

# GETTLER-RYAN INC.

## TRANSMITTAL

November 10, 1999

G-R #:180022

54104

NESPORDED to DECLY

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

SHOWER PROTECTION OF SE

agency/7176dbd.qmt

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.

No. 6882

Sincerely.

Deanna L. Harding

Project Coordinator

Douglas 7. 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:

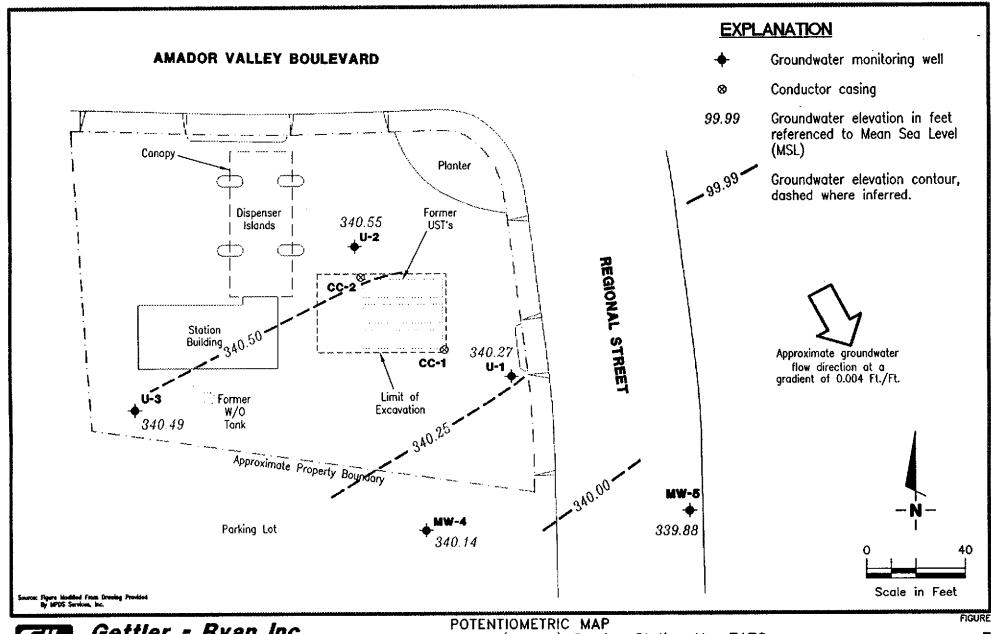
Groundwater Analytical Results - Oxygenate Compounds

Attachments:

Standard Operating Procedure - Groundwater Sampling

Field Data Sheets

Chain of Custody Document and Laboratory Analytical Reports





Gettler - Ryan Inc.

6747 Sierra Ct., Suite J Dublin, CA 94568

(925) 551-7555

Tosco (Unocal) Service Station No. 7176 7850 Amador Valley Boulevard

Dublin, California

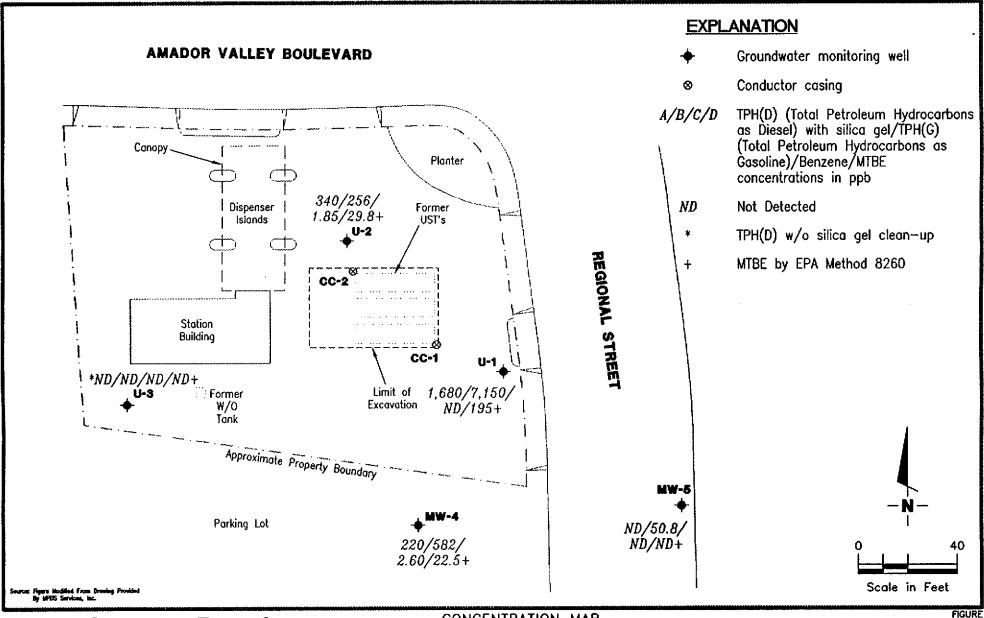
DATE

September 30, 1999

JOB NUMBER 180022

REVIEWED BY

REVISED DATE





Gettler - Ryan Inc.

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

CONCENTRATION MAP

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

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

					Dublin	i, Californ <u>ia</u>					
Well ID/	- 1 00	Date	DTW	GWE	TPH(D) ◆	TPH(G)	В	T	E	X	MTBE
TOC*			(ft.)	(msl)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
U-1		07/09/05	12.59	343.03	9,400 <sup>3</sup>	39,000	1,500	19	1,600	5,200	
355.62		07/08/95		340.24	4,2005	33,000	1,400	ND	1,400	3,100	7
		10/12/95	15.38	340.24	8,200 <sup>5</sup>	8,300	690	11	680	1,500	8
		01/11/961	16.33		630 <sup>5</sup>	3,200	110	ND	180	290	790
		04/11/96 <sup>2</sup>	12.20	343.42	2,200 <sup>5</sup>	2,600	81	4.4	210	230	510
		07/10/96	13.84	341.78	560 <sup>5</sup>	2,300	67	19	140	150	360
		10/30/96	15.85	339.77	2,300 <sup>5</sup>	4,600	98	ND	360	290	150
	1	01/27/97	12.20	343.42	1,300 <sup>5</sup>	2,800	50	ND	220	140	ND
		04/08/97	13.46	342.16	460 <sup>6</sup>	2,300	30	4.5	140	94	190
		07/17/97	15.30	340.32	510 <sup>6</sup>	2,300 1,500	31	6.7	110	88	220
		10/17/97	16.33	339.29	101,900/1,300 <sup>10</sup>	3,100	46	3.4	310	200	170
		01/19/98	14.34	341.28	/1,700 <sup>11</sup>	3,400	72	3.8	470	350	280
355.59	NP	04/23/98	11.16	344.43	2,000 <sup>14</sup>	3,400 4,500	72 51	ND <sup>12</sup>	590	430	190
	NP	07/08/98	12.67	342.92	/2,500 <sup>10</sup>	7,500 <sup>16</sup>	53	ND <sup>12</sup>	680	350	190/180 <sup>17</sup>
		10/05/98	14.57	341.02	112,700/2,500 <sup>11</sup>	10,000 <sup>19</sup>	ND <sup>12</sup>	ND <sup>12</sup>	1,200	540	ND <sup>12</sup>
		01/04/99	15.35	340.24	<sup>10</sup> 920/570 <sup>10</sup>		34	ND <sup>12</sup>	350	150	150/55 <sup>17</sup>
		04/05/99	13.64	341.95	$920/370$ $10^{2}$ , $700/3$ , $600^{26}$	4,900	45	ND <sup>12</sup>	850	420	260/110 <sup>17</sup>
		07/01/99	14.39	341.20	<sup>10</sup> 2,360/1,680 <sup>10</sup>	10,000 <b>7,150<sup>27</sup></b>	ND <sup>12</sup>	ND <sup>12</sup>	415	84.4	<sup>12</sup> ND/195 <sup>17</sup>
		09/30/99	15.32	340.27	2,300/1,000	7,150	ND	ND	413	04.4	1127770
TT 0											
U-2		07/08/95	12.68	343.91	$4,700^3$	17,000	430	ND	2,200	590	
356.59		10/12/95	16.01	340.58	3,600 <sup>5</sup>	24,000	310	60	1,900	190	
		01/11/96 <sup>1</sup>	17.06	339,53	8,600 <sup>5</sup>	10,000	210	55	1,400	240	8
		$01/11/96^2$	12.75	343.84	1,900 <sup>5</sup>	7,700	130	27	1,100	110	340
		07/10/96	14.42	342.17	2,300 <sup>5</sup>	5,600	59	15	610	42	250
		10/30/96	16.82	339.77	1,800 <sup>5</sup>	7,700	67	35	1,000	54	260
			12.91	343.68	660 <sup>5</sup>	1,600	14	ND	130	7.0	100
		01/27/97	14.07	342.52	2,000 <sup>5</sup>	4,300	35	ND	400	16	ND
		04/08/97			1,300 <sup>6</sup>	6,200	17	22	410	ND	130
		07/17/97	15.96	340.63	1,400 <sup>6</sup>	7,100	71	26	520	50	ND
		10/17/97	17.03	339.56	1,400 102,100/1,500	5,300	46	11	350	16	110
		01/19/98	15.10	341.49	/1,200 <sup>11</sup>	3,200	23	11	210	38	160
356.55	NP	04/23/98	11.74	344.81	1,100 <sup>14</sup>	1,600	34	8.5	100	7.4	190
	NP	07/08/98	13.27	343.28	/1,300 <sup>10</sup>	2,900 <sup>18</sup>	37	8.4	110	7.3	78
		10/05/98	14.90	341.65	11,300	4,500	31	0.4	110		, ,

Table 1
Groundwater Monitoring Data and Analytical Results

Tosco (Unocal) Service Station #7176 7850 Amador Valley Boulevard Dublin, California

						mii, Camornia		T	E	X	MTBE
Well ID/	i '	Date	DTW	GWE	TPH(D) ◆	<b>TPH(G)</b>	B	(ppb)	e (ppb)	A (ppb)	(ppb)
TOC*			(ft.)	(msl)	(ppb)	(ppb)	(ppb)	(VPU)	(PPO)	When	A.ha.i
		01/04/99	15.94	340.61	<sup>11</sup> 670/250 <sup>20</sup>	$2,200^{21}$	35	$ND^{12}$	17	$\mathrm{ND}^{12}$	86
U-2		04/05/99	13.94	342.36	10660/490 <sup>10</sup>	4,900	21	77	130	310	100/6.9 <sup>17</sup>
(cont)		04/03/99	14.19	341.57	<sup>24</sup> 210/440 <sup>26</sup>	1,500 <sup>25</sup>	7.6	$ND^{12}$	$ND^{12}$	$ND^{12}$	<sup>12</sup> ND/35 <sup>17</sup>
		07/01/99 <b>09/30/99</b>	16.00	340.55	10483/340 <sup>10</sup>	256 <sup>27</sup>	1.85	$ND^{12}$	2.42	$ND^{12}$	26.3/29.8 <sup>17</sup>
U-3											
358.13		07/08/95	14.58	343.55	$710^{3}$	1,1004	0.57	2.1	1.7	2.4	
		10/12/95	17.60	340.53	470 <sup>6</sup>	560	ND	0.87	0.7	1.1	
		01/11/96 <sup>1</sup>	18.65	339.48	260 <sup>6</sup>	230	0.62	0.91	0.97	1.9	
		04/11/96	13.20	344.93	ND	68 <sup>9</sup>	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 <sup>6</sup>	ND	ND	ND	ND	ND	ND
		01/19/98	16.67	341.46	<sup>10</sup> 68/ND	ND	ND	ND	ND	ND	ND
358.09	NP	04/23/98	13.28	344.81	/ND	ND	ND	ND	ND	ND	ND
	NP	07/08/98	14.90	343.19	8015	ND	ND	ND	ND	ND	ND
		10/05/98	16.50	341.59	/ND	ND	ND	ND	ND	ND	ND
		01/04/99	17.70	340.39	ND	ND	ND	ND	ND	ND	ND
		04/05/99	15.67	342.42	ND	ND	ND	. ND	ND .	ND	ND/ND <sup>17</sup>
		07/01/99	16.79	341.30	ND	ND	ND	ND	ND	ND	ND/ND <sup>17</sup>
		09/30/99	17.60	340.49	ND	ND	ND	ND	ND	ND	ND/ND <sup>17</sup>
MW-4				244.20	/1,40011	2,500	5.9	6.4	16	31	$ND^{12}$
356.41		04/23/98	12.11	344.30	1,400	1,000 <sup>13</sup>	ND <sup>12</sup>	$ND^{12}$	$ND^{12}$	ND <sup>12</sup>	$ND^{12}$
		07/08/98	13.70	342.71	/230 <sup>10</sup>	890 <sup>16</sup>	ND <sup>12</sup>	ND <sup>12</sup>	ND <sup>12</sup>	14	$ND^{12}$
		10/05/98	15.18	341.23		230 <sup>22</sup>	0.56		1.4	1.8	10
		01/04/99	16.39	340.02	1071/71 <sup>10</sup>	$620^{23}$	0.56 ND <sup>12</sup>	1.3		ND <sup>12</sup>	6.0/9.3 <sup>17</sup>
		04/05/99	14.61	341.80	10340/210 <sup>10</sup>			1.8 ND <sup>12</sup>	2.1	2.4	12ND/21 <sup>17</sup>
		07/01/99	15.43	340.98	<sup>24</sup> 260/310 <sup>26</sup>	700 <sup>19</sup>	2.1		1.9	ND <sup>12</sup>	23.1/22.5 <sup>17</sup>
		09/30/99	16.27	340.14	10420/220 <sup>10</sup>	582 <sup>27</sup>	2.60	1.30	1.98	MD	43.1144.3

Table 1
Groundwater Monitoring Data and Analytical Results

Tosco (Unocal) Service Station #7176 7850 Amador Valley Boulevard Dublin, California

Well ID/	Date	DTW	GWE	TPH(D) ◆	TPH(G)	В	T	E	X	MTBE
TOC*		(ft.)	(msl)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
MW-5										
355.03	04/23/98	11.15	343.88	/100 <sup>11</sup>	120	0.53	0.90	1.0	3.8	13
333.03	07/08/98	12.63	342.40	170 <sup>10</sup>	ND	ND	ND	ND	ND	12
	10/05/98	14.00	341,03	/100 <sup>10</sup>	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 <sup>17</sup>
	07/01/99	14.48	340.55	ND	ND	ND	ND	ND	ND	<sup>12</sup> ND/2.3 <sup>17</sup>
	09/30/99	15.15	339.88	<sup>10</sup> 60.4/ND	50.8 <sup>27</sup>	ND	ND	ND	ND	ND/ND <sup>17</sup>
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.
- 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.
- <sup>2</sup> PNA compounds were ND.
- Laboratory report indicates unidentified hydrocarbons C9-C26.
- Laboratory report indicates gasoline and unidentified hydrocarbons > C12.
- 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.
- Laboratory has potentially identified the presence of MTBE at reportable levels in the groundwater sample collected from this well.
- 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.
- Laboratory report indicates the hydrocarbons detected did not appear to be gasoline.
- Laboratory report indicates unidentified hydrocarbons C9-C24.
- 11 Laboratory report indicates diesel and unidentified hydrocarbons < C14.
- Detection limit raised. Refer to analytical reports.
- 13 Laboratory report indicates unidentified hydrocarbons > C8.
- Laboratory report indicates unidentified hydrocarbons < C14.
- Laboratory report indicates discrete peaks.
- Laboratory report indicates weathered gas C6-C12.
- 17 MTBE by EPA Method 8260.
- Laboratory report indicates unidentified hydrocarbons < C8.
- Laboratory report indicates gasoline and unidentified hydrocarbons C6-C12.
- Laboratory report indicates diesel and unidentified hydrocarbons < C16.
- Laboratory report indicates unidentified hydrocarbons C6-C12.
- Laboratory report indicates gasoline and unidentified hydrocarbons > C10.
- Laboratory report indicates gasoline and unidentified hydrocarbons < C7.
- Laboratory report indicates unidentified hydrocarbons C10-C24.
- Laboratory report indicates gasoline and unidentified hydrocarbons < C6.
- Laboratory report indicates and unidentified hydrocarbons < C16.
- 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	After Purging
		(mg/L)	(mg/L)
<u> </u>			
U-1	01/11/96		3.41
	04/11/96	3.77	3.78
	07/10/96 <sup>1</sup>	1.22	
	10/30/96 <sup>1</sup>	1.41	
	01/27/97 <sup>1</sup>	1.34	
	04/08/97 <sup>1</sup>	2.09	
	07/17/97 <sup>1</sup>	2.00	<del></del>
	10/17/97 <sup>1</sup>	1.86	
	01/19/98 <sup>1</sup>	2.91	
	04/23/981	0.59	
	07/08/98 <sup>1</sup>	1.10	
U-2	01/11/96		3.99
	04/11/96	3.32	3.41
	07/10/96 <sup>1</sup>	1.01	
	10/30/96 <sup>1</sup>	1.42	
	01/27/971	1.29	
	04/08/971	1.69	
	07/17/971	2.08	
	10/17/971	1.80	
	01/19/981	2.95	
	04/23/981	0.55	
	07/08/98 <sup>1</sup>	1.36	
U-3	01/11/96		5.05
	04/11/96	5.16	4.96
	07/10/96 <sup>1</sup>	3.44	
	10/30/96 <sup>1</sup>	2.18	
	01/27/97	2.61	
	04/08/971	3.73	**
•	07/17/97	2.65	
	10/17/97 <sup>1</sup>	2.44	
	01/19/98 <sup>t</sup>	6.51	
	04/23/98 <sup>1</sup>	4.72	~-
	07/08/98 <sup>t</sup>	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

mg/L = milligrams per liter

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

<sup>-- =</sup> Not Measured

The wells were not purged on this date.

Table 3
Groundwater Analytical Results - Oxygenate Compounds

Tosco (Unocal) Service Station #7176 7850 Amador Valley Boulevard

Dublin, California

Well ID	Date	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	EDB	1,2-DCA
		(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ррв)	(ppb)	(ppb)
U-1	04/05/99	$ND^1$	ND <sup>3</sup>	55	ND <sup>1</sup>	ND	$ND^1$	$ND^1$	$ND^1$
	07/01/99	ND	ND	110	ND	ND	ND	ND	ND
	09/30/99	ND <sup>1</sup>	ND¹	195	ND <sup>I</sup>	ND <sup>1</sup>	ND <sup>1</sup>	$ND^1$	ND <sup>1</sup>
U-2	04/05/99	ND <sup>1</sup>	$\mathbf{ND}^1$	6.9	ND <sup>1</sup>	$ND^1$	$ND^1$	$ND^1$	$\mathbf{ND}^1$
U- <b>Z</b>	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

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 flexidip 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 <u>#_7 (</u>	76			Joi	o#:	180022	<del>, ,, , , , , , , , , , , , , , , </del>	
Address: <u>785</u>	o Amad	lor Valle.	Blvd.	Da	te:	9-30-0	19	<del></del>
City: Dubl				Sa	mpler	: Joe		<u>-</u>
Well ID	U_	1	Well Co	ndition:		o.K.		
Well Diameter		<b>2</b> în.	Hydroca Thickne		<u></u>	Amount feet) (product/w		(Gallons)
Total Depth	27.	90 ft.	Volume Factor (	2"	= 0.17	3" = 0.3 6" = 1.50	38 4 12" = 5.80	4" = 0.66
Depth to Water	<u> 15.º</u>	32 ft.	Lactor					
Purge Equipment:	Disposations Stack Suctions Grundfor	ole Bailer		2.1 4 × 3 (c Samplir Equipm	ıg	Disposable Bailer Pressure Bai Grab Sample Other:	Bailer Ier	<b>( ( ( ( ( ( ( ( ( (</b>
Starting Time: Sampling Time: Purging Flow Ra	 te:	10:55 A.	<u>≁</u> Wa <u>ı.</u> Seo	iter Color: . diment Des	c	- clear	Odor: 4	۲ ۶
Did well de-wate	er?		If y	res; Time:		Volu	me:	(qai.
A 141	/olume (gal.)	рН 7.15	μmhos/c	vity (100° Te	mperati °F 73.6	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
10:42		7.22	1-17		74.0 73.1			
				ORY INFOR		ON LABORATORY	ANAI	LYSES
SAMPLE ID	(#) - CON		FRIG. P	HC L	- 1	QUOIA	TRHG. BTE	
<u>U-1</u>	2 V c		11	11		**		4's E084E00
",	1 Am		,			//	TOHD-SIL	
COMMENTS:								

## WELL MONITORING/SAMPLING FIELD DATA SHEET

acility <u># フ</u> に	76			ob#:	180022				
ddress: 785	o Amador Va	1	BlvJ. Date: <u>9-30-99</u> Sampler: <u>Joe</u>						
ity: <u>೨೪५</u> ៤	<u> </u>			ampie					
Well ID	<u>U-2</u>	We	ell Condition:		0.K	<u></u>			
Vell Diameter	2 in		drocarbon ickness:	0	Amount (feet) (product/)		(Gallons)		
otal Depth	2650 ft	· . [v	olume 2	" = 0.17	7 3" = 0	.38	4" = 0.66		
epth to Water	16. N ft	. F	actor (VF)		6" = 1.50	12" = 3.80			
	10.5	VF <u>0.17</u>	= <u>/-79</u> x 3	(case vo	olume) = Estimated	Purge Volume:	6 (gal.)		
Purge Equipment:	Disposable Baile Bailer Stack Suction Grundfos Other:	·	Sampl Equip	ling ment:	Disposable Bailer Pressure Ba Grab Samp Other:	ailer le			
	10:00				s: clear		وج		
	te:		Sediment De	escripti	ion:Mone	`	<del></del>		
	er?		If yes; Tim	e:	Vol	ume:	(qal		
1 1411-C	Volume pH (gal.)	$\mu$	nductivity ( 50° ' mhos/cm/	4.0	\•···8 ~		Alkalinity (ppm)		
10:07	4 7.3	<u> </u>	232	736					
10:10	6 7.3		2.35	73.7	<u> </u>				
				<u> </u>					
			RATORY INFO	-		A N A	LYSES		
SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. T	<del></del>	LABORATORY		Ex, MTSE		
	3 v o x	Y	HC L		. //		ry's EDBIEDE		
U-2	7 4 . 4-	1 ''			<u> </u>	TOND- SI			
U-2 "	2 V 0 A	1,		<b>\</b>	//	(\$NV- >.	1C4 C.E.		

## WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/ Facility <u>#_71</u>	76		Jo	b#: _	180022		
	o Amador Va	Hen Blv	<i>J</i> D	ate: _	9-30-9	9	·
	i N	1		ampler:	Joe		
City:	-	<del>,</del>					
Well ID	<u>U-3</u>	Well	Condition:	8	, <u>k</u> .		
Well Diameter	2_ in,		ocarbon kness:	Q Ifaa	Amount B	13	(Galions)
Total Depth	28.50 ft.			' = 0.17	3" = 0.3	8	4" = 0.66
Depth to Water	17.60 ft		tor (VF)	6" =	1.50	12" = 5.80	
	<u>10.9</u> x	VF <u>0.17</u>	= <u>1.85</u> x 3	case volume)	= Estimated P	urge Volume:	6 (gal.)
Purge Equipment:	Disposable Bailer Bailer Stack Suction Grundfos Other:		Sampl Equipr	nent:	Dispesable B Bailer Pressure Bail Grab Sample Other:	er	
Sampling Time:		4.0	Water Color:		clear/	Odor:	IONE
	te:/ er?				Volur		
	Volume pH (gal.) 7.48	Cond	uctivity so T	emperature °F 74.1	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
2.21	4 7.50	<u> </u>	22	74.2	-		
8:23	6 7.45	_ <u>~~</u>	25 _	74./			
			ATORY INFO		20247007	AAI	u vece
SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TY	SEQU	BORATORY		EX, MTSE
<u>U-3</u>	3 vo t	,,	40 L	32.00			xy's EOB4EOC
<u>· · · · · · · · · · · · · · · · · · · </u>	1 Am 4	••		-   -	,	TOHO-SI	licu Gel
	J	<u> </u>					
COMMENTS:		<u> </u>					

## WELL MONITORING/SAMPLING FIELD DATA SHEET

Address: <u>785</u> City: <u>Dubl</u>		Valley B	Da Sa	Date: <u>9-30-99</u> Sampler: <u>Joe</u>					
Well ID	_ Mw-4	w	ell Condition:		, Ł				
Vell Diameter	2		drocarbon	(feat)	Amount E		(Gallons)		
Total Depth	25.50	·	10110331	1.000	3" = 0.3		4" = 0.66		
epth to Water	16.27		actor (VF)	6" = 1	1.50	12" = 5.80			
Purge Equipment:	Disposable Ba Bailer Stack Grundfos Other:		Samplir Equipm	ent: Di Ba Pr Gi	spo <del>sable B</del> eiler essure Bail rab Sample ther:	er			
Sampling Time:	95 95 te:	o A.u.	Weather Cond Water Color: _ Sediment Des	cle	*	Odor:	a.u.t		
	er?		If yes; Time:						
Time \\ 9 \.36	Volume pH (gal.)	LL)	nductivity JO Te mhos/cm+	66.7	D.O. (mg/L)		Alkalinir (ppm)		
9:40			3.96	66.2 66.5					
CAMPISIO	(#) - CONTAINER		RATORY INFOR		YROTAR	ANAL	YSES		
SAMPLE ID	3vot	Y	HCL	SEQUOI		TPNG. 576			
11_	2404	11	11			! ·	y's EOB460		
11	IAML	10		()		TBND- 5:1.	cu del		
	<u> </u>		_L						

## WELL MONITORING/SAMPLING

## FIELD DATA SHEET

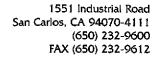
acility <u># 70</u> ddress: <u>7850</u>		duc Vall	ey Bl		lob#: Date:		0022	9		
ity: Dubl				Sampler: Joe						
Well ID	Mw - :	<u> </u>	We	Il Condition:	-	0,	<u>k</u> -			
Vell Diameter		2 in.	Thi	irocarbon ckness:	0	Amount Ba		(Gailons)		
otal Depth		5.00 ft.	יין	olume actor (VF)	2" = 0.1	17 6" = 1.	3" = 0.38 50	12" = 5.80	¥" = 0.66	
epth to Water			VF <u>0:17</u>	= <u>/.67</u> x :	(case v	volume) =	Estimated Pu	irge Volume:	5 (gal.)	
Purge Equipment:	Bailer Stack Suction Grundfo		· —	Samı Equi	oling oment:	Bai Pre Gra	posable Baller ssure Balle ab Sample ner:	er		
Starting Time:		8:47		Weather Co	onditio	ns:(	-leac/	10t		
Sampling Time:		9:15A						Odor:	1040	
Purging Flow Ra			•							
Did well de-wate				If yes; Tir	ne:		Volun	ne:	(qa	
Time \	olume (gal.)	рН 7.80	ΔI	nductivity (JO nhos/cm/	Tempe •F		D.O. (mg/L)	ORP (mV)	Alkalinii (ppm)	
9:03	3	7.70		542	66	. 0		. <u> </u>		
9:05	5	7.62		6.45	66	3_				
				RATORY INF			RATORY	ANA	LYSES	
SAMPLE ID	(#) - COI	<del></del>	REFRIG.	HCL		SEQUOIA		<del>,</del>	x, mise	
MW-5		ok	11	11		. 00		8260 0	cy's EOBIE	
"	_	m b	•,	_		(1		TBND-Sil	ien Gel	
L	<del></del>		<del></del>			<del> </del>				

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T	O:	sco

Tours Markedey Company 2000 Com Coryon PL, See, 608 See Reman, Calverde 94363

Foolity Humber UNOCAL SS# 7176	Contact (Home) MR. DAUE DEWITT
Facility Address 7850 Amador Valley Blvd. Dublin, CA	(Phone) (925) 277-23 <b>8</b> 4
Consultant Project Number 180022.85	Loborolory Name Sequoia Analytical
Consultant Name Gettler-Ryan Inc. (G-R Inc.)	Laboratory Relaase Number
Address 6747 Sterra Court, Suite I. Duhlin, CA 94568	Samples Collected by (Hame) TOE ATEMIAN
Project Contact (Name) Deanna L. Harding	Collection Date 4-30-44
(nt 1510-551-7555 (5-y Humber) 510-551-7888	Standura Torr Otta de

•		1		(P	hon•) <u>51</u>	0-551-755	<u>25_(</u> Fax	Humb*	r) <u>510</u>	<u>-551-</u>	7.888	<u> </u>	Signature	<u></u>	هدر	<del>,</del> ~ <del>,</del>	<u> </u>				
			ğ					,					Analy	es To B	e Perfoi	med					DO NOT BILL
	1	T.	Z. Z. Choreso	Grab Composite Discrete		, §		AF _			n X	45 20	8	.g .			U		ĺ	'	TB-LB ANALYSIS
1	Sample Number	Contoiners	<b>₹</b> 0	46.5		15.	2	X W.P.K		Į,	Jear	Ě	6	P P P	70		I 6				1909279
7. E	, de	8	of part	111		ď	8	\$ BTE	300	8	* *	, a c	100	4	₹,₹ 		DX X				, , , ,
Sample Kumber	S B	Number	Ketrtx S = Soil K = Woter	<u>*</u>	Ę	Sample Preservation	load (Yes or No)	TPH Gas + 87EX WANTEE (8015)	TPH Dissel (8015)	Oil and Gream (5520)	Purposhie Halocarbors (8010)	Purgeable Aromotica (8020)	Purpeoble Organics (8240)	Extractable Organics (8270)	Letais C4CrPbZnNi (ICAP or AA)		8760 CX4'S				Remarke
TB-LB	)	VOA	W	G		HCL	Y	✓													Run Silica Gel
U-1	12	5 YUN 1 Amb	1	1		/	,	1	/				,				~	۲۲.,			i e
U-2	0	"	/	,		,	1	1	0								_			ļ	Diesel hits
U-3	14	ý	/	/		1	/	1		<u></u>											
mw-4	(S	4	,	. (		,	V	./	1								_				
MW-S	06	0	. /	1		,	/	<b>✓</b>							,						
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Suc C	× 24			R Inc	<del></del>	.30.99		1/4/		SC		_ _	SEQU				2:00pm				Hre.
ruished By	(Signature)		Orga	wisoffer	0	at•/Tlm•	Rece	Nod/By	(Signo	lure)		0.	rgonitoli	on	Dole	/Ilm•					Hre. Jaye
-	`~alure)	<del></del> +	- 000	onliallon		iole/Time	- Rasi	eved Fo	r Lahor	atouv N	y (Slynat	lura)	<del></del>	<del></del>	Data:	/Ilm•			(	ا 10-	Days
	-atura)		1019		"	Atal Hina	"**	,	, 20001	-1, 11,	, (-igilai	,					- 1			Ve nou	trooted ?





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568 Project: Tosco(4)

Tosco(4)

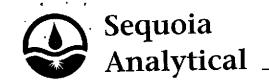
Project Number: UNOCAL SS#7176, 180022.85
Project Manager: Deanna Harding

Sampled: 9/30/99 Received: 9/30/99

Reported: 10/27/99

### **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

Sample Description:

Laboratory Sample Number:

TB-LB L909279-01

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method/ Surrogate Limits	Reporting Limit	Result	Units	Notes*
		Sequo	ia Analytica	- San Carlos				
Total Purgeable Hydrocarbons (C6-C	12), BTEX ar	id MTBE by	DHS LUFT					
Purgeable Hydrocarbons as Gasoline	9100061	10/13/99	10/13/99		50.0	ND	ug/l	
Benzene	"	Ħ	Ħ		0.500	ND	17	
Toluene	#	99	н		0.500	ND	Ħ	
Ethylbenzene	11	n	11		0.500	ND	*1	
•	11	11	ш		0.500	ND	11	
Xylenes (total) Methyl tert-butyl ether	ır	**	II.		5.00	ND	II .	
Surrogate: a,a,a-Trifluorotoluene	**	н	rr	70.0-130		91.2	%	



Gettler-Ryan/Geostrategies(1)
Project: Tosco(4)
6747 Sierra Court, Suite D
Project Number: UNOCAL SS#7176, 180022.85
Dublin, CA 94568
Project Manager: Deanna Harding

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

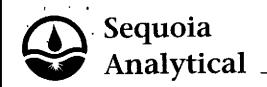
Sample Description:

**Laboratory Sample Number:** 

U-1 L909279-02

	Batch	Date	Date	Specific Method/	Reporting			
Analyte	Number	Prepared	Analyzed	Surrogate Limits	Limit	Result	Units	Notes:
		<b>A</b>	1- 41-41	l C. Gardan				
Total Purgeable Hydrocarbons (C6-C1	2) RTEY on			l - San Carlos				
Purgeable Hydrocarbons as Gasoline	9100061	10/13/99	10/14/99		5000	7150	ug/l	1
Benzene	H	11	Ħ		50.0	ND	n	
Toluene	R	11	11		50.0	ND	н	
Ethylbenzene	**	It	**		50.0	415	<b>11</b>	
Kylenes (total)	10	ii.	71		50.0	84.4	**	
Methyl tert-butyl ether	77	It	*1		500	ND	P .	
Surrogate: a,a,a-Trifluorotoluene	"	n	п	70.0-130		86.4	%	
Volatile Organic Oxygenated Compou	nde by FDA i	Mathad 2760	14					
,2-Dibromoethane	9100006	10/1/99	10/1/99		10.0	ND	ug/l	
,2-Dichloroethane	"	17	11		10.0	ND	"	
thanol	11	17	10/2/99		5000	ND	*1	
Fert-butyl alcohol	н	II	10.2.3		1000	ND	et	
Methyl tert-butyl ether	It	11	II.		10.0	195	11	
Di-isopropyl ether	ır	•	19		10.0	ND	11	
Ethyl tert-butyl ether	11	*1	н		10.0	ND	11	
Fert-amyl methyl ether	It.	**	н		10.0	ND	п	
Surrogate: 1,2-Dichloroethane-d4	"	п	n	76.0-114		102	%	
Diesel Hydrocarbons (C9-C24) by DHS	STHET							
Diesel Range Hydrocarbons	9100176	10/6/99	10/9/99		50.0	2360	ug/l	2
Surrogate: n-Pentacosane	"	"	11	50.0-150	· · · · · · · · · · · · · · · · · · ·	88.7	%	
Diesel Hydrocarbons (C9-C24) with Si	lice Cal Clas	nun hy DHS	THET					
Diesel Range Hydrocarbons	9100176	10/6/99	10/22/99		50.0	1680	ug/l	2
Surrogate: n-Pentacosane	"	"	IT .	40.0-140		70.3	%	





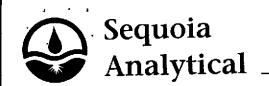
Gettler-Ryan/Geostrategies(1) Project: Tosco(4) Sampled: 9/30/99
6747 Sierra Court, Suite D Project Number: UNOCAL SS#7176, 180022.85 Received: 9/30/99
Dublin, CA 94568 Project Manager: Deanna Harding Reported: 10/27/99

Sample Description:

Laboratory Sample Number:

U-2 L909279-03

	Batch	Date	Date	Specific Method/	Reporting			
Analyte	Number	Prepared	Analyzed	Surrogate Limits	Limit	Result	Units	Notes*
		Seana	ia Analytica	l - San Carlos				
Fotal Purgeable Hydrocarbons (C6-C1	2), BTEX an			- San Carios				
Purgeable Hydrocarbons as Gasoline	9100072	10/14/99	10/14/99		100	256	ug/l	1
Benzene	H	H	11		1.00	1.85	n	
Toluene	*	н	11		1.00	ND	n	
Ethylbenzene	17	н	17		1.00	2.42	17	
Xylenes (total)	n	и	11		1.00	ND	49	
Methyl tert-butyl ether	11	H	IF		10.0	26.3	51	
Surrogate: a,a,a-Trifluorotoluene	"	"	Ħ	70.0-130	-	98.8	%	
Volatile Organic Oxygenated Compour	ıds by EPA l	Method 8260	A					
1,2-Dibromoethane	9100006	10/1/99	10/1/99		2.00	ND	ug/l	
1,2-Dichloroethane	17	"	II.		2.00	ND	"	
Ethanol	17	re	17		1000	ND	**	
Tert-butyl alcohol	0	n	IF		200	ND	10	
Methyl tert-butyl ether	11	H	If		2.00	29.8	Ħ	
Di-isopropyl ether	10	**	IF		2.00	ND	11	
Ethyl tert-butyl ether	11	•	IF .		2.00	ND	11	
Tert-amyl methyl ether	н	**	H		2.00	ND	11	
Surrogate: 1,2-Dichloroethane-d4	"	n	"	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: n-Pentacosane	11	"	"	50.0-150		88.9	%	
Diesel Hydrocarbons (C9-C24) with Si	lica Gel Clea	nup by DHS	LUFT					
Diesel Range Hydrocarbons	9100176	10/6/99	10/25/99		50.0	340	ug/l	2
Surrogate: n-Pentacosane	n'	n	#	40.0-140		82.0	%	



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

Sample Description:

Laboratory Sample Number:

U-3 L909279-04

	Batch	Date	Date	Specific Method/	Reporting Limit	Result	Units	Notes*
Analyte	Number	Prepared	Analyzed	Surrogate Limits	Limit	Result	Onns	Notes
		Seauo	ia Analytica	l - San Carlos				
Total Purgeable Hydrocarbons (C6-C	12), BTEX an				•			
Purgeable Hydrocarbons as Gasoline	9100061	10/13/99	10/14/99		50.0	ND	ug/l	
Benzene	Ħ	11	11		0.500	ND		
Toluene	11	IF	н		0.500	ND	11	
Ethylbenzene	16	n	H		0.500	ND	*1	
Xylenes (total)	te	H	•		0.500	ND	11	
Methyl tert-butyl ether	11	17	Ħ		5.00	ND	17	
Surrogate: a,a,a-Trifluorotoluene	ii .	п	н	70.0-130		82.1	%	
1,2-Dibromoethane	9100006	10/1/99	10/1/99		2.00	ND	ug/l	
Volatile Organic Oxygenated Compou	ands by EPA	Method 8266	) <u>A</u>					
1,2-Dichloroethane	44							
1,2-Dichiorochiane	.,	rı			2.00	ND	11	
	**	"	87 87		2.00 1000	ND ND	11	
Ethanol					2.00 1000 200	ND ND ND	11 11	
Ethanol Tert-butyl alcohol	**	**	**		2.00 1000 200 2.00	ND ND ND ND	11 11 11	
Ethanol Tert-butyl alcohol Methyl tert-butyl ether	# #	†1 17	#		2.00 1000 200 2.00 2.00	ND ND ND ND ND	11 11 11 14	
Ethanol Tert-butyl alcohol Methyl tert-butyl ether Di-isopropyl ether	11 11	91 17 14	97 19		2.00 1000 200 2.00	ND ND ND ND ND ND	11 11 11 11 11 11 11	
Ethanol Tert-butyl alcohol Methyl tert-butyl ether Di-isopropyl ether Ethyl tert-butyl ether	et 10 21	91 77 84 91	67 24 51		2.00 1000 200 2.00 2.00	ND ND ND ND ND ND	11 11 12 14 14 11	
Ethanol Tert-butyl alcohol Methyl tert-butyl ether Di-isopropyl ether Ethyl tert-butyl ether Tert-amyl methyl ether	ff 11 11 11	11 11 11	67 29 51 11	76.0-114	2.00 1000 200 2.00 2.00 2.00	ND ND ND ND ND ND	11 11 11 11 11 11 11	
Ethanol Tert-butyl alcohol Methyl tert-butyl ether Di-isopropyl ether Ethyl tert-butyl ether Tert-amyl methyl ether	11 11 11 11 11	n n n n	# # # #	76.0-114	2.00 1000 200 2.00 2.00 2.00 2.00	ND ND ND ND ND ND	" " " " " " " "	
Ethanol Tert-butyl alcohol Methyl tert-butyl ether Di-isopropyl ether Ethyl tert-butyl ether Tert-amyl methyl ether Surrogate: 1,2-Dichloroethane-d4	11 11 11 11 11	11 11 11 11 11	0 11 11 11	76.0-114 50.0-150	2.00 1000 200 2.00 2.00 2.00	ND ND ND ND ND ND	11 11 12 14 14 11	

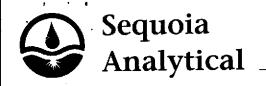


Gettler-Ryan/Geostrategies(1)
Project: Tosco(4)
6747 Sierra Court, Suite D
Project Number: UNOCAL SS#7176, 180022.85
Dublin, CA 94568
Project Manager: Deanna Harding

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

Sample Description: Laboratory Sample Number: MW-4 L909279-05

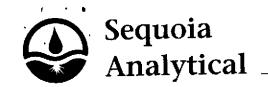
	Batch	Date	Date	Specific Method/	Reporting	· <del>-</del> ·		
Analyte	Number	Prepared	Analyzed	Surrogate Limits	Limit	Result	Units	Notes*
		Seano	ja Analytical	- San Carlos				
Total Purgeable Hydrocarbons (C6-C1	2), BTEX an							
Purgeable Hydrocarbons as Gasoline	9100073	10/14/99	10/15/99		125	582	ug/l	1
Benzene	н		n		1.25	2.60	н	
Toluene	Ħ	11	11		1.25	1.30	71	
Ethylbenzene	11	tt	п		1,25	1.98	<b>*1</b>	
Xylenes (total)	11	n	it		1.25	ND	*1	
Methyl tert-butyl ether	IP	*1	tt		12.5	23.1	11	,
Surrogate: a,a,a-Trifluorotoluene	"	rt	"	70.0-130		91.8	%	
Volatile Organic Oxygenated Compoun	nds by EPA	Method 8260	<u>)A</u>					
1,2-Dibromoethane	9100006	10/1/99	10/1/99		2.00	ND	ug/l	
1,2-Dichloroethane	14	IF	<b>\$</b> †		2.00	ND	**	
Ethanol	**	H	11		1000	ND	11	
Tert-butyl alcohol	11	н	11		200	ND	n	
Methyl tert-butyl ether	н	11	н		2.00	22.5	11	
Di-isopropyl ether	н	rr .	**		2.00	ND	11	
Ethyl tert-butyl ether	11	17	11		2.00	ND	11	
Tert-amyl methyl ether	н	n	IF		2,00	ND	ş1	
Surrogate: 1,2-Dichloroethane-d4	rt	11	"	76.0-114	- · · · · · · · · · · · · · · · · · · ·	113	%	
Diesel Hydrocarbons (C9-C24) by DHS	S LUFT							_
Diesel Range Hydrocarbons	9100176	10/6/99	10/9/99		50.0	420	ug/l	2
Surrogate: n-Pentacosane	n	"	н	50.0-150		83.4	%	
Diesel Hydrocarbons (C9-C24) with Si	ilica Gel Clea	nup by DHS	LUFT				_	_
Diesel Range Hydrocarbons	9100176	10/6/99	10/25/99		50.0	220	ug/l	2
Surrogate: n-Pentacosane	n	"	"	40.0-140		74.0	%	



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

Sample Description: Laboratory Sample Number: MW-5 L909279-06

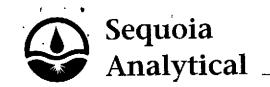
	Batch	Date	Date	Specific Method/	Reporting			
Analyte	Number	Prepared	Analyzed	Surrogate Limits	Limit	Result	Units	Notes'
		<b>5</b>	• - A 1	. C C				
Setal Burgashle Hydronophry- (CS C1	1) DTEV			- San Carlos				
<u> Total Purgeable Hydrocarbons (C6-C1</u> Purgeable Hydrocarbons as Gasoline	2), <b>DIEA au</b> 9100061	10/13/99	10/14/99		50.0	50.8	ug/l	1
-	9100001	10/1 <i>3/77</i>	10/14/22		0.500	ND	ug.	•
Benzene	11	Ħ	,,		0.500	ND	n	
oluene		н	"		0.500	ND	**	
Ethylbenzene	"				0.500	ND ND	н	
Kylenes (total)	 1)	"			5.00	ND	e <del>7</del>	
Methyl tert-butyl ether	<u>"</u>			70.0.120	3.00	86.6	%	
urrogate: a,a,a-Trifluorotoluene	,,	"	re .	70.0-130		50.0	70	
olatile Organic Oxygenated Compour	nds by EPA	Method 8260	<u>A</u>					
,2-Dibromoethane	9100006	10/1/99	10/1/99		2.00	ND	ug/l	
,2-Dichloroethane	10	lt.	"		2.00	ND	"	
thanol	•	H	n		1000	ND	•1	
ert-butyl alcohol	н	•	11		200	ND	11	
Methyl tert-butyl ether	77	17	11		2.00	ND	11	
Di-isopropyl ether	19	17	IP.		2.00	ND	IF	
Ethyl tert-butyl ether	n	H	IF		2.00	ND	IF	
Tert-amyl methyl ether	*1	11	IP.		2.00	ND	P .	
Surrogate: 1,2-Dichloroethane-d4	ir	"	"	76.0-114		106	%	
Diesel Hydrocarbons (C9-C24) by DHS	THE							
Diesel Range Hydrocarbons	9100176	10/6/99	10/9/99		50.0	60.4	ug/l	2
Surrogate: n-Pentacosane	"	rr	н	50.0-150		90.7	%	
Diesel Hydrocarbons (C9-C24) with Si	lica Gel Clea	nup by DHS	LUFT					
Diesel Range Hydrocarbons	9100176	10/6/99	10/25/99		50.0	ND	ug/l	
Surrogate: n-Pentacosane	,,	"	n	40.0-140		81.0	%	



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

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

Date	Spike	Sample	QC		Reporting Limit	Recov.	RPD	RPD	
Analyzed	Level	Result	Result	Units	Recov. Limits	%_	Limit	%	Notes*
-						. =0000	(T) (T)		
		<u> 99</u>		<u>Extra</u>	ction Method: EP.	A 5030B	<u> 1971 1</u>		
	<u>LK1</u>				<b>70.0</b>				
17									
II									
17									
17			ND						
TF									
II	10.0		8.55	n	70.0-130	85.5			
9100061-B	<u>S1</u>								
10/13/99	10.0		7.74	ug/l	70.0-130				
It	10.0		7.69	n T	70.0-130	76.9			
11			7.75		70.0-130	77.5			
ti			23.3	**	70.0-130	77.7			
n	10.0	-	7.73	H	70.0-130	77.3			
9100061-B	S2								
			248	ug/l	70.0-130	99.2			
"	10.0		7.89	"	70.0-130	78.9			
9100061-M	ısı L	910030-01							
			253	ug/l	60.0-140	101			
rr	10.0		9.30	"	70.0-130	93.0			
9100061-M	ISD1 L	910030-01							
10/13/99	250	ND	253	ug/l			25.0	0	
Ħ	10.0		9.09	#	70.0-130	90.9			
Date Prepa	red: 10/14	1/99		Extra	ction Method: EF	A 5030B	[P/T]		
<u>9100072-B</u>	LK1								
10/14/99			ND	ug/l					
e			ND	Ħ					
If			ND	11	0.500	1			
n			ND	"					
**			ND	Ħ	0.500	)			
11			ND	It					
н	10.0		9.06	"	70.0-130	90.6			
9100072-E	<u>IS1</u>								
10/14/99	10.0		7.77	ug/l					
			7.72	11	70.0-130	77.2			
•	Analyzed  Date Prepa 9100061-B1 10/13/99 " " " " 9100061-B: 10/13/99 " " " 9100061-M 10/13/99 "  9100061-M 10/13/99 "  Date Prepa 9100072-B 10/14/99 " " " " " 9100072-B	Date Prepared: 10/13.9100061-BLK1   10/13/99   10.0   10	Date Prepared: 10/13/99   9100061-BLK1   10/13/99	Date Prepared: 10/13/99   9100061-BLK1   10/13/99   ND   ND   ND   ND   ND   ND   ND	Date Prepared: 10/13/99   Extra 9100061-BLK1	Date Prepared: 10/13/99   Extraction Method: EP.	Date Prepared: 10/13/99   Extraction Method: EPA 5030B	Date Prepared: 10/13/99   ND   ug/l   50.0	No



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

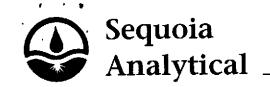
## Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT/Quality Control Sequoia Analytical - San Carlos

	Date	Spike	Sample	QC		Reporting Limit		RPD	RPD	
Analyte	Analyzed	Level	Result	Result	Units	Recov. Limits	%	Limit	%	Notes*
7.00 ( )	0100055 DC1									
LCS (continued)	9100072-BS1 10/14/99	10.0		7.83	ug/l	70.0-130	78.3			
Ethylbenzene	10/14/99	30.0		23.3	ug/1	70.0-130	77.7			
Xylenes (total)		10.0			"	70,0-130	84.6			
Surrogate: a,a,a-Trifluorotoluene		10.0		8.46		70.0-130	04.0			
<u>LCS</u>	9100072-BS2									
Purgeable Hydrocarbons as Gasoline	10/14/99	250		251	ug/l_	70.0-130	100			
Surrogate: a,a,a-Trifluorotoluene	H	10.0		7.83	"	70,0-130	78.3			
Matrix Spike	9100072-MS	<u>L</u>	910032-05							
Benzene	10/14/99	10.0	ND	8.47	ug/l	60.0-140	84.7			
Toluene	H	10.0	ND	8.24	"	60.0-140	82.4			
Ethylbenzene	н	10.0	ND	8.46	78	60.0-140	84.6			
Xylenes (total)	11	30.0	ND	25.1	76	60.0-140	83.7			
Surrogate: a,a,a-Trifluorotoluene	n	10.0		8.14	"	70.0-130	81.4			
Matrix Spike Dup	9100072-MS	D1 I	910032-05							
Benzene	10/15/99	10.0	ND	8.56	ug/l	60.0-140	85.6	25.0	1.06	
Toluene	n	10.0	ND	8.28	11	60.0-140		25.0	0.484	
Ethylbenzene	11	10.0	ND	8.55	н	60.0-140		25.0	1.06	
Xylenes (total)	**	30.0	ND	25.4	It	60.0-140		25.0	1.19	
Surrogate: a,a,a-Trifluorotoluene	"	10.0		8.28	rr .	70.0-130	82.8			
Batch: 9100073	Date Prepare	d• 10/14	1/00		Evtra	ction Method: EP	A 5030R	(P/T)		
Blank	9100073-BLI		<del>11 2 2</del>		LIALLO	ttion method. 131	1100000	12.21		
Purgeable Hydrocarbons as Gasoline	10/14/99			ND	ug/l	50.0				
Benzene	11			ND	"	0.500				
Toluene	**			ND	**	0.500				
Ethylbenzene	11			ND	**	0.500				
Xylenes (total)	11			ND	Ħ	0.500				
Methyl tert-butyl ether	11			ND	**	5.00				
Surrogate: a,a,a-Trifluorotoluene	n	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	11	10.0		7.51	H .	70.0-130				
Ethylbenzene	н	10.0		7.67	11	70.0-130				
Xylenes (total)	et	30.0		22.5	11	70.0-130				
Surrogate: a,a,a-Trifluorotoluene	n	10.0		8.23	n	70.0-130	82.3			
LCS	9100073-BS2									
Purgeable Hydrocarbons as Gasoline	10/14/99	250		245	ug/l	70.0-130	98.0			
r ar Perote rilanoem come as caronine	10/17/22	200			<del></del>		20.0			

Sequoia Analytical - San Carlos

\*Refer to end of report for text of notes and definitions.

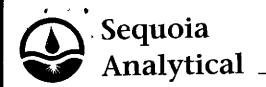




Gettler-Ryan/Geostrategies(1)
Project: Tosco(4)
Sampled: 9/30/99
6747 Sierra Court, Suite D
Project Number: UNOCAL SS#7176, 180022.85
Project Manager: Deanna Harding
Reported: 10/27/99

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

	Date	Spike	Sample	QC		Reporting Limit	Recov.	RPD	RPD	
Analyte	Analyzed	Level	Result	Result	Units	Recov. Limits	%	Limit	%	Notes*
LCS (continued)	9100073-B	<u>52</u>								
Surrogate: a,a,a-Trifluorotoluene	10/14/99	10.0		8.40	ug/l	70.0-130	84.0			
Matrix Spike	9100073-M	S1 L	910033-03							
Benzene	10/15/99	10.0	ND	7.83	ug/l	60.0-140	78.3			
Toluene	I)	10.0	ND	7.51	H	60.0-140	75.1			
Ethylbenzene	IP	10.0	ND	7.56	H	60.0-140	75.6			
Xylenes (total)	n	30.0	ND	22.1	H	60.0-140	73.7			
Surrogate: a,a,a-Trifluorotoluene	rr .	10.0		8.35	"	70.0-130	83.5			
Matrix Spike Dup	9100073-M	SD1 L	910033-03							
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	Ħ	10.0	ND	6.97		60.0-140	69.7	25.0	8.12	
Xylenes (total)	f#	30.0	ND	20.1	**	60.0-140	67.0	25.0	9.52	
Surrogate: a,a,a-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 Manager: Deanna Harding

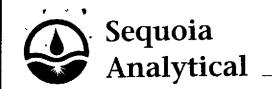
Project Number: UNOCAL SS#7176, 180022.85

Sampled: Received:

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

## Volatile Organic Oxygenated Compounds by EPA Method 8260A/Quality Control Sequoia Analytical - San Carlos

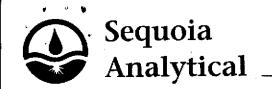
	Date	Spike	Sample	QC		Reporting Limit		RPD	RPD	
Analyte	Analyzed	Level	Result	Result	Units	Recov. Limits	%	Limit	%	Notes*
Batch: 9100006	Date Prepar	red: 10/1/9	<u>99</u>		Extra	ction Method: EP.	A 5030B	[P/T]		
Blank	9100006-BI	<u>_K1</u>								
1,2-Dibromoethane	10/1/99			ND	ug/l	2.00				
1,2-Dichloroethane	· #			ND	и	2.00				
Ethanol	Ħ			ND	17	1000				
Tert-butyl alcohol	11			ND	17	200				
Methyl tert-butyl ether	н			ND	II.	2.00				
Di-isopropyl ether	11			ND	H	2.00				
Ethyl tert-butyl ether	17			ND	"	2.00				
Tert-amyl methyl ether	II*			ND		2.00				
Surrogate: 1,2-Dichloroethane-d4	"	50.0	· <u>-</u>	50.7	"	76.0-114	101			
LCS	9100006-BS	<b>S</b> 1								
Methyl tert-butyl ether	10/1/99	50.0		42.0	ug/l	70.0-130	84.0			
Surrogate: 1,2-Dichloroethane-d4	n	50.0	·-	50.6	n	76.0-114	101			
Matrix Spike	9100006-M	Si L	909270-06							
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	11	76.0-114	100			
Matrix Spike Dup	9100006-M	SD1 L	909270-06							
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	п	50.0		50.8	11	76.0-114	102			



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

## Diesel Hydrocarbons (C9-C24) by DHS LUFT/Quality Control Sequoia Analytical - Morgan Hill

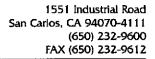
	Date	Spike	Sample	QC		Reporting Limit	Recov.	RPD	RPD	
Analyte	Analyzed	Level	Result	Result	Units	Recov. Limits	%	Limit	%	Notes*
Batch: 9100176	Date Prepa		<u>99</u>		Extract	tion Method: EP.	<u>A 3510B</u>			
Blank Diesel Range Hydrocarbons	<u>9100176-BI</u> 10/9/99	<u> </u>		ND	mg/l	0.0500				
Surrogate: n-Pentacosane	n n	0.100		0.0920	"	50.0-150	92.0			
LCS	9100176-B	<u>51</u>								
Diesel Range Hydrocarbons	10/9/99	1.00		0.820	mg/l	60.0-140	82.0			
Surrogate: n-Pentacosane	rr	0.100		0.0954	"	50.0-150	95.4			
LCS Dup	9100176-B	<u>SD1</u>								
Diesel Range Hydrocarbons	10/11/99	1.00		0.822	mg/l	60.0-140	82.2	50.0	0.244	
Surrogate: n-Pentacosane	"	0.100		0.0943	н	50.0-150	94.3			



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

### Diesel Hydrocarbons (C9-C24) with Silica Gel Cleanup by DHS LUFT/Quality Control Sequois Analytical - Morgan Hill

	Date	Spike	Sample	QC		Reporting Limit	Recov.	RPD	RPD	-
Analyte	Analyzed	Level	Result	Result	Units	Recov. Limits	%	Limit	%	Notes*
Batch: 9100176	Date Prepa	red: 10/6/9	<u>19</u>		Extrac	tion Method: EP	A 3510B			
<u>Blank</u>	9100176-B	L <b>K1</b>								
Diesel Range Hydrocarbons	10/22/99			ND	mg/l	0.0500				
Surrogate: n-Pentacosane	Ħ	0.100		0.0848	н	40.0-140	84.8			
LCS	9100176-B	<u>81</u>								
Diesel Range Hydrocarbons	10/23/99	1.00		0.702	mg/l	40.0-140	70.2			
Surrogate: n-Pentacosane	rr .	0.100		0.0816	"	40.0-140	81.6			
LCS Dup	9100176-B	<u>SD1</u>								
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

9/30/99 Sampled:

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

### **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