KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P. O. BOX 913
BENICIA, CA 94510
(707) 746 · 6915

July 6, 1989

Alameda County Department of
Environmental Health
470 27th Street, Room 322
Oakland, CA 94612

Attention: Mr. Larry Seto

RE: Unocal Service Station #6277
15803 East 14th Street
San Leandro, California

Dear Mr. Seto:

Per the request of Mr. Tim Ross of Unocal, enclosed please find our report dated June 26, 1989, and our proposal dated June 19, 1989, for the above referenced site.

Should you have any questions, please feel free to call our office at (707) 746-6915.

Sincerely,

Kaprealian Engineering, Inc.

Judy A. Dewey

Judy A. Dewey

Enclosure

cc: Tim Ross, Unocal

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P. O BOX 913
BENICIA, CA 94510
(707) 746 - 6915

KEI-P89-0301.R6
June 26, 1989

Unocal Corporation
2175 N. California Blvd., Suite 650
Walnut Creek, CA 94569

Attention: Mr. Tim Ross

RE: Preliminary Ground Water Investigation at
Unocal Service Station #6277
15803 E. 14th Street
San Leandro, California

Dear Mr. Ross:

This report presents the results of soil and ground water investigation for the referenced site in accordance with proposal KEI-P89-0301.P1 dated March 27, 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 four 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. The site vicinity and site details are shown on the attached sketches.

KEI's work at the site began when KEI was asked to install two exploratory borings at the site. The borings were installed at the request of Alameda County to explore for the possible presence of soil contamination in the vicinity of the proposed new underground storage tank pit location. The borings were

installed on March 6, 1989 to depths of 10.5 and 13.5 feet. Water was encountered in the borings at depths of 11 and 12 feet. Analytical results of selected soil samples collected from the borings showed TPH ranging from non-detectable to 78 ppm. Based on results of the preliminary investigation, KEI recommended that the contractor excavate the tank pit to a depth of approximately 13 feet. Soil removed from the excavation was stockpiled on-site for further sampling and proper disposal. Results of the exploratory boring investigation are presented in KEI's report KEI-P89-0301.R1 dated March 13, 1989.

On March 13, 1989, KEI collected soil samples following the removal of two 10,000 gallon underground fuel storage tanks and one waste oil tank at the site. Water was encountered in the excavation at a depth of 11 feet, thus prohibiting the collection of soil samples immediately beneath the tank. Sidewall samples (collected at a depth of 10.5 feet) were analyzed by Sequoia Analytical Laboratory in Redwood City, California, for total petroleum hydrocarbon as gasoline (TPH) and benzene, toluene, xylenes and ethylbenzene (BTX&E). One sample was taken from the native material beneath the waste oil tank and additionally analyzed for TPH as diesel, TOG and 8240.

Based on the subjective evidence observed in the field, it was decided to excavate additional soil from three of the four tank pit walls. The analytical results of the final sidewall samples collected from the fuel tank pit had TPH levels ranging from 24 ppm to 150 ppm, and benzene levels ranging from 1.6 ppm to 40 ppm. To comply with the requirements of the regulatory agencies and based on results of the preliminary investigations, KEI proposed installation of four monitoring wells. Results of the soil samples from the tank excavation are summarized in KEI's report KEI-P89-0301.R3 dated March 27, 1989.

FIELD ACTIVITIES

On May 24, 1989, four 2" diameter monitoring wells (designated as MW1, MW2, MW3 and MW4 on the attached Site Plan) were installed at the site. 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 four wells were drilled and completed to total depths ranging from 24.5 to 25 feet. Ground water was encountered at depths ranging from 11 to 12 feet beneath the surface during drilling. Soil samples were taken at five foot intervals beginning at five feet below grade until ground water was encountered. The undisturbed soil samples were taken by driving a California-modified split-spoon sampler ahead of the drilling augers. The 2" 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 June 5, 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 June 6, 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 by EPA method 5030 or 3810 in conjunction with modified 8015 and BTX&E by EPA methods 5030 and 8020. In addition, the sample from MW2 was analyzed for TPH as diesel using EPA method 3550 in conjunction with modified 8015, total oil and grease (TOG) using EPA method 413.1, and purgeable halocarbons using EPA method 8010.

Soil sample analyses show low to non-detectable levels of TPH and BTX&E in all samples, except in MW1(10) and MW2(5), which had TPH levels of 290 ppm and 230 ppm, respectively. The soil sample from MW2(5) also showed a TOG level of 7,700 ppm. The water sample analyses show non-detectable levels of benzene in all wells. Results of the soil and water analyses are summarized in

Table 2. 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 9.64 to 11.08 feet below the surface. The ground water flow direction appeared to be west-southwesterly on June 5, 1989, (based on water level data collected from the four monitoring wells prior to pumping).

DISCUSSION AND RECOMMENDATIONS

Based on the analytical results, KEI recommends implementation of a monitoring and sampling program. The wells should be monitored on a monthly basis. In addition, the wells should be 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. In addition, KEI recommends additional excavation in the vicinity of MW2 to a depth of 10 feet as shown on the attached Site Plan.

Copies of this report should be sent to the Alameda Flood Control District, Mr. Larry Seto of the Alameda County Department of Environmental Health, 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.

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

Sincerely,

Kaprealian Engineering, Inc.

Doug Lee
Geologist

Jae Yang, P.E.

License No. 25337
Exp. Date 12/31/89

Mardo Kaprealian
President

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

KEI-P89-0301.R6
June 26, 1989

TABLE 1

SUMMARY OF GROUND WATER MONITORING AND DEVELOPMENT DATA

(Monitored and Developed on June 5, 1989)

Well #	Depth (feet)	Product Thickness	Sheen	Gallons Pumped
MW1	10.32	0	None	40
MW2	11.12	0	None	40
MW3	9.95	0	None	30
MW4	8.28	0	None	55

KEI-P89-0301.R6
June 26, 1989

TABLE 2

SUMMARY OF LABORATORY ANALYSES
SOIL

(Results in ppm)
(Collected on May 24, 1989)

Sample Number	Depth (feet)	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethylbenzene
MW1	5	2.3	0.08	ND	0.62	ND
MW1	10	290	1.0	11	48	8.8
MW2*	5	230	13	1.7	3.2	1.5
MW2**	10	31	1.2	1.0	5.5	1.1
MW3	5	3.2	0.29	0.1	0.7	ND
MW3	10	4.6	ND	ND	0.44	0.3
MW4	5	3.1	ND	0.11	ND	ND
MW4	10	ND	ND	ND	ND	ND
Detection Limits		1.0	0.05	0.1	0.1	0.1

* This sample showed non-detectable level of TPH as diesel, 7,700 ppm of TOG and 0.063 ppm trichloroethene.

** This sample showed a non-detectable level of TPH as diesel, 38 ppm of TOG and 0.065 ppm of trichloroethene.

ND = Non-detectable.

KEI-P89-0301.R6
June 26, 1989

TABLE 3

SUMMARY OF LABORATORY ANALYSES
WATER

(Results in ppb)
(Collected on June 6, 1989)

Sample Number	Depth (feet)	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethylbenzene
MW1	10.31	590	ND	ND	ND	ND
MW2*	11.08	77	ND	ND	ND	ND
MW3	9.86	32	ND	ND	ND	ND
MW4	9.64	37	ND	ND	ND	ND
Detection Limits		30	0.3	0.3	0.3	0.3

* 8010 analyses revealed 2.8 ppb of 1,2-dichloroethane; 110 ppb of tetrachloroethane; and, 4.4 ppb of trichloroethene. TOG and TPH as diesel were non-detectable.

ND = Non-detectable.

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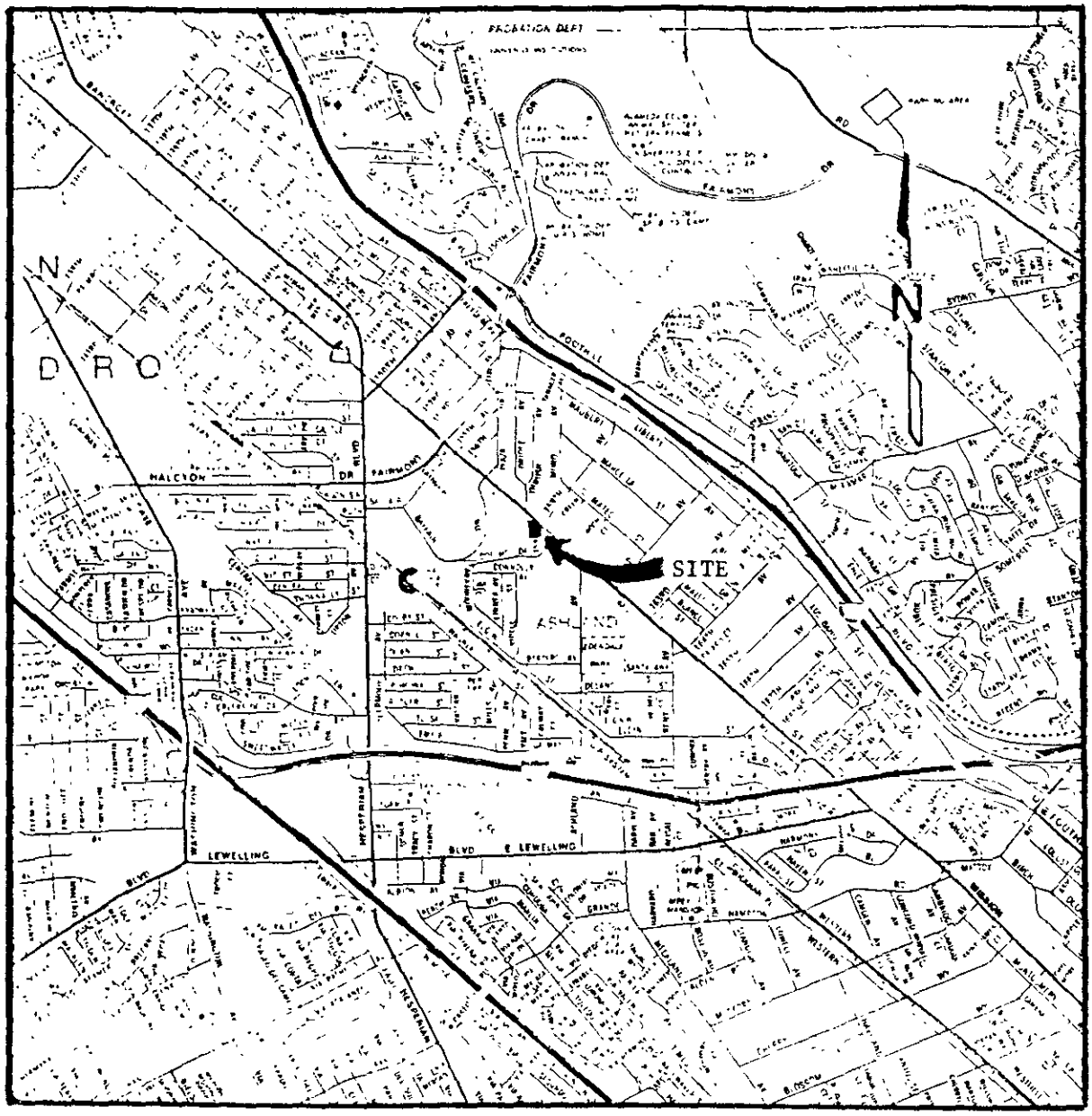
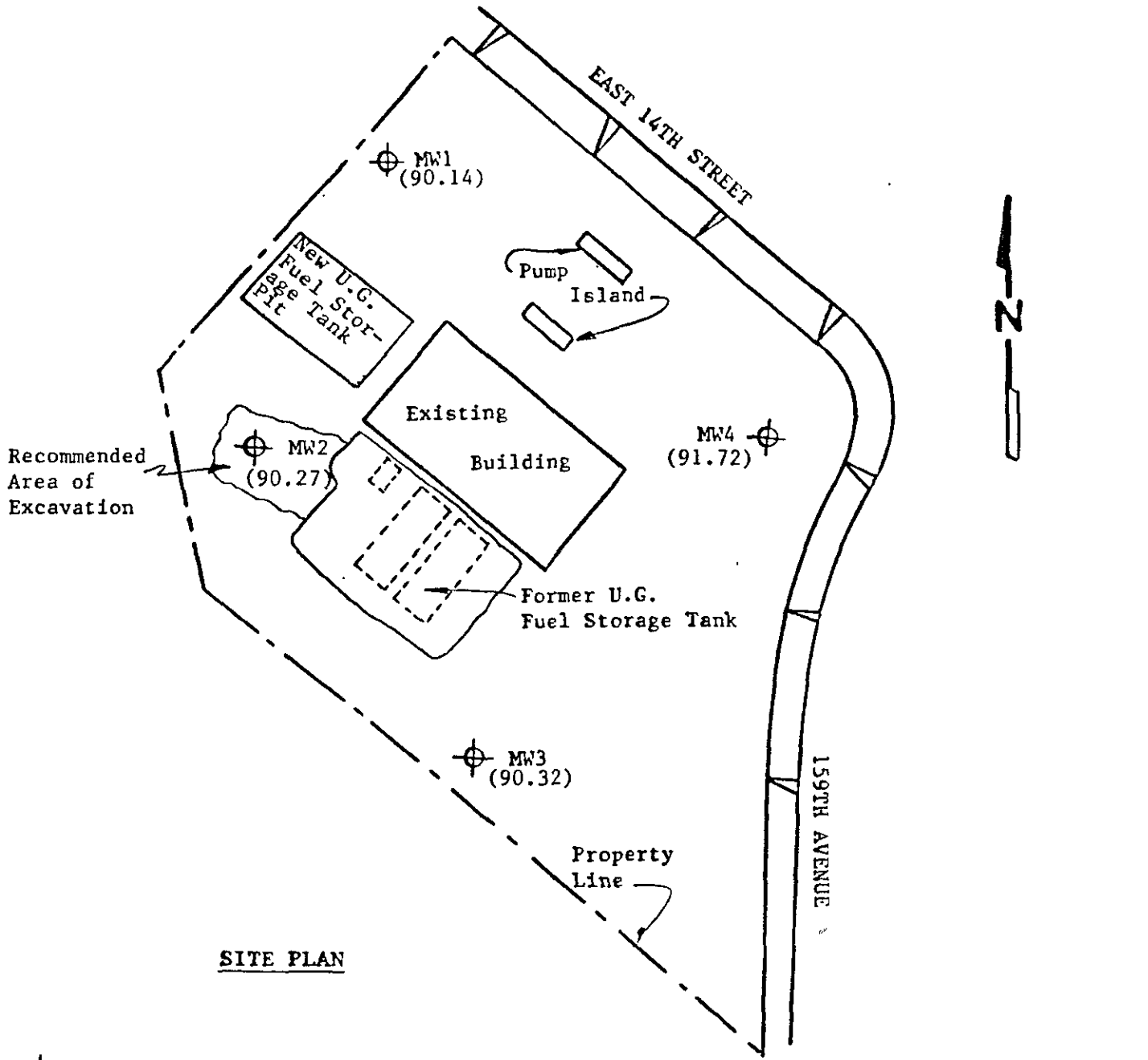


LOCATION MAP

Unocal Service Station #6277
15803 E. 14th Street
San Leandro, California

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P. O. BOX 913
BENICIA, CA 94510
(415) 676-9100 (707) 746-6915



SITE PLAN

⊕ Monitoring Well

( ) Ground Water Elevation in feet on 6/5/89.
Surface Elevation @ top of MW4 assumed 100' as datum.

40 0 40 80
scale feet

Unocal Service Station #6277
15803 East 14th Street
San Leandro, California

BORING LOG

Project No.	Boring & Casing Diameter	Logged By
KEI-P89-0301	9" 2"	Doug Lee
Project Name Unocal San Leandro, E. 14th	**Well Head Elevation** N/A	**Date Drilled** 5/24/89
Boring No. MW1	**Drilling Method** Hollow-stem Auger	**Drilling Company** EGI

Penetration blows/6"	G. W. level	Depth (ft) Samples	Stratigraphy USCS	Description
		0		A.C. Pavement Silt, sand, gravel: fill.
10/15/17		5		Clay, high plasticity, stiff, moist, black, with gravel to 3/4" above 4'.
10/17/24	▼	10		Clay, as above.
			CH	Color change at 12' to dark grayish brown.
		15		
		20		Silty clay with sand, high plasticity, sand - medium to fine, firm, wet, dark olive brown, with moderate cementation.
		25		
		30		TOTAL DEPTH 24.5'

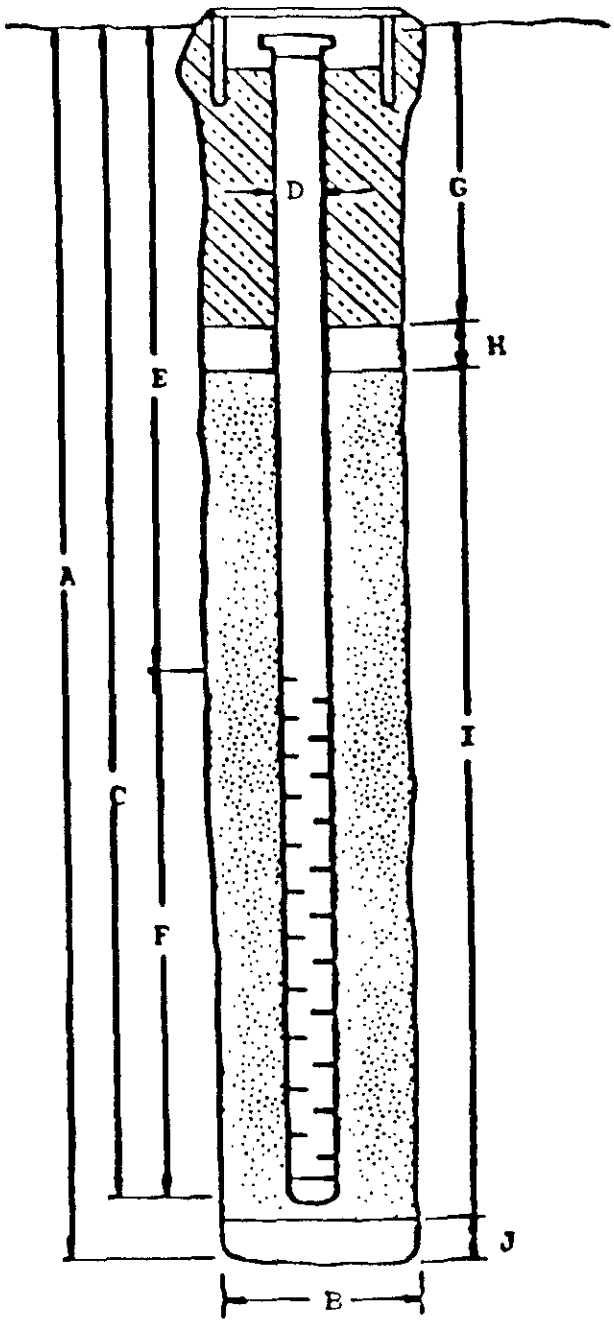
WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal, San Leandro, E. 14th BORING/WELL NO. MW1

PROJECT NUMBER: KEI-P89-0301

WELL PERMIT NO.: 89201

Flush-mounted Well Cover



A. Total Depth: 24.5'

B. Boring Diameter*: 9"

Drilling Method: Hollow Stem Auger

C. Casing Length: 24.5'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375"

ID = 2.067"

E. Depth to Perforations: 5'

F. Perforated Length: 19.5

Perforation Type: Machined Slot

Perforation Size: 0.020"

G. Surface Seal: 2'

Seal Material: Concrete

H. Seal: 2'

Seal Material: Bentonite

I. Gravel Pack: 21.5'

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.

B O R I N G L O G

Project No. KEI-P89-0301	**Boring & Casing Diameter** 9" 2"	**Logged By** Doug Lee
Project Name Unocal San Leandro, E. 14th	**Well Head Elevation** N/A	**Date Drilled** 5/24/89
Boring No. MW2	**Drilling Method** Hollow-stem Auger	**Drilling Company** EGI

Penetration blows/6"	G. W. level	Depth (ft) Samples	Stratigraphy USCS	Description
		0		Silt, sand and gravel: fill.
22/24/28		5	GW	Sandy gravel with clay, hard, slightly moist, black.
9/11/26	▼	10		Clay, high plasticity, stiff, moist, black.
				Color change below 12' to dark grayish brown.
		15	CH	
		20	CL	Silty clay, low plasticity, 10% fine sand, hard, cemented, blocky, blocks are very strongly cemented, wet, white.
		25	CH	Silty clay, high plasticity, firm, wet, dark olive brown.
		30		
				TOTAL DEPTH 24.5'

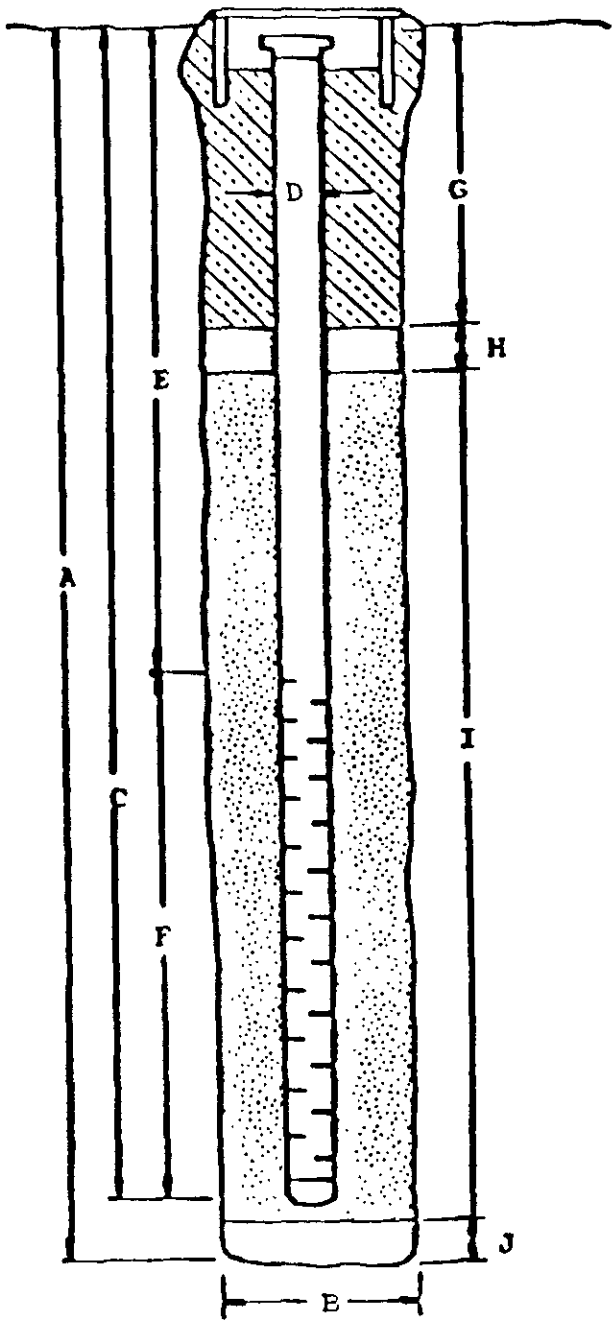
WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal, San Leandro, E. 14th BORING/WELL NO. MW2

PROJECT NUMBER: KEI-P89-0301

WELL PERMIT NO.: 89201

Flush-mounted Well Cover



A. Total Depth: 24'

B. Boring Diameter*: 9"

Drilling Method: Hollow Stem Auger

C. Casing Length: 24'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375" ID = 2.067"

E. Depth to Perforations: 4.5'

F. Perforated Length: 19.5'

Perforation Type: Machined Slot

Perforation Size: 0.020"

G. Surface Seal: 1.5'

Seal Material: Concrete

H. Seal: 1.5'

Seal Material: Bentonite

I. Gravel Pack: 21'

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

Project No.	Boring & Casing Diameter	Logged By
KEI-P89-0301	9" 2"	Doug Lee
Project Name Unocal San Leandro, E. 14th	**Well Head Elevation** N/A	**Date Drilled** 5/24/89
Boring No. MW3	**Drilling Method** Hollow-stem Auger	**Drilling Company** EGI

Penetration blows/6"	G. W. level	Depth (ft) Samples	Stratigraphy USCS	Description
		0		A.C. Pavement Silt, sand and gravel: fill.
9/14/18		5		Clay, high plasticity, stiff, moist, black.
12/17/19	▼	10	CH	Color change below 12' to dark grayish brown.
		15		
		20	CL	Silty clay, 10% fine sand, stiff, cemented, blocky, wet, white, "hard pan".
			CH	Silty clay, firm, wet, dark olive brown.
		25		
		30		TOTAL DEPTH 24.5'

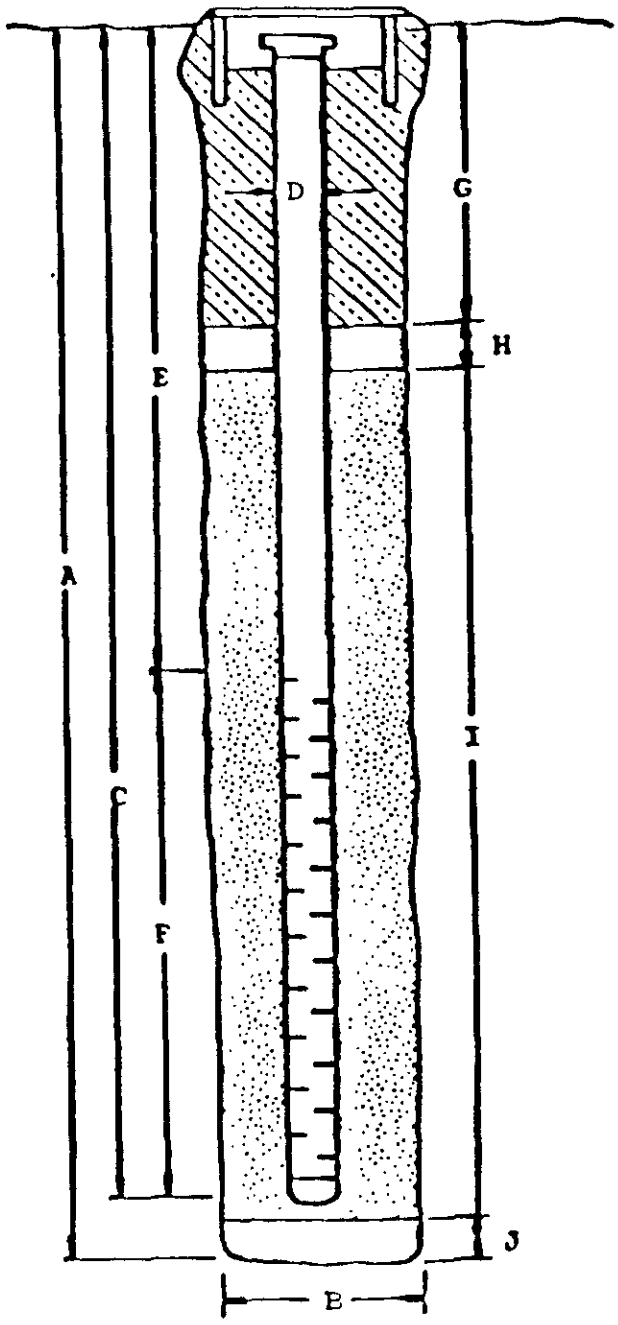
WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal, San Leandro, E. 14th BORING/WELL NO. MW3

PROJECT NUMBER: KEI-P89-0301

WELL PERMIT NO.: 89201

Flush-mounted Well Cover



A. Total Depth: 24'

B. Boring Diameter*: 9"

Drilling Method: Hollow Stem Auger

C. Casing Length: 24'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375"

ID = 2.067"

E. Depth to Perforations: 4.5'

F. Perforated Length: 19.5'

Perforation Type: Machined Slot

Perforation Size: 0.020"

G. Surface Seal: 1.5'

Seal Material: Concrete

H. Seal: 1.5'

Seal Material: Bentonite

I. Gravel Pack: 21'

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.	Boring & Casing Diameter	Logged By
KEI-P89-0301	9" 2"	Doug Lee
Project Name Unocal San Leandro, E. 14th	**Well Head Elevation** N/A	**Date Drilled** 5/24/89
Boring No. MW4	**Drilling Method** Hollow-stem Auger	**Drilling Company** EGI

Penetration blows/6"	G. W. level	Depth (ft) Samples	Stratigraphy USCS	Description
		0		A.C. Pavement
				Sand, gravel, silt: fill, with concrete blocks.
				Gravelly clay with silt, high plasticity, firm, moist, very dark gray.
9/14/19		5		
			CH	Clay, high plasticity, stiff, moist, with weak cementation below 9', black.
10/15/17	▼	10		Color change at 9' to very dark grayish brown.
				Color change at 11' to dark grayish brown.
		15		Clay, as above.
			CL	Silty clay with sand, low plasticity, hard, wet, strong cementation, blocky, white, "hard pan".
25/25/26		20		
			CH	Sandy clay, sand - medium to fine, firm, wet, light olive brown.
12/14/18		25		Silty clay, 10% fine sand, firm, very moist, light olive brown, blocky, blocks moderately cemented.
		30		TOTAL DEPTH 25'

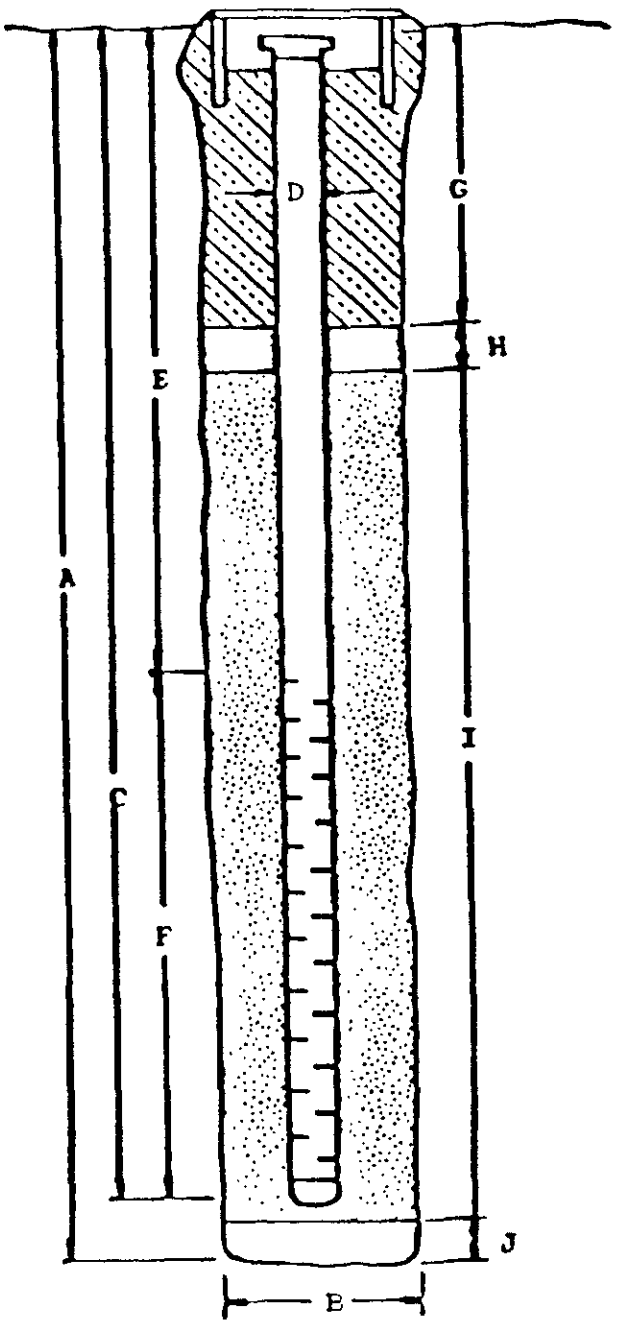
WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal, San Leandro, E. 14th BORING/WELL NO. MW4

PROJECT NUMBER: KEI-P89-0301

WELL PERMIT NO.: 89201

Flush-mounted Well Cover



A. Total Depth: 25'

B. Boring Diameter*: 9"

Drilling Method: Hollow Stem Auger

C. Casing Length: 25'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375"

ID = 2.067"

E. Depth to Perforations: 5.5'

F. Perforated Length: 19.5'

Perforation Type: Machined Slot

Perforation Size: 0.020"

G. Surface Seal: 2'

Seal Material: Concrete

H. Seal: 2'

Seal Material: Bentonite

I. Gravel Pack: 21'

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, San Leandro, E 14th St./159th Ave.	Sampled:	Jun 6, 1989
P.O. Box 913	Matrix Descript:	Water	Received:	Jun 6, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Jun 13, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #:	906-0489 A-B	Reported:	Jun 13, 1989

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

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons µg/L (ppb)	Benzene µg/L (ppb)	Toluene µg/L (ppb)	Ethyl Benzene µg/L (ppb)	Xylenes µg/L (ppb)
9060489 A-B	MW1	590	N.D.	N.D.	N.D.	N.D.
9060490 A-B	MW2	77	N.D.	N.D.	N.D.	N.D.
9060491 A-B	MW3	32	N.D.	N.D.	N.D.	N.D.
9060492 A-B	MW4	37	N.D.	N.D.	N.D.	N.D.
Detection Limits:		**30.0**	**0.3**	**0.3**	**0.3**	**0.3**

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

Arthur G. Burton
Laboratory Director

Please Note:
The above results do not appear to be due to Gasoline.

SEQUOIA ANALYTICAL

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, San Leandro, E 14th St./159th Ave.	Sampled:	Jun 6, 1989
P.O. Box 913	Matrix Descript:	Water	Received:	Jun 6, 1989
Benicia, CA 94510	Analysis Method:	EPA 3510/8015	Analyzed:	Jun 13, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #:	906-0490 C	Reported:	Jun 13, 1989

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons µg/L (ppb)
9050490 C	MW2	N.D.

Detection Limits:	**50.0**

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director

SEQUOIA ANALYTICAL

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, San Leandro, E 14th St./159th Ave.	Sampled:	Jun 6, 1989
P.O. Box 913	Matrix Descript:	Water	Received:	Jun 6, 1989
Benicia, CA 94510	Analysis Method:	EPA 413.1 (Gravimetric)	Extracted:	Jun 11, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #:	906-0490 D	Analyzed:	Jun 12, 1989
			Reported:	Jun 13, 1989

TOTAL RECOVERABLE OIL & GREASE

Sample Number	Sample Description	Oil & Grease mg/L (ppm)
9060490 D	MW2	N.D.

Detection Limits:	5.0

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

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director

SEQUOIA ANALYTICAL

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

Kaprealian Engineering, Inc.	Client Project ID:	Unocal, San Leandro, E 14th St./159th Ave.	Sampled:	Jun 6, 1989
P.O. Box 913	Sample Descript:	Water, MW2	Received:	Jun 6, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8010	Analyzed:	Jun 12, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	906-0490 E-F	Reported:	Jun 13, 1989

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane	1.0	N.D.
Bromoform	1.0	N.D.
Bromomethane	1.0	N.D.
Carbon tetrachloride	1.0	N.D.
Chlorobenzene	1.0	N.D.
Chloroethane	5.0	N.D.
2-Chloroethylvinyl ether	1.0	N.D.
Chloroform	0.5	N.D.
Chloromethane	0.5	N.D.
Dibromochloromethane	0.5	N.D.
1,2-Dichlorobenzene	2.0	N.D.
1,3-Dichlorobenzene	2.0	N.D.
1,4-Dichlorobenzene	2.0	N.D.
1,1-Dichloroethane	0.5	N.D.
1,2-Dichloroethane	**0.5**	**2.8**
1,1-Dichloroethene	1.0	N.D.
trans-1,2-Dichloroethene	1.0	N.D.
1,2-Dichloropropane	0.5	N.D.
cis-1,3-Dichloropropene	5.0	N.D.
trans-1,3-Dichloropropene	5.0	N.D.
Methylene chloride	2.0	N.D.
1,1,2,2-Tetrachloroethane	0.5	N.D.
Tetrachloroethene	**0.5**	**110**
1,1,1-Trichloroethane	0.5	N.D.
1,1,2-Trichloroethane	0.5	N.D.
Trichloroethene	**0.5**	**4.4**
Trichlorofluoromethane	1.0	N.D.
Vinyl chloride	2.0	N.D.

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

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P. O. BOX 913
BENICIA, CA 94510
(415) 676 - 9100 (707) 746 - 6915

CHAIN OF CUSTODY

SAMPLER: Ray KE / (Signature)

DATE/TIME OF COLLECTION: 6/6/89

TURN AROUND TIME: 1 Week

SAMPLE DESCRIPTION AND PROJECT NUMBER: UNOCAL SAN LEANDRO 159 TH / 14 TH

SAMPLE #	ANALYSES	GRAB OR COMP.	NUMBER OF CONTAINERS	SOIL/ WATER
MW1	TPHG BTXE	Grab	2V	W
MW2	TPHG BTXE	"	"	"
"	EPA 601	"	"	"
"	TPHD as Diesel	"	1 Litre	"
"	TOG (413.1)	"	"	"
MW3	TPHG BTXE	"	2V	"
MW4	" "	"	"	"

RELINQUISHED BY*	TIME/DATE	RECEIVED BY*	TIME/DATE
1. Ray KE /	14:10 6/6/89	Ron Allen (SAL)	14:10 6/6/89
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.

SEQUOIA ANALYTICAL

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, San Leandro, E 14th St./159th Ave.	Sampled:	May 24, 1989
P.O. Box 913	Matrix Descript:	Soil	Received:	May 25, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Jun 6, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #:	905-2973	Reported:	Jun 12, 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)
905-2973	MW-1 (5)	2.3	0.08	N.D.	N.D.	0.62
905-2974	MW-1 (10)	290	1.0	11	8.8	48
905-2975	MW-2 (5)	230	13	1.7	1.5	3.2
905-2976	MW-2 (10)	31	1.2	1.0	1.1	5.5
905-2977	MW-3 (5)	3.2	0.29	0.1	N.D.	0.7
905-2978	MW-3 (10)	4.6	N.D.	N.D.	0.3	0.44
905-2979	MW-4 (5)	3.1	N.D.	0.11	N.D.	N.D.
905-2980	MW-4 (10)	N.D.	N.D.	N.D.	N.D.	N.D.
Detection Limits:		**1.0**	**0.05**	**0.1**	**0.1**	**0.1**

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.

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, San Leandro, E 14th St./159th Ave.	Sampled:	May 24, 1989
P.O. Box 913	Matrix Descript:	Soil	Received:	May 25, 1989
Benicia, CA 94510	Analysis Method:	EPA 3550/8015	Analyzed:	Jun 7, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #:	905-2975	Reported:	Jun 12, 1989

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
905-2975	MW-2 (5)	N.D.
905-2976	MW-2 (10)	N.D.

Detection Limits:	**1.0**

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.
Analytes reported as N.D. were not present above the stated limit of detection.

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Kapreallan Engineering, Inc.	Client Project ID:	Unocal, San Leandro, E 14th St./159th Ave.	Sampled:	May 24, 1989
P.O. Box 913	Matrix Descript:	Soil	Received:	May 25, 1989
Benicia, CA 94510	Analysis Method:	EPA 413.1 (Gravimetric)	Extracted:	Jun 6, 1989
Attention: Mardo Kapreallan, P.E.	First Sample #:	905-2975	Analyzed:	Jun 7, 1989
			Reported:	Jun 12, 1989

TOTAL RECOVERABLE OIL & GREASE

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
905-2975	MW-2 (5)	7,700
905-2976	MW-2 (10)	38

Detection Limits:	**30.0**

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

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, San Leandro, E14th St./159th Ave.	Sampled:	May 24, 1989
P.O. Box 913	Sample Descript:	Soil, MW-2 (5)	Received:	May 25, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8010	Analyzed:	Jun 7, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	905-2975	Reported:	Jun 12, 1989

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Bromodichloromethane	50.0	N.D.
Bromoform	50.0	N.D.
Bromomethane	50.0	N.D.
Carbon tetrachloride	50.0	N.D.
Chlorobenzene	50.0	N.D.
Chloroethane	250.0	N.D.
2-Chloroethylvinyl ether	50.0	N.D.
Chloroform	50.0	N.D.
Chloromethane	50.0	N.D.
Dibromochloromethane	50.0	N.D.
1,2-Dichlorobenzene	100.0	N.D.
1,3-Dichlorobenzene	100.0	N.D.
1,4-Dichlorobenzene	100.0	N.D.
1,1-Dichloroethane	50.0	N.D.
1,2-Dichloroethane	50.0	N.D.
1,1-Dichloroethene	50.0	N.D.
trans-1,2-Dichloroethene	50.0	N.D.
1,2-Dichloropropane	50.0	N.D.
cis-1,3-Dichloropropene	50.0	N.D.
trans-1,3-Dichloropropene	50.0	N.D.
Methylene chloride	100.0	N.D.
1,1,2,2-Tetrachloroethane	50.0	N.D.
Tetrachloroethene	50.0	N.D.
1,1,1-Trichloroethane	50.0	N.D.
1,1,2-Trichloroethane	50.0	N.D.
Trichloroethene	**50.0**	**63**
Trichlorofluoromethane	50.0	N.D.
Vinyl chloride	100.0	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.

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Kaprealian Engineering, Inc.	Client Project ID:	Unocal, San Leandro, E14th St./159th Ave.	Sampled:	May 24, 1989
P.O. Box 913	Sample Descript:	Soil, MW-2 (10)	Received:	May 25, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8010	Analyzed:	Jun 7, 1989
Attention: Mardo Kaprealian, P.E.	Lab Number:	905-2976	Reported:	Jun 12, 1989

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Bromodichloromethane	50.0	N.D.
Bromoform	50.0	N.D.
Bromomethane	50.0	N.D.
Carbon tetrachloride	50.0	N.D
Chlorobenzene	50.0	N.D.
Chloroethane	250.0	N.D.
2-Chloroethylvinyl ether	50.0	N.D.
Chloroform	50.0	N.D.
Chloromethane	50.0	N.D.
Dibromochloromethane	50.0	N.D.
1,2-Dichlorobenzene	100.0	N.D.
1,3-Dichlorobenzene	100.0	N.D.
1,4-Dichlorobenzene	100.0	N.D.
1,1-Dichloroethane	50.0	N.D.
1,2-Dichloroethane	50.0	N.D.
1,1-Dichloroethene	50.0	N.D.
trans-1,2-Dichloroethene	50.0	N.D.
1,2-Dichloropropane	50.0	N.D.
cis-1,3-Dichloropropene	50.0	N.D.
trans-1,3-Dichloropropene	50.0	N.D.
Methylene chloride	100.0	N.D.
1,1,2,2-Tetrachloroethane	50.0	N.D.
Tetrachloroethene	50.0	N.D.
1,1,1-Trichloroethane	50.0	N.D.
1,1,2-Trichloroethane	50.0	N.D.
Trichloroethene	**50.0**	**65**
Trichlorofluoromethane	50.0	N.D.
Vinyl chloride	100.0	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.

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