

MPDS
SERVICES, INCORPORATED

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HAZMAT
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May 3, 1994

Ms. Juliet Shin
Alameda County Health Care Services
80 Swan Way, Room 200
Oakland, CA 94261

RE: Unocal Service Station #5760
376 Lewelling Boulevard
San Lorenzo, California

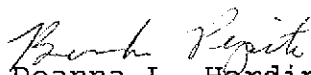
Dear Ms. Shin:

Per the request of the Unocal Corporation Project Manager, Ms. Tina R. Berry, enclosed please find our report (MPDS-UN5760-02) dated April 20, 1994, 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) 277-2321.

Sincerely,

MPDS Services, Inc.

cur: 
Deanna L. Harding
Technical Assistant

/bp

Enclosure

cc: Ms. Tina R. Berry

MPDS

SERVICES, INCORPORATED

MPDS-UN5760-02
April 20, 1994

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

Attention: Ms. Tina R. Berry (510) 277-2321

RE: Quarterly Data Report
Unocal Station Service #5760
376 Lewelling Boulevard
San Lorenzo, California

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 direction during the most recent quarter is shown on the attached Figure 1.

Ground water samples were collected on March 9, 1994. As shown in Table 3, the analytical results of the ground water samples collected on March 9, 1994, from monitoring wells U-2, U-4, U-5, U-7, U-8, and U-9 were inconsistent with the recent analytical results for these wells. Therefore, MPDS Services, Inc. resampled these monitoring wells on April 13, 1994. Prior to sampling, the wells were each purged of between 8 and 20 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.

DISTRIBUTION

A copy of this report should be sent to Ms. Juliet Shin of the Alameda County Health Care Services Agency, and Mr. Richard Hiatt of the Regional Water Quality Control Board, San Francisco Bay Region.

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

Sincerely,

MPDS Services, Inc.

Talin Kaloustian
Staff Engineer

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

License No. EG 1633
Exp. Date 6/30/94

/dlh

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

cc: Mr. Cliff Garratt, GeoStrategies, Inc.

TABLE 1

SUMMARY OF MONITORING DATA

Well #	Ground Water Elevation (feet)	Depth to Water (feet) ♦	Product Thickness (feet)	Sheen	Water Purged (gallons)	Total Well Depth (feet) ♦
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(Monitored and Resampled on April 13, 1994)

U-2	23.08	18.18	0	No	18	30.00
U-4	22.81	17.44	0	No	16	27.90
U-5	22.67	16.64	0	No	8	28.29
U-7	22.48	14.63	0	No	14	35.10
U-8	22.77	15.80	0	No	10	29.80
U-9	22.35	14.96	0	No	9	28.17

See map and wells

(Monitored and Sampled on March 9, 1994)

U-1	23.00	17.20	0	No	20	30.10
U-2	23.21	18.05	0	No	18	29.91
U-3	22.91	16.35	0	No	13	24.98
U-4	22.95	17.30	0	No	16	27.80
U-5	22.86	16.45	0	No	8	28.20
U-6	22.78	14.90	0	No	9	28.01
U-7	22.66	14.45	0	No	14	35.00
U-8	22.95	15.62	0	No	10	29.59
U-9	22.57	14.74	0	No	9.5	28.10

(Monitored and Sampled on December 2, 1993)

U-1*	21.84	18.36	<0.01	N/A	0	29.93
U-2	22.03	19.23	0	No	16	29.87
U-3	21.71	17.55	0	No	12	25.03
U-4	21.79	18.46	0	No	14	27.85
U-5	21.65	17.66	0	No	8	28.26
U-6	21.60	16.08	0	No	8.5	28.05
U-7	21.50	15.61	0	No	14	35.20
U-8	21.77	16.80	0	No	9	29.77
U-9	21.38	15.93	0	No	8.5	28.18

TABLE 1 (Continued)

SUMMARY OF MONITORING DATA

Well #	Ground Water Elevation (feet)	Depth to Water (feet)◆	Product Thickness (feet)	Sheen	Water Purged (gallons)	Total Well Depth (feet)◆
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(Monitored and Sampled on September 9, 1993)

U-1	22.74	17.77	0			
U-2	22.94	18.68	0			
U-3	22.60	17.04	0			
U-4	23.64	16.89	0			
U-5	22.71	16.90	0			
U-6	22.38	15.56	0			
U-7	22.26	15.23	0			
U-8	22.56	16.38	0			
U-9	22.09	15.79	0			

(Monitored and Sampled on June 4, 1993)

U-1	23.79	16.72	0			
U-2	24.03	17.59	0			
U-3	24.16	15.48	0			
U-4	23.80	16.73	0			
U-5	23.56	16.05	0			
U-6	23.49	14.45	0			
U-7	23.32	14.17	0			
U-8	23.68	15.26	0			
U-9	23.21	14.67	0			

Well #	Well Cover Elevation (feet)**	Well Casing Elevation (feet)***
U-1	40.51	40.20
U-2	41.62	41.26
U-3	39.64	39.26
U-4	40.53	40.25
U-5	39.61	39.31
U-6	37.94	37.68
U-7	37.49	37.11
U-8	38.94	38.57
U-9	37.88	37.31

TABLE 1 (Continued)

SUMMARY OF MONITORING DATA

◆ The depth to water level and total depth measurements were taken from the top of the well casings. Prior to December 2, 1993, the depth to water level and total well depth measurements were taken from the top of the well covers.

* Monitored only.

** The elevation of the top of the well covers have been surveyed relative to Mean Sea Level (MSL).

*** Relative to MSL.

N/A = Not Applicable.

Note: Monitoring data prior to December 2, 1993, were provided by GeoStrategies, Inc.

TABLE 2

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

Well #	Gallons per Casing Volume	Time	Gallons Purged	Casing Volumes Purged	Temperature (°F)	Conductivity ([μmhos/cm] x100)	pH
(Measured on April 13, 1994)							
U-2	4.37	11:15	0	0	77.6	9.72	7.64
			4.5	1.03	69.5	7.71	7.99
			9	2.06	69.0	7.08	7.80
			13.5	3.09	69.0	6.96	7.60
			18	4.12	69.0	6.96	7.19
		11:33					
U-4	3.87	12:40	0	0	77.8	15.40	7.63
			4	1.03	73.8	16.97	7.50
			8	2.07	73.7	16.97	7.40
			12	3.10	73.3	16.97	7.30
			16	4.13	73.3	16.94	7.29
		12:48					
U-5	1.98	13:15	0	0	78.9	17.30	7.80
			2	1.01	74.6	16.71	7.65
			4	2.02	72.8	16.59	7.50
			6	3.03	72.5	17.06	7.40
			8	4.04	72.5	17.15	7.35
		13:20					
U-7	3.48	10:30	0	0	68.1	9.24	7.70
			3.5	1.01	67.9	9.49	7.53
			7	2.01	67.7	9.53	7.16
			10.5	3.02	67.8	9.58	7.15
			14	4.02	68.0	9.61	7.15
		10:40					
U-8	2.38	9:50	0	0	59.8	8.56	7.90
			2.5	1.05	65.2	9.53	7.66
			5	2.10	66.8	9.74	7.51
			7.5	3.15	67.3	9.80	7.42
			10	4.20	67.5	9.77	7.36
		10:00					
U-9	2.25	12:00	0	0	76.3	10.05	7.85
			2.5	1.11	71.7	11.99	7.60
			5	2.22	70.4	12.24	7.40
			7.5	3.33	70.1	12.26	7.33
			9	4.00	70.1	12.32	7.33
		12:10					

TABLE 2 (Continued)

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

Well #	Gallons per Casing Volume	Time	Gallons Purged	Casing Volumes Purged	Temperature (°F)	Conductivity ([μmhos/cm] x100)	pH
(Measured on March 9, 1994)							
U-1	4.77	15:15	0	0	68.5	9.46	7.86
			5	1.05	69.0	9.48	7.37
			10	2.10	68.6	10.12	7.16
			15	3.14	68.7	10.34	7.21
			20	4.19	68.9	10.53	7.17
U-2	4.39	9:40	0	0	63.8	7.72	7.07
			4.5	1.03	64.8	6.36	7.41
			9	2.05	64.6	5.67	7.45
			13.5	3.08	64.6	5.54	7.44
			18	4.10	65.2	5.49	7.44
U-3	3.19	14:40	0	0	70.7	14.26	7.51
			3	0.94	70.3	14.21	7.15
			6	1.88	70.6	14.44	6.94
			9	2.82	70.5	14.32	6.82
			13	4.08	70.3	14.23	6.86
U-4	3.89	10:20	0	0	67.6	15.72	7.29
			4	1.03	67.1	15.93	7.25
			8	2.06	67.9	16.10	7.11
			12	3.08	68.3	15.99	7.01
			16	4.11	68.5	15.08	7.10
U-5	2.00	11:20	0	0	65.7	14.50	7.55
			2	1.00	68.6	14.84	7.42
			4	2.00	68.5	15.34	7.40
			6	3.00	69.1	15.75	7.28
			8	4.00	69.1	15.85	7.20
U-6	2.23	14:00	0	0	68.0	9.94	8.19
			2.25	1.01	68.3	10.39	7.50
			4.50	2.02	68.6	10.47	7.34
			6.75	3.03	68.1	10.48	7.40
			9.00	4.04	68.9	10.55	7.28

TABLE 2 (Continued)

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

Well #	Gallons per Casing Volume	Time	Gallons Purged	Casing Volumes Purged	Temper- ature (°F)	Conductivity ([μmhos/cm] x100)	pH
(Measured on March 9, 1994 - Continued)							
U-7	3.49	12:00	0	0	64.5	8.02	8.00
			3.5	1.00	65.2	8.18	7.64
			7	2.01	65.1	8.09	7.55
			10.5	3.01	65.3	8.24	7.53
			14	4.01	65.2	8.19	7.54
U-8	2.37	12:45	0	0	64.1	9.13	7.90
			2.5	1.05	65.2	9.32	7.61
			5	2.11	65.6	9.30	7.55
			7.5	3.16	65.6	9.34	7.45
			10	4.22	65.4	9.28	7.43
U-9	2.27	13:25	0	0	66.9	11.05	7.85
			2.5	1.10	67.2	11.14	7.61
			5	2.20	67.6	11.58	7.37
			7.5	3.30	67.7	11.91	7.25
			9.5	4.19	67.8	11.88	7.27

TABLE 3

**SUMMARY OF LABORATORY ANALYSES
WATER**

Date	Well #	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes
4/13/94 <i>Re-sampled wells that are normally ND</i>	U-2	ND	ND	ND	ND	ND
	U-4	ND	ND	ND	ND	ND
	U-5	ND	ND	ND	ND	ND
	U-7	ND	ND	ND	ND	ND
	U-8	ND	ND	0.78	ND	0.98
	U-9	ND	ND	ND	ND	ND
3/09/94	U-1	45,000	930	4,100	2,000	11,000
	U-2	62	1.1	5.4	1.1	9.7
	U-3	120,000	4,500	8,300	5,600	28,000
	U-4	ND	1.4	4.7	1.1	8.1
	U-5	71	1.7	6.3	1.5	10
	U-6	2,200	11	8.2	24	16
	U-7	ND	1.4	4.4	0.96	7.5
	U-8	ND	1.2	3.7	0.79	6.1
	U-9	5,700*	ND	ND	ND	ND
12/02/93	U-1	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT				
	U-2	ND	ND	ND	ND	ND
	U-3	110,000	3,200	7,700	5,600	26,000
	U-4	ND	ND	ND	ND	2.6
	U-5	ND	ND	ND	ND	ND
	U-6	2,100	12	1.6	21	1.1
	U-7	ND	ND	ND	ND	ND
	U-8	ND	ND	ND	ND	ND
	U-9	ND	ND	ND	ND	ND
9/09/93	U-1	67,000	2,900	18,000	6,200	32,000
	U-2	ND	ND	ND	ND	ND
	U-3	110,000	2,800	10,000	6,500	31,000
	U-4	ND	ND	ND	ND	ND
	U-5	ND	ND	ND	ND	ND
	U-6	6,300♦♦	29	ND	120	34
	U-7	ND	ND	ND	ND	ND
	U-8	ND	ND	ND	ND	ND
	U-9	1,200♦	ND	ND	ND	ND

TABLE 3 (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>
6/04/93	U-1	35,000	1,300	5,700	900	9,200
	U-2	ND	ND	ND	ND	ND
	U-3	92,000	2,900	8,700	4,300	20,000
	U-4	ND	ND	ND	ND	ND
	U-5	ND	ND	ND	ND	ND
	U-6	13,000	100	38	450	320
	U-7	ND	ND	ND	ND	ND
	U-8	ND	ND	ND	ND	ND
	U-9	2,100	ND	ND	ND	ND
2/12/93	U-1	70,000	2,200	8,400	3,100	18,000
	U-2	ND	ND	ND	ND	ND
	U-3	80,000	3,700	9,400	3,700	18,000
	U-4	ND	ND	ND	ND	ND
	U-5	ND	ND	ND	ND	ND
	U-6	2,600	27	ND	120	51
	U-7	ND	ND	ND	ND	ND
	U-8	ND	ND	ND	ND	ND
11/20/92	U-1	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT				
	U-2	ND	ND	ND	ND	ND
	U-3	50,000	3,200	4,700	1,900	10,000
	U-4	ND	ND	2.5	ND	ND
	U-5	ND	ND	ND	ND	ND
	U-6	WELL WAS INACCESSIBLE				
	U-7	ND	ND	ND	ND	ND
8/06/92	U-1	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT				
	U-2	ND	ND	ND	ND	ND
	U-3	140,000	5,100	13,000	5,000	23,000
	U-4	ND	ND	ND	ND	ND
	U-5	ND	ND	ND	ND	ND
	U-6	9,200	160	ND	360	150
	U-7	ND	ND	ND	ND	ND
	U-8	ND	ND	ND	ND	ND

TABLE 3 (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>
4/07/92	U-1	**	**	**	**	**
	U-2	ND	ND	ND	ND	ND
	U-3	97,000	6,100	16,000	5,400	28,000
	U-4	ND	ND	ND	ND	ND
	U-5	ND	ND	ND	ND	ND
	U-6	6,600	90	ND	820	1,200
	U-7	ND	ND	ND	ND	ND
	U-8	ND	ND	ND	ND	ND
3/05/92	U-1	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT				
	U-2	ND	ND	0.36	ND	ND
	U-3	160,000	5,300	15,000	5,400	26,000
	U-4	ND	ND	ND	ND	ND
12/04/91	U-1	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT				
	U-2	ND	ND	ND	ND	ND
	U-3	75,000	2,500	6,100	1,900	11,000
	U-4	ND	ND	ND	ND	ND
9/19/91	U-1	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT				
	U-2	ND	ND	ND	ND	ND
	U-3	61,000	3,300	9,700	2,800	15,000
	U-4	ND	ND	ND	ND	ND
6/03/91	U-1	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT				
	U-2	ND	ND	ND	ND	ND
	U-3	130,000	5,800	19,000	4,600	24,000
	U-4	ND	ND	ND	ND	ND
3/04/91	U-1	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT				
	U-2	ND	ND	0.9	ND	2.6
	U-3	84,000	1,400	10,000	2,900	17,000
	U-4	ND	ND	ND	ND	ND
1/18/91	U-3	51,000	1,700	3,100	1,500	7,500
	U-4	ND	ND	ND	ND	ND

TABLE 3 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Well #	TPH as Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes
12/05/90	U-1	NOT SAMPLED DUE TO THE PRESENCE OF FREE PRODUCT				
	U-2	ND	ND	ND	ND	ND
	U-3	69,000	1,900	3,500	1,600	9,800
	U-4	ND	ND	ND	ND	ND
8/24/90	U-1	27,000	1,200	1,800	1,400	5,500
8/23/90	U-2	ND	ND	ND	ND	ND
	U-3	110,000	4,400	13,000	2,800	17,000
	U-4	ND	ND	1.0	ND	1.8
6/05/90	U-1	46,000	2,300	5,500	2,500	11,000
3/20/90	U-1	36,000	2,100	5,500	1,900	9,300
2/09/88	U-1	93,000	3,600	11,000	***	20,000

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

** Product Skimmer installed in well

*** Ethylbenzene and xylenes were combined prior to March 1990.

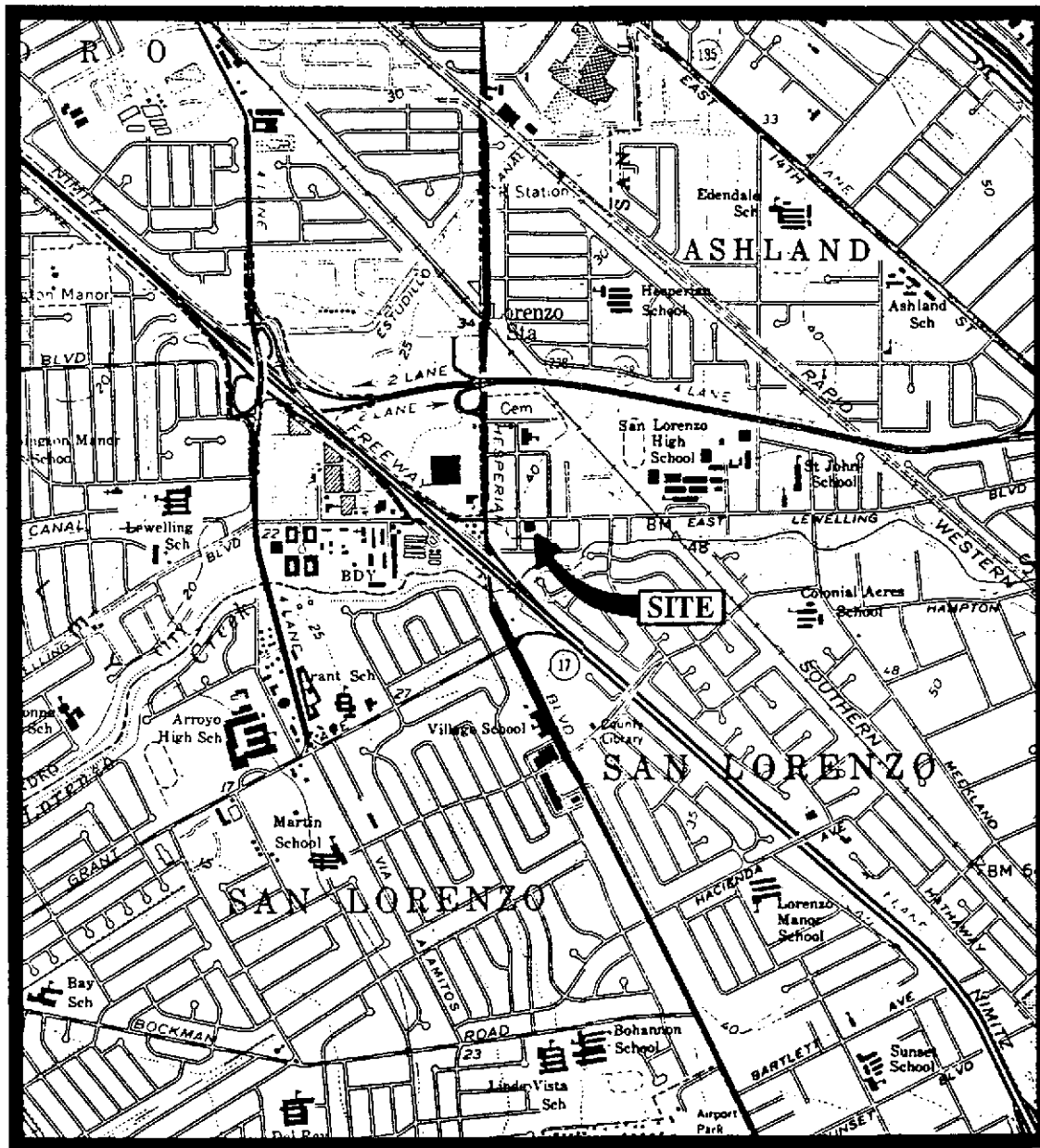
◆ The concentration reported as gasoline is primarily due to the presence of a discrete hydrocarbon peak not indicative of standard gasoline.

◆◆ The concentration reported as gasoline is primarily due to the presence of a combination of gasoline and a discrete peak not indicative of gasoline.

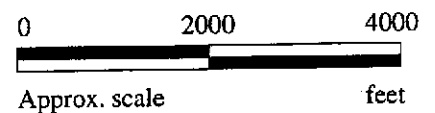
ND = Non-detectable.

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

Notes: Laboratory analyses data prior to December 2, 1993, were provided by GeoStrategies, Inc.



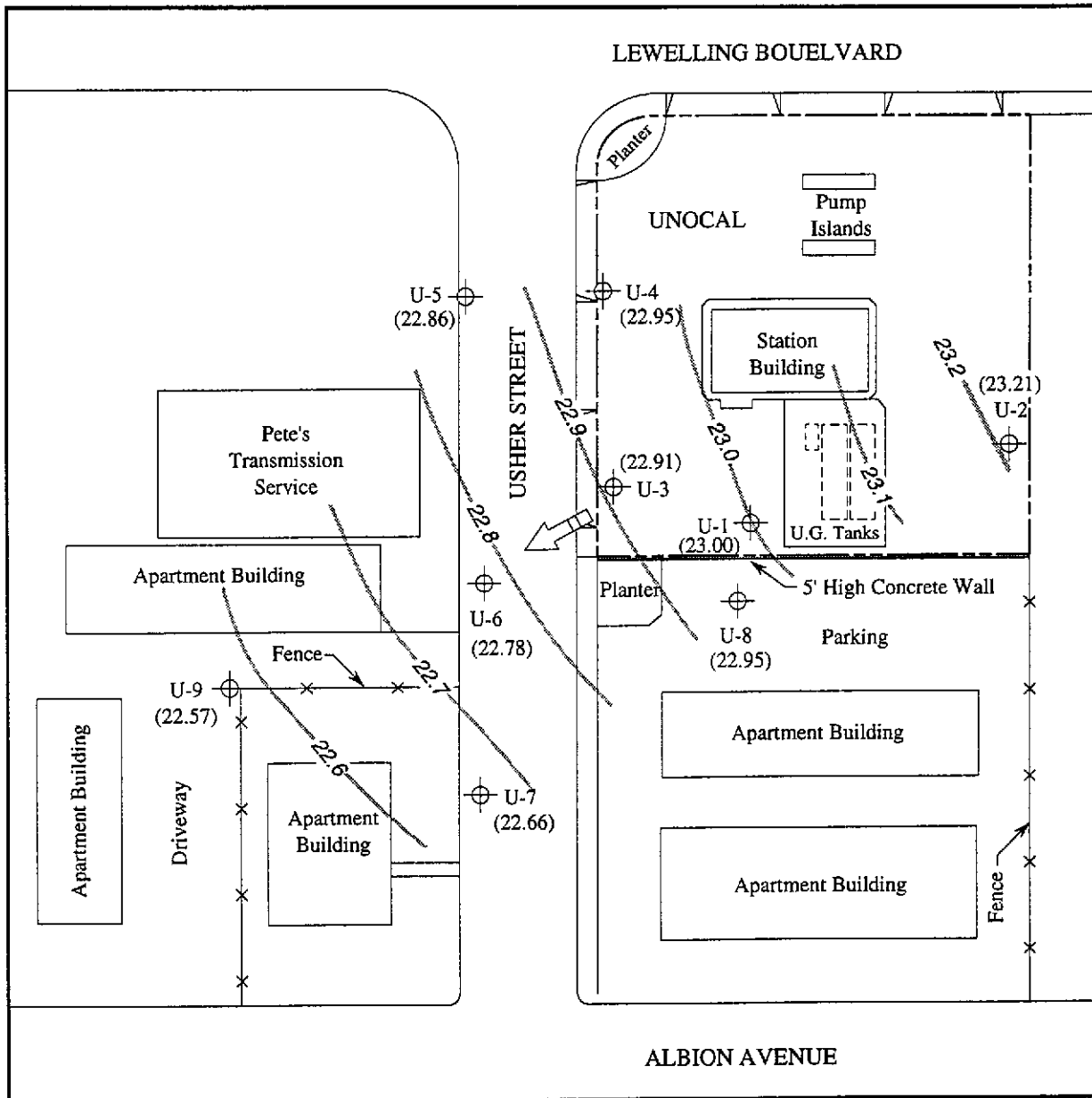
Base modified from 7.5 minute U.S.G.S.
Hayward and San Leandro Quadrangles
(both photorevised 1980)





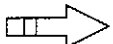

MPDS
SERVICES, INCORPORATED

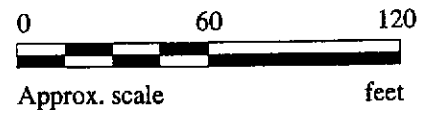
UNOCAL SERVICE STATION #5760
376 LEWELLING BOULEVARD
SAN LORENZO, CALIFORNIA

**LOCATION
MAP**



LEGEND

-  Monitoring well
-  Ground water elevation in feet above Mean Sea Level
-  Direction of ground water flow
-  Contours of ground water elevation

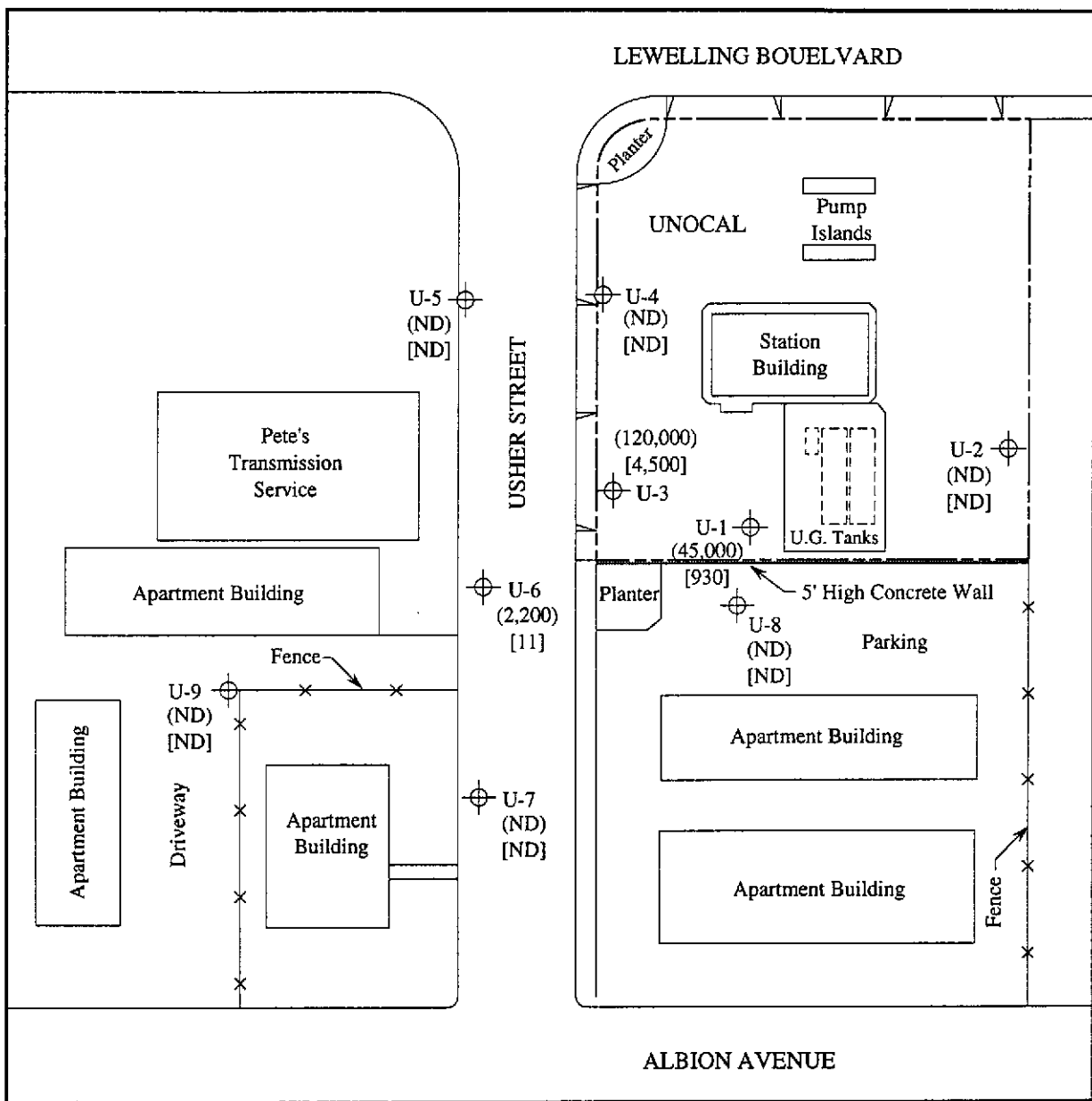


POTENTIOMETRIC SURFACE MAP FOR THE MARCH 9, 1994 MONITORING EVENT

MPDS
 SERVICES, INC.

UNOCAL SERVICE STATION #5760
376 LEWELLING BOULEVARD
SAN LORENZO, CALIFORNIA

FIGURE
1



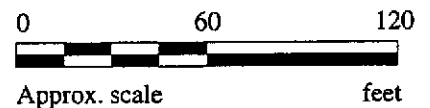
LEGEND

⊕ Monitoring well

() Concentration of TPH as gasoline in $\mu\text{g/L}$

[] Concentration of benzene in $\mu\text{g/L}$

ND = Non-detectable



PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON MARCH 9 AND APRIL 13, 1994

MPDS
SERVICES, INC.

UNOCAL SERVICE STATION #5760
376 LEWELLING BOULEVARD
SAN LORENZO, CALIFORNIA

FIGURE
2



M P D S Services	Client Project ID: Unocal 5760, San Lorenzo	Sampled: Apr 13, 1994
2401 Stanwell Drive, Suite 400	Sample Matrix: Water	Received: Apr 13, 1994
Concord, CA 94520	Analysis Method: EPA 5030/8015 Mod./8020	Reported: Apr 14, 1994
Attention: Avo Avedessian	First Sample #: 4D73901	

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 4D73901 U2	Sample I.D. 4D73902 U4	Sample I.D. 4D73903 U5	Sample I.D. 4D73904 U7	Sample I.D. 4D73905 U8	Sample I.D. 4D73906 U9
Purgeable Hydrocarbons	50	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Benzene	0.50	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Toluene	0.50	N.D.	N.D.	N.D.	N.D.	0.78	N.D.
Ethyl Benzene	0.50	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Total Xylenes	0.50	N.D.	N.D.	N.D.	N.D.	0.98	N.D.
Chromatogram Pattern:		--	--	--	--	Gas	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	5.0
Date Analyzed:	4/14/94	4/14/94	4/14/94	4/14/94	4/14/94	4/14/94
Instrument Identification:	GCHP-2	GCHP-2	GCHP-2	GCHP-17	GCHP-2	GCHP-3
Surrogate Recovery, %: (QC Limits = 70-130%)	78	78	73	93	73	77

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

SEQUOIA ANALYTICAL


 Suzanne Chin
 Project Manager





M P D S Services Client Project ID: Unocal 5760, San Lorenzo
 2401 Stanwell Drive, Suite 400 Matrix: Liquid
 Concord, CA 94520
 Attention: Avo Avedessian QC Sample Group: 4D73901-03, 05 Reported: Apr 14, 1994

QUALITY CONTROL DATA REPORT

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

MS/MSD				
Batch#:	4D62503	4D62503	4D62503	4D62503
Date Prepared:	-	-	-	-
Date Analyzed:	4/14/94	4/14/94	4/14/94	4/14/94
Instrument I.D.#:	GCHP-2	GCHP-2	GCHP-2	GCHP-2
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Matrix Spike				
% Recovery:	98	97	97	97
Matrix Spike Duplicate % Recovery:	99	98	98	100
Relative % Difference:	1.0	1.0	1.0	3.0

LCS Batch#:	-	-	-	-
Date Prepared:	-	-	-	-
Date Analyzed:	-	-	-	-
Instrument I.D.#:	-	-	-	-
LCS % Recovery:	-	-	-	-

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

Suzanne Chin
 Suzanne Chin
 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.





M P D S Services Client Project ID: Unocal 5760, San Lorenzo
 2401 Stanwell Drive, Suite 400 Matrix: Liquid
 Concord, CA 94520
 Attention: Avo Avedessian QC Sample Group: 4D73904 Reported: Apr 14, 1994

QUALITY CONTROL DATA REPORT

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

MS/MSD				
Batch#:	4D38701	4D38701	4D38701	4D38701
Date Prepared:	-	-	-	-
Date Analyzed:	4/13/94	4/13/94	4/13/94	4/13/94
Instrument I.D.#:	GCHP-17	GCHP-17	GCHP-17	GCHP-17
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Matrix Spike				
% Recovery:	95	93	95	93
Matrix Spike Duplicate %				
Recovery:	98	98	97	97
Relative % Difference:	3.1	5.2	2.1	4.2

LCS Batch#:	-	-	-	-
Date Prepared:	-	-	-	-
Date Analyzed:	-	-	-	-
Instrument I.D.#:	-	-	-	-
LCS % Recovery:	-	-	-	-

% Recovery Control Limits:	71-133	72-128	72-130	71-120
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Please Note:
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SEQUOIA ANALYTICAL

Suzanne Chin
 Project Manager





M P D S Services Client Project ID: Unocal 5760, San Lorenzo
 2401 Stanwell Drive, Suite 400 Matrix: Liquid
 Concord, CA 94520
 Attention: Avo Avedessian QC Sample Group: 4D73906 Reported: Apr 14, 1994

QUALITY CONTROL DATA REPORT

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

MS/MSD				
Batch#:	4D38702	4D38702	4D38702	4D38702
Date Prepared:	-	-	-	-
Date Analyzed:	4/13/94	4/13/94	4/13/94	4/13/94
Instrument I.D.#:	GCHP-3	GCHP-3	GCHP-3	GCHP-3
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Matrix Spike				
% Recovery:	98	98	97	97
Matrix Spike				
Duplicate %				
Recovery:	99	98	96	97
Relative %				
Difference:	1.0	0.0	1.0	0.0

LCS Batch#:	-	-	-	-
Date Prepared:	-	-	-	-
Date Analyzed:	-	-	-	-
Instrument I.D.#:	-	-	-	-
LCS %				
Recovery:	-	-	-	-

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

SEQUOIA ANALYTICAL

Suzanne Chin
 Suzanne Chin
 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.



M P D S Services, Inc.

2401 Stanwell Drive, Suite 400, Concord, CA 94520

Tel: (510) 602-5120 Fax: (510) 689-1918

CHAIN OF CUSTODY

9404739

SAMPLER			UNOCAL					ANALYSES REQUESTED						TURN AROUND TIME:		
RAY MARANGOSIAN			S/S # <u>5760</u> CITY: <u>SAN LORENZO</u>					TPH-GAS BTEX	TPH-DIESEL	TOG	8010					24 HRS
WITNESSING AGENCY			ADDRESS: <u>376 LEWELLING BLVD</u>													
SAMPLE ID NO.	DATE	TIME	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION									
U2	4.13	11:40	x	x		2	well	x		01	A/B					
U4	4	12:55	x	x		4	u	x		02	A/B					
U5	4	13:27	x	x		4	u	x		03	A/B					
U7	4	10:46	x	x		4	u	x		04	A/B					
U8	4	10:05	x	x		4	u	x		05	A/B					
U9	4	12:15	x	x		4	u	x		06	A/B					

RELINQUISHED BY: <i>Ray Marangosian</i>	DATE/TIME 1710 4.13.94	RECEIVED BY:	THE FOLLOWING <u>MUST BE</u> COMPLETED BY THE LABORATORY ACCEPTING SAMPLES FOR ANALYSES:
(SIGNATURE)	(SIGNATURE)	(SIGNATURE)	1. HAVE ALL SAMPLES RECEIVED FOR ANALYSIS BEEN STORED ON ICE? yes
(SIGNATURE)	(SIGNATURE)	(SIGNATURE)	2. WILL SAMPLES REMAIN REFRIGERATED UNTIL ANALYZED? yes
(SIGNATURE)	(SIGNATURE)	(SIGNATURE)	3. DID ANY SAMPLES RECEIVED FOR ANALYSIS HAVE HEAD SPACE? NO
(SIGNATURE)	(SIGNATURE)	(SIGNATURE)	4. WERE SAMPLES IN APPROPRIATE CONTAINERS AND PROPERLY PACKAGED? yes
(SIGNATURE)	(SIGNATURE)	(SIGNATURE) 1710	SIGNATURE: <i>CMS</i> TITLE: DATE: 4/13/94



MPDS Services, Inc. Client Project ID: Unocal #5760, 376 Lewelling Blvd., Sampled: Mar 9, 1994
2401 Stanwell Dr., Ste. 400 Sample Matrix: Water San Lorenzo Received: Mar 9, 1994
Concord, CA 94520 Analysis Method: EPA 5030/8015/8020 Reported: Mar 24, 1994
Attention: Avo Avedissian First Sample #: 403-0568

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Table with 8 columns: Analyte, Reporting Limit (µg/L), Sample I.D. U1-U6, and corresponding concentration values for Purgeable Hydrocarbons, Benzene, Toluene, Ethyl Benzene, Total Xylenes, and Chromatogram Pattern.

Quality Control Data

Table with 7 columns showing quality control metrics: Report Limit Multiplication Factor, Date Analyzed, Instrument Identification, and Surrogate Recovery (%) for samples U1-U6.

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

SEQUOIA ANALYTICAL #1271

Signature of Alan B. Kemp, Project Manager





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

Client Project ID: Unocal #5760, 376 Lewelling Blvd.,
Sample Matrix: Water San Lorenzo
Analysis Method: EPA 5030/8015/8020
First Sample #: 403-0574

Sampled: Mar 9, 1994
Received: Mar 9, 1994
Reported:

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 403-0574 U7	Sample I.D. 403-0575 U8	Sample I.D. 403-0576 U9*	Sample I.D. Matrix Blank
Purgeable Hydrocarbons	50	N.D.	N.D.	5,700	N.D.
Benzene	0.5	1.4	1.2	N.D.	N.D.
Toluene	0.5	4.4	3.7	N.D.	N.D.
Ethyl Benzene	0.5	0.96	0.79	N.D.	N.D.
Total Xylenes	0.5	7.5	6.1	N.D.	N.D.
Chromatogram Pattern:		--	--	Gasoline & Discrete Peak	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	40	1.0
Date Analyzed:	3/20/94	3/20/94	3/21/94	3/20/94
Instrument Identification:	HP-5	HP-5	HP-5	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	93	89	104	113

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

SEQUOIA ANALYTICAL #1271


Alan B. Kemp
Project Manager

Please Note:
*This sample appears to contain gasoline and a discrete peak.
Discrete Peak refers to an unidentified peak in the MTBE Range.





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

Client Project ID: Unocal #5760, 376 Lewelling Blvd., San Lorenzo
Matrix: Liquid

QC Sample Group: 4030568-576

Reported: Mar 24, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	J.F., A.T.	J.F., A.T.	J.F., A.T.	J.F., A.T.

MS/MSD	Benzene	Toluene	Ethyl Benzene	Xylenes
Batch#:	4030543	4030543	4030543	4030543
Date Prepared:	3/20/94	3/20/94	3/20/94	3/20/94
Date Analyzed:	3/20/94	3/20/94	3/20/94	3/20/94
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:	105	100	100	100
Matrix Spike Duplicate % Recovery:	110	105	115	113
Relative % Difference:	4.7	4.9	14	12

LCS Batch#:	1LCS032094	1LCS032094	1LCS032094	1LCS032094
Date Prepared:	3/20/94	3/20/94	3/20/94	3/20/94
Date Analyzed:	3/20/94	3/20/94	3/20/94	3/20/94
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2
LCS % Recovery:	101	100	104	94

% 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


Alan B. Kemp
Project Manager





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

Client Project ID: Unocal #5760, 376 Lewelling Blvd., San Lorenzo
Matrix: Liquid

QC Sample Group: 4030568-576

Reported: Mar 24, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	J.F., A.T.	J.F., A.T.	J.F., A.T.	J.F., A.T.

MS/MSD Batch#:	4030619	4030619	4030619	4030619
Date Prepared:	3/20/94	3/20/94	3/20/94	3/20/94
Date Analyzed:	3/20/94	3/20/94	3/20/94	3/20/94
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:	130	120	110	113
Matrix Spike Duplicate % Recovery:	130	115	100	102
Relative % Difference:	0.0	4.3	9.5	10

LCS Batch#:	3LCS032094	3LCS032094	3LCS032094	3LCS032094
Date Prepared:	3/20/94	3/20/94	3/20/94	3/20/94
Date Analyzed:	3/20/94	3/20/94	3/20/94	3/20/94
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5
LCS % Recovery:	119	111	118	106

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

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SEQUOIA ANALYTICAL, #1271

Alan B. Kemp
Project Manager





MPDS Services, Inc. 2401 Stanwell Dr., Ste. 400 Concord, CA 94520 Attention: Avo Avedissian	Client Project ID: Unocal #5760, 376 Lewelling Blvd., San Lorenzo Matrix: Liquid QC Sample Group: 4030568-576	Reported: Mar 24, 1994
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QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	J.F., A.T.	J.F., A.T.	J.F., A.T.	J.F., A.T.

MS/MSD				
Batch#:	4030463	4030463	4030463	4030463
Date Prepared:	3/21/94	3/21/94	3/21/94	3/21/94
Date Analyzed:	3/21/94	3/21/94	3/21/94	3/21/94
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:	120	110	110	108
Matrix Spike Duplicate %				
Recovery:	120	110	105	107
Relative % Difference:	0.0	0.0	4.9	0.93

LCS Batch#:	3LCS032194	3LCS032194	3LCS032194	3LCS032194
Date Prepared:	3/21/94	3/21/94	3/21/94	3/21/94
Date Analyzed:	3/21/94	3/21/94	3/21/94	3/21/94
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5
LCS % Recovery:	119	112	110	109

% Recovery Control Limits:	71-133	72-128	72-130	71-120
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Please Note:
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SEQUOIA ANALYTICAL, #1271

Alan B. Kemp
Project Manager





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

Client Project ID: Unocal #5760, 376 Lewelling Blvd., San Lorenzo
Matrix: Liquid

QC Sample Group: 4030568-576

Reported: Mar 24, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	J.F., A.T.	J.F., A.T.	J.F., A.T.	J.F., A.T.

MS/MSD	Benzene	Toluene	Ethyl Benzene	Xylenes
Batch#:	4030561	4030561	4030561	4030561
Date Prepared:	3/18/94	3/18/94	3/18/94	3/18/94
Date Analyzed:	3/18/94	3/18/94	3/18/94	3/18/94
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:	130	115	110	110
Matrix Spike Duplicate % Recovery:	120	110	105	105
Relative % Difference:	8.0	4.4	4.7	4.7

LCS Batch#:	3LCS031894	3LCS031894	3LCS031894	3LCS031894
Date Prepared:	3/18/94	3/18/94	3/18/94	3/18/94
Date Analyzed:	3/18/94	3/18/94	3/18/94	3/18/94
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5
LCS % Recovery:	121	111	109	105

% Recovery Control Limits:	71-133	72-128	72-130	71-120
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Please Note:
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SEQUOIA ANALYTICAL, #1271

Alan B. Kemp
Project Manager



M P D S Services, Inc.

2401 Stanwell Drive, Suite 400, Concord, CA 94520
 Tel: (510) 602-6120 Fax: (510) 689-1918

CHAIN OF CUSTODY

SAMPLER			UNOCAL					ANALYSES REQUESTED							TURN AROUND TIME:		
RAY MARANGOSIAN			SIS # <u>5760</u> CITY: <u>SAN LORENZO</u>					TPH-GAS BTEX	TPH-DIESEL	TOG	8010						REGULAR
WITNESSING AGENCY			ADDRESS: <u>376 LEWELLING BOULEVARD</u>														
SAMPLE ID NO.	DATE	TIME	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION										
U1	3-9		x	x		2 JGA	Well	x								4030568 A-B	
U2	u		x	x		u	u	x								0569	
U3	u		x	x		u	u	x								0570	
U4	u		x	x		u	u	x								0571	
U5	u		x	x		u	u	x								0572	
U6	u		x	x		u	u	x								0573	
U7	u		x	x		u	u	x								0574	
U8	u		x	x		u	u	x								0575	
U9	u		x	x		u	u	x								0576	

RELINQUISHED BY:		DATE/TIME	RECEIVED BY:	THE FOLLOWING <u>MUST</u> BE COMPLETED BY THE LABORATORY ACCEPTING SAMPLES FOR ANALYSES:		
Ray Marangosian		3-9-94	Dan [Signature] 17:10	1. HAVE ALL SAMPLES RECEIVED FOR ANALYSIS BEEN STORED ON ICE?		
(SIGNATURE)	[Signature]	3/10/94 12:52	[Signature]	YES		
(SIGNATURE)	[Signature]	3/10 14:30	Melissa Crosser	2. WILL SAMPLES REMAIN REFRIGERATED UNTIL ANALYZED?		
(SIGNATURE)	[Signature]			YES		
(SIGNATURE)	[Signature]			3. DID ANY SAMPLES RECEIVED FOR ANALYSIS HAVE HEAD SPACE?		
(SIGNATURE)	[Signature]			NO		
(SIGNATURE)	[Signature]			4. WERE SAMPLES IN APPROPRIATE CONTAINERS AND PROPERLY PACKAGED?		
(SIGNATURE)	[Signature]			YES		
(SIGNATURE)	[Signature]			SIGNATURE:	TITLE:	DATE:
				Dan [Signature]	Supervisor	3/9/94