MONITORING
PURGING
DISPOSING
SAMPLING

mpds SERVICES, INCORPORATED

December 4, 1995

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

RE: Unocal Service Station #1871
96 MacArthur Boulevard
Oakland, California

Per the request of the Unocal Corporation Project Manager, Mr. Robert A. Boust, enclosed please find our report (MPDS-UN1871-09) dated November 20, 1995 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) 277-2334.

Sincerely,

MPDS Services, Inc.

Jarrel F. Crider

/jfc

Enclosure

cc: Mr. Robert A. Boust

2401 Stanwell Drive, Suite 300, Concord, CA 94520
TEL: (510) 602-5120 FAX: (510) 689-1918

MONITORING
PURGING
DISPOSING
SAMPLING

MPDS SERVICES, INCORPORATED

MPDS-UN1871-09
November 20, 1995

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

Attention: Mr. Robert A. Boust

RE: Quarterly Data Report
Unocal Service Station #1871
96 MacArthur Boulevard
Oakland, California

Dear Mr. Boust:

This data report presents the results of the most recent quarter of 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 quarter 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 direction during the most recent quarter is shown on the attached Figure 1.

Ground water samples were collected on October 23, 1995. Prior to sampling, the wells were each purged of between 20 and 46 gallons of water. During purging operations, the field parameters pH, temperature, and electrical conductivity were recorded and are presented in Table 2. Once the field parameters were observed to stabilize, and where possible, a minimum of approximately four casing volumes had been removed from each well, samples were then collected using a clean Teflon bailer. The samples were decanted into clean VOA vials and/or one-liter amber bottles, as appropriate, 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, Equipment blank and Field blank samples (denoted as ES1, ES2 and ES3 respectively) were also collected for quality assurance and control. MPDS Services, Inc. transported the purged ground water to the Unocal Refinery located in Rodeo, California, for treatment and discharge to San Pablo Bay under NPDES permit.

ANALYTICAL RESULTS

The ground water samples were analyzed at Sequoia Analytical Laboratory and were accompanied by properly executed Chain of Custody documenta-

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tion. The analytical results of the ground water samples collected to date are summarized in Table 3. The concentrations of Total Petroleum Hydrocarbons (TPH) as gasoline and benzene detected in the ground water samples collected this quarter 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

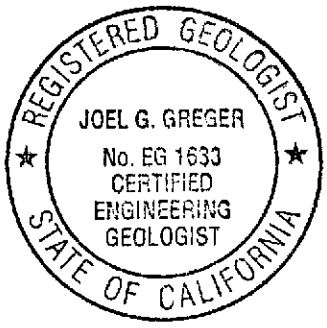
A copy of this report should be sent to the Alameda County Health Care Services Agency.

If you have any questions regarding this report, please do not hesitate to call Mr. Nubar Srabian 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 8/31/96

/bp

Attachments: Tables 1, 2 & 3
Location Map
Figures 1 & 2
Laboratory Analyses
Chain of Custody documentation

cc: Mr. Thomas Berkins, 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)
(Monitored and Sampled on October 23, 1995)						
MW-1	66.33 ↓	14.85	24.10	0	No	20
MW-2	65.91 ↓	10.70	24.70	0	No	46
MW-3	64.98 ↓	12.50	23.65	0	No	30
(Monitored and Sampled on July 24, 1995)						
MW-1	67.21	13.97	24.17	0	Yes	27
MW-2	66.67	9.94	24.76	0	No	39
MW-3	65.72	11.76	23.73	0	No	32
(Monitored and Sampled on April 17, 1995)						
MW-1	68.50	12.68	24.14	0	No	30
MW-2	67.71	8.90	24.75	0	No	41.5
MW-3	67.06	10.42	23.72	0	No	35
(Monitored and Sampled on January 10, 1995)						
MW-1	68.74	12.44	24.15	0	No	30.5
MW-2	67.90	8.71	24.74	0	No	42
MW-3	67.06	10.42	23.70	0	No	35

Well #	Well Casing Elevation (feet)*
MW-1	81.18
MW-2	76.61
MW-3	77.48

◆ 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.

TABLE 2

RECORD OF THE TEMPERATURE, CONDUCTIVITY, AND pH VALUES
IN THE MONITORING WELLS DURING PURGING AND PRIOR TO SAMPLING

(Measured on October 23, 1995)

Well #	Gallons per Casing Volume	Time	Gallons Purged	Casing Volumes Purged	Temperature (°F)	Conductivity ([μmhos/cm] x100)	pH
MW-1	6.01	12:45	0	0	66.8	8.92	6.81
			6	1.00	68.8	8.68	6.61
			12	2.00	69.1	8.86	6.53
			18	3.00	68.7	8.90	6.59
		13:20	20	3.33	69.8	9.16	6.61
MW-2	9.10	10:00	0	0	60.7	5.44	6.83
			9	0.99	64.9	5.32	6.76
			18	1.98	65.7	5.58	6.83
			36	3.96	64.8	5.60	6.94
		10:25	46	5.05	64.3	5.40	6.95
MW-3	7.25	11:10	0	0	69.4	7.69	6.64
			7.5	1.03	73.1	8.39	6.57
			15	2.07	77.0	8.54	6.50
			22.5	3.10	76.3	9.24	6.50
		11:55	30	4.14	75.7	8.75	6.50

TABLE 3

SUMMARY OF LABORATORY ANALYSES
WATER

Well #	Date	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE
MW-1	11/03/92	260,000	2,300	4,600	3,700	17,000	--
	1/25/93	120,000	2,100	4,600	4,900	22,000	--
	4/29/93	100,000	850	2,000	4,300	19,000	--
	7/16/93	29,000	590	560	980	4,200	--
	10/19/93	67,000	1,400	2,600	2,900	5,000	--
	1/20/94	92,000	1,200	3,000	3,400	17,000	--
	4/13/94	51,000	1,000	2,600	3,200	15,000	--
	7/13/94	35,000	550	150	1,400	5,700	--
	10/10/94	52,000	1,000	810	3,300	12,000	--
	1/10/95	810	16	18	59	250	--
	4/17/95	48,000	880	530	2,500	11,000	--
	7/24/95	48,000	1,500	420	2,700	9,700	--
	10/23/95	47,000	780	210	2,100	11,000	270
MW-2	11/03/92	140	2.2	ND	ND	2	--
	1/25/93	2,100	56	1.1	90	140	--
	4/29/93	1,500	290	ND	33	11	--
	7/16/93	510*	17	0.6	3.2	2.5	--
	10/19/93	670	24	1.1	7.7	23	--
	1/20/94	820	97	ND	12	ND	--
	4/13/94	550	71	ND	5.1	1.3	--
	7/13/94	2,000	490	ND	17	13	--
	10/10/94	2,300	340	ND	25	ND	--
	1/10/95	850	3.8	ND	8.5	1.3	--
	4/17/95	1,300	4.7	ND	8.3	1.2	--
	7/24/95	960	20	ND	4.2	6.2	--
	10/23/95	ND	ND	ND	ND	ND	19
MW-3	11/03/92	2,100	120	15	38	200	--
	1/25/93	2,300	80	1	55	52	-
	4/29/93	4,500	1,700	ND	200	140	--
	7/16/93	4,000*	1,100	28	52	70	--
	10/19/93	3,800	42	ND	50	56	--
	1/20/94	4,200	11	ND	21	15	--
	4/13/94	4,200	210	ND	36	53	--
	7/13/94	1,800**	16	16	ND	21	--
	10/10/94	4,300	11	ND	12	ND	--
	1/10/95	310	4.6	ND	3.5	2.1	--

TABLE 3 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

Well #	Date	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE
MW-3	4/17/95	7,800	ND	4.6	300	450	--
	7/24/95	3,200	170	ND	22	16	--
	10/23/95	3,900	55	ND	19	11	4,500

* Primarily due to the presence of discrete peaks not indicative of gasoline.

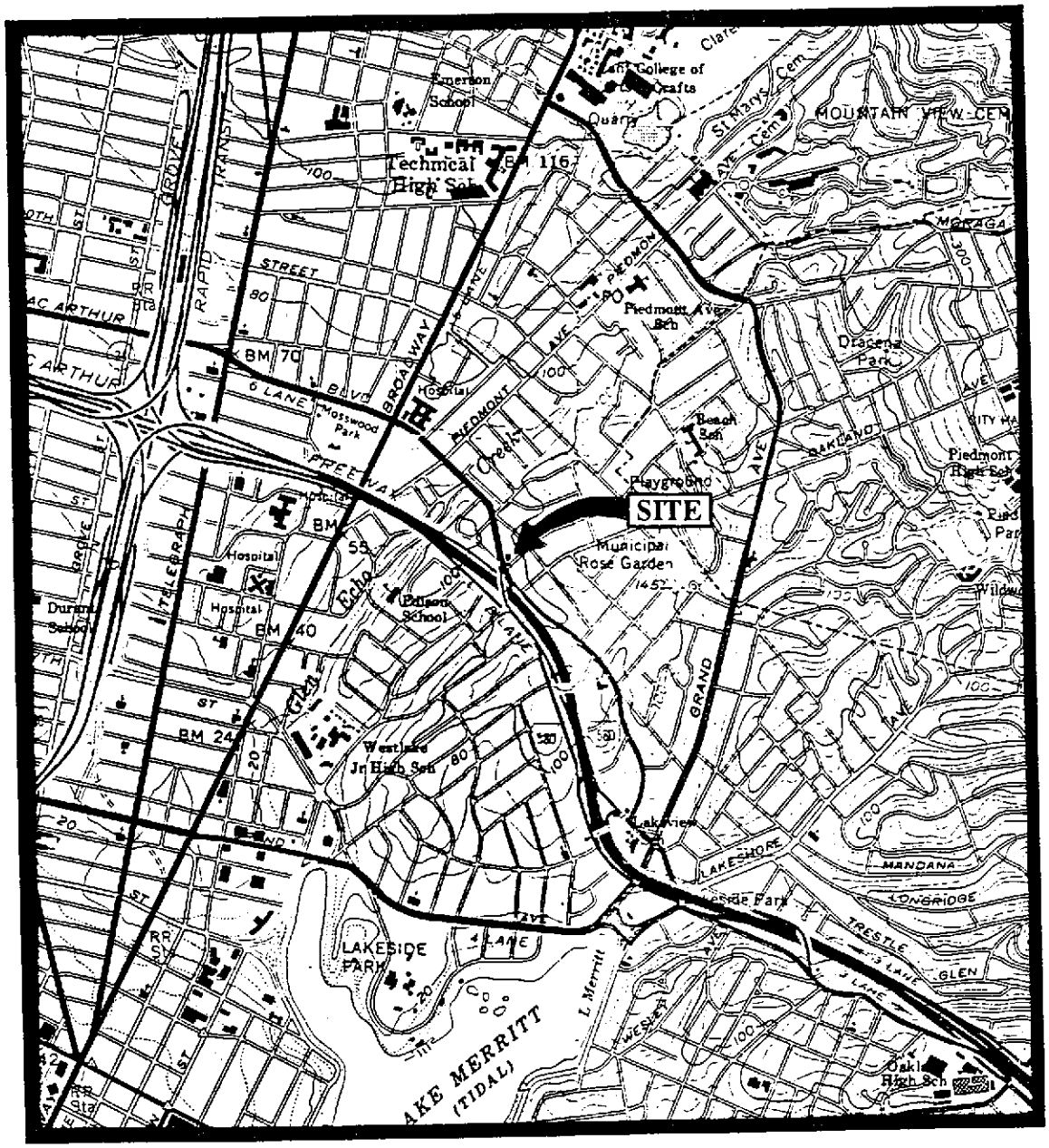
** Sequoia Analytical Laboratory reported that they hydrocarbons detected appeared to be a gasoline and non-gasoline mixture.

ND = Non-detectable.

-- Indicates analysis was not performed.

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

Note: Laboratory analyses data prior to October 19, 1993, were provided by GeoStrategies, Inc.



Base modified from 7.5 minute U.S.G.S.
Oakland East and West Quadrangles
(both photorevised 1980)

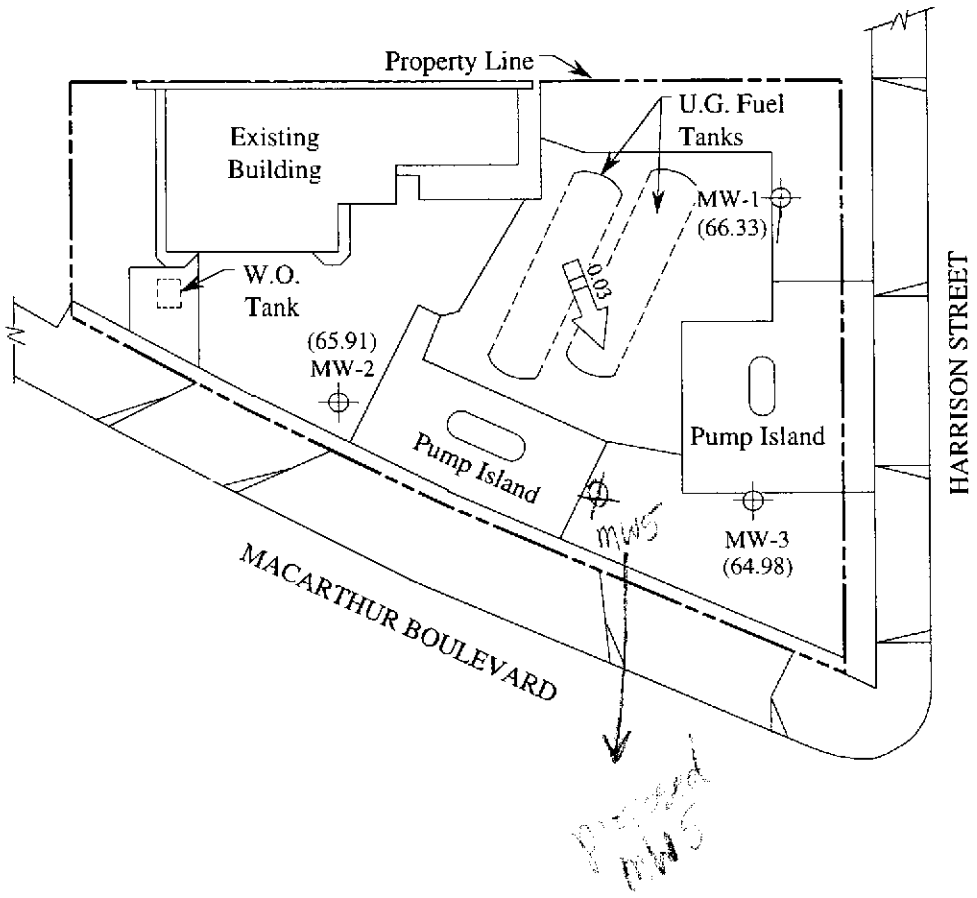
0 2000 4000

Approx. scale feet

mpds SERVICES, INCORPORATED

UNOCAL SERVICE STATION # 1871
96 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA

LOCATION MAP



LEGEND

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

0 30 60

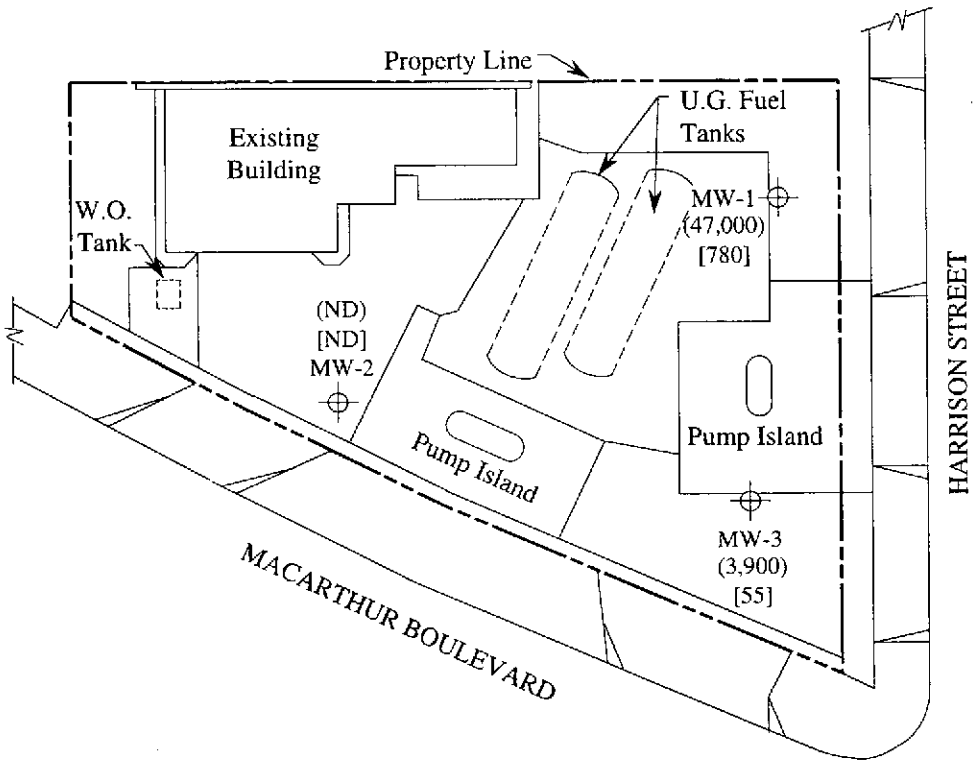
Approx. scale feet

GROUND WATER FLOW DIRECTION MAP FOR THE OCTOBER 23, 1995 MONITORING EVENT

mpds SERVICES, INCORPORATED

UNOCAL SERVICE STATION # 1871
96 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA

FIGURE
1



LEGEND

- ⊕ Monitoring well
- ( ) Concentration of TPH as gasoline in µg/L
- [ ] Concentration of benezene in µg/L
- ND Non-detectable

0 30 60

Approx. scale feet

PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON OCTOBER 23, 1995

mpds SERVICES, INCORPORATED

UNOCAL SERVICE STATION # 1871
96 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA

FIGURE
2

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

MPDS Services	Client Project ID:	Unocal #1871, 96 Mc Arthur Blvd., Oakland	Sampled: Oct 23, 1995
2401 Stanwell Dr., Ste. 300	Matrix Descript:	Water	Received: Oct 23, 1995
Concord, CA 94520	Analysis Method:	EPA 5030/8015 Mod./8020	Reported: Nov 8, 1995
Attention: Jarrel Crider	First Sample #:	510-1975	

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
510-1975	MW 1	47,000	780	210	2,100	11,000	270
510-1976	MW 2	ND	ND	ND	ND	ND	19
510-1977	MW 3	3,900	55	ND	19	11	4,500
510-1978	ES 1	ND	ND	ND	ND	ND	--
510-1979	ES 3	ND	ND	ND	ND	ND	--

Blanks (see pg. 1)

Detection Limits:	50	0.50	0.50	0.50	0.50	2.5

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

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
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Concord, CA 94520	Analysis Method:	EPA 5030/8015 Mod./8020	Reported:	Nov 8, 1995
Attention: Jarrel Crider	First Sample #:	510-1975		

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
510-1975	MW 1	Gasoline	400	11/3/95	HP-2	93
510-1976	MW 2	--	1.0	11/6/95	HP-2	97
510-1977	MW 3	Gasoline	10	11/6/95	HP-2	92
510-1978	ES 1	--	1.0	11/3/95	HP-2	80
510-1979	ES 3	--	1.0	11/3/95	HP-2	79

SEQUOIA ANALYTICAL, #1271

Signature on File

Alan B. Kemp
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

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

Client Project ID: Unocal #1871, 96 Mc Arthur Blvd., Oakland
Matrix: Liquid
QC Sample Group: 5101975-977

Reported: Nov 10, 1995

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	Z. T.	Z. T.	Z. T.	Z. T.
MS/MSD Batch#:	5110092MS	5110092MS	5110092MS	5110092MS
Date Prepared:	11/5/95	11/5/95	11/5/95	11/5/95
Date Analyzed:	11/5/95	11/5/95	11/5/95	11/5/95
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Matrix Spike % Recovery:	79	81	79	82
Matrix Spike Duplicate % Recovery:	85	88	85	91
Relative % Difference:	7.3	6.0	7.3	10
LCS Batch#:	LCS110595	LCS110595	LCS110595	LCS110595
Date Prepared:	11/5/95	11/5/95	11/5/95	11/5/95
Date Analyzed:	11/5/95	11/5/95	11/5/95	11/5/95
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2
LCS % Recovery:	95	93	89	95
% Recovery Control Limits:	71-133	72-128	72-130	71-120

SEQUOIA ANALYTICAL, #1894

Signature on File

Alan B. Kemp
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.

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

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

Client Project ID: Unocal #1871, 96 Mc Arthur Blvd., Oakland
Matrix: Liquid
QC Sample Group: 5101975-979

Reported: Nov 10, 1995

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	Z. T.	Z. T.	Z. T.	Z. T.
MS/MSD Batch#:	5110111MS	5110111MS	5110111MS	5110111MS
Date Prepared:	11/6/95	11/6/95	11/6/95	11/6/95
Date Analyzed:	11/6/95	11/6/95	11/6/95	11/6/95
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Matrix Spike % Recovery:	91	88	88	80
Matrix Spike Duplicate % Recovery:	82	78	80	80
Relative % Difference:	10	12	9.5	0.0
LCS Batch#:	LCS110695	LCS110695	LCS110695	LCS110695
Date Prepared:	11/6/95	11/6/95	11/6/95	11/6/95
Date Analyzed:	11/6/95	11/6/95	11/6/95	11/6/95
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2
LCS % Recovery:	100	91	91	91
% Recovery Control Limits:	71-133	72-128	72-130	71-120

SEQUOIA ANALYTICAL, #1894

Signature on File

Alan B. Kemp
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.

mpds SERVICES, INCORPORATED
2401 Stanwell Drive, Suite 400
Concord, California 94520
Tel: (510) 602-5100, Fax: (510) 689-1918

CHAIN OF CUSTODY

9510452 [redacted]

SAMPLER: RAY MARANGOSIAN

WITNESSING AGENCY:

UNOCAL S/S # 1871 CITY: OAKLAND

ADDRESS: 96 Mc Arthur Blvd

ANALYSES REQUESTED

TURN AROUND TIME: REGULAR

SAMPLE ID NO.	DATE	TIME	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPH-GAS BTEX	TPH-DIESEL	TOG	8010	MTBE				REMARKS
MW1	10-23-95	13:45	x	x		2	Well	X	5101975AB			X				
MW2	"	10:45	x	x		"	"	X	5101976AB			X				
MW3	"	12:05	x	x		"	"	X	5101977AB			X				

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	DATE/TIME
Ray Marangosian	10-23-95 16:45		10/23/95 1645
(SIGNATURE)	1330 10-24	(SIGNATURE)	1330 10-24
(SIGNATURE)	10-24	(SIGNATURE) Kevin Melander	15:15 10-24-95
(SIGNATURE)		(SIGNATURE)	
(SIGNATURE)		(SIGNATURE)	

THE FOLLOWING MUST BE COMPLETED BY THE LABORATORY ACCEPTING SAMPLES FOR ANALYSES:

1. HAVE ALL SAMPLES RECEIVED FOR ANALYSIS BEEN STORED ON ICE? yes
2. WILL SAMPLES REMAIN REFRIGERATED UNTIL ANALYZED? yes
3. DID ANY SAMPLES RECEIVED FOR ANALYSIS HAVE HEAD SPACE? no
4. WERE SAMPLES IN APPROPRIATE CONTAINERS AND PROPERLY PACKAGED? yes

SIGNATURE: [signature] TITLE: analyst DATE: 10/23

Note: All water containers to be sampled for TPHG/BTEX, 8010 & 8240 are preserved with HCL. All water containers to be sampled for Lead or Metals are preserved with HNO3. All other containers are unpreserved.