

MPDS-UN0746-08
August 22, 1995

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

Attention: Mr. Edward C. Ralston

RE: Quarterly Data Report
Unocal Service Station #0746
3943 Broadway
Oakland, California

Dear Mr. Ralston:

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. Skimmers were present in wells MW3 and MW5. 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 August 3, 1995. Prior to sampling, the wells were each purged of between 7.5 and 9 gallons of water. 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 2. 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.

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.


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
Location Map
Figures 1 & 2
Laboratory Analyses
Chain of Custody documentation

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

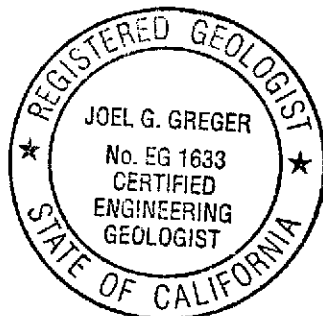


TABLE 1

SUMMARY OF MONITORING DATA

Well #	Ground Water Elevation (feet)	Depth to Water (feet)◆	Total Well Depth (feet)◆	Product Thickness (feet)	Sheen	Water Purged (gallons)	Product Purged (ounces)
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(Monitored and Sampled on August 3, 1995)

MW1*	72.85	7.69	19.60	0	--	0	0
MW2	71.97	9.35	19.82	0	No	7.5	0
MW3	72.13	9.28	22.20	0	No	9	0
MW4	72.69	8.60	20.00	0	No	8	0
MW5	72.13	9.25	19.71	0	No	7.5	0
MW6*	72.66	7.28	19.58	0	--	0	0
MW7*	73.24	8.40	20.00	0	--	0	0
MW8	WELL WAS INACCESSIBLE (PARKED OVER)						
MW9	70.83	9.70	21.93	0	No	8.5	0
MW10*	69.88	11.73	21.71	0	--	0	0
MW11*	65.51	12.67	19.11	0	--	0	0
MW12*	66.14	13.47	17.60	0	--	0	0

(Monitored and Sampled on May 3, 1995)

MW1	73.69	6.85	19.58	0	No	9	0
MW2	73.20	8.12	19.80	0	No	8	0
MW3	73.50	7.91	22.04	0	No	10	0
MW4	73.00	8.29	19.98	0	No	8	0
MW5	73.40	7.98	19.78	0	No	8.5	0
MW6	73.47	6.47	19.55	0	No	9	0
MW7	73.93	7.71	19.96	0	No	8.5	0
MW8	72.81	8.60	21.22	0	No	9	0
MW9	72.71	7.82	21.91	0	No	10	0
MW10	71.39	10.22	21.70	0	No	8	0
MW11	68.90	9.28	19.11	0	No	7	0
MW12	66.23	13.38	17.57	0	No	3	0

(Monitored and Purged on March 14, 1995)

MW3	74.36	7.05	22.02	0	--	50	[<1]
MW5	74.34	7.04	19.75	0	--	50	0
RW1	74.62	6.01	16.06	0	--	0	0

TABLE 1 (Continued)

SUMMARY OF MONITORING DATA

<u>Well #</u>	<u>Ground Water Elevation (feet)</u>	<u>Depth to Water (feet)◆</u>	<u>Total Well Depth (feet)◆</u>	<u>Product Thick-ness (feet)</u>	<u>Sheen</u>	<u>Water Purged (gallons)</u>	<u>Product Purged (ounces)</u>
(Monitored and Sampled on February 7, 1995)							
MW1	73.48	7.06	19.55	0	No	8.5	0
MW2	73.03	8.29	19.76	0	No	8	0
MW3	73.36	8.05	22.01	0	No	9.5	0
MW4	73.63	7.66	19.95	0	No	8.5	0
MW5	73.28	8.10	19.73	0	No	9	0
MW6	73.29	6.65	19.59	0	No	9	0
MW7	73.76	7.88	19.92	0	No	8.5	0
MW8	72.72	8.69	21.20	0	No	9	0
MW9	72.77	7.76	21.86	0	No	10	0
MW10*	71.32	10.29	21.66	0	No	8	0
MW11*	65.90	12.28	19.07	0	No	5	0
MW12*	67.89	11.72	17.54	0	No	4	0
RW1*	73.45	7.18	16.03	0	--	0	0

(Monitored and Sampled on November 10, 1994)

MW1*	74.11	6.43	19.60	0	--	0	0
MW2	73.85	7.47	19.75	0	No	9	0
MW3	73.94	7.47	21.98	0	Yes	10	0
MW4	72.08	9.21	19.92	0	No	8	0
MW5*	73.90**	7.54	19.91	0.08	N/A	0	4
MW6*	73.82	6.12	19.58	0	--	0	0
MW7*	73.98	7.66	19.98	0	--	0	0
MW8	73.60	7.81	21.18	0	No	10	0
MW9	73.28	7.25	21.94	0	No	10	0
MW10	68.97	12.64	21.72	0	No	7	0
MW11	64.61	13.57	19.13	0	No	4	0
MW12	66.21	13.40	17.60	0	No	3	0
RW1*	74.29	6.34	15.98	0	--	0	0
RW1*	71.02	9.61	16.06	0	--	0	0

TABLE 1 (Continued)

SUMMARY OF MONITORING DATA

<u>Well #</u>	<u>Well Casing Elevation (feet)▲</u>
MW1	80.54
MW2	81.32
MW3	81.41
MW4	81.29
MW5	81.38
MW6	79.94
MW7	81.64
MW8	81.41
MW9	80.53
MW10	81.61
MW11	78.18
MW12	79.61
RW1	80.63

◆ The depth to water level and total well depth measurements were taken from the top of the well casings.

* Monitored only.

** Ground water elevation corrected due to the presence of free product (correction factor = 0.75).

▲ The elevations of the top of the well casings are relative to Mean Sea Level (MSL), per the City of Oakland Benchmark BM#1336 (elevation = 82.28 feet MSL).

[x] Amount of product purged from skimmer.

N/A = Not applicable.

-- Sheen determination was not performed.

TABLE 2

**SUMMARY OF LABORATORY ANALYSES
 WATER**

<u>Date</u>	<u>Well #</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl-benzene</u>	<u>Xylenes</u>
8/03/95	MW1	SAMPLED SEMI-ANNUALLY				
	MW2▲	ND	ND	ND	ND	ND
	MW3▲	18,000	59	ND	530	1,900
	MW4▲	57	2.0	ND	ND	ND
	MW5▲	23,000	940	280	810	2,700
	MW6	SAMPLED SEMI-ANNUALLY				
	MW7	SAMPLED SEMI-ANNUALLY				
	MW8	WELL WAS INACCESSIBLE (PARKED OVER)				
	MW9	91	1.1	ND	ND	ND
	MW10	SAMPLED SEMI-ANNUALLY				
	MW11	SAMPLED SEMI-ANNUALLY				
	MW12	SAMPLED SEMI-ANNUALLY				
5/03/95	MW1	260	21	39	17	24
	MW2	ND	ND	ND	ND	ND
	MW3	26,000	740	990	1,100	4,400
	MW4	160	8.3	0.52	1.5	3.7
	MW5	12,000	680	160	600	1,800
	MW6	ND	ND	ND	ND	1.0
	MW7	ND	ND	ND	ND	1.0
	MW8	75	ND	ND	ND	1.0
	MW9	ND	0.85	0.67	1.3	1.0
	MW10	ND	ND	ND	ND	0.65
	MW11	ND	ND	ND	ND	ND
	MW12	ND	ND	ND	ND	ND
2/07/95	MW1	6,100	670	ND	120	60
	MW2	1,600♦	ND	ND	ND	ND
	MW3	45,000	1,400	1,300	1,500	5,600
	MW4	540	47	ND	17	2.5
	MW5	25,000	1,400	740	990	3,000
	MW6	ND	ND	ND	ND	ND
	MW7	ND	ND	ND	ND	ND
	MW8	230	1.4	0.95	0.90	1.1
	MW9	57	0.70	ND	0.86	ND
	MW10	SAMPLED SEMI-ANNUALLY				
	MW11	SAMPLED SEMI-ANNUALLY				
	MW12	SAMPLED SEMI-ANNUALLY				

TABLE 2 (Continued)

**SUMMARY OF LABORATORY ANALYSES
 WATER**

<u>Date</u>	<u>Well #</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl-benzene</u>	<u>Xylenes</u>
11/10/94	MW1	SAMPLED SEMI-ANNUALLY				
	MW2	95♦♦	ND	ND	ND	ND
	MW3	86,000	3,300	3,800	1,800	8,300
	MW4	7,700	1,800	280	460	1,300
	MW5	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT				
	MW6	SAMPLED SEMI-ANNUALLY				
	MW7	SAMPLED SEMI-ANNUALLY				
	MW8	940	6.7	6.3	ND	16
	MW9	ND	ND	ND	ND	ND
	MW10	ND	ND	ND	ND	ND
	MW11	ND	ND	ND	ND	ND
	MW12	ND	ND	ND	ND	ND
8/31/94	MW1	ND	ND	0.98	ND	0.84
	MW2	310♦	ND	ND	ND	ND
	MW3	44,000	500	240	1,400	5,700
	MW4	400	17	0.94	14	5.2
	MW5	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT				
	MW6	ND	ND	1.5	ND	1.6
	MW7	ND	ND	0.80	ND	0.75
	MW8	1,800♦	ND	ND	ND	ND
	MW9*	650	7.7	2.8	4.4	5.0
	MW10	ND	ND	0.64	ND	0.54
	MW11	ND	ND	1.5	ND	1.8
	MW12*	ND	ND	1.0	ND	1.0
5/31/94	MW2	1,100♦	ND	ND	ND	ND
	MW3	39,000	670	630	1,500	6,200
	MW4	1,100	190	ND	100	58
	MW5	43,000	1,500	1,200	1,600	6,700
	MW8	350	3.0	1.0	0.73	1.7
	MW9	360	7.8	0.97	4.6	2.2
	MW10	ND	ND	0.90	ND	0.91
	MW11	ND	ND	ND	ND	ND
	MW12	ND	ND	0.81	ND	0.82

TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES
 WATER

Date	Well #	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes	
2/16/94	MW1	ND	0.84	ND	ND	0.59	
	MW2	3,200♦	ND	ND	ND	ND	
	MW3	57,000	910	2,500	2,100	9,000	
	MW4	190	11	0.98	21	6.6	
	MW5	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					
	MW6	ND	ND	ND	ND	ND	
	MW7	ND	ND	ND	ND	0.70	
	MW8	990	4.9	1.8	2.4	4.5	
	MW9	250	5.1	1.3	4.4	1.5	
	MW10	ND	ND	ND	ND	ND	
	MW11	ND	ND	ND	ND	ND	
	MW12	ND	ND	ND	ND	ND	
11/30/93	MW1	SAMPLED SEMI-ANNUALLY					
	MW2	480♦	ND	ND	ND	ND	
	MW3	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					
	MW4	200	28	ND	17	8.1	
	MW5	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					
	MW6	SAMPLED SEMI-ANNUALLY					
	MW7	SAMPLED SEMI-ANNUALLY					
	MW8	3,500	18	ND	ND	ND	
	MW9	200	5.6	ND	2.9	2.7	
	MW10	WELL WAS INACCESSIBLE					
	MW11	ND	ND	ND	ND	ND	
	MW12	ND	ND	ND	ND	ND	
8/25/93	MW1	ND	ND	ND	ND	ND	
	MW2	190♦	ND	ND	ND	ND	
	MW3	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					
	MW4	640	100	1.1	100	22	
	MW5	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					
	MW6	ND	ND	ND	ND	ND	
	MW7	ND	ND	ND	ND	ND	
	MW8	1,800	11	17	8.9	29	
	MW9	220	10	ND	6.8	1.4	
	MW10	ND	ND	ND	ND	ND	
	MW11	ND	ND	ND	ND	ND	
	MW12	ND	ND	ND	ND	ND	

TABLE 2 (Continued)

**SUMMARY OF LABORATORY ANALYSES
 WATER**

Date	Well #	TPH as Gasoline	Benzene	Toluene	Ethyl- benzene	Xylenes
5/25/93	MW1	260	27	4.9	2.6	54
	MW2*	1,300♦	ND	ND	ND	ND
	MW3	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT				
	MW4	74	10	ND	4.6	1.8
	MW5	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT				
	MW6	ND	ND	ND	ND	ND
	MW7	ND	ND	ND	ND	ND
	MW8	1,200	5.4	ND	9.0	21
	MW9	160	6.1	ND	7.4	1.1
	MW10	ND	ND	ND	ND	ND
	MW11	ND	ND	0.75	ND	1.0
	MW12	ND	ND	ND	ND	ND
2/24/93	MW1	1,100	280	4.9	120	140
	MW2	11,000♦	ND	ND	ND	ND
	MW3	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT				
	MW4	140	12	0.64	9.4	3.7
	MW5	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT				
	MW6	ND	ND	ND	ND	ND
	MW7	ND	ND	ND	ND	ND
	MW8	WELL WAS INACCESSIBLE				
	MW9	WELL WAS INACCESSIBLE				
	MW10	ND	ND	ND	ND	ND
	MW11	ND	ND	ND	ND	ND
	MW12	ND	ND	ND	ND	ND
11/20/92	MW1	ND	0.75	ND	ND	ND
	MW2	510♦	ND	ND	ND	ND
	MW3	1,100,000♦♦	1,800	6,400	3,000	15,000
	MW4	ND	6.2	ND	1.2	0.52
	MW5	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT				
	MW6	ND	ND	ND	ND	ND
	MW7	ND	ND	ND	ND	ND
	MW8	WELL WAS INACCESSIBLE				
	MW9	WELL WAS INACCESSIBLE				
	MW10	ND	ND	ND	ND	ND
	MW11	ND	ND	ND	ND	ND
	MW12	ND	ND	ND	ND	ND

TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES
 WATER

Date	Well #	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes	
8/26/92	MW1	ND	ND	ND	ND	ND	
	MW2	ND	ND	ND	ND	ND	
	MW3	20,000	690	1,900	1,300	5,700	
	MW4	120	86	0.52	0.57	1.6	
	MW5	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					
	MW6	ND	ND	ND	ND	ND	
	MW7	ND	ND	ND	0.73	ND	
	MW8	1,800	12	8.0	4.0	13	
	MW9	250	13	ND	8.6	3.8	
	MW10	ND	ND	ND	ND	ND	
	MW11	ND	ND	ND	ND	ND	
	MW12	ND	ND	ND	ND	ND	
5/23/92	MW1	ND	ND	ND	ND	ND	
	MW2	ND	ND	ND	ND	ND	
	MW3	25,000	300	130	880	4,900	
	MW4	ND	ND	ND	ND	ND	
	MW5	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					
	MW6	ND	ND	ND	ND	ND	
	MW7	ND	ND	ND	ND	ND	
	MW8	2,100	8.6	1.6	1.7	28	
	MW9	460	18	0.66	1.4	3.2	
	MW10	ND	ND	ND	ND	ND	
	MW11	ND	ND	ND	ND	ND	
2/06/92	MW1	ND	ND	ND	ND	ND	
	MW2	ND	0.36	0.66	ND	0.62	
	MW3	24,000	600	1,800	1,200	5,800	
	MW4	5,700	2,200	140	57	980	
	MW5	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					
	MW6	ND	ND	ND	ND	ND	
	MW7	ND	ND	ND	ND	ND	
	MW8	2,600	4.1	7.0	31	93	
	MW9	660	41	1.0	33	15	
	MW10	ND	ND	ND	ND	ND	
	MW11	ND	ND	ND	ND	ND	

TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES
 WATER

Date	Well #	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes	
11/19/91	MW1	ND	ND	ND	ND	ND	
	MW2	ND	ND	ND	ND	ND	
	MW3	22,000	250	440	660	3,000	
	MW4	55	9.2	4.5	1.4	6.7	
	MW5	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					
	MW6	ND	ND	ND	ND	ND	
	MW7	32	ND	ND	ND	ND	
	MW8	1,600	8.1	1.8	19	52	
	MW9	360	17	0.45	15	11	
8/28/91	MW1	ND	ND	ND	ND	ND	
	MW2	ND	ND	ND	ND	ND	
	MW3	16,000	650	2,200	1,100	5,400	
	MW4	2,000	1,500	20	120	300	
	MW5	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT					
	MW6	ND	ND	ND	ND	ND	
	MW7	ND	ND	ND	ND	ND	
	MW8	1,800	3.2	1.9	19	74	
	MW9	450	17	0.9	13	14	
5/28/91	MW1	ND	ND	ND	ND	ND	
	MW2	ND	ND	ND	ND	ND	
	MW3	24,000	570	1,100	810	4,200	
	MW4	38	ND	ND	ND	1.9	
	MW5	24,000	2,300	3,400	1,300	6,000	
	MW6	ND	ND	ND	ND	0.42	
	MW7	39	ND	ND	ND	0.73	
	MW8	4,800	4.2	1.3	5.1	170	
	MW9	590	6.0	0.43	6.8	1.4	
2/25/91	MW1	ND	ND	ND	ND	ND	
	MW2	ND	0.68	0.42	ND	0.86	
	MW3	37,000	730	2,900	1,300	7,300	
	MW4	22,000	600	1,300	780	2,800	
	MW5	25,000	950	1,300	900	3,500	
	MW6	ND	0.37	0.40	0.35	1.5	
	MW7	70	ND	ND	ND	0.52	
	MW8	5,300	17	6.1	53	300	
	MW9	390	13	1.1	2.8	14	

TABLE 2 (Continued)

**SUMMARY OF LABORATORY ANALYSES
 WATER**

<u>Date</u>	<u>Well #</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl-benzene</u>	<u>Xylenes</u>
11/07/90	MW1	45	ND	ND	ND	ND
	MW2	ND	ND	ND	ND	ND
	MW3	42,000	1,400	5,000	1,800	7,500
	MW4	180	1.5	0.37	6.3	26
	MW5	20,000	640	1,100	670	3,000
	MW6	ND	ND	ND	ND	ND
	MW7	ND	ND	ND	ND	ND
	MW8	4,700	28	38	86	7,200
	MW9	480	7.8	1.2	13	47
8/16/90	MW1	ND	ND	ND	ND	ND
	MW2	ND	ND	6.7	ND	ND
	MW3	6,800	600	660	760	160
	MW4	3,600	480	17	230	260
	MW5	16,000	1,400	1,900	2,800	660
2/15/90	MW1	170	7.9	ND	2.2	2.8
	MW2	ND	ND	ND	ND	ND
	MW3	20,000	1,700	2,100	750	3,100
	MW4	150	8.0	8.0	10	45
	MW5	24,000	1,500	1,700	260	3,600
11/01/89	MW1	ND	ND	ND	ND	0.30
	MW2	200	ND	ND	3.0	1.2
	MW3	13,000	57	48	1.7	120

TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

- ◆ Sequoia Analytical Laboratory reported that the hydrocarbons detected did not appear to be gasoline.
- ◆◆ Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be gasoline and non-gasoline mixture.
- * Methyl tert butyl ether was detected at a concentration of:
 - 2,700 $\mu\text{g/L}$ in MW2 on May 25, 1993.
 - 59 $\mu\text{g/L}$ in MW9 on August 31, 1994.
 - ND in MW12 on August 31, 1994.
- ▲ Dissolved oxygen was measured on 8/19/95 and the results were:
 - 2.77 ppm in MW2, 2.06 ppm in MW3, 2.19 ppm in MW4 and 2.09 ppm in MW5.

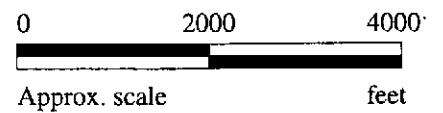
ND = Non-detectable.

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

Note: Laboratory analyses data prior to November 30, 1993, were provided by Kaprealian Engineering, Inc.



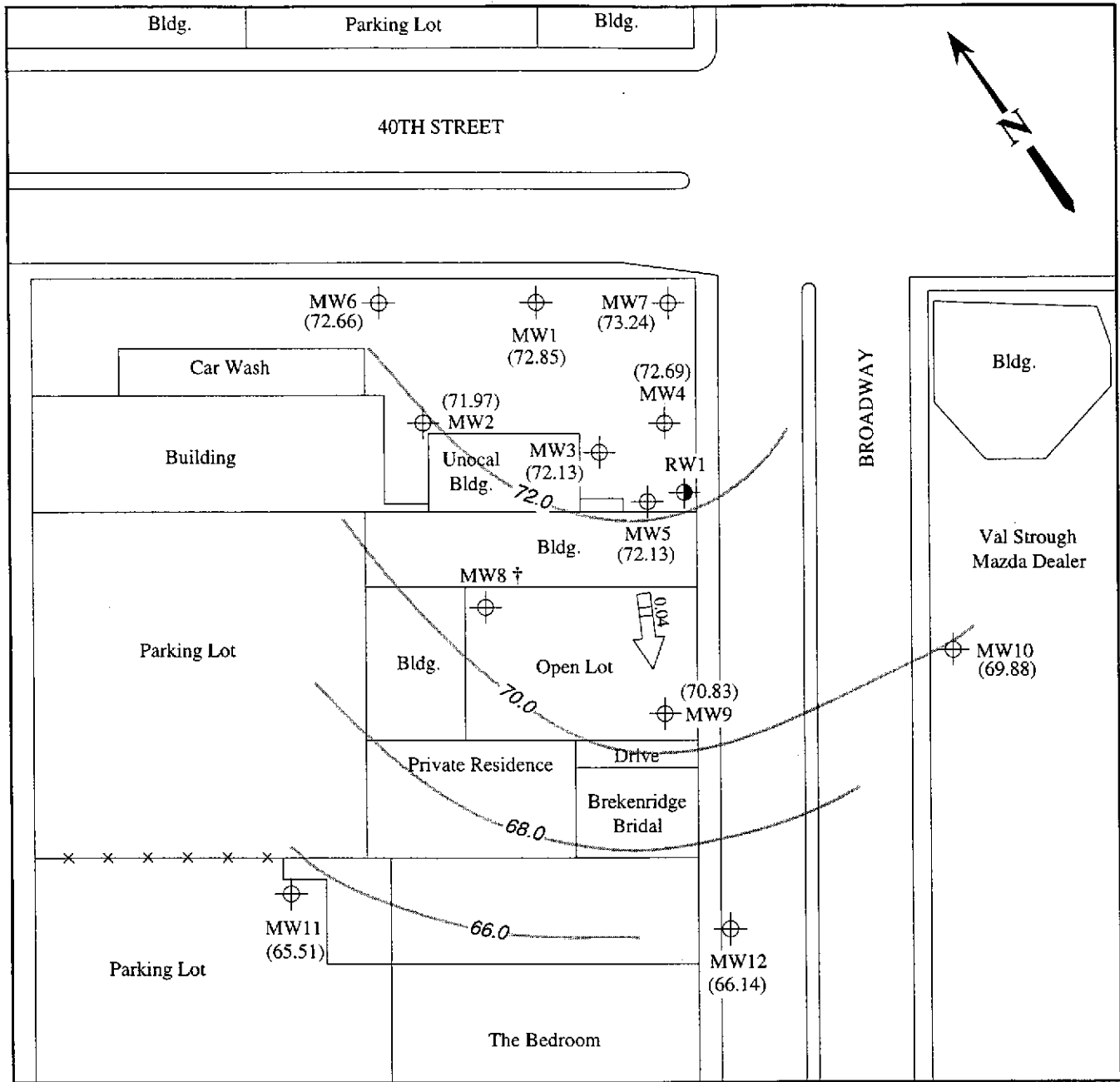
Base modified from 7.5 minute U.S.G.S. Oakland East and West Quadrangles
(both photorevised 1980)

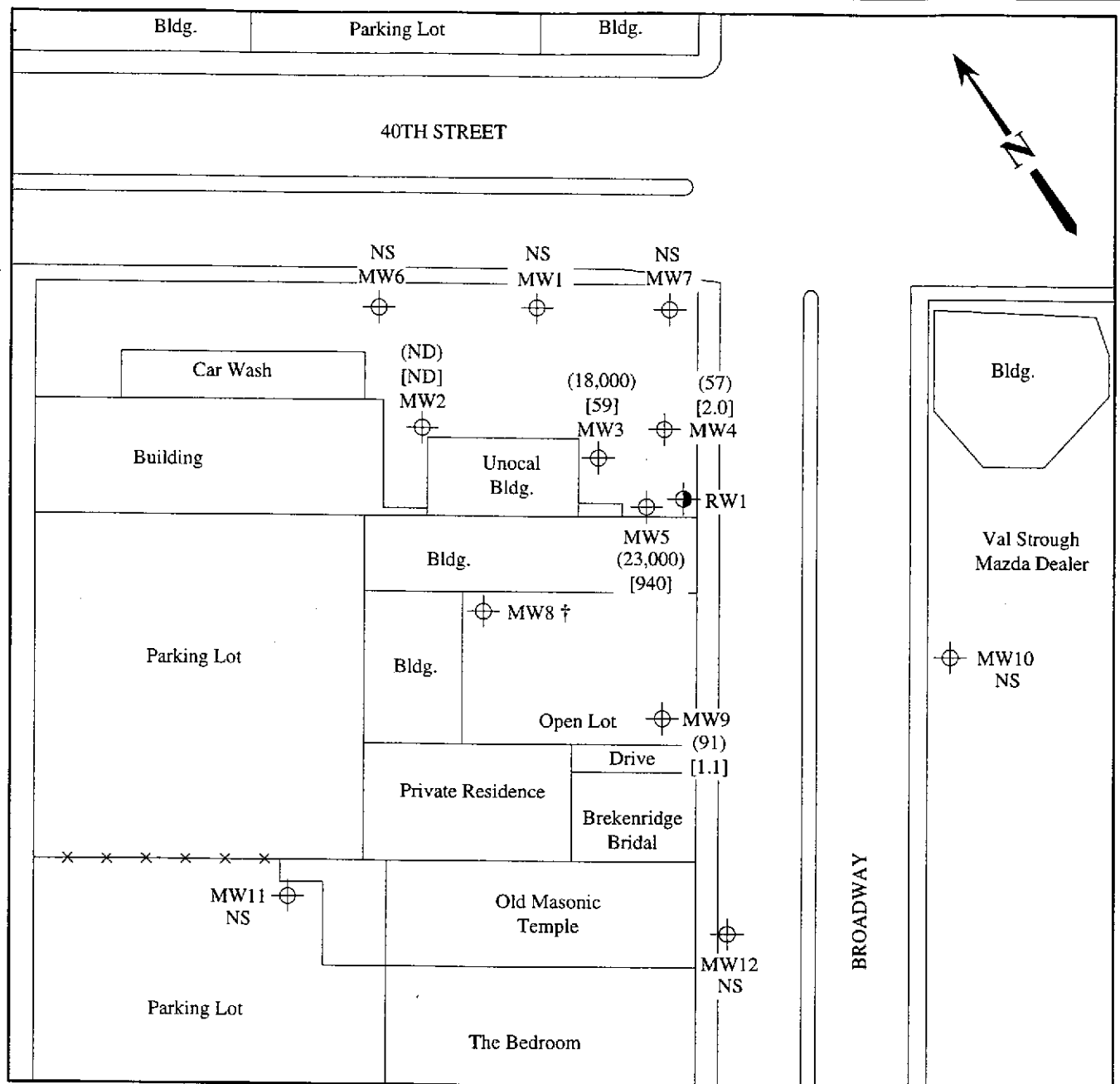


mpds SERVICES, INCORPORATED

**UNOCAL SERVICE STATION #0746
3943 BROADWAY
OAKLAND, CALIFORNIA**

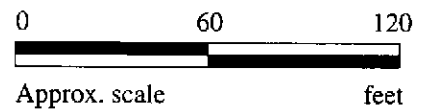
**LOCATION
MAP**





LEGEND

- ⊕ Monitoring well
- ⊙ 6-inch diameter recovery well
- () Concentration of TPH as gasoline in µg/L
- [] Concentration of TPH as gasoline in µg/L
- ND Non-detectable, NS Not sampled
- † Well was inaccessible.



PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON AUGUST 3, 1995



**UNOCAL SERVICE STATION #0746
3943 BROADWAY
OAKLAND, CALIFORNIA**

**FIGURE
2**



MPDS Services
2401 Stanwell Dr., Ste. 300
Concord, CA 94520
Attention: Sarkis Karkarian

Client Project ID: Unocal #0746, 3943 Broadway, Oakland
Matrix Descript: Water
Analysis Method: EPA 5030/8015 Mod./8020
First Sample #: 508-0174

Sampled: Aug 3, 1995
Received: Aug 3, 1995
Reported: Aug 17, 1995

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
508-0174	MW-2	ND	ND	ND	ND	ND
508-0175	MW-3	18,000	59	ND	530	1,900
508-0176	MW-4	57	2.0	ND	ND	ND
508-0177	MW-5	23,000	940	280	810	2,700
508-0178	MW-9	91	1.1	ND	ND	ND

Detection Limits:	50	0.50	0.50	0.50	0.50
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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 2401 Stanwell Dr., Ste. 300 Concord, CA 94520 Attention: Sarkis Karkarian	Client Project ID: Unocal #0746, 3943 Broadway, Oakland Matrix Descript: Water Analysis Method: EPA 5030/8015 Mod./8020 First Sample #: 508-0174	Sampled: Aug 3, 1995 Received: Aug 3, 1995 Reported: Aug 17, 1995
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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
508-0174	MW-2	--	1.0	8/13/95	HP-9	104
508-0175	MW-3	Gasoline	50	8/14/95	HP-2	129
508-0176	MW-4	Gasoline	1.0	8/13/95	HP-4	93
508-0177	MW-5	Gasoline	50	8/14/95	HP-5	78
508-0178	MW-9	Gasoline	1.0	8/14/95	HP-4	96

SEQUOIA ANALYTICAL, #1271

Signature on File

Alan B. Kemp
Project Manager





MPDS Services
2401 Stanwell Dr., Ste. 300
Concord, CA 94520
Attention: Sarkis Karkarian

Client Project ID: Unocal #0746, 3943 Broadway, Oakland
Matrix: Liquid

QC Sample Group: 5080174-78

Reported: Aug 17, 1995

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha

MS/MSD

Batch#: 5080546 5080546 5080546 5080546

Date Prepared: 8/13/95 8/13/95 8/13/95 8/13/95

Date Analyzed: 8/13/95 8/13/95 8/13/95 8/13/95

Instrument I.D.#: HP-9 HP-9 HP-9 HP-9

Conc. Spiked: 20 µg/L 20 µg/L 20 µg/L 60 µg/L

Matrix Spike

% Recovery: 90 110 125 132

Matrix Spike

Duplicate % Recovery: 85 110 120 130

Relative %

Difference: 5.7 0.0 4.1 1.3

LCS Batch#: 4LCS081395 4LCS081395 4LCS081395 4LCS081395

Date Prepared: 8/13/95 8/13/95 8/13/95 8/13/95

Date Analyzed: 8/13/95 8/13/95 8/13/95 8/13/95

Instrument I.D.#: HP-9 HP-9 HP-9 HP-9

LCS %

Recovery: 78 98 104 115

% Recovery Control Limits:	71-133	72-128	72-130	71-120
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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





MPDS Services
2401 Stanwell Dr., Ste. 300
Concord, CA 94520
Attention: Sarkis Karkarian

Client Project ID: Unocal #0746, 3943 Broadway, Oakland
Matrix: Liquid

QC Sample Group: 5080174-78

Reported: Aug 17, 1995

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	M. Creusere	M. Creusere	M. Creusere	M. Creusere

MS/MSD

Batch#: 5080289 5080289 5080289 5080289

Date Prepared: 8/14/95 8/14/95 8/14/95 8/14/95

Date Analyzed: 8/14/95 8/14/95 8/14/95 8/14/95

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: 125 120 125 127

Matrix Spike

Duplicate % Recovery: 115 110 115 117

Relative %

Difference: 8.3 8.7 8.3 8.2

LCS Batch#: 1LCS081495 1LCS081495 1LCS081495 1LCS081495

Date Prepared: 8/14/95 8/14/95 8/14/95 8/14/95

Date Analyzed: 8/14/95 8/14/95 8/14/95 8/14/95

Instrument I.D.#: HP-2 HP-2 HP-2 HP-2

LCS %

Recovery: 75 96 112 113

% Recovery				
Control Limits:	71-133	72-128	72-130	71-120

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





MPDS Services
2401 Stanwell Dr., Ste. 300
Concord, CA 94520
Attention: Sarkis Karkarian

Client Project ID: Unocal #0746, 3943 Broadway, Oakland
Matrix: Liquid

QC Sample Group: 5080174-78

Reported: Aug 17, 1995

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha

MS/MSD

Batch#: 5080307 5080307 5080307 5080307

Date Prepared: 8/13/95 8/13/95 8/13/95 8/13/95

Date Analyzed: 8/13/95 8/13/95 8/13/95 8/13/95

Instrument I.D.#: HP-4 HP-4 HP-4 HP-4

Conc. Spiked: 20 µg/L 20 µg/L 20 µg/L 60 µg/L

Matrix Spike

% Recovery: 75 105 115 115

Matrix Spike

Duplicate % Recovery: 75 100 110 112

Relative %

Difference: 0.0 4.9 4.4 2.9

LCS Batch#: 2LCS081395 2LCS081395 2LCS081395 2LCS081395

Date Prepared: 8/13/95 8/13/95 8/13/95 8/13/95

Date Analyzed: 8/13/95 8/13/95 8/13/95 8/13/95

Instrument I.D.#: HP-4 HP-4 HP-4 HP-4

LCS %

Recovery: 76 98 108 109

% Recovery Control Limits:	71-133	72-128	72-130	71-120
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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





MPDS Services
2401 Stanwell Dr., Ste. 300
Concord, CA 94520
Attention: Sarkis Karkarian

Client Project ID: Unocal #0746, 3943 Broadway, Oakland
Matrix: Liquid

QC Sample Group: 5080174-78

Reported: Aug 17, 1995

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#:	5080285	5080285	5080285	5080285
Date Prepared:	8/14/95	8/14/95	8/14/95	8/14/95
Date Analyzed:	8/14/95	8/14/95	8/14/95	8/14/95
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Matrix Spike % Recovery:	85	85	85	87
Matrix Spike Duplicate % Recovery:	90	90	85	90
Relative % Difference:	5.7	5.7	0.0	3.8

LCS Batch#:	3LCS081495	3LCS081495	3LCS081495	3LCS081495
Date Prepared:	8/14/95	8/14/95	8/14/95	8/14/95
Date Analyzed:	8/14/95	8/14/95	8/14/95	8/14/95
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5
LCS % Recovery:	75	94	103	107

% Recovery Control Limits:	71-133	72-128	72-130	71-120
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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





MPDS Services 2401 Stanwell Dr., Ste. 300 Concord, CA 94520 Attention: Sarkis Karkarian	Client Project ID: Unocal #0746, 3943 Broadway, Oakland Matrix: Liquid QC Sample Group: 5080174-78	Reported: Aug 17, 1995
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QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	M. Creusere	M. Creusere	M. Creusere	M. Creusere

MS/MSD	Benzene	Toluene	Ethyl Benzene	Xylenes
Batch#:	5080544	5080544	5080544	5080544
Date Prepared:	8/14/95	8/14/95	8/14/95	8/14/95
Date Analyzed:	8/14/95	8/14/95	8/14/95	8/14/95
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Matrix Spike % Recovery:	90	95	95	97
Matrix Spike Duplicate % Recovery:	95	100	100	102
Relative % Difference:	5.4	5.1	5.1	5.0

LCS Batch#:	2LCS081495	2LCS081495	2LCS081495	2LCS081495
Date Prepared:	8/14/95	8/14/95	8/14/95	8/14/95
Date Analyzed:	8/14/95	8/14/95	8/14/95	8/14/95
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4
LCS % Recovery:	80	108	119	120

% Recovery Control Limits:	Benzene	Toluene	Ethyl Benzene	Xylenes
	71-133	72-128	72-130	71-120

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

9508051

SAMPLER			UNOCAL					ANALYSES REQUESTED							TURN AROUND TIME:
RAY MARANGOSIAN			S/S # <u>0746</u> CITY: <u>DAKOTA</u>												<u>REGULAR</u>
WITNESSING AGENCY			ADDRESS: <u>3943 Broadmoor</u>												
SAMPLE ID NO.	DATE	TIME	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPH-GAS BTEX	TPH-DIESEL	TOG	8010				REMARKS
MW2	8/3/95	10:20	X	X		2	11/10	X							5080174
MW3	"	12:00	X	X		4	4	X							5080175
MW4	"	11:05	X	X		4	3	X							5080176
MW5	"	11:30	X	X		4	4	X							5080177
MW9	"	12:45	X	X		4	4	X							5080178

RELINQUISHED BY: <u>Ray Marangosian</u> (SIGNATURE)	DATE/TIME <u>8/3/95</u> <u>14:00</u>	RECEIVED BY: <u>Chi Chud</u> (SIGNATURE)	DATE/TIME <u>8/3/95</u>	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? <u>yes</u>
(SIGNATURE)		(SIGNATURE)		2. WILL SAMPLES REMAIN REFRIGERATED UNTIL ANALYZED? <u>yes</u>
(SIGNATURE)		(SIGNATURE)		3. DID ANY SAMPLES RECEIVED FOR ANALYSIS HAVE HEAD SPACE? <u>No</u>
(SIGNATURE)		(SIGNATURE)		4. WERE SAMPLES IN APPROPRIATE CONTAINERS AND PROPERLY PACKAGED? <u>yes</u>
(SIGNATURE)		(SIGNATURE)		SIGNATURE: <u>Chi Chud</u> TITLE: <u>Analyst</u> DATE: <u>8-5-95</u>

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.