

See  
1/27/95



**KAPREALIAN ENGINEERING, INC.**

Consulting Engineers

P. O. BOX 913

BENICIA, CA 94510

(707) 746-8915 (707) 746-8916

FAX: (707) 746-5581

KEI-P89-0805.R4

November 30, 1989

Unocal Corporation  
2175 N. California Blvd., Suite #650  
Walnut Creek, CA 94596

Attention: Mr. Tim Ross

RE: Preliminary Ground Water Investigation at  
Unocal Service Station #0746  
3943 Broadway Street  
Oakland, California

ALSO  
HAZMAT  
JUN 27 PM 12:09

Dear Mr. Ross:

This report presents the results of soil and ground water investigation for the referenced site in accordance with proposal KEI-P89-0805.P1 dated August 30, 1989. The purpose of the investigation was to determine the ground water flow direction, and to begin to determine the degree and extent of the subsurface soil and ground water contamination at the site. The work performed consisted of the following:

- Coordination with regulatory agencies.
- Drilling, installation and development of three monitoring wells.
- Soil sampling.
- Ground water monitoring, purging and sampling.
- Laboratory analyses.
- Data analysis, interpretation and report preparation.

SITE DESCRIPTION AND BACKGROUND

The subject site is presently used as a gasoline station. A Site Location Map and detailed Site Plan are attached to this report.

KEI's work at the site began on August 16, 1989 when KEI was asked to collect soil samples following the removal of two underground fuel storage tanks and one waste oil tank at the site. Soil samples (collected from the sidewalls of the gasoline tank excavation pit, from the bottom of the waste oil tank

excavation, and from pipe trenches), and water samples collected from the fuel tank pit after 1,500 gallons and 5,000 gallons were purged from the pit were analyzed by Sequoia Analytical Laboratory in Redwood City, California. Soil and water samples were analyzed for total petroleum hydrocarbons (TPH) as gasoline, and benzene, toluene, xylenes and ethylbenzene (BTX&E). The soil sample from beneath the waste oil tank was analyzed for TPH as gasoline, BTX&E, TPH as diesel, total oil and grease, and EPA method 8010 constituents.

The analytical results of the soil samples collected from the sidewalls of the fuel tank pit, the bottom of the waste oil tank pit, and the pipe trenches, showed TPH as gasoline ranging from non-detectable to 290 ppm. However, the ground water sample analyses from the tank pit showed 4,700 ppb TPH as gasoline and 180 ppb as benzene (after purging 1,500 gallons), and 1,200 ppb TPH as gasoline, and 12 ppb as benzene (after purging 5,000 gallons). To comply with the requirements of the regulatory agencies and based on the analytical results, KEI proposed installation of three monitoring wells. Results of the soil samples from the tank excavation are summarized in KEI's report KEI-J89-0805.R1 dated August 30, 1989.

#### FIELD ACTIVITIES

Three 2-inch diameter monitoring wells (designated as MW1, MW2 and MW3 on the attached Site Plan) were installed at the site on October 17, 1989. The wells were drilled, constructed and completed in accordance with the guidelines of the Regional Water Quality Control Board (RWQCB) and the County well standards.

The subsurface materials penetrated and details of the construction of the wells are described in the attached Boring Logs.

The three wells were drilled and completed to total depths ranging from 20 to 22.5 feet. Ground water was encountered at depths ranging from 11 to 13 feet beneath the surface during drilling. Soil samples were taken at five foot intervals beginning at 5 feet below grade until ground water was encountered. The undisturbed soil samples were taken by driving a California-modified split-spoon sampler lined with brass liners ahead of the drilling augers. The 2-inch diameter brass liners holding the samples were sealed with aluminum foil, plastic caps and tape, and stored in a cooled ice chest for delivery to a certified laboratory. Each well casing was installed with a watertight cap and padlock. A round, watertight, flush-mounted well cover was cemented in place over each well casing.

The wells were developed on October 26 and 30, 1989. Prior to development, the wells were checked for depth to the water table using an electronic sounder, presence of free product (using paste tape) and sheen. No free product or sheen was noted in any of the wells. After recording the monitoring data, the wells were developed with a surface pump until the evacuated water was clear and free of suspended sediment. Monitoring and well development data are summarized in Table 1.

The wells were sampled on November 1, 1989. Prior to sampling, monitoring data were collected and water samples were then collected using a clean Teflon bailer. The samples were decanted into clean glass VOA vials, sealed with Teflon lined screw caps, and labeled and stored on ice until delivery to a certified laboratory.

#### ANALYTICAL RESULTS

Water and selected soil samples were analyzed at Sequoia Analytical Laboratory in Redwood City, California. All samples were accompanied by properly executed Chain of Custody documentation. Samples were analyzed for TPH as gasoline by EPA method 5030 in conjunction with modified 8015 and BTX&E by EPA method 8020.

Soil sample analyses show non-detectable levels of TPH as gasoline and BTX&E in all samples from MW1 and MW2, except in MW1(5) at a depth of 5 feet, which had TPH as gasoline levels of 8.5 ppm and xylenes at 0.14 ppm. Soil samples from MW3 showed concentrations of TPH as gasoline, which varied between 3.1 and 1,100 ppm. Benzene concentrations varied between 0.068 and 16 ppm. The water sample analyses show non-detectable levels of benzene in wells MW1 and MW2. Benzene was detected in MW3 at a concentration of 57 ppb. Results of the soil analyses are summarized in Table 2, and the water analyses on Table 3. Copies of the laboratory analyses and Chain of Custody documentation are attached to this report.

#### HYDROLOGY AND GEOLOGY

The water table stabilized in the monitoring wells at depths ranging from 8.45 to 10.35 feet below the surface. The ground water flow direction appeared to be toward the south to the south-southwest on November 1, 1989, (based on water level data collected from the three monitoring wells prior to pumping).

Based on review of regional geologic maps, the site is underlain by Quaternary alluvium (Temescal Formation?) to the maximum depths explored (22.5 feet). Specifically, the subsurface earth materials consist predominantly of silty, sandy or gravelly clay

underlain by a coarse grained zone, which varies in thickness from about 3 to 7 feet and consists of clayey sand or gravel with locally well graded gravel. This coarse grained zone is in turn underlain by clay materials. Detailed descriptions of the soil materials encountered in our subsurface exploration are provided on the attached Boring Logs.

#### DISCUSSION AND RECOMMENDATIONS

Based on the analytical results, KEI recommends the installation of an additional three monitoring wells, designated as MW4, MW5 and MW6, to further define the extent of detected contamination. The proposed locations for the additional monitoring wells are shown on the attached Site Plan. In addition, KEI recommends implementation of a monitoring and sampling program. The wells should be monitored on a monthly basis, and purged and sampled on a quarterly basis. The proposed program should be conducted for a period of 12 months. The results of the monitoring program will be documented and evaluated after each monitoring and sampling event. Recommendations for altering or terminating the program will be made as needed. Our proposal for this work is attached for your consideration.

#### DISTRIBUTION

Copies of this report should be sent to Mr. Gil Wistar of the Alameda County Health Agency, and to the RWQCB, San Francisco Bay Region.

#### LIMITATIONS

Soil deposits and rock formations may vary in thickness, lithology, saturation, strength and other properties across any site. In addition, 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 investigations. We have analyzed this 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, except that our services have been performed in accordance with generally accepted professional principles and practices existing for such work.

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November 30, 1989  
Page 5

Should you have any questions regarding this report, please do not hesitate to call me at (707) 746-6915.

Sincerely,

Kaprealian Engineering, Inc.



Paul H. King  
Hydrogeologist



Don R. Braun  
Certified Engineering Geologist

License No. 1310  
Exp. Date 6/30/90



Mardo Kaprealian  
President

Attachments: Tables 1, 2 & 3  
Location Map  
Site Plan  
Boring Logs  
Laboratory Results  
Chain of Custody documentation  
Proposal

KEI-P89-0805.R4  
November 30, 1989

TABLE 1

SUMMARY OF GROUND WATER MONITORING AND DEVELOPMENT DATA

<u>Well #</u>	<u>Depth to Water (feet)</u>	<u>Product Thickness</u>	<u>Sheen</u>	<u>Gallons Pumped</u>
(Monitored and Developed on October 30, 1989)				
MW1	8.20	0	None	110
MW2	9.17	0	None	42
MW3	10.15	0	None	110

(Monitored and Developed on October 26, 1989)				
MW1	8.41	0	None	110
MW2	9.53	0	None	40
MW3	10.34	0	None	55

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November 30, 1989

TABLE 2

SUMMARY OF LABORATORY ANALYSES  
SOIL

(Collected on October 17, 1989)

<u>Sample Number</u>	<u>Depth (feet)</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethyl-benzene</u>
MW1(5)	5	8.5	ND	ND	0.14	ND
MW1(10)	10	ND	ND	ND	ND	ND
MW2(5)	5	ND	ND	ND	ND	ND
MW2(10)	10	ND	ND	ND	ND	ND
MW2(12.5)	12.5	ND	ND	ND	ND	ND
MW3(5)	5	3.1	0.068	ND	ND	ND
MW3(10)	10	69	0.89	2.6	7.9	2.0
MW3(11)	11	1,100	16	85	150	35
Detection Limits		1.0	0.05	0.1	0.1	0.1

ND = Non-detectable.

All results in ppm.

KEI-P89-0805.R4  
November 30, 1989

TABLE 3

SUMMARY OF LABORATORY ANALYSES  
WATER

(Collected on November 1, 1989)

<u>Sample Number</u>	<u>Depth to Water (feet)</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethyl- benzene</u>
MW1	8.45	ND	ND	ND	0.30	ND
MW2	9.57	200	ND	ND	1.2	3.0
MW3	10.35	13,000	57	48	120	1.7
Detection Limits		30	0.3	0.3	0.3	0.3

ND = Non-detectable.

All results in ppb.





# KAPREALIAN ENGINEERING, INC.

Consulting Engineers

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BENICIA, CA 94510

(707) 746-6915



LOCATION MAP

Unocal Service Station #0746  
3943 Broadway Street  
Oakland, California



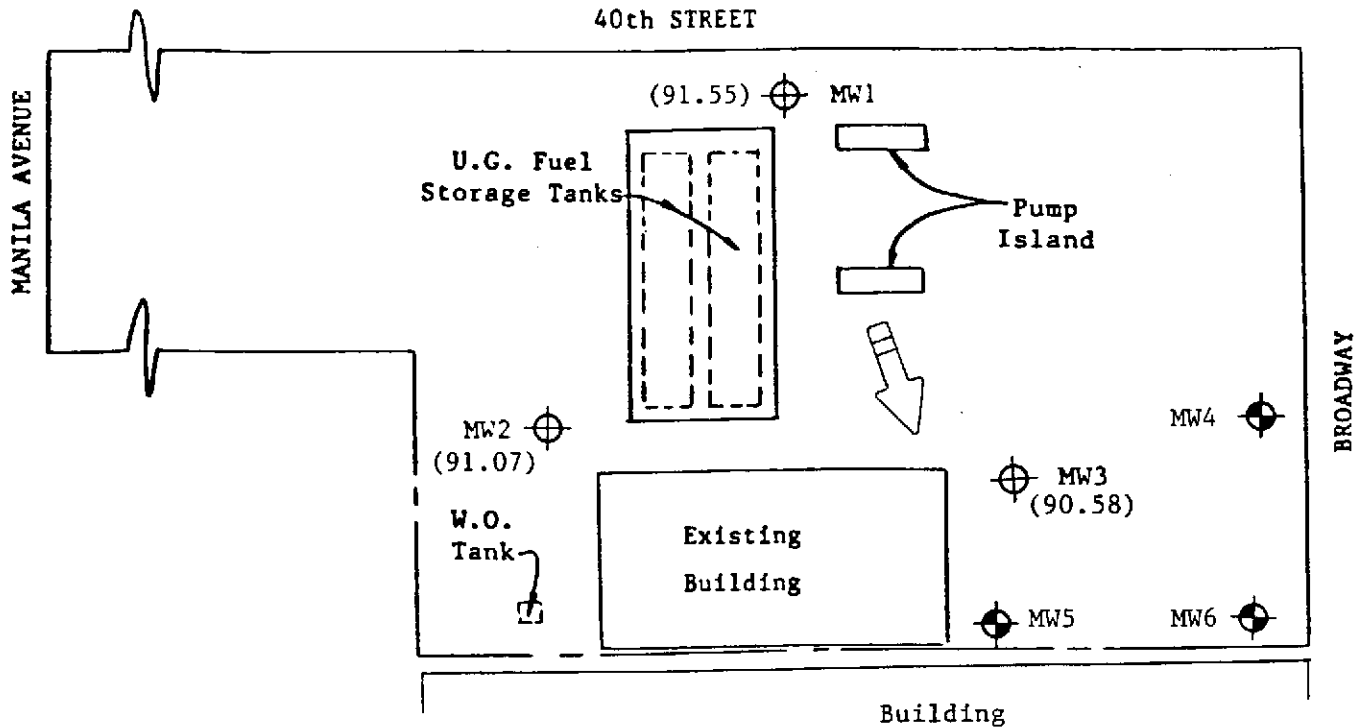
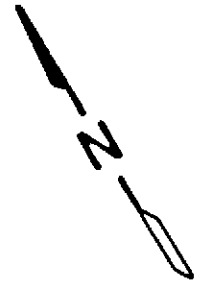
# KAPREALIAN ENGINEERING, INC.

Consulting Engineers

P. O. BOX 913

BENICIA, CA 94510

(707) 748-6915

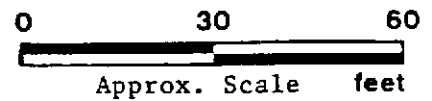


SITE PLAN

### LEGEND

- Monitoring Well (Proposed)
- Monitoring Well (Existing)
- ( ) Ground water surface elevation on 11/1/89. MW1 well cover assumed 100.00' as datum.

Direction of ground water flow on 11/1/89.



Unocal Service Station #0746  
3943 Broadway Street  
Oakland, California

**B O R I N G   L O G**

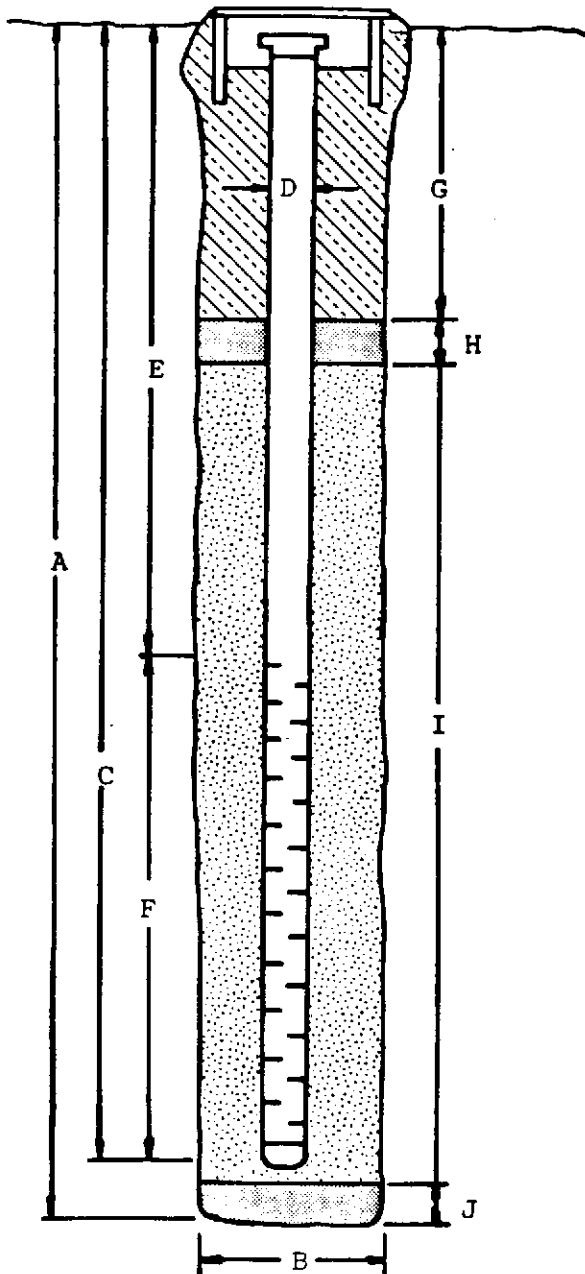
<b>Project No.</b> KEI-P89-0805	<b>Boring &amp; Casing Diameter</b> 9"                      2"	<b>Logged By</b> D.L.
<b>Project Name</b> Unocal Oakland - Broadway	<b>Well Head Elevation</b> N/A	<b>Date Drilled</b> 10/17/89
<b>Boring No.</b> MW1	<b>Drilling Method</b> Hollow-stem Auger	<b>Drilling Company</b> EGI

Penetration blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description
		0		A.C. Pavement Clay, sand and gravel: fill.
5/7/15		5	CH	Silty clay, high plasticity, very stiff, moist, black, trace gravel.  Sandy clay, high plasticity, trace gravel, very stiff, moist, dark olive gray.
7/10/16	▽	10	SC	Clayey sand, 30-40% clay, medium dense, very moist, grayish brown, mottled.
			GC	Clayey gravel with sand, medium dense, very moist, olive brown and strong brown, mottled.
10/15/12			GP/ GC	Poorly graded gravel with clay and sand, medium dense, wet, dark yellowish brown.
		15	CH	Clay, high plasticity, very stiff, moist, greenish gray and olive brown.
11/17/23			CH	Clayey gravel with sand, very dense, moist, dark greenish gray, gravel to 1".
10/16/19		20	GC MH	Clayey silt, very stiff, moist, dark greenish gray. TOTAL DEPTH 20'

**W E L L   C O M P L E T I O N   D I A G R A M**

PROJECT NAME: Unocal - Oakland - Broadway      BORING/WELL NO. MW1  
 PROJECT NUMBER: KEI-P89-0805  
 WELL PERMIT NO.: 89456


Flush-mounted Well Cover



- A. Total Depth: 20'
- B. Boring Diameter\*: 9"  
 Drilling Method: Hollow Stem Auger
- C. Casing Length: 20'  
 Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"  
ID = 2.067"
- E. Depth to Perforations: 5'
- F. Perforated Length: 15'  
 Perforation Type: Machined Slot  
 Perforation Size: 0.020"
- G. Surface Seal: 2'  
 Seal Material: Concrete
- H. Seal: 2'  
 Seal Material: Bentonite
- I. Gravel Pack: 16'  
 Pack Material: RMC Lonestar Sand  
 Size: #3
- J. Bottom Seal: None  
 Seal Material: N/A

\*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

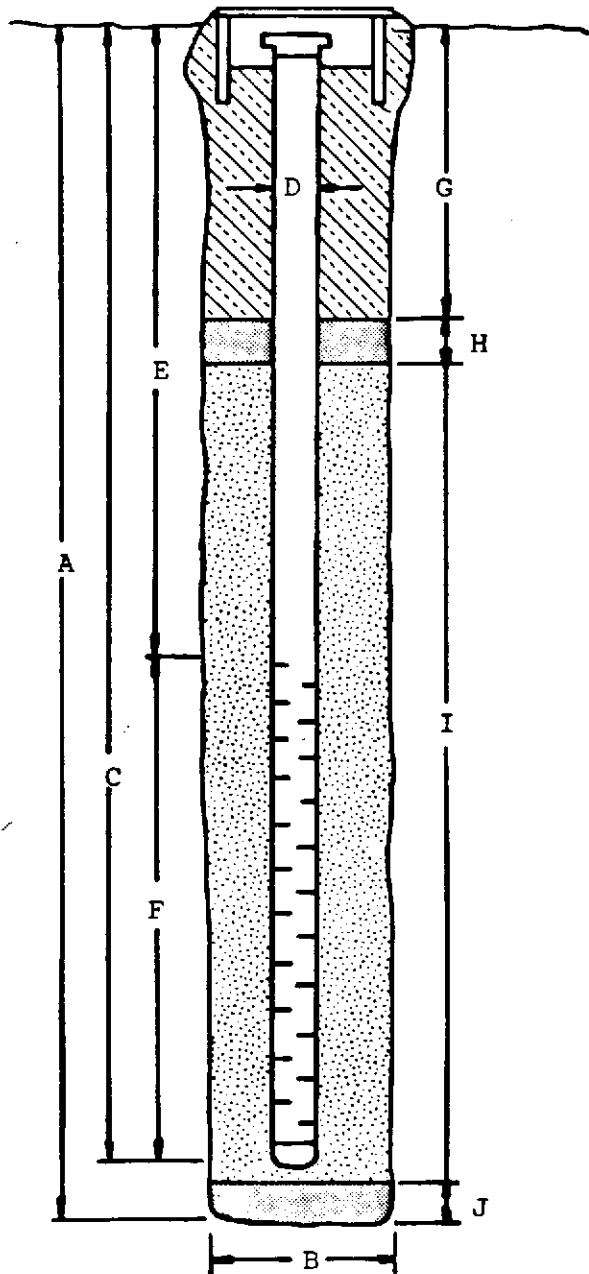
## BORING LOG

Project No. KEI-P89-0805		Boring & Casing Diameter 9"                      2"		Logged By D.L.	
Project Name Unocal Oakland - Broadway		Well Head Elevation N/A		Date Drilled 10/17/89	
Boring No. MW2		Drilling Method Hollow-stem Auger		Drilling Company EGI	
Penetration blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description	
		0		A.C. Pavement Clay, sand and gravel: fill.	
			CH	Silty clay, high plasticity, stiff, moist, black, organic odor, trace - 15% gravel below 3.5 feet.	
6/9/15		5		Sandy clay, 5-10% gravel, very stiff, moist, dark olive gray.	
			CL/ CH	Gravelly clay, 15-30% gravel to 5/8", stiff to very stiff, moist, dark brown.	
7/8/11		10		Clayey sand, medium dense, moist to very moist, olive brown and strong brown, mottled.	
6/7/10			SC		
12/22/28			GW/ GC	Well graded gravel with clay and sand, gravel to 2 1/2", dense to very dense.	
		15		Clay, very stiff to hard, olive brown to yellowish brown, mottled.	
			CL/ CH	Clay, as above, yellowish brown, 10% silt, trace - 15% sand.	
9/20/18		20		TOTAL DEPTH 20'	

**W E L L   C O M P L E T I O N   D I A G R A M**

PROJECT NAME: Unocal - Oakland - Broadway      BORING/WELL NO. MW2  
 PROJECT NUMBER: KEI-P89-0805  
 WELL PERMIT NO.: 89456

Flush-mounted Well Cover



- A. Total Depth: 20'
- B. Boring Diameter\*: 9"  
 Drilling Method: Hollow Stem Auger
- C. Casing Length: 20'  
 Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"  
ID = 2.067"
- E. Depth to Perforations: 5'
- F. Perforated Length: 15'  
 Perforation Type: Machined Slot  
 Perforation Size: 0.020"
- G. Surface Seal: 2'  
 Seal Material: Concrete
- H. Seal: 2'  
 Seal Material: Bentonite
- I. Gravel Pack: 16'  
 Pack Material: RMC Lonestar Sand  
 Size: #3
- J. Bottom Seal: None  
 Seal Material: N/A

\*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

**B O R I N G   L O G**

<b>Project No.</b> KEI-P89-0805	<b>Boring &amp; Casing Diameter</b> 9"                      2"	<b>Logged By</b> D.L.
<b>Project Name Unocal</b> Oakland - Broadway	<b>Well Head Elevation</b> N/A	<b>Date Drilled</b> 10/17/89
<b>Boring No.</b> MW3	<b>Drilling Method</b> Hollow-stem Auger	<b>Drilling Company</b> EGI

Penetration blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description
		0		A.C. Pavement Clay, sand and gravel: fill.
5/5/11		5	CH	Sandy clay, high plasticity with gravel, firm, moist, olive gray and black, mottled with debris, disturbed. Silty clay, high plasticity, 5-10% sand, firm, moist, black.
5/7/12		10	CL/ CH	Gravelly clay, 30% gravel to 1/2", firm, moist, very dark grayish brown, gray root holes.
3/9/11	▽		SC	Sandy clay, stiff, moist, olive brown and gray, mottled. Clayey sand, medium dense, very moist, 40% clay, olive gray and olive brown, mottled.
6/17/16				Clayey sand w/gravel, 15% clay, dense, very moist.
7/9/13		15	CL/ CH	Clay, very stiff, moist, grayish green and olive brown, mottled. brown, mottled.
9/11/14		20		Clay, as above, greenish gray and light olive brown.

**B O R I N G   L O G**

<b>Project No.</b> KEI-P89-0805	<b>Boring &amp; Casing Diameter</b> 9"                      2"	<b>Logged By</b> D.L.
<b>Project Name</b> Unocal Oakland - Broadway	<b>Well Head Elevation</b> N/A	<b>Date Drilled</b> 10/17/89
<b>Boring No.</b> MW3	<b>Drilling Method</b> <b>Hollow-stem Auger</b>	<b>Drilling Company</b> EGI

<b>Penetration blows/6"</b>	<b>G. W. level</b>	<b>Depth (ft) Samples</b>	<b>Stratigraphy USCS</b>	<b>Description</b>
9/12/15			CL/ CH	<p>Sandy clay, with gravel to 1/2", very stiff, moist, light olive brown.</p> <hr/> <p>Clay with silt, high plasticity, very stiff, moist light olive brown.</p>
		25		
		30		
		35		
		40		
				<b>TOTAL DEPTH 22.5'</b>



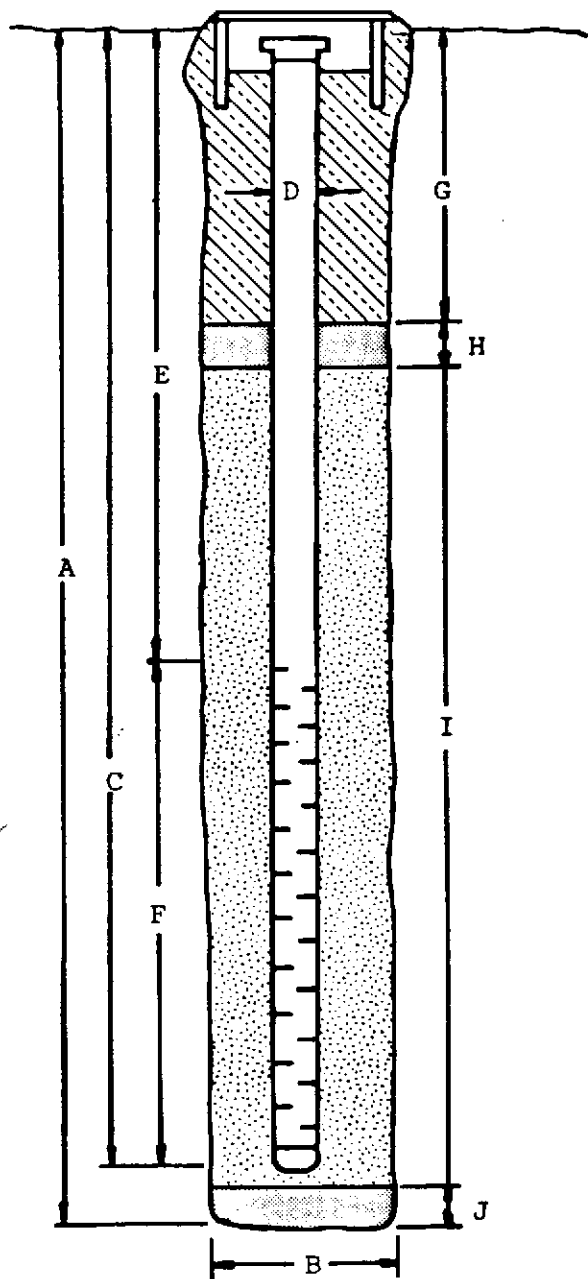
**W E L L   C O M P L E T I O N   D I A G R A M**

PROJECT NAME: Unocal - Oakland - Broadway      BORING/WELL NO. MW3

PROJECT NUMBER: KEI-P89-0805

WELL PERMIT NO.: 89456

Flush-mounted Well Cover



- A. Total Depth: 22.5'
- B. Boring Diameter\*: 9"  
Drilling Method: Hollow Stem Auger
- C. Casing Length: 22.5'  
Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"  
ID = 2.067"
- E. Depth to Perforations: 5'
- F. Perforated Length: 17.5'  
Perforation Type: Machined Slot  
Perforation Size: 0.020"
- G. Surface Seal: 2'  
Seal Material: Concrete
- H. Seal: 2'  
Seal Material: Bentonite
- I. Gravel Pack: 18.5'  
Pack Material: RMC Lonestar Sand  
Size: #3
- J. Bottom Seal: None  
Seal Material: N/A

\*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Kaprealian Engineering, Inc.	Client Project ID: Unocal, Oakland, Broadway, KEI-P89-0805	Sampled: Oct 17, 1989
P.O. Box 913	Matrix Descript: Soil	Received: Oct 18, 1989
Benicia, CA 94510	Analysis Method: EPA 5030/8015/8020	Analyzed: Oct 20, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #: 910-2617	Reported: Oct 26, 1989

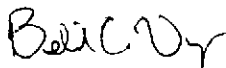
## TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
910-2617	MW-1-(5)	8.5	N.D.	N.D.	N.D.	0.14
910-2618	MW-1-(10)	N.D.	N.D.	N.D.	N.D.	N.D.
910-2619	MW-2-(5)	N.D.	N.D.	N.D.	N.D.	N.D.
910-2620	MW-2-(10)	N.D.	N.D.	N.D.	N.D.	N.D.
910-2621	MW-2-(125)	N.D.	N.D.	N.D.	N.D.	N.D.
910-2622	MW-3-(5)	3.1	0.068	N.D.	N.D.	N.D.
910-2623	MW-3-(10)	69	0.89	2.6	2.0	7.9
910-2624	MW-3-(11)	1,100	16	85	35	150

<b>Detection Limits:</b>	<b>1.0</b>	<b>0.05</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>
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Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.  
Analytes reported as N.D. were not present above the stated limit of detection.

### SEQUOIA ANALYTICAL

  
Belinda C. Vega  
Project Manager



# KAPREALIAN ENGINEERING, INC.

Consulting Engineers

P. O. BOX 913

BENICIA CA 94510

(415) 676-9100 (707) 746-6915

## CHAIN OF CUSTODY

SAMPLER: [Signature] DATE/TIME OF COLLECTION: 10-17-89 TURN AROUND TIME: REGULAR  
 (Signature)

SAMPLE DESCRIPTION AND PROJECT NUMBER: VADOCAL / HAKHAKO / BROWWAY  
KEI-88-0805

SAMPLE #	ANALYSES	GRAB OR COMP.	NUMBER OF CONTAINERS	SOIL/WATER
MW-1-(S)	TPH-G/BTX&E	G	1	S
MW-1-(10)	TPH-G/BTX&E	G	1	S
MW-2-(S)	TPH-G/BTX&E	G	1	S
MW-2-(10)	TPH-G/BTX&E	G	1	S
MW-2-(12.5)	TPH-G/BTX&E	G	1	S
MW-3-(S)	TPH-G/BTX&E	G	1	S
MW-3-(10)	TPH-G/BTX&E	G	1	S
MW-3-(11)	TPH-G/BTX&E	G	1	S

RELINQUISHED BY*	TIME/DATE	RECEIVED BY*	TIME/DATE
1. <u>[Signature] (KEI)</u>	9:25 10/18/89	<u>Tony Bolan</u>	9:25 10-18
2. <u>Tony Bolan</u>	10-18-1055	<u>B. L. Olive</u>	10/18 10:55am
3.			

\* STATE AFFILIATION NEXT TO SIGNATURE

REMARKS: \_\_\_\_\_

NOTE: IF REGULAR TURNAROUND, SOIL ANALYSES MUST BE COMPLETED WITHIN 14 CALENDAR DAYS OF SAMPLE COLLECTION. WATER ANALYSES MUST BE COMPLETED WITHIN 7 CALENDAR DAYS FOR BTX&E (UNLESS SAMPLE HAS BEEN PRESERVED), AND 14 CALENDAR DAYS FOR TPH AS GASOLINE; EXTRACT TPH AS DIESEL WITHIN 14 CALENDAR DAYS.



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Kaprealian Engineering, Inc.	Client Project ID: Unocal, Oakland, Broadway/40th	Sampled: Nov 1, 1989
P.O. Box 913	Matrix Descript: Water	Received: Nov 1, 1989
Benicia, CA 94510	Analysis Method: EPA 5030/8015/8020	Analyzed: Nov 9, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #: 911-0079 A-B	Reported: Nov 9, 1989

## 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)
9110079 A-B	MW1	N.D.	N.D.	N.D.	N.D.	0.30
9110080 A-B	MW2	200	N.D.	N.D.	3.0	1.2
9110081 A-B	MW3	13,000	57	48	1.7	120

Detection Limits:	30.0	0.3	0.3	0.3	0.3
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Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.  
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Belinda C. Vega  
Project Manager

9110079.KEI <1>



# KAPREALIAN ENGINEERING, INC.

Consulting Engineers

P. O. BOX 913

BENICIA, CA 94510

(415) 676-9100 (707) 746-6915

## CHAIN OF CUSTODY

SAMPLER: Joe (KEI) DATE/TIME OF COLLECTION: 11/1/89 TURN AROUND TIME: 1 wk  
 (Signature)

SAMPLE DESCRIPTION AND PROJECT NUMBER: UNOCAL OAKLAND  
Broadway/40th

SAMPLE #	ANALYSES	GRAB OR COMP.	NUMBER OF CONTAINERS	SOIL/WATER
MW1	TPH-G & BTXE	Grab	2 VOA	Water
MW2	TPH-G & BTXE	Grab	2 VOA	Water
MW3	TPH-G & BTXE	Grab	2 VOA	Water

RELINQUISHED BY*	TIME/DATE	RECEIVED BY*	TIME/DATE
1. Joe (KEI)	11:45 11/1/89	<i>[Signature]</i>	16:45 11-1-89
2.			
3.			

\* STATE AFFILIATION NEXT TO SIGNATURE

REMARKS: \_\_\_\_\_

**NOTE:** IF REGULAR TURNAROUND, SOIL ANALYSES MUST BE COMPLETED WITHIN 14 CALENDAR DAYS OF SAMPLE COLLECTION. WATER ANALYSES MUST BE COMPLETED WITHIN 7 CALENDAR DAYS FOR BTX&E (UNLESS SAMPLE HAS BEEN PRESERVED), AND 14 CALENDAR DAYS FOR TPH AS GASOLINE; EXTRACT TPH AS DIESEL WITHIN 14 CALENDAR DAYS.