



# GETTLER-RYAN INC.

ENVIRONMENTAL  
PROTECTION

90 MAY 12 PM 3:35

## TRANSMITTAL

TO: Alameda County Health Care Services  
1131 Harbor Bay Parkway  
Alameda, California 94502

DATE: May 8, 1998  
G-R #: 180021

FROM: Deanna L. Harding  
Project Coordinator  
Gettler-Ryan Inc.  
6747 Sierra Court, Suite J  
Dublin, California 94568

RE: Tosco (Unocal) SS #6419  
6401 Dublin Boulevard  
Dublin, California

WE HAVE ENCLOSED THE FOLLOWING:

COPIES	DATED	DESCRIPTION
1	April 10, 1998	Groundwater Monitoring and Sampling Report First Semi-Annual 1998-Event of February 2, 1998

### COMMENTS:

At the request of Tosco Marketing Company, we are providing you a copy of the above referenced report. The site is monitored and sampled on a semi-annual basis in February and August. If you have questions please contact the Tosco Project Manager, Ms. Tina R. Berry at (925) 277-2321.

Enclosure

cc: Mr. Doug Lee, Gettler-Ryan Inc., Dublin, CA

agency/6419trb.qmt

5/13/98 asked Tina to

- Check well condition -

① MW-1 was obstructed

② MW-3 PVC cap was off last event.

- Any recent repairs / leaks, etc?

MtBE in MW-6 @ 32,000 ppb



# GETTLER-RYAN INC.

April 10, 1998  
G-R Job #180021

Ms. Tina R. Berry  
Tosco Marketing Company  
2000 Crow Canyon Place, Suite 400  
San Ramon, California 94583

RE: Semi-Annual 1998 Groundwater Monitoring & Sampling Report  
Tosco (Unocal) Service Station #6419  
6401 Dublin Boulevard  
Dublin, California


Dear Ms. Berry:

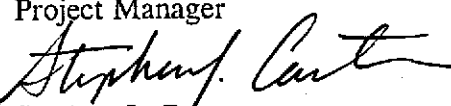
This report documents the semi-annual groundwater monitoring and sampling event performed by Gettler-Ryan Inc. (G-R). On February 2, 1998, field personnel monitored and sampled three wells (MW-1 through MW-3) at the above referenced site.

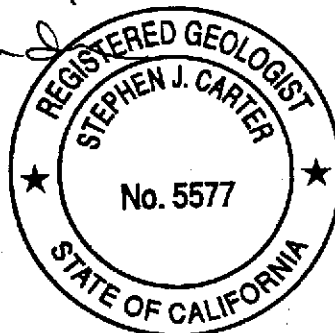
Static groundwater levels were measured and all wells were checked for the presence of separate-phase hydrocarbons. Separate-phase hydrocarbons were not present in the wells. Static water level data and groundwater elevations are summarized in Table 1. A Potentiometric Map is included as Figure 1.

Groundwater samples were collected from the monitoring wells as specified by G-R Standard Operating Procedure - Groundwater Sampling (attached). The field data sheets are also attached. The samples were analyzed by Sequoia Analytical. Analytical results are summarized in Tables 1 and 2. The Dissolved Oxygen Concentrations are summarized in Table 3 and a Concentration Map is included as Figure 2. The chain of custody document and laboratory analytical reports are also attached.

Sincerely,

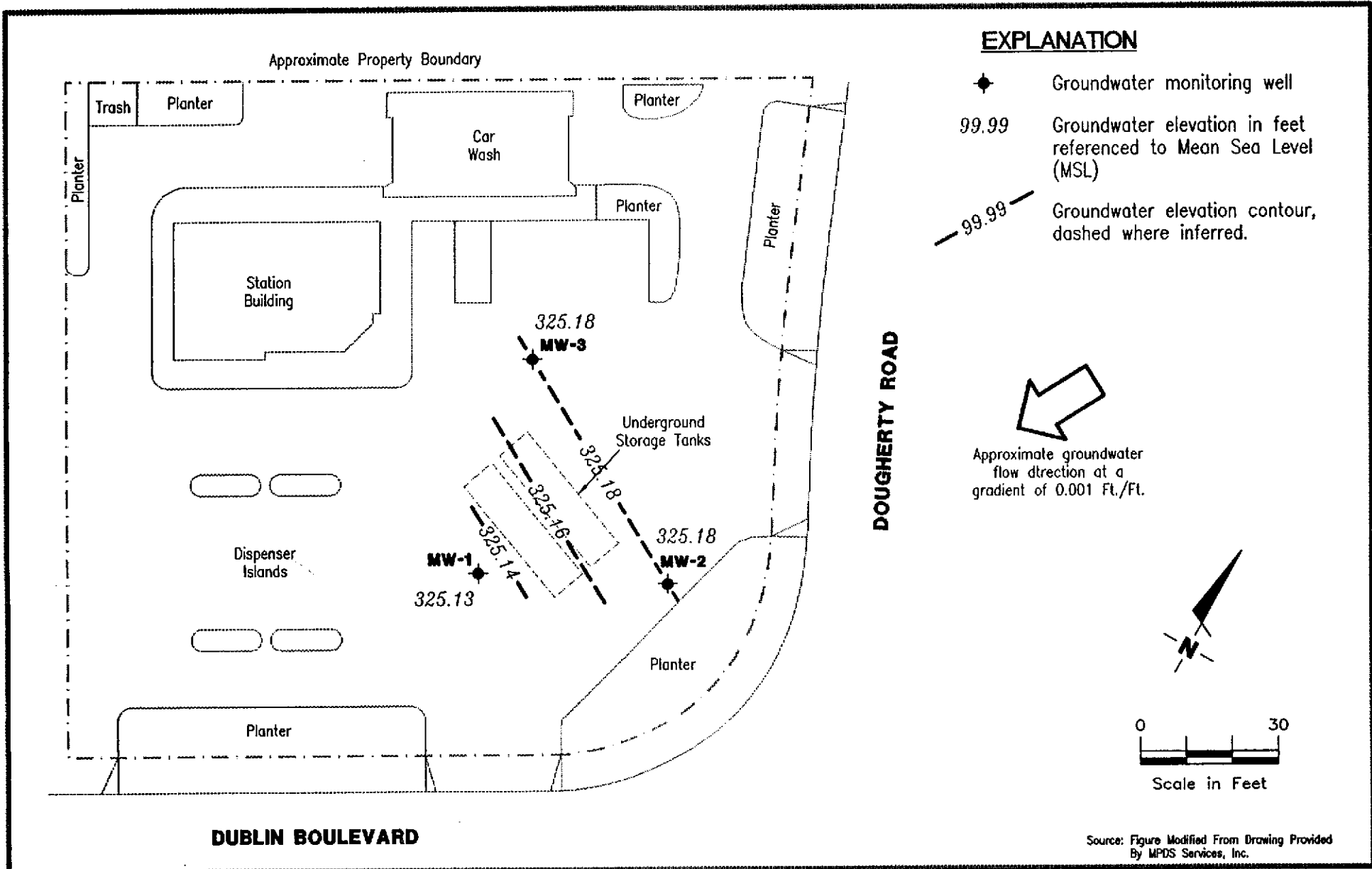
  
Deanna L. Harding  
Project Manager

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



- Figure 1: Potentiometric Map
- Figure 2: Concentration Map
- Table 1: Groundwater Monitoring Data and Analytical Results
- Table 2: Groundwater Analytical Results - Metals
- Table 3: Dissolved Oxygen Concentrations
- Attachments: Standard Operating Procedure - Groundwater Sampling  
Field Data Sheets  
Chain of Custody Document and Laboratory Analytical Reports

6419.qml

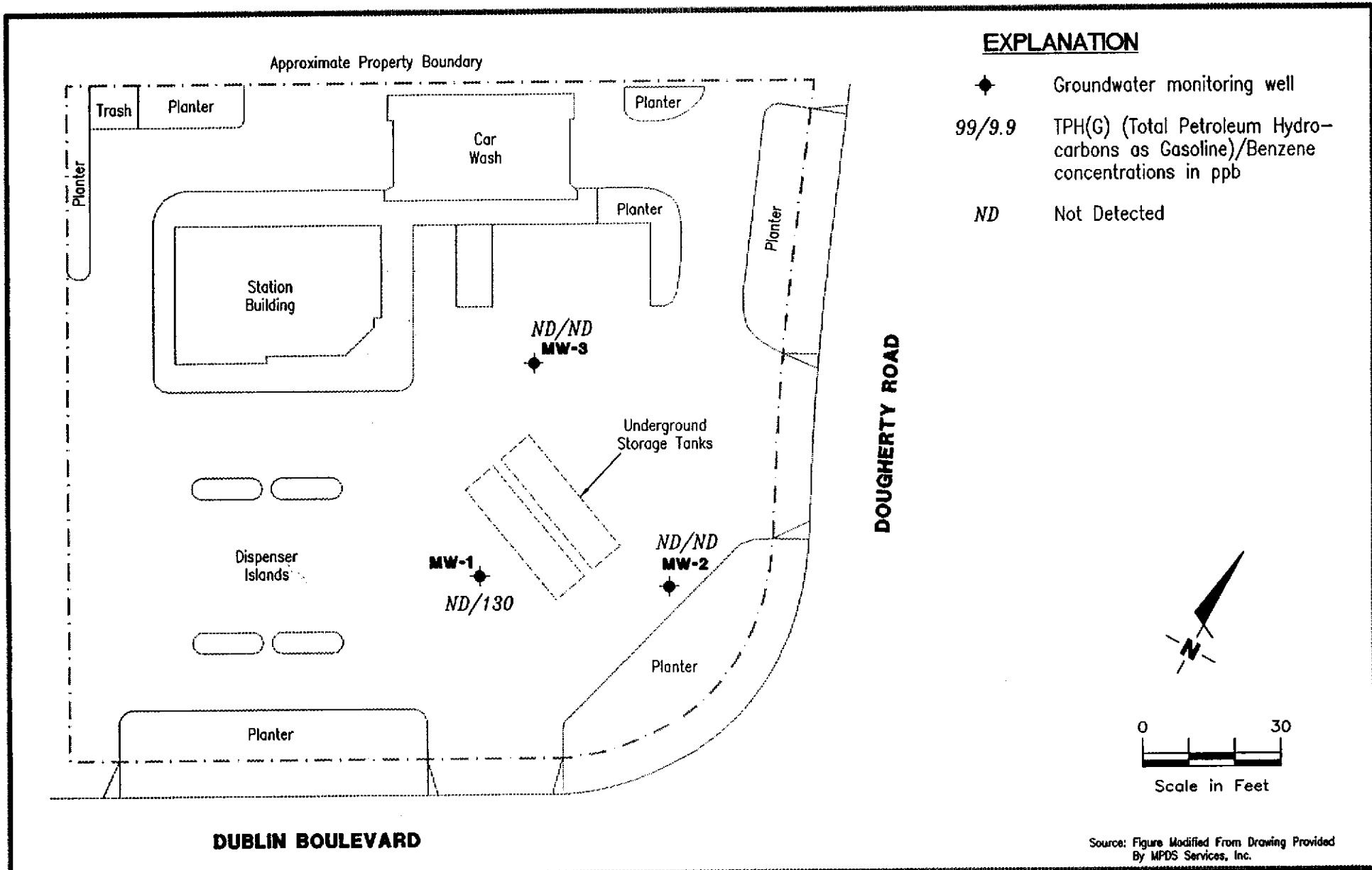


**Gottler - Ryan Inc.**  
 6747 Sierra Ct., Suite J (510) 551-7555  
 Dublin, CA 94568

**POTENTIOMETRIC MAP**  
 Unocal Service Station No. 6419  
 6401 Dublin Boulevard  
 Dublin, California

FIGURE  
**1**

JOB NUMBER 180021	REVIEWED BY	DATE February 2, 1998	REVISED DATE
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**Gettler - Ryan Inc.**

6747 Sierra Ct., Suite J (510) 551-7555  
Dublin, CA 94568

**CONCENTRATION MAP**  
Unocal Service Station No. 6419  
6401 Dublin Boulevard  
Dublin, California

FIGURE

**2**

JOB NUMBER  
180021

REVIEWED BY

DATE  
February 2, 1998

REVISED DATE

**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
 Tosco (Unocal) Service Station #6419  
 6401 Dublin Boulevard  
 Dublin, California

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)	TPH(D)	TPH(G)	B	T	E	X	MTBE
				<i>ppb</i>						
MW-1	03/14/94			810 <sup>1</sup>	1,800 <sup>2</sup>	17	ND	ND	ND	--
	08/25/94			910 <sup>3</sup>	9,200 <sup>2</sup>	48	ND	540	ND	--
	11/18/94			910 <sup>3</sup>	5,100	33	ND	560	38	--
	02/15/95			660 <sup>1</sup>	3,300	13	ND	180	5.2	--
	05/17/95			200 <sup>3</sup>	130	0.75	ND	1.5	ND	--
	08/25/95			--	490	9.1	ND	21	2.0	-- <sup>5</sup>
	11/28/95			--	1,400	18	3.0	98	3.6	-- <sup>5</sup>
330.45	02/26/96	5.77	324.68	--	560	9.3	ND	22	ND	1,300
	08/23/96	7.78	322.67	--	ND	ND	ND	ND	ND	640
330.23	02/17/97	5.73	324.50	--	120 <sup>4</sup>	1.0	0.95	ND	ND	280
	08/18/97	7.38	322.85	--	ND	ND	ND	ND	ND	100
	02/02/98 <sup>6</sup>	5.10	325.13	--	ND <sup>7</sup> (5,000)	130 (50)	ND <sup>7</sup> (50)	ND <sup>7</sup> (50)	ND <sup>7</sup> (50)	32,000 (250) (Detection limit)
MW-2	03/14/94			--	ND	ND	2.8	1.1	8.0	--
	08/25/94			--	ND	ND	ND	ND	ND	--
	11/18/94			--	ND	ND	ND	ND	ND	--
	02/15/95			--	ND	ND	ND	ND	ND	--
	05/17/95			--	ND	ND	ND	ND	ND	--
	08/25/95			--	ND	ND	ND	ND	ND	--
	11/28/95			--	ND	ND	ND	ND	ND	--
330.40	02/26/96	5.49	324.91	--	ND	ND	ND	ND	ND	--
	08/23/96	7.44	322.96	SAMPLED ANNUALLY			--	--	--	--
330.27	02/17/97	5.64	324.63	--	ND	ND	ND	ND	ND	ND
	08/18/97	7.40	322.87	--	--	--	--	--	--	--
	02/02/98	5.09	325.18	--	ND	ND	ND	ND	ND	62
MW-3	03/14/94			--	150 <sup>4</sup>	ND	ND	ND	ND	--
	08/25/94			--	130 <sup>4</sup>	ND	ND	ND	ND	--
	11/18/94			--	130 <sup>4</sup>	ND	ND	ND	ND	--
	02/15/95			--	130 <sup>4</sup>	ND	ND	ND	ND	--
	05/17/95			--	99 <sup>4</sup>	ND	ND	ND	ND	--

**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
 Tosco (Unocal) Service Station #6419  
 6401 Dublin Boulevard  
 Dublin, California

Well ID/ TOC*	Date	DTW (ft.)	GWE (msl)	TPH(D)	TPH(G)	B	T	E	X	MTBE
				<-----ppb----->						
MW-3	08/25/95			--	ND	ND	ND	ND	ND	-- <sup>s</sup>
(cont)	11/28/95			--	ND	ND	ND	ND	ND	--
331.11	02/26/96	6.25	324.86	--	ND	ND	ND	ND	ND	-- <sup>s</sup>
	08/23/96	7.98	323.13	SAMPLED ANNUALLY						
330.68	02/17/97	6.07	324.61	--	ND	ND	ND	ND	ND	68
	08/18/97	7.82	322.86	--	--	--	--	--	--	--
	02/02/98	5.50	325.18	--	ND	ND	ND	ND	ND	100
<b>Trip Blank</b>										
TB-LB	02/02/98	--	--	--	ND	ND	ND	ND	ND	ND

**Table 1**  
**Groundwater Monitoring Data and Analytical Results**  
Tosco (Unocal) Service Station # 6419  
6401 Dublin Boulevard  
Dublin, California

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**EXPLANATIONS:**

Groundwater monitoring data and laboratory results prior to February 2, 1998, were compiled from reports prepared by MPDS Services, Inc.

TOC = Top of Casing elevation

DTW = Depth to Water

(ft.) = Feet

GWE = Groundwater Elevation

msl = Relative to mean sea level

TPH(D) = Total Petroleum Hydrocarbons as Diesel

TPH(G) = Total Petroleum Hydrocarbons as Gasoline

B = Benzene

T = Toluene

E = Ethylbenzene

X = Xylenes

MTBE = Methyl tertiary butyl ether

ppb = Parts per billion

ppm = Parts per million

ND = Not Detected

-- = Not Measured/Not Analyzed

\* TOC elevations have been surveyed relative to msl, per the benchmark on the northwest corner of Dougherty Road and Sierra Way (Elevation = 331.728 feet msl). These top of casing elevations have been used prior to the February 17, 1997 monitoring event. TOC elevations have been resurveyed (after station rebuilding) relative to Mean Sea Level (msl), per the benchmark on the northwest corner of Dougherty Road and Sierra Way (Elevation = 331.728 feet msl).

<sup>1</sup> Laboratory report indicates the hydrocarbons detected appeared to be a diesel and non-diesel mixture.

<sup>2</sup> Laboratory report indicates the hydrocarbons detected appeared to be a gasoline and non-gasoline mixture.

<sup>3</sup> Laboratory report indicates the hydrocarbons detected did not appear to be diesel.

<sup>4</sup> Laboratory report indicates the hydrocarbons detected did not appear to be gasoline.

<sup>5</sup> Laboratory has identified the presence of MTBE at a level above or equal to the taste and odor threshold of 40 ppm in the sample collected from this well.

<sup>6</sup> Well appears to be obstructed at approximately 9 feet.

<sup>7</sup> Detection limit raised. Refer to analytical

*Depth to water and groundwater elevation history will be updated in future reports.*

**Table 2**  
**Groundwater Analytical Data - Metals**  
 Tosco (Unocal) Service Station #6419  
 6401 Dublin Boulevard  
 Dublin, California

Well ID	Date	Cadmium	Chromium	Lead	Nickel	Zinc
MW-1	03/14/94	ND	0.012	ND	0.030	0.039
	08/25/94	ND	ND	0.024	ND	ND
	11/18/94	ND	0.076	ND	0.067	ND
	02/15/95	ND	ND	ND	ND	ND
	05/17/95	ND	ND	ND	0.021	ND

**EXPLANATIONS:**

Groundwater laboratory results were compiled from reports prepared by MPDS Services, Inc.

ND = Not Detected

Results are in milligrams per liter ( $\mu\text{g/L}$ ), unless otherwise indicated.



**Table 3**  
**Dissolved Oxygen Concentrations**  
**Tosco (Unocal) Service Station #6419**  
**6401 Dublin Boulevard**  
**Dublin, California**

Well ID	Date	Before Purging (mg/L)	After Purging (mg/L)
MW-1	02/15/95	--	4.30
	05/17/95	--	1.20
	08/25/95	--	2.71
	11/28/95	--	3.25
	02/26/96	5.23	1.41
	08/23/96	3.83	N/A
	02/17/97	0.82	0.78
	08/18/97	1.28	2.35
MW-2	02/15/95	--	1.90
	02/26/96	0.62	0.43
	08/23/96	2.04	N/A
	02/17/97	0.90	0.82
	08/18/97	1.16	--
MW-3	02/15/95	--	2.60
	05/17/95	--	1.13
	08/25/95	--	1.86
	11/28/95	--	6.81
	02/26/96	16.83	1.11
	08/23/96	3.29	N/A
	02/17/97	0.80	0.80
	08/18/97	1.43	--

**EXPLANATIONS:**

Dissolved oxygen concentrations were compiled from reports prepared by MPDS Services, Inc.

mg/L = Milligrams per liter

-- = Not Measured/Not Analyzed

N/A = Not Applicable

Note: Measurements were taken using a LaMotte DO4000 dissolved oxygen meter.

## 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 or equivalent. Product thickness, if present, is measured to the nearest 0.01 foot and is noted in the field notes. In addition, static water level measurements are collected with the interface probe and are also recorded in the field notes.

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

Groundwater samples are collected using disposable bailers. The water samples are transferred from the bailer into appropriate containers. Pre-preserved containers, supplied by analytical laboratories, are used when possible. When pre-preserved containers are not available, the laboratory is instructed to preserve the sample as appropriate. Duplicate samples are collected for the laboratory to use in maintaining quality assurance/quality control standards. The samples are labeled to include the job number, sample identification, collection date and time, analysis, preservation (if any), and the sample collector's initials. The water samples are placed in a cooler, maintained at 4°C for transport to the laboratory. Once collected in the field, all samples are maintained under chain of custody until delivered to the laboratory.

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

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/ Toledo  
 Facility # 6419  
 Address: 6401 Dublin Blvd.  
 City: Dublin

Job#: 180021  
 Date: 2/2/98  
 Sampler: Vartken

Well ID MW-1  
 Well Diameter 2 in.  
 Total Depth 9.22 ft.  
 Depth to Water 5.10 ft.

Well Condition: OK - but obstructed at 9.22'

Hydrocarbon Thickness:	<u>∅</u> in.	Amount Bailed (product/water):	<u>∅</u> (gal.)
Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.80	

4.12 X VF 0.17 = 0.70 X 3 (case volume) = Estimated Purge Volume: 2.10 (gal.)

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

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

Starting Time: 11:30  
 Sampling Time: 11:47  
 Purging Flow Rate: < 0.5 gpm  
 Did well de-water? No

Weather Conditions: Rain  
 Water Color: clear Odor: x  
 Sediment Description: \_\_\_\_\_  
 If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm/100	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>11:33</u>	<u>0.25</u>	<u>7.53</u>	<u>9.25</u>	<u>67.3</u>	_____	_____	_____
<u>11:36</u>	<u>1.5</u>	<u>7.34</u>	<u>9.44</u>	<u>67.0</u>	_____	_____	_____
<u>11:40</u>	<u>2.5</u>	<u>7.26</u>	<u>9.51</u>	<u>66.6</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-1</u>	<u>3</u>	<u>Y</u>	<u>HCl</u>	<u>Sesquois</u>	<u>TPH6/BTEV/HTPE</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

COMMENTS: Well obstructed at 9.22'!

## WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/ Facility # TOSCO 6419 Job #: 180021  
 Address: 6401 Dublin Blvd. Date: 2/2/98  
 City: Dublin Sampler: Vetter

Well ID MW-2 Well Condition: OK  
 Well Diameter 2 in. Hydrocarbon Thickness: ∅ in. Amount Bailed (product/water): ∅ (gal.)  
 Total Depth 17.60 ft.  
 Depth to Water 5.09 ft.

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

12.57 x VF 0.17 = 2.13 x 3 (case volume) = Estimated Purge Volume: 6.38 (gal.)

Purge Equipment: Disposable Bailer Bailer Stack Suction Grundfos Other: \_\_\_\_\_  
 Sampling Equipment: Disposable Bailer Bailer Pressure Bailer Grab Sample Other: \_\_\_\_\_

Starting Time: 10:20 Weather Conditions: Rain  
 Sampling Time: 10:35 Water Color: clear Odor: NO  
 Purging Flow Rate: 1 gpm. Sediment Description: \_\_\_\_\_  
 Did well de-water? NO If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu\text{mhos/cm} \times 100$	Temperature $^{\circ}\text{F}$	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>10:22</u>	<u>2</u>	<u>7.73</u>	<u>11.23</u>	<u>63.8</u>			
<u>10:24</u>	<u>4</u>	<u>7.52</u>	<u>10.95</u>	<u>64.9</u>			
<u>10:26</u>	<u>6.5</u>	<u>7.43</u>	<u>10.87</u>	<u>65.2</u>			

### LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-2</u>	<u>3</u>	<u>Y</u>	<u>HC1</u>	<u>Sequoia</u>	<u>TPH6/BTEX/MIBS</u>

COMMENTS: NO ORC.

**WELL MONITORING/SAMPLING  
FIELD DATA SHEET**

Client/ Facility # Tosco 6419  
 Address: 6401 Dublin Blvd.  
 City: Dublin

Job#: 180021  
 Date: 2/2/98  
 Sampler: Varthen

Well ID MW-3  
 Well Diameter 2 in.  
 Total Depth 18.57 ft.  
 Depth to Water 5.50 ft.

Well Condition: \* NO well plug.

Hydrocarbon Thickness:	<u>Ø</u> in.	Amount Bailed (product/water):	<u>Ø</u> (gal.)
Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.80	

13.07 x VF 0.17 = 2.22 x 3 (case volume) = Estimated Purge Volume: 6.67 (gal.)

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

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

Starting Time: 10:55  
 Sampling Time: 11:12  
 Purging Flow Rate: 1 gpm.  
 Did well de-water? NO

Weather Conditions: Rain  
 Water Color: Clear Odor: NO  
 Sediment Description: \_\_\_\_\_  
 If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu\text{mhos/cm}/1000$	Temperature $^{\circ}\text{F}$	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>10:58</u>	<u>2.5</u>	<u>7.69</u>	<u>2.06</u>	<u>68.3</u>			
<u>11:00</u>	<u>5</u>	<u>7.48</u>	<u>1.88</u>	<u>67.1</u>			
<u>11:02</u>	<u>7</u>	<u>7.40</u>	<u>1.73</u>	<u>67.3</u>			

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-3</u>	<u>3</u>	<u>Y</u>	<u>HCl</u>	<u>Sequoia</u>	<u>TPH/GIBTEX/HTRE</u>

COMMENTS: NO ORC.  
\* PVC Cap laying in chest box, which was flooded, water over top of casing, and was running into the well.





**RECEIVED**

Gettler Ryan/Geostrategies 6747 Sierra Court Suite J Dublin, CA 94568	Client Proj. ID: Unocal 6419, 180021.85 Sample Descript: TB-LB Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9802138-01	Sampled: 02/02/98 Received: 02/04/98 Analyzed: 02/09/98 Reported: 02/13/98
---	--	---

QC Batch Number: GC020998802004A  
Instrument ID: GCHP04

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Methyl t-Butyl Ether	2.5	N.D.
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.
Chromatogram Pattern:		
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	108

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

**SEQUOIA ANALYTICAL - ELAP #1271**

  
Mike Gregory  
Project Manager



Gettler Ryan/Geostrategies 6747 Sierra Court Suite J Dublin, CA 94568	Client Proj. ID: Unocal 6419, 180021.85 Sample Descript: MW-1 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9802138-02	Sampled: 02/02/98 Received: 02/04/98 Analyzed: 02/09/98 Reported: 02/13/98
Attention: Deanna Harding		

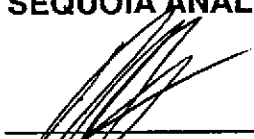
QC Batch Number: GC020998802004A  
Instrument ID: GCHP04

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	5000	N.D.
Methyl t-Butyl Ether	250	32000
Benzene	50	130
Toluene	50	N.D.
Ethyl Benzene	50	N.D.
Xylenes (Total)	50	N.D.
Chromatogram Pattern:		
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	107

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

**SEQUOIA ANALYTICAL - ELAP #1271**

  
Mike Gregory  
Project Manager







Gettler Ryan/Geostrategies 6747 Sierra Court Suite J Dublin, CA 94568	Client Proj. ID: Unocal 6419, 180021.85 Sample Descript: MW-2 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9802138-03	Sampled: 02/02/98 Received: 02/04/98 Analyzed: 02/09/98 Reported: 02/13/98
Attention: Deanna Harding		

QC Batch Number: GC020998802004A  
Instrument ID: GCHP04

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Methyl t-Butyl Ether	2.5	62
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.
Chromatogram Pattern:		
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70                      130	112

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

**SEQUOIA ANALYTICAL - ELAP #1271**

  
\_\_\_\_\_  
Mike Gregory  
Project Manager



# Sequoia Analytical

680 Chesapeake Drive  
404 N. Wiget Lane  
819 Striker Avenue, Suite 8

Redwood City, CA 94063  
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Gettler Ryan/Geostrategies 6747 Sierra Court Suite J Dublin, CA 94568	Client Proj. ID: Unocal 6419, 180021.85 Sample Descript: MW-3 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9802138-04	Sampled: 02/02/98 Received: 02/04/98 Analyzed: 02/09/98 Reported: 02/13/98
Attention: Deanna Harding		

QC Batch Number: GC020998802004A  
Instrument ID: GCHP04

## Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

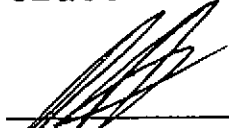
Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Methyl t-Butyl Ether	2.5	100
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.

Chromatogram Pattern:

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	114

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

SEQUOIA ANALYTICAL - ELAP #1271

  
 \_\_\_\_\_  
 Mike Gregory  
 Project Manager



**Sequoia  
Analytical**

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

Client Proj. ID: Unocal 6419, 180021.85

Lab Proj. ID: 9802138

Received: 02/04/98

Reported: 02/13/98

### LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 7 pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

**SEQUOIA ANALYTICAL**

  
Mike Gregory  
Project Manager



# Sequoia Analytical

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Gettler Ryan/Geostrategies  
6747 Sierra Court, Ste J  
Dublin, CA 94568  
Attention: Deanna Harding

Client Project ID: Unocal 6419, 180021.85  
Matrix: Liquid

Work Order #: 9802138 -01-04

Reported: Feb 17, 1998

## QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Gas
QC Batch#:	GC020998802004A	GC020998802004A	GC020998802004A	GC020998802004A	GC020998802004A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015M
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	K. Nill	K. Nill	K. Nill	K. Nill	K. Nill
MS/MSD #:	8020360	8020360	8020360	8020360	8020360
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Prepared Date:	2/9/98	2/9/98	2/9/98	2/9/98	2/9/98
Analyzed Date:	2/9/98	2/9/98	2/9/98	2/9/98	2/9/98
Instrument I.D.#:	HP4	HP4	HP4	HP4	HP4
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	320 µg/L
Result:	19	19	18	55	310
MS % Recovery:	95	95	90	92	97
Dup. Result:	19	19	17	55	300
MSD % Recov.:	95	95	85	92	94
RPD:	0.0	0.0	5.7	0.0	3.3
RPD Limit:	0-20	0-20	0-20	0-20	0-50

LCS #:	LCS020998	LCS020998	LCS020998	LCS020998	LCS020998
Prepared Date:	2/9/98	2/9/98	2/9/98	2/9/98	2/9/98
Analyzed Date:	2/9/98	2/9/98	2/9/98	2/9/98	2/9/98
Instrument I.D.#:	HP4	HP4	HP4	HP4	HP4
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	320 µg/L
LCS Result:	20	20	19	58	310
LCS % Recov.:	100	100	95	97	97

MS/MSD	60-140	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130	70-130
Control Limits					

SEQUOIA ANALYTICAL  
Elap #1271

Mike Gregory  
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.

\*\* MS=Matrix Spike, MSD=MS Duplicate, RPD=Relative % Difference

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