



GETTLER - RYAN INC.

ENVIRONMENTAL
PROTECTION

TRANSMITTAL

99 SEP 21 PM 2:52

September 7, 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	August 29, 1999	Groundwater Monitoring and Sampling Report Third Quarter 1999 - Event of July 19, 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 *September 20, 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.dhd.qmt



GETTLER-RYAN INC.

August 29, 1999
G-R Job #180181

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

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


Dear Mr. De Witt:

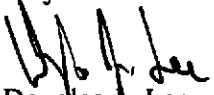
This report documents the quarterly groundwater monitoring and sampling event performed by Gettler-Ryan Inc. (G-R). On July 19, 1999, field personnel monitored and sampled three wells (U-1, U-2 and U-3) at the above referenced site.

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

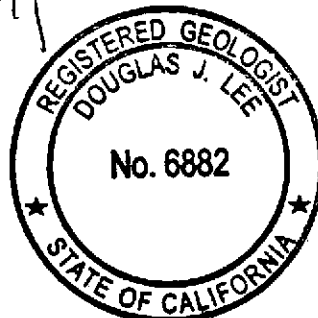



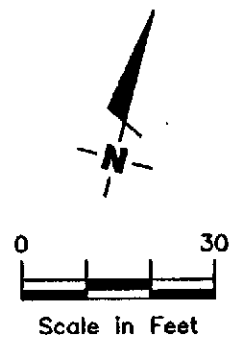
Figure 1: Potentiometric Map
Figure 2: Concentration Map
Table 1: Groundwater Monitoring Data and Analytical Results
Attachments: Standard Operating Procedure - Groundwater Sampling
Field Data Sheets
Chain of Custody Document and Laboratory Analytical Reports

4186.qml

EXPLANATION

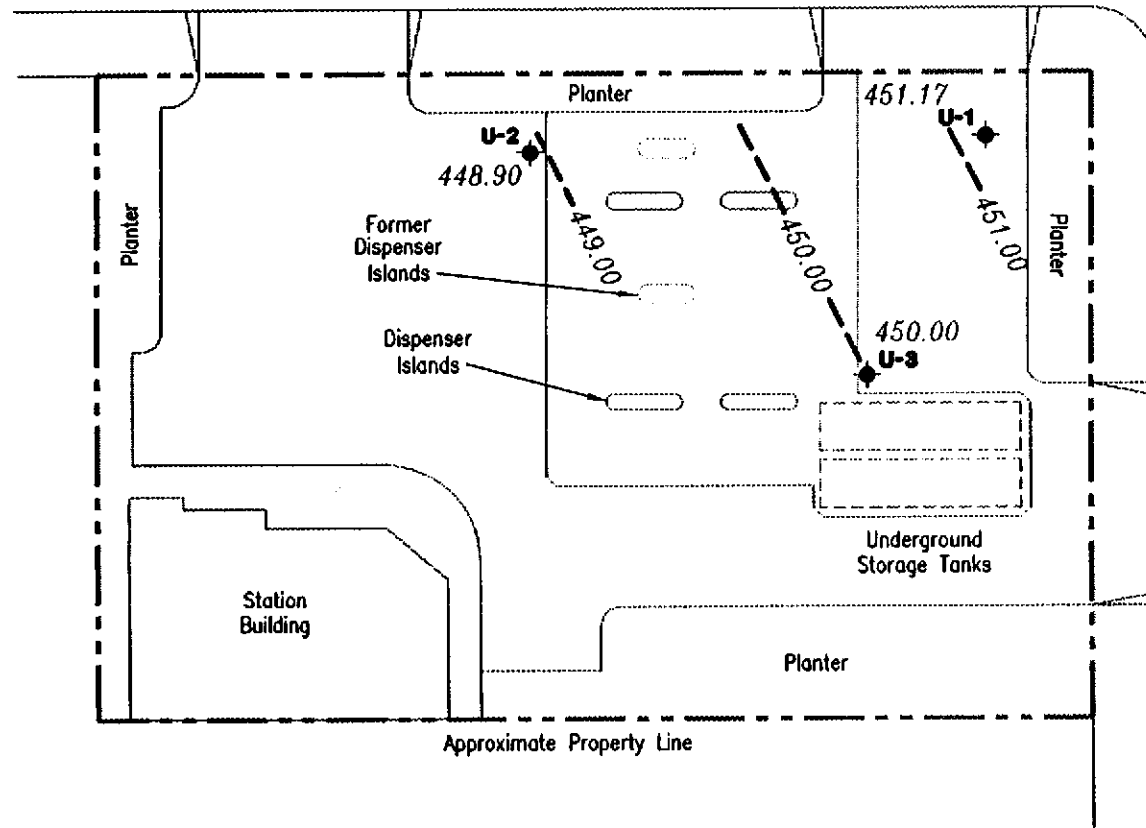
- ◆ Groundwater monitoring well
- 99.99 Groundwater elevation in feet referenced to Mean Sea Level (MSL)
- 99.99 --- Groundwater elevation contour, dashed where inferred.

Approximate groundwater flow direction at a gradient of 0.03 Ft./Ft.

FIRST STREET

N^o STREET



Source: Virgil Chavez Land Surveying dated August, 1998



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

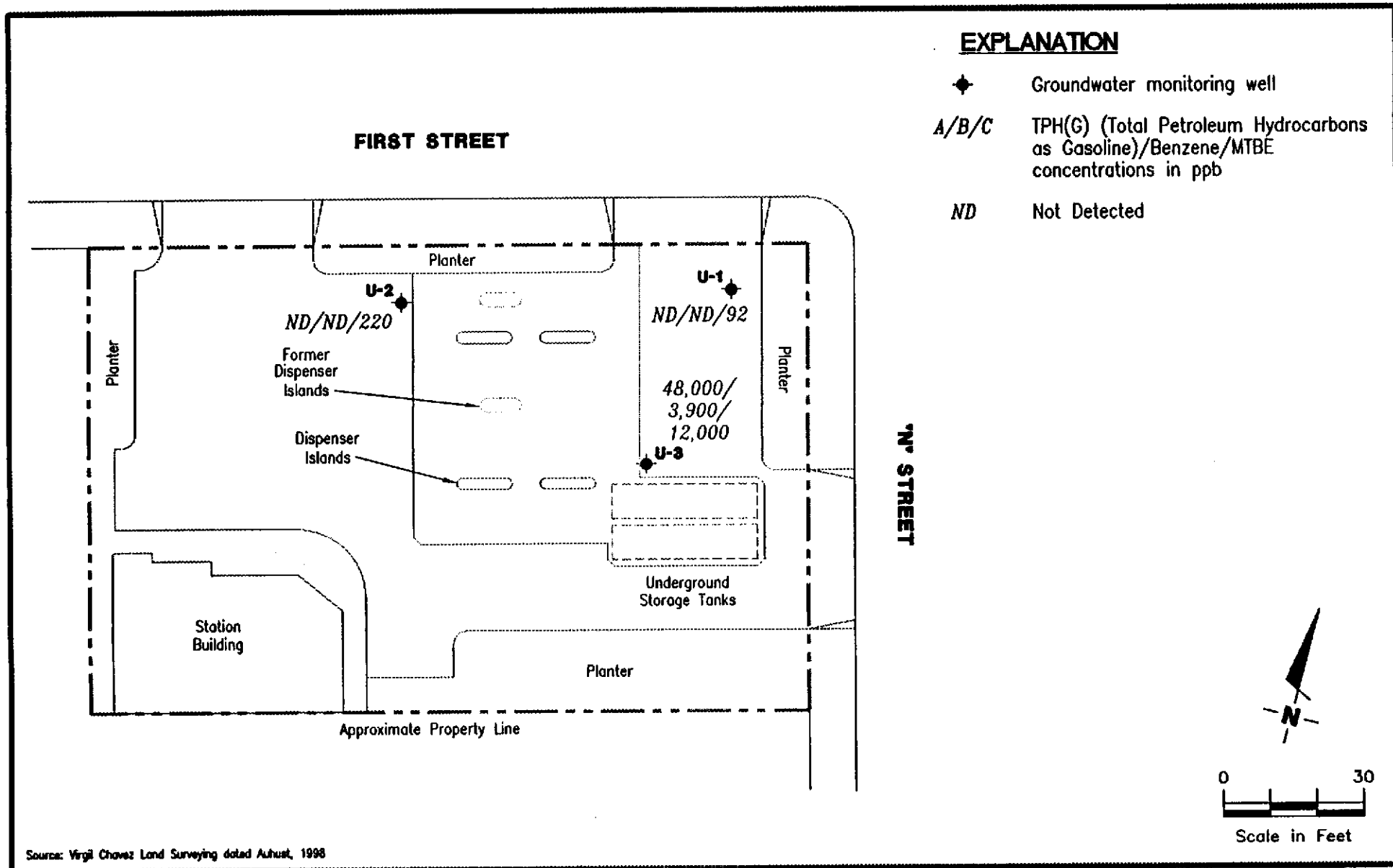
1

JOB NUMBER
180181

REVIEWED BY

DATE
July 19, 1999

REVISED DATE



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
July 19, 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)
U-1									
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
U-2									
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
U-3									
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 ¹	3,100	ND ²	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 ³
Trip Blank									
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

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.

¹ Laboratory report indicates gasoline and unidentified hydrocarbons C6-C12.

² Detection limit raised. Refer to analytical results.

³ MTBE by EPA Method 8260.

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: 7-19-99
 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 27.10 ft.

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

7.1 X VF 0.17 = 1.21 X 3 (case volume) = Estimated Purge Volume: 4 (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: 8:42 A.M. Water Color: clear Odor: none
 Purging Flow Rate: 6.5 gpm. Sediment Description: none
 Did well de-water? _____ If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity μ mhos/cm ²	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>8:26</u>	<u>1.5</u>	<u>7.57</u>	<u>6.14</u>	<u>67.1</u>			
<u>8:29</u>	<u>3</u>	<u>7.62</u>	<u>6.15</u>	<u>67.8</u>			
<u>8:32</u>	<u>4</u>	<u>7.60</u>	<u>6.19</u>	<u>67.2</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(G)/btex/mtbe</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

COMMENTS: _____

**WELL MONITORING/SAMPLING
FIELD DATA SHEET**

Client/Facility: #4186 Job#: 180181
 Address: 1771 First st. Date: 7-19-99
 City: Livermore Sampler: Joe

Well ID: U-2 Well Condition: o.k.
 Well Diameter: 2 in. Hydrocarbon Thickness: 0 (feet) Amount Bailed (Gallons): 0
 Total Depth: 33.20 ft.
 Depth to Water: 28.54 ft.

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

4.66 x VF 0.17 = 0.79 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: 8:50 Weather Conditions: clear
 Sampling Time: 9:04 A.M. Water Color: clear Odor: same
 Purging Flow Rate: 0.5 gpm. Sediment Description: none
 Did well de-water? _____ If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity μ mhos/cm ²	Temperature °F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>8:55</u>	<u>0.5</u>	<u>7.13</u>	<u>3.67</u>	<u>66.2</u>			
<u>8:57</u>	<u>1</u>	<u>7.20</u>	<u>3.66</u>	<u>66.5</u>			
<u>8:59</u>	<u>2.5</u>	<u>7.25</u>	<u>3.59</u>	<u>66.4</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(G)/btex/mtbe</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

COMMENTS: _____

**WELL MONITORING/SAMPLING
FIELD DATA SHEET**

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

Job#: 180181
Date: 7-19-99
Sampler: Joe

Well ID U-3

Well Condition: O.K.

Well Diameter 2 in.

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

Total Depth 33.40 ft.

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

Depth to Water 28.46 ft.

4.94 x VF 0.17 = 0.83 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: 9:15

Weather Conditions: clear

Sampling Time: 9:30 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, μ mhos/cm ^x	Temperature	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>9:20</u>	<u>0.5</u>	<u>7.33</u>	<u>3.41</u>	<u>65.9</u>			
<u>9:22</u>	<u>1</u>	<u>7.10</u>	<u>3.44</u>	<u>66.3</u>			
<u>9:24</u>	<u>2.5</u>	<u>7.04</u>	<u>3.49</u>	<u>66.7</u>			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-3</u>	<u>3VVA</u>	<u>Y</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>TPH(G)/btax/mtbe (648260)</u>

COMMENTS: _____



DETECTED
ANALYTES

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 #: 907-1358	Sampled: Jul 19, 1999 Received: Jul 19, 1999 Reported: Aug 4, 1999
--	--	--

GENERAL CONTRACTOR

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX / MTBE

Analyte	Reporting Limit µg/L	Sample I.D. 907-1358 TB-LB	Sample I.D. 907-1359 U-1	Sample I.D. 907-1360 U-2	Sample I.D. 907-1361 U-3
Purgeable Hydrocarbons	50	N.D.	N.D.	N.D.	48,000
Benzene	0.50	N.D.	N.D.	N.D.	3,900
Toluene	0.50	N.D.	N.D.	N.D.	2,500
Ethyl Benzene	0.50	N.D.	N.D.	N.D.	3,600
Total Xylenes	0.50	N.D.	N.D.	N.D.	14,000
MTBE	2.5	N.D.	92	220	12,000
Chromatogram Pattern:		--	--	--	Gasoline

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	100
Date Analyzed:	7/26/99	7/26/99	7/27/99	7/27/99
Instrument Identification:	HP-5	HP-5	HP-5	HP-5
Surrogate Recovery, %: (QC Limits = 70-130%)	81	89	91	91

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

Please Note:
*Revised Report, 8/10/99

Julianne Fegley
Project Manager





Gettler-Ryan - Dublin	Client Project ID: Unocal SS#4186, Livermore	Sampled: Jul 19, 1999
6747 Sierra Court, Suite J	Sample Descript: Water, U-3	Received: Jul 19, 1999
Dublin, CA 94568	Analysis Method: EPA 8260	Analyzed: Aug 2, 1999
Attention: Deanna Harding	Lab Number: 907-1361	Reported: Aug 4, 1999

MTBE by EPA 8260

Analyte	Detection Limit µg/L	Sample Results µg/L
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Methyl t-Butyl Ether (MTBE).....	2.0	16,000
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Surrogates	Control Limit %	% Recovery
Dibromofluoromethane.....	50	150.....
		109

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL, #1271

Jubianne Fegley
Jubianne Fegley
Project Manager





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: 9071358-361

Reported: Aug 4, 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#:	9071367	9071367	9071367	9071367
Date Prepared:	7/26/99	7/26/99	7/26/99	7/26/99
Date Analyzed:	7/26/99	7/26/99	7/26/99	7/26/99
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:	95	95	100	100
Matrix Spike Duplicate % Recovery:	90	95	95	98
Relative % Difference:	5.4	0.0	5.1	1.7

LCS Batch#:	5LCS072699	5LCS072699	5LCS072699	5LCS072699
Date Prepared:	7/26/99	7/26/99	7/26/99	7/26/99
Date Analyzed:	7/26/99	7/26/99	7/26/99	7/26/99
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5
LCS % Recovery:	95	100	100	102

% Recovery Control Limits:	70-130	70-130	70-130	70-130
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SEQUOIA ANALYTICAL, #1271

Julianne Fegley
Julianne Fegley
Project Manager

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.





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: 9071358-361

Reported: Aug 4, 1999

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes	MTBE
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8260
Analyst:	C. Westwater	C. Westwater	C. Westwater	C. Westwater	N. Nelson

MS/MSD

Batch#:	-	-	-	-	9071219
Date Prepared:	-	-	-	-	8/1/99
Date Analyzed:	-	-	-	-	8/1/99
Instrument I.D.#:	-	-	-	-	GC/MS-2
Conc. Spiked:	-	-	-	-	50 µg/L
Matrix Spike % Recovery:	-	-	-	-	100
Matrix Spike Duplicate % Recovery:	-	-	-	-	100
Relative % Difference:	-	-	-	-	0.0

LCS Batch#:	5LCS072799	5LCS072799	5LCS072799	5LCS072799	LCS080199
Date Prepared:	7/27/99	7/27/99	7/27/99	7/27/99	8/1/99
Date Analyzed:	7/27/99	7/27/99	7/27/99	7/27/99	8/1/99
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5	GC/MS-2
LCS% Recov.:	100	100	100	107	108
LCSD% Recov.:	100	100	100	103	

% Recovery Control Limits:	70-130	70-130	70-130	70-130	70-130
----------------------------	--------	--------	--------	--------	--------

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

Johanne Fegley
Johanne Fegley
Project Manager

