

KAPREALIAN ENGINEERING
INCORPORATED

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2:15 pm, Jun 08, 2009

Alameda County
Environmental Health

KEI-P89-0111.QR13
November 25, 1992

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

Attention: Mr. Tim Howard

RE: Quarterly Report
Unocal Service Station #5487
28250 Hesperian Boulevard
Hayward, California

RECEIVED
FEB 02 1992

FILE #	5487	SS	BP		
RPT	QM	<input checked="" type="checkbox"/>	TRANSMITTAL		
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Dear Mr. Howard:

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-P89-0111.P4) dated March 9, 1992. The wells are currently monitored on a quarterly basis. Wells MW1 through MW4 are sampled on an annual basis, and wells MW5 and MW6 are sampled on a quarterly basis. This report covers the work performed by KEI from September through November of 1992.

BACKGROUND

The subject site contains a Unocal service station facility. Two underground fuel storage tanks, one waste oil tank, and the product piping were removed from the site in January of 1989 during tank replacement activities. Both the fuel and waste oil tank pits were overexcavated laterally and to the ground water depth (10.5 feet below grade) in order to remove contaminated soil. Six monitoring wells have been installed at the site.

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-P89-0111.R6) dated August 26, 1992.

RECENT FIELD ACTIVITIES

The six wells (MW1 through MW6) were monitored once during the quarter. Monitoring wells MW5 and MW6 were sampled once. Wells MW1 through MW4 are sampled on an annual basis and were not sampled this quarter. Prior to sampling, the wells were checked for depth to water and the presence of free product. Wells MW5 and MW6 were

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 wells MW5 and MW6 on November 5, 1992. Prior to sampling, the wells were purged of 12 and 8 gallons of water, respectively, by the use of a surface pump. Water 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 November 5, 1992, ranged between 7.23 and 8.46 feet below grade. The water levels in all of the wells have shown net decreases ranging from 0.03 to 0.16 feet since August 4, 1992, except for well MW5, which showed no net change. Based on the water level data gathered on November 5, 1992, the ground water flow direction appeared to be to the southwest, as shown on the attached Potentiometric Surface Map, Figure 1. The flow direction reported this quarter is similar to the southwesterly flow direction reported in previous quarters. The average hydraulic gradient across the site on November 5, 1992, was approximately 0.0047.

ANALYTICAL RESULTS

The ground water samples from MW5 and MW6 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. 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 Figures 2 and 3, respectively. 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-P89-0111.P4) dated March 9, 1992. The results of the monitoring and sampling program will be documented and evaluated

after each monitoring and sampling event, and recommendations for altering or terminating the program will be made as warranted.

DISTRIBUTION

A copy of this report should be sent to the Alameda County Health Care Services Agency, 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.

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Page 4

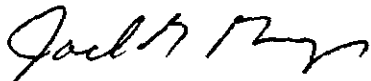
If you have any questions regarding this report, please do not hesitate to call me at (510) 602-5100.

Sincerely,

Kaprealian Engineering, Inc.



Thomas J. Berkins
Senior Environmental Engineer



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

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



Robert H. Kezerian, P.E.
Project Engineer

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Attachments: Tables 1 & 2
Location Map
Potentiometric Surface Map - Figure 1
Concentrations of TPH as gasoline - Figure 2
Concentrations of benzene - Figure 3
Laboratory Analyses
Chain of Custody documentation

KEI-P89-0111.QR13
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TABLE 1

SUMMARY OF MONITORING DATA

<u>Well No.</u>	<u>Ground Water Elevation (feet)</u>	<u>Depth to Water (feet)</u>	<u>Product Thickness (feet)</u>	<u>Sheen</u>	<u>Water Purged (gallons)</u>
(Monitored and Sampled on November 5, 1992)					
MW1*	4.55	8.02	0	--	0
MW2*	4.43	8.46	0	--	0
MW3*	4.48	7.98	0	--	0
MW4*	4.42	7.67	0	--	0
MW5	3.95	7.23	0	No	12
MW6	4.13	7.34	0	No	8

<u>Well #</u>	<u>Surface Elevation** (feet)</u>
MW1	12.57
MW2	12.89
MW3	12.46
MW4	12.09
MW5	11.18
MW6	11.47

-- Sheen determination was not performed.

* Monitored only.

** The elevations of the tops of the well covers have been surveyed relative to Mean Sea Level (MSL), per a City of Hayward Benchmark located at the intersection of Hesperian Boulevard and Catalpa Way (elevation = 10.97 MSL).

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TABLE 2

SUMMARY OF LABORATORY ANALYSES
WATER

<u>Date</u>	<u>Sample Well #</u>	<u>TPH as Diesel</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethyl-benzene</u>
11/05/92	MW5	--	120	16	ND	3.0	3.5
	MW6	--	300	16	2.3	14	14
8/04/92	MW1	--	ND	ND	ND	ND	ND
	MW2	--	ND	ND	ND	ND	ND
	MW3	--	ND	ND	ND	ND	ND
	MW4	--	ND	ND	ND	ND	ND
	MW5	--	80	13	ND	6.9	4.5
	MW6	--	540	12	7.9	110	35
5/05/92	MW5	--	170	45	0.48	6.8	9.0
2/05/92	MW5	--	120	20	ND	4.7	4.4
11/07/91	MW1	--	ND	ND	ND	ND	ND
	MW2	--	ND	ND	ND	ND	ND
	MW3	--	ND	ND	ND	ND	ND
	MW4	--	ND	ND	ND	ND	ND
	MW5	--	700	43	1.7	24	29
8/02/91	MW1	--	ND	ND	ND	ND	ND
	MW2	--	ND	ND	ND	ND	ND
	MW3	--	ND	ND	ND	ND	ND
	MW4	--	ND	ND	ND	ND	ND
	MW5	--	100	43	0.33	5.2	12
5/10/91	MW1	--	ND	ND	ND	ND	ND
	MW2	--	ND	ND	ND	ND	ND
	MW3	--	ND	ND	ND	ND	ND
	MW4	--	ND	ND	ND	ND	ND
	MW5	--	ND	ND	ND	ND	ND
	MWD+	--	ND	ND	ND	ND	ND
2/11/91	MW1*	ND	ND	ND	ND	ND	ND
	MW2	--	ND	ND	ND	ND	ND
	MW3	--	ND	ND	ND	ND	ND
	MW4	--	ND	ND	ND	ND	ND
	MW5	--	58	23	ND	1.3	2.9

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TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

<u>Date</u>	<u>Sample Well #</u>	<u>TPH as Diesel</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethyl-benzene</u>
11/15/90	MW1*	ND	ND	ND	ND	ND	ND
	MW2	--	ND	ND	ND	ND	ND
	MW3	--	ND	ND	ND	ND	ND
	MW4	--	ND	ND	ND	ND	ND
	MW5	--	ND	ND	ND	0.47	ND
8/29/90	MW1*	ND	ND	ND	ND	0.74	ND
	MW2	--	ND	ND	ND	ND	ND
	MW3	--	ND	ND	0.52	ND	ND
	MW4	--	ND	ND	ND	ND	ND
	MW5	--	ND	0.70	ND	1.1	0.57
5/16/90	MW1*	ND	ND	ND	ND	ND	ND
	MW2*	ND	ND	ND	ND	ND	ND
	MW3	--	ND	ND	ND	ND	ND
	MW4	--	ND	ND	ND	ND	ND
	MW5	--	1,100	310	2.8	110	70
2/16/90	MW1*	ND	ND	ND	ND	ND	ND
	MW2	--	ND	ND	ND	ND	ND
	MW3	--	ND	ND	ND	ND	ND
	MW4	--	ND	ND	ND	ND	ND
	MW5	--	ND	ND	ND	ND	ND
11/14/89	MW1*	ND	ND	ND	ND	ND	ND
	MW2*	ND	ND	ND	ND	ND	ND
	MW3	--	ND	ND	ND	ND	ND
	MW4	--	ND	ND	ND	ND	ND
	MW5	--	73	4.7	0.97	16	2.9
8/31/89	MW5	--	910	120	7.1	53	50
8/16/89	MW1**	ND	ND	ND	ND	ND	ND
	MW2**	ND	ND	ND	ND	ND	ND
	MW3	--	ND	ND	ND	ND	ND
	MW4	--	ND	ND	ND	ND	ND
	MW5	--	4,400	1,400	84	950	200
4/26/89	MW1***	ND	ND	2.1	ND	ND	ND
	MW2***	ND	ND	ND	ND	ND	ND
	MW3***	ND	ND	ND	ND	ND	ND
	MW4***	ND	ND	0.33	ND	ND	ND
	MW5***	ND	ND	ND	ND	ND	ND

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TABLE 2 (Continued)

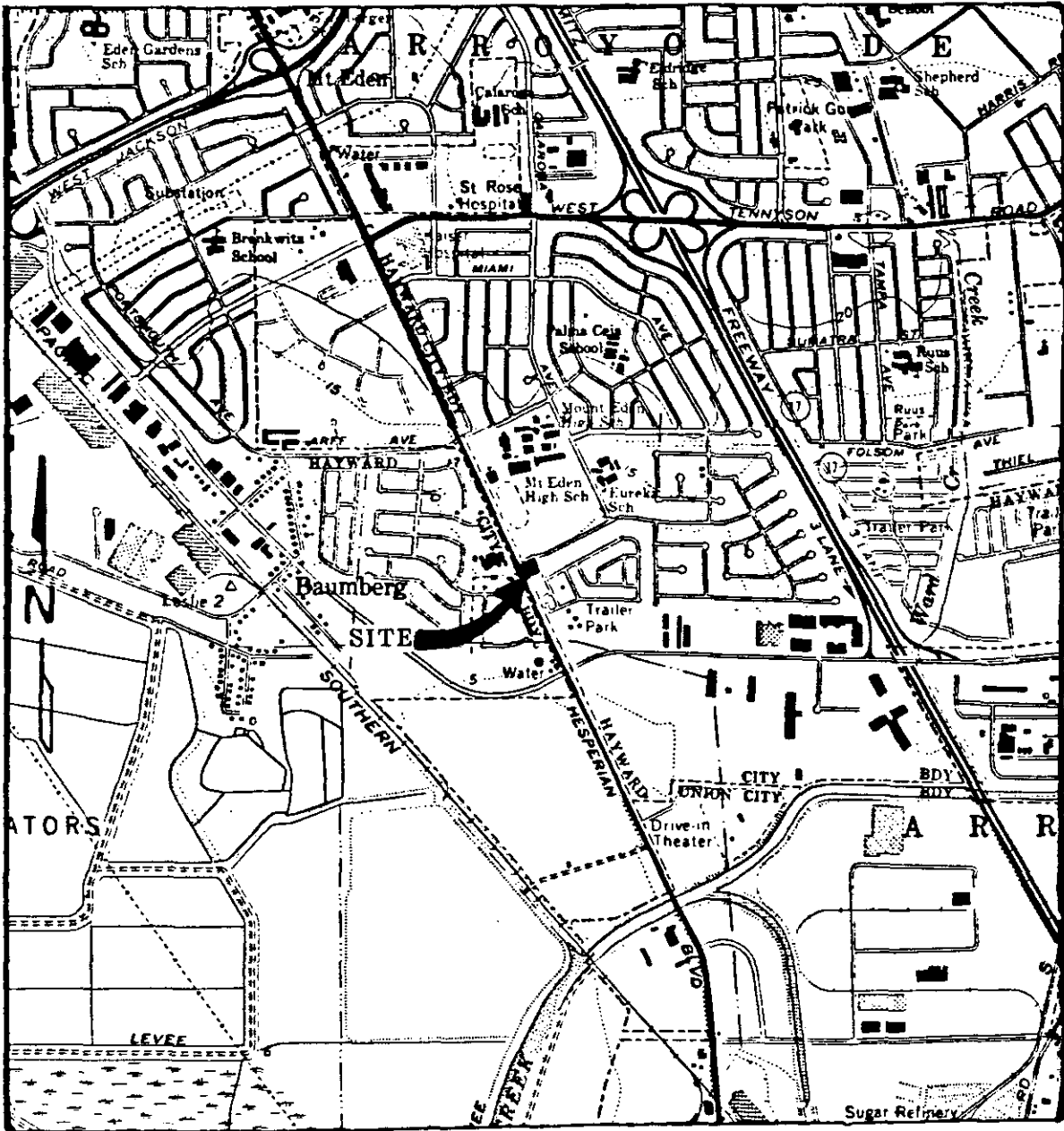
SUMMARY OF LABORATORY ANALYSES
WATER

- + MWD was a quality assurance duplicate water sample collected from well MW5.
- * TOG and all EPA method 8010 constituents were non-detectable.
- ** TOG for these samples were 23 ppm and 7.4 ppm, respectively. All EPA method 8010 constituents were non-detectable for both samples.
- *** TPH as diesel, TOG, and all EPA method 8010 constituents were non-detectable.

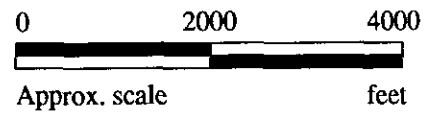
-- Indicates analysis was not performed.

ND = Non-detectable.

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



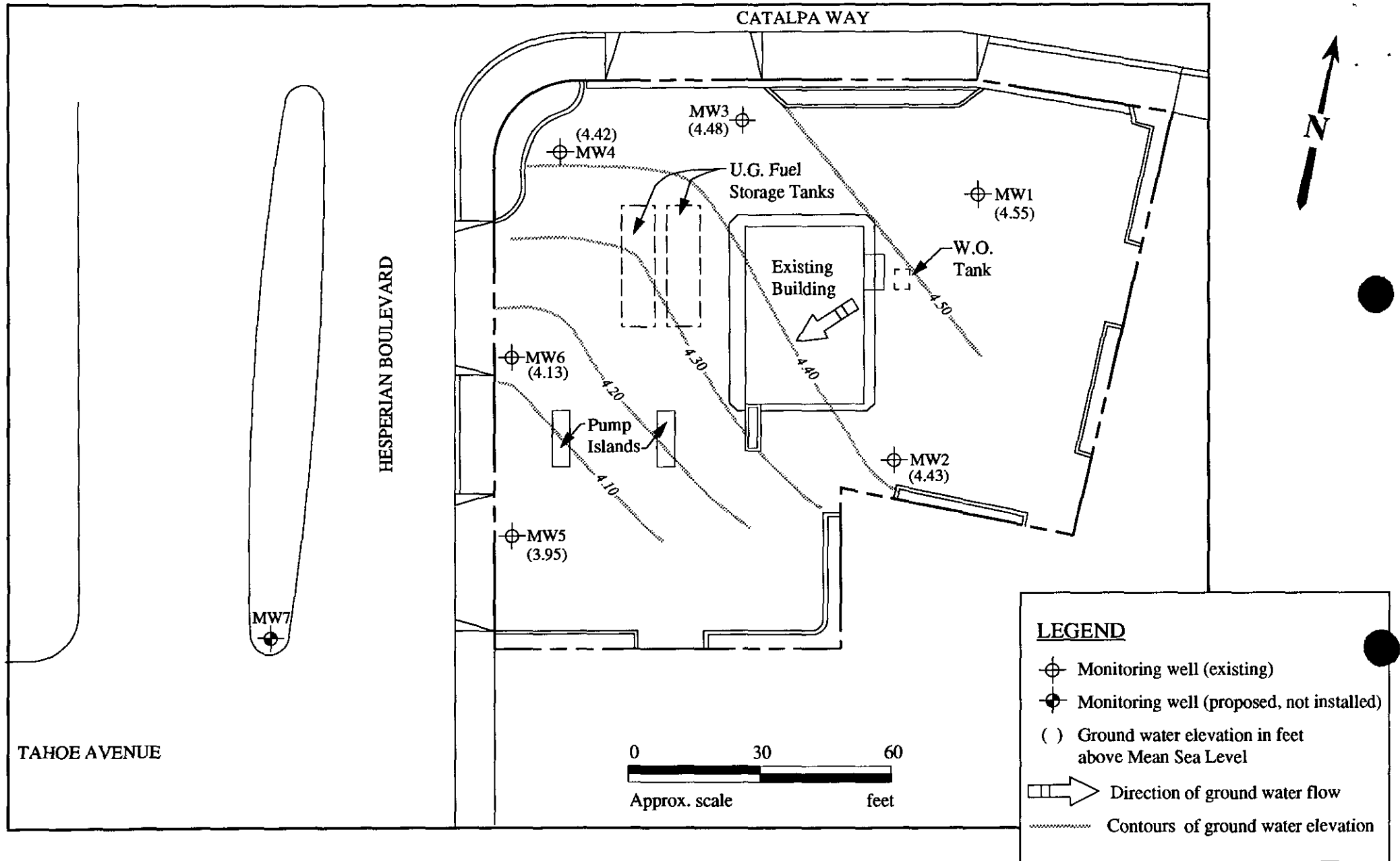
Base modified from 7.5 minute U.S.G.S. Hayward and Newark Quadrangles
 (both photorevised 1980)



KEI
 KAPREALIAN ENGINEERING
 INCORPORATED

UNOCAL SERVICE STATION #5487
28250 HESPERIAN BOULEVARD
HAYWARD, CA

LOCATION
MAP

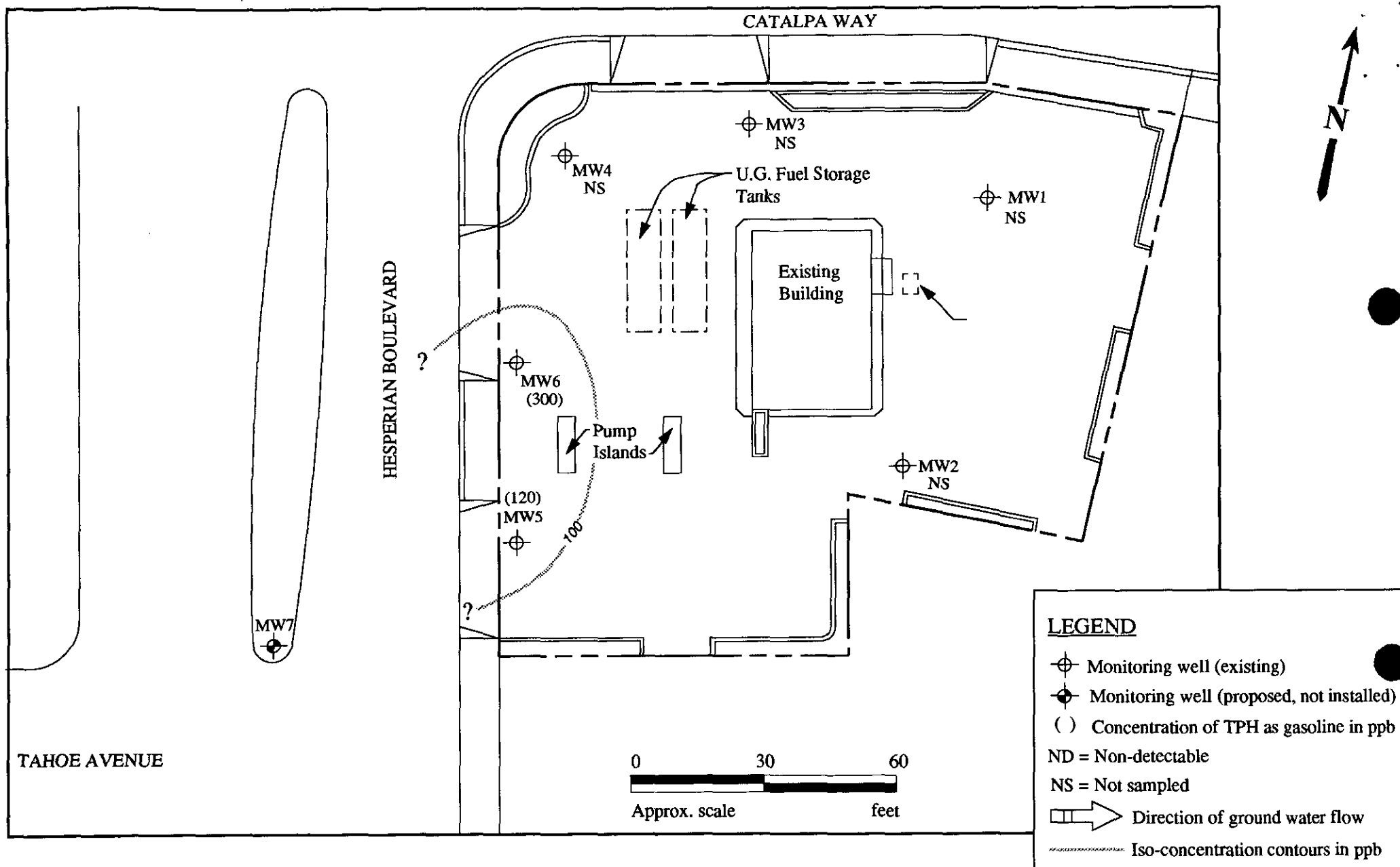


POTENTIOMETRIC SURFACE MAP FOR THE NOVEMBER 5, 1992 MONITORING EVENT



UNOCAL SERVICE STATION #5487
28250 HESPERIAN BOULEVARD
HAYWARD, CA

FIGURE
1

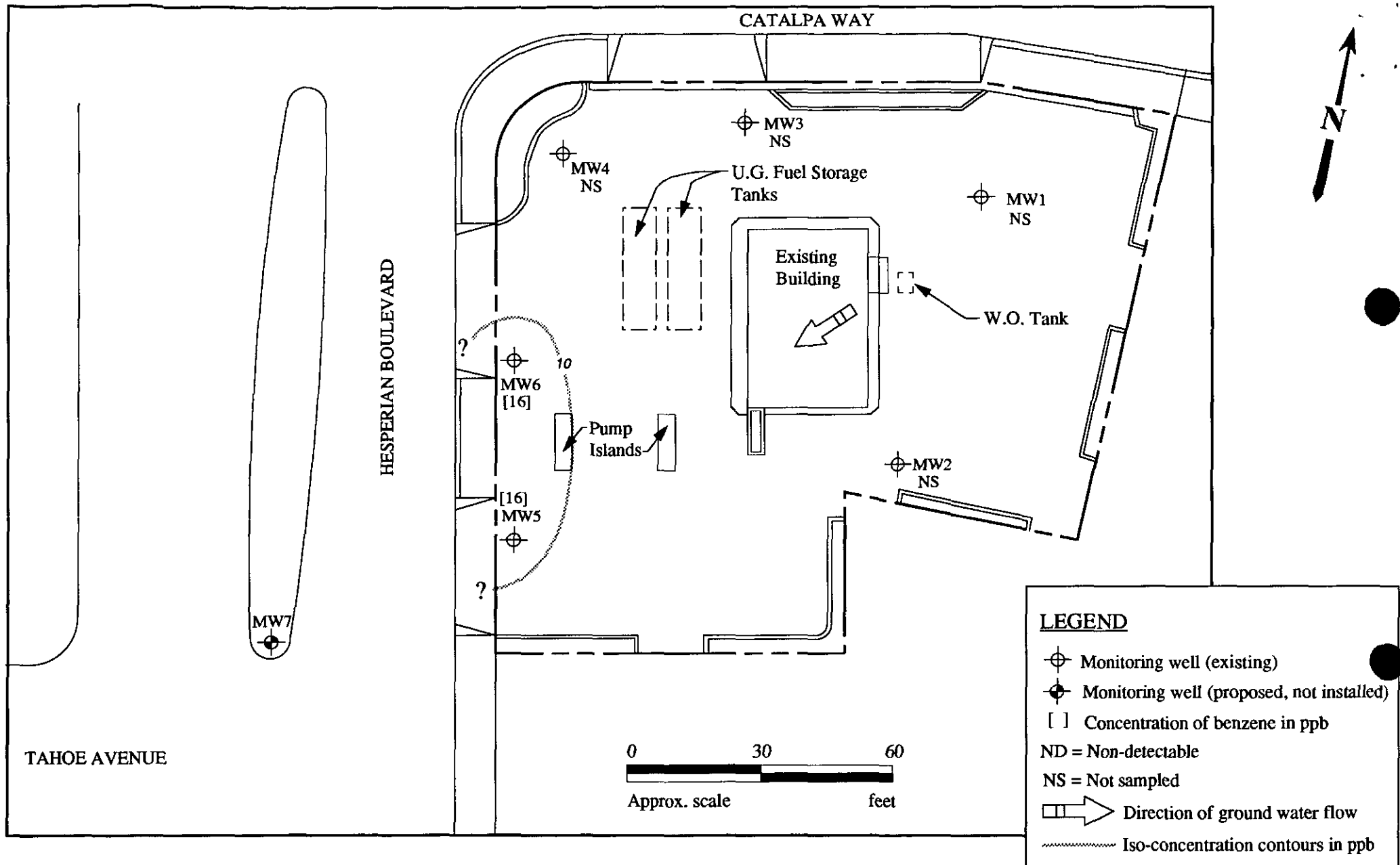


TPH AS GASOLINE CONCENTRATIONS IN GROUND WATER ON NOVEMBER 5, 1992



UNOCAL SERVICE STATION #5487
28250 HESPERIAN BOULEVARD
HAYWARD, CA

FIGURE
2



BENZENE CONCENTRATIONS IN GROUND WATER ON NOVEMBER 5, 1992



SEQUOIA ANALYTICAL

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

Kapreallan Engineering, Inc. 2401 Stanwell Drive, Suite 400 Concord, CA 94520 Attention: Mardo Kapreallan, P.E.	Client Project ID: Unocal, 28250 Hesperian Blvd., Hayward Sample Matrix: Water Analysis Method: EPA 5030/8015/8020 First Sample #: 211-0310	Sampled: Nov 5, 1992 Received: Nov 5, 1992 Reported: Nov 13, 1992
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TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 211-0310 MW 5	Sample I.D. 211-0311 MW 6	Sample I.D. Matrix Blank
Purgeable Hydrocarbons	50	120	300	
Benzene	0.5	16	16	
Toluene	0.5	N.D.	2.3	
Ethyl Benzene	0.5	3.5	14	
Total Xylenes	0.5	3.0	14	

Chromatogram Pattern: Gasoline Gasoline

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0
Date Analyzed:	11/10/92	11/10/92	11/10/92
Instrument Identification:	HP-2	HP-2	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	103	106	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



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

Client Project ID: Unocal, 28250 Hesperian Blvd., Hayward

Attention: Mardo Kaprealian, P.E. QC Sample Group: 2110310-311

Reported: Nov 13, 1992

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:	Nov 10, 1992	Nov 10, 1992	Nov 10, 1992	Nov 10, 1992
QC Sample #:	Matrix Blank	Matrix Blank	Matrix Blank	Matrix Blank
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	20	20	20	60
Conc. Matrix Spike:	20	22	22	66
Matrix Spike % Recovery:	100	110	110	110
Conc. Matrix Spike Dup.:	21	23	24	69
Matrix Spike Duplicate % Recovery:	105	115	120	115
Relative % Difference:	4.9	4.4	8.7	4.4

Laboratory blank contained the following analytes: None Detected

SEQUOIA ANALYTICAL

Scott A. Chieffo
Scott A. Chieffo
Project Manager

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



KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER <i>Vartkes</i>			SITE NAME & ADDRESS <i>Unocal / Hayward</i>						ANALYSES REQUESTED				TURN AROUND TIME: <i>Regular</i>	
WITNESSING AGENCY			<i>28250 Hesperian Blvd.</i>						<i>TPHG+BTXE</i>					REMARKS <i>2110310AB ↓ 311AB</i>
SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION						
<i>MW 5</i>	<i>11/5/92</i>	<i>1:30 pm.</i>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<i>2</i>	<i>Monitoring well</i>	<input checked="" type="checkbox"/>					
<i>MW 6</i>	<i>~</i>	<i>2:05 pm.</i>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<i>2</i>	<i>" "</i>	<input checked="" type="checkbox"/>					

Relinquished by: (Signature) <i>W. T. Baljoo</i>	Date/Time <i>11/5/92 4:00</i>	Received by: (Signature) <i>W. T. Baljoo</i>	The following MUST BE completed by the laboratory accepting samples for analysis: 1. Have all samples received for analysis been stored in ice? 2. Will samples remain refrigerated until analyzed? 3. Did any samples received for analysis have head space? 4. Were samples in appropriate containers and properly packaged? <i>Signature</i> <i>analyst</i> <i>11/5/92</i> Signature Title Date
Relinquished by: (Signature) <i>J. G. ...</i>	Date/Time <i>11-6-92</i>	Received by: (Signature) <i>[Signature]</i>	
Relinquished by: (Signature) <i>[Signature]</i>	Date/Time <i>11-9-92</i>	Received by: (Signature) <i>[Signature]</i>	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	