KAPREALIAN ENGINEERING
INCORPORATED

February 19, 1993

Alameda County Health Care Services
80 Swan Way, Room 200
Oakland, CA 94621

Attention: Mr. Scott Seery

RE: Unocal Service Station #7004
15599 Hesperian Boulevard
San Leandro, California

Dear Mr. Seery:

Per the request of Mr. Bob Boust of Unocal Corporation, enclosed please find our report dated February 9, 1993, for the above referenced site.

If you should have any questions, please feel free to call our office at (510) 602-5100.

Sincerely,

Kaprealian Engineering, Inc.

Judy A. Dewey

jad\82

Enclosure

cc: Bob Boust, Unocal Corporation

2401 Stanwell Drive, Suite 400
Concord, California 94520
Tel: 510.602.5100 Fax: 510.687.0602

KAPREALIAN ENGINEERING
INCORPORATED

KEI-P90-1003.QR5
February 9, 1993

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

Attention: Mr. Robert A. Boust

RE: Quarterly Report
Unocal Service Station #7004
15599 Hesperian Boulevard
San Leandro, California

Dear Mr. Boust:

This report presents the results of the most recent quarter of monitoring and sampling of the monitoring wells at the referenced site by Kaprealian Engineering, Inc. (KEI), per KEI's proposal (KEI-P90-1003.P2) dated May 31, 1991, and as modified in KEI's quarterly report (KEI-P90-1003.QR3) dated August 10, 1992. The wells are currently monitored monthly and wells MW3 and MW5 are sampled on a quarterly basis. Monitoring wells MW1, MW2, MW4, and MW6 are sampled on a semi-annual basis. This report covers the work performed by KEI from November of 1992 through January of 1993.

BACKGROUND

The subject site contains a Unocal service station facility. Three underground gasoline storage tanks and the product piping were removed from the site in October of 1990 during tank replacement activities. The fuel tank pit and the product pipe trenches were subsequently overexcavated in order to remove contaminated soil. Six monitoring wells and one aquifer testing well have been installed at the site. An aquifer pumping test has also been conducted.

A site description, detailed background information including a summary of all of the soil and ground water subsurface investigation/remediation work conducted to date, site hydrogeologic conditions, and tables that summarize all of the soil and ground water sample analytical results are presented in KEI's report (KEI-P90-1003.R6) dated May 29, 1992.

RECENT FIELD ACTIVITIES

The six existing monitoring wells (MW1 through MW6) were monitored three times and were sampled once during the quarter. During

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Concord, California 94520
Tel: 510.602.5100 Fax: 510.687.0602

monitoring, the wells were checked for depth to water and the presence of free product. Prior to sampling, the wells were also checked for the presence of a sheen. **No free product or sheen was noted in any of the wells during the quarter.** The monitoring data collected this quarter are summarized in Table 1.

Water samples were collected from all of the existing monitoring wells on January 21, 1993. Prior to sampling, the wells were each purged of between 7 and 9 gallons of water by the use of a surface pump. Samples were collected by the use of a clean Teflon bailer. The samples were decanted into clean VOA vials that were then sealed with Teflon-lined screw caps and stored in a cooler, on ice, until delivery to a state-certified laboratory.

HYDROLOGY

The measured depth to ground water at the site on January 21, 1993, ranged between 13.82 and 15.28 feet below grade. The water levels in all of the monitoring wells have shown net increases ranging from 2.38 to 2.73 feet since October 28, 1992. **Based on the water level data gathered during the quarter, the ground water flow direction varied from the west-southwest to the north-northwest,** as shown on the attached Potentiometric Surface Maps, Figures 1, 2, and 3. The flow direction reported for the November 30, 1992, monitoring event is similar to the west-southwesterly flow direction reported during the three previous quarters. However, **the northwesterly and north-northwesterly flow directions reported for the December 10, 1992, and January 21, 1993, monitoring events are different from the previous flow direction** (west-southwest). The average hydraulic gradient across the site on January 21, 1993, was approximately 0.002.

ANALYTICAL RESULTS

The ground water samples were analyzed at Sequoia Analytical Laboratory and were accompanied by properly executed Chain of Custody documentation. The samples were analyzed for total petroleum hydrocarbons (TPH) as gasoline by EPA method 5030/modified 8015, and benzene, toluene, xylenes, and ethylbenzene (BTX&E) by EPA method 8020. In addition, the ground water samples collected from monitoring wells MW1, MW2, and MW5 were analyzed for methyl tert butyl ether (MTBE) by EPA method 8020/modified.

The ground water sample analytical results are summarized in Table 2. The concentrations of TPH as gasoline 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.

DISCUSSION AND RECOMMENDATIONS

Based on the analytical results for the ground water samples collected and evaluated to date, and no evidence of free product or sheen in any of the wells, KEI recommends the continuation of the current ground water monitoring and sampling program, per KEI's proposal (KEI-P90-1003.P2) dated May 31, 1991, and as modified in KEI's quarterly report (KEI-P90-1003.QR3) dated August 10, 1992. The current program consists of monthly monitoring for all of the monitoring wells; wells MW3 and MW5 are sampled on a quarterly basis; and wells MW1, MW2, MW4, and MW6 are sampled on a semi-annual basis. The ground water samples collected from all of the wells are analyzed for TPH as gasoline and BTX&E. The ground water samples collected from wells MW1, MW2, and MW5 are also analyzed for MTBE.

DISTRIBUTION

A copy of this report should be sent to the Alameda County Health Care Services Agency, Mr. Michael Bakaldin of the City of San Leandro Fire Department, and to the Regional Water Quality Control Board, San Francisco Bay Region.

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.

Our studies assume that the field and laboratory data are reasonably representative of the site as a whole, and assume that subsurface conditions are reasonably conducive to interpolation and extrapolation.

The results of this study are based on the data obtained from the field and laboratory analyses obtained from a state-certified laboratory. We have analyzed these data using what we believe to be currently applicable engineering techniques and principles in the Northern California region. We make no warranty, either expressed or implied, regarding the above, including laboratory analyses, except that our services have been performed in accordance with generally accepted professional principles and practices existing for such work.

If you have any questions regarding this report, please do not hesitate to call at (510) 602-5100.

-5106

Sincerely,

Kaprealian Engineering, Inc.

Thomas J. Berkins

Thomas J. Berkins
Senior Environmental Engineer

Joel G. Greger

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

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

Aram B. Kaloustian

Aram B. Kaloustian
Project Engineer

/bp

Attachments: Tables 1 & 2
Location Map
Potentiometric Surface Maps - Figures 1, 2 & 3
Concentrations of Petroleum Hydrocarbons - Figure 4
Laboratory Analyses
Chain of Custody documentation

KEI-P90-1003.QR5
February 9, 1993

TABLE 1

SUMMARY OF MONITORING DATA

Well #	Ground Water Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Sheen	Water Purged (gallons)
(Monitored and Sampled on January 21, 1993)					
MW1	22.02	14.87	0	No	7
MW2	22.13	15.22	0	No	7
MW3	22.11	15.11	0	No	7
MW4	21.99	13.82	0	No	9
MW5	22.13	14.88	0	No	8
MW6	22.27	15.28	0	No	8
(Monitored on December 10, 1992)					
MW1	19.76	17.13	0	--	0
MW2	19.82	17.53	0	--	0
MW3	19.78	17.44	0	--	0
MW4	19.71	16.10	0	--	0
MW5	19.76	17.25	0	--	0
MW6	19.82	17.73	0	--	0
(Monitored on November 30, 1992)					
MW1	18.43	18.46♦	0	--	0
MW2	19.51	17.84	0	--	0
MW3	19.36	17.86	0	--	0
MW4	19.27	16.54	0	--	0
MW5	19.23	17.78	0	--	0
MW6	19.35	18.20	0	--	0

KEI-P90-1003.QR5
February 9, 1993

TABLE 1 (Continued)

SUMMARY OF MONITORING DATA

Well #	Surface Elevation* (feet)
MW1	36.89
MW2	37.35
MW3	37.22
MW4	35.81
MW5	37.01
MW6	37.55

* The elevations of the tops of the well covers have been surveyed relative to Mean Sea Level, per a City of San Leandro Benchmark located at the southwest corner of Hesperian Boulevard and Sycamore.

♦ The depth to ground water reported is believed to be in error; therefore, this ground water elevation was not used for the calculation of the ground water flow direction or gradient.

-- Sheen determination was not performed.

KEI-P90-1003.QR5
February 9, 1993

TABLE 2

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Sample Number	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethylbenzene	MTBE
1/21/93	MW1	ND	ND	ND	ND	ND	42
	MW2	ND	ND	ND	ND	ND	17
	MW3	12,000	2,800	11	590	1,600	--
	MW4	ND	ND	ND	ND	ND	--
	MW5	100*	ND	ND	ND	ND	160
	MW6	ND	ND	ND	ND	ND	--
10/28/92	MW1	SAMPLED SEMI-ANNUALLY					
	MW2	SAMPLED SEMI-ANNUALLY					
	MW3	15,000	4,400	15	800	2,400	--
	MW4	SAMPLED SEMI-ANNUALLY					
	MW5	ND	ND	ND	ND	ND	45
	MW6	SAMPLED SEMI-ANNUALLY					
7/09/92	MW1	70*	ND	ND	ND	ND	130
	MW2	ND	ND	ND	ND	ND	49
	MW3	13,000	3,200	12	1,100	1,900	--
	MW4	ND	ND	ND	ND	ND	--
	MW5	ND	ND	ND	ND	ND	71
	MW6	ND	ND	ND	ND	ND	--
4/14/92	MW1	76*	ND	ND	ND	ND	--
	MW2	45*	ND	ND	ND	ND	--
	MW3	16,000	3,400	19	1,300	1,400	--
	MW4	ND	ND	ND	ND	ND	--
	MW5	86*	ND	ND	ND	ND	--
	MW6	ND	ND	ND	ND	ND	--
1/14/92	MW1	ND	ND	ND	ND	ND	--
	MW2	ND	ND	ND	ND	ND	--
	MW3	13,000	6,600	19	1,800	2,600	--
	MW4	ND	ND	ND	ND	ND	--
	MW5	60*	ND	ND	ND	ND	--
	MW6	ND	ND	ND	ND	ND	--
10/14/91	MW1	ND	ND	ND	ND	ND	--
	MW2	ND	ND	ND	ND	ND	--
	MW3	25,000	6,300	78	1,400	2,000	--
	MW4	ND	ND	ND	ND	ND	--
	MW5	140	0.72	ND	0.89	1.3	--
	MW6	ND	ND	ND	ND	ND	--

KEI-P90-1003.QR5
February 9, 1993

TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

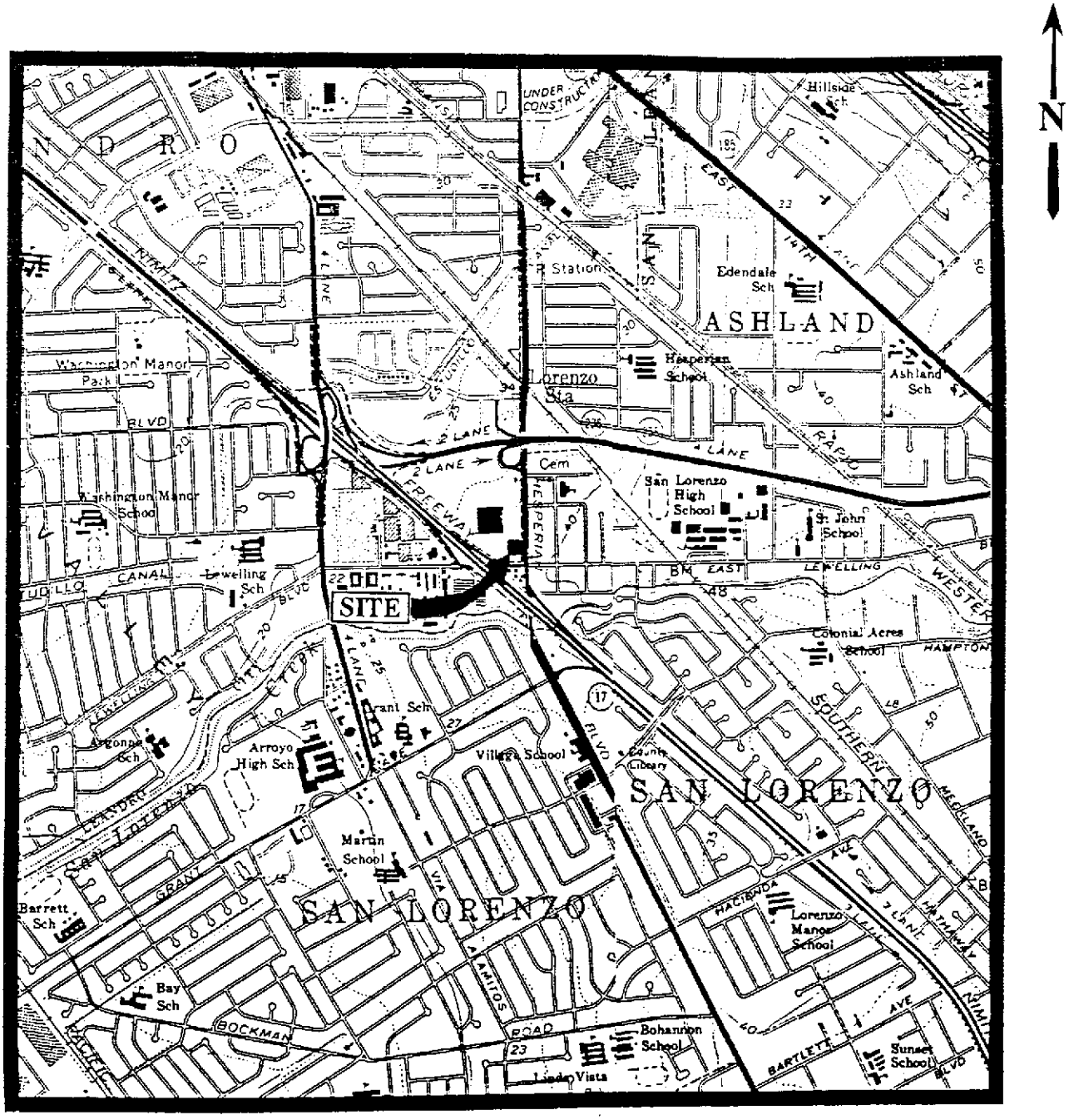
Date	Sample Number	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethylbenzene	MTBE
7/23/91	MW1	ND	ND	ND	ND	ND	--
	MW2	ND	ND	ND	ND	ND	--
	MW3	17,000	5,500	26	2,800	1,800	--
	MW4	ND	ND	ND	ND	ND	--
	MW5	260	1.2	0.39	0.71	10	--
	MW6	ND	ND	ND	ND	ND	--
5/04/91	MW1	ND	ND	ND	ND	ND	--
	MW2	ND	ND	ND	ND	ND	--
	MW3	34,000	6,100	32	6,100	1,200	--

* Sequoia Analytical Laboratory reported that the hydrocarbons detected did not appear to be gasoline.

ND = Non-detectable.

-- Indicates analysis was not performed.

Results in parts per billion (ppb), unless otherwise indicated.

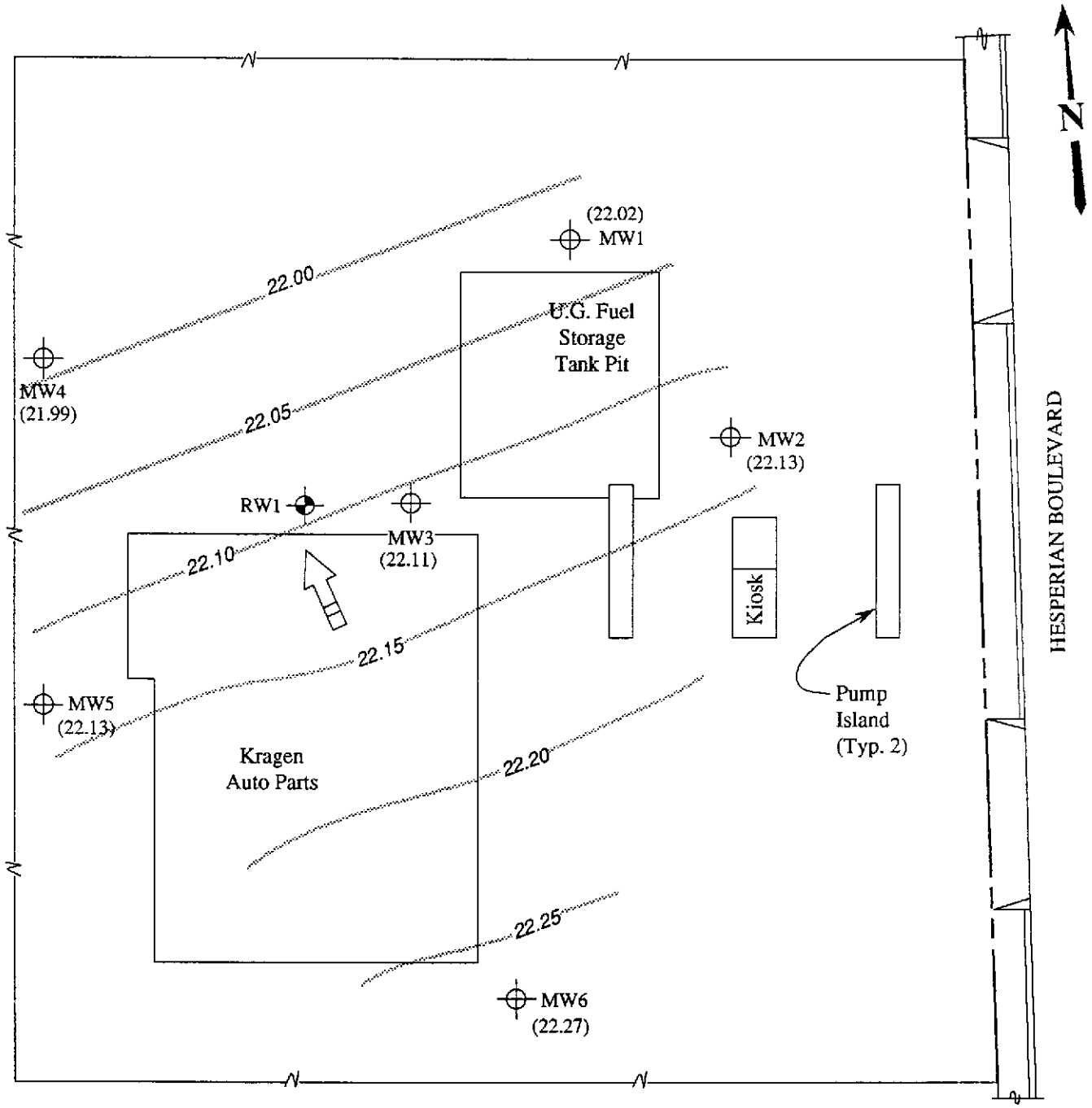


Base modified from 7.5 minute U.S.G.S. Hayward and San Leandro Quadrangles (both photorevised 1980)

0 2000 4000

Approx. scale feet

KAPREALIAN ENGINEERING INCORPORATED	**UNOCAL SERVICE STATION #7004** **15599 HESPERIAN BOULEVARD** **SAN LEANDRO, CA**	**LOCATION MAP**



LEGEND

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

0 30 60

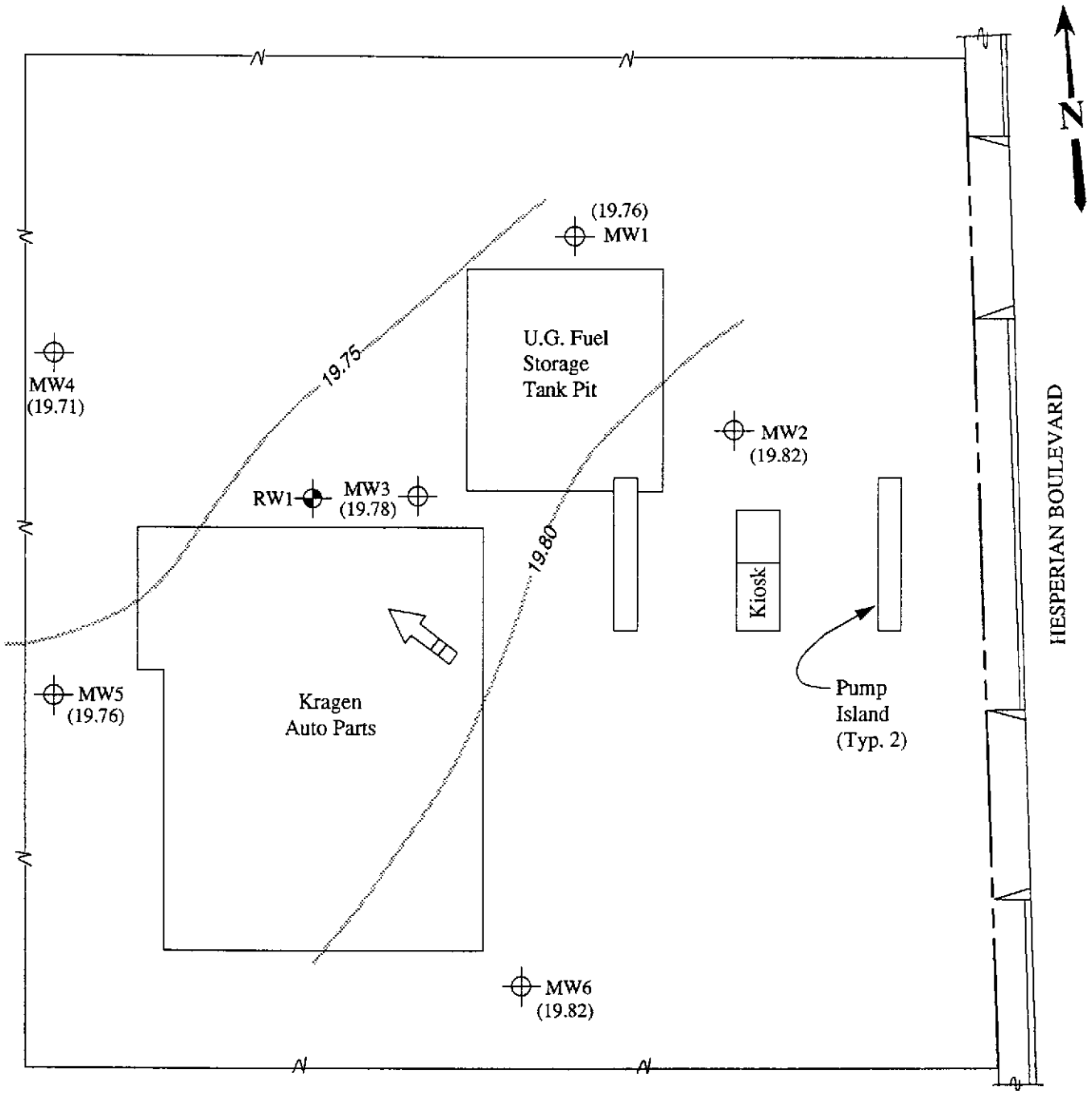
Approx. scale feet

POTENTIOMETRIC SURFACE MAP FOR THE JANUARY 21, 1993 MONITORING EVENT

KAPREALIAN ENGINEERING
INCORPORATED

UNOCAL SERVICE STATION #7004
15599 HESPERIAN BOULEVARD
SAN LEANDRO, CA

FIGURE
1



LEGEND

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

0 30 60

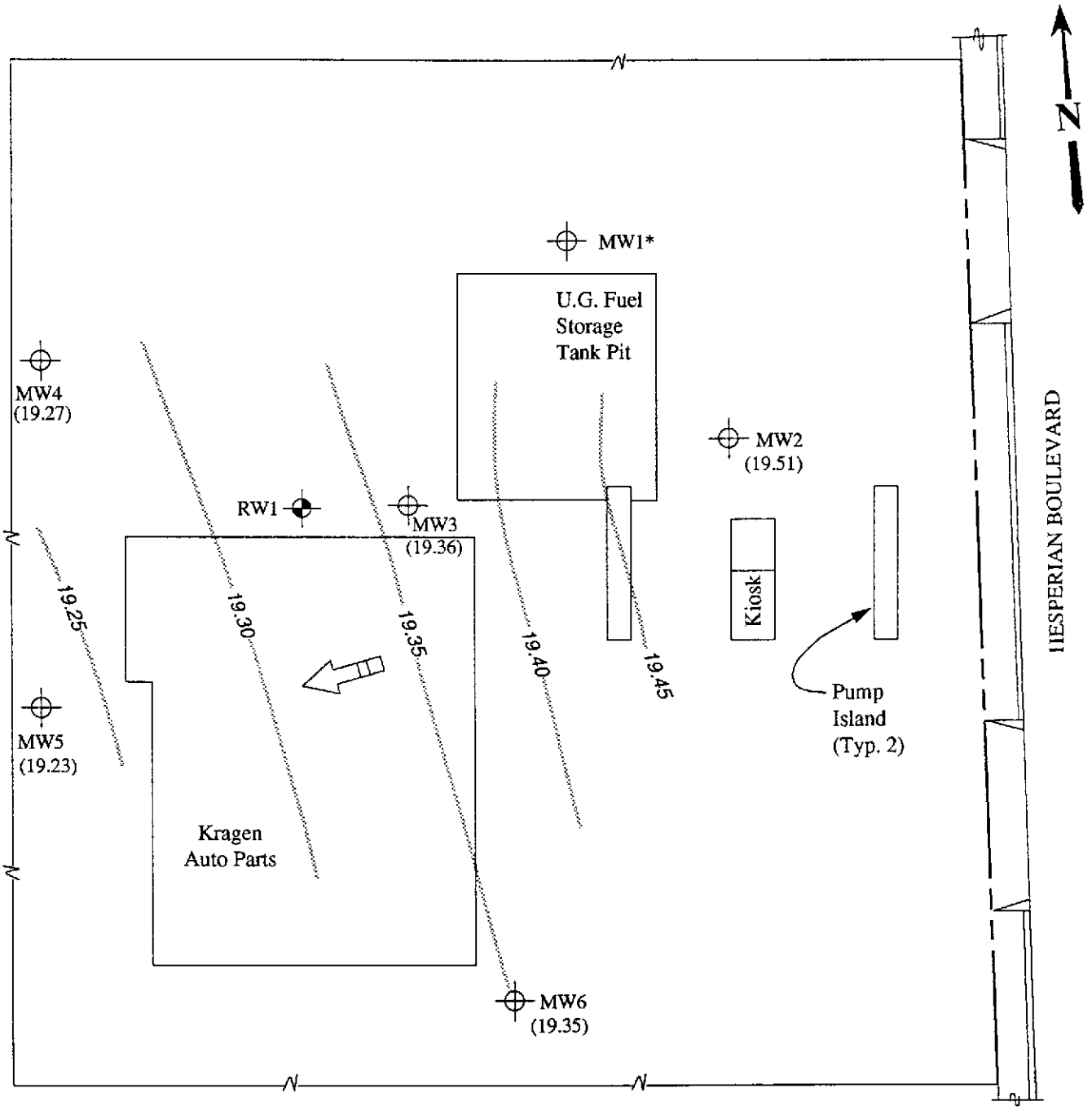
Approx. scale feet

POTENTIOMETRIC SURFACE MAP FOR THE DECEMBER 10, 1992 MONITORING EVENT

KAPREALIAN ENGINEERING
INCORPORATED

UNOCAL SERVICE STATION #7004
15599 HESPERIAN BOULEVARD
SAN LEANDRO, CA

FIGURE
2



LEGEND

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

* Ground water elevation data not used for contours.

0 30 60

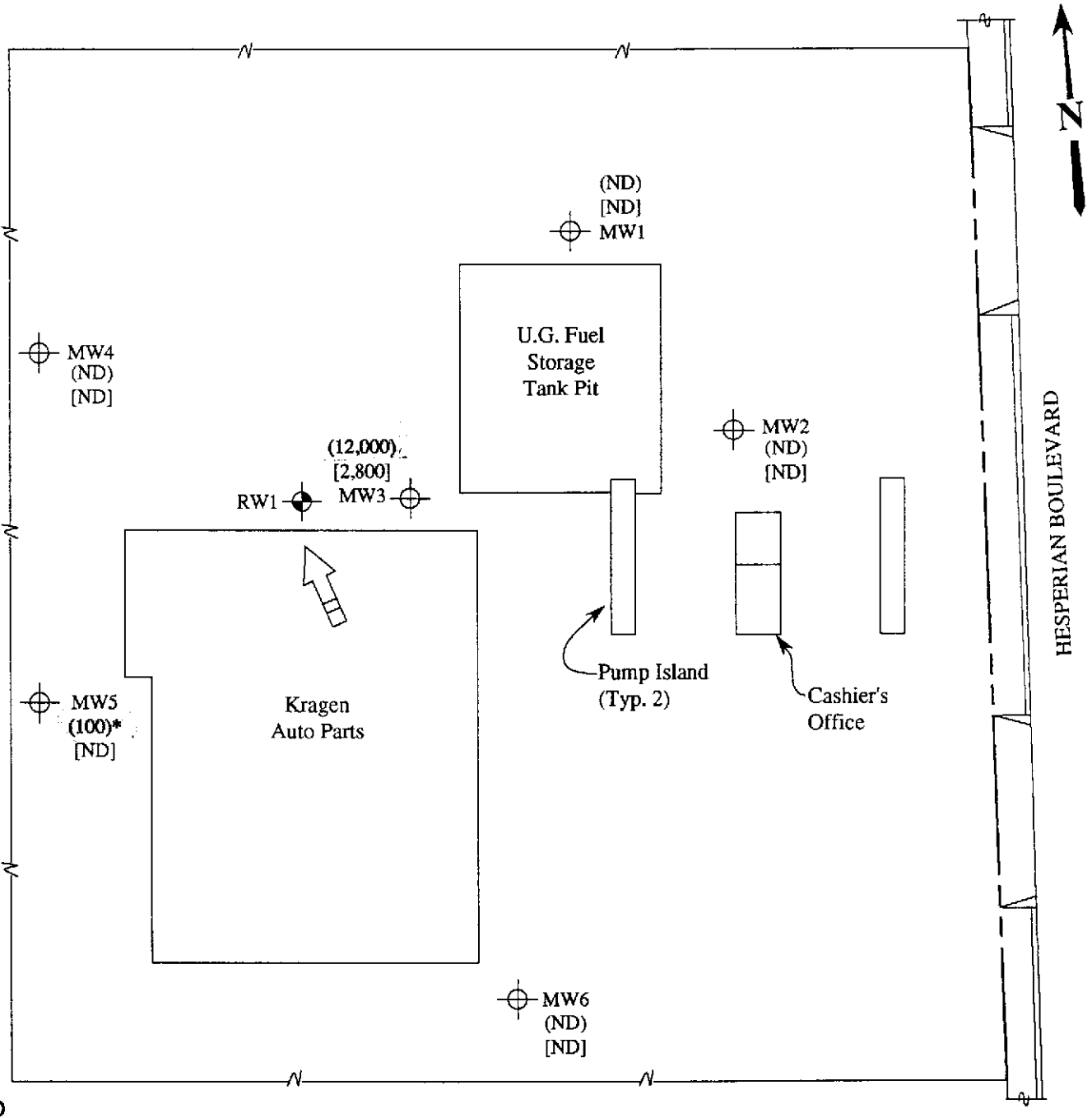
Approx. scale feet

POTENTIOMETRIC SURFACE MAP FOR THE NOVEMBER 30, 1992 MONITORING EVENT

KAPREALIAN ENGINEERING
INCORPORATED

UNOCAL SERVICE STATION #7004
15599 HESPERIAN BOULEVARD
SAN LEANDRO, CA

FIGURE
3



LEGEND

- Monitoring well
- Aquifer testing well
- ( ) Concentration of TPH as gasoline in ppb
- [ ] Concentration of benzene in ppb
- ND = Non-detectable
- Direction of ground water flow

0 30 60

Approx. scale feet

* The lab reported that the hydrocarbons detected do not appear to be gasoline.

PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON JANUARY 21, 1993

KAPREALIAN ENGINEERING
INCORPORATED

UNOCAL SERVICE STATION #7004
15599 HESPERIAN BOULEVARD
SAN LEANDRO, CA

FIGURE
4

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal / San Leandro, 15599 Hesperian Blvd.	Sampled:	Jan 21, 1993
2401 Stanwell Drive, Suite 400	Sample Matrix:	Water	Received:	Jan 21, 1993
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported:	Feb 1, 1993
Attention: Mardo Kaprealian, P.E.	First Sample #:	301-0507		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 301-0507 MW 1	Sample I.D. 301-0508 MW 2	Sample I.D. 301-0509 MW 3	Sample I.D. 301-0510 MW 4	Sample I.D. 301-0511 MW 5*	Sample I.D. 301-0512 MW 6
Purgeable Hydrocarbons	50	N.D.	N.D.	12,000	N.D.	100	N.D.
Benzene	0.5	N.D.	N.D.	2,800	N.D.	N.D.	N.D.
Toluene	0.5	N.D.	N.D.	11	N.D.	N.D.	N.D.
Ethyl Benzene	0.5	N.D.	N.D.	1,600	N.D.	N.D.	N.D.
Total Xylenes	0.5	N.D.	N.D.	590	N.D.	N.D.	N.D.
Chromatogram Pattern:		--	--	Gasoline	--	Discrete Peak	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	10	1.0	1.0	1.0
Date Analyzed:	1/25/93	1/25/93	1/25/93	1/25/93	1/25/93	1/25/93
Instrument Identification:	HP-5	HP-5	HP-5	HP-5	HP-5	HP-5
Surrogate Recovery, %: (QC Limits = 70-130%)	106	98	95	104	104	100

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

SEQUOIA ANALYTICAL

Scott A. Chieffo
Project Manager

Please Note: * The above sample does not appear to contain gasoline. Purgeable Hydrocarbons are due to MTBE peak.

SEQUOIA ANALYTICAL

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(510) 686-9600 • FAX (510) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal / San Leandro, 15599 Hesperian Blvd.	Sampled:	Jan 21, 1993
2401 Stanwell Drive, Suite 400	Sample Matrix:	Water	Received:	Jan 21, 1993
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported:	Feb 1, 1993
Attention: Mardo Kaprealian, P.E.	First Sample #:	Matrix Blank		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. Matrix Blank
Purgeable Hydrocarbons	50	
Benzene	0.5	
Toluene	0.5	
Ethyl Benzene	0.5	
Total Xylenes	0.5	

Chromatogram Pattern:

Quality Control Data

Report Limit Multiplication Factor:	1.0
Date Analyzed:	1/25/93
Instrument Identification:	HP-5
Surrogate Recovery, %: (QC Limits = 70-130%)	96

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

SEQUOIA ANALYTICAL

Scott A. Chieffo
Project Manager

SEQUOIA ANALYTICAL

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(510) 686-9600 • FAX (510) 686-9689

Kaprealian Engineering, Inc.	Client Project ID:	Unocal / San Leandro, 15599 Hesperian Blvd.	Sampled:	Jan 21, 1993
2401 Stanwell Drive, Suite 400	Sample Descript:	Water	Received:	Jan 21, 1993
Concord, CA 94520	Analysis for:	MTBE (EPA 8020 - Modified)		
Attention: Mardo Kaprealian, P.E.	First Sample #:	301-0507	Analyzed:	Jan 25, 1993
			Reported:	Feb 1, 1993

LABORATORY ANALYSIS FOR: MTBE (EPA 8020 - Modified)

Sample Number	Sample Description	Detection Limit µg/L	Sample Result µg/L
301-0507	MW 1	0.60	42
301-0508	MW 2	0.60	17
301-0511	MW 5	0.60	160

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Scott A. Chieffo
Project Manager

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Kaprealian Engineering, Inc.
2401 Stanwell Drive, Suite 400
Concord, CA 94520
Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal / San Leandro, 15599 Hesperian Blvd.
QC Sample Group: 3010507-512
Reported: Feb 1, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020
Analyst:	A.T.	A.T.	A.T.	A.T.
Reporting Units:	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Jan 25, 1993	Jan 25, 1993	Jan 25, 1993	Jan 25, 1993
QC Sample #:	301-0479	301-0479	301-0479	301-0479
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	20	20	20	60
Conc. Matrix Spike:	25	22	21	72
Matrix Spike % Recovery:	125	110	105	120
Conc. Matrix Spike Dup.:	23	21	21	72
Matrix Spike Duplicate % Recovery:	115	105	105	120
Relative % Difference:	8.3	4.6	0.0	0.0

Laboratory blank contained the following analytes: None Detected

SEQUOIA ANALYTICAL

Scott A. Chieffo
Project Manager

$$\%\ \text{Recovery:} \quad \frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$$

$$\text{Relative \% Difference:} \quad \frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}} \times 100$$

KAPREALIAN ENGINEERING
INCORPORATED

CHAIN OF CUSTODY

SAMPLER: VartKes
WITNESSING AGENCY:
SITE NAME & ADDRESS: Unocal / San Leandro, 15599 Hesperian Blvd.

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPH:BTXE	MTBE
MW 1	1/21/93	11:50 a.m.		X	X		4	Monitoring well	X	X
MW 2	"			X	X		4	" "	X	X
MW 3	"			X	X		2	" "	X	
MW 4	"			X	X		2	" "	X	
MW 5	"			X	X		4	" "	X	X
MW 6	"	2:25 PM.		X	X		2	" "	X	

ANALYSES REQUESTED

TURN AROUND TIME: Regular

REMARKS

3010507AD
506AD
509AB
510AB
511AD
512AB

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
W. Kaprealian	1/21/93 3:25	
Kathleen Patiga	1-22-93 3:15 pm	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received by: (Signature)

The following MUST BE completed by the laboratory accepting samples for analysis:

1. Have all samples received for analysis been stored in ice? YES
2. Will samples remain refrigerated until analyzed? YES
3. Did any samples received for analysis have head space? NO
4. Were samples in appropriate containers and properly packaged? YES

Signature | Title: DM | Date: 1-21-93

2401 Stanwell Drive, Suite 400
Concord, California 94520
Tel: 510 602 5100 Fax: 510 687 0602