



# GETTLER-RYAN Inc.

ENVIRONMENTAL  
PROTECTION

## TRANSMITTAL

99 DEC 14 PM 2:13

November 30, 1999

G-R #:180181

TO: Mr. David B. De Witt  
Tosco Marketing Company  
2000 Crow Canyon Place, Suite 4000  
San Ramon, California 94583

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

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

RE: Tosco (Unocal) SS #4186  
1771 First Street  
Livermore, California

WE HAVE ENCLOSED THE FOLLOWING:

COPIES	DATED	DESCRIPTION
1	November 22, 1999	Groundwater Monitoring and Sampling Report Fourth Quarter 1999 - Event of October 12, 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 *December 13, 1999*, this report will be distributed to the following:

Enclosure

cc: **Ms. Eva Chu**  
Alameda County Health Care Services  
1131 Harbor Bay Parkway  
Alameda, CA 94502

agency/4186.dbd.qmt



# GETTLER-RYAN INC.

November 22, 1999  
G-R Job #180181

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

RE: Fourth Quarter 1999 Groundwater Monitoring & Sampling Report  
Tosco (Unocal) Service Station #4186  
1771 First Street  
Livermore, California

Dear Mr. De Witt:

This report documents the quarterly groundwater monitoring and sampling event performed by Gettler-Ryan Inc. (G-R). On October 12, 1999, field personnel monitored and sampled three wells (U-1, U-2 and U-3) at the above referenced site.

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

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

Sincerely,

Deanna L. Harding  
Project Coordinator

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

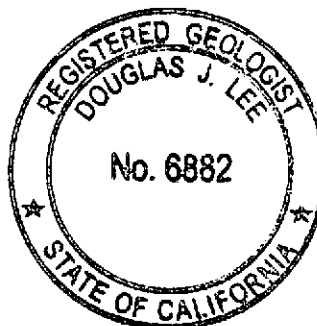
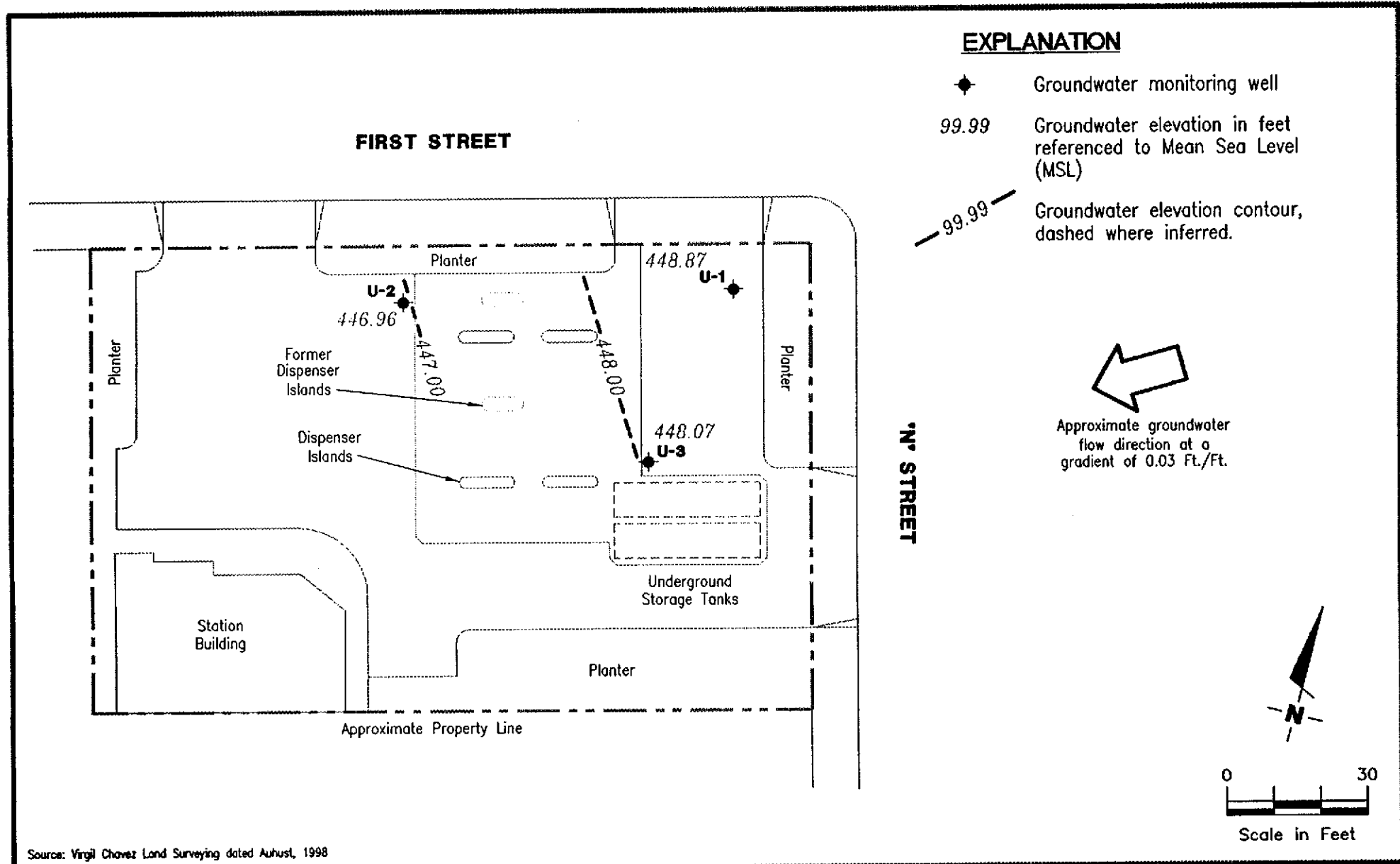


Figure 1: Potentiometric Map  
Figure 2: Concentration Map  
Table 1: Groundwater Monitoring Data and Analytical Results  
Attachments: Standard Operating Procedure - Groundwater Sampling  
Field Data Sheets  
Chain of Custody Document and Laboratory Analytical Reports

4186.qml



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

**POTENTIOMETRIC MAP**  
 Tosco (Unocal) Service Station No. 4186  
 1771 First Street  
 Livermore, California

FIGURE

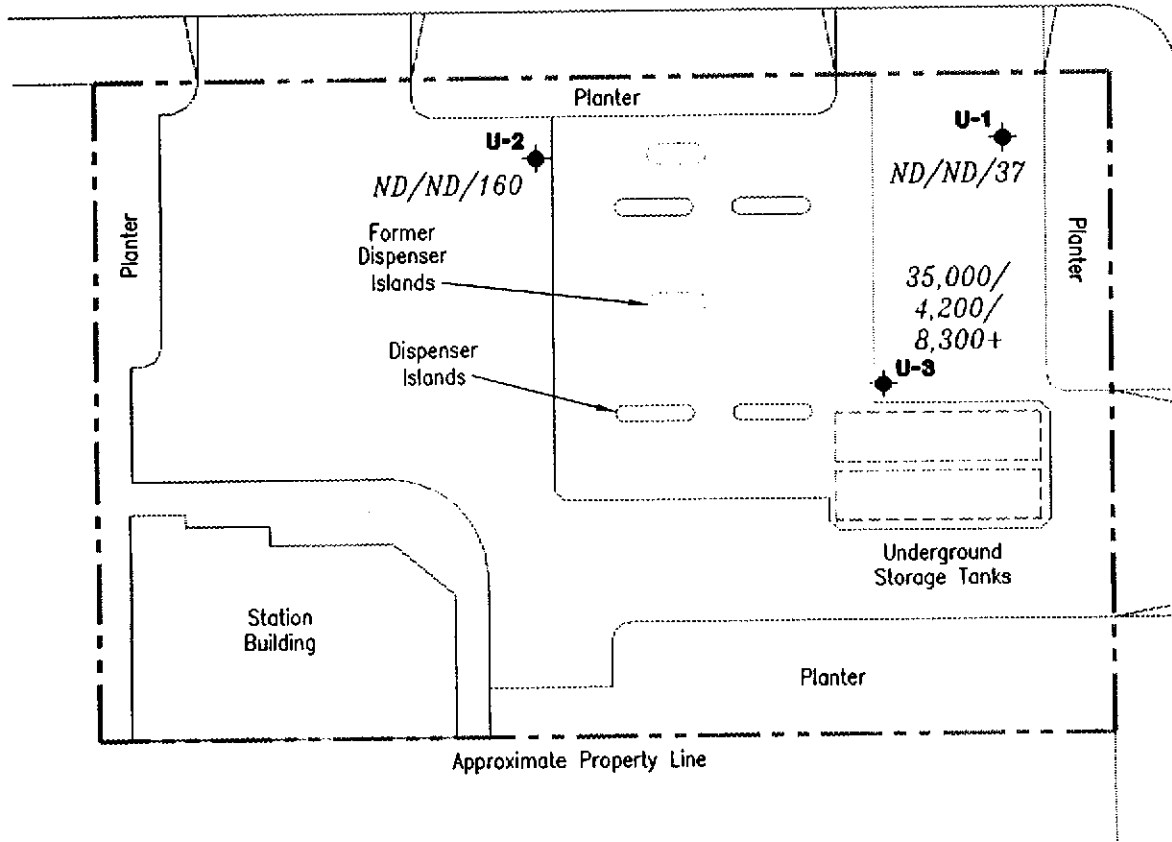
1

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
180181		October 12, 1999	

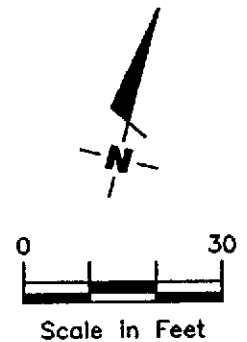
**EXPLANATION**

- ◆ Groundwater monitoring well
- A/B/C TPH(G) (Total Petroleum Hydrocarbons as Gasoline)/Benzene/MTBE concentrations in ppb
- ND Not Detected
- + MTBE by EPA Method 8260

**FIRST STREET**



**N. STREET**



Source: Virgil Chavez Land Surveying dated August, 1998



**Gettler - Ryan Inc.**

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

**CONCENTRATION MAP**  
 Tosco (Unocal) Service Station No. 4186  
 1771 First Street  
 Livermore, California

FIGURE

**2**

JOB NUMBER  
180181

REVIEWED BY

DATE  
October 12, 1999

REVISED DATE

**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
 Tosco (Unocal) Service Station #4186  
 1771 First Street  
 Livermore, California

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)	TPH(G) (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
<b>U-1</b>									
478.27	07/13/98	23.28	454.99	ND	ND	ND	ND	ND	ND
	10/07/98	26.43	451.84	ND	ND	ND	ND	ND	ND
	01/15/99	30.42	447.85	ND	ND	ND	ND	1.1	7.3
	04/14/99	24.21	454.06	ND	ND	ND	ND	ND	160
	07/19/99	27.10	451.17	ND	ND	ND	ND	ND	92
	10/12/99	29.40	448.87	ND	ND	ND	ND	ND	37
<b>U-2</b>									
477.44	07/13/98	23.52	453.92	1,200	130	12	62	180	1,100
	10/07/98	25.31	452.13	ND	ND	ND	ND	ND	160
	01/15/99	30.22	447.22	ND	ND	ND	ND	ND	280
	04/14/99	24.50	452.94	ND	ND	ND	ND	ND	460
	07/19/99	28.54	448.90	ND	ND	ND	ND	ND	220
	10/12/99	30.48	446.96	ND	ND	ND	ND	ND	160
<b>U-3</b>									
478.46	07/13/98	23.82	454.64	70,000	3,100	5,500	2,700	16,000	7,500
	10/07/98	25.64	452.82	54,000	5,000	1,100	3,100	14,000	6,100
	01/15/99	30.92	447.54	41,000 <sup>1</sup>	3,100	ND <sup>2</sup>	1,800	3,800	15,000
	04/14/99	24.48	453.98	33,000	86	290	2,200	7,800	39,000
	07/19/99	28.46	450.00	48,000	3,900	2,500	3,600	14,000	12,000/16,000 <sup>3</sup>
	10/12/99	30.39	448.07	35,000 <sup>4</sup>	4,200	ND <sup>2</sup>	2,300	1,800	22,000/8,300 <sup>5</sup>
<b>Trip Blank</b>									
TB-LB	07/13/98	--	--	ND	ND	ND	ND	ND	ND
	10/07/98	--	--	ND	ND	ND	ND	ND	ND
	01/15/99	--	--	ND	ND	ND	ND	ND	ND
	04/14/99	--	--	ND	ND	ND	ND	ND	ND
	07/19/99	--	--	ND	ND	ND	ND	ND	ND
	10/12/99	--	--	ND	ND	ND	ND	ND	ND

**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
Tosco (Unocal) Service Station #4186  
1771 First Street  
Livermore, California

---

**EXPLANATIONS:**

TOC = Top of Casing elevation

DTW = Depth to Water

(ft.) = Feet

GWE = Groundwater Elevation

msl = Relative to mean sea level

TPH(G) = Total Petroleum Hydrocarbons as Gasoline

B = Benzene

T = Toluene

E = Ethylbenzene

X = Xylenes

MTBE = Methyl tertiary butyl ether

ppb = Parts per billion

ND = Not Detected

-- = Not Measured/Not Analyzed

\* TOC elevations are relative to Mean Sea Level (msl) in feet. The benchmark used was a City of Livermore survey monument at First & "Q" Streets.

<sup>1</sup> Laboratory report indicates gasoline and unidentified hydrocarbons C6-C12.

<sup>2</sup> Detection limit raised. Refer to analytical reports.

<sup>3</sup> MTBE by EPA Method 8260.

<sup>4</sup> Laboratory report indicates gasoline C6-C12.

<sup>5</sup> MTBE by EPA Method 8260 analyzed past EPA recommended holding time.

## 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 # 4186 Job#: 180181  
Address: 1771 First st. Date: 10-12-99  
City: Livermore Sampler: Joe

Well ID: U-1 Well Condition: O.K.  
Well Diameter: 2 in. Hydrocarbon Amount Bailed  
Thickness: 0 (feet) (product/water): 0 (Gallons)  
Total Depth: 34.20 ft.  
Depth to Water: 29.40 ft.

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

4.8 x VF 0.17 = 0.82 x 3 (case volume) = Estimated Purge Volume: 2.5 (gal.)

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

Starting Time: 7:17 Weather Conditions: clear  
Sampling Time: 7:40 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, $\mu\text{mhos/cm K}$	Temperature $^{\circ}\text{F}$	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>7:30</u>	<u>1</u>	<u>7.60</u>	<u>5.85</u>	<u>65.6</u>			
<u>7:31</u>	<u>2</u>	<u>7.38</u>	<u>5.86</u>	<u>65.5</u>			
<u>7:32</u>	<u>2.5</u>	<u>7.45</u>	<u>5.82</u>	<u>65.9</u>			

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-1</u>	<u>3 Vol A</u>	<u>Y</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>TPH(GI)/btex/mtbe</u>

COMMENTS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



**WELL MONITORING/SAMPLING  
FIELD DATA SHEET**

Client/ Facility # 4186 Job#: 180181  
 Address: 1771 First st. Date: 10-12-99  
 City: Livermore Sampler: Jac

Well ID U-2 Well Condition: O.K.

Well Diameter 2 in. Hydrocarbon Amount Bailed  
 Thickness: 0 (feet) (product/water): 0 (Gallons)  
 Total Depth 33.20 ft.  
 Depth to Water 30.48 ft.

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

2.72 x VF 0.17 = 0.46 x 3 (case volume) = Estimated Purge Volume: 1.5 (gal.)

Purge Equipment: Disposable Bailer  
 Bailer  
 Stack  
 Suction  
 Grundfos  
 Other: \_\_\_\_\_

Sampling Equipment: Disposable Bailer  
 Bailer  
 Pressure Bailer  
 Grab Sample  
 Other: \_\_\_\_\_

Starting Time: 7:52 Weather Conditions: clear  
 Sampling Time: 8:15 A.M. Water Color: clear Odor: yes  
 Purging Flow Rate: 0.5 gpm. Sediment Description: none  
 Did well de-water? \_\_\_\_\_ If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu\text{mhos/cm} \times 10^2$	Temperature °F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>8:05</u>	<u>0.5</u>	<u>6.95</u>	<u>3.30</u>	<u>65.6</u>	_____	_____	_____
<u>8:06</u>	<u>1</u>	<u>6.98</u>	<u>3.35</u>	<u>65.7</u>	_____	_____	_____
<u>8:07</u>	<u>1.5</u>	<u>7.04</u>	<u>3.37</u>	<u>65.9</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE /	LABORATORY	ANALYSES
<u>U-2</u>	<u>300A</u>	<u>Y</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>TPH(G)/btex/mtbe</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

WELL MONITORING/SAMPLING  
FIELD DATA SHEET

Client/  
Facility # 4186 Job#: 180181  
Address: 1771 First st. Date: 10-12-99  
City: Livermore Sampler: Joc

Well ID U-3 Well Condition: O.K.  
Well Diameter 2 in. Hydrocarbon Amount Bailed  
Thickness: 0 (feet) (product/water): 0 (Gallons)  
Total Depth 33.40 ft.  
Depth to Water 30.39 ft.

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

3.01 x VF 0.17 = 0.51 x 3 (case volume) = Estimated Purge Volume: 1.5 (gal.)

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

Starting Time: 8:30 Weather Conditions: clear  
Sampling Time: 8:45 p.m. Water Color: clear Odor: yes  
Purging Flow Rate: 0.5 gpm. Sediment Description: none  
Did well de-water? \_\_\_\_\_ If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu\text{hos/cm K}$	Temperature $^{\circ}\text{F}$	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>8:26</u>	<u>0.5</u>	<u>7.46</u>	<u>3.65</u>	<u>66.5</u>			
<u>8:37</u>	<u>1</u>	<u>7.17</u>	<u>3.85</u>	<u>66.6</u>			
<u>8:38 -</u>	<u>1.5</u>	<u>7.10</u>	<u>3.90</u>	<u>66.4</u>			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-3</u>	<u>3 VOA</u>	<u>Y</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>TPHIG/btex/mtbe (by 8264)</u>

COMMENTS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_





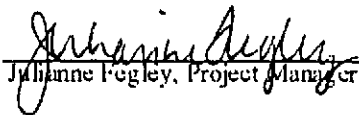
Gettler Ryan, Inc. - Dublin  
6747 Sierra Court Suite J  
Dublin CA, 94568

Project: Unocal  
Project Number: Unocal # 4186  
Project Manager: Deanna L. Harding

Reported:  
12-Nov-99 17:56

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-LB	W910242-01	Water	12-Oct-99 00:00	12-Oct-99 13:00
U-1	W910242-02	Water	12-Oct-99 07:40	12-Oct-99 13:00
U-2	W910242-03	Water	12-Oct-99 08:15	12-Oct-99 13:00
U-3	W910242-04	Water	12-Oct-99 08:45	12-Oct-99 13:00

  
Julianne Pegley, Project Manager





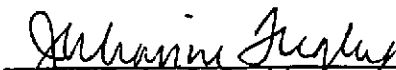
Gettler Ryan, Inc. - Dublin  
6747 Sierra Court Suite J  
Dublin CA, 94568

Project: Unocal  
Project Number: Unocal # 4186  
Project Manager: Deanna L. Harding

Reported:  
24-Nov-99 13:07

## Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>TB-LB (W910242-01) Water</b> Sampled: 12-Oct-99 00:00    Received: 12-Oct-99 13:00									
Purgeable Hydrocarbons	ND	50	ug/l	1	9J18002	18-Oct-99	18-Oct-99	EPA	
Benzene	ND	0.50	"	"	"	"	"	8015M/8020	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	2.5	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		90.0 %	70-130	"	"	"	"	"	
<b>U-1 (W910242-02) Water</b> Sampled: 12-Oct-99 07:40    Received: 12-Oct-99 13:00									
Purgeable Hydrocarbons	ND	50	ug/l	1	9J18002	18-Oct-99	18-Oct-99	EPA	
Benzene	ND	0.50	"	"	"	"	"	8015M/8020	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	37	2.5	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		86.7 %	70-130	"	"	"	"	"	
<b>U-2 (W910242-03) Water</b> Sampled: 12-Oct-99 08:15    Received: 12-Oct-99 13:00									
Purgeable Hydrocarbons	ND	50	ug/l	1	9J18002	18-Oct-99	18-Oct-99	EPA	
Benzene	ND	0.50	"	"	"	"	"	8015M/8020	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	160	2.5	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		90.0 %	70-130	"	"	"	"	"	

  
Julianne Fegley, Project Manager






Gettler Ryan, Inc. - Dublin  
6747 Sierra Court Suite J  
Dublin CA, 94568

Project: Unocal  
Project Number: Unocal # 4186  
Project Manager: Deanna L. Harding

Reported:  
12-Nov-99 17:56

**Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT**  
**Sequoia Analytical - Walnut Creek**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
U-3 (W910242-04) Water	Sampled: 12-Oct-99 08:45		Received: 12-Oct-99 13:00						P-01
<b>Purgeable Hydrocarbons</b>	<b>35000</b>	<b>5000</b>	<b>ug/l</b>	<b>100</b>	<b>9J18002</b>	<b>18-Oct-99</b>	<b>18-Oct-99</b>	<b>EPA</b>	
Benzene	4200	50	"	"	"	"	"	8015M/8020	
Toluene	ND	50	"	"	"	"	"	"	
Ethylbenzene	2300	50	"	"	"	"	"	"	
Xylenes (total)	1800	50	"	"	"	"	"	"	
Methyl tert-butyl ether	22000	250	"	"	"	"	"	"	
Surrogate: <i>a,a,a</i> -Trifluorotoluene		100 %		70-130	"	"	"	"	

  
Julianne Pegley, Project Manager





Gettler Ryan, Inc. - Dublin  
6747 Sierra Court Suite J  
Dublin CA, 94568

Project: Unocal  
Project Number: Unocal # 4186  
Project Manager: Deanna L. Harding

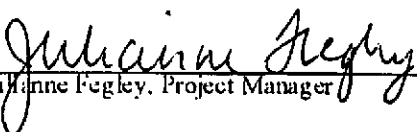
Reported:  
12-Nov-99 17:56

**MTBE Confirmation by EPA Method 8260A  
Sequoia Analytical - Walnut Creek**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
U-3 (W910242-04) Water Sampled: 12-Oct-99 08:45 Received: 12-Oct-99 13:00									
Methyl tert-butyl ether	8300	1000	ug/l	500	9J31002	27-Oct-99	28-Oct-99	EPA 8260A	O-04
Surrogate: Dibromofluoromethane		82.0 %	50-150		"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		56.0 %	50-150		"	"	"	"	S-04

Sequoia Analytical - Walnut Creek

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

  
Julianne Fegley, Project Manager





Gettler Ryan, Inc. - Dublin 6747 Sierra Court Suite J Dublin CA, 94568	Project: Unocal Project Number: Unocal # 4186 Project Manager: Deanna L. Harding	Reported: 12-Nov-99 17:56
--	--	------------------------------

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch 9J18002: Prepared 18-Oct-99 Using EPA 5030B [P/T]**

**Blank (9J18002-BLK1)**

Purgeable Hydrocarbons	ND	50	ug/l							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Methyl tert-butyl ether	ND	2.5	"							

<i>Surrogate: a,a,a-Trifluorotoluene</i>	39.0		"	30.0		130	70-130			
--	------	--	---	------	--	-----	--------	--	--	--

**LCS (9J18002-BS1)**

Benzene	20.0	0.50	ug/l	20.0		100	70-130			
Toluene	18.3	0.50	"	20.0		91.5	70-130			
Ethylbenzene	21.2	0.50	"	20.0		106	70-130			
Xylenes (total)	68.1	0.50	"	60.0		113	70-130			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	26.9		"	30.0		89.7	70-130			

**LCS Dup (9J18002-BSD1)**

Benzene	16.7	0.50	ug/l	20.0		83.5	70-130	18.0	20	
Toluene	15.4	0.50	"	20.0		77.0	70-130	17.2	20	
Ethylbenzene	18.1	0.50	"	20.0		90.5	70-130	15.8	20	
Xylenes (total)	61.4	0.50	"	60.0		102	70-130	10.3	20	
<i>Surrogate: a,a,a-Trifluorotoluene</i>	27.2		"	30.0		90.7	70-130			

Sequoia Analytical - Walnut Creek

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

*Julianne Fegley*  
Julianne Fegley, Project Manager







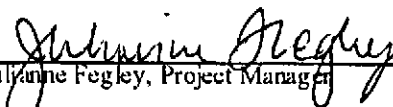
Gettler Ryan, Inc. - Dublin  
6747 Sierra Court Suite J  
Dublin CA, 94568

Project: Unocal  
Project Number: Unocal # 4186  
Project Manager: Deanna L. Harding

Reported:  
12-Nov-99 17:56

## MTBE Confirmation by EPA Method 8260A - Quality Control Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 9J31002: Prepared 27-Oct-99 Using EPA 5030B [P/T]</b>										
<b>Blank (9J31002-BLK1)</b>										
Methyl tert-butyl ether	ND	2.0	ug/l							
Surrogate: Dibromofluoromethane	57.0		"	50.0		114	50-150			
Surrogate: 1,2-Dichloroethane-d4	56.0		"	50.0		112	50-150			
<b>Blank (9J31002-BLK2)</b>										
Methyl tert-butyl ether	ND	2.0	ug/l							
Surrogate: Dibromofluoromethane	63.0		"	50.0		136	50-150			
Surrogate: 1,2-Dichloroethane-d4	61.0		"	50.0		122	50-150			
<b>LCS (9J31002-BS1)</b>										
Methyl tert-butyl ether	52.5	2.0	ug/l	50.0		105	70-130			
Surrogate: Dibromofluoromethane	56.0		"	50.0		112	50-150			
Surrogate: 1,2-Dichloroethane-d4	54.0		"	50.0		108	50-150			
<b>LCS (9J31002-BS2)</b>										
Methyl tert-butyl ether	41.7	2.0	ug/l	50.0		83.4	70-130			
Surrogate: Dibromofluoromethane	61.0		"	50.0		122	50-150			
Surrogate: 1,2-Dichloroethane-d4	60.0		"	50.0		120	50-150			
<b>Matrix Spike (9J31002-MS1) Source: W910356-09</b>										
Methyl tert-butyl ether	46.5	2.0	ug/l	50.0	ND	93.0	60-150			
Surrogate: Dibromofluoromethane	51.0		"	50.0		102	50-150			
Surrogate: 1,2-Dichloroethane-d4	47.0		"	50.0		94.0	50-150			
<b>Matrix Spike Dup (9J31002-MSD1) Source: W910356-09</b>										
Methyl tert-butyl ether	47.7	2.0	ug/l	50.0	ND	95.4	60-150	2.55	25	
Surrogate: Dibromofluoromethane	52.0		"	50.0		104	50-150			
Surrogate: 1,2-Dichloroethane-d4	49.0		"	50.0		98.0	50-150			

  
Julianne Fegley, Project Manager

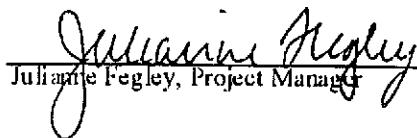




Gettler Ryan, Inc. - Dublin 6747 Sierra Court Suite J Dublin CA, 94568	Project: Unocal Project Number: Unocal # 4186 Project Manager: Deanna L. Harding	<b>Reported:</b> 12-Nov-99 17:56
--	--	-------------------------------------

**Notes and Definitions**

- O-04 This sample was analyzed outside the EPA recommended holding time.
- P-01 Chromatogram Pattern: Gasoline C6-C12
- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

  
Julianne Hegley, Project Manager

