



# GETTLER-RYAN Inc.

## TRANSMITTAL

December 15, 2000

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.  
Petaluma, 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	December 1, 2000	Groundwater Monitoring and Sampling Report Fourth Quarter - Event of October 2, 2000

### COMMENTS:

This report is being sent to you for your review/comment, prior to being distributed on your behalf. If no comments are received by **December 29, 2000**, 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

ENVIRONMENTAL  
PROTECTION

2000 JAN -3 P

trans/4186.doc



# GETTLER-RYAN INC.

December 1, 2000  
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 2000 Groundwater Monitoring & Sampling Report  
Tosco (Unocal) Service Station #4186  
1771 First Street  
Livermore, California

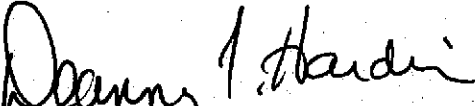
Dear Mr. De Witt:


This report documents the quarterly groundwater monitoring and sampling event performed by Gettler-Ryan Inc. (G-R). On October 2, 2000, 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 Tables 1 and 2. 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

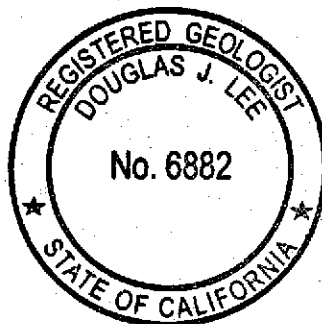
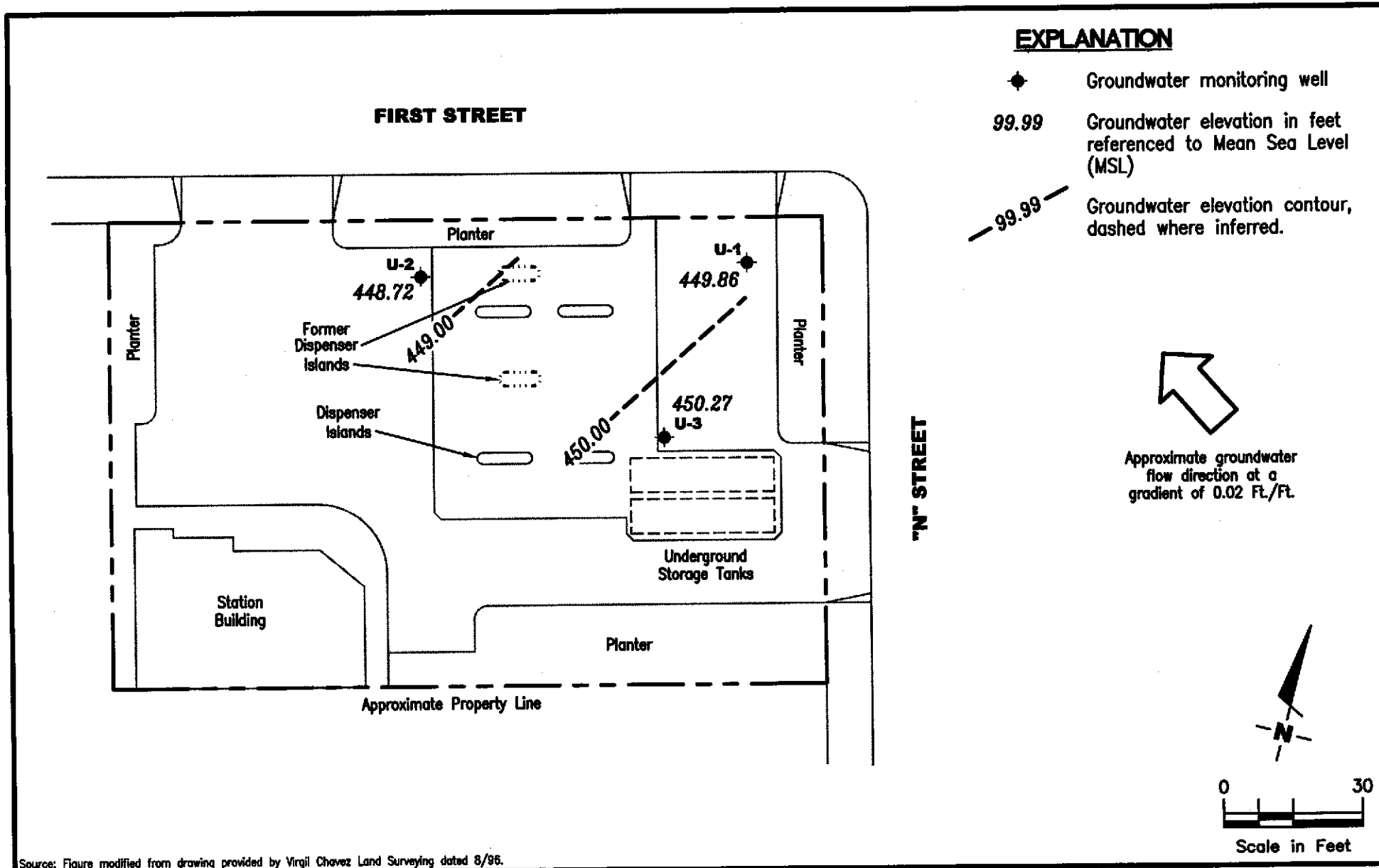


Figure 1: Potentiometric Map  
Figure 2: Concentration Map  
Table 1: Groundwater Monitoring Data and Analytical Results  
Table 2: Groundwater Analytical Results - Oxygenate Compounds  
Attachments: Standard Operating Procedure - Groundwater Sampling  
Field Data Sheets  
Chain of Custody Document and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

4186.qml



Source: Figure modified from drawing provided by Virgil Chavez Land Surveying dated 8/96.



**Gettler - Ryan Inc.**

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

**POTENTIOMETRIC MAP**  
Tosco (Unocal) Service Station #4186  
1771 First Street  
Livermore, California

FIGURE

1

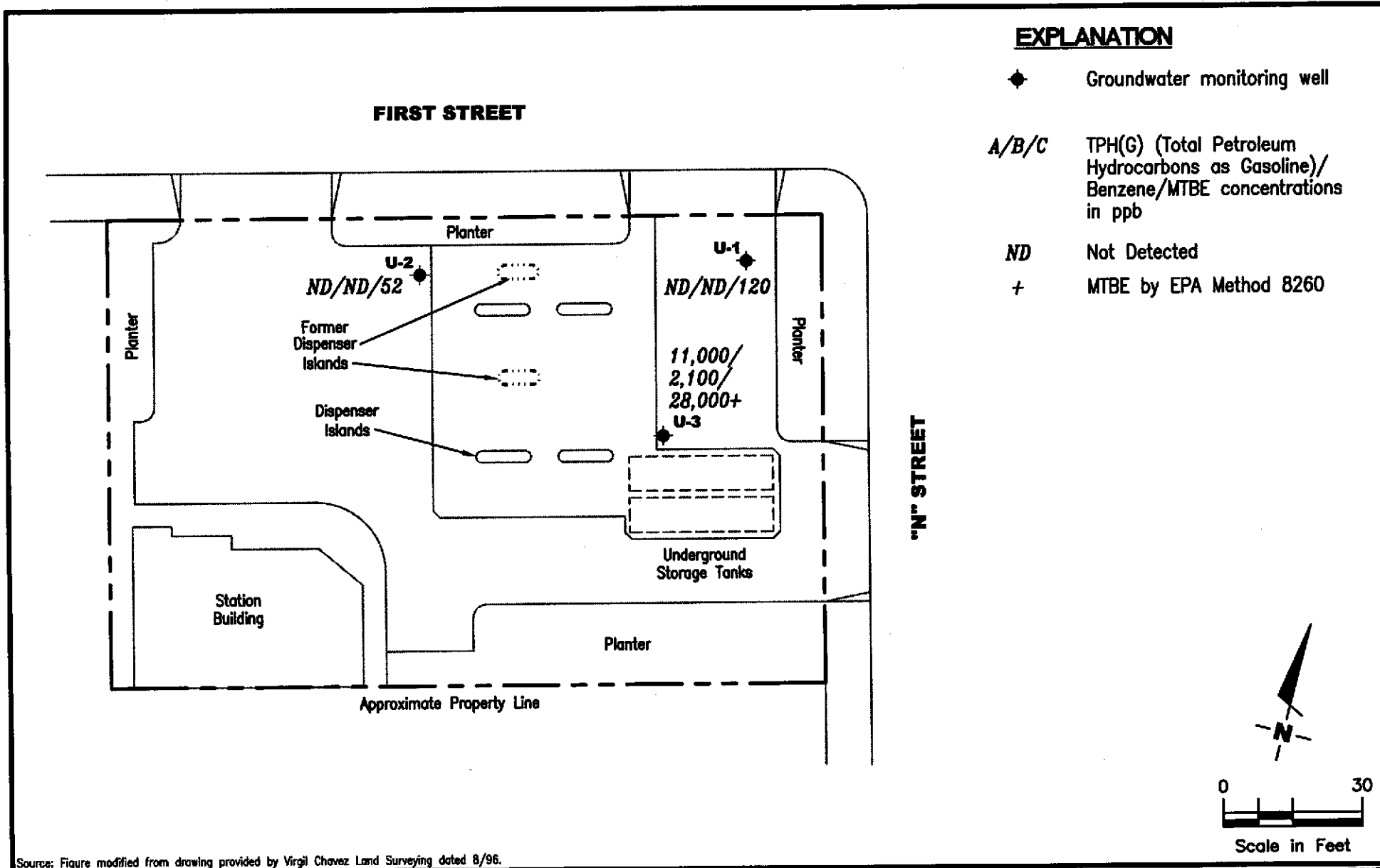
PROJECT NUMBER  
180181

REVIEWED BY

DATE  
October 2, 2000

REVISED DATE

FILE NAME: P:\ENVIRO\TOSCO\4186\000-4186.DWG | Layout Tab: Pot4



Source: Figure modified from drawing provided by Virgil Chavez Land Surveying dated 8/96.



**Gottler - Ryan Inc.**

6747 Sierra Ct., Suite J  
Dublin, CA 94568

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**CONCENTRATION MAP**

Tosco (Unocal) Service Station #4186  
1771 First Street  
Livermore, California

FIGURE

2

PROJECT NUMBER  
180181

REVIEWED BY

DATE  
October 2, 2000

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.)	S.I. (ft. bgs.)	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	14.0-34.0	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
	01/24/00	27.90		450.37	ND	ND	ND	ND	ND	28
	04/10/00	26.16		452.11	ND	ND	0.930	ND	ND	ND
	07/17/00	28.04		450.23	ND	ND	ND	ND	ND	160
	10/02/00	28.41		449.86	ND	ND	ND	ND	ND	120
<b>U-2</b>										
477.44	07/13/98	23.52	13.0-33.0	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
	01/24/00	24.52		452.92	ND	ND	ND	ND	ND	150
	04/10/00	23.68		453.76	ND	ND	ND	ND	ND	177
	07/17/00	28.35		449.09	ND	ND	ND	ND	ND	62.7
	10/02/00	28.72		448.72	ND	ND	ND	ND	ND	52
<b>U-3</b>										
478.46	07/13/98	23.82	14.0-34.0	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>

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

WELL ID/ TOC*	DATE	DTW (ft.)	S.I. (ft. bgs.)	GWE (msl)	TPH(G) (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
U-3	10/12/99	30.39	14.0-34.0	448.07	35,000 <sup>4</sup>	4,200	ND <sup>2</sup>	2,300	1,800	22,000/8,300 <sup>5</sup>
(cont)	01/24/00	23.43		455.03	13,000 <sup>4</sup>	260	ND <sup>2</sup>	770	3,200	53,000/42,000 <sup>3</sup>
	04/10/00	23.31		455.15	35,200 <sup>4</sup>	1,070	241	2,820	8,850	35,600/40,900 <sup>3</sup>
	07/17/00	27.53		450.93	29,000 <sup>4</sup>	3,570	525	3,180	5,660	22,500/21,000 <sup>3</sup>
	10/02/00	28.19		450.27	11,000 <sup>4</sup>	2,100	31	2,000	780	25,000/28,000 <sup>3,6</sup>
<b>TRIP BLANK</b>										
	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
	01/24/00	--		--	ND	ND	ND	ND	ND	ND
	04/10/00	--		--	ND	ND	ND	ND	ND	ND
	07/17/00	--		--	ND	ND	ND	ND	ND	ND
	10/02/00	--		--	ND	ND	ND	ND	ND	ND

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

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**EXPLANATIONS:**

TOC = Top of Casing

DTW = Depth to Water

(ft.) = Feet

S. I. = Screen Interval

(ft. bgs.) = Feet Below Ground Surface

GWE = Groundwater Elevation

(msl) = Mean sea level

TPH(G) = Total Petroleum Hydrocarbons as Gasoline

B = Benzene

T = Toluene

E = Ethylbenzene

X = Xylenes

MTBE = Methyl tertiary butyl ether

(ppb) = Parts per billion

ND = Not Detected

-- = Not Measured/Not Analyzed

- \* TOC elevations 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.
- <sup>6</sup> Laboratory report indicates the sample was analyzed within holding time. Re analysis for confirmation or dilution was performed past the recommend holding time.

**Table 2**  
**Groundwater Analytical Results - Oxygenate Compounds**  
 Tosco (Unocal) Service Station #4186  
 1771 First Street  
 Livermore, California

WELL ID	DATE	ETHANOL (ppb)	TBA (ppb)	MTBE (ppb)	DIPE (ppb)	ETBE (ppb)	TAME (ppb)	EDB (ppb)	1,2-DCA (ppb)
U-1	10/02/00	--	ND	--	--	--	--	--	--
U-2	10/02/00	--	ND	--	--	--	--	--	--
U-3	07/19/99	--	--	16,000	--	--	--	--	--
	10/12/99	--	--	8,300	--	--	--	--	--
	01/24/00	--	--	42,000	--	--	--	--	--
	04/10/00	--	--	40,900	--	--	--	--	--
	07/17/00	--	--	21,000	--	--	--	--	--
	10/02/00	--	68,900	28,000	--	--	--	--	--

**EXPLANATIONS:**

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

**ANALYTICAL METHOD:**

EPA Method 8260 for Oxygenate Compounds



## STANDARD OPERATING PROCEDURE - GROUNDWATER SAMPLING

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

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

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

Groundwater samples are collected using disposable bailers. The water samples are transferred from the bailer into appropriate containers. Pre-preserved containers, supplied by analytical laboratories, are used when possible. When pre-preserved containers are not available, the laboratory is instructed to preserve the sample as appropriate. Duplicate samples are collected for the laboratory to use in maintaining quality assurance/quality control standards. The samples are labeled to include the job number, sample identification, collection date and time, analysis, preservation (if any), and the sample collector's initials.

The water samples are placed in a cooler, maintained at 4°C for transport to the laboratory. Once collected in the field, all samples are maintained under chain of custody until delivered to the laboratory.

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

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

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

**WELL MONITORING/SAMPLING  
FIELD DATA SHEET**

Client/  
Facility # 4186  
Address: 1771 First st.  
City: Livermore

Job#: 180181  
Date: 10-2-00  
Sampler: Joe

Well ID U-1  
Well Diameter 2 in  
Total Depth 34.20 ft  
Depth to Water 28.41 ft

Well Condition: o.k.

Hydrocarbon Thickness:	<u>0</u> in	Amount Bailed (product/water):	<u>0</u> (gal.)
Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.50	

5.79 x VF 0.17 = 0.98 x 3 (case volume) = Estimated Purge Volume: 3 (gal.)

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

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

Starting Time: 7:25  
Sampling Time: 7:44 A.M.  
Purging Flow Rate: 0.5 gpm  
Did well de-water? \_\_\_\_\_

Weather Conditions: Hot  
Water Color: Clear Odor: none  
Sediment Description: none  
If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu\text{mhos/cm} \times 10^0$	Temperature F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>7:30</u>	<u>1</u>	<u>7.99</u>	<u>1214</u>	<u>67.0</u>	_____	_____	_____
<u>7:33</u>	<u>2</u>	<u>7.72</u>	<u>9.68</u>	<u>66.2</u>	_____	_____	_____
<u>7:36</u>	<u>3</u>	<u>7.65</u>	<u>9.72</u>	<u>66.1</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-1</u>	<u>3 VOA</u>	<u>Y</u>	<u>HCL</u>	<u>Sequoia</u>	<u>TPNG, BTEX, MTBE</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

**WELL MONITORING/SAMPLING  
FIELD DATA SHEET**

Client/  
Facility # 4186  
Address: 1771 First st.  
City: Livermore

Job#: 180181  
Date: 10-2-00  
Sampler: Joe

Well ID U-2  
Well Diameter 2 in.  
Total Depth 33.20 ft.  
Depth to Water 28.72 ft.

Well Condition: O.K.  
Hydrocarbon Thickness: 0 in. Amount Bailed (product/water): 0 (gal.)  
Volume Factor (VF)  $2' = 0.17$   $3' = 0.38$   $4' = 0.66$   
 $6' = 1.50$   $12' = 5.50$

4.48 x VF 0.17 = 0.76 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: 7:04  
Sampling Time: 7:23 A.M.  
Purging Flow Rate: 0.5 gpm.  
Did well de-water? \_\_\_\_\_

Weather Conditions: Hot  
Water Color: Clear Odor: none  
Sediment Description: none  
If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu\text{mhos/cm} \times 10^0$	Temperature $^{\circ}\text{F}$	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>7:10</u>	<u>0.5</u>	<u>7.71</u>	<u>7.56</u>	<u>67.2</u>			
<u>7:13</u>	<u>1</u>	<u>7.47</u>	<u>7.46</u>	<u>65.9</u>			
<u>7:15</u>	<u>2.5</u>	<u>7.41</u>	<u>7.43</u>	<u>66.4</u>			
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-2</u>	<u>3VQA</u>	<u>Y</u>	<u>HCL</u>	<u>Sequoia</u>	<u>TPH, BTEX, MTBE</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

**WELL MONITORING/SAMPLING  
FIELD DATA SHEET**

Client/  
Facility # 4186  
Address: 1771 First st.  
City: Livermore

Job#: 180181  
Date: 10-2-00  
Sampler: Joe

Well ID U-3  
Well Diameter 2 in  
Total Depth 33.40 ft  
Depth to Water 28.19 ft

Well Condition: o.k.

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

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

5.21 x VF 0.17 = 0.89 x 3 (case volume) = Estimated Purge Volume: 3 (gal)

Purge Equipment:

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

Sampling Equipment:

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

Starting Time: 8:00  
Sampling Time: 8:120 A.m  
Purging Flow Rate: 0.5 gpm  
Did well de-water? \_\_\_\_\_

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

Time	Volume (gal)	pH	Conductivity, $10^0$ $\mu$ mhos/cm	Temperature F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>8:05</u>	<u>1</u>	<u>6.77</u>	<u>1.20</u>	<u>66.3</u>	_____	_____	_____
<u>8:07</u>	<u>2</u>	<u>6.81</u>	<u>1.24</u>	<u>66.5</u>	_____	_____	_____
<u>8:10</u>	<u>3</u>	<u>6.82</u>	<u>1.21</u>	<u>66.4</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

**LABORATORY INFORMATION**

SAMPLE ID	(7) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-3</u>	<u>3YOA</u>	<u>Y</u>	<u>HCL</u>	<u>Sequoia</u>	<u>TPHG, BTEX, MTBG</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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





# Sequoia Analytical

404 N. Wiget Lane  
Walnut Creek, CA 94598  
(925) 988-9600  
FAX (925) 988-9673  
[www.sequolalabs.com](http://www.sequolalabs.com)

9 November, 2000

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

RE: Unocal  
Sequoia Report W010034

Enclosed are the results of analyses for samples received by the laboratory on 02-Oct-00 16:20. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Charlie Westwater  
Project Manager

CA ELAP Certificate #1271





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

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

Reported:  
09-Nov-00 18:08

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-LB	W010034-01	Water	02-Oct-00 00:00	02-Oct-00 16:20
U-1	W010034-02	Water	02-Oct-00 07:44	02-Oct-00 16:20
U-2	W010034-03	Water	02-Oct-00 07:23	02-Oct-00 16:20
U-3	W010034-04	Water	02-Oct-00 08:20	02-Oct-00 16:20

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.*

Charlie Westwater, 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:  
09-Nov-00 18:08

**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 (W010034-01) Water</b> Sampled: 02-Oct-00 00:00 Received: 02-Oct-00 16:20									
Purgeable Hydrocarbons	ND	50	ug/l	1	0J30023	14-Oct-00	14-Oct-00	EPA 8015M/8020	
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>		103 %		70-130	"	"	"	"	
<b>U-1 (W010034-02) Water</b> Sampled: 02-Oct-00 07:44 Received: 02-Oct-00 16:20									
Purgeable Hydrocarbons	ND	50	ug/l	1	0J30023	14-Oct-00	14-Oct-00	EPA 8015M/8020	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	120	2.5	"	"	"	"	"	"	CC-3
<i>Surrogate: a,a,a-Trifluorotoluene</i>		96.7 %		70-130	"	"	"	"	
<b>U-2 (W010034-03) Water</b> Sampled: 02-Oct-00 07:23 Received: 02-Oct-00 16:20									
Purgeable Hydrocarbons	ND	50	ug/l	1	0J30023	14-Oct-00	14-Oct-00	EPA 8015M/8020	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	52	2.5	"	"	"	"	"	"	CC-3
<i>Surrogate: a,a,a-Trifluorotoluene</i>		105 %		70-130	"	"	"	"	







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

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

Reported:  
09-Nov-00 18:08

**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>U-3 (W010034-04) Water</b> Sampled: 02-Oct-00 08:20 Received: 02-Oct-00 16:20									<b>P-01</b>
Purgeable Hydrocarbons	11000	1000	ug/l	20	0J16031	16-Oct-00	16-Oct-00	EPA 8015M/8020	
Benzene	2100	10	"	"	"	"	"	"	
Toluene	31	10	"	"	"	"	"	"	
Ethylbenzene	2000	10	"	"	"	"	"	"	
Xylenes (total)	780	10	"	"	"	"	"	"	
Surrogate: <i>a,a,a</i> -Trifluorotoluene		83.0 %		70-130	"	"	"	"	
<b>U-3 (W010034-04RE1) Water</b> Sampled: 02-Oct-00 08:20 Received: 02-Oct-00 16:20									<b>P-01</b>
Methyl tert-butyl ether	25000	500	ug/l	200	0J16031	16-Oct-00	17-Oct-00	EPA 8015M/8020	CC-3
Surrogate: <i>a,a,a</i> -Trifluorotoluene		102 %		70-130	"	"	"	"	





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09-Nov-00 18:08

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
U-3 (W010034-04) Water Sampled: 02-Oct-00 08:20 Received: 02-Oct-00 16:20									A-03
Methyl tert-butyl ether	28000	200	ug/l	100	0J26016	24-Oct-00	24-Oct-00	EPA 8260B	
Surrogate: Dibromofluoromethane		100 %	50-150		"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		98.0 %	50-150		"	"	"	"	





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09-Nov-00 18:08

**Volatile Organic Compounds by EPA Method 8260B  
Sequoia Analytical - Walnut Creek**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>U-1 (W010034-02) Water</b> Sampled: 02-Oct-00 07:44 Received: 02-Oct-00 16:20									
tert-Butyl alcohol	ND	50	ug/l	1	0J13023	14-Oct-00	14-Oct-00	EPA 8260B	
Surrogate: Dibromofluoromethane		110 %	50-150		"	"	"	"	
<b>U-2 (W010034-03) Water</b> Sampled: 02-Oct-00 07:23 Received: 02-Oct-00 16:20									
tert-Butyl alcohol	ND	50	ug/l	1	0J13023	14-Oct-00	14-Oct-00	EPA 8260B	
Surrogate: Dibromofluoromethane		94.0 %	50-150		"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		132 %	50-150		"	"	"	"	
<b>U-3 (W010034-04) Water</b> Sampled: 02-Oct-00 08:20 Received: 02-Oct-00 16:20									
tert-Butyl alcohol	63000	5000	ug/l	100	0J13023	14-Oct-00	15-Oct-00	EPA 8260B	
Surrogate: Dibromofluoromethane		124 %	50-150		"	"	"	"	





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09-Nov-00 18:08

**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
<b>Batch 0J16031 - EPA 5030B [P/T]</b>										
<b>Blank (0J16031-BLK1) Prepared &amp; Analyzed: 16-Oct-00</b>										
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>	27.0		"	30.0		90.0	70-130			
<b>LCS (0J16031-BS1) Prepared &amp; Analyzed: 16-Oct-00</b>										
Benzene	19.3	0.50	ug/l	20.0		96.5	70-130			
Toluene	19.9	0.50	"	20.0	0.68	99.5	70-130			
Ethylbenzene	20.5	0.50	"	20.0	ND	103	70-130			
Xylenes (total)	58.4	0.50	"	60.0	0.89	97.3	70-130			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	29.0		"	30.0		96.7	70-130			
<b>Matrix Spike (0J16031-MS1) Source: W010081-04 Prepared &amp; Analyzed: 16-Oct-00</b>										
Benzene	20.1	0.50	ug/l	20.0	ND	101	70-130			
Toluene	21.2	0.50	"	20.0	0.68	103	70-130			
Ethylbenzene	21.0	0.50	"	20.0	ND	105	70-130			
Xylenes (total)	60.7	0.50	"	60.0	0.89	99.7	70-130			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	29.0		"	30.0		96.7	70-130			
<b>Matrix Spike Dup (0J16031-MSD1) Source: W010081-04 Prepared &amp; Analyzed: 16-Oct-00</b>										
Benzene	20.0	0.50	ug/l	20.0	ND	100	70-130	0.995	20	
Toluene	20.6	0.50	"	20.0	0.68	99.6	70-130	3.36	20	
Ethylbenzene	21.0	0.50	"	20.0	ND	105	70-130	0	20	
Xylenes (total)	59.0	0.50	"	60.0	0.89	96.9	70-130	2.85	20	
<i>Surrogate: a,a,a-Trifluorotoluene</i>	29.5		"	30.0		98.3	70-130			





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09-Nov-00 18:08

**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
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**Batch 0J30023 - EPA 5030B [P/T]**

**Blank (0J30023-BLK1)**

Prepared & Analyzed: 14-Oct-00

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>	28.8		"	30.0		96.0	70-130			

**Blank (0J30023-BLK2)**

Prepared & Analyzed: 15-Oct-00

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>	29.8		"	30.0		99.3	70-130			

**LCS (0J30023-BS1)**

Prepared & Analyzed: 14-Oct-00

Benzene	20.1	0.50	ug/l	20.0		101	70-130			
Toluene	20.5	0.50	"	20.0		103	70-130			
Ethylbenzene	21.4	0.50	"	20.0		107	70-130			
Xylenes (total)	63.7	0.50	"	60.0		106	70-130			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	29.4		"	30.0		98.0	70-130			

**LCS (0J30023-BS2)**

Prepared & Analyzed: 15-Oct-00

Benzene	18.5	0.50	ug/l	20.0		92.5	70-130			
Toluene	19.0	0.50	"	20.0		95.0	70-130			
Ethylbenzene	19.1	0.50	"	20.0		95.5	70-130			
Xylenes (total)	58.1	0.50	"	60.0		96.8	70-130			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	30.5		"	30.0		102	70-130			





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09-Nov-00 18:08

**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
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**Batch 0J30023 - EPA 5030B [P/T]**

<b>Matrix Spike (0J30023-MS1)</b>		<b>Source: W010037-09</b>		<b>Prepared &amp; Analyzed: 15-Oct-00</b>						
Benzene	18.6	0.50	ug/l	20.0	ND	93.0	70-130			
Toluene	19.0	0.50	"	20.0	ND	95.0	70-130			
Ethylbenzene	19.3	0.50	"	20.0	ND	96.5	70-130			
Xylenes (total)	58.0	0.50	"	60.0	ND	96.7	70-130			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	30.5		"	30.0		102	70-130			

<b>Matrix Spike Dup (0J30023-MSD1)</b>		<b>Source: W010037-09</b>		<b>Prepared &amp; Analyzed: 15-Oct-00</b>						
Benzene	18.2	0.50	ug/l	20.0	ND	91.0	70-130	2.17	20	
Toluene	18.7	0.50	"	20.0	ND	93.5	70-130	1.59	20	
Ethylbenzene	18.9	0.50	"	20.0	ND	94.5	70-130	2.09	20	
Xylenes (total)	57.3	0.50	"	60.0	ND	95.5	70-130	1.25	20	
<i>Surrogate: a,a,a-Trifluorotoluene</i>	30.5		"	30.0		102	70-130			





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09-Nov-00 18:08

**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 0J26016 - EPA 5030B [P/T]</b>										
<b>Blank (0J26016-BLK1)</b>										
Prepared & Analyzed: 23-Oct-00										
Methyl tert-butyl ether	ND	2.0	ug/l							
Surrogate: Dibromofluoromethane	50.0		"	50.0		100	50-150			
Surrogate: 1,2-Dichloroethane-d4	46.0		"	50.0		92.0	50-150			
<b>Blank (0J26016-BLK2)</b>										
Prepared & Analyzed: 24-Oct-00										
Methyl tert-butyl ether	ND	2.0	ug/l							
Surrogate: Dibromofluoromethane	49.0		"	50.0		98.0	50-150			
Surrogate: 1,2-Dichloroethane-d4	46.0		"	50.0		92.0	50-150			
<b>LCS (0J26016-BS1)</b>										
Prepared & Analyzed: 23-Oct-00										
Methyl tert-butyl ether	42.3	2.0	ug/l	50.0		84.6	70-130			
Surrogate: Dibromofluoromethane	49.0		"	50.0		98.0	50-150			
Surrogate: 1,2-Dichloroethane-d4	45.0		"	50.0		90.0	50-150			
<b>LCS Dup (0J26016-BSD1)</b>										
Prepared & Analyzed: 24-Oct-00										
Methyl tert-butyl ether	53.0	2.0	ug/l	50.0		106	70-130	22.5	25	
Surrogate: Dibromofluoromethane	49.0		"	50.0		98.0	50-150			
Surrogate: 1,2-Dichloroethane-d4	48.0		"	50.0		96.0	50-150			





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**Volatile Organic Compounds by EPA Method 8260B - Quality Control  
Sequoia Analytical - Walnut Creek**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 0J13023 - EPA 5030B [P/T]**

**Blank (0J13023-BLKI)**

Prepared: 13-Oct-00 Analyzed: 14-Oct-00

Ethanol	ND	500	ug/l							
tert-Butyl alcohol	ND	50	"							
Methyl tert-butyl ether	ND	2.0	"							
Di-isopropyl ether	ND	2.0	"							
Ethyl tert-butyl ether	ND	2.0	"							
tert-Amyl methyl ether	ND	2.0	"							
1,2-Dichloroethane	ND	2.0	"							
Ethylene dibromide	ND	2.0	"							

Surrogate: Dibromofluoromethane	50.0		"	50.0		100	50-150			
Surrogate: 1,2-Dichloroethane-d4	86.0		"	50.0		172	50-150			Q-01

**LCS (0J13023-BS1)**

Prepared & Analyzed: 13-Oct-00

Methyl tert-butyl ether	53.0	2.0	ug/l	50.0		106	70-130			
Surrogate: Dibromofluoromethane	43.0		"	50.0		86.0	50-150			
Surrogate: 1,2-Dichloroethane-d4	57.0		"	50.0		114	50-150			

**LCS (0J13023-BS2)**

Prepared & Analyzed: 14-Oct-00

Methyl tert-butyl ether	60.6	2.0	ug/l	50.0		121	70-130			
Surrogate: Dibromofluoromethane	45.0		"	50.0		90.0	50-150			
Surrogate: 1,2-Dichloroethane-d4	60.0		"	50.0		120	50-150			

**Matrix Spike (0J13023-MS1)**

Source: W010090-05

Prepared & Analyzed: 13-Oct-00

Methyl tert-butyl ether	61.2	2.0	ug/l	50.0	7.2	108	60-150			
Surrogate: Dibromofluoromethane	42.0		"	50.0		84.0	50-150			
Surrogate: 1,2-Dichloroethane-d4	54.0		"	50.0		108	50-150			

**Matrix Spike Dup (0J13023-MSD1)**

Source: W010090-05

Prepared & Analyzed: 13-Oct-00

Methyl tert-butyl ether	64.5	2.0	ug/l	50.0	7.2	115	60-150	5.25	25	
Surrogate: Dibromofluoromethane	45.0		"	50.0		90.0	50-150			
Surrogate: 1,2-Dichloroethane-d4	55.0		"	50.0		110	50-150			







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09-Nov-00 18:08

### Notes and Definitions

- A-03 This sample was originally analyzed within holding time. Re-analysis for confirmation or dilution was performed past the recommended holding time.
- CC-3 Continuing Calibration indicates that the quantitative result for this analyte includes a greater than 15% degree of uncertainty. The value as reported is within method acceptance.
- P-01 Chromatogram Pattern: Gasoline C6-C12
- Q-01 The spike recovery for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch.
- 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

