





February 15, 1996 Project 310-058.5A

Ms. Tina Berry Unocal Corporation 2000 Crow Canyon Place, Suite 400 San Ramon, California 94583

Re: Revised Groundwater Monitoring Program Recommendations

Unocal Service Station 5760 376 Lewelling Boulevard San Lorenzo, California

Dear Ms. Berry:

This letter, prepared by Pacific Environmental Group, Inc. (PACIFIC), for Unocal Corporation, recommends revisions to the groundwater monitoring program for the site referenced above.

PACIFIC recommends that the groundwater monitoring program for the subject site be modified to reflect the amount of historical data available. The most recent quarterly groundwater monitoring report which presents a site map, groundwater elevation data, and historical groundwater analytical data is presented as Attachment A. The proposed groundwater monitoring program is described below.

- Quarterly gauging of all monitoring wells to determine groundwater elevation and product thickness.
- Quarterly sampling of Monitoring Wells U-1, U-3, U-6, and U-9 for total petroleum hydrocarbons (TPH) calculated as gasoline, benzene, toluene, ethylbenzene and xylenes (BTEX compounds), and MTBE.
- Annual sampling of Monitoring Wells U-2, U-4, U-5, U-7, and U-8, for TPH-g, BTEX compounds and MTBE. The wells should be sampled in December.
- Quarterly submittal of groundwater monitoring reports.

Rationale for the proposed groundwater monitoring program are as follows.

- Quarterly groundwater monitoring has been conducted at the site since 1990. Sufficient data have been collected to develop trends in the groundwater quality and flow direction.
- Historically, the most significant concentrations of petroleum hydrocarbons have been detected in Monitoring Wells U-1, U-3, U-6, and U-9.
- Monitoring wells proposed for annual sampling have not contained detectable concentrations of benzene for the past 8 consecutive quarterly sampling events. Excluding Well U-2, TPH-g has not been detected in any of these wells.
- The proposed monitoring and sampling frequency will be sufficient to define and monitor the hydrocarbon plume status during site remediation activities in 1996.
- Remedial system performance reporting will be continued on a quarterly schedule.

PACIFIC recommends implementing this modified monitoring program in the second quarter 1996. If you have any questions regarding the contents of this letter, please call.

Sincerely,

Pacific Environmental Group, Inc.

Joseph Muzzio

Project Geologist

CEG 1672
Attachment:

Quarterly Data Report (prepared by MPDS Services, Inc.)

cc: Mr. Richard Hiett, Regional Water Quality Control Board - S.F. Bay Region

Ms. Amy Leech, Alameda County Health Care Services

Mr. Nubar Srabian, MPDS Services, Inc. (without Attachment A)

No. 1672 Certified Rationale for the proposed groundwater monitoring program are as follows.

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PACIFIC recommends implementing this modified monitoring program in the second quarter 1996. If you have any questions regarding the contents of this letter, please call.

Sincerely,

Pacific Environmental Group, Inc.

Joseph Muzzio

Project Geologist

**CEG** 1672

Attachment: Quarterly Data Report (prepared by MPDS Services, Inc.)

No. 1672 CERTIFIED

cc: Mr. Richard Hiett, Regional Water Quality Control Board - S.F. Bay Region

Ms. Amy Leech, Alameda County Health Care Services

Mr. Nubar Srabian, MPDS Services, Inc. (without Attachment A)



January 13, 1997 Project 311-058.1A

Mr. Richard Hiett Regional Water Quality Control Board San Francisco Bay Region 2101 Webster Street, Suite 500 Oakland, California 94612

Re: 76 Products Company
Quarterly Summary Report
Fourth Quarter 1996

Dear Mr. Hiett:

As directed by Ms. Tina Berry of 76 Products Company, Pacific Environmental Group, Inc. is forwarding the quarterly summary report for the following location:

Service Station

Location

5760

376 Lewelling Boulevard, San Lorenzo

If you have questions or comments, please do not hesitate to contact our office at (408) 441-7500.

Sincerely,

Pacific Environmental Group, Inc.

Joseph Muzzio Project Geologist

Enclosure

cc: Ms. Tina Berry, 76 Products Company

Ms. Amy Leech, Alameda County Environmental Health Care Services

### Quarterly Summary Report Fourth Quarter 1996

76 Products Company Service Station 5760 376 Lewelling Boulevard San Lorenzo, California

City/County ID #: None

County: Alameda

#### BACKGROUND

The underground storage tanks were removed and replaced in November 1987. Currently, there are nine monitoring wells on site. Groundwater monitoring and sampling of wells began in February 1988. A remedial action plan was submitted during the third quarter 1994. Groundwater extraction and soil vapor extraction systems were installed in August and September 1995.

In February 1996, modifications to the present sampling and monitoring activities were presented in a letter to Unocal and Alameda County, recommending a reduction to semiannual groundwater sampling for some of the monitoring wells.

### RECENT QUARTER ACTIVITIES

Monthly monitoring of soil and groundwater remedial systems were performed and appropriate reports documenting findings were submitted.

### **NEXT QUARTER ACTIVITIES**

Groundwater monitoring and sampling will be performed. Operation of soil vapor and groundwater extraction and treatment system will continue.

### CHARACTERIZATION/REMEDIAL STATUS

Soil contamination delineated? Yes.

Dissolved groundwater delineated? Yes.

Free product delineated? Yes.

Amount of groundwater contaminant recovered this quarter? Approximately 20 pounds.

Soil remediation in progress? Yes.

Start? October 1995.

Anticipated completion date? Unknown.

Dissolved/free product remediation in progress? Yes.

Start? October 1995.

Anticipated completion? Unknown.

CONSULTANT: Pacific Environmental Group, Inc.





February 9, 1996 Project 310-058.5A

Ms. Susan Keach Oro Loma Sanitary District 2600 Grant Avenue San Lorenzo, California 94580

Re: Wastewater Discharge Permit 024 - January 1996 Sewer Report
Unocal Service Station 5760
376 Lewelling Boulevard at Usher Street
San Lorenzo, California

Dear Ms. Keach:

On behalf of Unocal Corporation, Pacific Environmental Group, Inc. is operating a groundwater extraction and treatment system at the site referenced above. This letter transmits treatment system operational data for the period between December 27, 1995 and January 22, 1996 (Table 1). Operational parameters are summarized below.

Reporting Period: 12/27/95 - 1/22/96 Period Temperature: 58.4 degrees Fahrenheit Period Volume Discharged: 4;319 gallons Average Flow Rate:: 0.1 gallons per minute Analytical Reports: N/A	Current .	System Sta	tus:	Non-Oper	ational	
Period Volume Discharged: 4,319 gallons Average Flow Rate:: 0.1 gallons per minute	Reportin	g Period:		12/27/95 -	1/22/96	1
The state of the s	Period V	olume Dis	charged:	4;319 gallo	ens	
			•		per minute	

The treatment system was found down on January 17, 1996 and two pumps were pulled for inspection and repair, so no samples were taken in January. The pumps are scheduled to be replaced on February 9, 1996, and the treatment system will be restarted and sampled at that time. Monthly analysis will include chemical oxygen demand, pH, and total suspended solids, as well as total purgeable petroleum hydrocarbons (TPPH) and benzene, toluene, ethylbenzene, and xylenes (BTEX compounds).

If you have any questions regarding this project or require further information, please do not hesitate to call.

Sincerely,

Pacific Environmental Group, Inc.

Suzanne McClurkin-Nelson

Staff Scientist -

Attachments: Table 1 - Groundwater Treatment System Analytical Data

Ms. Tina Berry, Unocal Corporation

Mr. Richard Hiett, Regional Water Quality Control Board - S.F. Bay Region Ms. Amy Leech, Alameda County Health Care Services.

### Table 2 Groundwater Treatment System Analytical Data

### Unocal Service Station 5760 376 Lewelling Boulevard at Usher Street San Lorenzo, California

··········	,		BTEX Co	mpounds	1	Permit Compliance Parameters			
	·			Ethyl-					
Date	ТРРН	Benzene	Toluene	benzene	Xylenes	COD	TSS	pН	
Sampled	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	(mg/L)	(units)	
Influent Sar	nples	<u> </u>							
10/30/95	33,000	480	1,400	900	7,100	N/A	N/A	N/A	
11/30/95	15,000	190	310	210	3,700	NA	N/A	N/A	
12/27/95	1,100	16	23	<2.0	300	N/A	N/A	N/A	
Effluent Sau	mples								
10/04/95	<50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	8.89 a	
10/30/95	₩	e0.50	<b>=0.50</b>	<0.50	<9.50	NS	NS	NS	
11/30/95	<50	<0.50	<0.50	<0.50	<0.50	NS	NS	NS	
1222195	-50	-0.50	50.50	<0.50	<0.50	NS	NS	7.05 a	
ТРРН	= Total purge	able petroleu	m hydrocarb	ons	1		<del> </del>		
µg/L	= Microgram	s per liter		•	•				
mg/L	= Milligrams	per liter							
N/A	= Not applicable								
NS	= Not sampled								
< ·	= Denotes ar	ry potential co	ncentrations	feil below the	shown detec	tion limit for the	analysis.		
a.	pH reading w	as measured	by field instr	uments, not È	y laboratory a	inalysis.		•	

### ATTACHMENT A

QUARTERLY DATA REPORT (PREPARED BY MPDS SERVICES, INC.)



MPDS-UN5760-09 January 18, 1996

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 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 December 14, 1995. sampling, the wells were each purged of between 8.5 and 17.5 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. Field blank, Trip blank and Equipment blank samples (denoted as ES1, ES2 and ES3, respectively) were also collected for quality assurance and control. MPDS Services, Inc. transported the purged ground water to the Unocal Refinery located in Rodeo, California, for treatment and discharge to San Pablo Bay under NPDES permit.

### ANALYTICAL RESULTS

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

MPDS-UN5760-09 January 18, 1996 Page 2

tion. The analytical results of the ground water samples collected to date are summarized in Tables 3 and 4. 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 Ms. Amy Leech 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.

No. EG 1833 CERTIFIED ENGINEERING

GEOLOGIST

Sincerely,

MPDS Services, Inc.

Haig (Gary) Tejirian Senior Staff Geologist

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

License No. EG 1633 Exp. Date 8/31/96

/bp

Attachments: Tables 1 through 4

Location Map Figures 1 & 2

Laboratory Analyses

Chain of Custody documentation

cc: Mr. Joe Muzzio, Pacific Environmental Group, Inc.

TABLE 1
SUMMARY OF MONITORING DATA

	214.2 1100. 0104.1000.002.100410 MOS					
	Ground Wa					Water
1.7.4.7.7.4.4	Elevation (Feet)	on Water (feet)◆	Depth (feet)◆	Thicknes (feet)		Purged (gallons)
Well #	(Leeu)	(Teer) V	Treeria	. (reer)	<u> </u>	(yarrons)
•		(Monitored and	Sampled on F	ecember 14	1 1995)	
		(HOHITCOICE CHE	. Dampica on a	COULD OF T.	., 2000,	
U-1	WELL WAS	NACCESSIBLE -	CONNECTED TO	VAPOR EXT	RACTION SYSTEM	M
U-2	23.08	18.18	29.92	0	No	17.5
U-3	WELL WAS 1	NACCESSIBLE -	CONNECTED TO	VAPOR EXT	RACTION SYSTEM	M
U-4	22.82	17.43	27.88	0	No	15.5
U-5	22.75	16.56	28.56	0	No	8.5
U-6	22.79	14.89	28.30	0	No	9.5
U-7	22.72	14.39	34.85	0	No	14
U-8	22.90	15.67	29.85	0	No	10
บ-9	22.64	14.67	28.20	0	No	9.5
				_		
•		(Monitored and	Sampled on S	eptember 1	2, 1995)	
	00.40	16 88	20 70	^	37.	2.0
-1	23.43	16.77	30.10	0	No	20
U-2	23.46	17.80	29.96	0	No	18
U-3	23.15	16.11	24.95	0	No	13.5
U-4	23.15	17.10	27.95	0	No	16.5
U-5	23.01	16.30	28.61	0	No No	8.5
U-6	22.83	14.85	28.35	. 0	No	9.5
U-7	22.71	14.40	34.95	0	No	14
U-8 U-9	23.07	15.50	29.90	0	No No	10
0-9	22.58	14.73	28.26	0	NO	9.5
		(Monitored =	and Sampled or	Tune 13	1995)	
		(1001100100	ina pampica oi	1 canc 15,	13337	•
U-1	25.50	14.70	30.10	. 0	- No	23
U-2	24.55	16.71	29.95	0	No	20 .
U-3	24.15	15.11	25.05	0	No	16
U-4	24.30	15.95	27.90	. 0	No	18
U-5	24.15	15.16	28.60	0	No	10
U-6	23.95	13.73	28.31	0	No	10
U-7	23.78	13.33	35.00	0	No	15
U-8	24.17	14.40	29.85	0	No	11
U-9	23.68	13.63	28.23	. 0	No	10

TABLE 1 (Continued)

### SUMMARY OF MONITORING DATA

Well #	Ground Wate Elevation (feet)	Water	Total Well Depth <u>(feet)∳</u>	Product Thickness (feet)	New Activities and the contract of the contrac	Water Purged (gallons)
	·	(Monitored and	d Sampled on M	March 9, 1	L995)	
U-1	24.38	15.82	30.10	0	No	22
U-2	24.30	16.96	30.00	Ο.	No	20
υ-3·	24.05	15.20	25.02	0	No	15
U-4	24.12	16.16	27.92	0	No	17
บ-5	23.96	15.35	28.46	0	No	9
U-6	23.94	13.74	28.34	0	No	10
U-7	23.75	13.36	35.00	.0	No	15
U-8	24.01	14.56	29.90	0	No	11
Ŭ-9	23.81	13.50	28.26	0	No	11

Well #	Well Casing Elevation (feet)*
U-1	40.20
U-2	41.26
U-3	39.26
U-4	40.25
U-5	39.31
U-6	37.68
บ−7 .	37.11
U-8	38.57
U-9	37.31

- The depth to water level and total depth measurements were taken from the top of the well casings.
- \* The elevation of the top of the well casing are relative to Mean Sea Level.

TABLE 2

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

(Measured on December 14, 1995)

						<del></del>	
	Gallons per Casing		Gallons	Casing Volumes	Temper- ature	Conductivity ([µmhos/cm]	
Well #		ana a sanggan kigara di sili marana arang manarahan at a sang	Purged_	<u>Purged</u>	(°F)	x1000)	<u> Hq</u>
na manina Maniaka Assista			varanaanaan oo daadaha Nobel Alahah		,	•••••	-
U-2	4.34	11:00	0	0	59.1	3.00	6.86
	•		4.5	1.04	68.6	0.96	7.01
			9	2.07	69.7	0.95	6.90
			13.5	3.11	69.9	0.95	6.89
		11:15	17.5	4.03	70.0	0.96	6.88
U-4	3.87	11:45	0 .	0	72.2	1.00	7.13
			4	1.03	73.0	1.38	6.92
			8	2.07	73.0	1.37	6.87
			12	3.10	73.2	1.39	6.87
		12:00	15.5	4.01	73.4	1.41	6.86
U-5	2.04	12:25	0	0	74.2	1.36	7.09
	_,,,		2	0.98	74.0	1.35	7.02
			4	1.96	73.6	1.37	6.96
•			6	2.94	73.6	1.38	6.94
		12:35	8.5	4.17	73.6	1.38	6.93
U-6	2.28	13:00	. 0	0	74.7	1.18	7.19
•	•		2.5	1.10	72.7	1.08	7.07
			4.5	1.97	72.8	1.08	6.92
			7	3.07	73.0	1.10	6.89
		13:10	9.5	4.17	73.1	1.10	6.88
<b>U-7</b>	3.48	13:35	Ó	0	75.8	1.03	7.14
	•		3.5	1.01	71.3	0.92	7.11
			7	2.01	70.9	0.93	7.01
			10.5	3.02	71.1	0.93	6.99
		13:50	14	4.02	71.1	0.95	6.99

TABLE 2 (Continued)

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

### (Measured on December 14, 1995)

<u>Well</u>	Gallons per Casing # Volume	<u>Time</u>	Gallons <u>Purged</u>	Casing Volumes Purged	Temper- ature (°F)	Conductivity ([µmhos/cm] x1000)	Нq
U-8	2.41	14:15	0	0	73.8	0.97	7.14
			2.5	1.04	70.8	0.93	7.07
	•		5	2.07	70.3	0.92	7.00
			7.5	3.11	70.2	0.92	6.99
•		14:25	10	4.15	70.2	0.91	6.98
บ-9	2.30	14:50	0 .	0	75.0	0.99	7.14
			2.5	1.09	72.5	1.09	7.11
	•		4.5	1.96	72.1	1.12	7.02
	•		7.0	3.04	71.8	1.12	6.96
		15:00	9.5	4.13	71.6	1.12	6.96

TABLE 3
SUMMARY OF LABORATORY ANALYSES
WATER

	_	TPH_as			Ethyl-	
Well #	<u>Date</u>	<u>Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>benzene</u>	<u>Xylenes</u>
U-1	12/14/95	NOT SAMPLED -	WELL CONNECTED	TO VAPOR EXTRA	CTION SYSTEM	
	9/12/95	43,000	910	2,700	1,700	9,600
	6/13/95	53,000	1,400	5,000	2,500	14,000
	3/09/95	49,000	860	3,200	1,900	10,000
	12/05/94	1,300	55	20	16	330
	9/07/94	41,000	1,600	6,200 .	3,100	16,000
	6/09/94	59,000	5,200	1,300	5,200	15,000
	3/09/94	45,000	930	4,100	2,000	11,000
	12/02/93	NOT SAMPLED	DUE TO THE	PRESENCE OF	FREE PRODUCT	
	9/09/93	67,000	2,900	18,000	6,200	32,000
	6/04/93	35,000	1,300	5,700	900	9,200
	2/12/93	70,000	2,200	8,400	3,100	18,000
	11/20/92	NOT SAMPLED	DUE TO THE	PRESENCE OF	FREE PRODUCT	r
S.	8/06/92	NOT SAMPLED	DUE TO THE	PRESENCE OF	FREE PRODUCT	r
	4/07/92	<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b> .	<b>A</b>
	3/05/92	NOT SAMPLED	DUE TO THE	PRESENCE OF	FREE PRODUCT	Г
	12/04/91	NOT SAMPLED	DUE TO THE	PRESENCE OF	FREE PRODUCT	Γ .
	9/19/91	NOT SAMPLED	DUE TO THE	PRESENCE OF	FREE PRODUCT	Г
	6/03/91	NOT SAMPLED	DUE TO THE	PRESENCE OF	FREE PRODUCT	r
-	3/04/91	NOT SAMPLED	DUE TO THE	PRESENCE OF	FREE PRODUCT	Г
	12/05/90	NOT SAMPLED	DUE TO THE	PRESENCE OF	FREE PRODUCT	r
	8/24/90	27,000	1,200	1,800	1,400	5,500
	6/05/90	46,000	2,300	5,500	2,500	11,000
	3/20/90	36,000	2,100	5,500	1,900	9,300
	2/09/88	93,000	3,600	11,000	<b>A A</b>	20,000
<sup>™</sup> U-2	12/14/95	ND	ND	ND	ND	ND
	9/12/95	ND	ND	ND	ND	ND
	6/13/95	ND	ND	ND	ND	ND
	3/09/95`	ND	ND	ND	ND	ND
	12/05/94	ND	ND	ND	ND	ND
	9/07/94	ND	ND	0.63	ND	0.61
	6/09/94	ND	ND	ND	ND	ND
justin	4/13/94	ND	ND	ND .	ND	ND
	3/09/94	62	1.1	5.4	1.1	9.7
•	12/02/93	ND	. ND	ND	ND	ND

TABLE 3 (Continued)

China i unadunaceada addidus mos nue vives	51100011000100000000000000000000000000					
Well #	<u>Date</u>	TPH as <u>Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	Ethyl-	V- 7
	<del></del>	<u> udourine</u>	<u>Denzene</u>	TOTUENE	<u>benzene</u>	<u>Xylenes</u>
U-2	9/09/93	ND	ND	ND	ND	ND
(Continued)	6/04/93	ND	ND	ND	ND	ND
	2/12/93	ND	ND	ND	ND	ND
	11/20/92	ND	ND	ND	ND	ND
	8/06/92	ND	ND	ND	ND	ND
	4/07/92	ND	ND	ND	ND	ND
	3/05/92	ND	ND	0.36	ND	ND
	12/04/91	ND	ND	ND	ND	ND
	9/19/91	ND	ND	ND	ND	ND
	6/03/91	ND	ND	ND ·	ND	ND
•	3/04/91	ND	ND	0.9	ND	2.6
	12/05/90	ND	ND	ND	ND	ND
	8/23/90	ND	ND	ND	ND	ND
U-3	12/14/95	NOT SAMPLED - W	ELI GONNIDGED	MC William Sweet		
0-3	9/12/95		ELL CONNECTED	· -		
	6/13/95	69,000	1,700	820	4,000	19,000
	3/09/95	64,000	1,700	1,500	3,800	18,000
	12/05/94	100,000 140,000	2,300	3,300	4,800	21,000
	9/07/94	100,000	3,100 2,400	5,100	4,900	21,000
•	6/09/94	120,000*	3,300	4,900	4,200	21,000
	3/09/94	120,000	4,500	6,100 8,300	5,200	26,000
	12/02/93	110,000	3,200	7,700	5,600 5,600	28,000
	9/09/93	110,000	2,800	10,000	5,600 .	26,000
	6/04/93	92,000	2,900	8,700	6,500 4,300	31,000 20,000
	2/12/93	80,000	3,700	9,400	3,700	18,000
	11/20/92	50,000	3,200	4,700	1,900	10,000
	8/06/92	140,000	5,100	13,000	5,000	23,000
	4/07/92	97,000	6,100	16,000	5,400	28,000
	3/05/92	160,000	5,300	15,000	5,400	26,000
	12/04/91	75,000	2,500	6,100	1,900	11,000
	9/19/91	61,000	3,300	9,700	2,800	15,000
	6/03/91	130,000	5,800	19,000	4,600	24,000
	3/04/91	84,000	1,400	10,000	2,900	17,000
	1/18/91	51,000	1,700	3,100	1,500	7,500
	12/05/90	69,000	1,900	3,500	1,600	9,800
	8/23/90	110,000	4,400	13,000	2,800	17,000

TABLE 3 (Continued)

พอไว้ #	D-2-2	TPH as	_		Ethyl-	
Well #	<u>Date</u>	<u>Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>benzene</u>	Xylenes
U-4	12/14/95	ND	ND	ND ·	ND	ND
	9/12/95	ND	ND	ND	ND	ND
-	6/13/95	ND	ND .	ND ·	ND	ND
	3/09/95	ND	ND	ND	ND	ND
	12/05/94	ND	ND	ND	ND	ND
	9/07/94	ND	· ND	1.1	ND	1.0
	6/09/94	ND	ND	ND	ND	ND
	4/13/94	ND	ND	ND	ND	ND
	3/09/94	ND	1.4	4.7	1.1	8.1
	12/02/93	ND '	ND	ND.	ND	2.6
	9/09/93	ND	ND	ND	ND	ND
	6/04/93	ND	ND	ND .	ND	ND
	2/12/93	ND	ND	ND	. ND	ND
	11/20/92	ND	ND	2.5	ND	ND
	8/06/92	ND	ND	ND	ND	ND
	4/07/92	ND	ND	ND	ND	ND
	3/05/92	ND	ND	ND	ND	ND
	12/04/91	ND	ND	ND	ND	ND
	9/19/91	ND	ND	ND	ND	ND
-	6/03/91	ND	ND	ND	ND	ND
	3/04/91	ND	ND	ND	ND	ND
	1/18/91	ND	ND	ND	ND	ND
-	12/05/90	ND.	ND	ND .	ND	ND
	8/23/90	ND	ND _	1.0	ND	1.8
Ŭ-5	12/14/95	ND	ND	ND	ND	ND
	9/12/95	ND ·	ND	ND	ND	ND
	6/13/95	ND	ND	ND	ND	ND
	3/09/95	ND	ND	ND	ND	ND
	12/05/94	ND	ND	ND	ND ·	ND
	9/07/94	ND	ND	0.73	ND	0.84
	6/09/94	ND	ND	ND	ND	ND
	4/13/94	ND	ND	ND	ND	ND
•	3/09/94	71	1.7	6.3	1.5	10
	12/02/93	ND	ND	ND	ND	ND
	9/09/93	ND	ND	ND	ND	ND
	6/04/93	ND	ND	ND	ND	ND

TABLE 3 (Continued)

		•				,
		TPH as			Ethyl-	
Well #	<u>Date</u>	<u>Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>benzene</u>	<u>Xylenes</u>
U-5	2/12/93	ND	ND	ND	ND	NID
(Continued)	11/20/92	ND				ND
(CONCINGA)	8/06/92	ND	ND	ND	ND	ND
·	•		ND	ND	ND	ND
	4/07/92	ND	ND	ND	ND	. ND
U-6	12/14/95	760	ND	ND	7.0	8.4
	9/12/95	ND	ND	ND	ND	ND
	6/13/95	1,300	ND	ND	20	46
	3/09/95	2,500	29	ND	70	120
	12/05/94	450**	ND	ND	ND	ND
	9/07/94	1,600*	· ND	ND	ND	ND
	6/09/94	2,600*	16	ND	. 29	ND
deleg	3/09/94	2,200	11	8.2	24	16
	12/02/93	2,100	12	1.6	21	1.1
	9/09/93	6,300♦♦	29	ND	120	34
	6/04/93	13,000	100	38	450	320
	2/12/93	2,600	27	ND	120	51
	11/20/92	WELL WAS INA				
	8/06/92	9,200	160	ND	360	150
•	4/07/92	6,600	90	ND	820	1,200
	. ,	•				•
Մ-7	12/14/95	ND	ND	ND	ND	ND
	9/12/95	ND	. ND	ND	ND	ND
•	6/13/95	ND	ND	ND	ND	ND .
•	3/09/95	ND	ND	ND	ND	ND
	12/05/94	ND	ND	ND	ND	ND
	9/07/94	ND	ND	ND	ND	ND
	6/09/94	ND	ND	ND	ND	ND
	4/13/94	ND	ND	ND	ND	ND
	3/09/94	ND	1.4	4.4	0.96	7.5
	12/02/93	ND	ND	ND	ND	ND
	9/09/93	ND	ND	ND	ND	ND
	6/04/93	ND	ND	ND	ND	ND
	2/12/93	ND	ND	ND	ND	ND
	11/20/92	ND	ND	ND	ND	ND
	8/06/92	ND	ND	ND	ND	ND
	4/07/92	ND	ND	ND	ND	ND
•						•

TABLE 3 (Continued)

	SSSS SSS 1100 (SS 1100 ASSAURAND ASSAURAND ASSAURAND ASSAURAND ASSAURAND ASSAURAND ASSAURAND ASSAURAND ASSAURA		50027000 http://www.commons.commons.com/			-
Well #	Date	TPH as <u>Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	Ethyl- <u>be</u> nzene	<u>Xyle</u> nes
ijana seriki serebil sebesah dibili	·				<u> </u>	- AYTCHES
U-8	12/14/95	ND	ND	ND	ND	ND
	9/12/95	ND	ND	ND	ND	ND
•	6/13/95	ND	ND	ND	ND	ND
	3/09/95	ND	ND	ND	ND .	ND
	12/05/94	ND	ND	ND	ND	ND
	9/07/94	ND	ND	ND .	ND	ND
	6/09/94	ND	ND	ND	ND	ND
	4/13/94	ND	ND	0.78	ND	0.98
	3/09/94	ND	1.2	3.7	0.79	6.1
	12/02/93	ND	ND	ND	ND	ND
	9/09/93	ND	ND	ND	ND	ND
	6/04/93	ND	ND	ND	ND	ND
	2/12/93	ND	ND	ND	ND	ND
*	8/06/92	ND.	ND	ND	ND	ND
	4/07/92	ND	ND	ND	ND	ND
U-9	12/14/95	ND	ND	ND	ND	ND
-	9/12/95	ND	ND	ND	ND	ND
	6/13/95	ND	ND	ND	ND	ND
-	3/09/95	2,500**	ND	ND	ND	ND
	12/05/94	3,700**	ND	ND	ND	ND
	9/07/94	2,700**	ND	ND	ND	ND
	6/09/94	2,900**	ND	ND	ND	ND
	4/13/94	ND	ND	ND	ND	ND
•	3/09/94	5,700*	ND	ND	ND	ND
	12/02/93	ND	ND	ND	ND	ND
	9/09/93	1,200♦	ND	ND	ND	ND
	6/04/93	2,100♦	ND	ND	ND .	ND

#### TABLE 3 (Continued)

### SUMMARY OF LABORATORY ANALYSES WATER

- \* Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be gasoline and non-gasoline mixture.
- \*\* Sequoia Analytical Laboratory reported that the hydrocarbon detected did not appear to be gasoline.
- ▲ 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.

> = Non-detectable.

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

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

TABLE 4
SUMMARY OF LABORATORY ANALYSES
WATER

**** *** ***			
	<u>Well #</u>	<u>Date</u>	MTBE μg/L
		- 1	
	U-1	9/12/95	1,400
		6/13/95	2,800
	<i>,</i>	3/09/95	1,500
	U-2	12/14/95	ND
		9/12/95	ND
		6/13/95	ND
	•	3/09/95	ND
	U-3	9/12/95	29,000
		6/13/95	900
		3/09/95	54,000
et system			•
	U-4	12/14/95	1.3
		9/12/95	ND
		6/13/95	2.7
•		3/09/95	ND
	U-5	12/14/95	ND
		9/12/95	
		6/13/95	ND ·
		3/09/95	0.87 ND
		-,,	
	U-6	12/14/95	1,100
		9/12/95	6,600
		6/13/95	5,400
<i>:</i>		3/09/95	320
	U-7	12/14/95	1.4
•		9/12/95	ND
e *	•	6/13/95	3.5
		3/09/95	ND
		-//	IATA

### TABLE 4 (Continued)

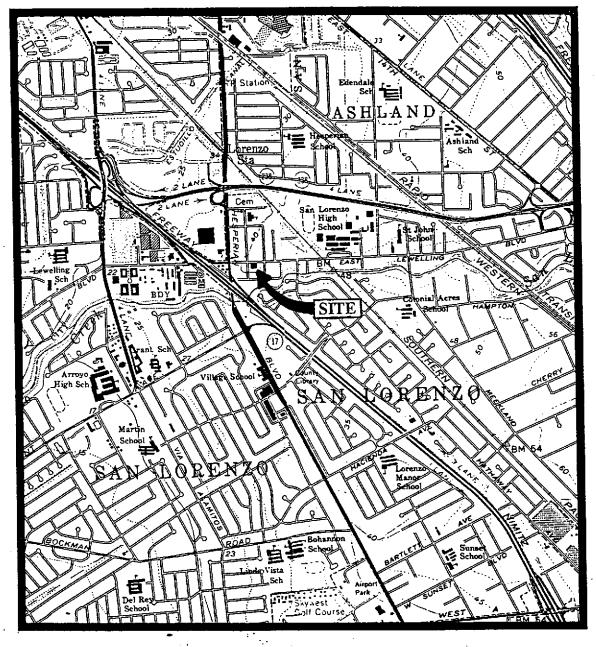
# SUMMARY OF LABORATORY ANALYSES WATER

<u>Well #</u>	<u>Date</u>	<b>M</b> TBE μα/L
U-8	12/14/95	ND
	9/12/95	ND
	6/13/95	ND
	3/09/95	ND
<b>U-9</b>	12/14/95	4,400
	9/12/95	1,600
	6/13/95	1,200
	3/09/95	5,800
· · · · · · · · · · · · · · · · · · ·		

...rBE = methyl tert butyl ether

ND = Non-detectable.

 $\mu$ g/L = micrograms per liter.



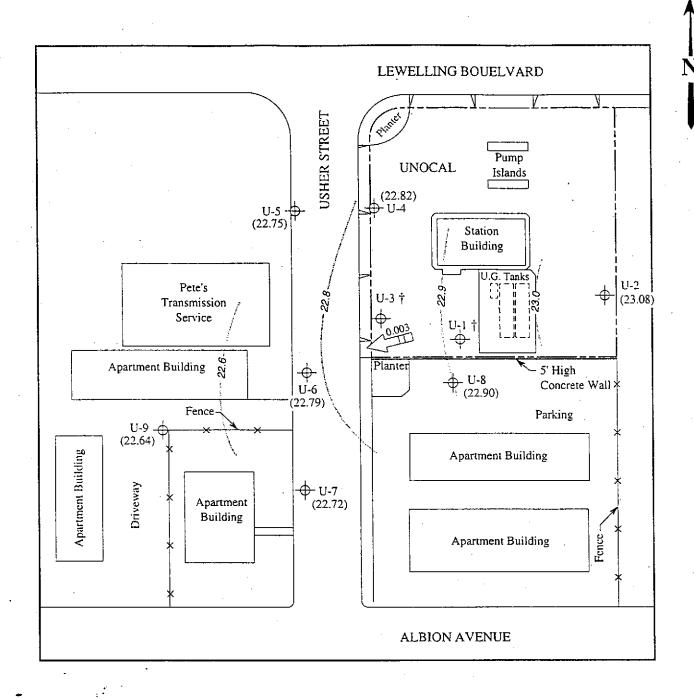
Base modified from 7.5 minute U.S.G.S. Hayward and San Leandro Quadrangles (both photorevised 1980)

0 2000 4000
Approx. scale feet



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

LOCATION MAP



### LEGEND

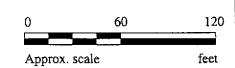
→ Monitoring well

( ) Ground water elevation in feet above Mean Sea Level

> Direction of ground water flow with approximate hydraulic gradient

Contours of ground water elevation

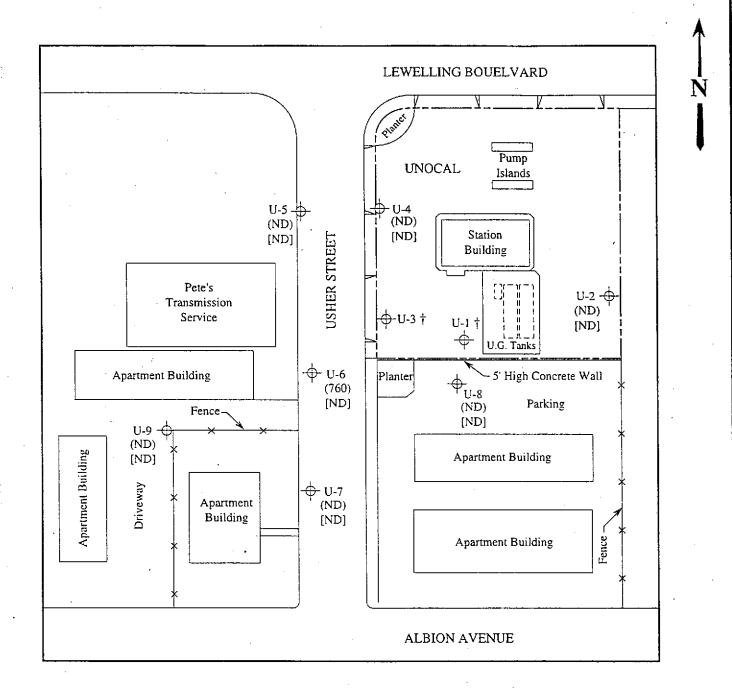
† Well was inaccessible, attached to remediation system.



### POTENTIOMETRIC SURFACE MAP FOR THE DECEMBER 14, 1995 MONITORING EVENT

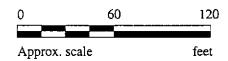


UNOCAL SERVICE STATION #5760 376 LEWELLING BOULEVARD SAN LORENZO, CALIFORNIA FIGURE



### **LEGEND**

- Monitoring well
- ( ) Concentration of TPH as gasoline in  $\mu g/L$
- [ ] Concentration of benzene in  $\mu g/L$
- ND Non-detectable
  - † Well was inaccessible, attached to remediation system.



### PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON DECEMBER 14, 1995



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

FIGURE