



KAPREALIAN ENGINEERING
INCORPORATED

Received
11/24/92
405
025

September 9, 1992

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

RE: Unocal Service Station #5484
18950 Lake Chabot Road
Castro Valley, California

Gentlemen:

Per the request of Mr. Ron Bock of Unocal Corporation, enclosed please find our report dated July 27, 1992, 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: Ron Bock, Unocal Corporation


KAPREALIAN ENGINEERING
INCORPORATED

KEI-P90-0806.QR4
July 27, 1992

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

Attention: Mr. Ron Bock

RE: Quarterly Report
Unocal Service Station #5484
18950 Lake Chabot Road
Castro Valley, California

Dear Mr. Bock:

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-P90-0806.P1 dated January 9, 1991, and per KEI's report (KEI-P90-0806.R2) dated June 27, 1992. The wells are currently monitored monthly and sampled on a quarterly basis, except for wells MW4 and MW6, which are sampled on a semi-annual basis. This report covers the work performed by KEI from April through June of 1992.

BACKGROUND

The subject site contains a service station facility. Two underground gasoline storage tanks and one waste oil tank were removed from the site in June of 1989, during tank replacement activities. The fuel tank pit and the waste oil tank pit were subsequently overexcavated in order to remove contaminated soil. Seven monitoring wells and six exploratory borings have been installed at the site; however, two of the monitoring wells (MW1 and MW3) were destroyed during tank replacement activities.

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 quarterly report (KEI-P90-0806.QR3) dated April 27, 1992.

RECENT FIELD ACTIVITIES

The five wells (MW2, and MW4 through MW7) were monitored three times and were sampled once during the quarter. During 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 the wells on June 18, 1992. Prior to sampling, the wells were each purged of between 7 and 36 gallons of water by the use of a surface pump. The samples were collected by the use of 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 and stored in a cooler, on ice, until delivery to the state-certified laboratory.

HYDROLOGY

The measured depth to ground water at the site on June 18, 1992 ranged between 6.45 and 9.53 feet below grade. The water levels in all of the wells have shown net decreases ranging from 2.06 to 0.91 feet since March 20, 1992. Based on the water level data gathered on June 18, 1992, the ground water flow direction appeared to be to the south-southwest, as shown on the attached Figure 1. The flow direction reported this quarter is unchanged from the flow directions reported since May 23, 1991. The average hydraulic gradient across the site on June 18, 1992 varied from approximately 0.074 to 0.11.

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 MW5 and MW7 were analyzed for TPH as diesel by EPA method 3510/modified 8015. The ground water sample collected from well MW7 was also analyzed for TOG by Standard Methods 5520B&F, and for EPA method 8010 compounds.

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 2. Copies of the laboratory analytical results and 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

KEI
Recommendations
1-3

sheen in any of the wells, KEI recommends a modification to the current monitoring and sampling program of the existing wells. Since the inception of KEI's monitoring and sampling program on May 23, 1991, a consistent south-southwest ground water flow direction has been identified. Since (as previously stated) no free product or sheen has been detected in any of the wells since the inception of the monitoring and sampling program, KEI recommends that the monitoring frequency of the wells be reduced from monthly to quarterly. In addition, TOG has also been non-detectable in well MW7 since the inception of the monitoring and sampling program. Therefore, KEI recommends that the TOG analysis for well MW7 be discontinued.

As shown on the attached laboratory analysis sheet, the laboratory reported that the concentration of low/medium boiling point (LMBP) hydrocarbons detected in well MW2 on June 18, 1992, "does not appear to contain gasoline," and that the "LMBP is due to one unidentified peak." KEI therefore recommends that the future ground water samples collected from well MW2 also be analyzed for methyl tert butyl ether (MTBE).

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 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.

KEI-P90-0806.QR4
July 27, 1992
Page 4

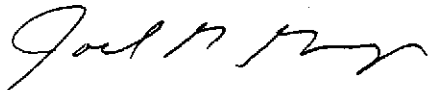
If you have any questions regarding this report, please do not hesitate to call me at (510) 602-5100.

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



Timothy R. Ross
Project Manager

\bp

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

KEI-P90-0806.QR4
 July 27, 1992

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 June 18, 1992)

MW2	223.02	6.45	0	No	9
MW4	218.56	9.52	0	No	25
MW5	216.50	8.92	0	No	26
MW6	232.04	7.34	0	No	36
MW7	222.13	9.53	0	No	7

(Monitored on May 7, 1992)

MW2	223.59	5.88	0	--	0
MW4	219.22	8.86	0	--	0
MW5	216.44	8.98	0	--	0
MW6	232.50	6.88	0	--	0
MW7	223.05	8.61	0	--	0

(Monitored on April 20, 1992)

MW2	224.30	5.17	0	--	0
MW4	219.76	8.32	0	--	0
MW5	217.19	8.23	0	--	0
MW6	232.61	6.77	0	--	0
MW7	224.03	7.63	0	--	12

<u>Well</u>	<u>Well Cover Elevation* (feet)</u>
MW2	229.47
MW4	228.08
MW5	225.42
MW6	239.38
MW7	231.66

-- Sheen determination was not performed.

* The elevations of the tops of the well covers have been surveyed relative to Mean Sea Level.

KEI-P90-0806.QR4
 July 27, 1992

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>Ethylbenzene</u>
6/18/92	MW2	--	140♦♦	ND	ND	ND	ND
	MW4	--	ND	0.41	0.84	0.55	ND
	MW5	ND	ND	ND	ND	ND	ND
	MW6	--	ND	ND	ND	ND	ND
	MW7*	990♦	5,500	340	4.2	410	380
3/20/92	MW2	--	120	ND	ND	ND	ND
	MW4		SAMPLED ON A SEMI-ANNUAL BASIS				
	MW5	170	ND	ND	ND	ND	ND
	MW6		SAMPLED ON A SEMI-ANNUAL BASIS				
	MW7*	3,200	11,000	980	ND	1,600	990
12/19/91	MW2	--	140	0.66	ND	1.2	0.64
	MW4	--	ND	ND	ND	ND	ND
	MW5	--	ND	ND	ND	ND	ND
	MW6	--	ND	ND	ND	ND	ND
	MW7**	770	3,900	240	2.4	270	280
10/10/91	MW5	ND	--	--	--	--	--
9/20/91	MW2	--	ND	ND	ND	ND	ND
	MW5	450	ND	ND	ND	ND	ND
	MW7*	580	1,400	160	0.75	130	89
5/23/91	MW2	--	ND	ND	ND	ND	ND
	MW4	--	ND	ND	ND	ND	ND
	MW5	--	ND	ND	ND	ND	ND
	MW6	--	ND	ND	ND	ND	ND
	MW7***	540	3,000	160	1.2	120	25

KEI-P90-0806.QR4
July 27, 1992

TABLE 2 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

-- Indicates analysis was not performed.

ND = Non-detectable.

* TOG and all EPA method 8010 constituents were non-detectable.

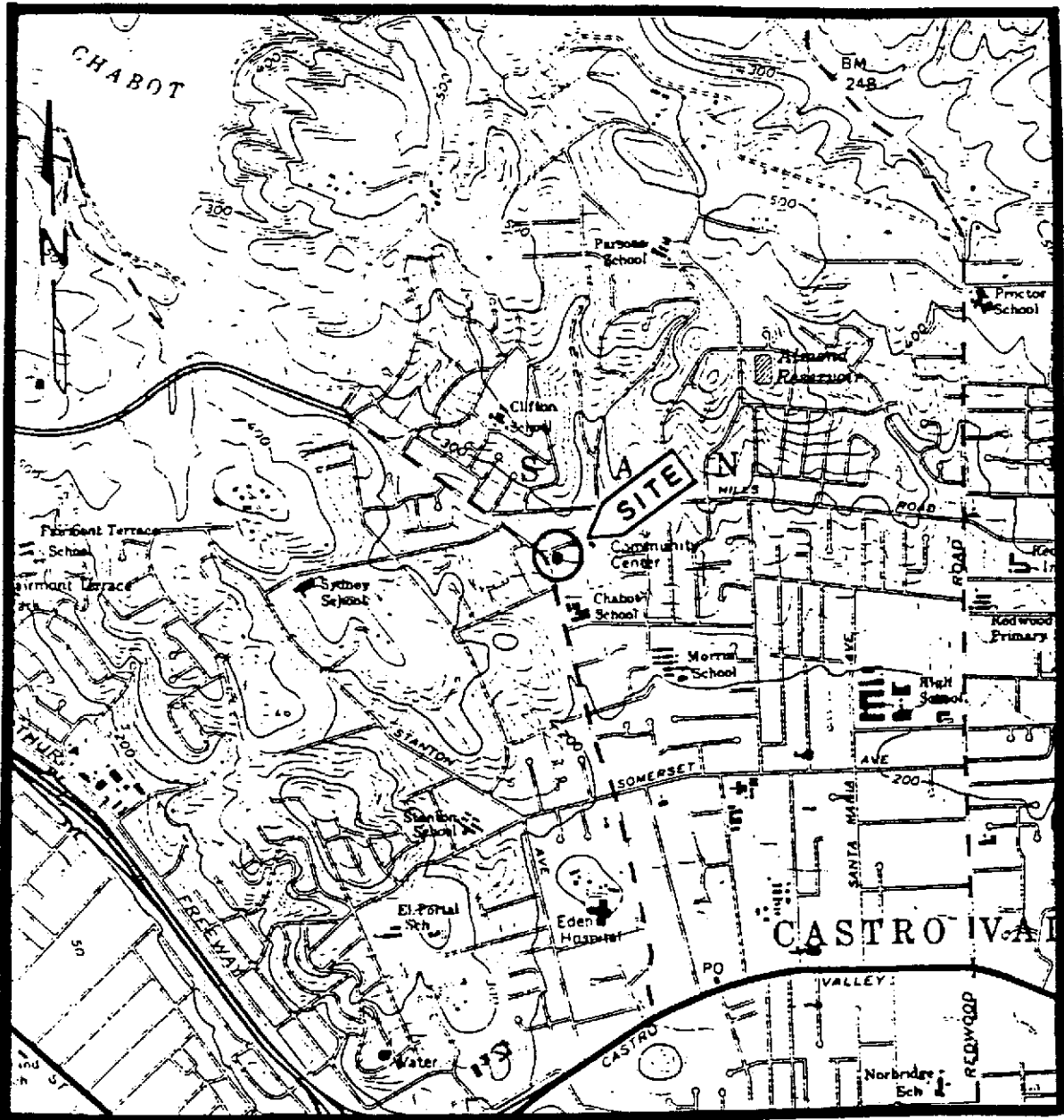
** TOG and all EPA method 8010 constituents were non-detectable, except for 3.1 ppb of 1,2-dichloroethane.

*** TOG and all EPA method 8010 constituents were non-detectable, except for 3.4 ppb of 1,2-dichloroethane.

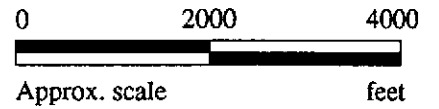
♦ The laboratory reported that this sample "does not appear to contain diesel. HBP is due to LMBP fuel peaks."

♦♦ The laboratory reported that this sample "does not appear to contain gasoline. LMBP is due to one unidentified peak."

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



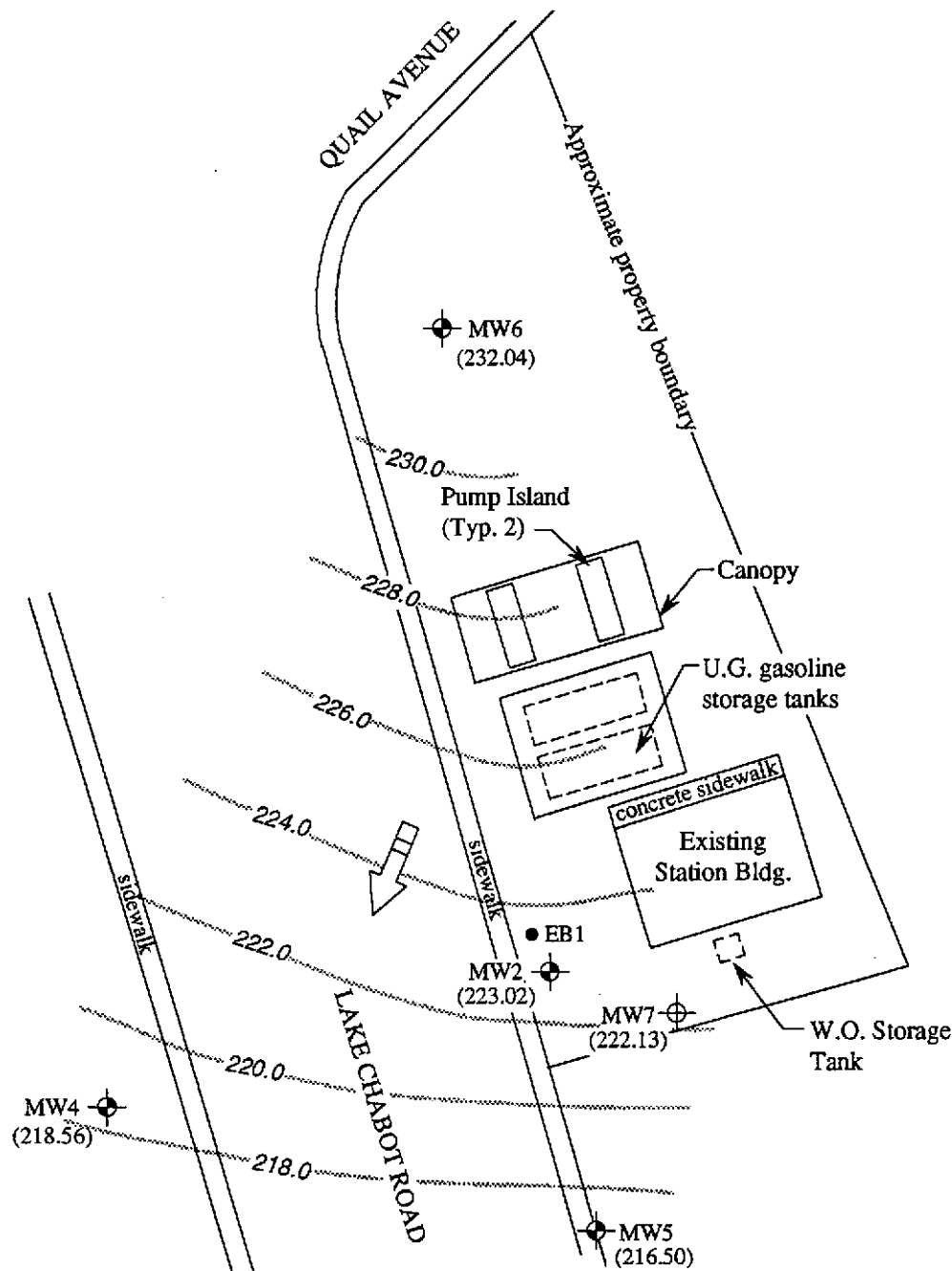
Base modified from 7.5 minute U.S.G.S. Hayward Quadrangle
(photorevised 1980)



KEE
KAPREALIAN ENGINEERING
INCORPORATED

UNOCAL SERVICE STATION #5484
18950 LAKE CHABOT ROAD
CASTRO VALLEY, CA

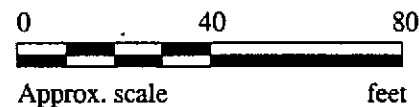
LOCATION
MAP



LEGEND

SITE PLAN

- ⊕ Monitoring well (by KEI)
- ⊙ Monitoring well (by AGS)
- Exploratory boring (by KEI)
- () Elevation of ground water table in feet above Mean Sea Level on 6/18/92
- Contours of ground water elevation
- ➡ Direction of ground water flow

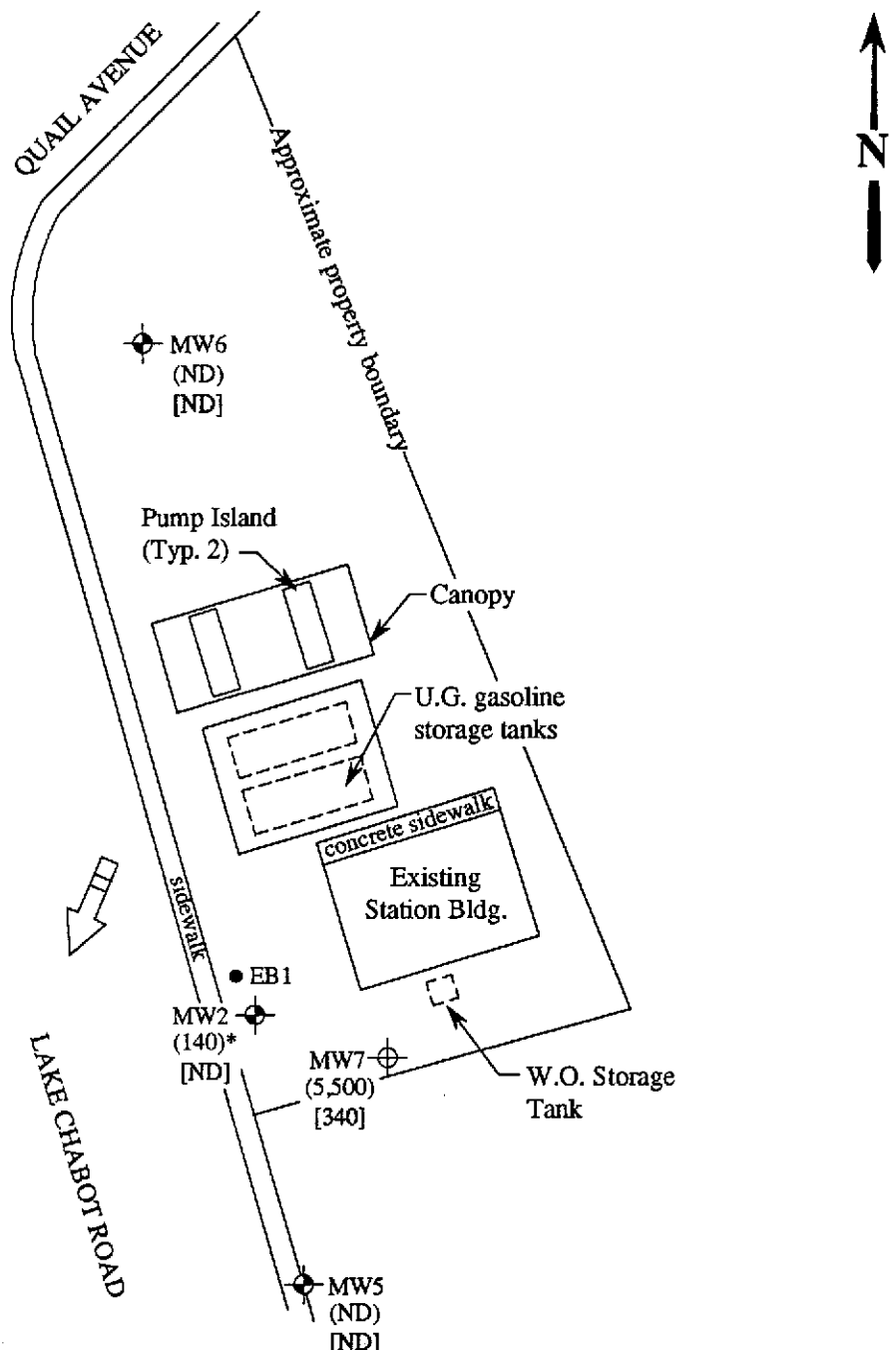


(Base modified from AGS report 18061-4 Plate P-2)



**UNOCAL SERVICE STATION #5484
18950 LAKE CHABOT ROAD
CASTRO VALLEY, CA**

**FIGURE
1**

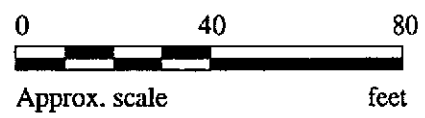


LEGEND

- ⊕ Monitoring well (by KEI)
- ⊙ Monitoring well (by AGS)
- Exploratory boring (by KEI)
- () Concentration of TPH as gasoline in ppb
- [] Concentration of benzene in ppb
- ➡ Direction of ground water flow

* The laboratory reported that "the above sample does not appear to contain gasoline."

SITE PLAN
(Samples Collected on 6/18/92)



(Base modified from AGS report 18061-4 Plate P-2)



UNOCAL SERVICE STATION #5484
18950 LAKE CHABOT ROAD
CASTRO VALLEY, CA

FIGURE
2



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, 18950 Lake Chabot Rd., Castro Valley Matrix Descript: Water Analysis Method: EPA 5030/8015/8020 First Sample #: 206-0989	Sampled: Jun 18, 1992 Received: Jun 18, 1992 Analyzed: Jun 25, 1992 Reported: Jul 1, 1992
--	--	--

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons	Benzene	Toluene	Ethyl Benzene	Xylenes
		$\mu\text{g/L}$ (ppb)	$\mu\text{g/L}$ (ppb)	$\mu\text{g/L}$ (ppb)	$\mu\text{g/L}$ (ppb)	$\mu\text{g/L}$ (ppb)
206-0989	MW-2*	140	N.D.	N.D.	N.D.	N.D.
206-0990	MW-4	N.D.	0.41	0.84	N.D.	0.55
206-0991	MW-5	N.D.	N.D.	N.D.	N.D.	N.D.
206-0992	MW-6	N.D.	N.D.	N.D.	N.D.	N.D.
206-0993	MW-7	5,500	340	4.2	380	410

Method Detection Limits:	50	0.30	0.30	0.30	0.30
---------------------------------	-----------	-------------	-------------	-------------	-------------

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.

SEQUOIA ANALYTICAL

Scott A. Chieffo
 Scott A. Chieffo
 Project Manager

Please Note:
 * The above sample does not appear to contain gasoline.
 LMSF due to one unidentified peak.

2060989 KEI <1>



SEQUOIA ANALYTICAL

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

Kaprealian Engineering, Inc. 2401 Starwell Drive, Suite 400 Concord, CA 94520 Attention: Mardo Kaprealian, P.E.	Client Project ID: Unocal, 18950 Lake Chabot Rd., Castro Valley Matrix Descript: Water Analysis Method: EPA 3510/8015 First Sample #: 206-0991	Sampled: Jun 18, 1992 Received: Jun 18, 1992 Extracted: Jun 25, 1992 Analyzed: Jun 29, 1992 Reported: Jul 1, 1992
--	---	---

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons $\mu\text{g/L}$ (ppb)
206-0991	MW-5	N.D.
206-0993	MW-7*	990

Method Detection Limits: 50

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.

SEQUOIA ANALYTICAL


Scott A. Chierfo
Project Manager

Please Note: * The above sample does not appear to contain diesel. HBP is due to LMR fuel peaks.

2060989.KEI <2>



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, 18950 Lake Chabot Rd., Castro Valley Matrix Descript: Water Analysis Method: SM 5520 B&F (Gravimetric) First Sample #: 206-0993	Sampled: Jun 18, 1992 Received: Jun 18, 1992 Extracted: Jun 23, 1992 Analyzed: Jun 24, 1992 Reported: Jul 1, 1992
--	---	---

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/L (ppm)
206-0993	MW-7	N.D.

Detection Limits: 5.0

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

SEQUOIA ANALYTICAL


Scott A. Chieffo
Project Manager

2060989.KEI <3>



SEQUOIA ANALYTICAL

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, 18950 Lake Chabot Rd., Castro Valley	Sampled:	Jun 18, 1992
2401 Stanwell Drive, Suite 400	Sample Descript:	Water	Received:	Jun 18, 1992
Concord, CA 94520	Analysis Method:	EPA 5030/8010	Analyzed:	Jun 30, 1992
Attention: Mardo Kaprealian, P.E.	Lab Number:	206-0993	Reported:	Jul 1, 1992

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane.....	2.5	N.D.
Bromoform.....	2.5	N.D.
Bromomethane.....	2.5	N.D.
Carbon tetrachloride.....	2.5	N.D.
Chlorobenzene.....	2.5	N.D.
Chloroethane.....	2.5	N.D.
2-Chloroethylvinyl ether.....	2.5	N.D.
Chloroform.....	2.5	N.D.
Chloromethane.....	2.5	N.D.
Dibromochloromethane.....	2.5	N.D.
1,3-Dichlorobenzene.....	2.5	N.D.
1,4-Dichlorobenzene.....	2.5	N.D.
1,2-Dichlorobenzene.....	2.5	N.D.
1,1-Dichloroethane.....	2.5	N.D.
1,2-Dichloroethane.....	2.5	N.D.
1,1-Dichloroethene.....	2.5	N.D.
cis-1,2-Dichloroethene.....	2.5	N.D.
trans-1,2-Dichloroethene.....	2.5	N.D.
1,2-Dichloropropane.....	2.5	N.D.
cis-1,3-Dichloropropene.....	2.5	N.D.
trans-1,3-Dichloropropene.....	2.5	N.D.
Methylene chloride.....	25	N.D.
1,1,2,2-Tetrachloroethane.....	2.5	N.D.
Tetrachloroethene.....	2.5	N.D.
1,1,1-Trichloroethane.....	2.5	N.D.
1,1,2-Trichloroethane.....	2.5	N.D.
Trichloroethene.....	2.5	N.D.
Trichlorofluoromethane.....	2.5	N.D.
Vinyl chloride.....	2.5	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

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, 18950 Lake Chabot Rd., Castro Valley

Attention: Mardo Kaprealian, P.E. QC Sample Group: 2050989-993

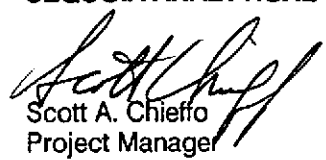
Reported: Jul 1, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes	Diesel	Oil and Grease
Method:	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020	EPA8015	SM5520
Analyst:	J.F.	J.F.	J.F.	J.F.	K.Wimer	D. Newcomb
Reporting Units:	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L
Date Analyzed:	Jun 23, 1992	Jun 23, 1992	Jun 23, 1992	Jun 23, 1992	Jun 29, 1992	Jun 23, 1992
QC Sample #:	Matrix Blank	Matrix Blank	Matrix Blank	Matrix Blank	Matrix Blank	Matrix Blank
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	20	20	20	60	300	100
Conc. Matrix Spike:	22	21	20	63	301	95
Matrix Spike % Recovery:	110	105	100	105	100	95
Conc. Matrix Spike Dup.:	22	21	21	63	288	96
Matrix Spike Duplicate % Recovery:	110	105	105	105	96	96
Relative % Difference:	0.0	0.0	4.9	0.0	4.4	1.0

Laboratory blank contained the following analytes: None Detected

SEQUOIA ANALYTICAL


Scott A. Chieffo
Project Manager

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

2060989.KEL <5>



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, 18950 Lake Chabot Rd., Castro Valley

Attention: Mardo Kaprealian, P.E. QC Sample Group: 2060989-993

Reported: Jul 1, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Trichloro-ethene	Chloro-benzene
1,1-Dichloroethene		

Method:	EPA 8010	EPA 8010	EPA 8010
Analyst:	M. Nguyen	M. Nguyen	M. Nguyen
Reporting Units:	ug/L	ug/L	ug/L
Date Analyzed:	Jun 30, 1992	Jun 30, 1992	Jun 30, 1992
QC Sample #:	Matrix Blank	Matrix Blank	Matrix Blank

Sample Conc.:	N.D.	N.D.	N.D.
---------------	------	------	------

Spike Conc. Added:	10	10	10
--------------------	----	----	----

Conc. Matrix Spike:	8.7	8.6	7.7
---------------------	-----	-----	-----

Matrix Spike % Recovery:	87	86	77
--------------------------	----	----	----

Conc. Matrix Spike Dup.:	8.6	9.0	7.9
--------------------------	-----	-----	-----

Matrix Spike Duplicate % Recovery:	86	90	79
------------------------------------	----	----	----

Relative % Difference:	1.0	4.5	2.6
------------------------	-----	-----	-----

Laboratory blank contained the following analytes: None Detected

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

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

2060989.KEI <6>



SEQUOIA ANALYTICAL

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

Kaprealian Engineering, Inc.
2401 Starwell Drive, Suite 400
Concord, CA 94520

Client Project ID: Unocal, 18950 Lake Chabot Rd., Castro Valley

Attention: Mardo Kaprealian, P.E. QC Sample Group: 2060989-993

Reported: Jul 1, 1992

QUALITY CONTROL DATA REPORT

SURROGATE

	EPA	EPA	EPA	EPA	EPA	EPA	EPA
Method:	8015/8020	8015/8020	8015/8020	8015/8020	8015/8020	8015/8020	EPA8015
Analyst:	J.F.	J.F.	J.F.	J.F.	J.F.	J.F.	K.Wimer
Reporting Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Date Analyzed:	Jun 25, 1992	Jun 25, 1992	Jun 25, 1992	Jun 25, 1992	Jun 25, 1992	Jun 23, 1992	Jun 29, 1992
Sample #:	206-0989	206-0990	206-0991	206-0992	206-0993	Blank	206-0991

Surrogate							
% Recovery:	99	100	107	100	98	100	80

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

2060989.KEI <7>



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, 18950 Lake Chabot Rd., Castro Valley

Attention: Mardo Kaprealian, P.E. QC Sample Group: 2060989-993

Reported: Jul 1, 1992

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015	EPA8015
Analyst:	K.Wimer	K.Wimer
Reporting Units:	ug/L	ug/L
Date Analyzed:	Jun 29, 1992	Jun 29, 1992
Sample #:	206-0993	Blank

Surrogate		
% Recovery:	83	101

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

2060989.KEI <8>



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

Client Project ID: Unocal, 18950 Lake Chabot Rd., Castro Valley

Attention: Mardo Kapreallan, P.E. QC Sample Group: 2060989-993

Reported: Jul 1, 1992

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA 8010	EPA 8010
Analyst:	M. Nguyen	M. Nguyen
Reporting Units:	ug/L	ug/L
Date Analyzed:	Jun 30, 1992	Jun 30, 1992
Sample #:	206-0993	Blank

Surrogate #1		
% Recovery:	113	100

Surrogate #2		
% Recovery:	125	105

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

2060989.KEL <9>



KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER <i>Vartkes</i>		SITE NAME & ADDRESS <i>Unocal / Castro Valley 18950 Lake Chabot Rd.</i>					ANALYSES REQUESTED				TURN AROUND TIME: <i>Regular</i>	
WITNESSING AGENCY							<i>TPHG; BTXE</i>	<i>TPHD</i>	<i>TOG (SS, B, F)</i>	<i>8010</i>		
SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION		REMARKS		
<i>MW-2</i>	<i>6/18/92</i>	<i>2:00 p.m.</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<i>2</i>	<i>Monitoring Well</i>		<i>2060989AB</i> <i>↓</i> <i>990AB</i> <i>991AC</i> <i>992AB</i> <i>↓</i> <i>993AF</i>		
<i>MW-4</i>	<i>"</i>	<i>↓</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<i>2</i>	<i>" "</i>				
<i>MW-5</i>	<i>"</i>	<i>↓</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<i>3</i>	<i>" "</i>				
<i>MW-6</i>	<i>"</i>	<i>↓</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<i>2</i>	<i>" "</i>				
<i>MW-7</i>	<i>"</i>	<i>5:15</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<i>6</i>	<i>" "</i>				
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? 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>W. Tachopoulos</i>		<i>6/18/92 6:25</i>	<i>M. ... 6/18 6:25 PM</i>									
<i>Sophia ...</i>		<i>6-19</i>	<i>... 6/19 12:30 pm</i>									
Relinquished by: (Signature)		Date/Time	Received by: (Signature)									
Relinquished by: (Signature)		Date/Time	Received by: (Signature)		Signature		Title		Date			
					<i>M. ...</i>		<i>Analyst</i>		<i>6/18</i>			