Unocal Refining & Marketing Division
Unocal Corporation
2000 Crow Canyon Place, Suite 400
San Ramon, California 94583
Telephone (415) 867-0760

UNOCAL 76

Northern Division

August 28, 1991

Mr. Gil Wistar
Alameda County Health Care Services
80 Swan Way, Room 200
Oakland, California 94612

REQUEST FOR CASE CLOSURE
UNOCAL SERVICE STATION # 6129
3420 35th Avenue
Oakland, California 94619

Dear Mr. Wistar:

Attached for your reference and documentation is a copy of our consultant's report (KEI-P89-0902.QR5) dated June 10, 1991 presenting results of remediation activities at this site.

The results of this report indicate the following:

1) The removed tanks were observed to be in good condition having no holes, cracks, or leaks.

2) Soil samples taken beneath the tanks indicated contamination levels below regulatory requirements.

3) One area with slightly elevated hydrocarbon levels under the product lines was overexcavated to 7.5 feet. A sample collected at the base of the excavation showed non-detectable levels of TPHg and BTE&X.

4) Contamination encountered in one of four exploratory borings was limited to a shallow depth. This area was also overexcavated, and samples collected from the base and sidewalls of this excavation indicate that the impacted soil has been effectivly removed.

5) Analytical results of groundwater sampling over one and one half years indicate groundwater has not been significantly impacted by petroleum hydrocarbons.

Based on the above reasons, it is Unocal's position that no further work is warranted. Unocal shall consider this incident closed unless we receive additional information from your office.

If you agree with our assessment, a concurrence letter would be appreciated.

Should you have any questions or concerns, please feel free to contact me at (415) 277-2303.

Very truly yours,

Ronald E Bock

Ronald E. Bock
Sr. Environment Engineer
Unocal Corporation

Attachments

cc: L. Feldman, RWQCB, San Francisco Bay Region - w/attachments
D. W. Dassler, Unocal - w/o
T. R. Ross, Kaprealian Engineering - w/o

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

KEI-P89-0902.QR5
June 10, 1991

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

Attention: Mr. Ron Bock

RE: Quarterly Report
Unocal Service Station #6129
3420 35th Avenue
Oakland, California

Dear Mr. Bock:

This report presents the results of the fifth quarter of monitoring and sampling of the monitoring wells at the referenced site by Kaprealian Engineering, Inc. (KEI), per proposal KEI-P89-0902.P2 dated February 5, 1990. The wells are currently monitored and sampled on a quarterly basis. This report covers the work performed by KEI during May, 1991.

SITE DESCRIPTION AND BACKGROUND

The subject site is presently used as a gasoline station. The site is situated on gently sloping, southwest trending topography, and is located approximately 600 feet southeast of Peralta Creek. A Location Map and Site Plans are attached to this report.

On September 11, 1989, KEI collected soil samples following the removal of two fuel storage tanks (one 10,000 gallon unleaded gasoline, and one 10,000 gallon super unleaded gasoline) and one waste oil tank (550 gallon) at the site. The tanks were made of steel and no apparent holes or cracks were observed in any of the tanks. Four soil samples (designated as A1, A2, B1 and B2) were collected at a depth of 14 feet from the fuel tank pit and one sample (designated as WO1) was collected at a depth of 9.5 feet from the waste oil tank pit. In addition, five piping trench samples (designated as P1, P2, P3, P3{7.5} and P4) were collected at depths ranging from 3 to 7.5 feet. The locations of the samples are shown on the attached Site Plan, Figure 3.

All soil samples were analyzed by Sequoia Analytical Laboratory in Redwood City, California, for total petroleum hydrocarbons (TPH) as gasoline, and benzene, toluene, xylenes and ethylbenzene (BTX&E). In addition, the sample collected from the waste oil tank pit was

analyzed for TPH as diesel, total oil and grease (TOG) and EPA method 8010 compounds.

Analytical results of the soil samples collected from the fuel storage tank pit showed TPH as gasoline levels ranging from 1.8 ppm to 10 ppm. Analytical results of pipe trench soil samples indicated levels of TPH as gasoline ranging from non-detectable to 17 ppm for all samples, except for one sample (labeled P3) from a depth of 3.5 feet, which showed 690 ppm. After further excavation, the analytical results of soil sample P3 at a depth of 7.5 feet indicated non-detectable levels of TPH as gasoline and BTX&E. The analytical results of the soil sample collected from the waste oil tank pit indicated levels of TPH as diesel at 3.3 ppm, and TOG at 58 ppm. Documentation of soil sample collection and analytical results were presented in KEI's report (KEI-J89-0902.R1) dated October 9, 1989. Results of the soil sample analyses from that report are summarized in Table 4.

Based on these analytical results, KEI recommended installation of three monitoring wells, which were subsequently installed on December 12, 1989 and are designated as MW1, MW2 and MW3 on the attached Site Plan, Figure 1. The three wells were each drilled and completed to total depths of 44 feet. Ground water was encountered at a depth of about 35 feet beneath the surface during drilling. The wells were developed on December 28 and 29, 1989, and were initially sampled on January 5, 1990.

Water and selected soil samples were analyzed at Sequoia Analytical Laboratory in Redwood City, California, for TPH as gasoline and BTX&E.

Analytical results of the soil samples, collected from the borings for monitoring wells MW1 through MW3, indicated non-detectable levels of TPH as gasoline and BTX&E in all samples except in MW3 at 5 feet, which showed levels of TPH as gasoline at 1,200 ppm, and benzene at 4.5 ppm. Analytical results of the water samples collected from the wells showed non-detectable levels of TPH as gasoline and BTX&E in all wells. Documentation of monitoring well installation, sampling and sample results were presented in KEI's report (KEI-P89-0902.R5) dated February 5, 1990. Results of the water sample analyses are summarized in Table 2, and the soil sample analyses in Table 4.

Due to the levels of TPH as gasoline (1,200 ppm) encountered in the soil sample collected from well MW3 at a depth of 5 feet, KEI recommended the installation of four exploratory borings to define the extent of the soil contamination. These exploratory borings were drilled on March 14, 1990, and are designated as EB1, EB2, EB3

and EB4 on the attached Site Plan, Figure 1. The four borings were drilled to depths of 10.5 to 11 feet. Samples were analyzed for TPH as gasoline and BTX&E. The analytical results of soil samples collected from the borings indicated non-detectable levels of TPH as gasoline in all soil samples except EB1(5), EB3(5) and EB3(10), which showed levels of TPH as gasoline at 1,100 ppm, 58 ppm and 3.0 ppm, respectively. In addition, the analytical results indicated non-detectable levels of benzene in all soil samples except EB1(5), EB1(10), EB3(10) and EB4(5), which showed levels of benzene at 1.8 ppm, 0.0050 ppm, 0.12 ppm and 0.010 ppm, respectively. Also, toluene was detected in all soil samples at level ranging from 0.034 ppm to 2.5 ppm. Documentation of sample collection and sample results were presented in KEI's report (KEI-P89-0902.R6) dated April 23, 1990. Soil sample results are summarized in Table 4. Based on these analytical results, KEI recommended the excavation of the contaminated soil between the pump island and exploratory boring EB3.

On April 8 and 9, 1991, the soil in the vicinity of monitoring well MW3 was excavated to a depth of approximately 6 feet below grade. The excavation was conducted primarily within the boundaries of the pump islands and the four exploratory borings (EB1 through EB4), as shown on the attached Site Plan, Figure 2. In an attempt not to damage or jeopardize the integrity of well MW3, the soil within about 3 feet radially of well MW3 was not excavated.

Upon completion of the soil excavation activities, on April 8, 1991, three soil samples, labeled SW1, SW and SW3, were collected from the sidewalls of the excavation at a depth of 4.5 feet. In addition, two soil samples, labeled BT1 and BT2, were collected from the bottom of the excavation at a depth of 6 feet. KEI returned to the site on April 9, 1991, and one additional soil sample, labeled SW4, was collected at a depth of 4.5 feet from the sidewall of the excavation closest to the pump island. Sample locations are as shown on the attached Site Plan, Figure 2.

All samples were analyzed by Sequoia Analytical Laboratory in Concord, California. Samples were analyzed for TPH as gasoline and BTX&E. Analytical results are summarized in Table 3. Analytical results of the soil samples, (SW1 through SW4, and BT1 and BT2) collected from the sidewalls and bottom of the excavation pit indicated non-detectable levels of TPH as gasoline and benzene for all samples, except for 3.0 ppm of TPH as gasoline detected in sidewall sample SW4. Documentation of sample collection and analytical results are presented in KEI's report (KEI-J89-0902.R7) dated April 25, 1991.

RECENT FIELD ACTIVITIES

The three wells (MW1, MW2 and MW3) were monitored 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 May 9, 1991. Prior to sampling, the wells were purged of 19 gallons each using a 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 in a cooler on ice until delivery to the state certified laboratory.

HYDROLOGY AND GEOLOGY

Based on the water level data gathered during the quarter, ground water flow direction appeared to be toward the west-southwest on May 9, 1991, slightly changed from the southwest flow direction last quarter. The average hydraulic gradient on May 9, 1991 was approximately 0.014. Water levels have increased 1.68 to 2.27 feet in all wells since February 12, 1991. The measured depth to ground water at the site on May 9, 1991 ranged between 30.37 and 30.95 feet.

Based on review of regional geologic maps (U.S. Geological Survey Map GQ-769, "Areal and Engineering Geology of the Oakland East Quadrangle, California" by Dorothy H. Radbruch, 1969), the site is underlain by the lower member of the Quaternary-age San Antonio Formation (Qsl). This unit typically consists of gravel with a silty clay matrix.

The results of our previous subsurface exploration (exploratory borings EB1 through EB4) indicates that the site is underlain by artificial fill materials varying in thickness from about 4 to 6 feet. The native earth material at the site typically consists of clayey gravel with sand to the maximum depth explored (11 feet), with exception of the vicinity of boring EB1, where a 2-1/2 foot thick lens of clay materials was encountered directly below the fill materials.

ANALYTICAL RESULTS

Ground water samples were analyzed at Sequoia Analytical Laboratory in Concord, 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, and BTX&E using EPA method 8020.

Analytical results of the ground water samples, collected from monitoring wells MW1, MW2 and MW3, indicate non-detectable levels of TPH as gasoline and BTX&E. 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

As shown on the attached tables, the analytical results of soil and ground water samples collected on-site during the various phases of KEI's subsurface investigation have shown the following:

- Analytical results of the soil samples collected from the fuel tank pit showed TPH as gasoline levels ranging from 1.8 ppm to 10 ppm and non-detectable levels of BTX&E, except for 0.11 ppm of xylenes detected in soil sample A1.

- Analytical results of soil samples collected from the product pipe trenches indicated levels of TPH as gasoline ranging from non-detectable to 17 ppm, except for 690 ppm detected in soil sample P3 collected from a depth of 3.5 feet. However, analytical results of soil sample P3(7.5) collected beneath sample point P3 at a depth of 7.5 feet, showed non-detectable levels of TPH as gasoline and BTX&E.

- Analytical results of soil samples collected from the borings for monitoring wells MW1 and MW2 and exploratory borings EB2 and EB4, showed non-detectable levels of TPH as gasoline and benzene, except for 0.10 ppm of benzene detected in sample EB4(5).

- Analytical results of soil samples collected at a depth of 5 feet from the boring for monitoring well MW3 and exploratory borings EB1 and EB3 showed TPH as gasoline levels at concentrations of 1,100 ppm and 1,200 ppm for samples EB1(5) and MW3(5) and 58 ppm for sample EB3(5). However, the analytical results of soil samples collected beneath sample points MW3(5), EB1(5) and EB3(5) all showed non-detectable levels of TPH as gasoline, except for 3.0 ppm detected in sample EB3(10), collected at a depth of 10 feet. In addition, the

analytical results of soil samples collected after excavation of contaminated soil within the vicinity of monitoring well MW3 and borings EB1 through EB4 from depths of 4.5 and 6.0 feet below grade, indicated non-detectable levels of TPH as gasoline and benzene in all samples, except for 3.0 ppm of TPH as gasoline detected in sample SW4. The area of soil excavation is shown on the attached Site Plan, Figure 2.

- The analytical results of ground water samples collected from monitoring wells MW1, MW2 and MW3, during six rounds of sampling (January, 1990 through May, 1991) consistently showed non-detectable levels of TPH as gasoline and benzene for all samples, except for 0.32 ppb of benzene detected in well MW1 on February 12, 1991. This level of benzene was very close to the detection limit of 0.3 ppb, thus it is KEI's opinion, based upon the historical non-detectable levels of benzene in this well, that the 0.32 result may have been in error or not representative of formation water.

In summary, based on the analytical results of soil samples collected and evaluated to date, it appears that only low levels of TPH as gasoline (equal to or less than 58 ppm, except in the immediate vicinity of MW3) remain on-site. In addition, the analytical results of ground water samples indicate that ground water has not been significantly impacted by petroleum hydrocarbons. Based on all of the above, KEI recommends that no additional soil or ground water sampling is necessary at the site unless required by the regulatory agencies.

DISTRIBUTION

A copy of this report should be sent to the Alameda County Health Care Services, and to the Regional Water Quality Control Board, San Francisco Bay Region.

LIMITATIONS

Environmental changes, either naturally-occurring or artificially-induced, may cause changes in ground water levels and flow paths, thereby changing the extent and concentration of any contaminants.

Our studies assume that the field and laboratory data are reasonably representative of the site as a whole, and assume that subsurface conditions are reasonably conducive to interpolation and extrapolation.

The results of this study are based on the data obtained from the field and laboratory analyses obtained from a state certified laboratory. We have analyzed 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, 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.

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

Sincerely,

Kaprealian Engineering, Inc.

Thomas J. Berkins
Senior Environmental Engineer

Don R. Braun
Certified Engineering Geologist

License No. 1310
Exp. Date 6/30/92

Timothy R. Ross
Project Manager

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Attachments: Tables 1 through 4
Location Map
Site Plans - Figures 1, 2 & 3
Laboratory Analyses
Chain of Custody documentation

KEI-P89-0902.QR5
June 10, 1991

TABLE 1

SUMMARY OF MONITORING DATA

Well No.	Ground Water Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Sheen	Water Purged (gallons)
(Monitored and Sampled on May 9. 1991)					
MW1	71.29	30.95	0	No	19
MW2	71.28	30.88	0	No	19
MW3	69.63	30.37	0	No	19

Well #	Well Cover Elevation* (feet)
MW1	102.24
MW2	102.16
MW3	100.00

* Elevations of tops of well covers surveyed to an assumed datum of 100.00 feet at top of MW3 well cover.

KEI-P89-0902.QR5
June 10, 1991

TABLE 2

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Sample Well #	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethylbenzene
5/09/91	MW1	ND	ND	ND	ND	ND
	MW2	ND	ND	ND	ND	ND
	MW3	ND	ND	ND	ND	ND
2/12/91	MW1	ND	0.32	ND	ND	ND
	MW2	ND	ND	0.42	0.51	ND
	MW3	ND	ND	ND	ND	ND
11/14/90	MW1	ND	ND	ND	ND	ND
	MW2	ND	ND	ND	ND	ND
	MW3	ND	ND	ND	ND	ND
8/09/90	MW1	ND	ND	ND	ND	ND
	MW2	ND	ND	ND	ND	ND
	MW3	ND	ND	ND	ND	ND
5/11/90	MW1	ND	ND	7.1	ND	ND
	MW2	ND	ND	ND	ND	ND
	MW3	ND	ND	ND	ND	ND
1/05/90	MW1	ND	ND	ND	ND	ND
	MW2	ND	ND	ND	ND	ND
	MW3	ND	ND	ND	ND	ND
Detection Limits		30	0.3	0.3	0.3	0.3

ND = Non-detectable.

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

KEI-P89-0902.QR5
June 10, 1991

TABLE 3

SUMMARY OF LABORATORY ANALYSES
SOIL

Date	Sample	Depth (feet)	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene
4/08/91	SW1	4.5	ND	ND	ND	ND	0.068
&	SW2	4.5	ND	ND	ND	ND	ND
4/09/91	SW3	4.5	ND	ND	ND	ND	ND
	SW4	4.5	3.0	ND	ND	ND	ND
	BT1	6	ND	ND	ND	0.012	ND
	BT2	6	ND	ND	ND	ND	ND
Detection Limits			1.0	0.0050	0.0050	0.0050	0.0050

ND = Non-detectable.

Results in parts per million (ppm), unless otherwise indicated.

KEI-P89-0902.QR5
June 10, 1991

TABLE 4

SUMMARY OF LABORATORY ANALYSES
SOIL

Date	Sample Number	Depth (feet)	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene
3/14/90	EB1(5)	5	1,100	1.8	2.5	7.0	10
	EB1(10)	10	ND	0.0050	0.034	ND	ND
	EB2(8)	8	ND	ND	0.080	ND	ND
	EB2(10)	10	ND	ND	0.070	ND	ND
	EB3(5)	5	58	ND	0.068	0.31	0.090
	EB3(10)	10	3.0	0.12	0.036	0.0072	ND
	EB4(5)	5	ND	0.10	0.060	0.024	0.013
	EB4(10)	10	ND	ND	0.055	ND	ND
12/12/89	MW1(5)	5	ND	ND	ND	ND	ND
	MW1(10)	10	ND	ND	ND	ND	ND
	MW1(15)	15	ND	ND	ND	ND	ND
	MW1(20)	20	ND	ND	ND	ND	ND
	MW1(25)	25	ND	ND	ND	ND	ND
	MW1(29.5)	29.5	ND	ND	ND	ND	ND
	MW1(34.5)	34.5	ND	ND	ND	ND	ND
	MW2(5)	5	ND	ND	ND	ND	ND
	MW2(10)	10	ND	ND	ND	ND	ND
	MW2(15)	14.5	ND	ND	ND	ND	ND
	MW2(20)	20	ND	ND	ND	ND	ND
	MW2(25)	25	ND	ND	ND	ND	ND
	MW2(27)	27	ND	ND	ND	ND	ND
	MW2(30)	30	ND	ND	ND	ND	ND
	MW2(33.5)	33.5	ND	ND	ND	ND	ND
	MW2(35)	35	ND	ND	ND	ND	ND
	MW3(5)	5	1,200	4.5	2.0	63	21
	MW3(10)	10	ND	ND	ND	ND	ND
	MW3(15)	15	ND	ND	ND	ND	ND
	MW3(20)	20	ND	ND	ND	ND	ND
	MW3(25)	25	ND	ND	ND	ND	ND
	MW3(30)	30	ND	ND	ND	ND	ND
	MW3(34.5)	34.5	ND	ND	ND	ND	ND
	MW3(36)	36	ND	ND	ND	ND	ND

TABLE 4 (Continued)

SUMMARY OF LABORATORY ANALYSES
SOIL

Date	Sample Number	Depth (feet)	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene
9/11/89	A1	14	10	ND	ND	0.11	ND
	A2	14	5.0	ND	ND	ND	ND
	B1	14	3.0	ND	ND	ND	ND
	B2	14	1.8	ND	ND	ND	ND
	P1*	3	17	0.23	ND	ND	ND
	P2*	3	ND	ND	ND	ND	ND
	P3*	3.5	690	3.2	0.36	19	ND
	P3(7.5)*	7.5	ND	ND	ND	ND	ND
	P4*	3.5	5.0	ND	ND	ND	ND
	WO1**	9.5	ND	ND	ND	ND	ND

* Organic lead was non-detectable, except for sample P3, which showed 0.058 ppm.

** TPH as diesel was 3.3 ppm, TOG was 58 ppm, and all EPA method 8010 constituents were non-detectable.

ND = Non-detectable

Results in parts per million (ppm), unless otherwise indicated.

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
PO BOX 996 • BENICIA, CA 94510
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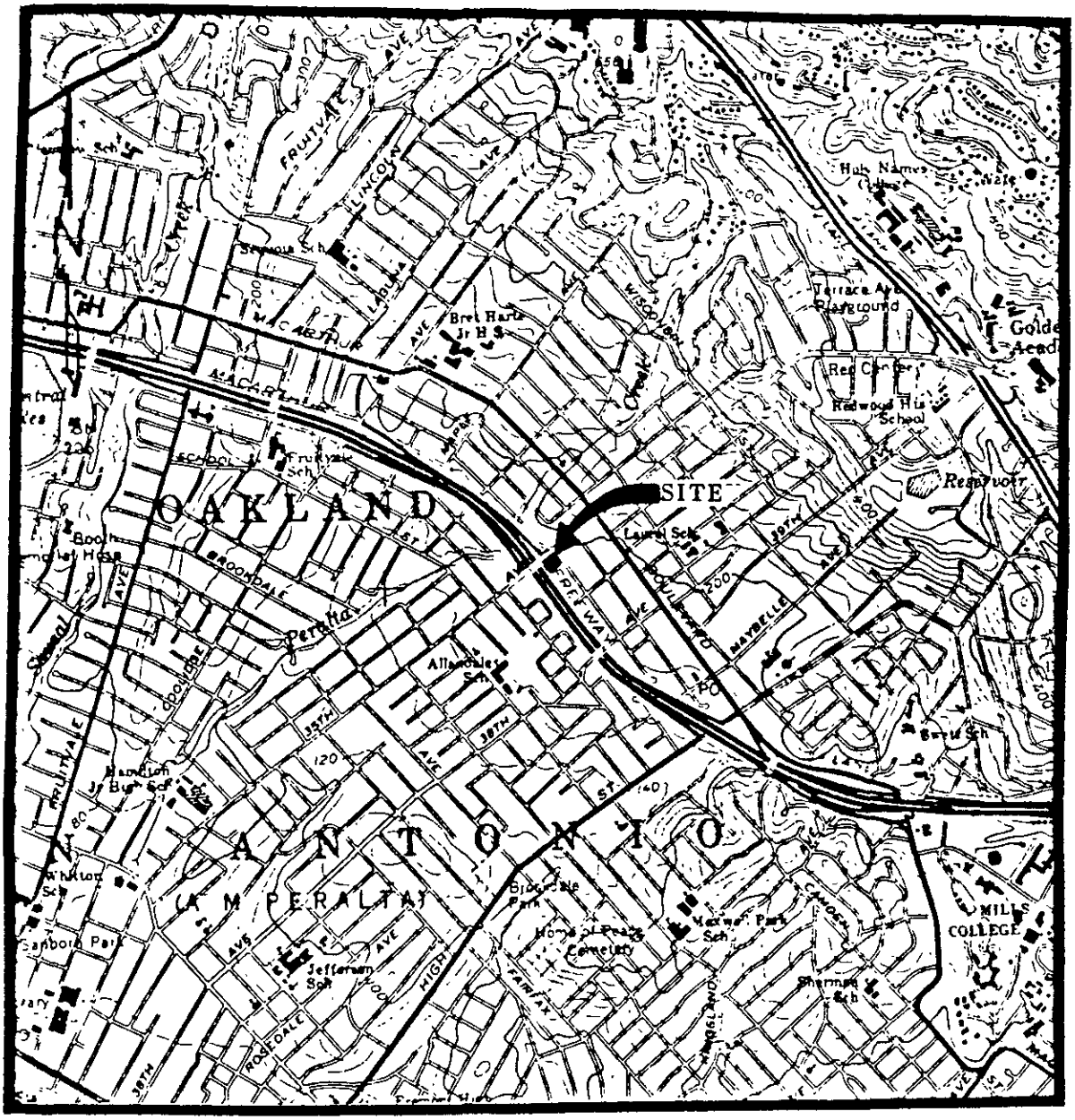

LOCATION MAP

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

Unocal S/S #6129
3420 - 35th Avenue
Oakland, CA

KAPREALIAN ENGINEERING, INC.
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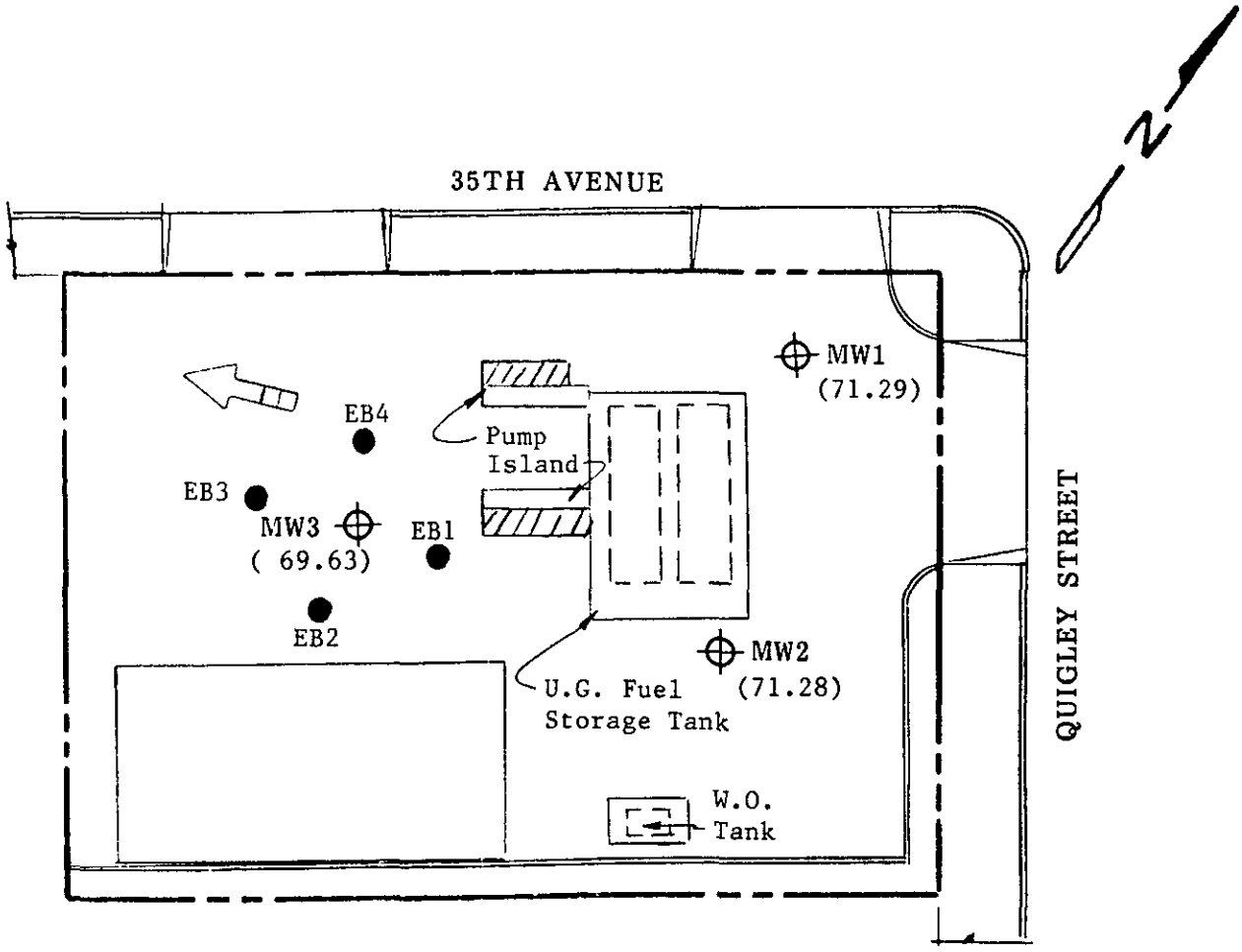

SITE PLAN
Figure 1

0 30 60
Approx. Scale feet

LEGEND

- ● Exploratory Boring
- ⊕ Monitoring Well
- ( ) Ground water elevation in feet on 5/9/91. Surface elevation at top of MW3 assumed 100.00 feet as datum.
- ⇨ Direction of ground water flow.

Unocal Service Station #6129
3420 - 35th Avenue
Oakland, California

KAPREALIAN ENGINEERING, INC.
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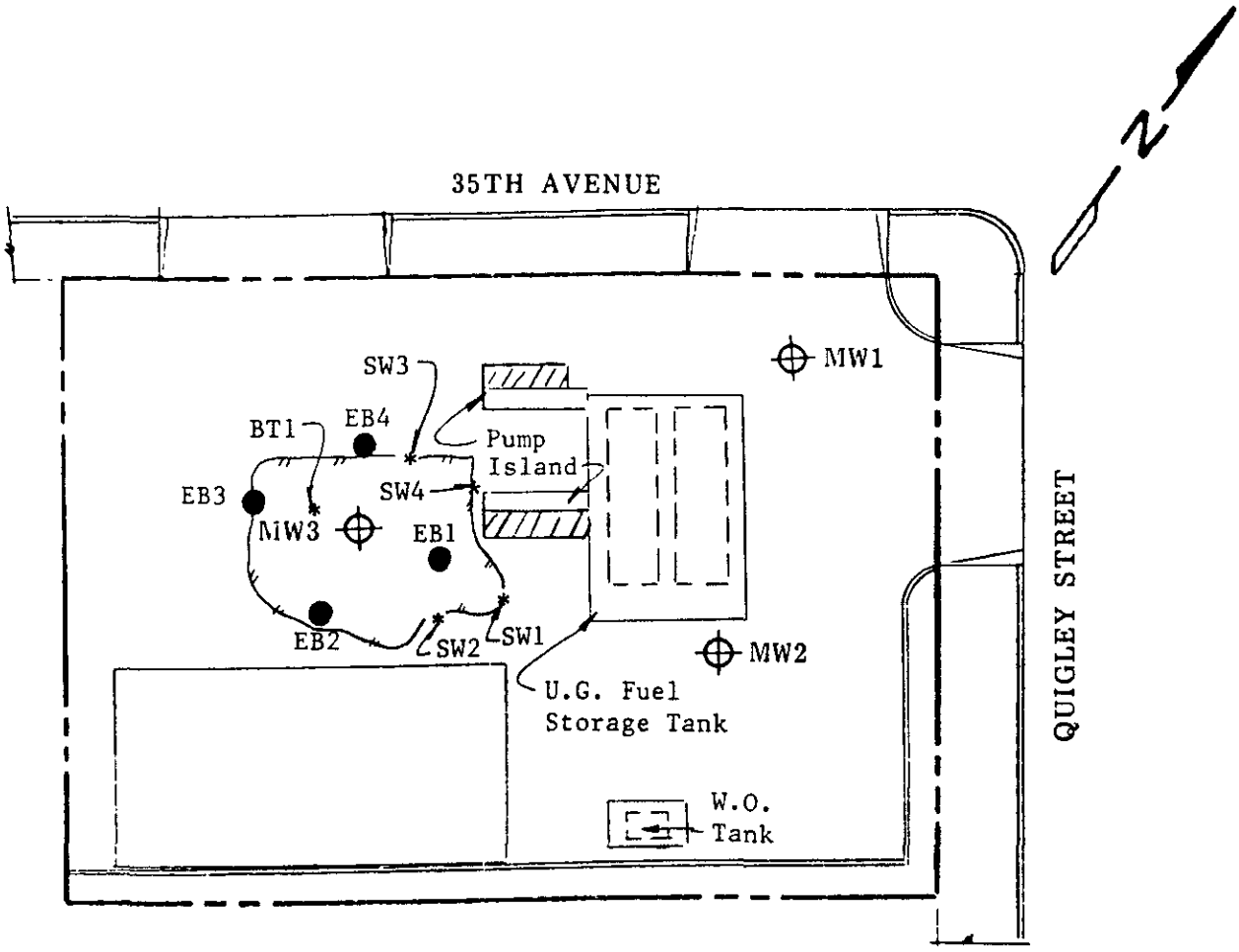

SITE PLAN
Figure 2

0 30 60
feet
Approx. Scale

LEGEND

- Exploratory Boring
- Monitoring Well
- * Sample Point Location
- Area of Excavation

Unocal Service Station #6129
3420 - 35th Avenue
Oakland, California

KAPREALIAN ENGINEERING, INC.
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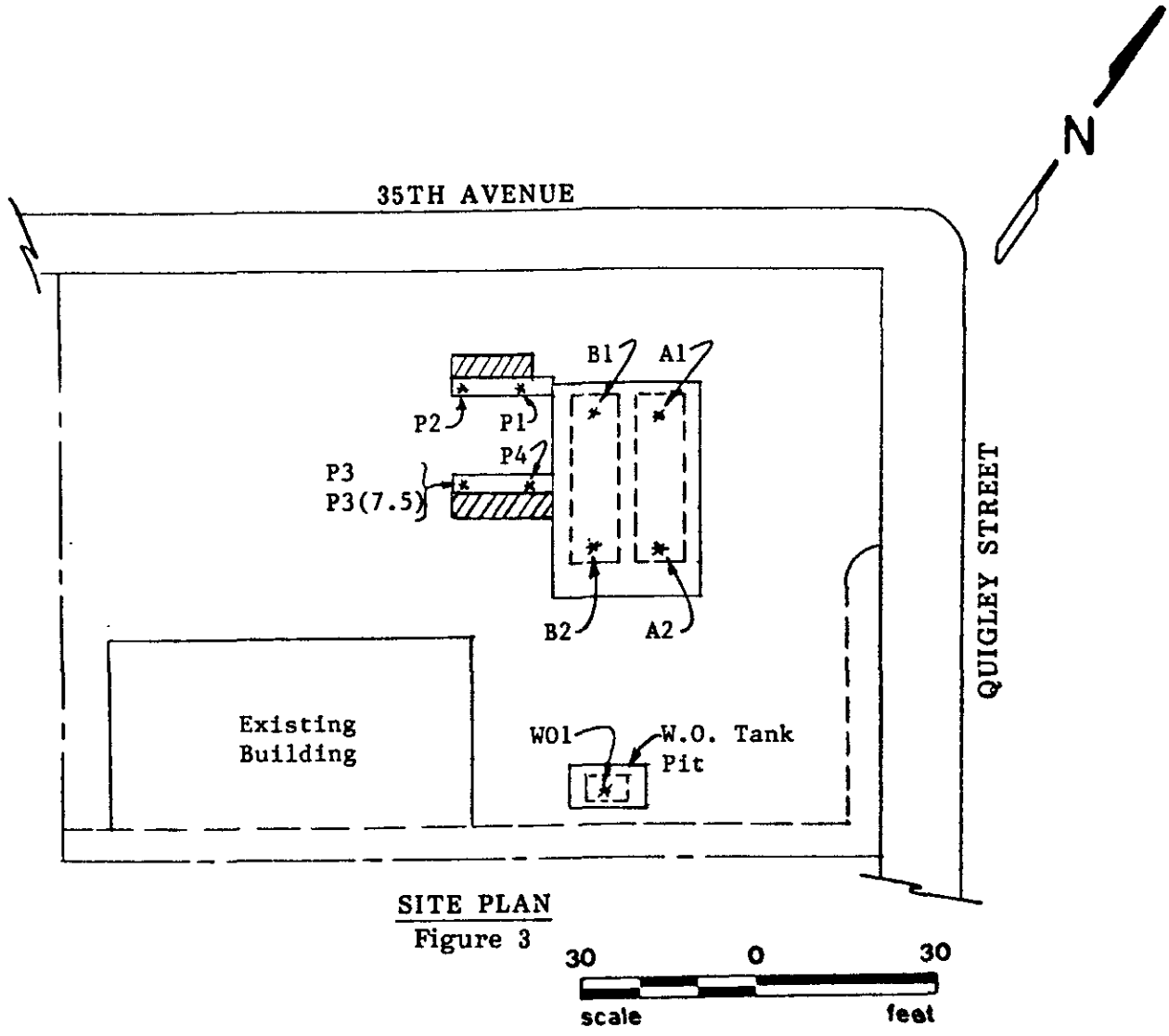

SITE PLAN
Figure 3

LEGEND

★ Sample Point Location

Unocal S/S #6129
3420 35th Avenue
Oakland, CA

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Kapreallan Engineering, Inc.	Client Project ID:	Unocal, 3420 35th Ave., Oakland	Sampled: May 9, 1991
P.O. Box 996	Matrix Descript:	Water	Received: May 10, 1991
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed: May 18, 1991
Attention: Mardo Kapreallan, P.E.	First Sample #:	105-0371 AB	Reported: May 23, 1991

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)
105-0371 AB	MW-1	N.D.	N.D.	N.D.	N.D.	N.D.
105-0372 AB	MW-2	N.D.	N.D.	N.D.	N.D.	N.D.
105-0373 AB	MW-3	N.D.	N.D.	N.D.	N.D.	N.D.
Detection Limits:		**30**	**0.30**	**0.30**	**0.30**	**0.30**

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
Laboratory Director

1050371.KEI <1>

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Kapreallan Engineering, Inc.
P.O. Box 996
Benicia, CA 94510
Attention: Mardo Kapreallan, P.E.

Client Project ID: Unocal, 3420 35th Ave., Oakland
QC Sample Group: 1050371-73
Reported: May 23, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	S. Le	S. Le	S. Le	S. Le
Reporting Units:	ppb	ppb	ppb	ppb
Date Analyzed:	May 18, 1991	May 18, 1991	May 18, 1991	May 18, 1991
QC Sample #:	105-0371	105-0371	105-0371	105-0371
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	20	20	20	60
Conc. Matrix Spike:	21	19	18	56
Matrix Spike % Recovery:	110	95	90	93
Conc. Matrix Spike Dup.:	20	18	19	56
Matrix Spike Duplicate % Recovery:	100	90	95	93
Relative % Difference:	4.9	5.4	5.4	0

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

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

1050371.KEI <2>

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Kapreallan Engineering, Inc.	Client Project ID:	Unocal, 3420 35th Ave., Oakland	Sampled: - - - - - -
P.O. Box 996	Sample Descript.:	D I Blank	Received: - - - - - -
Benicia, CA 94510	Analysis Method:	EPA 5030/ 8015/8020	Analyzed: May 18, 1991
Attention: Mardo Kapreallan, P.E.	Lab Number:	- - - - - -	Reported: May 23, 1991

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

Analyte	Detection Limit µg/L (ppb)	Sample Results µg/L (ppb)
Low to Medium Boiling Point Hydrocarbons	30	N.D.
Benzene	0.30	N.D.
Toluene	0.30	N.D.
Ethyl Benzene	0.30	N.D.
Xylenes	0.30	N.D.

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
Laboratory Director

SEQUOIA ANALYTICAL

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Kaprealian Engineering, Inc.
P.O. Box 996
Benicia, CA 94510
Attention: Mardo Kaprealian, P.E.

Client Project ID: Unocal, 3420 35th Ave., Oakland
QC Sample Group: 1050371-73
Reported: May 23, 1991

QUALITY CONTROL DATA REPORT

SURROGATE

Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	S. Le	S. Le	S. Le	S. Le
Reporting Units:	ppb	ppb	ppb	ppb
Date Analyzed:	May 18, 1991	May 18, 1991	May 18, 1991	May 18, 1991
Sample #:	105-0371	105-0372	105-0373	Blank
Surrogate % Recovery:	91	96	95	94

SEQUOIA ANALYTICAL

Belinda C. Vega
Laboratory Director

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: JOE

WITNESSING AGENCY:

SITE NAME & ADDRESS: Unocal / Oakland #6129
3420 35th Ave

ANALYSES REQUESTED: TPHG, BTXE

TURN AROUND TIME: Regular

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION	TPHG, BTXE	REMARKS
MW-1	5/9/91	1:40 P.M.		✓	✓		2	MW	✓	VOA-s preserved
MW-2	"	12:05 P.M.		✓	✓		2	"	✓	
MW-3	"	10:35 A.M.		✓	✓		2	"	✓	

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Joe Kreisler	5/9/91	K. Wall 330 5/9
[illegible]	5/9/91 1650	[illegible]
[illegible]	5/9/91 2020	Ed Hamlik
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? NO
4. Were samples in appropriate containers and properly packaged? /

[illegible] Signature | 1010 Time | 5/9/91 Date