

20406

MPDS-UN3135-05  
February 27, 1995

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

Attention: Ms. Tina R. Berry

RE: Quarterly Data Report  
Unocal Service Station #3135  
845 - 66th Avenue  
Oakland, California

ENVIRONMENTAL  
PROTECTION  
95 APR -7 PM 1:18

Dear Ms. Berry:

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 directions during the most recent quarter are shown on the attached Figures 1, 2, and 3.

Ground water samples were collected on February 1, 1995. Prior to sampling, the wells were each purged of between 10 and 15 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, TPH as diesel, and benzene detected in the ground water samples collected this quarter are shown on the attached Figure 4. 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. Cynthia Chapman of 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.

  
Sarkis 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 through 4  
Laboratory Analyses  
Chain of Custody documentation

cc: Mr. Robert H. Kezerian, 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 February 1, 1995)**

MW1	-1.05	6.04	22.75	0	No	11.5
MW2	-0.97	4.54	22.60	0	No	12.5
MW3	-0.72	3.84	21.64	0	No	12.5
MW4	-0.80	5.73	25.26	0	No	13.5
MW5	-0.97	5.24	26.06	0	No	15
MW6	-0.95	4.98	25.82	0	No	14.5
MW7	-1.01	5.43	19.74	0	No	10
MW8	-0.59	5.02	23.13	0	No	12.5
MW9	-0.58	5.18	23.10	0	No	12.5
MW10	-1.57	4.26	23.14	0	No	13

**(Monitored on January 10, 1995)**

MW1	-1.13	6.12	*	0	--	0
MW2	-1.02	4.59	*	0	--	0
MW3	-0.70	3.82	*	0	--	0
MW4	-1.42	6.35	*	0	--	0
MW5	-1.10	5.37	*	0	--	0
MW6	-0.97	5.00	*	0	--	0
MW7	-1.08	5.50	*	0	--	0
MW8	-0.47	4.90	*	0	--	0
MW9	-0.38	4.98	*	0	--	0
MW10	-1.52	4.21	*	0	--	0

**(Monitored on December 3, 1994)**

MW1	-1.60	6.59	*	0	--	0
MW2	-1.38	4.95	*	0	--	0
MW3	-1.39	4.51	*	0	--	0
MW4	-1.85	6.78	*	0	--	0
MW5	-1.53	5.80	*	0	--	0
MW6	-1.41	5.44	*	0	--	0
MW7	-1.53	5.95	*	0	--	0
MW8	-1.17	5.60	*	0	--	0
MW9	-1.08	5.68	*	0	--	0
MW10	-1.99	4.68	*	0	--	0

**TABLE 1 (Continued)**

**SUMMARY OF MONITORING DATA**

Well #	Ground Water Elevation (feet)	Depth to Water (feet)♦	Total Well Depth (feet)♦	Product Thickness (feet)	Sheen	Water Purged (gallons)
<b>(Monitored and Sampled on November 7, 1994)</b>						
MW1	-3.27	8.26	22.74	0	No	10
MW2	-2.47	6.04	22.44	0	No	11.5
MW3	-2.93	6.05	21.64	0	No	11
MW4	-3.71	8.64	25.24	0	No	11.5
MW5*	-3.29	7.56	26.05	0	--	0
MW6	-2.75	6.78	25.81	0	No	13
MW7*	-3.44	7.86	19.75	0	--	0
MW8*	-2.13	6.56	23.12	0	--	0
MW9*	-1.84	6.44	23.14	0	--	0
MW10	-3.39	6.08	23.14	0	No	12

**(Monitored and Sampled on August 2, 1994)**

MW1	-3.77	8.76	22.71	0	No	9.5
MW2	-3.18	6.75	22.43	0	No	11
MW3	-2.72	5.84	21.60	0	No	11
MW4	-3.98	8.91	25.23	0	No	11.5
MW5	-3.78	8.05	26.03	0	No	12.5
MW6	-3.63	7.66	25.71	0	No	12.5
MW7	-3.56	7.98	19.70	0	No	8
MW8	-3.80	8.23	23.10	0	No	10.5
MW9	-3.74	8.34	23.10	0	No	10.5
MW10	-3.98	6.67	23.09	0	No	11.5

**(Monitored and Sampled on May 5, 1994)**

MW1	-3.12	8.11	22.44	0	No	10
MW2	-2.81	6.38	22.43	0	No	11
MW3	-2.38	5.50	21.66	0	No	11
MW4	-3.34	8.27	24.98	0	No	12
MW5*	-3.11	7.38	26.10	0	--	0
MW6	-2.98	7.01	25.80	0	No	13
MW7*	-2.71	7.13	19.76	0	--	0
MW8*	-2.96	7.39	23.11	0	--	0
MW9*	-2.92	7.52	23.12	0	--	0
MW10	-3.34	6.03	23.10	0	No	12

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**TABLE 1 (Continued)**

SUMMARY OF MONITORING DATA

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<u>Well #</u>	<u>Well Casing Elevation (feet)**</u>
MW1	4.99
MW2	3.57
MW3	3.12
MW4	4.93
MW5	4.27
MW6	4.03
MW7	4.42
MW8	4.43
MW9	4.60
MW10	2.69

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

\* Monitored only.

\*\* The elevations of the top of the well casings are relative to Mean Sea Level (MSL), per the City of Oakland Benchmark No. 3881 (elevation = 4.72 feet MSL).

-- Sheen determination was not performed.

★ Total well depth not measured.

**TABLE 2**

**SUMMARY OF LABORATORY ANALYSES  
WATER**

Date	Well #	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes	
2/01/95	MW1	ND	120	1.7	ND	ND	ND	
	MW2	1,800♦	9,300	300	210	630	2,600	
	MW3	ND	100*	ND	ND	ND	ND	
	MW4	ND	ND	ND	ND	ND	ND	
	MW5	ND	ND	ND	ND	ND	ND	
	MW6	2,700♦♦	55,000	7,700	9,100	4,500	20,000	
	MW7	ND	ND	ND	ND	ND	ND	
	MW8	ND	ND	ND	ND	ND	ND	
	MW9	65♦	ND	ND	ND	ND	ND	
	MW10	72♦	560*	ND	ND	ND	ND	
11/07/94	MW1	270♦	890	16	ND	31	21	
	MW2	3,100♦♦	49,000	1,700	2,000	3,000	10,000	
	MW3	ND	94*	ND	ND	ND	ND	
	MW4	2,200♦	20,000	84	17	1,500	3,000	
	MW5	SAMPLED SEMI-ANNUALLY						
	MW6	770♦	23,000	3,800	970	1,400	4,700	
	MW7	SAMPLED SEMI-ANNUALLY						
	MW8	SAMPLED SEMI-ANNUALLY						
	MW9	SAMPLED SEMI-ANNUALLY						
	MW10	120♦♦	1,100*	ND	ND	ND	ND	
8/02/94	MW1	130♦♦	700	13	0.62	2.0	3.6	
	MW2	8,500♦	32,000	2,400	2,200	2,900	12,000	
	MW3	76	150*	ND	ND	ND	ND	
	MW4	2,500♦♦	17,000	38	ND	1,800	4,300	
	MW5	ND	ND	ND	ND	ND	ND	
	MW6	2,400♦♦	28,000	2,200	940	1,600	7,500	
	MW7	ND	ND	ND	ND	ND	0.63	
	MW8	ND	ND	ND	ND	ND	ND	
	MW9	ND	ND	ND	ND	ND	ND	
	MW10	110	95*	ND	ND	ND	ND	

**TABLE 2 (Continued)**

SUMMARY OF LABORATORY ANALYSES  
WATER

Date	Well #	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes
5/05/94	MW1	ND	96*	ND	ND	ND	ND
	MW2	3,100♦♦	36,000	3,200	670	2,700	9,600
	MW3	66	62*	ND	ND	ND	ND
	MW4	2,000♦♦	6,900	17	ND	480	1,300
	MW5	SAMPLED SEMI-ANNUALLY					
	MW6	630♦♦	2,600	430	99	24	420
	MW7	SAMPLED SEMI-ANNUALLY					
	MW8	SAMPLED SEMI-ANNUALLY					
	MW9	SAMPLED SEMI-ANNUALLY					
	MW10	55	1,000*	ND	ND	ND	ND
2/10/94	MW1	ND	170*	0.90	2.3	ND	ND
	MW2	2,000♦♦	12,000	1,000	17	880	940
	MW3	50♦♦	ND	ND	ND	ND	0.84
	MW4	170♦	830	3.5	1.4	36	80
	MW5	ND	ND	ND	ND	ND	0.59
	MW6	ND	ND	3.5	ND	1.5	ND
	MW7	ND	ND	ND	ND	ND	ND
	MW8	ND	ND	ND	ND	ND	ND
	MW9	ND	ND	ND	ND	ND	ND
	MW10	71	1,480*	ND	ND	ND	ND
11/11/93	MW1	160♦♦	930	7.3	ND	25	19
	MW2	7,000♦♦	36,000	4,800	970	3,000	8,100
	MW3	51	ND	ND	ND	ND	ND
	MW4	4,000♦	16,000	110	12	1,800	3,800
	MW5	ND	ND	ND	ND	ND	ND
	MW6	650♦♦	3,000	470	ND	220	270
	MW7	66	ND	ND	ND	ND	ND
	MW8	ND	ND	ND	ND	ND	ND
	MW9	ND	ND	ND	ND	ND	ND
	MW10	88♦♦	1,600*	ND	ND	ND	ND

**TABLE 2 (Continued)**

**SUMMARY OF LABORATORY ANALYSES  
WATER**

<u>Date</u>	<u>Well #</u>	<u>TPH as Diesel</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl-benzene</u>	<u>Xylenes</u>
8/13/93	MW1	170◆◆	860	3.5	ND	17	20
	MW2	2,800◆◆	44,000	5,100	600	2,900	8,500
	MW3	ND	ND	ND	ND	ND	ND
	MW4	2,000◆◆	19,000	ND	ND	1,600	4,100
	MW5	ND	ND	ND	ND	ND	ND
	MW6	440◆◆	2,300	330	ND	95	40
	MW7	ND	ND	ND	ND	ND	ND
	MW8	ND	ND	ND	ND	ND	ND
	MW9	ND	ND	ND	ND	ND	ND
	MW10	97◆◆	1,500**	ND	ND	41	21
5/17/93	MW1	490◆◆	960**	39	ND	57	60
	MW2	5,500◆◆	46,000	4,400	510	2,900	9,900
	MW3	53	ND	ND	ND	ND	ND
	MW4	3,100◆	2,500	ND	ND	170	410
	MW5	ND	ND	ND	ND	ND	ND
	MW6	1,400◆	4,900	890	46	210	530
	MW7	ND	ND	ND	ND	ND	ND
	MW8	ND	ND	ND	ND	ND	ND
	MW9	ND	ND	ND	ND	ND	ND
	MW10	ND	1,200*	ND	ND	ND	ND
2/03/93	MW1	ND	94**	ND	ND	1.4	1.6
	MW2▲	3,900◆	9,300	780	68	830	1,200
	MW3	ND	ND	ND	ND	ND	ND
	MW4	720◆◆	370	2.6	ND	1.2	53
	MW5	ND	ND	ND	ND	ND	ND
	MW6▲	ND	ND	1.2	ND	ND	ND
	MW8	ND	ND	ND	ND	ND	ND
	MW9	ND	ND	ND	ND	ND	ND
	MW10	ND	1,200*	ND	ND	ND	ND



**TABLE 2 (Continued)**

SUMMARY OF LABORATORY ANALYSES  
WATER

Date	Well #	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes
11/03/92	MW1	400♦	1,100	28	ND	80	78
	MW2▲	9,600♦	40,000	5,600	130	3,000	6,100
	MW3	52♦	ND	ND	ND	ND	ND
	MW4	8,300♦	36,000	69	ND	3,000	7,400
	MW5	ND	ND	ND	ND	ND	ND
	MW6	220♦	920	45	0.76	12	110
	MW8	ND	ND	ND	ND	ND	ND
	MW9	ND	ND	ND	ND	ND	ND
	MW10	160♦	740	11	2.1	32	56
	8/03/92	MW1	220♦	980	22	0.69	77
MW2▲		3,300♦♦	37,000	4,500	480	3,300	9,700
MW3		58	ND	ND	ND	ND	ND
MW4		2,400♦	24,000	61	ND	2,100	5,400
MW5		ND	ND	ND	ND	ND	ND
MW6▲		170♦	1,100	180	1.1	62	78
5/05/92	MW1	120	310	5.7	ND	7.1	15
	MW2▲	4,600	26,000	2,300	110	2,700	6,900
	MW3	56	ND	ND	ND	0.43	1.8
	MW4	3,200	15,000	82	12	2,000	5,600
	MW5	72	ND	ND	ND	0.42	1.4
	MW6▲	47	ND	ND	ND	ND	1.3
2/07/92	MW1	ND	220	2.1	ND	10	16
	MW2▲	2,300	11,000	1,400	30	1,900	1,400
	MW3	ND	ND	ND	ND	ND	ND
	MW4	2,300	8,100	24	4.9	1,800	3,200
	MW5	ND	ND	ND	ND	0.36	0.94
	MW6▲	ND	180	22	0.68	22	20
11/05/91	MW1	260	4,900	80	ND	150	160
	MW2▲▲	3,900	110,000	4,200	200	3,400	8,600
	MW3	ND	31	ND	ND	ND	0.65
	MW4	7,700	140,000	320	ND	4,800	13,000
	MW5	ND	ND	ND	ND	ND	ND
	MW6▲	300	7,100	200	ND	190	580

**TABLE 2 (Continued)**

**SUMMARY OF LABORATORY ANALYSES  
WATER**

<u>Date</u>	<u>Well #</u>	<u>TPH as Diesel</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl-benzene</u>	<u>Xylenes</u>
8/05/91	MW1	200	1,200	95	6.2	230	80
	MW2▲	4,200	33,000	2,900	190	3,400	7,900
	MW3	63	ND	ND	ND	ND	ND
	MW4	6,200	37,000	310	70	3,600	9,700
	MW5	ND	ND	ND	ND	ND	ND
	MW6▲	130	860	130	11	92	150
2/21/91	MW1	690	26,000	280	39	1,200	1,900
	MW2▲	7,000	3,400	160	61	200	490
	MW3	--	ND	ND	ND	ND	0.64
	MW4	4,100	33,000	210	21	3,800	12,000
	MW5	--	56	ND	ND	ND	4.7
	MW6▲	160	750	77	14	23	140
	MWD	--	740	74	12	33	140
Duplicate (MW6)							
11/26/90	MW1	--	2,900	160	2.3	330	320
	MW2▲	3,800	15,000	1,600	450	1,100	2,100
	MW3	--	ND	ND	ND	ND	ND
	MW4	--	49,000	360	36	3,800	11,000
	MW5	--	ND	ND	ND	ND	ND
	MW6▲	320	4,800	1,000	200	340	650
	MW7	--	4,000	800	120	250	440
Duplicate (MW6)							
8/28/90	MW1	--	1,700	140	1.4	180	150
	MW2▲	3,100	27,000	2,600	1,300	1,900	3,000
	MW3	--	ND	ND	ND	ND	0.70
	MW4	--	62,000	810	72	4,400	4,600
	MW5	--	ND	ND	ND	ND	1.2
	MW6▲▲	1,000	12,000	1,700	1,400	230	2,100
	MW7	--	2,600	180	3.0	810	270
Duplicate (MW1)							
5/11/90	MW1	--	22,000	590	42	1,200	3,600
	MW2	--	65,000	3,300	3,300	4,100	12,000
	MW3	--	ND	ND	ND	ND	ND

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TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES  
WATER

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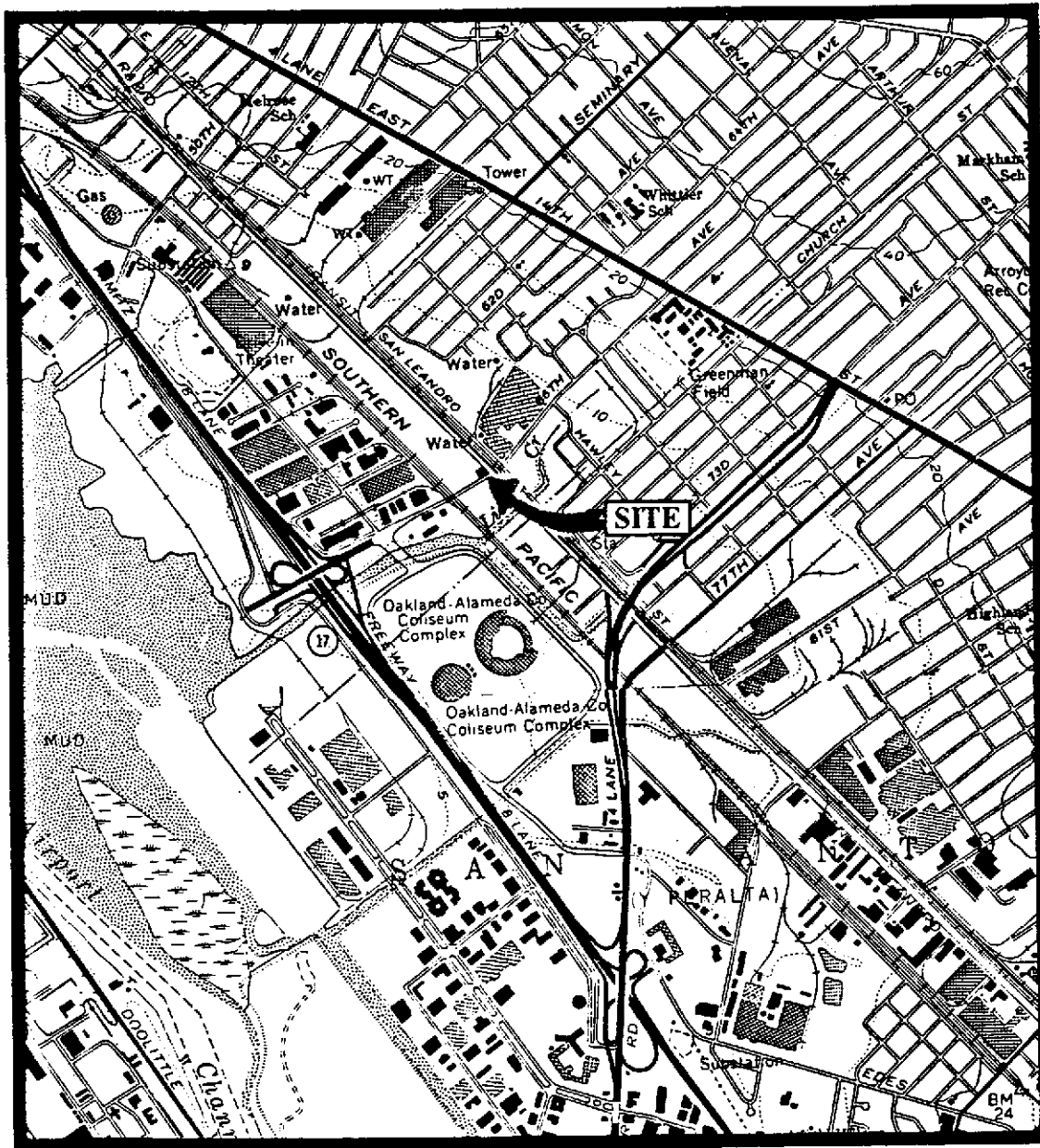
- \* Sequoia Analytical Laboratory reported that the hydrocarbons detected did not appear to be gasoline.
- \*\* Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a gasoline and non-gasoline mixture.
- ◆ Sequoia Analytical Laboratory reported that the hydrocarbons detected did not appear to be diesel.
- ◆◆ Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a diesel and non-diesel mixture.
- ▲ Total Oil and Grease (TOG) was non-detectable.
- ▲▲ TOG was detected at a concentration of 78  $\mu\text{g/L}$  (Nov. 91)  
TOG was detected at a concentration of 16  $\mu\text{g/L}$  (Aug. 90)

ND = Non-detectable.

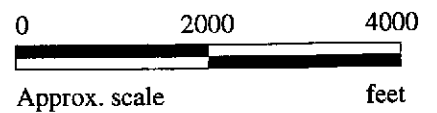
-- Indicates analysis was not performed.

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

Note: Laboratory analyses data prior to February 10, 1994, were provided by Kaprealian Engineering, Inc.



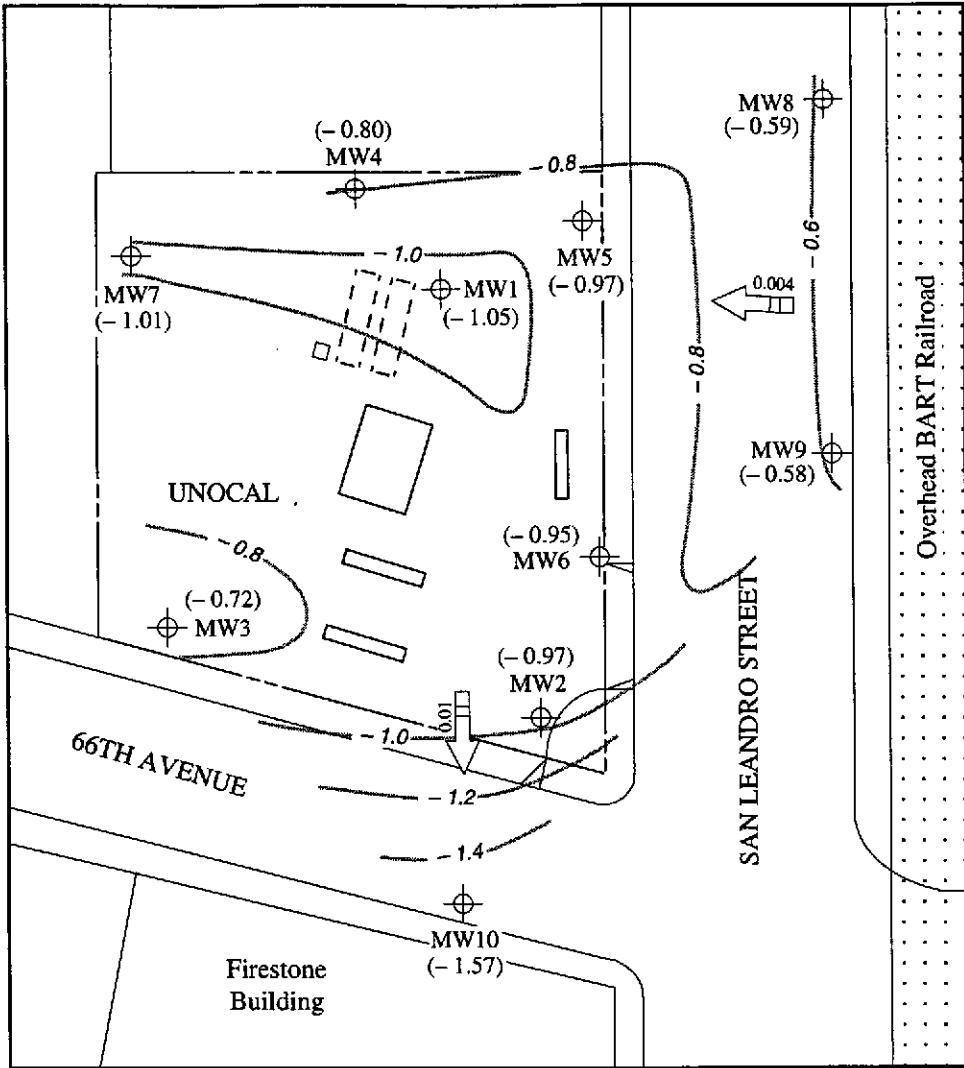
Base modified from 7.5 minute U.S.G.S.  
 Oakland East and San Leandro Quadrangles  
 (both photorevised 1980)







**MPDS** SERVICES, INCORPORATED

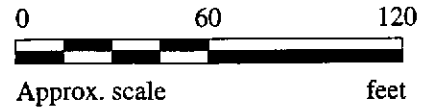
**UNOCAL SERVICE STATION #3135**  
**845 - 66TH AVENUE**  
**OAKLAND, CALIFORNIA**

**LOCATION**  
**MAP**



**LEGEND**

-  Monitoring well
-  Ground water elevation in feet relative to Mean Sea Level
-  Direction of ground water flow with approximate hydraulic gradient
-  Contours of ground water elevation

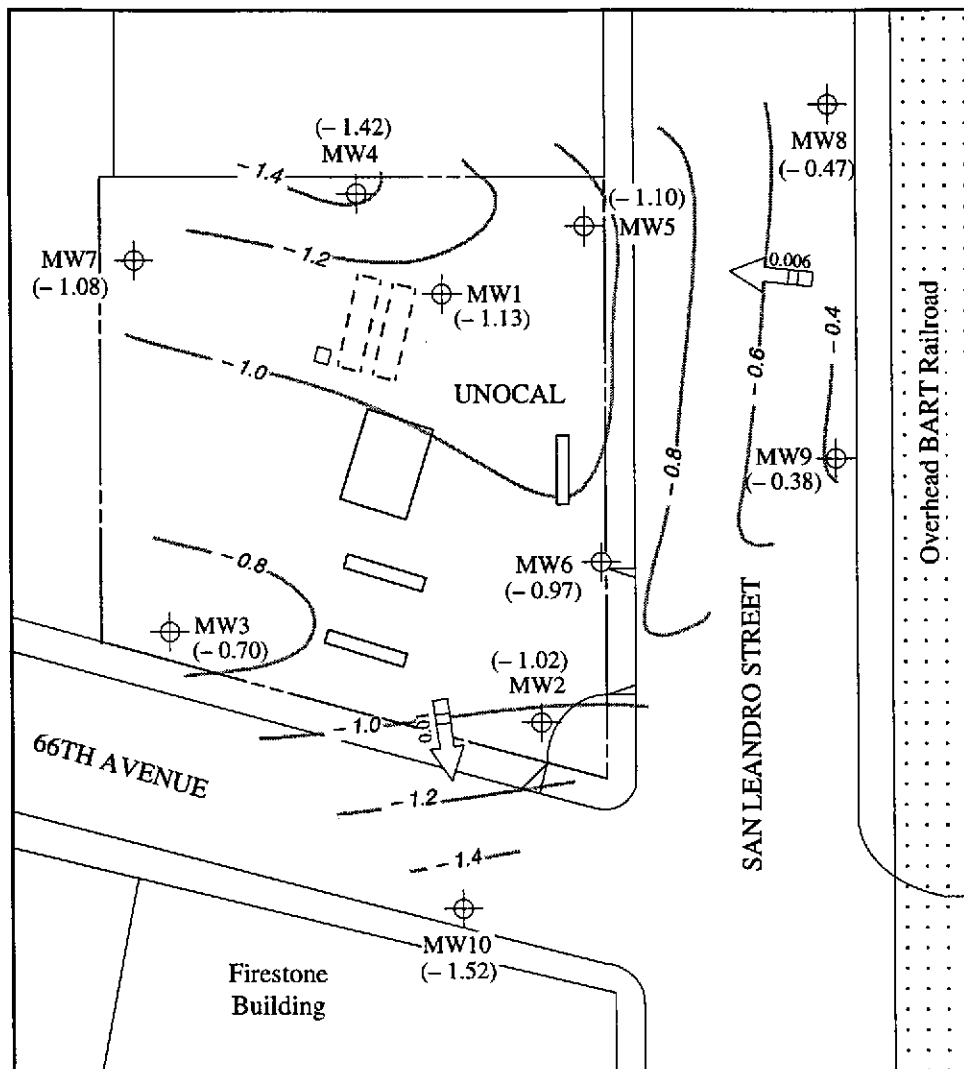


**POTENTIOMETRIC SURFACE MAP FOR THE FEBRUARY 1, 1995 MONITORING EVENT**



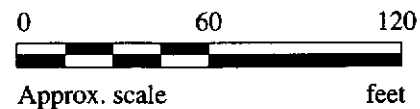
**UNOCAL SERVICE STATION #3135  
845 - 66TH AVENUE  
OAKLAND, CALIFORNIA**

**FIGURE  
1**



**LEGEND**

- ⊕ Monitoring well
- ( ) Ground water elevation in feet relative to Mean Sea Level
- ### → Direction of ground water flow with approximate hydraulic gradient
- Contours of ground water elevation

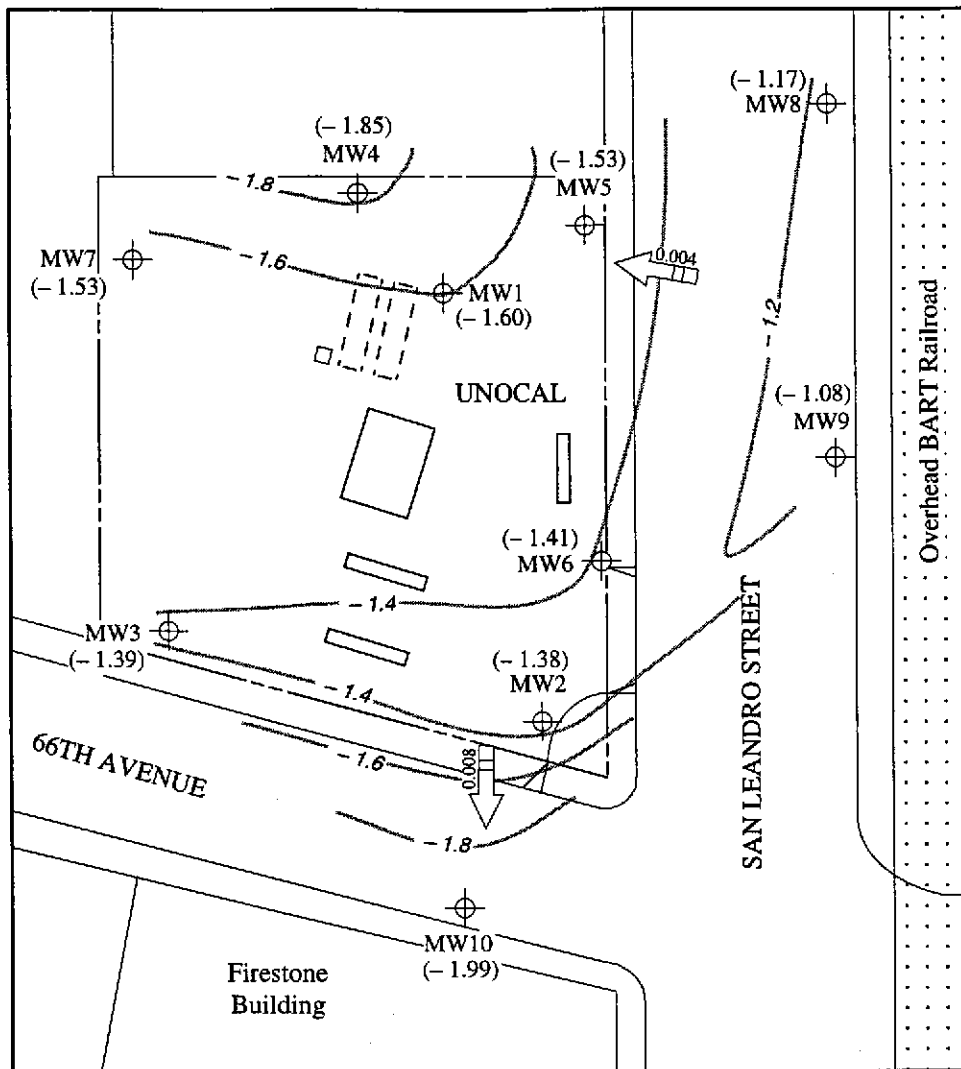


**POTENTIOMETRIC SURFACE MAP FOR THE JANUARY 10, 1995 MONITORING EVENT**

**MPDS** SERVICES, INCORPORATED

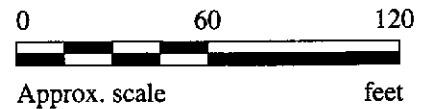
**UNOCAL SERVICE STATION #3135  
845 - 66TH AVENUE  
OAKLAND, CALIFORNIA**

**FIGURE  
2**



**LEGEND**

- ⊕ Monitoring well
- ( ) Ground water elevation in feet relative to Mean Sea Level
- ### → Direction of ground water flow with approximate hydraulic gradient
- Contours of ground water elevation

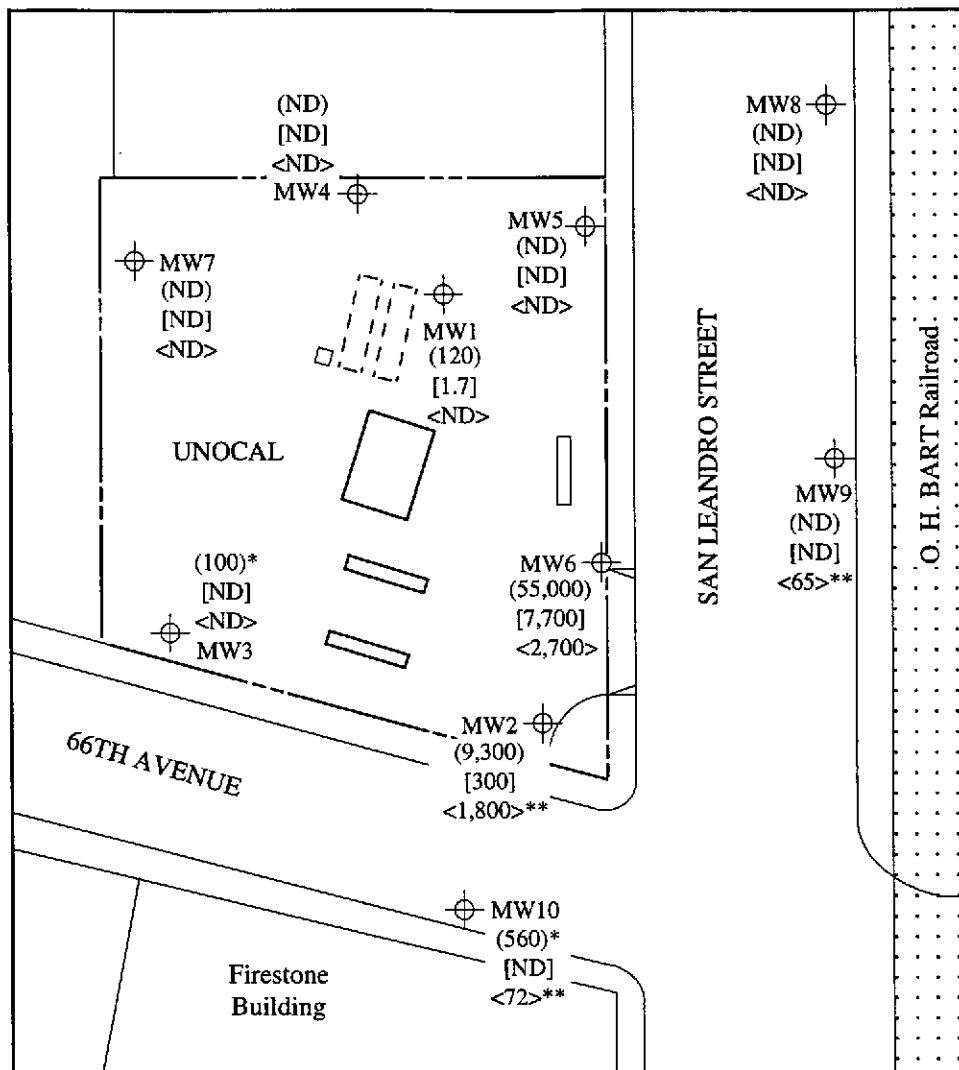


**POTENTIOMETRIC SURFACE MAP FOR THE DECEMBER 3, 1994 MONITORING EVENT**

**MPDS** SERVICES, INCORPORATED

**UNOCAL SERVICE STATION #3135  
845 - 66TH AVENUE  
OAKLAND, CALIFORNIA**

**FIGURE  
3**



**LEGEND**

- ⊕ Monitoring well
- ( ) Concentration of TPH as gasoline in µg/L
- [ ] Concentration of benzene in µg/L
- < > Concentration of TPH as diesel in µg/L
- ND = Non-detectable

\* The lab reported that the hydrocarbons did not appear to be gasoline.

\*\* The lab reported that the hydrocarbons did not appear to be diesel.



**PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON FEBRUARY 1, 1995**



**UNOCAL SERVICE STATION #3135**  
 845 - 66TH AVENUE  
 OAKLAND, CALIFORNIA

**FIGURE**  
**4**





<b>MPDS Services</b>	<b>Client Project ID:</b> Unocal #3135, 845 66th Avenue, Oakland	<b>Sampled:</b> Feb 1, 1995
2401 Stanwell Dr., Ste. 400	<b>Matrix Descript:</b> Water	<b>Received:</b> Feb 1, 1995
Concord, CA 94520	<b>Analysis Method:</b> EPA 5030/8015/8020	<b>Reported:</b> Feb 17, 1995
<b>Attention: Avo Avedissian</b>	<b>First Sample #:</b> 502-0137	

**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
502-0137	MW 1	120	1.7	ND	ND	ND
502-0138	MW 2	9,300	300	210	630	2,600
502-0139	MW 3	100*	ND	ND	ND	ND
502-0140	MW 4	ND	ND	ND	ND	ND
502-0141	MW 5	ND	ND	ND	ND	ND
502-0142	MW 6	55,000	7,700	9,100	4,500	20,000
502-0143	MW 7	ND	ND	ND	ND	ND
502-0144	MW 8	ND	ND	ND	ND	ND
502-0145	MW 9	ND	ND	ND	ND	ND
502-0146	MW 10	560*	ND	ND	ND	ND

\* Hydrocarbons detected did not appear to be gasoline.

<b>Detection Limits:</b>	<b>50</b>	<b>0.50</b>	<b>0.50</b>	<b>0.50</b>	<b>0.50</b>
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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. 400 Concord, CA 94520 Attention: Avo Avedissian	Client Project ID: Unocal #3135, 845 66th Avenue, Oakland Matrix Descript: Water Analysis Method: EPA 5030/8015/8020 First Sample #: 502-0137	Sampled: Feb 1, 1995 Received: Feb 1, 1995 Reported: Feb 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
502-0137	MW 1	Gasoline	1.0	2/7/95	HP-5	93
502-0138	MW 2	Gasoline	20	2/7/95	HP-4	81
502-0139	MW 3	Discrete Peak*	1.0	2/7/95	HP-4	95
502-0140	MW 4	--	1.0	2/8/95	HP-2	94
502-0141	MW 5	--	1.0	2/7/95	HP-4	89
502-0142	MW 6	Gasoline	100	2/8/95	HP-2	105
502-0143	MW 7	--	1.0	2/7/95	HP-4	92
502-0144	MW 8	--	1.0	2/7/95	HP-4	87
502-0145	MW 9	--	1.0	2/3/95	HP-4	95
502-0146	MW 10	Discrete Peak*	5.0	2/3/95	HP-2	104

**SEQUOIA ANALYTICAL, #1271**

Signature on File

Alan B. Kemp  
Project Manager

Please Note:  
\* "Discrete Peak" refers to an unidentified peak in the MTBE range.





MPDS Services	Client Project ID: Unocal #3135, 845 66th Avenue, Oakland	Sampled: Feb 1, 1995
2401 Stanwell Dr., Ste. 400	Sample Matrix: Water	Received: Feb 1, 1995
Concord, CA 94520	Analysis Method: EPA 3510/3520/8015	Reported: Feb 17, 1995
Attention: Avo Avedissian	First Sample #: 502-0137	

**TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS**

Analyte	Reporting Limit µg/L	Sample I.D. 502-0137 MW 1	Sample I.D. 502-0138 MW 2*	Sample I.D. 502-0139 MW 3	Sample I.D. 502-0140 MW 4	Sample I.D. 502-0141 MW 5	Sample I.D. 502-0142 MW 6^
Extractable Hydrocarbons	50	N.D.	1,800	N.D.	N.D.	N.D.	2,700
Chromatogram Pattern:		--	Unidentified Hydrocarbons <C16 & >C20	--	--	--	Diesel and Unidentified Hydrocarbons <C16 & >C20

**Quality Control Data**

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Extracted:	2/3/95	2/3/95	2/3/95	2/3/95	2/3/95	2/3/95
Date Analyzed:	2/7/95	2/7/95	2/7/95	2/7/95	2/7/95	2/7/95
Instrument Identification:	HP-3A	HP-3A	HP-3A	HP-3A	HP-3A	HP-3A

Extractable Hydrocarbons are quantitated against a fresh diesel standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

**SEQUOIA ANALYTICAL, #1271**

Signature on File

Alan B. Kemp  
Project Manager

Please Note:  
 \* This sample does not appear to contain diesel. "Unidentified Hydrocarbons <C16" are probably gasoline; ">C20" refers to unidentified peaks in the total oil and grease range.  
 ^ This sample appears to contain diesel and non-diesel mixtures. "Unidentified Hydrocarbons <C16" are probably gasoline; ">C20" refers to unidentified peaks in the total oil and grease range.





<b>MPDS Services</b>	<b>Client Project ID:</b> Unocal #3135, 845 66th Avenue, Oakland	<b>Sampled:</b> Feb 1, 1995
2401 Stanwell Dr., Ste. 400	<b>Sample Matrix:</b> Water	<b>Received:</b> Feb 1, 1995
Concord, CA 94520	<b>Analysis Method:</b> EPA 3510/3520/8015	<b>Reported:</b> Feb 17, 1995
Attention: Avo Avedissian	<b>First Sample #:</b> 502-0143	

**TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS**

Analyte	Reporting Limit µg/L	Sample I.D. 502-0143 MW 7	Sample I.D. 502-0144 MW 8	Sample I.D. 502-0145 MW 9*	Sample I.D. 502-0146 MW 10*
Extractable Hydrocarbons	50	N.D.	N.D.	65	72
Chromatogram Pattern:		--	--	Unidentified Hydrocarbons >C20	Unidentified Hydrocarbons >C20

**Quality Control Data**

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0
Date Extracted:	2/3/95	2/3/95	2/3/95	2/3/95
Date Analyzed:	2/7/95	2/7/95	2/7/95	2/7/95
Instrument Identification:	HP-3A	HP-3A	HP-3A	HP-3A

Extractable Hydrocarbons are quantitated against a fresh diesel standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

**SEQUOIA ANALYTICAL, #1271**

Signature on File  
Alan B. Kemp  
Project Manager

**Please Note:**  
\* This sample does not appear to contain diesel. "Unidentified Hydrocarbons >C20" refers to unidentified peaks in the total oil and grease range.





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

Client Project ID: Unocal #3135, 845 66th Avenue, Oakland  
 Matrix: Liquid

QC Sample Group: 5020137-146

Reported: Feb 21, 1995

**QUALITY CONTROL DATA REPORT**

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
<b>Method:</b>	EPA 8020	EPA 8020	EPA 8020	EPA 8020
<b>Analyst:</b>	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha

MS/MSD	Benzene	Toluene	Ethyl Benzene	Xylenes
<b>Batch#:</b>	5020129	5020129	5020129	5020129
<b>Date Prepared:</b>	2/7/95	2/7/95	2/7/95	2/7/95
<b>Date Analyzed:</b>	2/7/95	2/7/95	2/7/95	2/7/95
<b>Instrument I.D.#:</b>	HP-5	HP-5	HP-5	HP-5
<b>Conc. Spiked:</b>	20 µg/L	20 µg/L	20 µg/L	60 µg/L
<b>Matrix Spike % Recovery:</b>	100	105	105	102
<b>Matrix Spike Duplicate % Recovery:</b>	105	105	110	107
<b>Relative % Difference:</b>	4.9	0.0	4.7	4.8

LCS Batch#:	3LCS020795	3LCS020795	3LCS020795	3LCS020795
<b>Date Prepared:</b>	2/7/95	2/7/95	2/7/95	2/7/95
<b>Date Analyzed:</b>	2/7/95	2/7/95	2/7/95	2/7/95
<b>Instrument I.D.#:</b>	HP-5	HP-5	HP-5	HP-5
<b>LCS % Recovery:</b>	110	115	116	114

% 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. 400 Concord, CA 94520 Attention: Avo Avedissian	Client Project ID: Unocal #3135, 845 66th Avenue, Oakland Matrix: Liquid QC Sample Group: 5020137-146	Reported: Feb 21, 1995
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**QUALITY CONTROL DATA REPORT**

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
<b>Method:</b>	EPA 8020	EPA 8020	EPA 8020	EPA 8020
<b>Analyst:</b>	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha

<b>MS/MSD Batch#:</b>	5020126	5020126	5020126	5020126
<b>Date Prepared:</b>	2/7/95	2/7/95	2/7/95	2/7/95
<b>Date Analyzed:</b>	2/7/95	2/7/95	2/7/95	2/7/95
<b>Instrument I.D.#:</b>	HP-4	HP-4	HP-4	HP-4
<b>Conc. Spiked:</b>	20 µg/L	20 µg/L	20 µg/L	60 µg/L
<b>Matrix Spike % Recovery:</b>	80	90	95	97
<b>Matrix Spike Duplicate % Recovery:</b>	80	90	95	97
<b>Relative % Difference:</b>	0.0	0.0	0.0	0.0

<b>LCS Batch#:</b>	2LCS020795	2LCS020795	2LCS020795	2LCS020795
<b>Date Prepared:</b>	2/7/95	2/7/95	2/7/95	2/7/95
<b>Date Analyzed:</b>	2/7/95	2/7/95	2/7/95	2/7/95
<b>Instrument I.D.#:</b>	HP-4	HP-4	HP-4	HP-4
<b>LCS % Recovery:</b>	85	95	99	101

<b>% Recovery Control Limits:</b>	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. 400 Concord, CA 94520 Attention: Avo Avedissian	Client Project ID: Unocal #3135, 845 66th Avenue, Oakland Matrix: Liquid QC Sample Group: 5020137-146	Reported: Feb 21, 1995
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**QUALITY CONTROL DATA REPORT**

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
<b>Method:</b>	EPA 8020	EPA 8020	EPA 8020	EPA 8020
<b>Analyst:</b>	A. Tuzon	A. Tuzon	A. Tuzon	A. Tuzon

<b>MS/MSD Batch#:</b>	5020188	5020188	5020188	5020188
<b>Date Prepared:</b>	2/8/95	2/8/95	2/8/95	2/8/95
<b>Date Analyzed:</b>	2/8/95	2/8/95	2/8/95	2/8/95
<b>Instrument I.D.#:</b>	HP-2	HP-2	HP-2	HP-2
<b>Conc. Spiked:</b>	20 µg/L	20 µg/L	20 µg/L	60 µg/L
<b>Matrix Spike % Recovery:</b>	120	120	120	128
<b>Matrix Spike Duplicate % Recovery:</b>	120	120	125	133
<b>Relative % Difference:</b>	0.0	0.0	4.1	3.8

<b>LCS Batch#:</b>	1LCS020895	1LCS020895	1LCS020895	1LCS020895
<b>Date Prepared:</b>	2/8/95	2/8/95	2/8/95	2/8/95
<b>Date Analyzed:</b>	2/8/95	2/8/95	2/8/95	2/8/95
<b>Instrument I.D.#:</b>	HP-2	HP-2	HP-2	HP-2
<b>LCS % Recovery:</b>	102	103	112	110

<b>% Recovery Control Limits:</b>	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. 400  
Concord, CA 94520  
Attention: Avo Avedissian

Client Project ID: Unocal #3135, 845 66th Avenue, Oakland  
Matrix: Liquid

QC Sample Group: 5020137-146

Reported: Feb 21, 1995

**QUALITY CONTROL DATA REPORT**

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
<b>Method:</b>	EPA 8020	EPA 8020	EPA 8020	EPA 8020
<b>Analyst:</b>	M. Creusere	M. Creusere	M. Creusere	M. Creusere

**MS/MSD**

<b>Batch#:</b>	5011403	5011403	5011403	5011403
<b>Date Prepared:</b>	2/3/95	2/3/95	2/3/95	2/3/95
<b>Date Analyzed:</b>	2/3/95	2/3/95	2/3/95	2/3/95
<b>Instrument I.D.#:</b>	HP-4	HP-4	HP-4	HP-4
<b>Conc. Spiked:</b>	20 µg/L	20 µg/L	20 µg/L	60 µg/L
<b>Matrix Spike % Recovery:</b>	80	90	90	93
<b>Matrix Spike Duplicate % Recovery:</b>	80	90	90	92
<b>Relative % Difference:</b>	0.0	0.0	0.0	1.1

<b>LCS Batch#:</b>	2LCS020395	2LCS020395	2LCS020395	2LCS020395
<b>Date Prepared:</b>	2/3/95	2/3/95	2/3/95	2/3/95
<b>Date Analyzed:</b>	2/3/95	2/3/95	2/3/95	2/3/95
<b>Instrument I.D.#:</b>	HP-4	HP-4	HP-4	HP-4
<b>LCS % Recovery:</b>	74	97	101	102

<b>% Recovery Control Limits:</b>	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. 400 Concord, CA 94520 Attention: Avo Avedissian	Client Project ID: Unocal #3135, 845 66th Avenue, Oakland Matrix: Liquid QC Sample Group: 5020137-146	Reported: Feb 21, 1995
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**QUALITY CONTROL DATA REPORT**

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel
<b>Method:</b>	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015 Mod
<b>Analyst:</b>	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha	K. Wimer

<b>MS/MSD Batch#:</b>	5020088	5020088	5020088	5020088	BLK020395
<b>Date Prepared:</b>	2/3/95	2/3/95	2/3/95	2/3/95	2/3/95
<b>Date Analyzed:</b>	2/3/95	2/3/95	2/3/95	2/3/95	2/7/95
<b>Instrument I.D.#:</b>	HP-2	HP-2	HP-2	HP-2	HP-3B
<b>Conc. Spiked:</b>	20 µg/L	20 µg/L	20 µg/L	60 µg/L	300 µg/L
<b>Matrix Spike % Recovery:</b>	100	100	100	103	79
<b>Matrix Spike Duplicate % Recovery:</b>	100	100	105	112	85
<b>Relative % Difference:</b>	0.0	0.0	4.9	8.4	7.3

<b>LCS Batch#:</b>	1LCS020395	1LCS020395	1LCS020395	1LCS020395	BLK020395
<b>Date Prepared:</b>	2/3/95	2/3/95	2/3/95	2/3/95	2/3/95
<b>Date Analyzed:</b>	2/3/95	2/3/95	2/3/95	2/3/95	2/7/95
<b>Instrument I.D.#:</b>	HP-2	HP-2	HP-2	HP-2	HP-3B
<b>LCS % Recovery:</b>	80	94	98	105	79

<b>% Recovery Control Limits:</b>	71-133	72-128	72-130	71-120	28-122
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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			UNOCAL					ANALYSES REQUESTED							TURN AROUND TIME:	
RAY MARANGOSIAN			S/S # <u>3135</u> CITY: <u>OAKLAND</u>					TPH-GAS BTEX	TPH- DIESEL	TOG	8010					REGULAR
			ADDRESS: <u>845 66TH AVE</u>													
SAMPLE ID NO.	DATE	TIME	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION									
MW1	2-1-95	11:45	X	X		3	Well	X	X					5020127	A-C	
MW2	4	14:30	X	X		4	4	X	X					5020128	5020127 5020128 5020129 5020140 5020141 5020142 5020143 5020144 5020145 5020146 ↓	
MW3	4	11:10	X	X		4	4	X	X					5020129		
MW4	4	12:10	X	X		4	4	X	X					5020140		
MW5	4	10:00	X	X		4	4	X	X					5020141		
MW6	4	15:10	X	X		4	4	X	X					5020142		
MW7	4	10:35	X	X		4	4	X	X					5020143		
MW8	4	13:40	X	X		4	4	X	X					5020144		
MW9	4	13:10	X	X		4	4	X	X					5020145		
MW10	4	12:45	X	X		4	4	X	X					5020146		
RELINQUISHED BY:		DATE/TIME		RECEIVED BY:			DATE/TIME		THE FOLLOWING <u>MUST</u> BE COMPLETED BY THE LABORATORY ACCEPTING SAMPLES FOR ANALYSES:							
<i>Ray</i>		17:10		<i>Dim</i>			2/1/95		1. HAVE ALL SAMPLES RECEIVED FOR ANALYSIS BEEN STORED ON ICE? <u>yes</u>							
<i>Kindale</i>		2-1-95		<i>Dim</i>			17:10		2. WILL SAMPLES REMAIN REFRIGERATED UNTIL ANALYZED? <u>yes</u>							
<i>Kindale</i>		2/2/95		<i>Dim</i>			12:22		3. DID ANY SAMPLES RECEIVED FOR ANALYSIS HAVE HEAD SPACE? <u>NO</u>							
<i>Kindale</i>		8:00AM		<i>Dim</i>			1:30		4. WERE SAMPLES IN APPROPRIATE CONTAINERS AND PROPERLY PACKAGED? <u>yes</u>							
<i>Kindale</i>		2-2		<i>Dim</i>			2/2/95		SIGNATURE: <i>Dim</i> TITLE: Analyst DATE: 2/1/95							

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.