



GETTLER-RYAN Inc.

ENVIRONMENTAL
PROTECTION

TRANSMITTAL

98 OCT 14 PM 3:54

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

DATE: October 13, 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	October 1, 1998	Groundwater Monitoring and Sampling Report Semi-Annual 1998 - Event of August 24, 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. 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



GETTLER - RYAN INC.

October 1, 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 August 24, 1998, field personnel monitored three wells (MW-1 through MW-3) and sampled one well (MW-1) 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 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
Deanna L. Harding
Project Coordinator

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

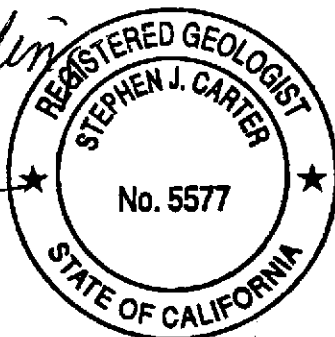
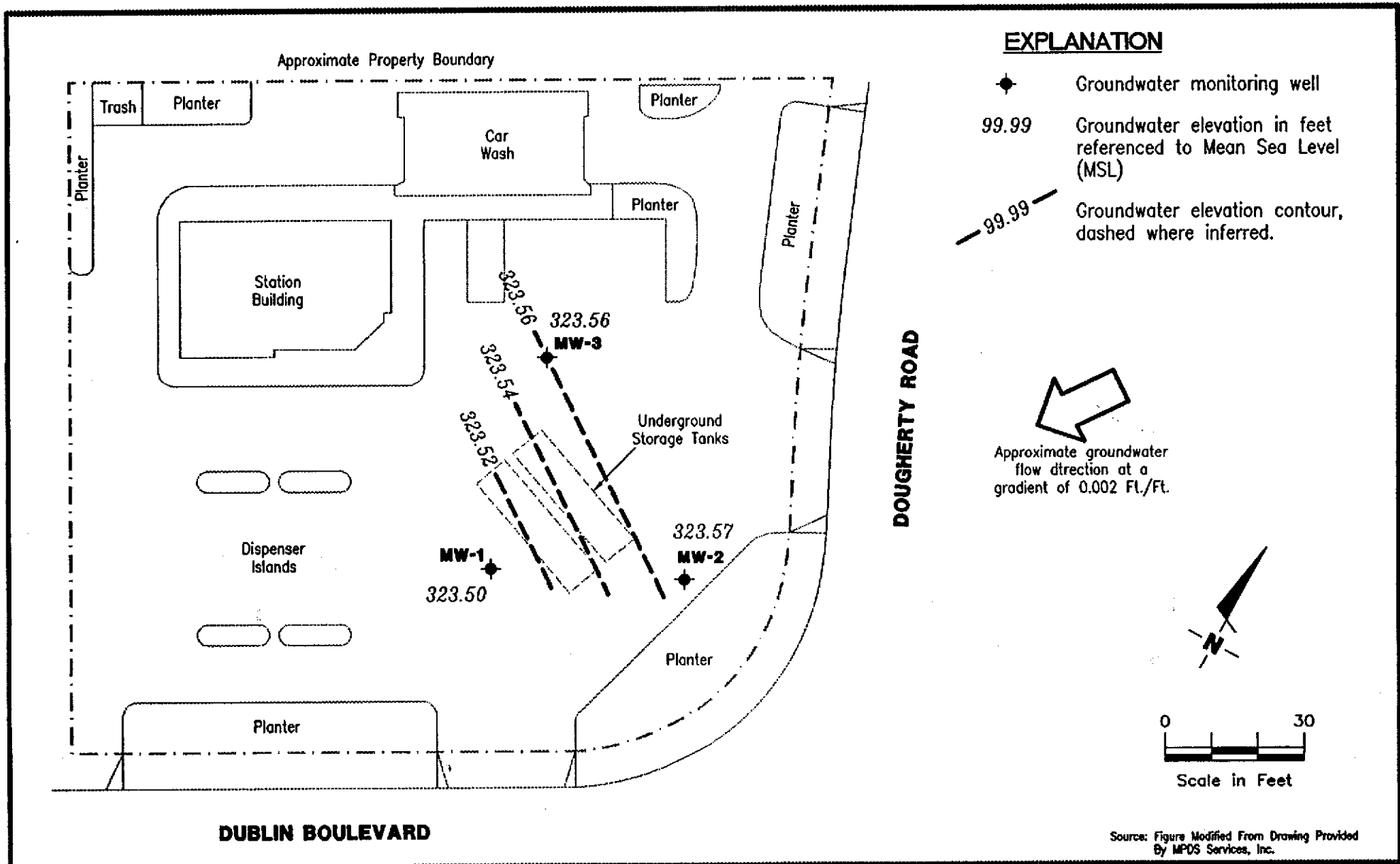


Figure 1: Potentiometric Map
Figure 2: Concentration Map
Table 1: Groundwater Monitoring Data and Analytical Results
Table 2: Groundwater Analytical Results - Metals
Table 3: Dissolved Oxygen Concentrations
Attachments: Standard Operating Procedure - Groundwater Sampling
Field Data Sheets
Chain of Custody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

6419.qml



Gettler - Ryan Inc.

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

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

FIGURE

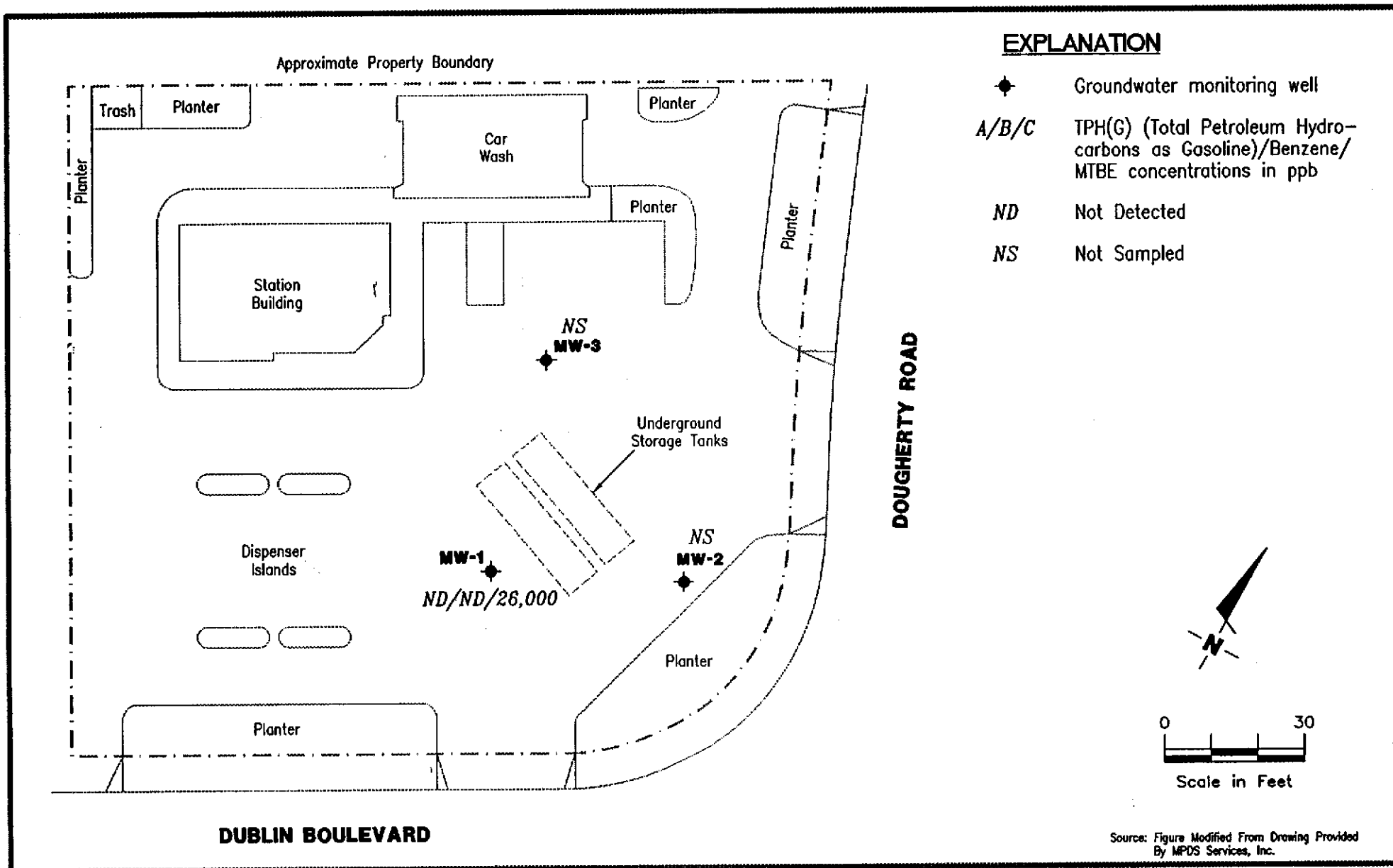
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JOB NUMBER
180021

REVIEWED BY

DATE
August 24, 1998

REVISED DATE



Gettler - Ryan Inc.

6747 Sierra Ct., Suite J (925) 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
August 24, 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
MW-1										
330.45	03/14/94	7.27	323.18	810 ¹	1,800 ²	17	ND	ND	ND	--
	08/25/94	8.57	321.88	910 ³	9,200 ²	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 ³	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 ¹	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 ³	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	-- ⁵
	11/28/95	9.03	321.42	--	1,400	18	3.0	98	3.6	-- ⁵
	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 ⁴	1.0	0.95	ND	ND	280
	08/18/97	7.38	322.85	--	ND	ND	ND	ND	ND	100
	02/02/98 ⁶	5.10	325.13	--	ND ⁷	130	ND ⁷	ND ⁷	ND ⁷	32,000
	08/24/98	6.73	323.50	--	ND ⁷	ND ⁷	ND ⁷	ND ⁷	ND ⁷	26,000/24,000 ⁸
MW-2										
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	--	--	--	--	--	--	--
	11/18/94	7.67	322.73	--	ND	ND	ND	ND	ND	--
	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	--

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-2 (cont)	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	--	--	--	--	--	--	--	
MW-3 331.11	03/14/94	7.93	323.18	--	150 ^d	ND	ND	ND	ND	--	
	08/25/94	9.20	321.91	--	130 ^d	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 ^d	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 ^d	ND	ND	ND	ND	--	
	03/13/95	6.30	324.81	--	--	--	--	--	--	--	
	04/06/95	8.20	322.91	--	--	--	--	--	--	--	
	05/17/95	6.88	324.23	--	99 ^d	ND	ND	ND	ND	--	
	06/15/95	7.35	323.76	--	--	--	--	--	--	--	
	08/25/95	8.20	322.91	--	ND	ND	ND	ND	ND	-- ⁵	
	11/28/95	9.52	321.59	--	ND	ND	ND	ND	ND	--	
	02/26/96	6.25	324.86	--	ND	ND	ND	ND	ND	-- ⁵	
	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	--	--	--	--	--	--	--		

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-----→						
Trip Blank										
TB-LB	02/02/98	--	--	--	ND	ND	ND	ND	ND	ND
	08/24/98	--	--	--	ND	ND	ND	ND	ND	ND

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

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

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).

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

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

³ Laboratory report indicates the hydrocarbons detected did not appear to be diesel.

⁴ Laboratory report indicates the hydrocarbons detected did not appear to be gasoline.

⁵ 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.

⁶ Well appears to be obstructed at approximately 9 feet.

⁷ Detection limit raised. Refer to analytical

⁸ MTBE by EPA Method 8260.

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

Well ID	Date	Cadmium	Chromium	Lead	Nickel	Zinc
		←—————ppb—————→				
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.

ppb = Parts per billion

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/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. 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.

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 # 6419 Job#: 180021
 Address: 6401 Dublin Blvd. Date: 8-24-98
 City: Dublin Sampler: Joe

Well ID: MW-1 Well Condition: OK
 Well Diameter: 2 in. Hydrocarbon Thickness: _____ in. Amount Bailed (product/water): _____ (gal.)
 Total Depth: 9.22 ft. Volume 2" = 0.17 3" = 0.38 4" = 0.66
 Depth to Water: 6.73 ft. Factor (VF) 6" = 1.50 12" = 5.80

$2.49 \times VF 0.42 = 1.27 \times 3 \text{ (case volume)} = \text{Estimated Purge Volume: } 1.5 \text{ (gal.)}$

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

Starting Time: 9:10 Weather Conditions: clear
 Sampling Time: 9:25 AM Water Color: clear Odor: Yes
 Purging Flow Rate: 0.5 gpm Sediment Description: None
 Did well de-water? _____ If yes: Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu\text{mhos/cm} \times 1000$	Temperature $^{\circ}\text{F}$	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
9:12	0.5	7.10	1.96	65.5			
9:13	1	7.05	2.05	65.8			
9:15	1.5	7.02	2.08	65.9			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-1	3 vOA	Y	HCL	Seq.	TPNG, BTEX, MTBE

COMMENTS: _____

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/
Facility # 6419

Job#: 180021

Address: 6401 Dublin Blvd.

Date: 8-24-98

City: Dublin

Sampler: Joe

Well ID mw-2

Well Condition: O.K.

Well Diameter 2 in

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

Total Depth 17.60 ft

Depth to Water 6.70 ft

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

_____ X VF _____ = _____ X 3 (case volume) = Estimated Purge Volume: _____ (gal.)

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

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

Starting Time: _____

Weather Conditions: _____

Sampling Time: _____

Water Color: _____ Odor: _____

Purging Flow Rate: _____ gpm

Sediment Description: _____

Did well de-water? _____

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

Time	Volume (gal.)	pH	Conductivity μ mhos/cm	Temperature $^{\circ}$ C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

LABORATORY INFORMATION

SAMPLE ID	(?) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES

COMMENTS: Monitored only

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility # 6419 Job#: 180021
 Address: 6401 Dublin Blvd. Date: 8-24-98
 City: Dublin Sampler: Joe

Well ID MW-3 Well Condition: OK
 Well Diameter 2 in. Hydrocarbon Amount Bailed
 Thickness: _____ in. (product/water): _____ (gal.)
 Total Depth 18.57 ft.
 Depth to Water 7.12 ft.

Volume	2" = 0.17	3" = 0.38	4" = 0.66
Factor (VF)	6" = 1.50	12" = 5.90	

_____ X VF _____ = _____ X 3 (case volume) = Estimated Purge Volume: _____ (gal.)

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

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

Starting Time: _____ Weather Conditions: _____
 Sampling Time: _____ Water Color: _____ Odor: _____
 Purging Flow Rate: _____ gpm Sediment Description: _____
 Did well de-water? _____ If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity μ mhos/cm	Temperature $^{\circ}$ C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES

COMMENTS: Monitored only



**Sequoia
Analytical**

680 Chesapeake Drive
404 N. Wiget Lane
819 Striker Avenue, Suite 8
1455 McDowell Blvd. North, Ste. D

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Sacramento, CA 95834
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SEP 13 1998

Gettler Ryan/Geostrategies
6747 Sierra Court Suite J
Dublin, CA 94568

Attention: Deanna Harding

Client Proj. ID: Unocal 6419, 180021.85

Sample Description: B-LB
Matrix: LIQUID

Analysis Method: 8015Mod/8020

Lab Number: 9808E81-01

Sampled: 08/24/98

Received: 08/24/98

Analyzed: 09/02/98

Reported: 09/09/98

QC Batch Number: GC090298BTEX07A
Instrument ID: GCHP07

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:		
Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	99

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

SEQUOIA ANALYTICAL - ELAP #1210

Tod Granicher
Project Manager



Sequoia Analytical

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Gettler Ryan/Geostrategies 6747 Sierra Court Suite J Dublin, CA 94568 Attention: Deanna Harding	Client Proj. ID: Unocal 6419, 180021.85 Sample Descript: MW-1 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9808E81-02	Sampled: 08/24/98 Received: 08/24/98 Analyzed: 09/04/98 Reported: 09/09/98
--	---	---

QC Batch Number: GC090498BTEX30A
Instrument ID: GCHP30

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50000	N.D.
Methyl t-Butyl Ether	2500	26000
Benzene	500	N.D.
Toluene	500	N.D.
Ethyl Benzene	500	N.D.
Xylenes (Total)	500	N.D.
Chromatogram Pattern:		
Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	104

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

SEQUOIA ANALYTICAL - ELAP #1210



Tod Granicher
Project Manager



**Sequoia
Analytical**

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FAX (707) 792-0342

RECEIVED

SEP 23 1998

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: EPA 8260
Lab Number: 9809E12-01

Sampled: 08/24/98
Received: 08/24/98
GENERAL CONTRACTORS
Analyzed: 09/23/98
Reported: 09/24/98

QC Batch Number: MS092398MTBEH6A
Instrument ID: H6

Methyl t-Butyl Ether (MTBE)

Analyte	Detection Limit ug/L	Sample Results ug/L
Methyl t-Butyl Ether	400	24000
Surrogates	Control Limits %	% Recovery
1,2-Dichloroethane-d4	76	114
		91

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

SEQUOIA ANALYTICAL - ELAP #1210



Tod Granicher
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 #: 9809E12 01	Reported: Sep 25, 1998
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QUALITY CONTROL DATA REPORT

Analyte: MTBE
QC Batch#: MS092398MTBEH6A
Analy. Method: EPA 8260
Prep. Method:

Analyst:	B. Pitamah
MS/MSD #:	9880992002
Sample Conc.:	N.D.
Prepared Date:	9/25/98
Analyzed Date:	9/25/98
Instrument I.D.#:	H6
Conc. Spiked:	50 µg/L
Result:	43
MS % Recovery:	86
Dup. Result:	44
MSD % Recov.:	88
RPD:	2.3
RPD Limit:	0-25

LCS #:	LCS092398
Prepared Date:	9/25/98
Analyzed Date:	9/25/98
Instrument I.D.#:	H6
Conc. Spiked:	50 µg/L
LCS Result:	44
LCS % Recov.:	88

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

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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.



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Gettler Ryan/Geostrategies 6747 Sierra Court Suite J Dublin, CA 94568 Attention: Deanna Harding	Client Proj. ID: Unocal 6419, 180021.85 Lab Proj. ID: 9808E81	Received: 08/24/98 Reported: 09/09/98
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LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 6 pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

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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

QC Sample Group: 9808E81

Reported: Sep 16, 1998

QUALITY CONTROL DATA REPORT

Matrix: Liquid
Method: EPA 8020
Analyst: N.H.

ANALYTE Benzene Toluene Ethylbenzene Xylenes

QC Batch #: GC090298BTEX07A

Sample No.: 9808E21-2
Date Prepared: 9/2/98 9/2/98 9/2/98 9/2/98
Date Analyzed: 9/2/98 9/2/98 9/2/98 9/2/98
Instrument I.D.#: GCHP07 GCHP07 GCHP07 GCHP07

Sample Conc., ug/L: N.D. N.D. N.D. N.D.
Conc. Spiked, ug/L: 10 10 10 30

Matrix Spike, ug/L: 9.8 9.7 9.2 29
% Recovery: 98 97 92 97

Matrix Spike Duplicate, ug/L: 9.9 9.6 9.2 29
% Recovery: 99 96 92 97

Relative % Difference: 1.0 1.0 0.0 0.0

RPD Control Limits: 0-25 0-25 0-25 0-25

LCS Batch#: GC090298BTEX07A

Date Prepared: 9/2/98 9/2/98 9/2/98 9/2/98
Date Analyzed: 9/2/98 9/2/98 9/2/98 9/2/98
Instrument I.D.#: GCHP07 GCHP07 GCHP07 GCHP07

Conc. Spiked, ug/L: 10 10 10 30

LCS Recovery, ug/L: 11 10 9.8 32
LCS % Recovery: 110 100 98 107

Percent Recovery Control Limits:

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

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

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

Client Project ID: Unocal 6419, 180021.85

QC Sample Group: 9808E81

Reported: Sep 10, 1998

QUALITY CONTROL DATA REPORT

Matrix: Liquid
Method: EPA 8020
Analyst: NC

ANALYTE	Benzene	Toluene	Ethylbenzene	Xylenes
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QC Batch #: GC090498BTEX30A

Sample No.: GW9808F53-07

Date Prepared:	9/4/98	9/4/98	9/4/98	9/4/98
Date Analyzed:	9/4/98	9/4/98	9/4/98	9/4/98
Instrument I.D.#:	GCHP30	GCHP30	GCHP30	GCHP30
Sample Conc., ug/L:	N.D.	N.D.	N.D.	N.D.
Conc. Spiked, ug/L:	10	10	10	30
Matrix Spike, ug/L:	9.6	9.3	9.4	28
% Recovery:	96	93	94	93
Matrix				
Spike Duplicate, ug/L:	9.4	9.1	9.2	28
% Recovery:	94	91	92	93
Relative % Difference:	2.1	2.2	2.2	0.0
RPD Control Limits:	0-25	0-25	0-25	0-25

LCS Batch#: GWLCS090498A

Date Prepared:	9/4/98	9/4/98	9/4/98	9/4/98
Date Analyzed:	9/4/98	9/4/98	9/4/98	9/4/98
Instrument I.D.#:	GCHP30	GCHP30	GCHP30	GCHP30
Conc. Spiked, ug/L:	10	10	10	30
LCS Recovery, ug/L:	9.0	8.8	8.9	26
LCS % Recovery:	90	88	89	87

Percent Recovery Control Limits:

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

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

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