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

April 30, 1990

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

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

Gentlemen:

Per the request of Mr. Ron Bock of Unocal Corporation, enclosed please find our report dated April 20, 1990, 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

jad:82

Enclosure

cc: Ron Bock, Unocal Corporation

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KEI-P89-0301.QR3
April 20, 1990

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

Attention: Mr. Ron Bock

RE: Quarterly Report
Unocal Service Station #6277
15803 E. 14th Street
San Leandro, California

Dear Mr. Bock:

This report presents the results of the third quarter of monitoring and sampling of the monitoring wells at the referenced site by Kaprealian Engineering, Inc. (KEI), per proposal KEI-P89-0301.P2 dated June 19, 1989. The wells are currently monitored monthly and sampled on a quarterly basis. This report covers the work performed by KEI from January through March, 1990.

BACKGROUND

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

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 total petroleum hydrocarbons (TPH) as gasoline ranging from non-detectable to 620 ppm. Based on results of the preliminary investigation, KEI recommended that the contractor excavate the tank pit to a depth of approximately 13 feet. 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, prohibiting the collection of soil samples from immediately beneath the tank. Sidewall samples

(collected at a depth of 10.5 feet) were analyzed for TPH as gasoline, 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, total oil and grease (TOG) and EPA method 8240 compounds.

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 as gasoline levels ranging from 24 ppm to 150 ppm, and benzene levels ranging from 1.6 ppm to 4.0 ppm. Results of the soil samples from the tank excavation are summarized in KEI's report KEI-P89-0301.R3 dated March 27, 1989. To comply with the requirements of the regulatory agencies and based on results of the preliminary investigations, KEI proposed installation of four monitoring wells.

On May 24, 1989, four two-inch diameter monitoring wells, designated as MW1 through MW4, were installed at the site. Documentation of the well installation, sampling and sample results are provided in KEI's report (KEI-P89-0301.R6) dated June 26, 1989. Based on the sample results, KEI recommended a monthly monitoring and quarterly sampling program for all of the wells and additional excavation of contaminated soil in the vicinity of MW2. The monitoring and sampling program was initiated in July, 1989, and the wells have been monitored on a monthly basis and sampled on a quarterly basis since that time. In KEI's second quarterly report (KEI-P89-0301.QR2) dated January 16, 1990, KEI recommended the installation of one additional off-site well (MW5) to further define the extent of ground water contamination at the site.

On February 1, 1990, well MW2 was destroyed in preparation for additional excavation in the vicinity of well MW2. Documentation of the well destruction is presented in a letter report dated March 7, 1990 addressed to Unocal. Copies of the letter were also sent to Mr. Wyman Hong of the Alameda County Flood Control District, Zone 7, and to the Regional Water Quality Control Board (RWQCB), San Francisco Bay Region.

FIELD ACTIVITIES

Except for MW2, the existing wells were monitored four times and sampled once during the quarter. Because MW2 was destructed on February 1, 1990, it was monitored only in January and February, 1990. 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 wells (MW1, MW3 and MW4) on March 29, 1990. Prior to sampling, the wells were purged of between 15 and 55 gallons using a surface pump. Samples were then collected using a clean Teflon bailer. Samples were decanted into clean VOA vials, which were sealed with Teflon-lined screw caps and stored on ice until delivery to the state certified laboratory.

On March 30, 1990 and April 3, 1990, KEI observed the excavation of the contaminated soil, previously recommended, in the vicinity of well MW2. The location of the excavated area is shown on the attached Site Plan. Completion of the report documenting the excavation is presently pending receipt of the analytical results from the laboratory for all soil samples collected during the excavation.

HYDROLOGY

Based on the water level data gathered during the quarter, ground water flow direction appeared to be to the northwest on March 29, 1990, slightly changed from the northerly flow direction observed during the previous quarter. Water levels have fluctuated during the quarter, but have shown a net increase in all of the wells ranging from 0.10 to 1.29 feet from the previous quarter. The measured depth to water at the site on March 29, 1990 ranged from 9.80 to 10.53 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, and BTX&E using EPA method 8020.

The analytical results of the ground water samples, collected from wells MW1, MW3 and MW4, indicate levels of TPH as gasoline ranging from 85 to 320 ppb. Benzene was detected in wells MW1 and MW4 at concentrations of 12 and 0.39 ppb, respectively, and was non-detectable in well MW3. TPH as gasoline and benzene levels have decreased in all of the wells since the previous quarter, except for well MW4, which showed a slight increase. 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

On February 1, 1990, well MW2 was destroyed in preparation for additional excavation in the vicinity of well MW2. The additional excavation was performed in the vicinity of well MW2 on March 30, 1990 and April 3, 1990. A report documenting the additional excavation will be submitted at a later date.

It is KEI's understanding that Unocal Corporation is making arrangements with the off-site property owner for site access for installation of the proposed off-site monitoring well (MW5). Once permission for off-site access is obtained, KEI will acquire the necessary permits and schedule the monitoring well installation. In addition, KEI will obtain necessary permits for the installation of monitoring well MW2A, which is replacement for well MW2.

Based on the analytical results collected and evaluated to date, KEI recommends the continuation of the current monitoring and sampling program of the existing wells per KEI's proposal (KEI-P89-0301.P2) dated June 19, 1989.

DISTRIBUTION

A copy of this report should be sent to the Alameda County Health Agency, the Alameda County Flood Control District, and to the RWQCB, 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.

Paul H. King
Hydrogeologist

Don R. Braun
Certified Engineering Geologist

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

Mardo Kaprealian
President

jad

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

KEI-P89-0301.QR3
April 20, 1990

TABLE 1

SUMMARY OF MONITORING DATA

Date	Well No.	Depth to Water (feet)	Product Thickness	Sheen	Water Bailed (gallons)
3/29/90	MW1	10.55	0	None	55
	MW3	10.08	0	None	20
	MW4	9.80	0	None	15
3/02/90	MW1	10.25	0	None	37
	MW3	9.85	0	None	15
	MW4	9.60	0	None	15
2/01/90	MW1	10.25	0	None	0
	MW2	10.96	0	None	0
	MW3	9.72	0	None	0
	MW4	9.51	0	None	0
1/16/90	MW1	9.97	0	None	55
	MW2	10.68	0	None	55
	MW3	9.37	0	None	25
	MW4	9.28	0	None	25

NOTE: Well MW2 was destroyed on February 1, 1990.

KEI-P89-0301.QR3
April 20, 1990

TABLE 2

SUMMARY OF LABORATORY ANALYSES

Sample Well #	Depth to Water (feet)	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene
			(Collected on March 29, 1990)			
MW1	10.55	320	12	1.6	3.5	0.31
MW3	10.08	85	ND	ND	ND	ND
MW4	9.80	120	0.39	ND	ND	ND
			(Collected on December 12, 1989)			
MW1	10.65	340	100	13	44	3.4
MW2*	11.45	660	220	6.6	36	13
MW3	10.20	120	6.7	0.64	1.5	0.46
MW4	9.10	97	4.6	ND	ND	ND
			(Collected on June 6, 1989)			
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

* TPH as diesel showed 1,700 ppb, TOG showed 1.2 ppm and EPA method 8010 showed 30 ppb of tetrachloroethane and 9.0 ppb of trichloroethene.

** TPH as diesel and TOG were non-detectable. EPA method 8010 showed 2.8 ppb of 1,2-dichloroethane, 110 ppb of tetrachloroethane, and 4.4 ppb of trichloroethene.

ND = Non-detectable.

NOTE: Well MW2 was destroyed on February 1, 1990.

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

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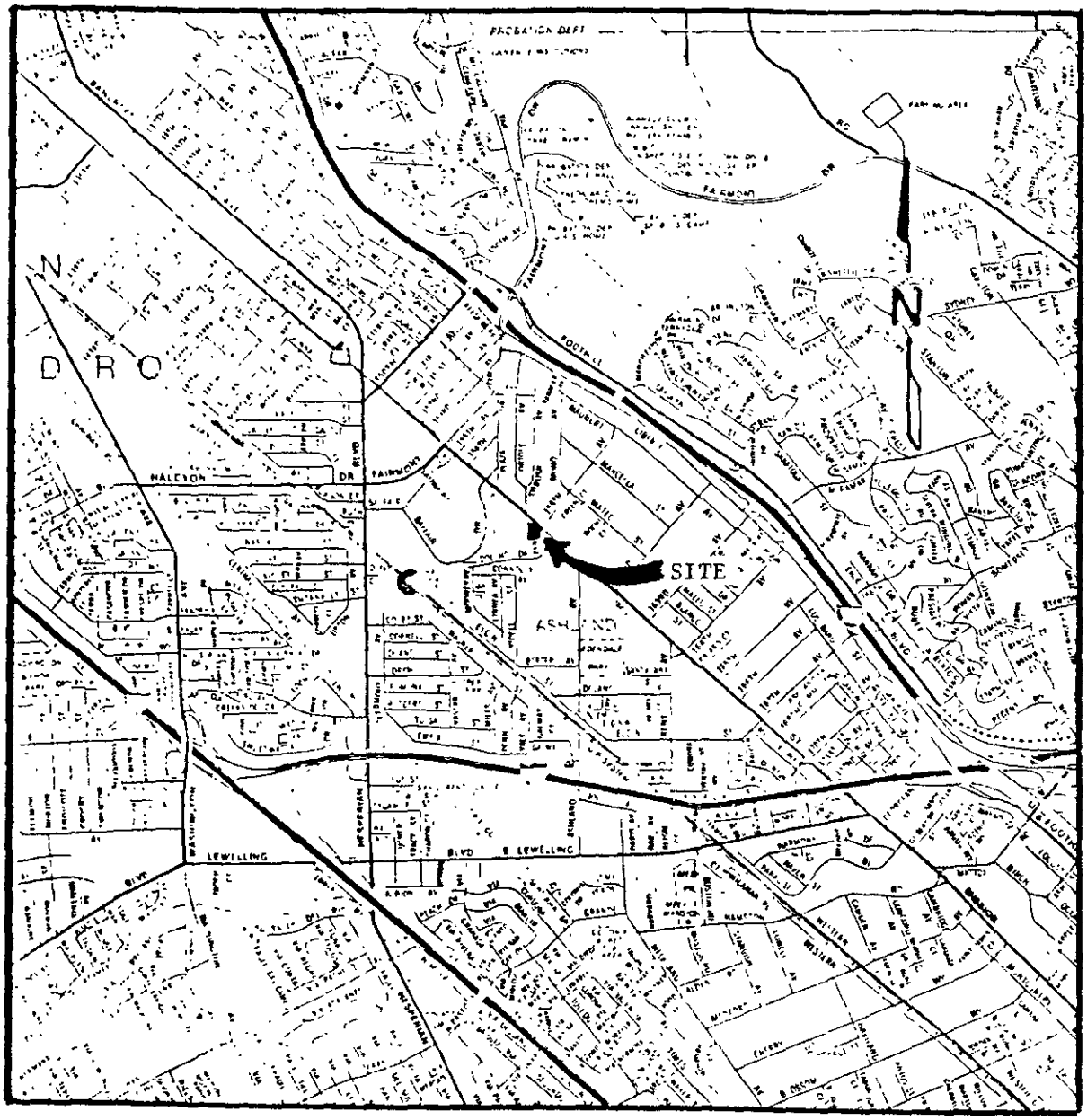

LOCATION MAP

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

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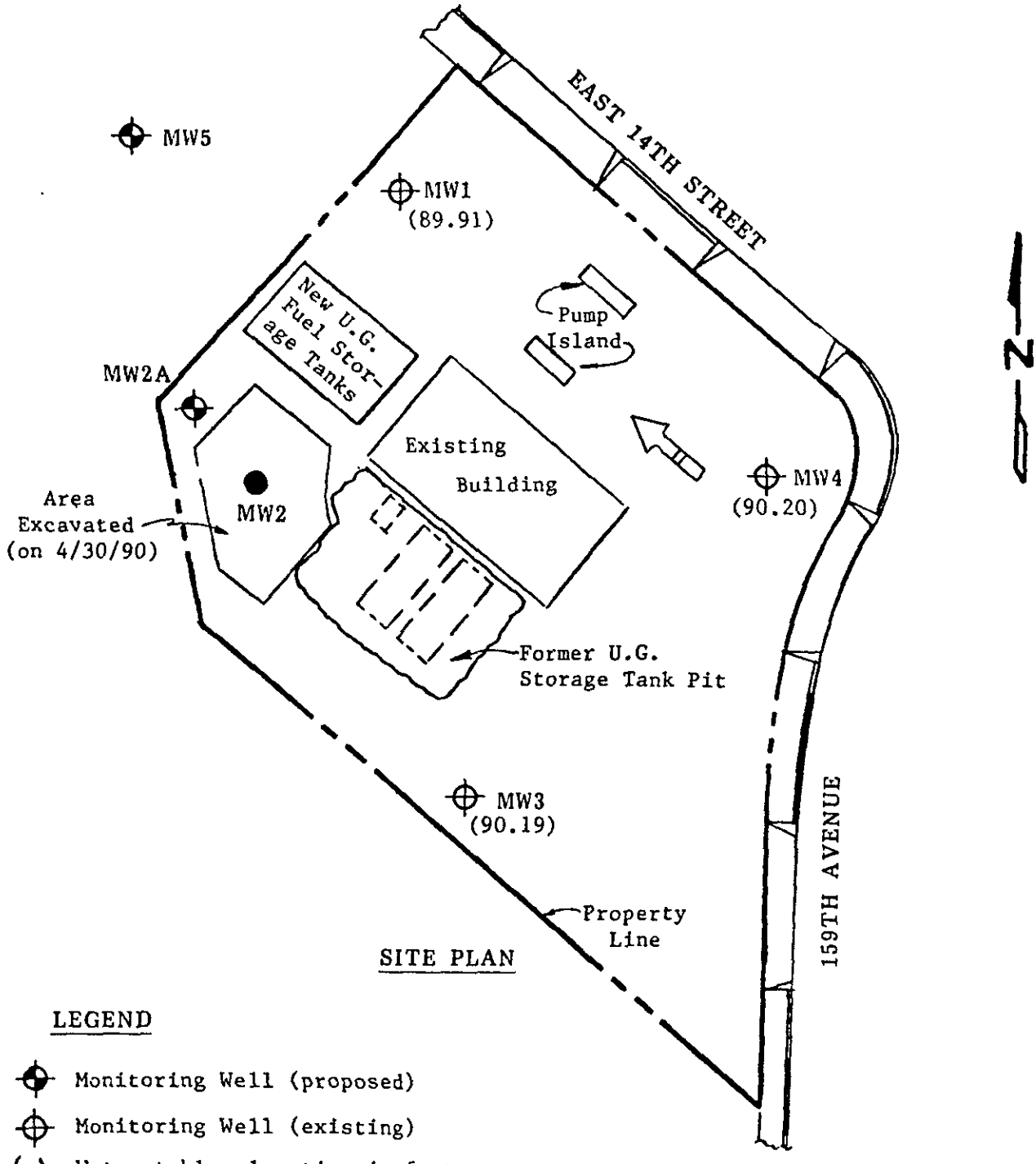

SITE PLAN

LEGEND

- Monitoring Well (proposed)
- Monitoring Well (existing)
- ( ) Water table elevation in feet on 3/29/90 . Top of MW4 well cover assumed 100.00' as datum.
- Ground water flow direction.
- Monitoring Well (abandoned 2/1/90)

0 40 80
Approx. Scale feet

Unocal Service Station #6277
15803 East 14th 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, 15803 E. 14th	Sampled:	Mar 29, 1990
P.O. Box 996	Matrix Descript:	Water	Received:	Mar 29, 1990
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Mar 30, 1990
Attention: Mardo Kaprealian, P.E.	First Sample #:	003-4248 A-B	Reported:	Apr 3, 1990

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)
0034248 A-B	MW1	320	12	1.6	0.31	3.5
0034249 A-B	MW3	85	N.D.	N.D.	N.D.	N.D.
0034250 A-B	MW4	120	0.39	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
Project Manager

KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER: Joe

WITNESSING AGENCY:

SITE NAME & ADDRESS: Unocal / San Leandro
15803 E. 14th

ANALYSES REQUESTED: TPH G/BTXE

TURN AROUND TIME: 5 days

SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION		REMARKS
MW1	3/29/90	11:30		✓	✓		2	MW	J	0034248	VOA's preserved in the field with HCl.
MW2	No Access			Existent Well					J		
MW3	"	11:15		✓	✓		2	"	J	0034249	
MW4	"	11:03		✓	✓		2	"	J	0034250	MW2 - Non-existent
								"			

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	3/29/90 15:40	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
inquished by: (Signature)	Date/Time	Received by: (Signature)
ed by: (Signature)	3/29/90 1555	Received by: (Signature) [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

[signature] — Signature; [signature] — Title; 3/29/90 — Date