

Next sampling event,  
confirm MRSE w/ 8260.  
for ~~10-3~~



# GETTLER-RYAN INC.

## TRANSMITTAL

June 8, 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	June 3, 1999	Groundwater Monitoring and Sampling Report Second Quarter 1999 - Event of April 14, 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 **June 18, 1999**, this report will be distributed to the following:

Enclosure

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

99 JUN 21 PM 3:46  
ENVIRONMENTAL PROTECTION

agency/4186.dbd.qmt



# GETTLER-RYAN INC.

June 3, 1999  
G-R Job #180181

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

RE: Second 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 April 14, 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

Stephen J. Carter  
Senior Geologist, R.G. No. 5577

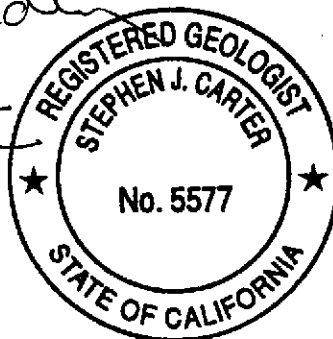


Figure 1: Potentiometric Map  
Figure 2: Concentration Map  
Table 1: Groundwater Monitoring Data and Analytical Results  
Attachments: Standard Operating Procedure - Groundwater Sampling  
Field Data Sheets  
Chain of Custody Document and Laboratory Analytical Reports

4186.qml

**EXPLANATION**

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

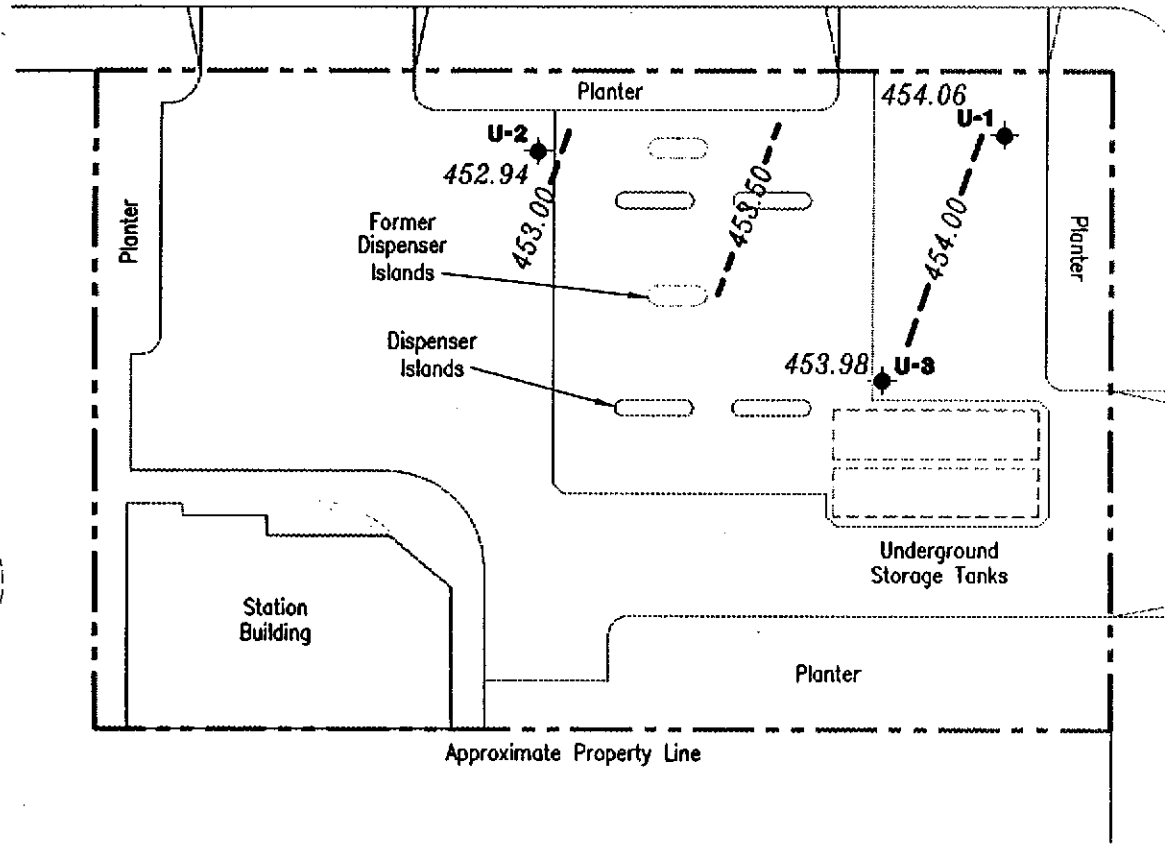


Approximate groundwater flow direction at a gradient of 0.016 Ft./Ft.



**FIRST STREET**

**N<sup>th</sup> STREET**



Source: Virgil Chavez Land Surveying dated August, 1998



**Gottler - Ryan Inc.**

6747 Sierra CL., 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  
180181

REVIEWED BY

DATE  
April 14, 1999

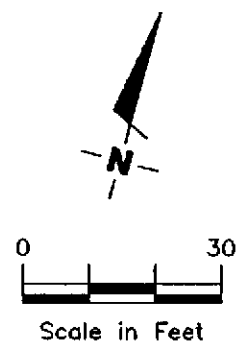
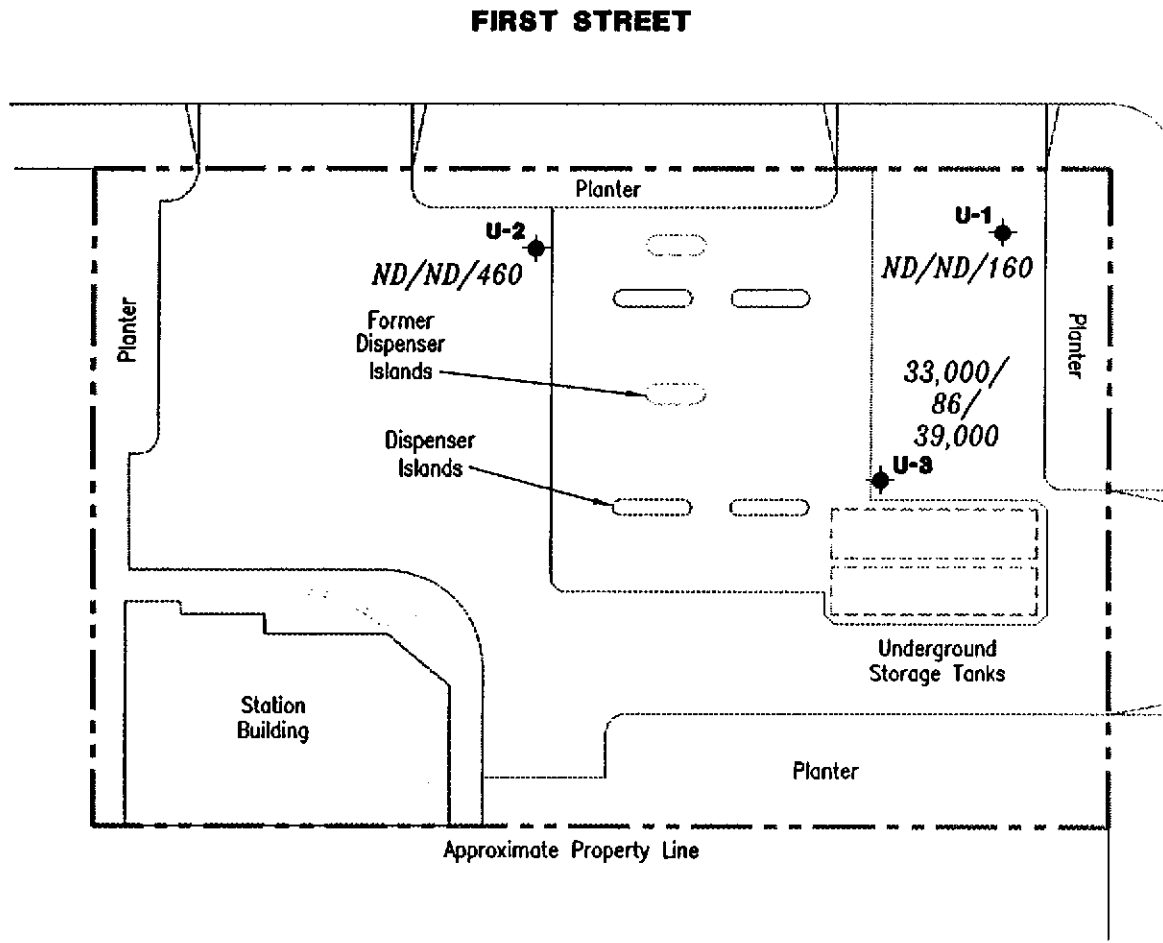
REVISED DATE

**EXPLANATION**

◆ Groundwater monitoring well

A/B/C TPH(G) (Total Petroleum Hydrocarbons as Gasoline)/Benzene/MTBE concentrations in ppb

ND Not Detected



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  
 April 14, 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
<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
<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
<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

**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 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 results.

## 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, each well is purged a minimum of three well casing volumes of water using pre-cleaned pumps (stack, suction, Grundfos), or polyvinyl chloride bailers. Temperature, pH and electrical conductivity are measured 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: 4-14-99  
Sampler: Joe

Well ID U-1

Well Condition: O.K.

Well Diameter 2 in.  
Total Depth 34.21 ft.  
Depth to Water 24.21 ft.

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

10.00 X VF 0.17 = 1.7 X 3 (case volume) = Estimated Purge Volume: 5 (gal.)

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

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

Starting Time: 7:51  
Sampling Time: 8:10A.M.  
Purging Flow Rate: 1 gpm.  
Did well de-water? \_\_\_\_\_

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

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm $\uparrow$	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>7:51</u>	<u>1.5</u>	<u>7.27</u>	<u>5.12</u>	<u>65.9</u>			
<u>7:59</u>	<u>3</u>	<u>7.22</u>	<u>5.14</u>	<u>64.7</u>			
<u>8:01</u>	<u>5</u>	<u>7.20</u>	<u>5.16</u>	<u>64.8</u>			

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE /	LABORATORY	ANALYSES
<u>U-1</u>	<u>3V0A</u>	<u>Y</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>TPH(GI)/btex/mtba</u>

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



**WELL MONITORING/SAMPLING  
FIELD DATA SHEET**

Client/Facility # 4186 Job#: 180181  
 Address: 1771 First st. Date: 4-14-99  
 City: Livermore Sampler: Joe

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 24.50 ft.

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

8.7 x VF 0.17 = 1.48 x 3 (case volume) = Estimated Purge Volume: 4.5 (gal.)

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

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

Starting Time: 8:20 Weather Conditions: clear  
 Sampling Time: 8:36 am Water Color: clear Odor: no odors  
 Purging Flow Rate: 1 gpm. Sediment Description: none  
 Did well de-water? \_\_\_\_\_ If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu\text{mhos/cm} \times 100$	Temperature $^{\circ}\text{F}$	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>8:25</u>	<u>1.5</u>	<u>7.07</u>	<u>4.44</u>	<u>65.8</u>			
<u>8:27</u>	<u>3</u>	<u>7.14</u>	<u>4.47</u>	<u>65.1</u>			
<u>8:29</u>	<u>4.5</u>	<u>7.19</u>	<u>4.53</u>	<u>65.4</u>			

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-2</u>	<u>3V0A</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  
Address: 1771 First st.  
City: Livermore

Job#: 180181  
Date: 4-14-99  
Sampler: Joe

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 29.48 ft.

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

8.92 x VF 0.17 = 1.52 x 3 (case volume) = Estimated Purge Volume: 5 (gal.)

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

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

Starting Time: 8:45 Weather Conditions: clear  
Sampling Time: 9:03 A.M. Water Color: clear Odor: none yes  
Purging Flow Rate: \_\_\_\_\_ gpm. Sediment Description: none  
Did well de-water? \_\_\_\_\_ 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>8:50</u>	<u>1.5</u>	<u>6.94</u>	<u>2.85</u>	<u>65.6</u>			
<u>9:02</u>	<u>3</u>	<u>6.90</u>	<u>3.11</u>	<u>65.1</u>			
<u>9:54</u>	<u>5</u>	<u>6.99</u>	<u>3.14</u>	<u>65.4</u>			
_____	_____	_____	_____	_____	_____	_____	_____

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE /	LABORATORY	ANALYSES
<u>U-3</u>	<u>3V0A</u>	<u>Y</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>TPH(G)/btex/mtbe</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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



TOSCO

Tosco Marketing Company  
2000 Cape Coryell Pl., Ste. 408  
San Ramon, California 94583

Facility Number: UNOCAL SS# 4186  
Facility Address: 1771 FIRST STREET, LIVERMORE, CA  
180181.85

Consultant Project Number: \_\_\_\_\_  
Consultant Name: Gettler-Ryan Inc. (G-R Inc.)  
Address: 6747 Sierra Court, Suite I, Dublin, CA 94568  
Project Contact (Name): Deanna L. Harding  
(Phone) 510-551-7555 (Fax Number) 510-551-7808

Contact (Name): MS. TINA BERRY De Witt  
(Phone): (925) 277-2321

Laboratory Name: Sequoia Analytical  
Laboratory Release Number: 9904405  
Sample Collected by (Name): JOE ASEMIAN  
Collection Date: 4-14-99  
Signature: Joe Asemian

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil W = Water C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Leak (Yes or No)	Analysis To Be Performed										Remarks					
								TPH Gas + BTEX WASTE (8015)	TPH Diesel (8015)	Oil and Grease (8520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd, Cr, Pb, Zn, Ni (NCP or AA)								
TB-LB	10A	1	E	-	-	HCL	Y	✓				9041391											
U-1	30A	1	/	G	8:10 A.M.	/	/	✓				9041392	A-C										
U-2	"	1	/	/	8:36 A.M.	/	/	✓				9041393	↓										
U-3	"	1	/	/	9:03 A.M.	/	/	✓				9041394	↓										

DO NOT BILL  
TB-LB ANALYSIS

Relinquished By (Signature): Joe Asemian	Organization: G-R Inc.	Date/Time: 4-14-99	Received By (Signature): Tina Berry	Organization: W.C. Seg	Date/Time: 4/15/99 1415	Turn Around Time (Circle Choice) 24 Hrs. 48 Hrs. 5 Days 10 Days <u>As Contracted</u>
Relinquished By (Signature): Tina Berry	Organization: W.C. Seg	Date/Time: 4/15/99 1520	Received By (Signature): _____	Organization: _____	Date/Time: _____	
Relinquished By (Signature): _____	Organization: _____	Date/Time: _____	Received For Laboratory By (Signature): _____	Organization: _____	Date/Time: 4/15/99 15:20	



# Sequoia Analytical

680 Chesapeake Drive  
404 N. Wiget Lane  
819 Striker Avenue, Suite 8  
1455 McDowell Blvd. North, Ste. D  
1551 Industrial Road

Redwood City, CA 94063  
Walnut Creek, CA 94598  
Sacramento, CA 95834  
Petaluma, CA 94954  
San Carlos, CA 94070-4111

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(925) 988-9600  
(916) 921-9600  
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(650) 232-9600

FAX (650) 364-9233  
FAX (925) 988-9673  
FAX (916) 921-0100  
FAX (707) 792-0342  
FAX (650) 232-9612

Gettler-Ryan - Dublin  
6747 Sierra Court, Suite J  
Dublin, CA 94568  
Attention: Deanna Harding

Client Project ID: Unocal SS#4186, Livermore  
Sample Matrix: Water  
Analysis Method: EPA 5030/8015 Mod./8020  
First Sample #: 904-1391

Sampled: Apr 14, 1999  
Received: Apr 15, 1999  
Reported: Apr 28, 1999

## TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX/MTBE INC.

Analyte	Reporting Limit µg/L	Sample I.D. 904-1391 TB-LB	Sample I.D. 904-1392 U-1	Sample I.D. 904-1393 U-2	Sample I.D. 904-1394 U-3
Purgeable Hydrocarbons	50	N.D.	N.D.	N.D.	33,000
Benzene	0.50	N.D.	N.D.	N.D.	86
Toluene	0.50	N.D.	N.D.	N.D.	290
Ethyl Benzene	0.50	N.D.	N.D.	N.D.	2,200
Total Xylenes	0.50	N.D.	N.D.	N.D.	7,800
MTBE	2.5	N.D.	160	460	39,000
Chromatogram Pattern:		--	--	--	Gasoline

### Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	100
Date Analyzed:	4/22/99	4/22/99	4/22/99	4/22/99
Instrument Identification:	HP-5	HP-5	HP-5	HP-5
Surrogate Recovery, %: (QC Limits = 70-130%)	98	88	88	86

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271

*Julianne Fegley*  
Julianne Fegley  
Project Manager





# Sequoia Analytical

680 Chesapeake Drive  
404 N. Wiget Lane  
819 Striker Avenue, Suite 8  
1455 McDowell Blvd. North, Ste. D  
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FAX (925) 988-9673  
FAX (916) 921-0100  
FAX (707) 792-0342  
FAX (650) 232-9612

Gettler-Ryan - Dublin  
6747 Sierra Court, Suite J  
Dublin, CA 94568  
Attention: Deanna Harding

Client Project ID: Unocal SS#4186, Livermore  
Matrix: Liquid

QC Sample Group: 9041391-394

Reported: Apr 28, 1999

## QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	C. Westwater	C. Westwater	C. Westwater	C. Westwater

MS/MSD Batch#:	9041735	9041735	9041735	9041735
Date Prepared:	4/22/99	4/22/99	4/22/99	4/22/99
Date Analyzed:	4/22/99	4/22/99	4/22/99	4/22/99
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Matrix Spike % Recovery:	90	90	90	95
Matrix Spike Duplicate % Recovery:	90	90	90	95
Relative % Difference:	0.0	0.0	0.0	0.0

LCS Batch#:	5LCS042299	5LCS042299	5LCS042299	5LCS042299
Date Prepared:	4/22/99	4/22/99	4/22/99	4/22/99
Date Analyzed:	4/22/99	4/22/99	4/22/99	4/22/99
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5
LCS % Recovery:	95	95	95	98

% Recovery Control Limits:	70-130	70-130	70-130	70-130
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**Please Note:**

The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

SEQUOIA ANALYTICAL, #1271

*Julianne Fegley*  
Julianne Fegley  
Project Manager