



# GETTLER-RYAN INC.

## TRANSMITTAL

October 18, 2000

G-R #180021

ENVIRONMENTAL  
PROTECTION  
00 OCT 31 PM 4:08

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

CC: Mr Doug Lee  
Gettler-Ryan Inc.  
Dublin, California

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	October 4, 2000	Groundwater Monitoring and Sampling Report Semi-Annual 2000 - Event of July 26, 2000

### 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 **October 30, 2000**, this report will be distributed to the following:

Enclosure

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

trans/6419.dbd



# GETTLER - RYAN INC.

October 16, 2000  
G-R Job #180021

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

RE: Second Semi-Annual 2000 Groundwater Monitoring & Sampling Report  
Tosco (Unocal) Service Station #6419  
6401 Dublin Boulevard  
Dublin, California

Dear Mr. De Witt:

This report documents the semi-annual groundwater monitoring and sampling event performed by Gettler-Ryan Inc. (G-R). On July 26, 2000, field personnel monitored and sampled seven wells (MW-1 through MW-7) at the above referenced site.

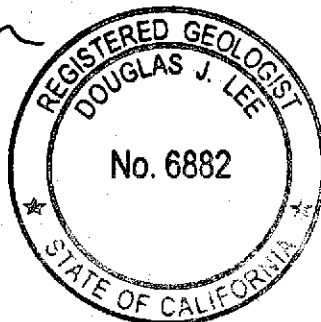
Static groundwater levels were measured and all wells were checked for the presence of separate-phase hydrocarbons. Separate-phase hydrocarbons were not present in the wells. Static water level data and groundwater elevations are summarized in Table 1. Dissolved Oxygen Concentrations are summarized in Table 3. 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, 2 and 4. A Concentration Map is included as Figure 2. The chain of custody document and laboratory analytical reports are also attached.

Sincerely,

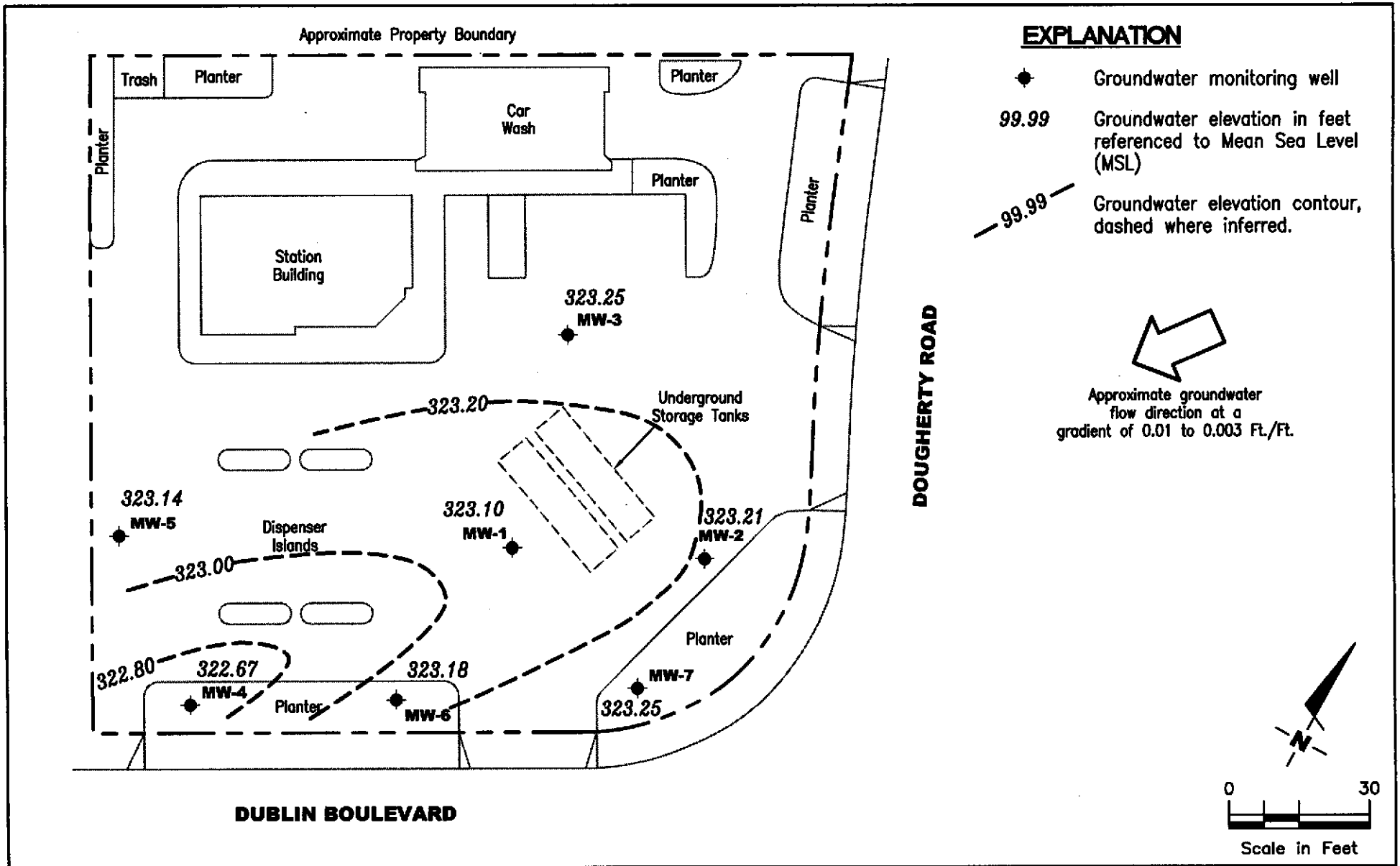
Deanna L. Harding  
Project Coordinator

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



- Figure 1: Potentiometric Map
- Figure 2: Concentration Map
- Table 1: Groundwater Monitoring Data and Analytical Results
- Table 2: Groundwater Analytical Results - Metals
- Table 3: Dissolved Oxygen Concentrations
- Table 4: Groundwater Analytical Results - Oxygenate Compounds
- Attachments: Standard Operating Procedure - Groundwater Sampling  
Field Data Sheets  
Chain of Custody Document and Laboratory Analytical Reports

6419.qml



**Gettler - Ryan Inc.**

6747 Sierra Ct., Suite J  
Dublin, CA 94568 (925) 551-7555

**POTENTIOMETRIC MAP**  
 Tosco (Unocal) Service Station #6419  
 6401 Dublin Boulevard  
 Dublin, California

FIGURE

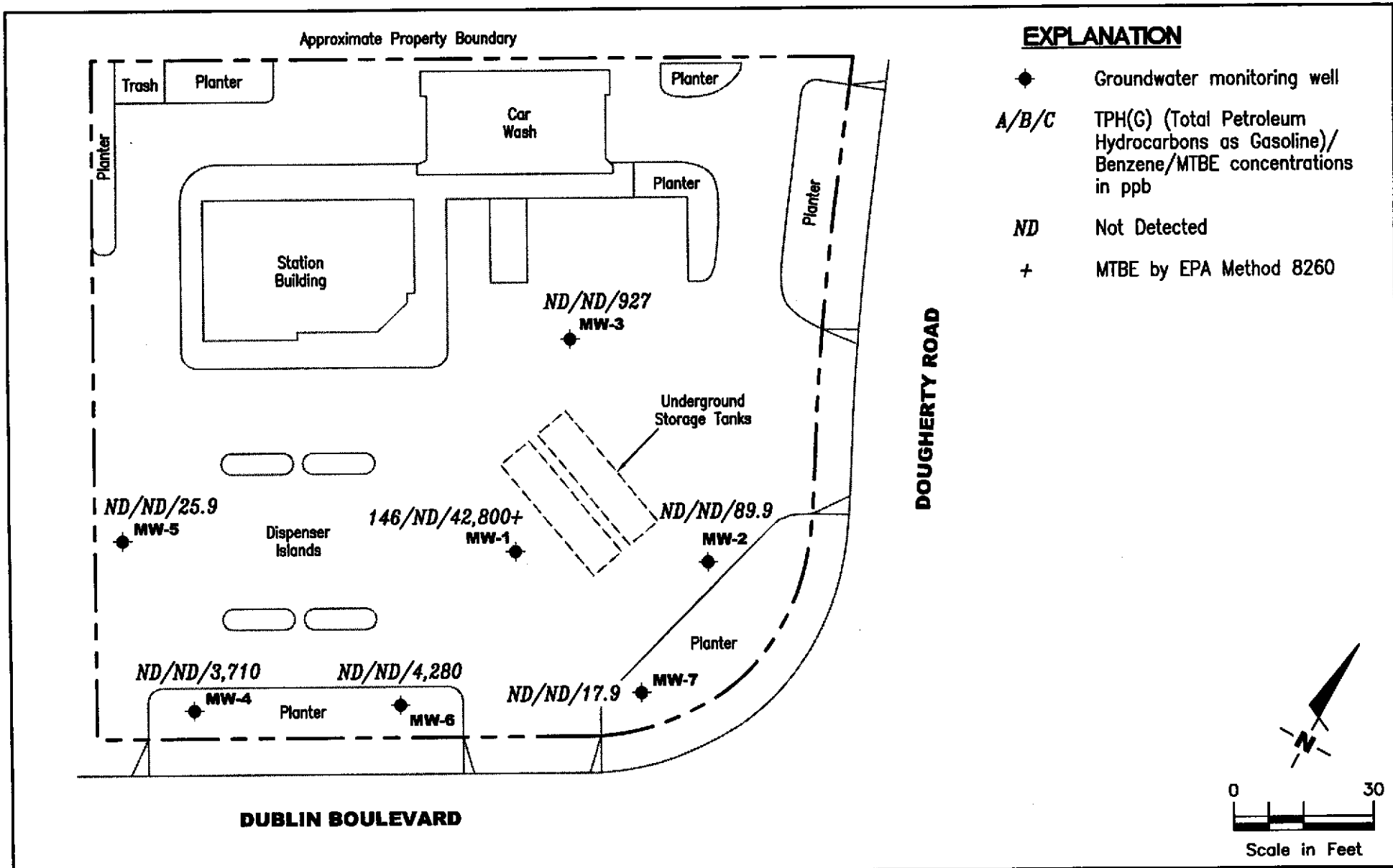
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PROJECT NUMBER  
180021

REVIEWED BY

DATE  
July 26, 2000

REVISED DATE



**Gettler - Ryan Inc.**

6747 Sierra Ct., Suite J  
 Dublin, CA 94568 (925) 551-7555

**CONCENTRATION MAP**  
 Tosco (Unocal) Service Station #6419  
 6401 Dublin Boulevard  
 Dublin, California

FIGURE  
**2**

PROJECT NUMBER  
**180021**

REVIEWED BY

DATE  
**July 26, 2000**

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) (ppb)	TPH(G) (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
<b>MW-1</b>										
330.45	03/14/94	7.27	323.18	810 <sup>1</sup>	1,800 <sup>2</sup>	17	ND	ND	ND	--
	08/25/94	8.57	321.88	910 <sup>3</sup>	9,200 <sup>2</sup>	48	ND	540	ND	--
	09/30/94	8.78	321.67	--	--	--	--	--	--	--
	10/20/94	8.98	321.47	--	--	--	--	--	--	--
	11/18/94	7.69	322.76	910 <sup>3</sup>	5,100	33	ND	560	38	--
	12/20/94	7.58	322.87	--	--	--	--	--	--	--
	01/17/95	6.03	324.42	--	--	--	--	--	--	--
	02/15/95	6.29	324.16	660 <sup>1</sup>	3,300	13	ND	180	5.2	--
	03/13/95	5.64	324.81	--	--	--	--	--	--	--
	04/06/95	5.62	324.83	--	--	--	--	--	--	--
	05/17/95	6.26	324.19	200 <sup>3</sup>	130	0.75	ND	1.5	ND	--
	06/15/95	6.75	323.70	--	--	--	--	--	--	--
	08/25/95	7.91	322.54	--	490	9.1	ND	21	2.0	-- <sup>5</sup>
	11/28/95	9.03	321.42	--	1,400	18	3.0	98	3.6	-- <sup>5</sup>
	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
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>	130	ND <sup>7</sup>	ND <sup>7</sup>	ND <sup>7</sup>	32,000
08/24/98		6.73	323.50	--	ND <sup>7</sup>	ND <sup>7</sup>	ND <sup>7</sup>	ND <sup>7</sup>	ND <sup>7</sup>	26,000/24,000 <sup>8</sup>
02/10/99		5.46	324.77	--	ND <sup>7</sup>	ND <sup>7</sup>	ND <sup>7</sup>	ND <sup>7</sup>	ND <sup>7</sup>	84,000/100,000 <sup>8</sup>
330.21	04/12/99	6.38	323.85	--	ND <sup>7</sup>	ND <sup>7</sup>	ND <sup>7</sup>	ND <sup>7</sup>	ND <sup>7</sup>	140,000/120,000 <sup>8</sup>
	05/21/99	5.95	324.26	--	--	--	--	--	--	--
	08/02/99	6.75	323.46	--	ND <sup>7</sup>	ND <sup>7</sup>	ND <sup>7</sup>	ND <sup>7</sup>	ND <sup>7</sup>	91,000/140,000 <sup>10</sup>
330.18**	02/11/00	6.44	323.77	--	ND <sup>7</sup>	ND <sup>7</sup>	ND <sup>7</sup>	ND <sup>7</sup>	ND <sup>7</sup>	38,000/39,000 <sup>8</sup>
	07/26/00 <sup>13</sup>	7.08	323.10	--	146 <sup>12</sup>	ND	ND	ND	ND	30,900/42,800 <sup>10</sup>
<b>MW-2</b>										
330.40	03/14/94	7.23	323.17	--	ND	ND	2.8	1.1	8.0	--
	08/25/94	8.41	321.99	--	ND	ND	ND	ND	ND	--
	09/30/94	8.73	321.67	--	--	--	--	--	--	--
	10/20/94	8.92	321.48	--	--	--	--	--	--	--

**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) (ppb)	TPH(G) (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-2	11/18/94	7.67	322.73	--	ND	ND	ND	ND	ND	--
(cont)	12/20/94	7.48	322.92	--	--	--	--	--	--	--
	01/17/95	6.00	324.40	--	--	--	--	--	--	--
	02/15/95	6.16	324.24	--	ND	ND	ND	ND	ND	--
	03/13/95	5.59	324.81	--	--	--	--	--	--	--
	04/06/95	5.51	324.89	--	--	--	--	--	--	--
	05/17/95	6.15	324.25	--	ND	ND	ND	ND	ND	--
	06/15/95	6.61	323.79	--	--	--	--	--	--	--
	08/25/95	7.45	322.95	--	ND	ND	ND	ND	ND	--
	11/28/95	8.85	321.55	--	ND	ND	ND	ND	ND	--
	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
	08/24/98	6.70	323.57	--	--	--	--	--	--	--
	02/10/99	5.56	324.71	--	ND	ND	ND	ND	ND	130
330.30	05/21/99	5.98	324.32	--	--	--	--	--	--	--
	08/02/99	6.72	323.58	--	ND	ND	ND	ND	ND	120
	02/11/00	6.43	323.87	--	ND	ND	ND	ND	ND	39
330.24**	07/26/00 <sup>13</sup>	7.03	323.21	--	ND	ND	ND	ND	ND	89.9
<b>MW-3</b>										
331.11	03/14/94	7.93	323.18	--	150 <sup>4</sup>	ND	ND	ND	ND	--
	08/25/94	9.20	321.91	--	130 <sup>4</sup>	ND	ND	ND	ND	--
	09/30/94	9.43	321.68	--	--	--	--	--	--	--
	10/20/94	9.64	321.47	--	--	--	--	--	--	--
	11/18/94	8.39	322.72	--	130 <sup>4</sup>	ND	ND	ND	ND	--
	12/20/94	8.20	322.91	--	--	--	--	--	--	--
	01/17/95	6.72	324.39	--	--	--	--	--	--	--
	02/15/95	6.93	324.18	--	130 <sup>4</sup>	ND	ND	ND	ND	--
	03/13/95	6.30	324.81	--	--	--	--	--	--	--
	04/06/95	8.20	322.91	--	--	--	--	--	--	--

**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) (ppb)	TPH(G) (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-3	05/17/95	6.88	324.23	--	99 <sup>4</sup>	ND	ND	ND	ND	--
(cont)	06/15/95	7.35	323.76	--	--	--	--	--	--	--
	08/25/95	8.20	322.91	--	ND	ND	ND	ND	ND	-- <sup>5</sup>
	11/28/95	9.52	321.59	--	ND	ND	ND	ND	ND	--
	02/26/96	6.25	324.86	--	ND	ND	ND	ND	ND	-- <sup>5</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
	08/24/98	7.12	323.56	--	--	--	--	--	--	--
	02/10/99	5.80	324.88	--	ND	ND	ND	ND	ND	92
330.49	05/21/99	6.16	324.33	--	--	--	--	--	--	--
	08/02/99	6.95	323.54	--	ND	ND	ND	ND	ND	140
	02/11/00	6.71	-- <sup>11</sup>	--	ND	ND	ND	ND	ND	46
<b>330.60**</b>	<b>07/26/00<sup>13</sup></b>	<b>7.35</b>	<b>323.25</b>	--	<b>ND</b>	<b>ND</b>	<b>ND</b>	<b>ND</b>	<b>ND</b>	<b>927</b>
<b>MW-4</b>										
330.36	05/21/99 <sup>9</sup>	6.43	323.93	--	ND	ND	ND	ND	ND	960/910 <sup>8</sup>
	08/02/99	7.34	323.02	--	ND	10	ND	13	11	ND
	02/11/00	6.92	323.44	--	ND	ND	ND	ND	ND	2,700
<b>330.35**</b>	<b>07/26/00<sup>13</sup></b>	<b>7.68</b>	<b>322.67</b>	--	<b>ND</b>	<b>ND</b>	<b>ND</b>	<b>ND</b>	<b>ND</b>	<b>3,710</b>
<b>MW-5</b>										
330.20	05/21/99 <sup>9</sup>	5.99	324.21	--	ND	ND	ND	ND	ND	32/33 <sup>8</sup>
	08/02/99	6.83	323.37	--	ND	ND	ND	ND	ND	230
	02/11/00	6.34	323.86	--	ND	ND	ND	ND	ND	98
	<b>07/26/00<sup>13</sup></b>	<b>7.06</b>	<b>323.14</b>	--	<b>ND</b>	<b>ND</b>	<b>ND</b>	<b>ND</b>	<b>ND</b>	<b>25.9</b>

**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) (ppb)	TPH(G) (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
<b>MW-6</b>										
330.49	05/21/99 <sup>9</sup>	6.24	324.25	--	ND	ND	ND	ND	ND	2,200/2,300 <sup>8</sup>
	08/02/99	7.10	323.39	--	ND	ND	ND	ND	ND	ND
	02/11/00	6.60	323.89	--	ND	ND	ND	ND	ND	2,500
	07/26/00 <sup>13</sup>	7.31	323.18	--	ND	ND	ND	ND	ND	4,280
<b>MW-7</b>										
330.43	05/21/99 <sup>9</sup>	6.13	324.30	--	ND	ND	ND	ND	ND	22/22 <sup>8</sup>
	08/02/99	6.92	323.51	--	ND	ND	ND	ND	ND	31
	02/11/00	6.50	323.93	--	ND	ND	ND	ND	ND	20
	07/26/00 <sup>13</sup>	7.18	323.25	--	ND	ND	ND	ND	ND	17.9
<b>Trip Blank</b>										
TB-LB	02/02/98	--	--	--	ND	ND	ND	ND	ND	ND
	08/24/98	--	--	--	ND	ND	ND	ND	ND	ND
	02/10/99	--	--	--	ND	ND	ND	ND	ND	ND
	04/12/99	--	--	--	ND	ND	ND	ND	ND	ND
	05/21/99	--	--	--	ND	ND	ND	ND	ND	ND
	08/02/99	--	--	--	ND	ND	ND	ND	ND	ND
	02/11/00	--	--	--	ND	ND	ND	ND	ND	ND
	07/26/00 <sup>13</sup>	--	--	--	ND	ND	ND	ND	ND	ND



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

**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  
 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  
 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 TOC 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).
- \*\* TOC elevations were surveyed on August 18, 2000. The benchmark for the survey was a chiseled square on top center of the concrete curb at the north curb return at the northwest corner of the intersection of Dougherty Road and Dublin Boulevard. (Benchmark Elevation = 330.60 ft., NGVD 1929)
- <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 ppb 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 reports.
- <sup>8</sup> MTBE by EPA Method 8260.
- <sup>9</sup> Ethanol, t-butanol, di-isopropyl ether (DIPE), ethyl t-butyl ether (ETBE), and t-amyl methyl ether (TAME) by EPA Method 8260 were all ND.
- <sup>10</sup> MTBE by EPA Method 8260, was analyzed past EPA recommended hold time.
- <sup>11</sup> TOC has been damaged. Cannot accurately calculate GWE.
- <sup>12</sup> Laboratory report indicates unidentified hydrocarbons C6-C12.
- <sup>13</sup> Laboratory report indicates insufficient preservative to reduce ample pH to less than 2. Sample was analyzed within 14 days, but beyond the seventh day recommended for Benzene, Toluene, Xylene and Ethylbenzene.

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

<b>WELL ID</b>	<b>DATE</b>	<b>Cadmium (ppm)</b>	<b>Chromium (ppm)</b>	<b>Lead (ppm)</b>	<b>Nickel (ppm)</b>	<b>Zinc (ppm)</b>
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 analytical results were compiled from reports prepared by MPDS Services, Inc.

ppm = Parts per million

ND = Not Detected

**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

N/A = Not Applicable

**Table 4**  
**Groundwater Analytical Results - Oxygenate Compounds**  
 Tosco (Unocal) Service Station #6419  
 6401 Dublin Boulevard  
 Dublin, California

WELL ID	DATE	ETHANOL (ppb)	TBA (ppb)	MTBE (ppb)	DIPE (ppb)	ETBE (ppb)	TAME (ppb)	1,2-DCA (ppb)	EDB (ppb)
MW-1	07/26/00	--	ND <sup>1</sup>	42,800	ND <sup>1</sup>	ND <sup>1</sup>	ND <sup>1</sup>	ND <sup>1</sup>	ND <sup>1</sup>

**EXPLANATIONS:**

TBA = Tertiary butyl alcohol  
 MTBE = Methyl tertiary butyl ether  
 DIPE = Di-isopropyl ether  
 ETBE = Ethyl tertiary butyl ether  
 TAME = Tertiary amyl methyl ether  
 1,2-DCA = 1,2-Dichloroethane  
 EDB = 1,2-Dibromoethane  
 ppb = Parts per billion  
 -- = Not Analyzed  
 ND = Not Detected

**ANALYTICAL METHOD:**

EPA Method 8260 for Oxygenate Compounds

<sup>1</sup> Detection limit raised. Refer to analytical reports.

## 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 # TDSCO # 6419 Job#: 180021  
 Address: 6401 DUBLIN BLVD. Date: 7/26/00  
 City: DUBLIN, CA Sampler: H. KEVOAK

Well ID MW-1 Well Condition: OK  
 Well Diameter 2 in. Hydrocarbon Thickness: Ø in. Amount Bailed (product/water): Ø (gal.)  
 Total Depth 9.20 ft.  
 Depth to Water 7.08 ft.

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

2.12 x VF 0.17 = 0.36 x 3 (case volume) = Estimated Purge Volume: 1 (gal.)

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

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

Starting Time: ~~AAW~~ 14:25 Weather Conditions: SUNNY  
 Sampling Time: 14:45 Water Color: \_\_\_\_\_ Odor: \_\_\_\_\_  
 Purging Flow Rate: \_\_\_\_\_ gpm. Sediment Description: \_\_\_\_\_  
 Did well de-water? NO If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>14:26</u>	<u>1/3</u>	<u>6.95</u>	<u>1665</u>	<u>77.0</u>			
	<u>2/3</u>	<u>6.90</u>	<u>1650</u>	<u>76.1</u>			
<u>14:32</u>	<u>1</u>	<u>6.92</u>	<u>1638</u>	<u>75.7</u>			

### LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-1</u>	<u>3 VOA</u>	<u>YES</u>	<u>HCL</u>	<u>SEQUOIA G/BTEX/MTBE</u>	

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

**WELL MONITORING/SAMPLING  
FIELD DATA SHEET**

Client/  
Facility # TOSCO # 6419  
Address: 6401 DUBLIN BLVD.  
City: DUBLIN, CA

Job#: 180021  
Date: 7/26/00  
Sampler: H. KEVORK

Well ID MW-2  
Well Diameter 2 in.  
Total Depth 17.60 ft.  
Depth to Water 7.03 ft.

Well Condition: OK  
Hydrocarbon Thickness: Ø in. Amount Bailed (product/water): Ø (gal.)

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

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

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

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

Starting Time: 11:44  
Sampling Time: 12:00  
Purging Flow Rate: ~1 gpm.  
Did well de-water? NO

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

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm	Temperature <u>F</u>	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>11:46</u>	<u>2</u>	<u>7.23</u>	<u>2690</u>	<u>71.2</u>			
	<u>3.5</u>	<u>7.20</u>	<u>2640</u>	<u>70.5</u>			
<u>11:50</u>	<u>5</u>	<u>7.16</u>	<u>2650</u>	<u>69.4</u>			

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-2</u>	<u>3 VOA</u>	<u>YES</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>G/BTEX/MTBE</u>

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

**WELL MONITORING/SAMPLING  
FIELD DATA SHEET**

Client/  
Facility # TOSCO # 6419  
Address: 6401 DUBLIN BLVD.  
City: DUBLIN, CA

Job#: 180021  
Date: 7/26/00  
Sampler: H. KEVORK

Well ID MW-3  
Well Diameter 2 in.  
Total Depth 18.40 ft.  
Depth to Water 4.35 ft.

Well Condition: OK

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	

11.05 x VF 0.17 = 1.8 X 3 (case volume) = Estimated Purge Volume: 5.4 (gal.)

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

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

Starting Time: 12:10  
Sampling Time: 12:25  
Purging Flow Rate: ~1 gpm.  
Did well de-water? NO

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

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>12:12</u>	<u>2</u>	<u>6.95</u>	<u>2510</u>	<u>72.5</u>	_____	_____	_____
	<u>3.5</u>	<u>6.93</u>	<u>2450</u>	<u>71.6</u>	_____	_____	_____
<u>12:16</u>	<u>5</u>	<u>6.89</u>	<u>2430</u>	<u>71.8</u>	_____	_____	_____

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-3</u>	<u>3 VOA</u>	<u>YES</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>GIBTEX/MTBE</u>

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



**WELL MONITORING/SAMPLING  
FIELD DATA SHEET**

Client/Facility # TOSCO # 6419 Job#: 180021  
 Address: 6401 DUBLIN BLVD, Date: 7/26/00  
 City: DUBLIN, CA Sampler: H. KEVORK

Well ID MW-4 Well Condition: OK  
 Well Diameter 2 in. Hydrocarbon Thickness: Ø in. Amount Bailed (product/water): Ø (gal.)  
 Total Depth 19.10 ft. Volume Factor (VF) 2" = 0.17 3" = 0.38 4" = 0.66  
 Depth to Water 7.68 ft. 6" = 1.50 12" = 5.80

11.42 x VF 0.17 = 1.9 X 3 (case volume) = Estimated Purge Volume: 5.7 (gal.)

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

Starting Time: 13:45 Weather Conditions: SUNNY  
 Sampling Time: 14:08 Water Color: \_\_\_\_\_ Odor: \_\_\_\_\_  
 Purging Flow Rate: ~1 gpm. Sediment Description: \_\_\_\_\_  
 Did well de-water? NO If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>13:47</u>	<u>2</u>	<u>7.36</u>	<u>2270</u>	<u>75.3</u>			
	<u>4</u>	<u>7.31</u>	<u>2220</u>	<u>74.4</u>			
<u>13:52</u>	<u>6</u>	<u>7.29</u>	<u>2230</u>	<u>73.9</u>			

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-4</u>	<u>3 VOA</u>	<u>YES</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>G/ATK/MTBE</u>

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

**WELL MONITORING/SAMPLING  
FIELD DATA SHEET**

Client/  
Facility # TOSCO # 6419  
Address: 6401 DUBLIN BLVD.  
City: DUBLIN, CA

Job#: 180021  
Date: 7/26/00  
Sampler: H-KEVORIK

Well ID MW-5  
Well Diameter 2 in.  
Total Depth 19.40 ft.  
Depth to Water 7.06 ft.

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

12.34 x VF 0.17 = 2 X 3 (case volume) = Estimated Purge Volume: 6 (gal.)

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

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

Starting Time: 12:37  
Sampling Time: 12:55  
Purging Flow Rate: ~1 gpm.  
Did well de-water? NO

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

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>12:39</u>	<u>2</u>	<u>6.98</u>	<u>2420</u>	<u>75.0</u>	_____	_____	_____
	<u>4</u>	<u>6.93</u>	<u>2390</u>	<u>74.4</u>	_____	_____	_____
<u>12:44</u>	<u>6</u>	<u>6.96</u>	<u>2370</u>	<u>74.1</u>	_____	_____	_____

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-5</u>	<u>3 VOA</u>	<u>YES</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>G/BTEX/MTBE</u>

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

**WELL MONITORING/SAMPLING  
FIELD DATA SHEET**

Client/Facility # TOSCO # 6419 Job#: 180021  
 Address: 6401 DUBLIN BLVD. Date: 7/26/00  
 City: DUBLIN, CA Sampler: H. KEVORAK

Well ID MW-6 Well Condition: OK  
 Well Diameter 2 in. Hydrocarbon Thickness: Ø in. Amount Bailed (product/water): Ø (gal.)  
 Total Depth 19.35 ft.  
 Depth to Water 7.31 ft.

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

12.04 x VF 0.17 = 2 X 3 (case volume) = Estimated Purge Volume: 6 (gal.)

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

Starting Time: ~~13:07~~ 13:07 Weather Conditions: SUNNY  
 Sampling Time: 13:27 Water Color: \_\_\_\_\_ Odor: \_\_\_\_\_  
 Purging Flow Rate: ~1 gpm. Sediment Description: \_\_\_\_\_  
 Did well de-water? NO If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>13:09</u>	<u>2</u>	<u>7.20</u>	<u>2490</u>	<u>71.8</u>			
	<u>4</u>	<u>7.17</u>	<u>2450</u>	<u>71.3</u>			
<u>13:14</u>	<u>6</u>	<u>7.12</u>	<u>2440</u>	<u>70.6</u>			

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-6</u>	<u>3 VOA</u>	<u>YES</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>G/BTEX/MTBE</u>

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

**WELL MONITORING/SAMPLING  
FIELD DATA SHEET**

Client/  
Facility # TOSCO # 6419  
Address: 6401 DUBLIN BLVD,  
City: DUBLIN, CA

Job#: 180021  
Date: 7/26/2000  
Sampler: H-KEVORR

Well ID MW-7  
Well Diameter 2 in.  
Total Depth 19.35 ft.  
Depth to Water 11.18 ft.

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

12.17 x VF 0.17 = 2 X 3 (case volume) = Estimated Purge Volume: 6 (gal.)

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

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

Starting Time: 11:15  
Sampling Time: 11:33  
Purging Flow Rate: ~1 gpm.  
Did well de-water? NO

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

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm	Temperature $^{\circ}$ F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
<u>11:17</u>	<u>2</u>	<u>7.36</u>	<u>2380</u>	<u>71.2</u>	_____	_____	_____
<u>11:21</u>	<u>4</u>	<u>7.34</u>	<u>2325</u>	<u>70.4</u>	_____	_____	_____
<u>11:21</u>	<u>6</u>	<u>7.30</u>	<u>2290</u>	<u>69.9</u>	_____	_____	_____

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-7</u>	<u>3 VOA</u>	<u>YES</u>	<u>HCL</u>	<u>SEQUOIA</u>	<u>G/BTEX/MTBE</u>

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





# Sequoia Analytical

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

October 12, 2000

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

RE: Tosco(4)/L007220

Dear Deanna Harding:

Enclosed are the results of analyses for sample(s) received by the laboratory on July 27, 2000. Report was revised to include additional oxygenates. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

*Richard Yee*  
for

Wayne Stevenson  
Project Manager

CA ELAP Certificate Number I-2360





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite J Dublin, CA 94568	Project: Tosco(4) Project Number: Unocal SS#6419 Project Manager: Deanna Harding	Sampled: 7/26/00 Received: 7/27/00 Reported: 10/12/00
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**ANALYTICAL REPORT FOR L007220**

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
TB-LB	L007220-01	Water	7/26/00
MW-1	L007220-02	Water	7/26/00
MW-2	L007220-03	Water	7/26/00
MW-3	L007220-04	Water	7/26/00
MW-4	L007220-05	Water	7/26/00
MW-5	L007220-06	Water	7/26/00
MW-6	L007220-07	Water	7/26/00
MW-7	L007220-08	Water	7/26/00





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite J Dublin, CA 94568	Project: Tosco(4) Project Number: Unocal SS#6419 Project Manager: Deanna Harding	Sampled: 7/26/00 Received: 7/27/00 Reported: 10/12/00
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**Sample Description:** TB-LB  
**Laboratory Sample Number:** L007220-01

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method/ Surrogate Limits	Reporting Limit	Result	Units	Notes*
<b>Sequoia Analytical - San Carlos</b>								
<b>Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT</b>								
Purgeable Hydrocarbons as Gasoline	0080030	8/7/00	8/7/00		50.0	ND	ug/l	1
Benzene	"	"	"		0.500	ND	"	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		0.500	ND	"	
Methyl tert-butyl ether	"	"	"		5.00	ND	"	
Surrogate: a,a,a-Trifluorotoluene	"	"	"	70.0-130		109	%	







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Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite J Dublin, CA 94568	Project: Tosco(4) Project Number: Unocal SS#6419 Project Manager: Deanna Harding	Sampled: 7/26/00 Received: 7/27/00 Reported: 10/12/00
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Sample Description: MW-1  
Laboratory Sample Number: L007220-02

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method/ Surrogate Limits	Reporting Limit	Result	Units	Notes*
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**Sequoia Analytical - San Carlos**

<b>Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT</b>								
Purgeable Hydrocarbons as Gasoline	0080030	8/7/00	8/7/00		50.0	146	ug/l	1
Benzene	"	"	"		0.500	ND	"	2
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		0.500	ND	"	
Methyl tert-butyl ether	"	"	"		1000	30900	"	3
Surrogate: a,a,a-Trifluorotoluene	"	"	"	70.0-130		95.9	%	

<b>MTBE by EPA Method 8260B</b>								
1,2-Dibromoethane	0080048	8/10/00	8/10/00		500	ND	ug/l	4
1,2-Dichloroethane	"	"	"		500	ND	"	
Di-isopropyl ether	"	"	"		500	ND	"	
Ethyl tert-butyl ether	"	"	"		500	ND	"	
Tert-amyl methyl ether	"	"	"		500	ND	"	
Tert-butyl alcohol	"	"	"		500	ND	"	
Methyl tert-butyl ether	"	"	"		500	42800	"	
Surrogate: 1,2-Dichloroethane-d4	"	"	"	76.0-114		105	%	



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Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite J Dublin, CA 94568	Project: Tosco(4) Project Number: Unocal SS#6419 Project Manager: Deanna Harding	Sampled: 7/26/00 Received: 7/27/00 Reported: 10/12/00
---	--	---

**Sample Description:** MW-2  
**Laboratory Sample Number:** L007220-03

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method/ Surrogate Limits	Reporting Limit	Result	Units	Notes*
<b>Sequoia Analytical - San Carlos</b>								
<b>Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT</b>								
Purgeable Hydrocarbons as Gasoline	0080030	8/7/00	8/7/00		50.0	ND	ug/l	1
Benzene	"	"	"		0.500	ND	"	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		0.500	ND	"	
Methyl tert-butyl ether	"	"	"		5.00	89.9	"	
Surrogate: a,a,a-Trifluorotoluene	"	"	"	70.0-130		113	%	





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite J Dublin, CA 94568	Project: Tosco(4) Project Number: Unocal SS#6419 Project Manager: Deanna Harding	Sampled: 7/26/00 Received: 7/27/00 Reported: 10/12/00
---	--	---

**Sample Description:** MW-3  
**Laboratory Sample Number:** L007220-04

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method/ Surrogate Limits	Reporting Limit	Result	Units	Notes*
<b>Sequoia Analytical - San Carlos</b>								
<b>Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT</b>								
Purgeable Hydrocarbons as Gasoline	0080030	8/7/00	8/7/00		50.0	ND	ug/l	1
Benzene	"	"	"		0.500	ND	"	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		0.500	ND	"	
Methyl tert-butyl ether	"	"	"		100	927	"	3
Surrogate: <i>a,a,a</i> -Trifluorotoluene	"	"	"	70.0-130		103	%	





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite J Dublin, CA 94568	Project: Tosco(4) Project Number: Unocal SS#6419 Project Manager: Deanna Harding	Sampled: 7/26/00 Received: 7/27/00 Reported: 10/12/00
---	--	---

**Sample Description:** MW-4  
**Laboratory Sample Number:** L007220-05

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method/ Surrogate Limits	Reporting Limit	Result	Units	Notes*
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**Sequoia Analytical - San Carlos**

<b>Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT</b>								
Purgeable Hydrocarbons as Gasoline	0080030	8/7/00	8/7/00		50.0	ND	ug/l	<u>1</u>
Benzene	"	"	"		0.500	ND	"	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		0.500	ND	"	
Methyl tert-butyl ether	"	"	8/8/00		250	3710	"	3
Surrogate: a,a,a-Trifluorotoluene	"	"	8/7/00	70.0-130		114	%	





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite J Dublin, CA 94568	Project: Tosco(4) Project Number: Unocal SS#6419 Project Manager: Deanna Harding	Sampled: 7/26/00 Received: 7/27/00 Reported: 10/12/00
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Sample Description: MW-5  
Laboratory Sample Number: L007220-06

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method/ Surrogate Limits	Reporting Limit	Result	Units	Notes*
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Sequoia Analytical - San Carlos

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

Purgeable Hydrocarbons as Gasoline	0080030	8/7/00	8/7/00		50.0	ND	ug/l	<u>1</u>
Benzene	"	"	"		0.500	ND	"	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		0.500	ND	"	
Methyl tert-butyl ether	"	"	"		5.00	25.9	"	
Surrogate: a,a,a-Trifluorotoluene	"	"	"	70.0-130		106	%	





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Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite J Dublin, CA 94568	Project: Tosco(4) Project Number: Unocal SS#6419 Project Manager: Deanna Harding	Sampled: 7/26/00 Received: 7/27/00 Reported: 10/12/00
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Sample Description: MW-6  
 Laboratory Sample Number: L007220-07

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method/ Surrogate Limits	Reporting Limit	Result	Units	Notes*
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**Sequoia Analytical - San Carlos**

<b>Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT</b>								
Purgeable Hydrocarbons as Gasoline	0080029	8/7/00	8/7/00		50.0	ND	ug/l	1
Benzene	"	"	"		0.500	ND	"	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		0.500	ND	"	
Methyl tert-butyl ether	"	"	8/8/00		500	4280	"	3
Surrogate: <i>a,a,a</i> -Trifluorotoluene	"	"	8/7/00	70.0-130		103	%	





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Sample Description: MW-7  
 Laboratory Sample Number: L007220-08

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method/ Surrogate Limits	Reporting Limit	Result	Units	Notes*
<b>Sequoia Analytical - San Carlos</b>								
<b>Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT</b>								
Purgeable Hydrocarbons as Gasoline	0080034	8/8/00	8/8/00		50.0	ND	ug/l	1
Benzene	"	"	"		0.500	ND	"	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		0.500	ND	"	
Methyl tert-butyl ether	"	"	"		5.00	17.9	"	
Surrogate: a,a,a-Trifluorotoluene	"	"	"	70.0-130		119	%	





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite J Dublin, CA 94568	Project: Tosco(4) Project Number: Unocal SS#6419 Project Manager: Deanna Harding	Sampled: 7/26/00 Received: 7/27/00 Reported: 10/12/00
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**Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT/Quality Control**  
Sequoia Analytical - San Carlos

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Reporting Limit Units	Recov. Recov. Limits	RPD %	RPD Limit	RPD %	Notes*
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<b>Batch: 0080029</b>	<b>Date Prepared: 8/7/00</b>	<b>Extraction Method: EPA 5030B [P/T]</b>								
<b>Blank</b>	<b>0080029-BLK1</b>									
Purgeable Hydrocarbons as Gasoline	8/7/00			ND	ug/l	50.0				
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	"	10.0		11.8	"	70.0-130	118			

<b>LCS</b>	<b>0080029-BS1</b>									
Benzene	8/7/00	10.0		8.36	ug/l	70.0-130	83.6			
Toluene	"	10.0		7.73	"	70.0-130	77.3			
Ethylbenzene	"	10.0		7.75	"	70.0-130	77.5			
Xylenes (total)	"	30.0		23.6	"	70.0-130	78.7			
Surrogate: a,a,a-Trifluorotoluene	"	10.0		11.7	"	70.0-130	117			

<b>LCS</b>	<b>0080029-BS2</b>									
Purgeable Hydrocarbons as Gasoline	8/7/00	250		256	ug/l	70.0-130	102			
Surrogate: a,a,a-Trifluorotoluene	"	10.0		11.6	"	70.0-130	116			

<b>Matrix Spike</b>	<b>0080029-MS1</b>	<b>L007219-02</b>								
Benzene	8/7/00	10.0	ND	11.0	ug/l	60.0-140	110			
Toluene	"	10.0	ND	10.2	"	60.0-140	102			
Ethylbenzene	"	10.0	ND	10.5	"	60.0-140	105			
Xylenes (total)	"	30.0	ND	31.7	"	60.0-140	106			
Surrogate: a,a,a-Trifluorotoluene	"	10.0		10.5	"	70.0-130	105			

<b>Matrix Spike Dup</b>	<b>0080029-MSD1</b>	<b>L007219-02</b>								
Benzene	8/7/00	10.0	ND	10.3	ug/l	60.0-140	103	25.0	6.57	
Toluene	"	10.0	ND	9.47	"	60.0-140	94.7	25.0	7.42	
Ethylbenzene	"	10.0	ND	9.63	"	60.0-140	96.3	25.0	8.64	
Xylenes (total)	"	30.0	ND	29.2	"	60.0-140	97.3	25.0	8.56	
Surrogate: a,a,a-Trifluorotoluene	"	10.0		10.6	"	70.0-130	106			

<b>Batch: 0080030</b>	<b>Date Prepared: 8/7/00</b>	<b>Extraction Method: EPA 5030B [P/T]</b>								
<b>Blank</b>	<b>0080030-BLK1</b>									
Purgeable Hydrocarbons as Gasoline	8/7/00			ND	ug/l	50.0				
Benzene	"			ND	"	0.500				
Toluene	"			ND	"	0.500				
Ethylbenzene	"			ND	"	0.500				
Xylenes (total)	"			ND	"	0.500				







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Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite J Dublin, CA 94568	Project: Tosco(4) Project Number: Unocal SS#6419 Project Manager: Deanna Harding	Sampled: 7/26/00 Received: 7/27/00 Reported: 10/12/00
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**Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT/Quality Control**  
Sequoia Analytical - San Carlos

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
<b>Blank (continued)</b>	<b>0080030-BLK1</b>									
Methyl tert-butyl ether	8/7/00			ND	ug/l	5.00				
Surrogate: a,a,a-Trifluorotoluene	"	10.0		12.0	"	70.0-130	120			
<b>LCS</b>	<b>0080030-BS1</b>									
Benzene	8/7/00	10.0		10.5	ug/l	70.0-130	105			
Toluene	"	10.0		10.1	"	70.0-130	101			
Ethylbenzene	"	10.0		9.75	"	70.0-130	97.5			
Xylenes (total)	"	30.0		29.3	"	70.0-130	97.7			
Surrogate: a,a,a-Trifluorotoluene	"	10.0		11.2	"	70.0-130	112			
<b>LCS</b>	<b>0080030-BS2</b>									
Purgeable Hydrocarbons as Gasoline	8/7/00	250		236	ug/l	70.0-130	94.4			
Surrogate: a,a,a-Trifluorotoluene	"	10.0		11.6	"	70.0-130	116			
<b>Matrix Spike</b>	<b>0080030-MS1</b>		<b>L007219-08</b>							
Benzene	8/7/00	10.0	ND	9.77	ug/l	60.0-140	97.7			
Toluene	"	10.0	ND	9.25	"	60.0-140	92.5			
Ethylbenzene	"	10.0	ND	9.24	"	60.0-140	92.4			
Xylenes (total)	"	30.0	ND	27.3	"	60.0-140	91.0			
Surrogate: a,a,a-Trifluorotoluene	"	10.0		10.9	"	70.0-130	109			
<b>Matrix Spike Dup</b>	<b>0080030-MSD1</b>		<b>L007219-08</b>							
Benzene	8/7/00	10.0	ND	10.0	ug/l	60.0-140	100	25.0	2.33	
Toluene	"	10.0	ND	9.57	"	60.0-140	95.7	25.0	3.40	
Ethylbenzene	"	10.0	ND	9.43	"	60.0-140	94.3	25.0	2.04	
Xylenes (total)	"	30.0	ND	28.4	"	60.0-140	94.7	25.0	3.98	
Surrogate: a,a,a-Trifluorotoluene	"	10.0		11.1	"	70.0-130	111			
<b>Batch: 0080034</b>	<b>Date Prepared: 8/8/00</b>									
<b>Blank</b>	<b>0080034-BLK1</b>									
Purgeable Hydrocarbons as Gasoline	8/8/00			ND	ug/l	50.0				
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	"	10.0		12.4	"	70.0-130	124			
<b>LCS</b>	<b>0080034-BS2</b>									
Purgeable Hydrocarbons as Gasoline	8/8/00			236	ug/l	70.0-130				
Surrogate: a,a,a-Trifluorotoluene	"	10.0		13.6	"	70.0-130	136			5

**Extraction Method: EPA 5030B (P/TI)**



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

Project: Tosco(4)  
Project Number: Unocal SS#6419  
Project Manager: Deanna Harding

Sampled: 7/26/00  
Received: 7/27/00  
Reported: 10/12/00

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

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
<b>LCS</b>	<b>0080034-BS3</b>									
Benzene	8/8/00			10.7	ug/l	70.0-130	107			
Toluene	"			9.85	"	70.0-130	98.5			
Ethylbenzene	"			9.91	"	70.0-130	99.1			
Xylenes (total)	"			29.7	"	70.0-130	99.0			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	"	10.0		11.9	"	70.0-130	119			
<b>Matrix Spike</b>	<b>0080034-MS1</b>		<b>L007223-18</b>							
Purgeable Hydrocarbons as Gasoline	8/8/00	250	ND	254	ug/l	60.0-140	102			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	"	10.0		12.0	"	70.0-130	120			
<b>Matrix Spike Dup</b>	<b>0080034-MSD1</b>		<b>L007223-18</b>							
Purgeable Hydrocarbons as Gasoline	8/8/00	250	ND	262	ug/l	60.0-140	105	25.0	2.90	
<i>Surrogate: a,a,a-Trifluorotoluene</i>	"	10.0		11.5	"	70.0-130	115			





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Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite J Dublin, CA 94568	Project: Tosco(4) Project Number: Unocal SS#6419 Project Manager: Deanna Harding	Sampled: 7/26/00 Received: 7/27/00 Reported: 10/12/00
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**MTBE by EPA Method 8260B/Quality Control**  
Sequoia Analytical - San Carlos

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
<b>Batch: 0080048</b>		<b>Date Prepared: 8/10/00</b>			<b>Extraction Method: EPA 5030B IP/TI</b>					
<b>Blank</b>		<b>0080048-BLK1</b>								
1,2-Dibromoethane	8/10/00			ND	ug/l	2.00				
1,2-Dichloroethane	"			ND	"	2.00				
Di-isopropyl ether	"			ND	"	2.00				
Ethyl tert-butyl ether	"			ND	"	2.00				
Tert-amyl methyl ether	"			ND	"	2.00				
Tert-butyl alcohol	"			ND	"	2.00				
Methyl tert-butyl ether	"			ND	"	2.00				
Surrogate: 1,2-Dichloroethane-d4	"	50.0		50.9	"	76.0-114	102			
<b>Blank</b>		<b>0080048-BLK2</b>								
Methyl tert-butyl ether	8/11/00			ND	ug/l	2.00				
Surrogate: 1,2-Dichloroethane-d4	"	50.0		51.4	"	76.0-114	103			
<b>Blank</b>		<b>0080048-BLK3</b>								
Methyl tert-butyl ether	8/13/00			ND	ug/l	2.00				
Surrogate: 1,2-Dichloroethane-d4	"	50.0		47.6	"	76.0-114	95.2			
<b>LCS</b>		<b>0080048-BS1</b>								
Methyl tert-butyl ether	8/10/00	50.0		52.3	ug/l	70.0-130	105			
Surrogate: 1,2-Dichloroethane-d4	"	50.0		53.3	"	76.0-114	107			
<b>LCS</b>		<b>0080048-BS2</b>								
Methyl tert-butyl ether	8/11/00	50.0		49.9	ug/l	70.0-130	99.8			
Surrogate: 1,2-Dichloroethane-d4	"	50.0		55.9	"	76.0-114	112			
<b>LCS</b>		<b>0080048-BS3</b>								
Methyl tert-butyl ether	8/13/00	50.0		60.1	ug/l	70.0-130	120			
Surrogate: 1,2-Dichloroethane-d4	"	50.0		47.0	"	76.0-114	94.0			
<b>Matrix Spike</b>		<b>0080048-MS1</b>		<b>L008070-04</b>						
Methyl tert-butyl ether	8/11/00	50.0	ND	52.7	ug/l	60.0-140	105			
Surrogate: 1,2-Dichloroethane-d4	"	50.0		55.4	"	76.0-114	111			
<b>Matrix Spike Dup</b>		<b>0080048-MSD1</b>		<b>L008070-04</b>						
Methyl tert-butyl ether	8/11/00	50.0	ND	49.8	ug/l	60.0-140	99.6	25.0	5.28	
Surrogate: 1,2-Dichloroethane-d4	"	50.0		54.1	"	76.0-114	108			





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

Project: Tosco(4)  
Project Number: Unocal SS#6419  
Project Manager: Deanna Harding

Sampled: 7/26/00  
Received: 7/27/00  
Reported: 10/12/00

### Notes and Definitions

#	Note
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|--------|---|
| 1      | Insufficient preservative to reduce sample pH to less than 2. Sample was analyzed within 14 days, but beyond the seventh day recommended for Benzene, Toluene, Xylene and Ethylbenzene. |
| 2      | Chromatogram Pattern: Unidentified Hydrocarbons C6-C12  |
| 3      | MTBE was reported from second analysis.   |
| 4      | This sample was analyzed outside of the EPA recommended holding time.   |
| 5      | The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.  |
| 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   |
| Recov. | Recovery  |
| RPD    | Relative Percent Difference   |

