



GETTLER-RYAN INC.

TRANSMITTAL

March 5, 2001
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	February 21, 200100	Groundwater Monitoring and Sampling Report First Quarter - Event of January 8, 2001

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 **March 15, 2001**, this report will be distributed to the following:

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

Enclosure

trans/4186.dbd



GETTLER-RYAN INC.

February 21, 2001
G-R Job #180181

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

RE: First Quarter Event of January 8, 2001
Groundwater Monitoring & Sampling Report
Tosco (Unocal) Service Station #4186
1771 First Street
Livermore, California

Dear Mr. De Witt:

This report documents the most recent groundwater monitoring and sampling events performed by Gettler-Ryan Inc. (G-R) at the referenced site. All field work was conducted in accordance with G-R Standard Operating Procedure - Groundwater Sampling (attached).

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

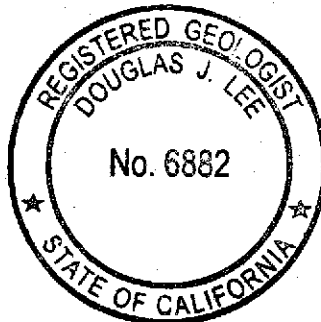
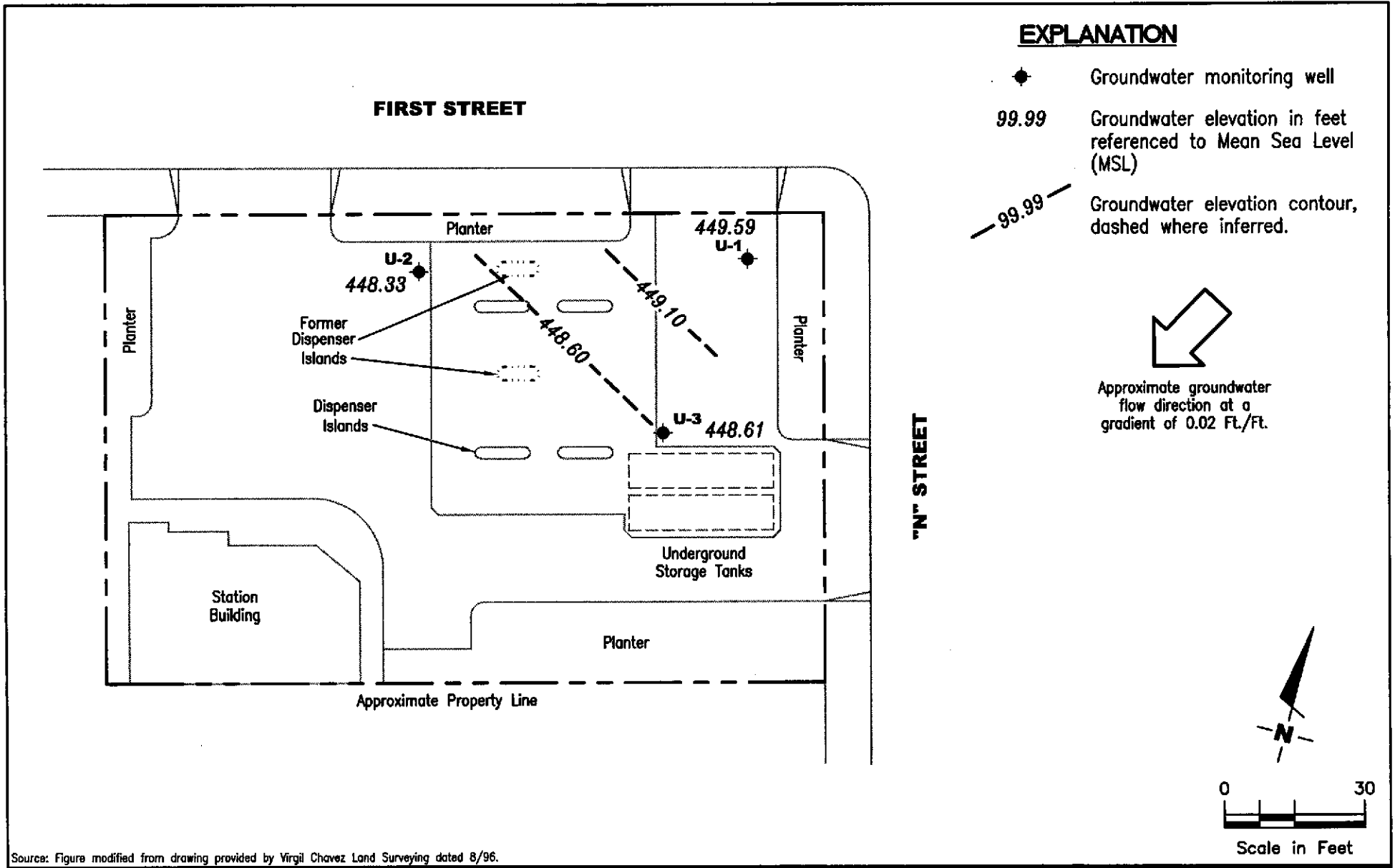


Figure 1: Potentiometric Map
Figure 2: Concentration Map
Table 1: Groundwater Monitoring Data and Analytical Results
Table 2: Groundwater Analytical Results - Oxygenate Compounds
Attachments: Standard Operating Procedure - Groundwater Sampling
Field Data Sheets
Chain of Custody Document and Laboratory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

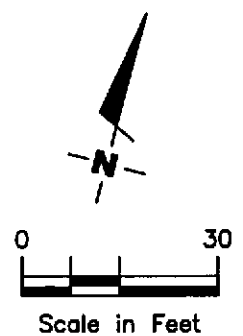
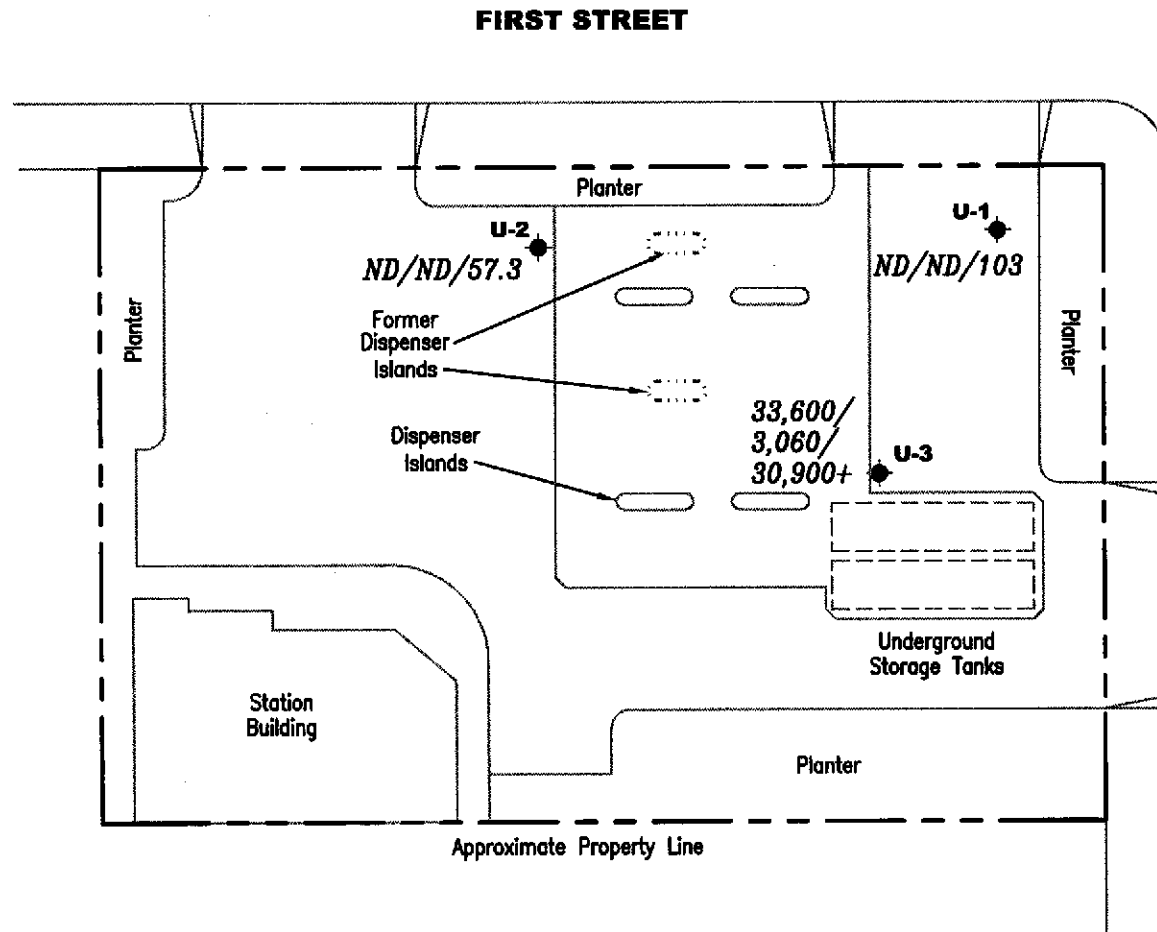
REVIEWED BY

DATE
 January 8, 2001

REVISED DATE

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



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

GETTLER - RYAN INC.
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CONCENTRATION MAP
 Tosco (Unocal) Service Station #4186
 1771 First Street
 Livermore, California

FIGURE
2

PROJECT NUMBER
 180181

REVIEWED BY

DATE
 January 8, 2001

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)
U-1										
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
	01/08/01	28.68		449.59	ND	ND	ND	ND	ND	103
U-2										
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
	01/08/01	29.11		448.33	ND	ND	ND	ND	ND	57.3

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										
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 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
	10/12/99	30.39		448.07	35,000 ⁴	4,200	ND ²	2,300	1,800	22,000/8,300 ⁵
	01/24/00	23.43		455.03	13,000 ⁴	260	ND ²	770	3,200	53,000/42,000 ³
	04/10/00	23.31		455.15	35,200 ⁴	1,070	241	2,820	8,850	35,600/40,900 ³
	07/17/00	27.53		450.93	29,000 ⁴	3,570	525	3,180	5,660	22,500/21,000 ³
	10/02/00	28.19		450.27	11,000 ⁴	2,100	31	2,000	780	25,000/28,000 ^{3,6}
	01/08/01	29.85		448.61	33,600 ⁴	3,060	427	3,040	4,190	24,700/30,900 ³
TRIP BLANK										
	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
	01/08/01	--		--	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

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 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 reports.

³ MTBE by EPA Method 8260.

⁴ Laboratory report indicates gasoline C6-C12.

⁵ MTBE by EPA Method 8260 analyzed past EPA recommended holding time.

⁶ 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	--	--	--	--	--
	10/12/1999	--	--	8,300	--	--	--	--	--
	01/24/00	--	--	42,000	--	--	--	--	--
	04/10/00	--	--	40,900	--	--	--	--	--
	07/17/00	--	--	21,000	--	--	--	--	--
	10/02/00	--	63,000	28,000	--	--	--	--	--
	01/08/01	ND ¹	49,300	30,900	ND ¹	ND ¹	ND ¹	ND ¹	ND ¹

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
 ND = Not Detected
 -- = Not Analyzed

ANALYTICAL METHOD:

EPA Method 8260 for Oxygenate Compounds

¹ Detection limit raised. Refer to analytical report.

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: 1-8-01
Sampler: Joe

Well ID U-1

Well Condition: OK

Well Diameter 2 in.

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

Total Depth 34.17 ft.

Depth to Water 28.68 ft.

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

5.49 x VF 0.17 = 0.93 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: 12:35
Sampling Time: 12:52 P.M.
Purging Flow Rate: 0.5 gpm
Did well de-water? _____

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

Time	Volume (gal.)	pH	Conductivity μ mhos/cm	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>12:42</u>	<u>1</u>	<u>7.92</u>	<u>8.35</u>	<u>63.8</u>	_____	_____	_____
<u>12:44</u>	<u>2</u>	<u>7.56</u>	<u>8.32</u>	<u>64.2</u>	_____	_____	_____
<u>12:46</u>	<u>3</u>	<u>7.46</u>	<u>8.35</u>	<u>63.7</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-1</u>	<u>3VOA</u>	<u>Y</u>	<u>HCL</u>	<u>Seq.</u>	<u>TPHG, B.TGA, MTSS</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

COMMENTS: _____

WELL MONITORING/SAMPLING FIELD DATA SHEET

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

Job#: 180181
Date: 1-8-01
Sampler: Joe

Well ID: U-2
Well Diameter: 2 in
Total Depth: 33.12 ft
Depth to Water: 29.11 ft

Well Condition: OK
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" = 5.80	

4.01 x VF 0.17 = 0.68 x 3 (case volume) = Estimated Purge Volume: 2 (gal.)

Purge Equipment: Disposable Bailer
Bailer
Stack
Suction
Grundfos
Other: _____

Sampling Equipment: Disposable Bailer
Bailer
Pressure Bailer
Grab Sample
Other: _____

Starting Time: 12:06
Sampling Time: 12:25 P.M.
Purging Flow Rate: 0.5 gpm
Did well de-water? _____

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

Time	Volume (gal.)	pH	Conductivity μ mhos/cm	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>12:12</u>	<u>1</u>	<u>7.66</u>	<u>6.95</u>	<u>64.2</u>			
<u>12:14</u>	<u>1.5</u>	<u>7.32</u>	<u>6.90</u>	<u>64.5</u>			
<u>12:16</u>	<u>2</u>	<u>7.28</u>	<u>6.94</u>	<u>64.6</u>			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-2</u>	<u>30A</u>	<u>Y</u>	<u>HCL</u>	<u>Seq.</u>	<u>TPHG, B.T.C., nITRE</u>

COMMENTS: _____

WELL MONITORING/SAMPLING FIELD DATA SHEET

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

Job#: 180181
Date: 1-8-01
Sampler: Joe

Well ID: U-3
Well Diameter: 2 in.
Total Depth: 33.35 ft
Depth to Water: 29.85 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" = 5.80	

3.5 x VF 0.17 = 0.60 x 3 (case volume) = Estimated Purge Volume: 2 (gal.)

Purge Equipment: Disposable Bailer
~~Bailer~~
~~Stack~~
~~Suction~~
~~Grundfos~~
Other: _____

Sampling Equipment: Disposable Bailer
~~Bailer~~
~~Pressure Bailer~~
~~Grab Sample~~
Other: _____

Starting Time: 1:00
Sampling Time: 1:25 P.M.
Purging Flow Rate: 0.1 gpm.
Did well de-water? _____

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

Time	Volume (gal.)	pH	Conductivity μ mhos/cm	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>1:10</u>	<u>0.5</u>	<u>6.90</u>	<u>225</u>	<u>63.9</u>	_____	_____	_____
<u>1:12</u>	<u>1</u>	<u>6.92</u>	<u>230</u>	<u>64.1</u>	_____	_____	_____
<u>1:14</u>	<u>2</u>	<u>6.96</u>	<u>235</u>	<u>64.2</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-3</u>	<u>3VOA</u>	<u>Y</u>	<u>HCL</u>	<u>Seq.</u>	<u>TPHG, B.T&A, MT&B</u>

COMMENTS: _____



**Sequoia
Analytical**

1551 Industrial Road
San Carlos, CA 94070-4111
(650) 232-9600
FAX (650) 232-9612
www.sequoialabs.com

RECEIVED

JAN 20 2001

GETTLER-RYAN INC.
GENERAL CONTRACTORS

January 17 , 2001

Deanna Harding
Gettler-Ryan/Geostrategies(1)
6747 Sierra Court, Suite J
Dublin, CA 94568
RE: Tosco(1) / L101033

Enclosed are the results of analyses for samples received by the laboratory on 01/09/01. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Latonya K. Pelt

Latonya Pelt
Project Manager

CA ELAP Certificate Number 2360





Gettler-Ryan/Geostrategies(1)
6747 Sierra Court, Suite J
Dublin CA, 94568

Project: Tosco(1)
Project Number: Unocal SS#4186
Project Manager: Deanna Harding

Reported:
01/17/01 14:05

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-LB	L101033-01	Water	01/08/01 00:00	01/09/01 08:56
U-1	L101033-02	Water	01/08/01 12:52	01/09/01 08:56
U-2	L101033-03	Water	01/08/01 12:25	01/09/01 08:56
U-3	L101033-04	Water	01/08/01 13:25	01/09/01 08:56





Gettler-Ryan/Geostrategies(1)
6747 Sierra Court, Suite J
Dublin CA, 94568

Project: Tosco(1)
Project Number: Unocal SS#4186
Project Manager: Deanna Harding

Reported:
01/17/01 14:05

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TB-LB (L101033-01) Water Sampled: 01/08/01 00:00 Received: 01/09/01 08:56									
Purgeable Hydrocarbons as Gasoline	ND	50.0	ug/l	1	1010036	01/10/01	01/10/01	DHS LUFT	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	0.500	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	5.00	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		92.2 %	70-130		"	"	"	"	
U-1 (L101033-02) Water Sampled: 01/08/01 12:52 Received: 01/09/01 08:56									
Purgeable Hydrocarbons as Gasoline	ND	50.0	ug/l	1	1010036	01/10/01	01/10/01	DHS LUFT	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	0.500	"	"	"	"	"	"	
Methyl tert-butyl ether	103	5.00	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		76.6 %	70-130		"	"	"	"	
U-2 (L101033-03) Water Sampled: 01/08/01 12:25 Received: 01/09/01 08:56									
Purgeable Hydrocarbons as Gasoline	ND	50.0	ug/l	1	1010036	01/10/01	01/10/01	DHS LUFT	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	0.500	"	"	"	"	"	"	
Methyl tert-butyl ether	57.3	5.00	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		70.0 %	70-130		"	"	"	"	





Gettler-Ryan/Geostrategies(1)
6747 Sierra Court, Suite J
Dublin CA, 94568

Project: Tosco(1)
Project Number: Unocal SS#4186
Project Manager: Deanna Harding

Reported:
01/17/01 14:05

Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT

Sequoia Analytical - San Carlos

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
U-3 (L101033-04) Water Sampled: 01/08/01 13:25 Received: 01/09/01 08:56									
Purgeable Hydrocarbons as Gasoline	33600	5000	ug/l	100	1010037	01/10/01	01/10/01	DHS LUFT	P-01
Benzene	3060	50.0	"	"	"	"	"	"	
Toluene	427	50.0	"	"	"	"	"	"	
Ethylbenzene	3040	50.0	"	"	"	"	"	"	
Xylenes (total)	4190	50.0	"	"	"	"	"	"	
Methyl tert-butyl ether	24700	500	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		100 %		70-130	"	"	"	"	





Gettler-Ryan/Geostrategies(1)
6747 Sierra Court, Suite J
Dublin CA, 94568

Project: Tosco(1)
Project Number: Unocal SS#4186
Project Manager: Deanna Harding

Reported:
01/17/01 14:05

Volatile Organic Oxygenated 8 Compounds by EPA Method 8260B
Sequoia Analytical - San Carlos

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
U-3 (L101033-04) Water Sampled: 01/08/01 13:25 Received: 01/09/01 08:56									
Ethanol	ND	333000	ug/l	333.33	1010049	01/12/01	01/15/01	EPA 8260B	
1,2-Dibromoethane	ND	667	"	"	"	"	"	"	
1,2-Dichloroethane	ND	667	"	"	"	"	"	"	
Di-isopropyl ether	ND	667	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	667	"	"	"	"	"	"	
Methyl tert-butyl ether	30900	667	"	"	"	"	"	"	
Tert-amyl methyl ether	ND	667	"	"	"	"	"	"	
Tert-butyl alcohol	49300	33300	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		110 %		76-114	"	"	"	"	
<i>Surrogate: Toluene-d8</i>		104 %		88-110	"	"	"	"	





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Reported:
01/17/01 14:05

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1010036 - EPA 5030B (P/T)

Blank (1010036-BLK1)

Prepared & Analyzed: 01/10/01

Purgeable Hydrocarbons as Gasoline	ND	50.0	ug/l							
Benzene	ND	0.500	"							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	0.500	"							
Methyl tert-butyl ether	ND	5.00	"							
Surrogate: a,a,a-Trifluorotoluene	8.29		"	10.0		82.9	70-130			

LCS (1010036-BS1)

Prepared & Analyzed: 01/10/01

Benzene	8.64	0.500	ug/l	10.0		86.4	70-130			
Toluene	7.98	0.500	"	10.0		79.8	70-130			
Ethylbenzene	8.29	0.500	"	10.0		82.9	70-130			
Xylenes (total)	24.9	0.500	"	30.0		83.0	70-130			
Surrogate: a,a,a-Trifluorotoluene	8.50		"	10.0		85.0	70-130			

LCS (1010036-BS2)

Prepared & Analyzed: 01/10/01

Purgeable Hydrocarbons as Gasoline	250	50.0	ug/l	250		100	70-130			
Surrogate: a,a,a-Trifluorotoluene	7.34		"	10.0		73.4	70-130			

Matrix Spike (1010036-MS1)

Source: L101035-04

Prepared & Analyzed: 01/10/01

Benzene	8.84	0.500	ug/l	10.0	ND	88.4	60-140			
Toluene	8.10	0.500	"	10.0	ND	81.0	60-140			
Ethylbenzene	8.45	0.500	"	10.0	ND	84.5	60-140			
Xylenes (total)	25.1	0.500	"	30.0	ND	83.7	60-140			
Surrogate: a,a,a-Trifluorotoluene	9.64		"	10.0		96.4	70-130			

Matrix Spike Dup (1010036-MSD1)

Source: L101035-04

Prepared & Analyzed: 01/10/01

Benzene	9.45	0.500	ug/l	10.0	ND	94.5	60-140	6.67	25	
Toluene	8.73	0.500	"	10.0	ND	87.3	60-140	7.49	25	
Ethylbenzene	8.89	0.500	"	10.0	ND	88.9	60-140	5.07	25	
Xylenes (total)	26.5	0.500	"	30.0	ND	88.3	60-140	5.43	25	
Surrogate: a,a,a-Trifluorotoluene	10.2		"	10.0		102	70-130			





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Project: Tosco(1)
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Project Manager: Deanna Harding

Reported:
01/17/01 14:05

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1010037 - EPA 5030B (P/T)

Blank (1010037-BLK1)

Prepared & Analyzed: 01/10/01

Purgeable Hydrocarbons as Gasoline	ND	50.0	ug/l							
Benzene	ND	0.500	"							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	0.500	"							
Methyl tert-butyl ether	ND	5.00	"							
<i>Surrogate: a,a,a-Trifluorotoluene</i>	8.64		"	10.0		86.4	70-130			

LCS (1010037-BS1)

Prepared & Analyzed: 01/10/01

Benzene	8.65	0.500	ug/l	10.0		86.5	70-130			
Toluene	8.61	0.500	"	10.0		86.1	70-130			
Ethylbenzene	8.82	0.500	"	10.0		88.2	70-130			
Xylenes (total)	26.5	0.500	"	30.0		88.3	70-130			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	9.34		"	10.0		93.4	70-130			

LCS (1010037-BS2)

Prepared & Analyzed: 01/10/01

Purgeable Hydrocarbons as Gasoline	260	50.0	ug/l	250		104	70-130			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	10.3		"	10.0		103	70-130			

Matrix Spike (1010037-MS1)

Source: L101034-03

Prepared: 01/10/01 Analyzed: 01/11/01

Benzene	9.20	0.500	ug/l	10.0	ND	92.0	60-140			
Toluene	9.11	0.500	"	10.0	ND	91.1	60-140			
Ethylbenzene	9.37	0.500	"	10.0	ND	93.7	60-140			
Xylenes (total)	28.1	0.500	"	30.0	ND	93.7	60-140			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	9.92		"	10.0		99.2	70-130			

Matrix Spike Dup (1010037-MSD1)

Source: L101034-03

Prepared: 01/10/01 Analyzed: 01/11/01

Benzene	9.61	0.500	ug/l	10.0	ND	96.1	60-140	4.36	25	
Toluene	9.59	0.500	"	10.0	ND	95.9	60-140	5.13	25	
Ethylbenzene	9.91	0.500	"	10.0	ND	99.1	60-140	5.60	25	
Xylenes (total)	29.8	0.500	"	30.0	ND	99.3	60-140	5.87	25	
<i>Surrogate: a,a,a-Trifluorotoluene</i>	9.88		"	10.0		98.8	70-130			





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Project: Tosco(1)
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Reported:
01/17/01 14:05

**Volatile Organic Oxygenated 8 Compounds by EPA Method 8260B - Quality Control
Sequoia Analytical - San Carlos**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1010049 - EPA 5030B [P/T]

Blank (1010049-BLK1)

Prepared & Analyzed: 01/12/01

Ethanol	ND	1000	ug/l							
1,2-Dibromoethane	ND	2.00	"							
1,2-Dichloroethane	ND	2.00	"							
Di-isopropyl ether	ND	2.00	"							
Ethyl tert-butyl ether	ND	2.00	"							
Methyl tert-butyl ether	ND	2.00	"							
Tert-amyl methyl ether	ND	2.00	"							
Tert-butyl alcohol	ND	100	"							
Surrogate: 1,2-Dichloroethane-d4	51.0		"	50.0		102	76-114			
Surrogate: Toluene-d8	50.1		"	50.0		100	88-110			

Blank (1010049-BLK2)

Prepared & Analyzed: 01/15/01

Ethanol	ND	1000	ug/l							
1,2-Dibromoethane	ND	2.00	"							
1,2-Dichloroethane	ND	2.00	"							
Di-isopropyl ether	ND	2.00	"							
Ethyl tert-butyl ether	ND	2.00	"							
Methyl tert-butyl ether	ND	2.00	"							
Tert-amyl methyl ether	ND	2.00	"							
Tert-butyl alcohol	ND	100	"							
Surrogate: 1,2-Dichloroethane-d4	54.4		"	50.0		109	76-114			
Surrogate: Toluene-d8	52.9		"	50.0		106	88-110			

LCS (1010049-BS1)

Prepared & Analyzed: 01/12/01

Methyl tert-butyl ether	54.2	2.00	ug/l	50.0		108	70-130			
Surrogate: 1,2-Dichloroethane-d4	50.1		"	50.0		100	76-114			
Surrogate: Toluene-d8	50.1		"	50.0		100	88-110			



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Reported:
01/17/01 14:05

Volatile Organic Oxygenated 8 Compounds by EPA Method 8260B - Quality Control
Sequoia Analytical - San Carlos

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1010049 - EPA 5030B [P/T]

LCS (1010049-BS2)

Prepared & Analyzed: 01/15/01

Methyl tert-butyl ether	48.6	2.00	ug/l	50.0		97.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	51.2		"	50.0		102	76-114			
Surrogate: Toluene-d8	52.2		"	50.0		104	88-110			

Matrix Spike (1010049-MS1)

Source: L101062-04

Prepared & Analyzed: 01/12/01

Methyl tert-butyl ether	53.4	2.00	ug/l	50.0	ND	107	60-140			
Surrogate: 1,2-Dichloroethane-d4	53.3		"	50.0		107	76-114			
Surrogate: Toluene-d8	49.8		"	50.0		99.6	88-110			

Matrix Spike Dup (1010049-MSD1)

Source: L101062-04

Prepared & Analyzed: 01/12/01

Methyl tert-butyl ether	55.0	2.00	ug/l	50.0	ND	110	60-140	2.95	25	
Surrogate: 1,2-Dichloroethane-d4	52.3		"	50.0		105	76-114			
Surrogate: Toluene-d8	50.4		"	50.0		101	88-110			





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Reported:
01/17/01 14:05

Notes and Definitions

P-01 Chromatogram Pattern: Gasoline C6-C12
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