



GETTLER-RYAN INC.

RO -436
JUN 17 2002

TRANSMITTAL

May 28, 2002
G-R #180181

TO: Mr. David B. De Witt
Phillips 66 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) Service Station
#4186
1771 First Street
Livermore, California**

WE HAVE ENCLOSED THE FOLLOWING:

COPIES	DATED	DESCRIPTION
1	May 17, 2002	Groundwater Monitoring and Sampling Report Second Quarter - Event of April 5, 2002

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 10, 2002**, this report will be distributed to the following:

cc: Ms. Eva Chu, Alameda County Health Care Services, 1131 Harbor Bay Pkwy., Alameda, CA 94502
Ms. Carol Mahoney, Zone 7 Water Zone, 5997 Parkside Drive, Pleasanton, CA 94588

Enclosures

trans/4186-dbd



GETTLER - RYAN INC.

May 17, 2002
G-R Job #180181

Mr. David B. De Witt
Phillips 66 Company
2000 Crow Canyon Place, Suite 400
San Ramon, CA 94583

RE: Second Quarter Event of April 5, 2002
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 event 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).

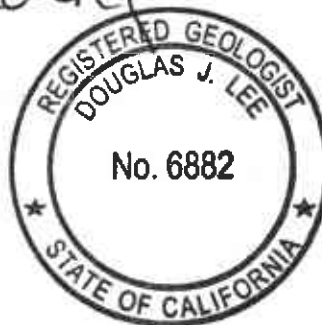
Static groundwater levels were measured and the wells were checked for the presence of separate-phase hydrocarbons. Separate-phase hydrocarbons were not present in the wells. Static water level data and groundwater elevations are summarized in Table 1. A Potentiometric Map is included as Figure 1.

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.

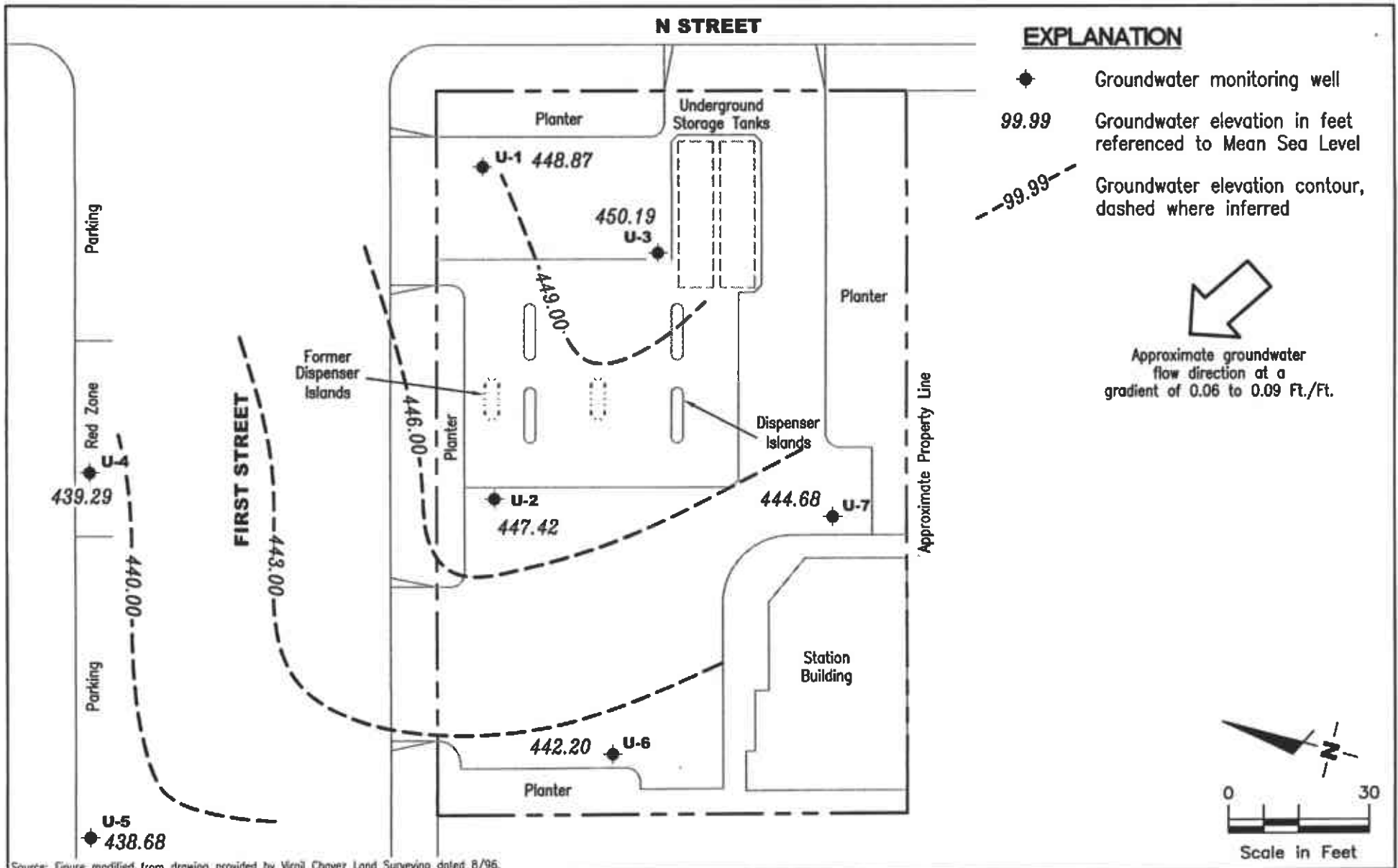
Sincerely,

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



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

GETTLER - RYAN INC.
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 Dublin, CA 94568 (925) 551-7555

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

FIGURE

1

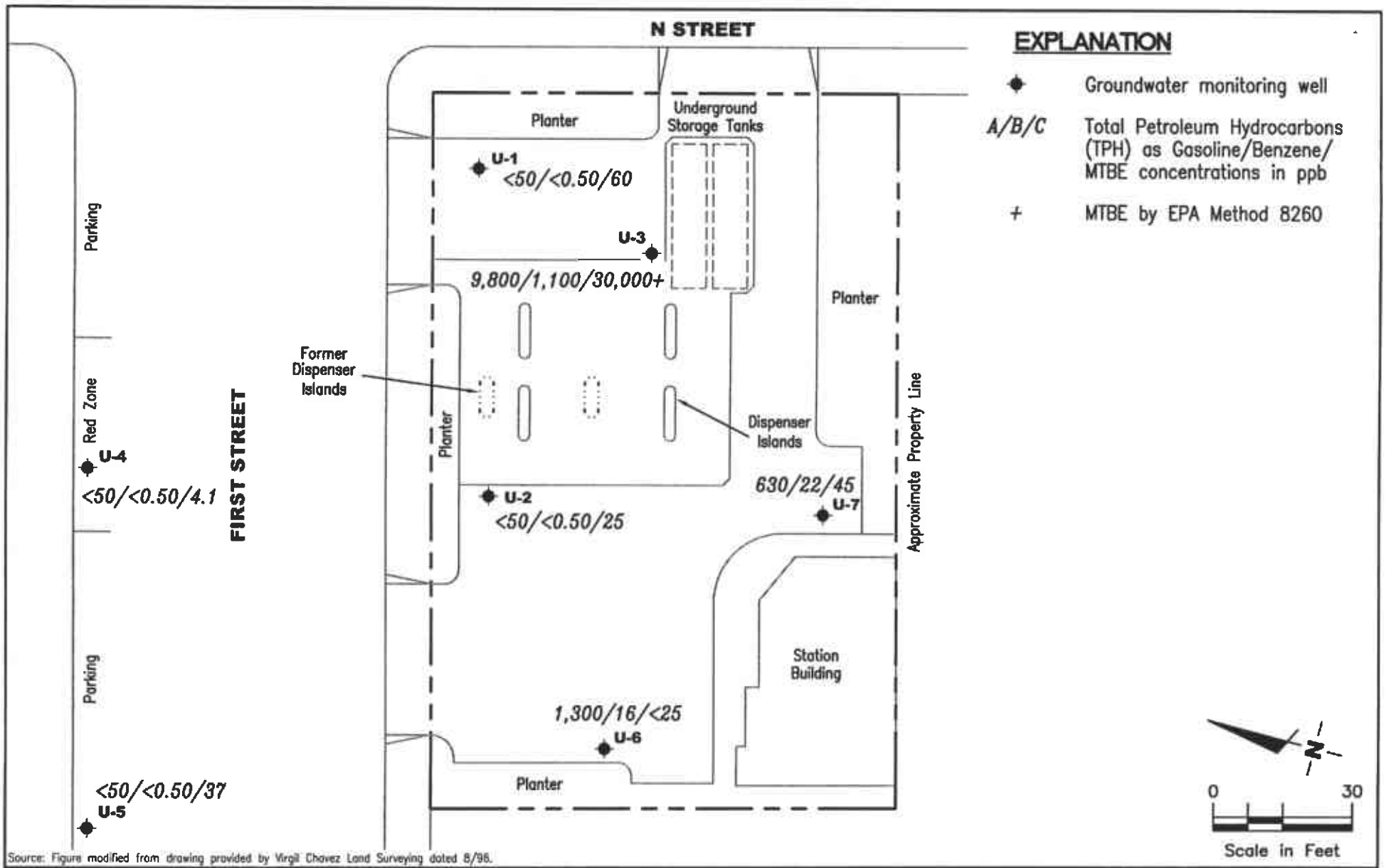
PROJECT NUMBER
 180181

REVIEWED BY

DATE
 April 5, 2002

REVISED DATE

FILE NAME: P:\Enviro\TOSCO\4186\002-4186.DWG | Layout Tab: Pot2



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 April 5, 2002	REVISED DATE
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Table 1
Groundwater Monitoring Data and Analytical Results
 Tosco (Unocal) Service Station #4186
 1771 First Street
 Livermore, California

WELL ID/ TOC*(ft.)	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
	04/03/01	25.74		452.53	ND	ND	ND	ND	ND	55.1
	07/02/01	30.67		447.60	ND	ND	ND	ND	ND	ND
NP	10/08/01	33.13		445.14	<50	<0.50	<0.50	<0.50	<0.50	<5.0
	01/03/02	27.67		450.60	160 ⁹	<0.50	0.51	<0.50	0.69	31
	04/05/02	29.40		448.87	<50	<0.50	<0.50	<0.50	<0.50	60
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
	04/03/01	25.95		451.49	ND	ND	ND	ND	ND	30.2

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

WELL ID/ TOC*(ft.)	DATE	DTW (ft.)	S.I. (ft.bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)	
U-2 (cont)	07/02/01	29.01	13.0-33.0	448.43	ND	ND	ND	ND	ND	16	
	10/08/01	30.94		446.50	<50	<0.50	<0.50	<0.50	<0.50	82	
	01/03/02	27.33		450.11	260 ⁴	7.7	11	1.7	15	42	
	04/05/02	30.02		447.42	<50	<0.50	<0.50	<0.50	<0.50	25	
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	
	04/03/01	24.98		453.48	5,390 ⁴	660	10.8	304	356	15,200/19,300 ⁵	
	07/02/01	31.35		447.11	13,000 ⁴	1,200	58	1,300	930	25,000/26,000 ³	
	NP 10/08/01	32.69		445.77	6,100 ⁴	500	<10	570	130	23,000/22,000 ³	
	01/03/02	23.73		454.73	9,900 ⁴	700	130	24	1,000	14,000/12,000 ³	
04/05/02	28.27		450.19	9,800	1,100	180	220	1,400	16,000/30,000 ³		
U-4 476.93	04/03/01 ⁷	31.63	35.0-45.0	445.30	ND	ND	ND	ND	ND	37.8/38.2 ³	
	07/02/01	37.96		438.97	ND	ND	ND	ND	ND	ND/5.3 ³	
	10/08/01	44.24		432.69	NOT SAMPLED DUE TO INSUFFICIENT WATER					--	--
	01/03/02	36.15		440.78	100 ⁹	<0.50	<0.50	<0.50	<0.50	10/8.5 ³	
	04/05/02	37.64		439.29	50	0.50	<0.50	<0.50	<0.50	4.1	

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

WELL ID/ TOC*(ft.)	DATE	DTW (ft.)	S.I. (ft.bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
U-5										
476.51	04/03/01 ⁷	31.75	37.0-47.0	444.76	ND	ND	0.728	ND	0.993	54.8/55.4 ³
	07/02/01	38.68		437.83	ND	ND	ND	ND	ND	88/94 ³
NP	10/08/01	46.31		430.20	<50	<0.50	<0.50	<0.50	<0.50	37/54 ³
	01/03/02	36.55		439.96	<50	<0.50	0.59	<0.50	0.91	51/53 ³
	04/05/02	37.83		438.68	<50	<0.50	<0.50	<0.50	<0.50	37
U-6										
478.38	01/03/02 ⁷	33.99	--	444.39	5,000 ⁸	36	<25	260	450	<250/<10 ³
	04/05/02	36.18		442.20	1,300	16	<5.0	54	<5.0	<25
U-7										
478.74	01/03/02 ⁷	32.43	--	446.31	3,100 ⁸	93	<10	35	73	140/130 ³
	04/05/02	34.06		444.68	630	22	0.53	2.6	<0.50	45
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
	04/03/01	--	--	--	ND	ND	ND	ND	ND	ND
	07/02/01	--	--	--	ND	ND	ND	ND	ND	ND

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

WELL ID/ TOC*(ft.)	DATE	DTW (ft.)	S.I. (ft.bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
TRIP BLANK	10/08/01	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	<5.0
(cont)	01/03/02	--		--	<50	<0.50	<0.50	<0.50	<0.50	<5.0
	04/05/02	--		--	<50	<0.50	<0.50	<0.50	<0.50	<2.5

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

NP = No Purge

* TOC elevations are relative to msl in feet. The benchmark used was a City of Livermore survey monument at First & "Q" Streets, (Benchmark Elevation = 469,246 feet, msl). Wells U-6 and U-7 were surveyed on January 16, 2002, using the previous benchmark.

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.

7 Well development performed.

8 Laboratory report indicates weathered gasoline C6-C12.

9 Laboratory report indicates unidentified hydrocarbons C6-C12.

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	--	63,000	28,000	--	--	--	--	--
	01/08/01	ND ¹	49,300	30,900	ND ¹	ND ¹	ND ¹	ND ¹	ND ¹
	04/03/01 ²	ND ¹	22,200	19,300	ND ¹	ND ¹	ND ¹	ND ¹	ND ¹
	07/02/01	ND ¹	27,000	26,000	ND ¹	ND ¹	ND ¹	ND ¹	ND ¹
	10/08/01	<140,000	33,000	22,000	<290	<290	<290	<290	<290
	01/03/02	<50,000	17,000	12,000	<100	<100	<100	<100	<100
04/05/02	<25,000	66,000	30,000	<100	<100	<100	<100	<100	
U-4	04/03/01	ND	ND	38.2	ND	ND	ND	ND	ND
	07/02/01	ND	ND	5.3	ND	ND	ND	ND	ND
	01/03/02	<500	<20	8.5	<1.0	<1.0	<1.0	<1.0	<1.0
U-5	04/03/01	ND	ND	55.4	ND	ND	ND	ND	ND
	07/02/01	ND	ND	94	ND	ND	ND	ND	ND
	10/08/01	<1,000	<100	54	<2.0	<2.0	<2.0	<2.0	<2.0
	01/03/02	<500	<20	53	<1.0	<1.0	<1.0	<1.0	<1.0

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-6	01/03/02	<5,000	<200	<10	<10	<10	<10	<10	<10
U-7	01/03/02	<500	30	130	<1.0	<1.0	<1.0	<1.0	<1.0

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

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 reports.

² Laboratory report indicates this sample was analyzed outside of the EPA recommended holding time.

STANDARD OPERATING PROCEDURE - GROUNDWATER SAMPLING

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

Prior to sampling, the presence or absence of free-phase hydrocarbons is determined using 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 Phillips 66 Company, the purge water and decontamination water generated during sampling activities is transported to Phillips 66 - San Francisco Refinery, located in Rodeo, California.

**WELL MONITORING/SAMPLING
FIELD DATA SHEET.**

Client/
Facility # TOSCO #4186 Job#: 180181
Address: 1771 First Street Date: 4/5/02
City: Livermore, CA Sampler: HAIG K.

Well ID U-1 Well Condition: OK
Well Diameter 2 in. Hydrocarbon Thickness: Ø (feet) Amount Bailed (product/water): Ø (Gallons)
Total Depth 34.05 ft. Volume Factor (VF) 2" = 0.17 3" = 0.38 4" = 0.66
Depth to Water 29.40 ft. 6" = 1.50 12" = 5.80

4.65 x VF 0.17 = 0.79 x 3 (case volume) = Estimated Purge Volume: 2.3 (gal.)

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

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

Starting Time: 1105 Weather Conditions: SUNNY
Sampling Time: 1125 Water Color: SILTY Odor: _____
Purging Flow Rate: _____ gpm. Sediment Description: SILT
Did well de-water? NO If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity μ mhos/cm	Temperature $^{\circ}$ C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>1108</u>	<u>1</u>	<u>7.32</u>	<u>985</u>	<u>21.0</u>			
<u>1115</u>	<u>2.5</u>	<u>7.25</u>	<u>1098</u>	<u>21.2</u>			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-1</u>	<u>3 X VOA VIAL</u>	<u>Y</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>TPHIG/btex/mtbe</u>

COMMENTS: _____

**WELL MONITORING/SAMPLING
FIELD DATA SHEET.**

Client/Facility# Tosco #4186 Job#: 180181
 Address: 1771 First Street Date: 4/5/02
 City: Livermore, CA Sampler: HAIG K.

Well ID U-2 Well Condition: OK
 Well Diameter 2 in. Hydrocarbon Thickness: Ø (feet) Amount Bailed (Gallons)
 Total Depth 33.20 ft. Volume 2" = 0.17 3" = 0.38 4" = 0.66
 Depth to Water 30.02 ft. Factor (VF) 6" = 1.50 12" = 5.80

3.18 x VF 0.17 = 0.5 x 3 (case volume) = Estimated Purge Volume: 1.5 (gal.)

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

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

Starting Time: 1243 Weather Conditions: SUNNY
 Sampling Time: 1255 Water Color: SILTY Odor: _____
 Purging Flow Rate: _____ gpm. Sediment Description: SILT
 Did well de-water? NO If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity μ hos/cm	Temperature $^{\circ}$ C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>1245</u>	<u>3/4</u>	<u>7.12</u>	<u>923</u>	<u>21.1</u>			
<u>1248</u>	<u>1.5</u>	<u>7.06</u>	<u>955</u>	<u>21.3</u>			
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-2</u>	<u>3X VOA VIAL</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 # Tosco #4186 Job#: 180181
Address: 1771 First Street Date: 4/5/02
City: Livermore, CA Sampler: HAIG K.

Well ID U-3 Well Condition: OK
Well Diameter 2 in. Hydrocarbon Thickness: Ø (feet) Amount Bailed Ø (Gallons)
Total Depth 33.40 ft. (product/water):
Depth to Water 28.27 ft.

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

5.13 x VF 0.17 = 0.8 x 3 (case volume) = Estimated Purge Volume: 2.4 (gal.)

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

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

Starting Time: 1428 Weather Conditions: SUNNY
Sampling Time: 1450 Water Color: CLEAR Odor: _____
Purging Flow Rate: _____ gpm. Sediment Description: _____
Did well de-water? NO If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity μ mhos/cm	Temperature $^{\circ}$ C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>1432</u>	<u>1.5</u>	<u>7.04</u>	<u>729</u>	<u>20.4</u>			
<u>1436</u>	<u>2.5</u>	<u>6.98</u>	<u>746</u>	<u>20.7</u>			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-3</u>	<u>5 X VOA VIAL</u>	<u>Y</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>TPHIG)/btex/mtbe</u>

COMMENTS: _____

**WELL MONITORING/SAMPLING
FIELD DATA SHEET.**

Client/
Facility # Tosco #4186 Job#: 180181
Address: 1771 First Street Date: 4/5/02
City: Livermore, CA Sampler: HAIG K.

Well ID U-4 Well Condition: OK

Well Diameter 2 in. Hydrocarbon Thickness: Ø (feet) Amount Bailed (product/water): Ø (Gallons)
Total Depth 45.30 ft.
Depth to Water 37.64 ft.

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

7.66 x VF 0.17 = 1.3 X 3 (case volume) = Estimated Purge Volume: 3.9 (gal.)

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

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

Starting Time: 1137 Weather Conditions: SUNNY
Sampling Time: 1155 Water Color: CLOUDY Odor: _____
Purging Flow Rate: _____ gpm. Sediment Description: _____
Did well de-water? NO If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity µmhos/cm	Temperature °C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>1142</u>	<u>1.5</u>	<u>7.71</u>	<u>652</u>	<u>20.7</u>			
<u>1147</u>	<u>3</u>	<u>7.66</u>	<u>625</u>	<u>20.3</u>			
<u>1151</u>	<u>4</u>	<u>7.64</u>	<u>616</u>	<u>20.4</u>			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-4</u>	<u>3 X VOA VIAL</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# Tosco #4186 Job#: 180181
 Address: 1771 First Street Date: 4/5/02
 City: Livermore, CA Sampler: HAIQ K.

Well ID U-5 Well Condition: OK
 Well Diameter 2 in. Hydrocarbon Thickness: Ø (feet) Amount Bailed (Gallons) Ø
 Total Depth 47.20 ft. Volume Factor (VF) 2" = 0.17 3" = 0.38 4" = 0.66
 Depth to Water 37.83 ft. 6" = 1.50 12" = 5.80

9.37 x VF 0.17 = 1.5 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: 1205 Weather Conditions: SUNNY
 Sampling Time: 1230 Water Color: CLOUDY Odor: _____
 Purging Flow Rate: _____ gpm. Sediment Description: _____
 Did well de-water? NO If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity μ mhos/cm	Temperature $^{\circ}$ F / $^{\circ}$ C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>1210</u>	<u>1.5</u>	<u>7.48</u>	<u>610</u>	<u>20.3</u>			
<u>1215</u>	<u>3</u>	<u>7.40</u>	<u>638</u>	<u>20.0</u>			
<u>1220</u>	<u>4.5</u>	<u>7.42</u>	<u>645</u>	<u>20.2</u>			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-5</u>	<u>3X VOA VIAL</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 # Tosco #4186

Job#: 180181

Address: 1771 First Street

Date: 4/5/02

City: Livermore, CA

Sampler: HAIG K.

Well ID U-6

Well Condition: OK

Well Diameter 2 in.

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

Total Depth 44.65 ft.

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

Depth to Water 36.18 ft.

8.47 x VF 0.17 = 1.4 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: 1305

Weather Conditions: SUNNY

Sampling Time: 1330

Water Color: CLOUDY Odor: _____

Purging Flow Rate: _____ gpm.

Sediment Description: _____

Did well de-water? NO

If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity μ mhos/cm	Temperature $^{\circ}$ F / $^{\circ}$ C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>1310</u>	<u>1.5</u>	<u>7.18</u>	<u>939</u>	<u>20.2</u>			
<u>1315</u>	<u>3</u>	<u>7.11</u>	<u>968</u>	<u>20.5</u>			
<u>1318</u>	<u>4</u>	<u>7.13</u>	<u>983</u>	<u>20.6</u>			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-6</u>	<u>3 X VOA VIAL</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 # Tosco #4186 Job#: 180181
 Address: 1771 First Street Date: 4/5/02
 City: Livermore, CA Sampler: HAIG K.

Well ID U-7 Well Condition: OK
 Well Diameter 2 in. Hydrocarbon Thickness: Ø (feet) Amount Bailed (product/water): Ø (Gallons)
 Total Depth 44.45 ft.
 Depth to Water 34.06 ft.

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

10.39 x VF 0.17 = 1.7 X 3 (case volume) = Estimated Purge Volume: 5.1 (gal.)

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

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

Starting Time: 1342 Weather Conditions: SUNNY
 Sampling Time: 1415 Water Color: CLEAR Odor: _____
 Purging Flow Rate: _____ gpm. Sediment Description: _____
 Did well de-water? NO If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity μ mhos/cm	Temperature $^{\circ}$ C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>1348</u>	<u>2</u>	<u>7.29</u>	<u>886</u>	<u>20.3</u>			
<u>1353</u>	<u>3.5</u>	<u>7.22</u>	<u>843</u>	<u>20.0</u>			
<u>1359</u>	<u>5</u>	<u>7.20</u>	<u>858</u>	<u>20.1</u>			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>U-7</u>	<u>3 X VOA VIAL</u>	<u>Y</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>TPH(G)/btex/mtbe</u>

COMMENTS: _____

04/23/02 06:45 02/02 NO:675



Facility Number UNOCAL SS# 4186
 Facility Address 1771 First Street, Livermore, CA
 Consultant Project Number 180181.85
 Consultant Name Gattler-Ryan Inc. (G-R Inc.)
 Address 6747 SIERRA COURT, SUITE J, DUBLIN, CA 94568
 Project Contact (Name) Deanna L. Harding
 (Phone) (925) 551-7555 (Fax Number, 925-551-7899)

Contact (Name) MR. Dave DeWitt
 (Phone) 925-277-2384
 Laboratory Name Sequoia Analytical W204130
 Laboratory Release Number _____
 Samples Collected by (Name) HAIG KEVORK
 Collection Date 4/15/2002
 Signature [Handwritten Signature]

925 988 9673

SEQUOIA ANALYTICAL

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Chemical	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iod (Yes or No)	Analytes To Be Performed																
								THM G-6 - STX - WHITE 8020	THM Dioxin (8015)	Oil and Grease (8028)	Alkylate Hydrocarbons (8010)	Purgeable Aromatics (8026)	Purgeable Organics (8140)	Chlorinated Organics (8270)	Heads C10-C14, 2,4,6 (EAP or M)									
B-LB	01A	1	W	G		HCL	YES	X																
U-1	02A-C	3	W	G	1125			X																
U-2	03	3	W	G	1255			X																
U-3	04	5	W	G	1450			X																
U-4	05	3	W	G	1155			X																
U-5	06	3	W	G	1230			X																
U-6	07	3	W	G	1330			X																
U-7	08	3	W	G	1415	↓	↓	X																

**DO NOT BILL
TB-LB ANALYSIS**

8 Oxy's - MTBE,
TBA, DIPE, ETBE
TAME, 1,2DCA
EDB, Ethanol

ADD 8 OXY'S BY 8260
Do 8020 HIRE bits.
U-3 Only.

Requested By (Signature) <u>[Signature]</u>	Organization G-R Inc.	Date/Time 4/15/02	Received By (Signature)	Organization	Date/Time
Requested By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Requested By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature) <u>Michael Gavin</u>	Organization	Date/Time 4/15/02 1755

Turn Around Time (Circle Choice)

- 24 Hrs.
- 48 Hrs.
- 5 Days
- 10 Days
- As Contracted**



**Sequoia
Analytical**

404 N. Wiget Lane
Walnut Creek, CA 94598
(925) 988-9600
FAX (925) 988-9673
www.sequoialabs.com

23 April, 2002

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

RECEIVED

APR 23 2002

GETTLER-RYAN, INC.
GENERAL COUNSEL

RE: Unocal
Sequoia Report: W204130

Enclosed are the results of analyses for samples received by the laboratory on
05-Apr-02 17:55. If you have any questions concerning this report, please feel free to
contact me.

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:
23-Apr-02 07:35

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-LB	W204130-01	Water	05-Apr-02 00:00	05-Apr-02 17:55
U-1	W204130-02	Water	05-Apr-02 11:25	05-Apr-02 17:55
U-2	W204130-03	Water	05-Apr-02 12:55	05-Apr-02 17:55
U-3	W204130-04	Water	05-Apr-02 14:50	05-Apr-02 17:55
U-4	W204130-05	Water	05-Apr-02 11:55	05-Apr-02 17:55
U-5	W204130-06	Water	05-Apr-02 12:30	05-Apr-02 17:55
U-6	W204130-07	Water	05-Apr-02 13:30	05-Apr-02 17:55
U-7	W204130-08	Water	05-Apr-02 14:15	05-Apr-02 17:55

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:
 23-Apr-02 07:35

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
TB-LB (W204130-01) Water Sampled: 05-Apr-02 00:00 Received: 05-Apr-02 17:55									
Purgeable Hydrocarbons (C6-C12)	ND	50	ug/l	1	2D12001	12-Apr-02	12-Apr-02	EPA 8015M/8021	
Benzene	ND	0.50	"	"	"	"	"	"	Q-28
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	Q-28d
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	2.5	"	"	"	"	"	"	Q-28b
<i>Surrogate: a,a,a-Trifluorotoluene</i>		119 %		70-130	"	"	"	"	
U-1 (W204130-02) Water Sampled: 05-Apr-02 11:25 Received: 05-Apr-02 17:55									
Purgeable Hydrocarbons (C6-C12)	ND	50	ug/l	1	2D12001	18-Apr-02	18-Apr-02	EPA 8015M/8021	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether (MTBE)	60	2.5	"	"	"	"	19-Apr-02	"	Q-28d,QR-04
<i>Surrogate: a,a,a-Trifluorotoluene</i>		106 %		70-130	"	"	18-Apr-02	"	
U-2 (W204130-03) Water Sampled: 05-Apr-02 12:55 Received: 05-Apr-02 17:55									
Purgeable Hydrocarbons (C6-C12)	ND	50	ug/l	1	2D12001	18-Apr-02	18-Apr-02	EPA 8015M/8021	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether (MTBE)	25	2.5	"	"	"	"	"	"	Q-28d
<i>Surrogate: a,a,a-Trifluorotoluene</i>		122 %		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:
23-Apr-02 07:35

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
U-3 (W204130-04) Water Sampled: 05-Apr-02 14:50 Received: 05-Apr-02 17:55									
Purgeable Hydrocarbons (C6-C12)	9800	5000	ug/l	100	2D12001	18-Apr-02	18-Apr-02	EPA 8015M/8021	
Benzene	1100	50	"	"	"	"	"	"	
Toluene	180	50	"	"	"	"	"	"	
Ethylbenzene	220	50	"	"	"	"	"	"	
Xylenes (total)	1400	50	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		136 %	70-130		"	"	"	"	S-04
U-3 (W204130-04RE1) Water Sampled: 05-Apr-02 14:50 Received: 05-Apr-02 17:55									
Methyl tert-butyl ether (MTBE)	16000	5000	ug/l	2000	2D12001	19-Apr-02	19-Apr-02	EPA 8015M/8021	Q-28c
Surrogate: a,a,a-Trifluorotoluene		122 %	70-130		"	"	"	"	
U-4 (W204130-05) Water Sampled: 05-Apr-02 11:55 Received: 05-Apr-02 17:55									
Purgeable Hydrocarbons (C6-C12)	ND	50	ug/l	1	2D18001	18-Apr-02	18-Apr-02	EPA 8015M/8021	
Benzene	0.50	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether (MTBE)	4.1	2.5	"	"	"	"	"	"	Q-28d
Surrogate: a,a,a-Trifluorotoluene		114 %	70-130		"	"	"	"	
U-5 (W204130-06) Water Sampled: 05-Apr-02 12:30 Received: 05-Apr-02 17:55									
Purgeable Hydrocarbons (C6-C12)	ND	50	ug/l	1	2D18001	18-Apr-02	18-Apr-02	EPA 8015M/8021	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether (MTBE)	37	2.5	"	"	"	"	"	"	Q-28c
Surrogate: a,a,a-Trifluorotoluene		119 %	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:
23-Apr-02 07:35

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
U-6 (W204130-07) Water Sampled: 05-Apr-02 13:30 Received: 05-Apr-02 17:55									
Purgeable Hydrocarbons (C6-C12)	1300	500	ug/l	10	2D18001	19-Apr-02	19-Apr-02	EPA 8015M/8021	
Benzene	16	5.0	"	"	"	"	"	"	
Toluene	ND	5.0	"	"	"	"	"	"	
Ethylbenzene	54	5.0	"	"	"	"	"	"	Q-28a
Xylenes (total)	ND	5.0	"	"	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	25	"	"	"	"	"	"	Q-28c
Surrogate: a,a,a-Trifluorotoluene		119 %	70-130		"	"	"	"	
U-7 (W204130-08) Water Sampled: 05-Apr-02 14:15 Received: 05-Apr-02 17:55									
Purgeable Hydrocarbons (C6-C12)	630	50	ug/l	1	2D18001	18-Apr-02	18-Apr-02	EPA 8015M/8021	
Benzene	22	0.50	"	"	"	"	"	"	
Toluene	0.53	0.50	"	"	"	"	"	"	
Ethylbenzene	2.6	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether (MTBE)	45	2.5	"	"	"	"	"	"	Q-28d
Surrogate: a,a,a-Trifluorotoluene		147 %	70-130		"	"	"	"	S-04



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

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

Reported:
23-Apr-02 07:35

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
U-3 (W204130-04) Water Sampled: 05-Apr-02 14:50 Received: 05-Apr-02 17:55									
Ethanol	ND	25000	ug/l	50	2D16018	18-Apr-02	18-Apr-02	EPA 8260B	
tert-Butyl alcohol	66000	1000	"	"	"	"	"	"	
Methyl tert-butyl ether (MTBE)	30000	400	"	200	"	"	18-Apr-02	"	
Di-isopropyl ether	ND	100	"	50	"	"	18-Apr-02	"	
Ethyl tert-butyl ether	ND	100	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	100	"	"	"	"	"	"	
1,2-Dichloroethane	ND	100	"	"	"	"	"	"	
Ethylene dibromide	ND	100	"	"	"	"	"	"	
<i>Surrogate: Dibromofluoromethane</i>		104 %		50-150	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		92 %		50-150	"	"	"	"	



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

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

Reported:
23-Apr-02 07:35

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

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

Batch 2D12001 - EPA 5030B P/T

Blank (2D12001-BLK1)										
										Prepared & Analyzed: 12-Apr-02
Purgeable Hydrocarbons (C6-C12)	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 (MTBE)	ND	2.5	"							
Surrogate: a,a,a-Trifluorotoluene	29.7		"	30.0		99	70-130			

Blank (2D12001-BLK6)										
										Prepared & Analyzed: 18-Apr-02
Purgeable Hydrocarbons (C6-C12)	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 (MTBE)	ND	2.5	"							
Surrogate: a,a,a-Trifluorotoluene	36.6		"	30.0		122	70-130			

Blank (2D12001-BLK7)										
										Prepared & Analyzed: 19-Apr-02
Purgeable Hydrocarbons (C6-C12)	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 (MTBE)	ND	2.5	"							
Surrogate: a,a,a-Trifluorotoluene	36.2		"	30.0		121	70-130			

LCS (2D12001-BS1)										
										Prepared & Analyzed: 12-Apr-02
Benzene	16.9	0.50	ug/l	20.0		84	70-130			
Toluene	18.7	0.50	"	20.0		94	70-130			
Ethylbenzene	15.7	0.50	"	20.0		78	70-130			
Xylenes (total)	55.5	0.50	"	60.0		92	70-130			
Surrogate: a,a,a-Trifluorotoluene	28.6		"	30.0		95	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:
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Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT - Quality Control
Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2D12001 - EPA 5030B P/T										
LCS (2D12001-BS6) Prepared & Analyzed: 18-Apr-02										
Benzene	20.6	0.50	ug/l	20.0		103	70-130			
Toluene	21.3	0.50	"	20.0		106	70-130			
Ethylbenzene	17.1	0.50	"	20.0		86	70-130			
Xylenes (total)	59.8	0.50	"	60.0		100	70-130			
Surrogate: a,a,a-Trifluorotoluene	35.8		"	30.0		119	70-130			
LCS (2D12001-BS7) Prepared & Analyzed: 19-Apr-02										
Benzene	17.9	0.50	ug/l	20.0		90	70-130			
Toluene	20.8	0.50	"	20.0		104	70-130			
Ethylbenzene	16.7	0.50	"	20.0		84	70-130			
Xylenes (total)	58.8	0.50	"	60.0		98	70-130			
Surrogate: a,a,a-Trifluorotoluene	32.5		"	30.0		108	70-130			
LCS Dup (2D12001-BSD1) Prepared & Analyzed: 12-Apr-02										
Benzene	19.9	0.50	ug/l	20.0		100	70-130	16	20	
Toluene	20.3	0.50	"	20.0		102	70-130	8	20	
Ethylbenzene	16.5	0.50	"	20.0		82	70-130	5	20	
Xylenes (total)	57.9	0.50	"	60.0		96	70-130	4	20	
Surrogate: a,a,a-Trifluorotoluene	32.1		"	30.0		107	70-130			
Matrix Spike (2D12001-MS1) Source: W204105-02 Prepared & Analyzed: 15-Apr-02										
Benzene	17.7	0.50	ug/l	20.0	ND	88	70-130			
Toluene	20.1	0.50	"	20.0	ND	100	70-130			
Ethylbenzene	16.5	0.50	"	20.0	ND	82	70-130			
Xylenes (total)	59.4	0.50	"	60.0	ND	99	70-130			
Surrogate: a,a,a-Trifluorotoluene	29.9		"	30.0		100	70-130			
Matrix Spike Dup (2D12001-MSD1) Source: W204105-02 Prepared & Analyzed: 15-Apr-02										
Benzene	17.2	0.50	ug/l	20.0	ND	86	70-130	3	20	
Toluene	18.2	0.50	"	20.0	ND	91	70-130	10	20	
Ethylbenzene	14.6	0.50	"	20.0	ND	73	70-130	12	20	
Xylenes (total)	51.7	0.50	"	60.0	ND	86	70-130	14	20	
Surrogate: a,a,a-Trifluorotoluene	30.4		"	30.0		101	70-130			

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 Reported:
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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 2D18001 - EPA 5030B P/T
Blank (2D18001-BLK1)

Prepared & Analyzed: 18-Apr-02

Purgeable Hydrocarbons (C6-C12)	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 (MTBE)	ND	2.5	"							
<i>Surrogate: a,a,a-Trifluorotoluene</i>	36.6		"	30.0		122	70-130			

Blank (2D18001-BLK2)

Prepared & Analyzed: 19-Apr-02

Purgeable Hydrocarbons (C6-C12)	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 (MTBE)	ND	2.5	"							
<i>Surrogate: a,a,a-Trifluorotoluene</i>	36.2		"	30.0		121	70-130			

LCS (2D18001-BS1)

Prepared & Analyzed: 18-Apr-02

Benzene	20.6	0.50	ug/l	20.0		103	70-130			
Toluene	21.3	0.50	"	20.0		106	70-130			
Ethylbenzene	17.1	0.50	"	20.0		86	70-130			
Xylenes (total)	59.8	0.50	"	60.0		100	70-130			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	35.8		"	30.0		119	70-130			

LCS (2D18001-BS2)

Prepared & Analyzed: 19-Apr-02

Benzene	17.9	0.50	ug/l	20.0		90	70-130			
Toluene	20.8	0.50	"	20.0		104	70-130			
Ethylbenzene	16.7	0.50	"	20.0		84	70-130			
Xylenes (total)	58.7	0.50	"	60.0		98	70-130			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	32.5		"	30.0		108	70-130			



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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2D18001 - EPA 5030B P/T										
LCS Dup (2D18001-BSD1)										
Prepared & Analyzed: 18-Apr-02										
Benzene	17.1	0.50	ug/l	20.0		86	70-130	19	20	
Toluene	19.6	0.50	"	20.0		98	70-130	8	20	
Ethylbenzene	16.6	0.50	"	20.0		83	70-130	3	20	
Xylenes (total)	57.4	0.50	"	60.0		96	70-130	4	20	
Surrogate: <i>a,a,a-Trifluorotoluene</i>	31.7		"	30.0		106	70-130			



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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 2D16018 - EPA 5030B (P/T)

Blank (2D16018-BLK1)										
										Prepared & Analyzed: 16-Apr-02
Ethanol	ND	500	ug/l							
tert-Butyl alcohol	ND	20	"							
Methyl tert-butyl ether (MTBE)	ND	1.0	"							
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	"							
<i>Surrogate: Dibromofluoromethane</i>	52.8		"	50.0		106	50-150			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	53.4		"	50.0		107	50-150			

Blank (2D16018-BLK3)										
										Prepared & Analyzed: 18-Apr-02
Ethanol	ND	500	ug/l							
tert-Butyl alcohol	ND	20	"							
Methyl tert-butyl ether (MTBE)	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	"							
<i>Surrogate: Dibromofluoromethane</i>	50.1		"	50.0		100	50-150			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	48.6		"	50.0		97	50-150			

LCS (2D16018-BS1)										
										Prepared & Analyzed: 16-Apr-02
Methyl tert-butyl ether (MTBE)	53.0	1.0	ug/l	50.0		106	70-130			
<i>Surrogate: Dibromofluoromethane</i>	54.9		"	50.0		110	50-150			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	52.8		"	50.0		106	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
Batch 2D16018 - EPA 5030B (P/T)										
LCS (2D16018-BS3)										
				Prepared & Analyzed: 18-Apr-02						
Methyl tert-butyl ether (MTBE)	45.8	2.0	ug/l	50.0		92	70-130			
Surrogate: Dibromofluoromethane	49.5		"	50.0		99	50-150			
Surrogate: 1,2-Dichloroethane-d4	49.0		"	50.0		98	50-150			
Matrix Spike (2D16018-MS1)										
				Source: W204240-05			Prepared: 16-Apr-02 Analyzed: 17-Apr-02			
Methyl tert-butyl ether (MTBE)	48.4	1.0	ug/l	50.0	ND	97	60-150			
Surrogate: Dibromofluoromethane	45.6		"	50.0		91	50-150			
Surrogate: 1,2-Dichloroethane-d4	46.4		"	50.0		93	50-150			
Matrix Spike Dup (2D16018-MSD1)										
				Source: W204240-05			Prepared: 16-Apr-02 Analyzed: 17-Apr-02			
Methyl tert-butyl ether (MTBE)	51.7	1.0	ug/l	50.0	ND	103	60-150	7	25	
Surrogate: Dibromofluoromethane	45.2		"	50.0		90	50-150			
Surrogate: 1,2-Dichloroethane-d4	46.4		"	50.0		93	50-150			



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Notes and Definitions

- Q-28 The opening calibration verification standard was outside acceptance criteria by -0.5%. Although the Laboratory Control Sample verified the accuracy of the batch, this should be considered in evaluating the data for its intended purpose.
- Q-28a The opening calibration verification standard was outside acceptance criteria by -1.5%. Although the Laboratory Control Sample verified the accuracy of the batch, this should be considered in evaluating the data for its intended purpose.
- Q-28b The opening calibration verification standard was outside acceptance criteria by -16%. Although the Laboratory Control Sample verified the accuracy of the batch, this should be considered in evaluating the data for its intended purpose.
- Q-28c The opening calibration verification standard was outside acceptance criteria by -31%. Although the Laboratory Control Sample verified the accuracy of the batch, this should be considered in evaluating the data for its intended purpose.
- Q-28d The opening calibration verification standard was outside acceptance criteria by -6.5%. Although the Laboratory Control Sample verified the accuracy of the batch, this should be considered in evaluating the data for its intended purpose.
- QR-04 Primary and confirmation results varied by greater than 40% RPD. The results may still be useful for their intended purpose.
- S-04 The surrogate recovery for this sample is outside control limits due to interference from the sample matrix.
- 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