<u>Y</u>	<u>KCL</u>	<u>SEQUOIA</u>	<u>TPH, BTEX, MTBE</u>
<u>"</u>	<u>2 v o t</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>8260 C & Y's EDB/EDC</u>
<u>"</u>	<u>1 Amb</u>	<u>"</u>	<u>-</u>	<u>"</u>	<u>TPHD - Silica Gel</u>

COMMENTS: _____

**WELL MONITORING/SAMPLING
FIELD DATA SHEET**

Client/
Facility # 7176
Address: 7850 Amador Valley Blvd.
City: Dublin

Job#: 180022
Date: 9-30-99
Sampler: Joe

Well ID MW-4
Well Diameter 2 in.
Total Depth 25.50 ft.
Depth to Water 16.27 ft.

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

9.23 X VF 0.17 = 1.57 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: 9:30
Sampling Time: 9:50 A.M.
Purging Flow Rate: 0.5 gpm.
Did well de-water? _____

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

Time	Volume (gal.)	pH	Conductivity, $\mu\text{mhos/cm}^2$	Temperature °F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>9:36</u>	<u>1.5</u>	<u>7.31</u>	<u>4.11</u>	<u>66.7</u>			
<u>9:38</u>	<u>3</u>	<u>7.36</u>	<u>3.96</u>	<u>66.2</u>			
<u>9:40</u>	<u>5</u>	<u>7.36</u>	<u>3.91</u>	<u>66.5</u>			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-4</u>	<u>3 vial</u>	<u>Y</u>	<u>KCL</u>	<u>SEQUOIA</u>	<u>TPHG, BTEX, MTBE</u>
<u>"</u>	<u>2 vial</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>8260 oxy's EOBTEOC</u>
<u>"</u>	<u>1 Amb</u>	<u>"</u>	<u>-</u>	<u>"</u>	<u>TPND - Silica Gel</u>

COMMENTS: _____

**WELL MONITORING/SAMPLING
FIELD DATA SHEET**

Client/
Facility # 7176
Address: 7850 Amador Valley Blvd.
City: Dublin

Job#: 180022
Date: 9-30-99
Sampler: Joe

Well ID MW-5

Well Condition: O.K.

Well Diameter 2 in.

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

Total Depth 25.00 ft.

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

Depth to Water 15.15 ft.

9.85 X VF 0.17 = 1.67 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: 8:47

Weather Conditions: clear/Hot

Sampling Time: 9:15 A.M.

Water Color: clear Odor: none

Purging Flow Rate: 0.5 gpm.

Sediment Description: none

Did well de-water? _____

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

Time	Volume (gal.)	pH	Conductivity $\mu\text{mhos/cm}^2$	Temperature $^{\circ}\text{F}$	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>9:00</u>	<u>1.5</u>	<u>7.80</u>	<u>6.38</u>	<u>65.9</u>	_____	_____	_____
<u>9:03</u>	<u>3</u>	<u>7.70</u>	<u>6.42</u>	<u>66.0</u>	_____	_____	_____
<u>9:05</u>	<u>5</u>	<u>7.62</u>	<u>6.45</u>	<u>66.3</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-5</u>	<u>3 v o t</u>	<u>Y</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>TPNG, BTEX, MTBE</u>
<u>"</u>	<u>2 v o t</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>8260 Cx4's ED14EDC</u>
<u>"</u>	<u>1 Amb</u>	<u>"</u>	<u>-</u>	<u>"</u>	<u>TPND-Silica Gel</u>
_____	_____	_____	_____	_____	_____

COMMENTS: _____



Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(4) Project Number: UNOCAL SS#7176, 180022.85 Project Manager: Deanna Harding	Sampled: 9/30/99 Received: 9/30/99 Reported: 10/27/99
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ANALYTICAL REPORT FOR L909279

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
TB-LB	L909279-01	Water	9/30/99
U-1	L909279-02	Water	9/30/99
U-2	L909279-03	Water	9/30/99
U-3	L909279-04	Water	9/30/99
MW-4	L909279-05	Water	9/30/99
MW-5	L909279-06	Water	9/30/99





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(4) Project Number: UNOCAL SS#7176, 180022.85 Project Manager: Deanna Harding	Sampled: 9/30/99 Received: 9/30/99 Reported: 10/27/99
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Sample Description: TB-LB
Laboratory Sample Number: L909279-01

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

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

Purgeable Hydrocarbons as Gasoline	9100061	10/13/99	10/13/99		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	"	
Surrogate: a,a,a-Trifluorotoluene	"	"	"	70.0-130		91.2	%	





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(4) Project Number: UNOCAL SS#7176, 180022.85 Project Manager: Deanna Harding	Sampled: 9/30/99 Received: 9/30/99 Reported: 10/27/99
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Sample Description: U-1
Laboratory Sample Number: L909279-02

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

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

Purgeable Hydrocarbons as Gasoline	9100061	10/13/99	10/14/99		5000	7150	ug/l	1
Benzene	"	"	"		50.0	ND	"	
Toluene	"	"	"		50.0	ND	"	
Ethylbenzene	"	"	"		50.0	415	"	
Xylenes (total)	"	"	"		50.0	84.4	"	
Methyl tert-butyl ether	"	"	"		500	ND	"	
Surrogate: a,a,a-Trifluorotoluene	"	"	"	70.0-130		86.4	%	

Volatile Organic Oxygenated Compounds by EPA Method 8260A

1,2-Dibromoethane	9100006	10/1/99	10/1/99		10.0	ND	ug/l	
1,2-Dichloroethane	"	"	"		10.0	ND	"	
Ethanol	"	"	10/2/99		5000	ND	"	
Tert-butyl alcohol	"	"	"		1000	ND	"	
Methyl tert-butyl ether	"	"	"		10.0	195	"	
Di-isopropyl ether	"	"	"		10.0	ND	"	
Ethyl tert-butyl ether	"	"	"		10.0	ND	"	
Tert-amyl methyl ether	"	"	"		10.0	ND	"	
Surrogate: 1,2-Dichloroethane-d4	"	"	"	76.0-114		102	%	

Diesel Hydrocarbons (C9-C24) by DHS LUFT

Diesel Range Hydrocarbons	9100176	10/6/99	10/9/99		50.0	2360	ug/l	2
Surrogate: n-Pentacosane	"	"	"	50.0-150		88.7	%	

Diesel Hydrocarbons (C9-C24) with Silica Gel Cleanup by DHS LUFT

Diesel Range Hydrocarbons	9100176	10/6/99	10/22/99		50.0	1680	ug/l	2
Surrogate: n-Pentacosane	"	"	"	40.0-140		70.3	%	





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(4) Project Number: UNOCAL SS#7176, 180022.85 Project Manager: Deanna Harding	Sampled: 9/30/99 Received: 9/30/99 Reported: 10/27/99
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Sample Description: U-2
Laboratory Sample Number: L909279-03

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

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

Purgeable Hydrocarbons as Gasoline	9100072	10/14/99	10/14/99		100	256	ug/l	1
Benzene	"	"	"		1.00	1.85	"	
Toluene	"	"	"		1.00	ND	"	
Ethylbenzene	"	"	"		1.00	2.42	"	
Xylenes (total)	"	"	"		1.00	ND	"	
Methyl tert-butyl ether	"	"	"		10.0	26.3	"	
Surrogate: <i>a,a,a-Trifluorotoluene</i>	"	"	"	70.0-130		98.8	%	

Volatile Organic Oxygenated Compounds by EPA Method 8260A

1,2-Dibromoethane	9100006	10/1/99	10/1/99		2.00	ND	ug/l	
1,2-Dichloroethane	"	"	"		2.00	ND	"	
Ethanol	"	"	"		1000	ND	"	
Tert-butyl alcohol	"	"	"		200	ND	"	
Methyl tert-butyl ether	"	"	"		2.00	29.8	"	
Di-isopropyl ether	"	"	"		2.00	ND	"	
Ethyl tert-butyl ether	"	"	"		2.00	ND	"	
Tert-amyl methyl ether	"	"	"		2.00	ND	"	
Surrogate: <i>1,2-Dichloroethane-d4</i>	"	"	"	76.0-114		105	%	

Diesel Hydrocarbons (C9-C24) by DHS LUFT

Diesel Range Hydrocarbons	9100176	10/6/99	10/9/99		50.0	483	ug/l	2
Surrogate: <i>n-Pentacosane</i>	"	"	"	50.0-150		88.9	%	

Diesel Hydrocarbons (C9-C24) with Silica Gel Cleanup by DHS LUFT

Diesel Range Hydrocarbons	9100176	10/6/99	10/25/99		50.0	340	ug/l	2
Surrogate: <i>n-Pentacosane</i>	"	"	"	40.0-140		82.0	%	





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(4) Project Number: UNOCAL SS#7176, 180022.85 Project Manager: Deanna Harding	Sampled: 9/30/99 Received: 9/30/99 Reported: 10/27/99
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Sample Description: U-3
Laboratory Sample Number: L909279-04

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

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

Purgeable Hydrocarbons as Gasoline	9100061	10/13/99	10/14/99		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		82.1	%	

Volatile Organic Oxxygenated Compounds by EPA Method 8260A

1,2-Dibromoethane	9100006	10/1/99	10/1/99		2.00	ND	ug/l	
1,2-Dichloroethane	"	"	"		2.00	ND	"	
Ethanol	"	"	"		1000	ND	"	
Tert-butyl alcohol	"	"	"		200	ND	"	
Methyl tert-butyl ether	"	"	"		2.00	ND	"	
Di-isopropyl ether	"	"	"		2.00	ND	"	
Ethyl tert-butyl ether	"	"	"		2.00	ND	"	
Tert-amyl methyl ether	"	"	"		2.00	ND	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	"	"	"	76.0-114		106	%	

Diesel Hydrocarbons (C9-C24) by DHS LUFT

Diesel Range Hydrocarbons	9100176	10/6/99	10/9/99		50.0	ND	ug/l	
<i>Surrogate: n-Pentacosane</i>	"	"	"	50.0-150		80.9	%	





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(4) Project Number: UNOCAL SS#7176, 180022.85 Project Manager: Deanna Harding	Sampled: 9/30/99 Received: 9/30/99 Reported: 10/27/99
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Sample Description: MW-4
Laboratory Sample Number: L909279-05

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

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

Purgeable Hydrocarbons as Gasoline	9100073	10/14/99	10/15/99		125	582	ug/l	1
Benzene	"	"	"		1.25	2.60	"	
Toluene	"	"	"		1.25	1.30	"	
Ethylbenzene	"	"	"		1.25	1.98	"	
Xylenes (total)	"	"	"		1.25	ND	"	
Methyl tert-butyl ether	"	"	"		12.5	23.1	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>	"	"	"	70.0-130		91.8	%	

Volatile Organic Oxygenated Compounds by EPA Method 8260A

1,2-Dibromoethane	9100006	10/1/99	10/1/99		2.00	ND	ug/l	
1,2-Dichloroethane	"	"	"		2.00	ND	"	
Ethanol	"	"	"		1000	ND	"	
Tert-butyl alcohol	"	"	"		200	ND	"	
Methyl tert-butyl ether	"	"	"		2.00	22.5	"	
Di-isopropyl ether	"	"	"		2.00	ND	"	
Ethyl tert-butyl ether	"	"	"		2.00	ND	"	
Tert-amyl methyl ether	"	"	"		2.00	ND	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	"	"	"	76.0-114		113	%	

Diesel Hydrocarbons (C9-C24) by DHS LUFT

Diesel Range Hydrocarbons	9100176	10/6/99	10/9/99		50.0	420	ug/l	2
<i>Surrogate: n-Pentacosane</i>	"	"	"	50.0-150		83.4	%	

Diesel Hydrocarbons (C9-C24) with Silica Gel Cleanup by DHS LUFT

Diesel Range Hydrocarbons	9100176	10/6/99	10/25/99		50.0	220	ug/l	2
<i>Surrogate: n-Pentacosane</i>	"	"	"	40.0-140		74.0	%	





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(4) Project Number: UNOCAL SS#7176, 180022.85 Project Manager: Deanna Harding	Sampled: 9/30/99 Received: 9/30/99 Reported: 10/27/99
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Sample Description: MW-5
Laboratory Sample Number: L909279-06

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

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

Purgeable Hydrocarbons as Gasoline	9100061	10/13/99	10/14/99		50.0	50.8	ug/l	1
Benzene	"	"	"		0.500	ND	"	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		0.500	ND	"	
Methyl tert-butyl ether	"	"	"		5.00	ND	"	
Surrogate: <i>a,a,a-Trifluorotoluene</i>	"	"	"	70.0-130		86.6	%	

Volatile Organic Oxygenated Compounds by EPA Method 8260A

1,2-Dibromoethane	9100006	10/1/99	10/1/99		2.00	ND	ug/l	
1,2-Dichloroethane	"	"	"		2.00	ND	"	
Ethanol	"	"	"		1000	ND	"	
Tert-butyl alcohol	"	"	"		200	ND	"	
Methyl tert-butyl ether	"	"	"		2.00	ND	"	
Di-isopropyl ether	"	"	"		2.00	ND	"	
Ethyl tert-butyl ether	"	"	"		2.00	ND	"	
Tert-amyl methyl ether	"	"	"		2.00	ND	"	
Surrogate: <i>1,2-Dichloroethane-d4</i>	"	"	"	76.0-114		106	%	

Diesel Hydrocarbons (C9-C24) by DHS LUFT

Diesel Range Hydrocarbons	9100176	10/6/99	10/9/99		50.0	60.4	ug/l	2
Surrogate: <i>n-Pentacosane</i>	"	"	"	50.0-150		90.7	%	

Diesel Hydrocarbons (C9-C24) with Silica Gel Cleanup by DHS LUFT

Diesel Range Hydrocarbons	9100176	10/6/99	10/25/99		50.0	ND	ug/l	
Surrogate: <i>n-Pentacosane</i>	"	"	"	40.0-140		81.0	%	





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(4) Project Number: UNOCAL SS#7176, 180022.85 Project Manager: Deanna Harding	Sampled: 9/30/99 Received: 9/30/99 Reported: 10/27/99
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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: 9100061		Date Prepared: 10/13/99			Extraction Method: EPA 5030B [P/T]					
Blank		9100061-BLK1								
Purgeable Hydrocarbons as Gasoline	10/13/99			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				
Surrogate: a,a,a-Trifluorotoluene	"	10.0		8.55	"	70.0-130	85.5			
LCS		9100061-BS1								
Benzene	10/13/99	10.0		7.74	ug/l	70.0-130	77.4			
Toluene	"	10.0		7.69	"	70.0-130	76.9			
Ethylbenzene	"	10.0		7.75	"	70.0-130	77.5			
Xylenes (total)	"	30.0		23.3	"	70.0-130	77.7			
Surrogate: a,a,a-Trifluorotoluene	"	10.0		7.73	"	70.0-130	77.3			
LCS		9100061-BS2								
Purgeable Hydrocarbons as Gasoline	10/13/99	250		248	ug/l	70.0-130	99.2			
Surrogate: a,a,a-Trifluorotoluene	"	10.0		7.89	"	70.0-130	78.9			
Matrix Spike		9100061-MS1		L910030-01						
Purgeable Hydrocarbons as Gasoline	10/13/99	250	ND	253	ug/l	60.0-140	101			
Surrogate: a,a,a-Trifluorotoluene	"	10.0		9.30	"	70.0-130	93.0			
Matrix Spike Dup		9100061-MSD1		L910030-01						
Purgeable Hydrocarbons as Gasoline	10/13/99	250	ND	253	ug/l	60.0-140	101	25.0	0	
Surrogate: a,a,a-Trifluorotoluene	"	10.0		9.09	"	70.0-130	90.9			
Batch: 9100072		Date Prepared: 10/14/99			Extraction Method: EPA 5030B [P/T]					
Blank		9100072-BLK1								
Purgeable Hydrocarbons as Gasoline	10/14/99			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				
Surrogate: a,a,a-Trifluorotoluene	"	10.0		9.06	"	70.0-130	90.6			
LCS		9100072-BS1								
Benzene	10/14/99	10.0		7.77	ug/l	70.0-130	77.7			
Toluene	"	10.0		7.72	"	70.0-130	77.2			





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(4) Project Number: UNOCAL SS#7176, 180022.85 Project Manager: Deanna Harding	Sampled: 9/30/99 Received: 9/30/99 Reported: 10/27/99
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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*
LCS (continued) 9100072-BS1										
Ethylbenzene	10/14/99	10.0		7.83	ug/l	70.0-130	78.3			
Xylenes (total)	"	30.0		23.3	"	70.0-130	77.7			
Surrogate: a,a,a-Trifluorotoluene	"	10.0		8.46	"	70.0-130	84.6			
LCS 9100072-BS2										
Purgeable Hydrocarbons as Gasoline	10/14/99	250		251	ug/l	70.0-130	100			
Surrogate: a,a,a-Trifluorotoluene	"	10.0		7.83	"	70.0-130	78.3			
Matrix Spike 9100072-MS1 L910032-05										
Benzene	10/14/99	10.0	ND	8.47	ug/l	60.0-140	84.7			
Toluene	"	10.0	ND	8.24	"	60.0-140	82.4			
Ethylbenzene	"	10.0	ND	8.46	"	60.0-140	84.6			
Xylenes (total)	"	30.0	ND	25.1	"	60.0-140	83.7			
Surrogate: a,a,a-Trifluorotoluene	"	10.0		8.14	"	70.0-130	81.4			
Matrix Spike Dup 9100072-MSD1 L910032-05										
Benzene	10/15/99	10.0	ND	8.56	ug/l	60.0-140	85.6	25.0	1.06	
Toluene	"	10.0	ND	8.28	"	60.0-140	82.8	25.0	0.484	
Ethylbenzene	"	10.0	ND	8.55	"	60.0-140	85.5	25.0	1.06	
Xylenes (total)	"	30.0	ND	25.4	"	60.0-140	84.7	25.0	1.19	
Surrogate: a,a,a-Trifluorotoluene	"	10.0		8.28	"	70.0-130	82.8			
Batch: 9100073 Date Prepared: 10/14/99 Extraction Method: EPA 5030B (P/T)										
Blank 9100073-BLK1										
Purgeable Hydrocarbons as Gasoline	10/14/99			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			
Surrogate: a,a,a-Trifluorotoluene	"	10.0		8.74	"	70.0-130	87.4			
LCS 9100073-BS1										
Benzene	10/14/99	10.0		8.00	ug/l	70.0-130	80.0			
Toluene	"	10.0		7.51	"	70.0-130	75.1			
Ethylbenzene	"	10.0		7.67	"	70.0-130	76.7			
Xylenes (total)	"	30.0		22.5	"	70.0-130	75.0			
Surrogate: a,a,a-Trifluorotoluene	"	10.0		8.23	"	70.0-130	82.3			
LCS 9100073-BS2										
Purgeable Hydrocarbons as Gasoline	10/14/99	250		245	ug/l	70.0-130	98.0			





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(4) Project Number: UNOCAL SS#7176, 180022.85 Project Manager: Deanna Harding	Sampled: 9/30/99 Received: 9/30/99 Reported: 10/27/99
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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*
LCS (continued)										
9100073-BS2										
Surrogate: <i>a,a,a</i> -Trifluorotoluene	10/14/99	10.0		8.40	ug/l	70.0-130	84.0			
Matrix Spike										
9100073-MS1 L910033-03										
Benzene	10/15/99	10.0	ND	7.83	ug/l	60.0-140	78.3			
Toluene	"	10.0	ND	7.51	"	60.0-140	75.1			
Ethylbenzene	"	10.0	ND	7.56	"	60.0-140	75.6			
Xylenes (total)	"	30.0	ND	22.1	"	60.0-140	73.7			
Surrogate: <i>a,a,a</i> -Trifluorotoluene	"	10.0		8.35	"	70.0-130	83.5			
Matrix Spike Dup										
9100073-MSD1 L910033-03										
Benzene	10/15/99	10.0	ND	7.14	ug/l	60.0-140	71.4	25.0	9.22	
Toluene	"	10.0	ND	6.84	"	60.0-140	68.4	25.0	9.34	
Ethylbenzene	"	10.0	ND	6.97	"	60.0-140	69.7	25.0	8.12	
Xylenes (total)	"	30.0	ND	20.1	"	60.0-140	67.0	25.0	9.52	
Surrogate: <i>a,a,a</i> -Trifluorotoluene	"	10.0		7.72	"	70.0-130	77.2			





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

Project: Tosco(4)
Project Number: UNOCAL SS#7176, 180022.85
Project Manager: Deanna Harding

Sampled: 9/30/99
Received: 9/30/99
Reported: 10/27/99

Volatile Organic Oxygenated Compounds 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*
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Batch: 9100006

Date Prepared: 10/1/99

Extraction Method: EPA 5030B (P/T)

Blank

9100006-BLK1

1,2-Dibromoethane	10/1/99			ND	ug/l	2.00				
1,2-Dichloroethane	"			ND	"	2.00				
Ethanol	"			ND	"	1000				
Tert-butyl alcohol	"			ND	"	200				
Methyl tert-butyl ether	"			ND	"	2.00				
Di-isopropyl ether	"			ND	"	2.00				
Ethyl tert-butyl ether	"			ND	"	2.00				
Tert-amyl methyl ether	"			ND	"	2.00				
Surrogate: 1,2-Dichloroethane-d4	"	50.0		50.7	"	76.0-114	101			

LCS

9100006-BS1

Methyl tert-butyl ether	10/1/99	50.0		42.0	ug/l	70.0-130	84.0			
Surrogate: 1,2-Dichloroethane-d4	"	50.0		50.6	"	76.0-114	101			

Matrix Spike

9100006-MS1

L909270-06

Methyl tert-butyl ether	10/1/99	50.0	ND	40.9	ug/l	60.0-140	81.8			
Surrogate: 1,2-Dichloroethane-d4	"	50.0		50.0	"	76.0-114	100			

Matrix Spike Dup

9100006-MSD1

L909270-06

Methyl tert-butyl ether	10/1/99	50.0	ND	42.2	ug/l	60.0-140	84.4	25.0	3.13	
Surrogate: 1,2-Dichloroethane-d4	"	50.0		50.8	"	76.0-114	102			





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(4) Project Number: UNOCAL SS#7176, 180022.85 Project Manager: Deanna Harding	Sampled: 9/30/99 Received: 9/30/99 Reported: 10/27/99
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**Diesel Hydrocarbons (C9-C24) by DHS LUFT/Quality Control
Sequoia Analytical - Morgan Hill**

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 9100176		Date Prepared: 10/6/99			Extraction Method: EPA 3510B					
Blank		9100176-BLK1								
Diesel Range Hydrocarbons	10/9/99			ND	mg/l	0.0500				
Surrogate: <i>n</i> -Pentacosane	"	0.100		0.0920	"	50.0-150	92.0			
LCS		9100176-BS1								
Diesel Range Hydrocarbons	10/9/99	1.00		0.820	mg/l	60.0-140	82.0			
Surrogate: <i>n</i> -Pentacosane	"	0.100		0.0954	"	50.0-150	95.4			
LCS Dup		9100176-BSD1								
Diesel Range Hydrocarbons	10/11/99	1.00		0.822	mg/l	60.0-140	82.2	50.0	0.244	
Surrogate: <i>n</i> -Pentacosane	"	0.100		0.0943	"	50.0-150	94.3			





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(4) Project Number: UNOCAL SS#7176, 180022.85 Project Manager: Deanna Harding	Sampled: 9/30/99 Received: 9/30/99 Reported: 10/27/99
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**Diesel Hydrocarbons (C9-C24) with Silica Gel Cleanup by DHS LUFT/Quality Control
Sequoia Analytical - Morgan Hill**

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 9100176		Date Prepared: 10/6/99			Extraction Method: EPA 3510B					
Blank		9100176-BLK1								
Diesel Range Hydrocarbons	10/22/99			ND	mg/l	0.0500				
Surrogate: n-Pentacosane	"	0.100		0.0848	"	40.0-140	84.8			
LCS		9100176-BS1								
Diesel Range Hydrocarbons	10/23/99	1.00		0.702	mg/l	40.0-140	70.2			
Surrogate: n-Pentacosane	"	0.100		0.0816	"	40.0-140	81.6			
LCS Dup		9100176-BSD1								
Diesel Range Hydrocarbons	10/23/99	1.00		0.481	mg/l	40.0-140	48.1	50.0	37.4	
Surrogate: n-Pentacosane	"	0.100		0.0525	"	40.0-140	52.5			





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(4) Project Number: UNOCAL SS#7176, 180022.85 Project Manager: Deanna Harding	Sampled: 9/30/99 Received: 9/30/99 Reported: 10/27/99
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Notes and Definitions

#	Note
1	Chromatogram Pattern: Gasoline C6-C12
2	Chromatogram Pattern: Unidentified Hydrocarbons C9-C24
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

