LS

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P.O. BOX 996 • BENICIA, CA 94510
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581

90 JAN -8 AM 10:44

January 5, 1990

Alameda County Health Agency
80 Swan Way, Rm. 200
Oakland, CA 94621

RE: Unocal Service Station #2512
1300 Davis Street
San Leandro, California

Gentlemen:

Per the request of Mr. Rick Sisk of Unocal Corporation, enclosed please find our report dated December 18, 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: Rick Sisk, Unocal Corporation

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P O BOX 913
BENICIA CA 94510
(707) 746-6915 (707) 746-6916
FAX: (707) 746-5581

KEI-P88-1204.QR2
December 18, 1989

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

Attention: Mr. Rick Sisk

RE: Quarterly Report
Unocal Service Station #2512
1300 Davis Street
San Leandro, California

Dear Mr. Sisk:

This report presents the results of the second quarter of monitoring and sampling of the monitoring wells at the referenced site by Kaprealian Engineering, Inc. (KEI), per proposal KEI-P88-1204.P3 dated May 16, 1989. The wells are currently monitored monthly and sampled on a quarterly basis. This report covers the work performed by KEI from September through November, 1989.

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 December 30, 1988 when KEI was asked to install six exploratory borings at the site. The borings, designated as EB1 through EB6, were installed on January 3, 1989 to depths ranging from 26.5 to 30 feet. Water was initially encountered in the borings at depths ranging from 25 to 26.5 feet. Analytical results of selected soil samples collected from the borings showed total petroleum hydrocarbons (TPH) as gasoline ranging from non-detectable to 73 ppm. Total oil and grease (TOG) in borings EB1 and EB6 ranged from non-detectable to 7,800 ppm, while benzene in water ranged from non-detectable to 8.2 ppb. Results of the exploratory boring investigation are presented in KEI's report (KEI-P88-1204.R1) dated February 3, 1989. Excavation of the area surrounding EB6 was recommended to remove as much contaminated soil as possible.

Based on the results of the preliminary investigation, three 2-inch diameter monitoring wells, designated as MW1, MW2 and MW3, were installed at the site on April 17, 1989. The wells were drilled, constructed and completed in accordance with the guidelines of the RWQCB and County well standards. The three wells were drilled and completed to a total depth of 33 feet.

Ground water was initially encountered at depths ranging from 17.5 to 18.5 feet beneath the surface during drilling. Based on the results of water samples from the wells, KEI recommended a monthly monitoring and quarterly sampling program for the wells. Documentation of monitoring well installation, development, sampling and sample results are presented in KEI's report (KEI-P88-1204.R2) dated May 16, 1989.

On May 11, 1989, in an attempt to remove as much contaminated soil as possible, the area adjacent to exploratory boring EB6 was excavated. KEI recommended the installation of three additional monitoring wells in order to further define the extent of the contamination. Documentation of excavation in the vicinity of EB6 and associated soil sample results are presented in KEI's report (KEI-J88-1204.R4) dated June 15, 1989.

The monitoring and sampling program was initiated in June, 1989. In addition, three additional monitoring wells, designated as MW4, MW5 and MW6, were installed on August 16, 1989. Results of the first quarter of monitoring and sampling, and documentation of the new monitoring well installation, sampling and sample results are presented in KEI's report (KEI-P88-1204.QR1) dated September 27, 1989. This report presents the results of the most recent quarter of monitoring and sampling.

FIELD ACTIVITIES

The six wells were monitored three times and sampled once during the quarter. During monitoring, the wells were checked for depth to water and presence of free product and sheen. No free product or sheen was noted in any of the wells during the quarter. Monitoring data are summarized in Table 1.

Water samples were collected from the wells on November 21, 1989. Prior to sampling, the wells were purged of between 15 and 55 gallons using an acrylic surfaced bailer. Samples were then collected using a clean Teflon bailer. Samples were decanted into clean VOA vials and/or one-liter amber bottles as appropriate which were sealed with Teflon-lined screw caps and stored on ice until delivery to the state certified laboratory.

HYDROLOGY

Based on the water level data gathered during the quarter, ground water flow direction appeared to be to the southwest on November 20, 1989, unchanged from the previous quarter. Water levels have fluctuated during the quarter and have shown a net increase of between 0.25 to 0.40 feet in wells MW1, MW2 and MW5, and a net decrease of between 0.05 and 0.90 feet in wells MW4 and MW6. The

measured depth to water at the site on November 20, 1989 varied between 16.90 and 17.65 feet.

ANALYTICAL RESULTS

Water samples were analyzed at Sequoia Analytical Laboratory in Redwood City, California, and were accompanied by properly executed Chain of Custody documentation. The samples were analyzed for TPH as gasoline using EPA method 5030 in conjunction with modified 8015, BTX&E using EPA method 8020, TPH as diesel using EPA method 3510 in conjunction with modified 8015 and TOG using EPA method 418.1 with clean up.

The analytical results show non-detectable levels of TPH as gasoline in wells MW1, MW4, MW5 and MW6. In wells MW2 and MW3, TPH as gasoline was detected at concentrations of 48 and 1,900 ppb, respectively. Benzene was non-detectable in all of the wells. TPH as diesel was detected in MW3 and MW5 at concentrations of 110 and 70 ppb, respectively. TOG was detected in wells MW1, MW2 and MW3 at concentrations of 8.9, 1.6 and 3.8 ppm, respectively. Results of the analyses are summarized in Table 2. Copies of the analytical results and Chain of Custody documentation are attached to this report.

DISCUSSION AND RECOMMENDATIONS

Based on the analytical results 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 monitoring and sampling program of the existing wells per KEI's proposal (KEI-P88-1204.P3) dated May 16, 1989.

DISTRIBUTION

A copy of this report should be sent to the Alameda County Flood Control District, the Alameda County Health 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 work and laboratory analyses. 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.

If 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

Paul H. King
Hydrogeologist

Don R Braun

Don R. Braun
Certified Engineering Geologist

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

Mardo Kaprealian

Mardo Kaprealian
President

Attachments: Tables 1 and 2
Location Map
Site Plan
Laboratory Analyses
Chain of Custody documentation

KEI-P88-1204.QR2
December 18, 1989

TABLE 1

SUMMARY OF MONITORING DATA

Date	Well No.	Depth to Water (feet)	Product Thickness	Sheen	Water Bailed (gallons)
11/20/89	MW1	17.10	0	None	15
	MW2	17.65	0	None	15
	MW3	17.35	0	None	55
	MW4	16.90	0	None	20
	MW5	17.50	0	None	20
	MW6	17.55	0	None	15
10/24/89	MW1	16.55	0	None	0
	MW2	17.20	0	None	0
	MW3	17.20	0	None	55
	MW4	16.40	0	None	0
	MW5	17.00	0	None	0
	MW6	17.10	0	None	0
9/27/89	MW1	17.09	0	None	0
	MW2	17.65	0	None	0
	MW3	17.32	0	None	55
	MW4	16.90	0	None	0
	MW5	17.56	0	None	0
	MW6	17.54	0	None	0

KEI-P88-1204.QR2
December 18, 1989

TABLE 2

SUMMARY OF LABORATORY ANALYSES

Sample Well #	Depth to Water (feet)	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene
			(Collected on November 21, 1989)				
MW1*	17.15	ND	ND	ND	ND	ND	ND
MW2*	17.60	ND	48	ND	0.51	ND	ND
MW3*	17.33	110	1,900	ND	ND	ND	ND
MW4**	16.88	ND	ND	ND	ND	ND	ND
MW5**	17.50	70	ND	ND	ND	ND	ND
MW6**	17.52	ND	ND	ND	ND	ND	ND
			(Collected on August 11 & 29, 1989)				
MW1**	17.24	ND	ND	ND	ND	ND	ND
MW2**	17.83	ND	ND	ND	0.39	ND	ND
MW3**	17.48	860	3,200	73	140	240	35
MW4**	17.14	120	ND	ND	ND	ND	ND
MW5**	17.81	100	ND	ND	0.94	ND	0.30
MW6**	17.82	ND	ND	ND	ND	ND	ND
Detection Limits		50	30	0.3	0.3	0.3	0.3

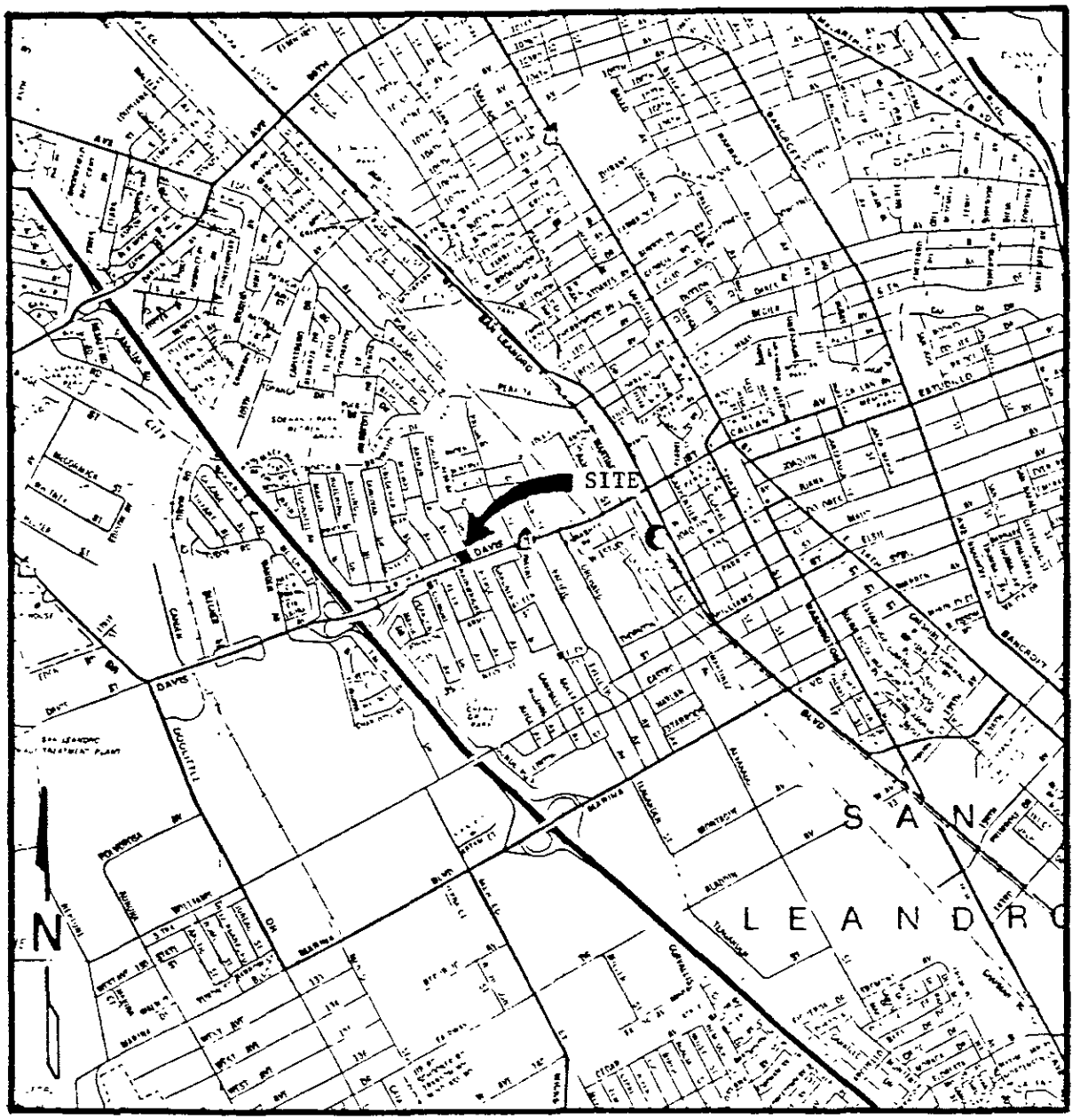
* TOG was detected at concentrations of 8.9, 1.6 and 3.8 ppm in MW1, MW2 and MW3, respectively.

** TOG was non-detectable.

ND = Non-detectable.

Except as noted, all results are in parts per billion (ppb).

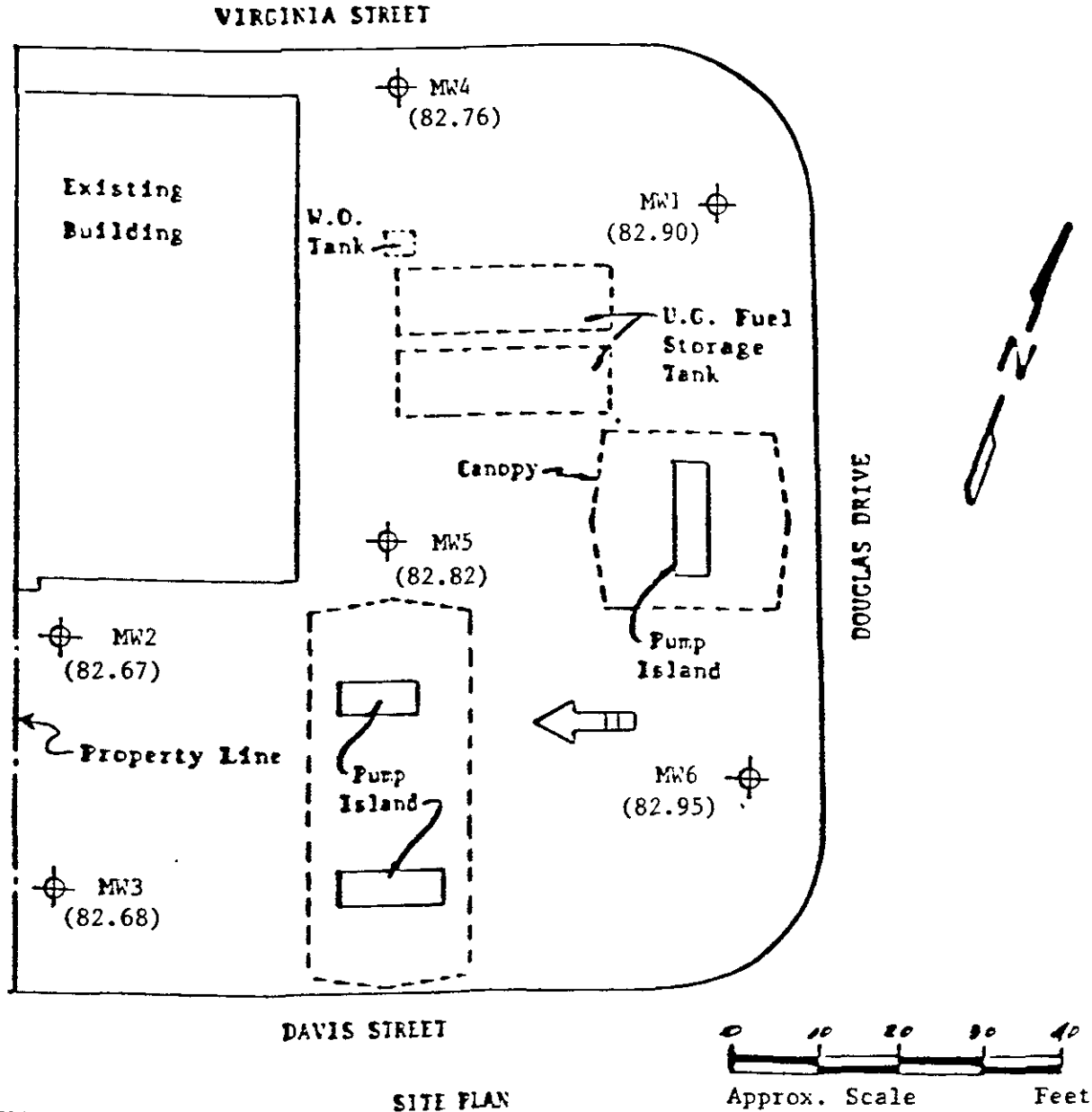
KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P. O. BOX 913
BENICIA, CA 94510
(415) 676 - 9100 (707) 746 - 6915



LOCATION MAP

Unocal Service Station #2512
1300 Davis Street
San Leandro, California

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P O BOX 913
BENICIA CA 94510
(707) 746-6915 (707) 746-6916
FAX: (707) 746-5581



SITE PLAN

LEGEND

- Monitoring Well
- ( ) Water table elevation in feet on 11/20/89. Top of MW1 well cover assumed 100.00' as datum.
- Ground water flow direction on 11/20/89.

Unocal Service Station #2512
1300 Davis Street
San Leandro, California

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, 1300 Davis	Sampled:	Nov 21, 1989
P.O. Box 913	Matrix Descript:	Water	Received:	Nov 22, 1989
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Nov 29, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #:	911-2928 A-D	Reported:	Dec 1, 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)
9112928 A-B	MW1	N.D.	N.D.	N.D.	N.D.	N.D.
9112929 A-B	MW2	48	N.D.	0.51	N.D.	N.D.
9112930 A-B	MW3	1,900	N.D.	N.D.	N.D.	N.D.
9112931 A-B	MW4	N.D.	N.D.	N.D.	N.D.	N.D.
9112932 A-B	MW5	N.D.	N.D.	N.D.	N.D.	N.D.
9112933 A-B	MW6	N.D.	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

Belinda C Vega
Project Manager

9112928 KEI <1>

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, 1300 Davis	Sampled:	Nov 21, 1989
P.O. Box 913	Matrix Descript:	Water	Received:	Nov 22, 1989
Benicia, CA 94510	Analysis Method:	EPA 3510/8015	Extracted:	Dec 1, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #:	911-2928 E	Analyzed:	Dec 1, 1989
			Reported:	Dec 1, 1989

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons µg/L (ppb)
9112928 E	MW1	N.D.
9112929 E	MW2	N.D.
9112930 E	MW3	110
9112931 E	MW4	N.D.
9112932 E	MW5	70
9112933 E	MW6	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

Belinda C. Vega
Project Manager

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, 1300 Davis	Sampled:	Nov 21, 1989
P.O. Box 913	Matrix Descript:	Water	Received:	Nov 22, 1989
Benicia, CA 94510	Analysis Method:	EPA 418.1 (I.R. with clean-up)	Extracted:	Dec 1, 1989
Attention: Mardo Kaprealian, P.E.	First Sample #:	911-2928 F	Analyzed:	Dec 1, 1989
			Reported:	Dec 1, 1989

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Sample Number	Sample Description	Petroleum Oil mg/L (ppm)
911-2928	MW1	8.9
911-2929	MW2	1.6
911-2930	MW3	3.8
911-2931	MW4	N.D.
911-2932	MW5	N.D.
911-2933	MW6	N.D.

Detection Limits:	**1.0**

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

SEQUOIA ANALYTICAL

Belinda C. Vega
Project Manager

9112928.KEI <3>

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: [illegible]

WITNESSING AGENCY:

SITE NAME & ADDRESS: Unocal San Leandro, 1300 Davis Street

ANALYSES REQUESTED: TPH G; BTXE; TOG; TPH D; 9112928

TURN AROUND TIME: 5 days

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPH G	BTXE	TOG	TPH D	9112928
[illegible]	1/21	11:30		X	X		6	[illegible]	X	X	X	X	
[illegible]	1/21	11:30		X	X		6		X	X		X	
[illegible]	1/21	11:35		X	X		6		X	X	X	X	
[illegible]	1/21	11:35		X	X		6		X	X	X	X	
[illegible]	1/21	11:35		X	X		6		X	X	X	X	
[illegible]	1/21	11:30		X	X		6		X	X	X	X	33

REMARKS: Each sample is composed of 2 amber bottles & 4 VOA's

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[illegible]	11/21/89 4:45	Tom McFarlin
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Tom McFarlin	11-21 19:15	[illegible]
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[illegible] by: (Signature)	Date/Time	Received by: (Signature)

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

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

[illegible] — Session Analyst — 11-21

Signature — Title — Date