MONITORING
PURGING
DISPOSING
SAMPLING

MPDS SERVICES, INCORPORATED

February 17, 1995

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

RE: Unocal Service Station #1871
96 MacArthur Boulevard
Oakland, California 94610

Per the request of the Unocal Corporation Project Manager, Mr. Robert A. Boust, enclosed please find our report (MPDS-UN1871-06) dated February 6, 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-UN1871-06
February 6, 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 January 10, 1995. Prior to sampling, the wells were each purged of between 30.5 and 42 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. 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 documentation. 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.

Conclusions?

Sarkis Karkarian
Sarkis A. Karkarian
Staff Engineer

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 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
(Monitored and Sampled on October 10, 1994)						
MW-1	65.63	15.55	24.05	0	No	16
MW-2	65.13	11.48	24.75	0	No	34
MW-3	64.50	12.98	23.70	0	No	28
(Monitored and Sampled on July 13, 1994)						
MW-1	66.30	14.88	24.12	0	No	19
MW-2	65.75	10.86	24.71	0	No	32
MW-3	65.02	12.46	23.68	0	No	24
(Monitored and Sampled on April 13, 1994)						
MW-1	66.74	14.44	24.14	0	No	21
MW-2	66.49	10.12	24.75	0	No	40
MW-3	65.46	12.02	23.74	0	No	29

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 January 10, 1995)

Well #	Gallons per Casing Volume	Time	Gallons Purged	Casing Volumes Purged	Temperature (°F)	Conductivity ([μmhos/cm] x100)	pH
MW-1	7.61	13:20	0	0	69.5	0.718	6.41
			7.5	0.99	69.1	0.809	6.54
			15	1.97	69.1	0.818	6.32
			22.5	2.96	69.4	0.790	6.51
		13:45	30.5	4.01	69.3	0.781	6.49
MW-2	10.42	12:10	0	0	68.9	0.597	7.24
			10.3	0.99	68.2	0.516	7.13
			21	2.02	67.9	0.523	7.02
			31.5	3.02	68.8	0.538	7.06
		12:50	42	4.03	69.4	0.535	7.08
MW-3	8.63	11:05	0	0	62.6	0.740	*
			9	1.04	68.3	0.767	*
			17	1.97	70.2	0.670	*
			26	3.01	71.9	0.680	*
		11:30	35	4.06	72.2	0.680	*

* pH meter did not work (rain)

TABLE 3

SUMMARY OF LABORATORY ANALYSES
WATER

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

TABLE 3 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Well #	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes
11/03/92	MW-1	260,000	2,300	4,600	3,700	17,000
	MW-2	140	2.2	ND	ND	2
	MW-3	2,100	120	15	38	200

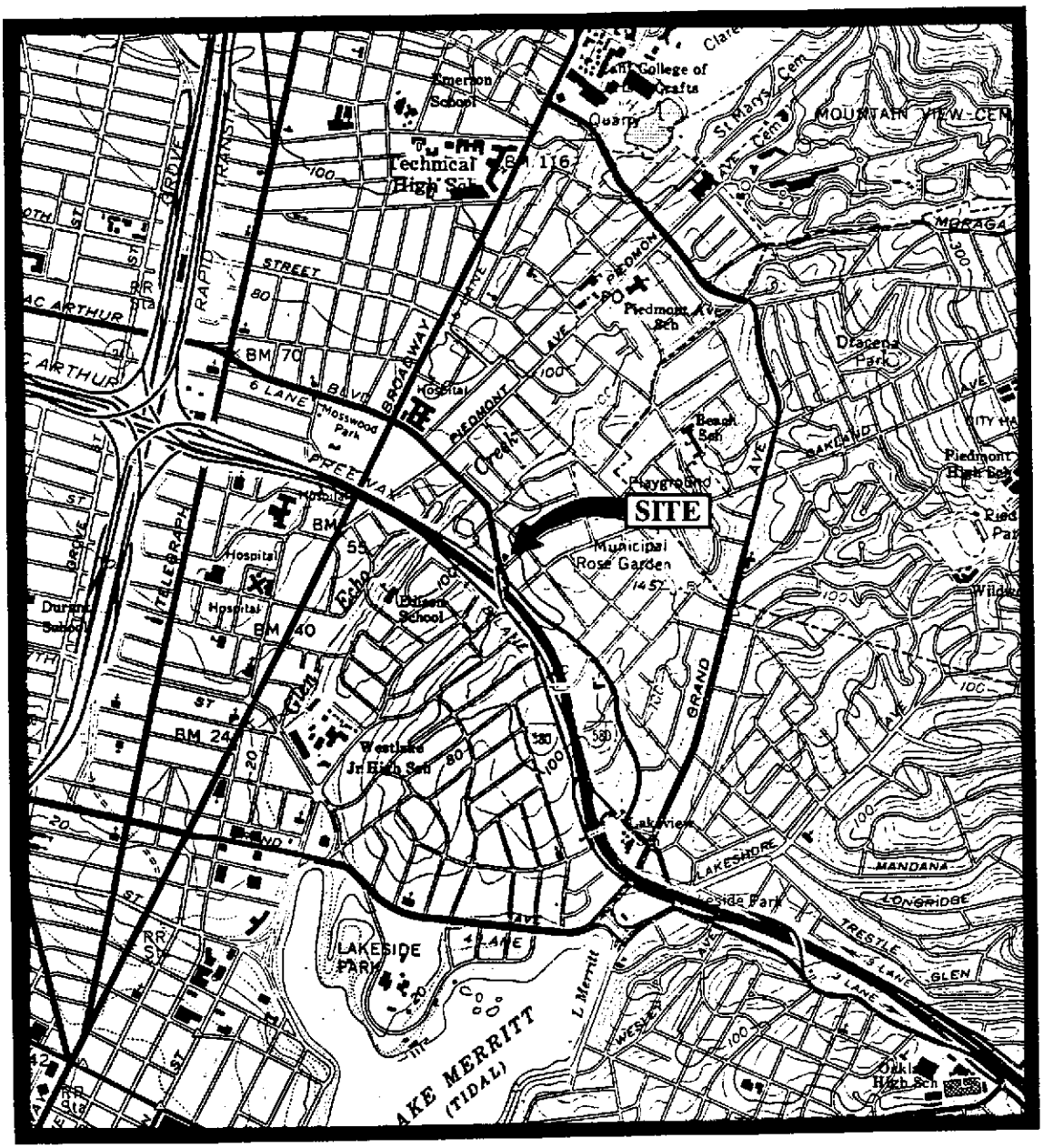
* Primarily due to the presence of discrete peaks not indicative of gasoline.

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

ND = Non-detectable.

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.

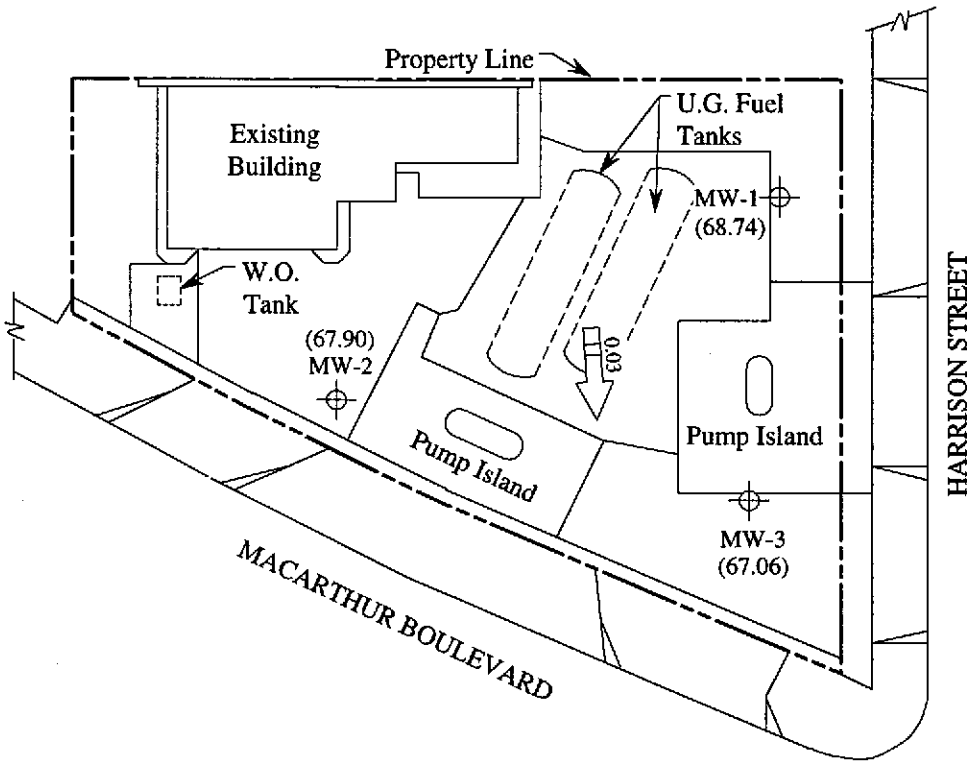


Base modified from 7.5 minute U.S.G.S.
Oakland East and West Quadrangles
(both photorevised 1980)

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

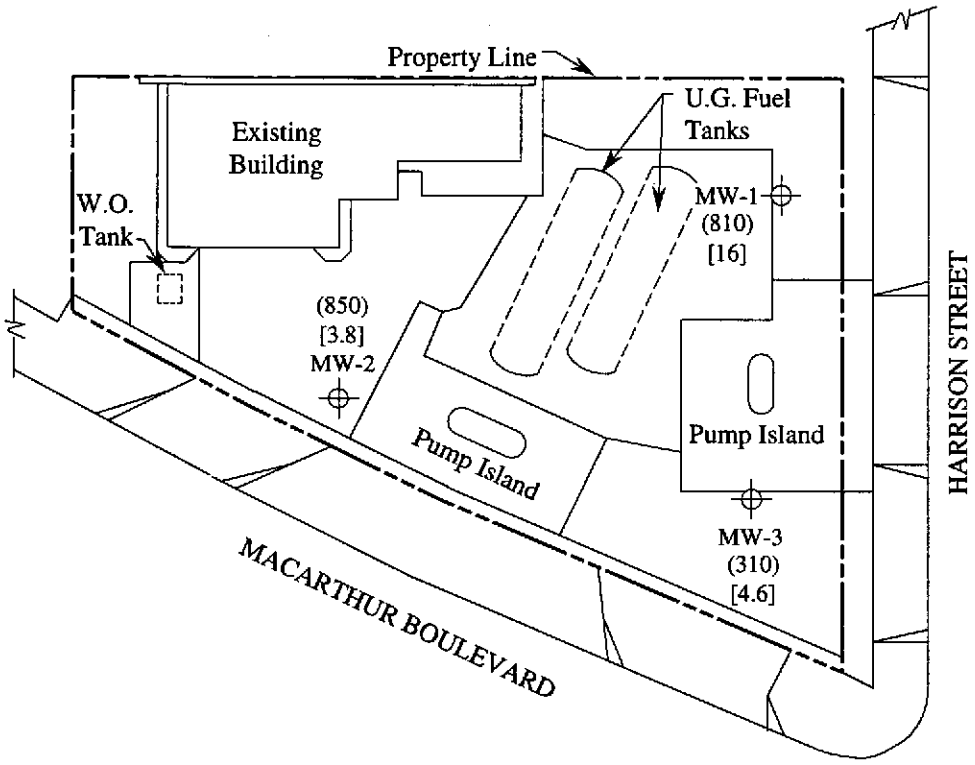
Approx. scale feet

GROUND WATER FLOW DIRECTION MAP FOR THE JANUARY 10, 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

0 30 60

Approx. scale feet

PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON JANUARY 10, 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
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

MPDS Services	Client Project ID:	Unocal #1871, 96 MacArthur Blvd., Oakland	Sampled:	Jan 10, 1995
2401 Stanwell Dr., Ste. 400	Matrix Descript:	Water	Received:	Jan 10, 1995
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported:	Jan 24, 1995
Attention: Avo Avedissian	First Sample #:	501-0443		

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
501-0443	MW-1	810	16	18	59	250
501-0444	MW-2	850	3.8	ND	8.5	1.3
501-0445	MW-3	310	4.6	ND	3.5	2.1
Detection Limits:		**50**	**0.50**	**0.50**	**0.50**	**0.50**

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
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
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MPDS Services	Client Project ID:	Unocal #1871, 96 MacArthur Blvd., Oakland	Sampled:	Jan 10, 1995
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Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported:	Jan 24, 1995
Attention: Avo Avedissian	First Sample #:	501-0443		

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
501-0443	MW-1	Gasoline	1.0	1/13/95	HP-2	115
501-0444	MW-2	Gasoline	1.0	1/13/95	HP-2	105
501-0445	MW-3	Gasoline	1.0	1/13/95	HP-2	105

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
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

MPDS Services
2401 Stanwell Dr., Ste. 400
Concord, CA 94520
Attention: Avo Avedissian

Client Project ID: Unocal #1871, 96 MacArthur Blvd., Oakland
Matrix: Liquid
QC Sample Group: 5010443-45

Reported: Jan 24, 1995

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	A. Tuzon	A. Tuzon	A. Tuzon	A. Tuzon
MS/MSD Batch#:	5010430	5010430	5010430	5010430
Date Prepared:	1/13/95	1/13/95	1/13/95	1/13/95
Date Analyzed:	1/13/95	1/13/95	1/13/95	1/13/95
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Matrix Spike % Recovery:	100	100	105	107
Matrix Spike Duplicate % Recovery:	105	105	115	111
Relative % Difference:	4.9	4.9	9.1	3.7
LCS Batch#:	1LCS011395	1LCS011395	1LCS011395	1LCS011395
Date Prepared:	1/13/95	1/13/95	1/13/95	1/13/95
Date Analyzed:	1/13/95	1/13/95	1/13/95	1/13/95
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2
LCS % Recovery:	96	96	104	102
% Recovery Control Limits:	71-133	72-128	72-130	71-120

SEQUOIA ANALYTICAL, #1271

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

SAMPLER: NICHOLAS PERROW

WITNESSING AGENCY:

UNOCAL S/S # 1871 CITY: OAKLAND

ADDRESS: 96 MACARTHUR 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				REMARKS
MW-1	1/10/95	2:05 PM	✓	✓		2 VOAs	WELL	✓					5010443		A,B
MW-2	"	1:10 PM	✓	✓		"	"	✓					5010444		↓
MW-3	"	11:55 AM	✓	✓		"	"	✓					5010445		

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	DATE/TIME
(SIGNATURE)	1/10/95 3:20 PM	(SIGNATURE) RD Kelley	1/10/95 3:20 pm
(SIGNATURE)		(SIGNATURE)	
(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: RD Kelley TITLE: Sample Control DATE: 1/10/95

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.