

MONITORING
PURGING
DISPOSING
SAMPLING

MPDS

SERVICES, INCORPORATED

October 14, 1996

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

Sample MW-1 for TPH, BTEX and
MTBE using 8260
(in NOV 1996)

if MTBE < 200ppb then do closure

RE: Unocal Service Station #6419
6401 Dublin Boulevard
Dublin, California

Per the request of the Unocal Corporation Project Manager, Mr. Edward C. Ralston, enclosed please find our report (MPDS-UN6419-08) dated September 23, 1996, for the above referenced site.

Should you have any questions regarding the reporting of data, please feel free to call our office at (510) 602-5120. Any other questions may be directed to the Project Manager at (510) 277-2311.

Sincerely,

MPDS Services, Inc.



Jarrel F. Crider

/dr

Enclosure

cc: Mr. Edward C. Ralston

RECEIVED
OCT 17 1996
UNOCAL

MPDS-UN6419-08
September 23, 1996

Unocal Corporation
2000 Crow Canyon Place, Suite 400
P.O. Box 5155
San Ramon, California 94583

Attention: Mr. Edward C. Ralston

RE: Semi-Annual Data Report
Unocal Service Station #6419
6401 Dublin Boulevard
Dublin, California

Dear Mr. Ralston:

This data report presents the results of the most recent monitoring and sampling of the monitoring wells at the referenced site by MPDS Services, Inc.

RECENT FIELD ACTIVITIES

The monitoring wells that were monitored and sampled during this semi-annual period are indicated in Table 1. Prior to sampling, the wells were checked for depth to water and the presence of free product or sheen. The monitoring data and the ground water elevations are summarized in Table 1. The ground water flow directions during the most recent semi-annual period are shown on the attached Figure 1.

A ground water sample was collected from monitoring well MW1 on August 23, 1996. In addition, dissolved oxygen concentrations were measured in wells MW1, MW2 and MW3, and are presented in Table 4. The sample from well MW1 was collected using a clean Teflon bailer and was decanted into clean VOA vials which were then sealed with Teflon-lined screw caps, labeled, and stored in a cooler, on ice, until delivery to a state-certified laboratory. Trip blank, Field blank and Equipment blank samples (denoted as ES1, ES2 and ES3, respectively) were also collected for quality assurance and control.

ANALYTICAL RESULTS

The ground water sample from monitoring well MW1 was analyzed at Sequoia Analytical Laboratory and was accompanied by properly executed Chain of Custody documentation. The analytical results of the ground water samples collected to date are summarized in Tables 2 and 3. The concentrations of Total Petroleum Hydrocarbons (TPH) as gasoline and benzene detected in the ground water sample

collected this semi-annual period are shown on the attached Figure 2. Copies of the laboratory analytical results and the Chain of Custody documentation are attached to this report.

LIMITATIONS

Environmental changes, either naturally-occurring or artificially-induced, may cause changes in ground water levels and flow paths, thereby changing the extent and concentration of any contaminants.

DISTRIBUTION

A copy of this report should be sent to Ms. Eva Chu of the Alameda County Health Care Services.

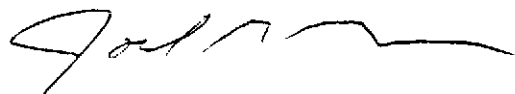
If you have any questions regarding this report, please do not hesitate to call Mr. Joel G. Greger at (510) 602-5120.

Sincerely,

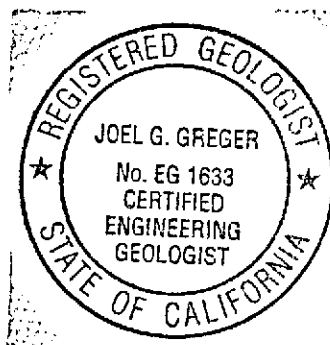
MPDS Services, Inc.



Haig (Gary) Tejirian
Senior Staff Geologist



Joel G. Greger, C.E.G.
Senior Engineering Geologist



License No. EG 1633
Exp. Date 8/31/98

/jfc

Attachments: Tables 1 through 4
Location Map
Figures 1 and 2
Laboratory Analyses
Chain of Custody documentation

cc: Mr. Timothy R. Ross, Kaprealian Engineering, Inc.

Table 1
 Summary of Monitoring Data

Well #	Ground Water Elevation (feet)	Depth to Water (feet)♦	Total Well Depth (feet)♦	Product Thickness (feet)	Sheen	Water Purged (gallons)
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(Monitored and Sampled on August 23, 1996)

MW1	322.67	7.78	19.34	0	No	0
MW2†	322.96	7.44	19.80	0	No	0
MW3†	323.13	7.98	19.03	0	No	0

(Monitored and Sampled on February 26, 1996)

MW1	324.68	5.77	19.33	0	No	9.5
MW2	324.91	5.49	19.80	0	No	10
MW3	324.86	6.25	19.01	0	No	9

(Monitored and Sampled on November 28, 1995)

MW1	321.42	9.03	19.36	0	No	7.5
MW2	321.55	8.85	19.82	0	No	7.5
MW3	321.59	9.52	19.05	0	No	6.5

(Monitored and Sampled on August 25, 1995)

MW1	322.54	7.91	19.35	0	No	8
MW2	322.95	7.45	19.82	0	No	8.5
MW3	322.91	8.20	19.03	0	No	7.5

Well #	Well Casing Elevation (feet)*
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MW1	330.45
MW2	330.40
MW3	331.11

- ♦ The depth to water level and total well depth measurements were taken from the top of the well casings.
- * The elevations of the top of the well casings have been surveyed relative to Mean Sea Level, per the benchmark on the northwest corner of Dougherty Road and Sierra Way (elevation = 331.728 feet MSL).
- † Monitored only.

Table 2
 Summary of Laboratory Analyses
 Water

Well #	Date	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylenes	MTBE
MW1	3/14/94	810†	1,800*	17	ND	ND	ND	--
	8/25/94	910††	9,200*	48	ND	540	ND	--
	11/18/94	910††	5,100	33	ND	560	38	--
	2/15/95	660†	3,300	13	ND	180	5.2	--
	5/17/95	200††	130	0.75	ND	1.5	ND	--
	8/25/95	--	490	9.1	ND	21	2.0	‡
	11/28/95	--	1,400	18	3.0	98	3.6	‡
	2/26/96	--	560	9.3	ND	22	ND	1,300
	8/23/96	--	ND	ND	ND	ND	ND	640
MW2	3/14/94	--	ND	ND	2.8	1.1	8.0	--
	8/25/94	--	ND	ND	ND	ND	ND	--
	11/18/94	--	ND	ND	ND	ND	ND	--
	2/15/95	--	ND	ND	ND	ND	ND	--
	5/17/95	--	ND	ND	ND	ND	ND	--
	8/25/95	--	ND	ND	ND	ND	ND	--
	11/28/95	--	ND	ND	ND	ND	ND	--
	2/26/96	--	ND	ND	ND	ND	ND	--
	8/23/96	SAMPLED ANNUALLY						
MW3	3/14/94	--	150**	ND	ND	ND	ND	--
	8/25/94	--	130**	ND	ND	ND	ND	--
	11/18/94	--	130**	ND	ND	ND	ND	--
	2/15/95	--	130**	ND	ND	ND	ND	--
	5/17/95	--	99**	ND	ND	ND	ND	--
	8/25/95	--	ND	ND	ND	ND	ND	‡
	11/28/95	--	ND	ND	ND	ND	ND	--
	2/26/96	--	ND	ND	ND	ND	ND	‡
	8/23/96	SAMPLED ANNUALLY						

† Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a diesel and non-diesel mixture.

†† Sequoia Analytical Laboratory reported that the hydrocarbons detected did not appear to be diesel.

* Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a gasoline and non-gasoline mixture.

** Sequoia Analytical Laboratory reported that the hydrocarbons detected did not appear to be gasoline.

Table 2
Summary of Laboratory Analyses
Water

‡ Sequoia Analytical Laboratory has identified the presence of MTBE at a level above or equal to the taste and odor threshold of 40 µg/L in the sample collected from this well.

-- Indicates analysis was not performed.

ND = Non-detectable.

MTBE = Methyl tert butyl ether.

Results are in micrograms per liter (µg/L), unless otherwise indicated.

Note: The detection limit for results reported as ND by Sequoia Analytical Laboratory is equal to the stated detection limit times the dilution factor indicated on the laboratory analytical sheets.

Prior to August 1, 1995, the total purgeable petroleum hydrocarbon (TPH as gasoline) quantification range used by Sequoia Analytical Laboratory was C4 - C12. Since August 1, 1995, the quantification range used by Sequoia Analytical Laboratory is C6 - C12.

Laboratory analyses data prior to August 25, 1994, were provided by Kaprealian Engineering, Inc.

Table 3
Summary of Laboratory Analyses
Water

Well #	Date	Cadmium	Chromium	Lead	Nickel	Zinc
MW1	3/14/94	ND	0.012	ND	0.030	0.039
	8/25/94	ND	ND	0.024	ND	ND
	11/18/94	ND	0.076	ND	0.067	ND
	2/15/95	ND	ND	ND	ND	ND
	5/17/95	ND	ND	ND	0.021	ND

ND = Non-detectable.

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

Note: Laboratory analyses data prior to August 25, 1994, were provided by Kaprealian Engineering, Inc.

Table 4
Summary of Monitoring Data

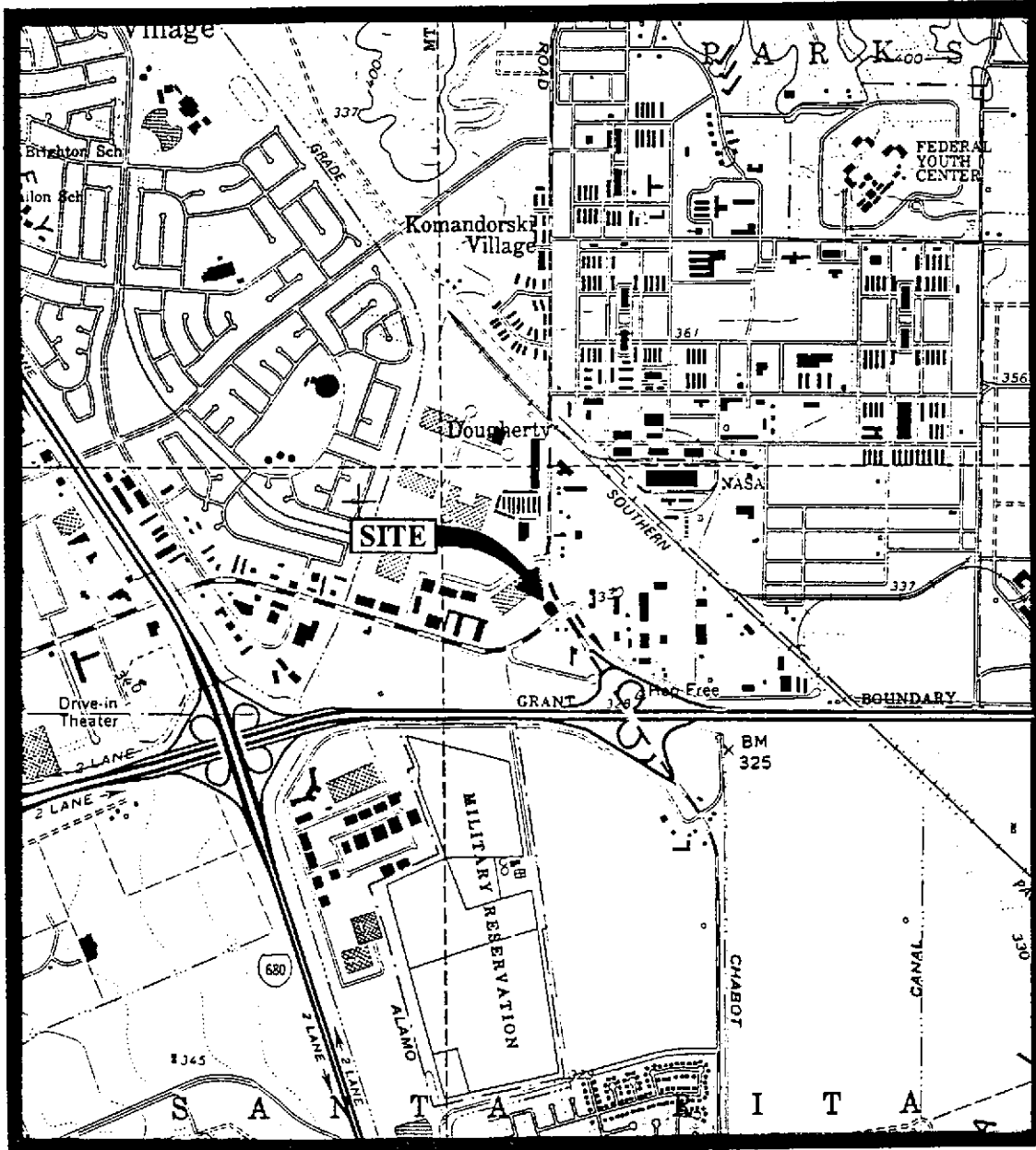
Well	Date	Dissolved Oxygen Concentrations	
		Before Purging (mg/L)	After Purging (mg/L)
MW1	2/15/95	--	4.30
	5/17/95	--	1.20
	8/25/95	--	2.71
	11/28/95	--	3.25
	2/26/96	5.23	1.41
	8/23/96	3.83	N/A
MW2	2/15/95	--	1.90
	2/26/96	0.62	0.43
	8/23/96	2.04	N/A
MW3	2/15/95	--	2.60
	5/17/95	--	1.13
	8/25/95	--	1.86
	11/28/95	--	6.81
	2/26/96	16.83	1.11
	8/23/96	3.29	N/A

-- Reading not taken.

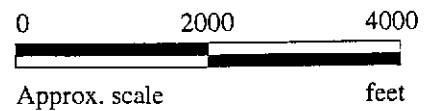
mg/L = Milligrams per liter.

N/A = Not Applicable.

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



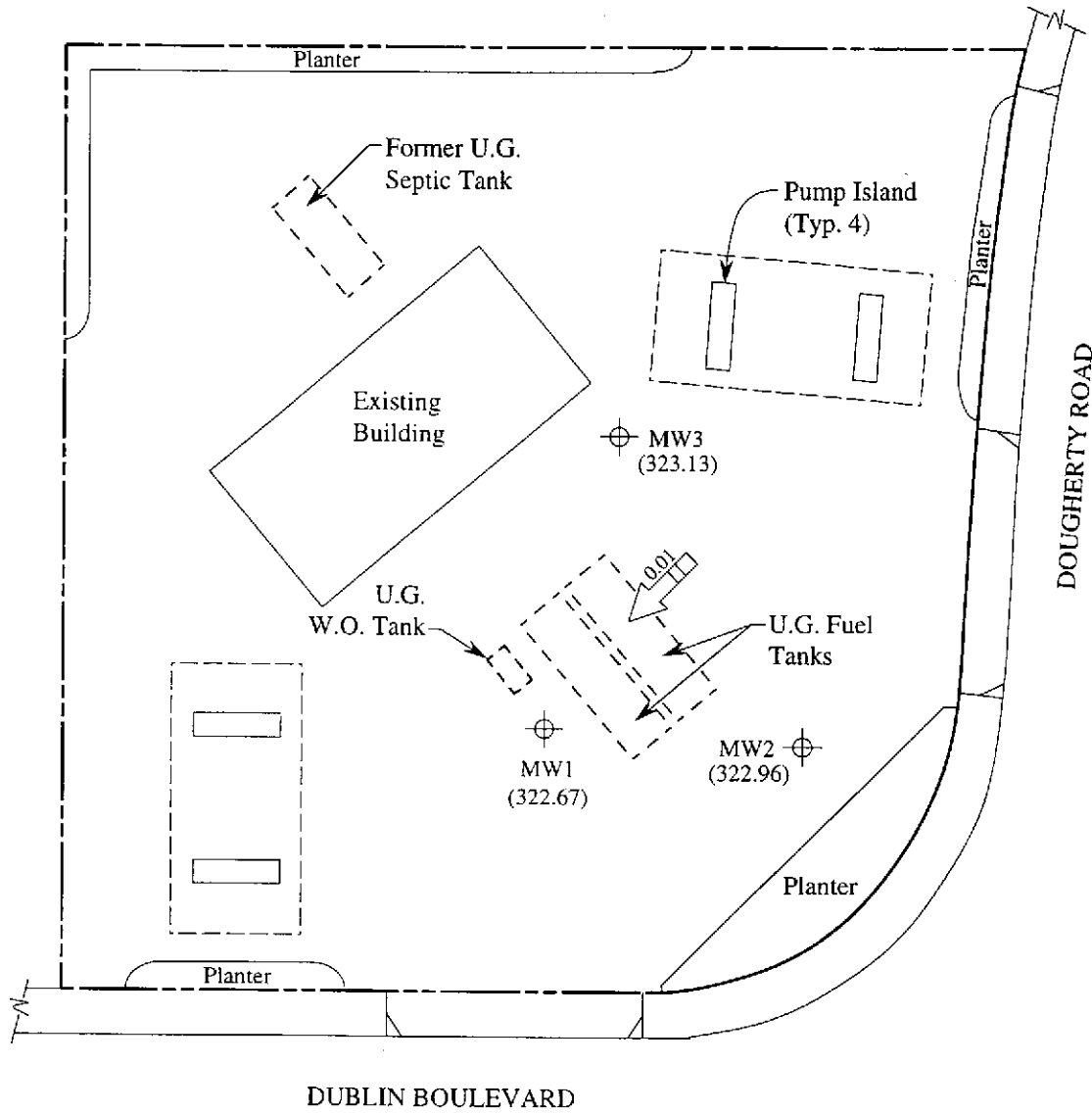
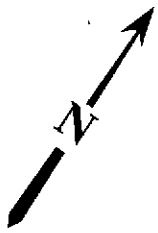
Base modified from 7.5 minute U.S.G.S. Dublin Quadrangle
(photorevised 1980)



mpds SERVICES, INCORPORATED

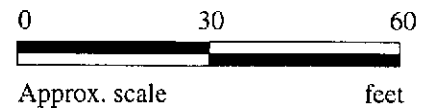
UNOCAL SERVICE STATION #6419
6401 DUBLIN BOULEVARD
DUBLIN, CALIFORNIA

LOCATION
MAP



LEGEND

- ⊕ Monitoring well
- () Ground water elevation in feet above Mean Sea Level
- ###> Direction of ground water flow with approximate hydraulic gradient

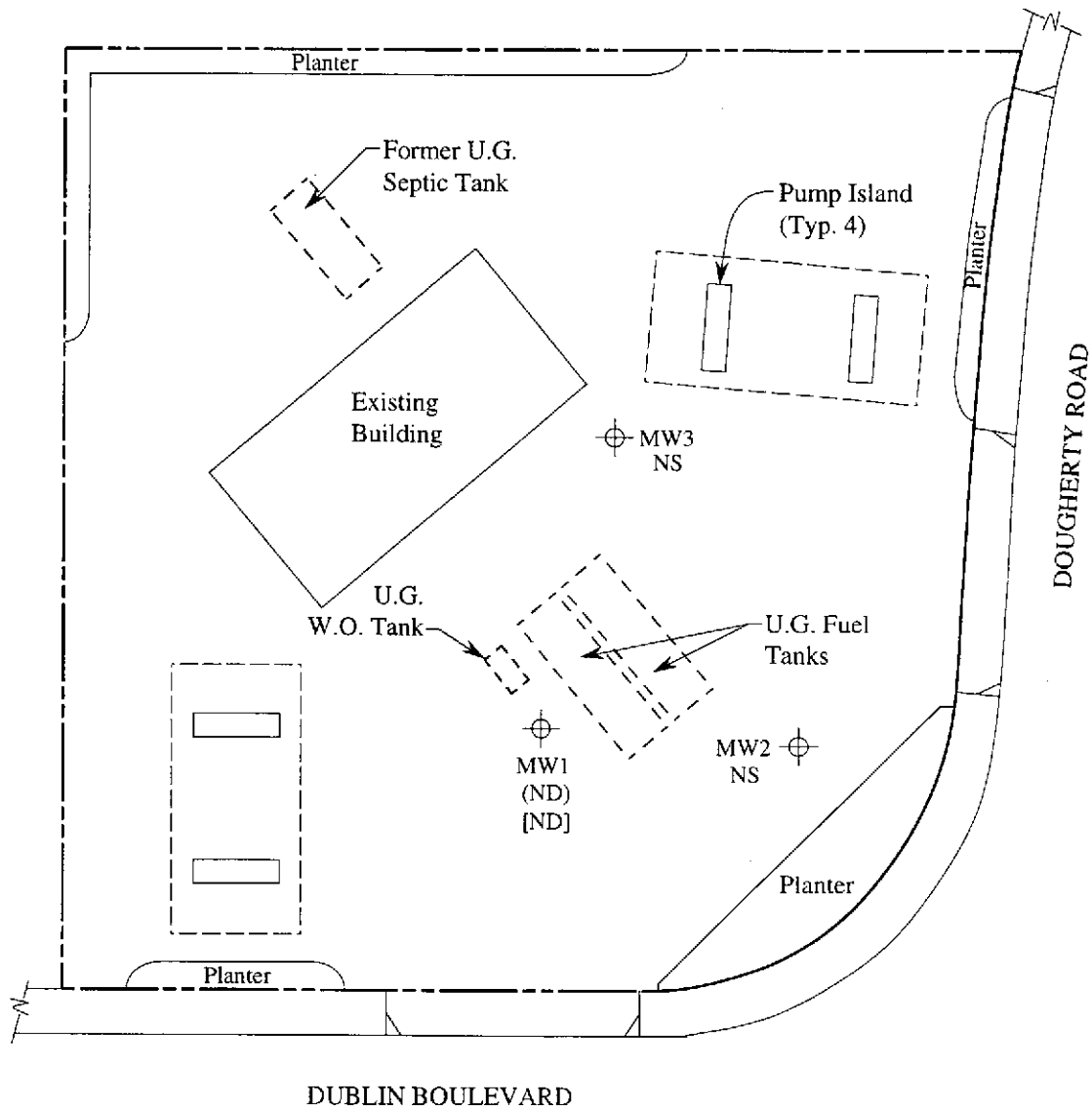


GROUND WATER FLOW DIRECTION MAP FOR THE AUGUST 23, 1996 MONITORING EVENT

MPDS SERVICES, INCORPORATED

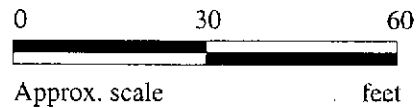
**UNOCAL SERVICE STATION #6419
6401 DUBLIN BOULEVARD
DUBLIN, CALIFORNIA**

**FIGURE
1**



LEGEND

- ⊕ Monitoring well
- () Concentration of TPH as gasoline in $\mu\text{g/L}$
- [] Concentration of benzene in $\mu\text{g/L}$
- ND Non-detectable, NS Not sampled



PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON AUGUST 23, 1996



**UNOCAL SERVICE STATION #6419
6401 DUBLIN BOULEVARD
DUBLIN, CALIFORNIA**

**FIGURE
2**



MPDS Services	Client Project ID: Unocal #6419, 6401 Dublin Blvd, Dublin	Sampled: Aug 23, 1996
2401 Stanwell Dr., Ste. 300	Matrix Descript: Water	Received: Aug 26, 1996
Concord, CA 94520	Analysis Method: EPA 5030/8015 Mod./8020	Reported: Sep 20, 1996
Attention: Jarrel Crider	First Sample #: 608-2287	

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Sample Number	Sample Description	Purgeable Hydrocarbons µg/L	Benzene µg/L	Toluene µg/L	Ethyl Benzene µg/L	Total Xylenes µg/L	MTBE µg/L
608-2287	MW-1	ND	ND	ND	ND	ND	640
608-2288	ES-1	ND	ND	ND	ND	ND	-
608-2289	ES-2	ND	ND	ND	ND	ND	-
608-2290	ES-3	ND	ND	ND	ND	ND	-

Detection Limits:	50	0.50	0.50	0.50	0.50	40
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Total Purgeable Petroleum Hydrocarbons are quantitated against a fresh gasoline standard. Analytes reported as ND were not present above the stated limit of detection.

SEQUOIA ANALYTICAL, #1271

Signature on File

Alan B. Kemp
Project Manager





MPDS Services	Client Project ID: Unocal #6419, 6401 Dublin Blvd, Dublin	Sampled: Aug 23, 1996
2401 Stanwell Dr., Ste. 300	Matrix Descript: Water	Received: Aug 26, 1996
Concord, CA 94520	Analysis Method: EPA 5030/8015 Mod./8020	Reported: Sep 20, 1996
Attention: Jarrel Crider	First Sample #: 608-2287	

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Sample Number	Sample Description	Chromatogram Pattern	DL Mult. Factor	Date Analyzed	Instrument ID	Surrogate Recovery, % QC Limits: 70-130
608-2287	MW-1	--	1.0	9/6/96	HP-11	109
608-2288	ES-1	--	1.0	9/19/96	HP-4	93
608-2289	ES-2	--	1.0	9/19/96	HP-4	91
608-2290	ES-3	--	1.0	9/19/96	HP-4	91

SEQUOIA ANALYTICAL, #1271

Signature on File

Alan B. Kemp
Project Manager





MPDS Services
 2401 Stanwell Dr., Ste. 300
 Concord, CA 94520
 Attention: Jarrel Crider

Client Project ID: Unocal #6419, 6401 Dublin Blvd, Dublin
 Matrix: Liquid

QC Sample Group: 6082287-290

Reported: Sep 20, 1996

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	K. Nill	K. Nill	K. Nill	K. Nill

MS/MSD Batch#:	6090196	6090196	6090196	6090196
Date Prepared:	9/6/96	9/6/96	9/6/96	9/6/96
Date Analyzed:	9/6/96	9/6/96	9/6/96	9/6/96
Instrument I.D.#:	HP-11	HP-11	HP-11	HP-11
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Matrix Spike % Recovery:	75	75	80	80
Matrix Spike Duplicate % Recovery:	85	85	85	90
Relative % Difference:	13	13	6.1	12

LCS Batch#:	11LCS090696	11LCS090696	11LCS090696	11LCS090696
Date Prepared:	9/6/96	9/6/96	9/6/96	9/6/96
Date Analyzed:	9/6/96	9/6/96	9/6/96	9/6/96
Instrument I.D.#:	HP-11	HP-11	HP-11	HP-11
LCS % Recovery:	80	90	90	90

% Recovery Control Limits:	60-140	60-140	60-140	60-140
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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.

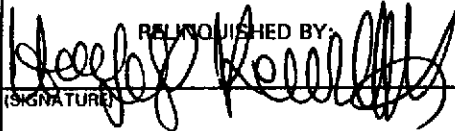


SEQUOIA ANALYTICAL, #1271

Signature on File


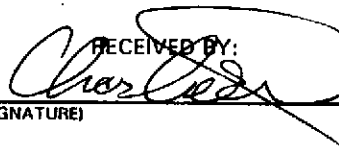
Alan B. Kemp
 Project Manager



CHAIN OF CUSTODY

SAMPLER HAIG KEVORK			UNOCAL S/S # <u>6419</u> CITY: <u>DUBLIN</u>					ANALYSES REQUESTED						TURN AROUND TIME: REGULAR				
WITNESSING AGENCY			ADDRESS: <u>6401 DUBLIN BLVD.</u>					TPH-GAS BTEX	TPH-DIESEL	TOG	8010	MTBE					REMARKS	
SAMPLE ID NO.	DATE	TIME	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION											
MW1	8/23/96		✓	✓		2 VOA'S	MONITORING WELL	✓					✓				6082287A-B	
RELINQUISHED BY: 			DATE/TIME 8/26/96 0900					RECEIVED BY: 					THE FOLLOWING MUST BE COMPLETED BY THE LABORATORY ACCEPTING SAMPLES FOR ANALYSES:					
(SIGNATURE)								(SIGNATURE)					1. HAVE ALL SAMPLES RECEIVED FOR ANALYSIS BEEN STORED ON ICE? X					
(SIGNATURE)								(SIGNATURE)					2. WILL SAMPLES REMAIN REFRIGERATED UNTIL ANALYZED? X					
(SIGNATURE)								(SIGNATURE)					3. DID ANY SAMPLES RECEIVED FOR ANALYSIS HAVE HEAD SPACE? N					
(SIGNATURE)								(SIGNATURE)					4. WERE SAMPLES IN APPROPRIATE CONTAINERS AND PROPERLY PACKAGED? Y					
(SIGNATURE)								(SIGNATURE)					SIGNATURE:  TITLE: DATE: 8/26/96					

CHAIN OF CUSTODY

SAMPLER HAIG KEVORK			UNOCAL S/S # 6419 CITY: DUBLIN					ANALYSES REQUESTED						TURN AROUND TIME: REGULAR	
WITNESSING AGENCY			ADDRESS: 6401 DUBLIN BLVD					TPH-GAS BTEX	TPH-DIESEL	TOG	8010				REMARKS
SAMPLE ID NO.	DATE	TIME	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION								
ES1	8/23/96		✓			1	VOA	✓							
ES2	↓		✓			1	VOA	✓							
ES3	↓		✓			1	VOA	✓							
REQUISITIONED BY: 			DATE/TIME 8/26/96 0900		RECEIVED BY: 			THE FOLLOWING <u>MUST</u> BE COMPLETED BY THE LABORATORY ACCEPTING SAMPLES FOR ANALYSES:							
(SIGNATURE)					(SIGNATURE)			1. HAVE ALL SAMPLES RECEIVED FOR ANALYSIS BEEN STORED ON ICE?							
(SIGNATURE)					(SIGNATURE)			2. WILL SAMPLES REMAIN REFRIGERATED UNTIL ANALYZED?							
(SIGNATURE)					(SIGNATURE)			3. DID ANY SAMPLES RECEIVED FOR ANALYSIS HAVE HEAD SPACE?							
(SIGNATURE)					(SIGNATURE)			4. WERE SAMPLES IN APPROPRIATE CONTAINERS AND PROPERLY PACKAGED?							
(SIGNATURE)					(SIGNATURE)			SIGNATURE:		TITLE:		DATE:			