TRANSMITTAL FORM

Applied GeoSystems
43255 Mission Boulevard Fremont, California 94539
(415) 651-1906
FAX (415) 651-8647

Date	Project No.
7-11-90	18061-6

Subject: Quarterly Ground-Water Monitoring for First and Second Quarter 1990

TO Mr. Lester Feldman
California Regional Water Quality Control Board
San Francisco Bay Region
1800 Harrison Street, Suite 700
Oakland, California 94612

FROM Rodger C. Witham

TITLE Project Manager

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Reports ☐ Specifications
☐ Letters ☐ Change orders ☐ _____

COPIES	DATED	NO.	DESCRIPTION
1	7-3-90		Quarterly Ground-Water Monitoring for First and Second Quarter
			1990 at ~~Unocal~~ Station No. 5484, ~~18550 Lake Chabot Road,~~
			Castro Valley, California.

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Rodger C. Witham
for Ash Mirza, Branch Manager

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Applied GeoSystems
43255 Mission Boulevard Fremont, California 94539
(415) 651-1906
FAX (415) 651-8647

90 JUL 12 PM 2:23

Date	Project No.
7-11-90	18061-6

Subject: Quarterly Ground-Water Monitoring for First and Second Quarter 1990

TO Mr. Scott Seery
Alameda County Health Care Service Agency
Department of Environmental Health
Hazardous Materials Division
80 Swan Way, Room 200
Oakland, California 946 21

FROM Rodger C. Witham

TITLE Project Manager

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Reports ☐ Specifications
☐ Letters ☐ Change orders ☐ _____

COPIES	DATED	NO.	DESCRIPTION
1	7-3-90		Quarterly Ground-Water Monitoring for First and Second Quarter
			1990 at Unocal Station No. 5484, 18950 Lake Chabot Road,
			Castro Valley, California.

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Rodger C. Witham
for Ash Mirza, Branch Manager

Applied GeoSystems 43255 Mission Boulevard, Fremont, CA 94539 (415) 651-1906

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LETTER REPORT
GROUND-WATER MONITORING
at
Unocal Station 5484
18950 Lake Chabot Road
Castro Valley, California

Applied GeoSystems
43255 Mission Boulevard, Fremont, CA 94539 (415) 651-1906
• FREMONT • IRVINE • HOUSTON • BOSTON • SACRAMENTO • CULVER CITY • SAN JOSE

July 3, 1990
AGS 18061-6

Mr. Ron Bock
Unocal Corporation
2000 Crow Canyon Place, Suite 400
San Ramon, California 94583

Subject: Quarterly Ground-Water Monitoring for First and Second Quarter 1990 at Unocal Station No. 5484, 18950 Lake Chabot Road, Castro Valley, California.

Mr. Bock:

This letter report summarizes results of the first and second quarter 1990 ground-water monitoring performed by Applied GeoSystems (AGS) at Unocal Service Station No. 5484, on Lake Chabot Road in Castro Valley, California, as shown on the Site Vicinity Map (Plate P-1). The location of the ground-water monitoring wells and site features are shown on the Generalized Site Plan, Plate P-2.

Background

At the request of Unocal Corporation (Unocal), AGS first became involved with the site in June 1988, after the unleaded gasoline tank failed pressure tests. In July 1988, AGS installed three onsite ground-water monitoring wells (MW-1, MW-2, and MW-3). Because floating product was observed in MW-3, Unocal requested that AGS install three additional monitoring wells (MW-4, MW-5 are offsite and MW-6 is onsite). These wells were installed in October 1988.

In June 1989, Paradiso Construction Company excavated and disposed of 1800 cubic yards of hydrocarbon-impacted soil, and removed and replaced two gasoline underground storage tanks (USTs) and one waste-oil UST. During these activities, wells MW-1 and MW-3 were properly destroyed. Well MW-1 was sampled quarterly from July 1988 until June 1989. Well MW-2 has been sampled quarterly since June 1988 and wells MW-4, MW-5 and MW-6 have been sampled quarterly since June 1989.

Sampling Procedures

The quarterly monitoring program (QM) conducted by AGS includes measuring depths to water, subjectively evaluating ground water samples, and purging and sampling ground water from monitoring wells MW-2, MW-4, MW-5, and MW-6 for laboratory analysis. The first QM for 1990 was performed on February 28, and the second QM was conducted on May 8, 1990. Both monitoring episodes were performed according to the Field Procedures in Appendix A. Purge water storage and disposal are also described in Appendix A.

Results of Subjective Evaluations

There was no evidence of sheen or floating product on water samples from any monitoring wells, during the subjective evaluation performed on February 28, 1990, with the exception of a slight sheen in MW-2. On May 8, 1990, no evidence of sheen or floating product was observed in any of the wells. Cummulative water level data and results of the subjective evaluations are summarized in Table 1.

Analytical Methods and Results

First quarter 1990 ground-water samples from MW-2, MW-4, MW-5 and MW-6 were analyzed for total petroleum hydrocarbons as gasoline (TPHg) by Environmental Protection Agency (EPA) Method 8015 and for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 602 at the AGS State-Certified laboratory (Certificate No 153) in Fremont, California. Ground-water samples taken from MW-2 and MW-5 were also analyzed for total oil and grease (TOG) by standard method 503A/E at the AGS laboratory and for volatile organic compounds (VOCs) by EPA method 601 at the Anametrix Inc. laboratory (Certification No. 151) in San Jose, California. Copies of the Chain of Custody Records and certified analytical reports are enclosed in Appendix A.

Second quarter 1990 ground-water samples from MW-2, MW-4, MW-5 and MW-6 were analyzed for TPHg by EPA Method 8015 and for BTEX by EPA method 602 at the Applied Analytical Environmental laboratories.

Results of the laboratory analyses of ground-water samples collected on February 28, 1990 indicated the following:

- TPHg and BTEX were not detected in the water samples from wells MW-4, MW-5, and MW-6.

- TOG and VOC compounds were not detected in the water samples from wells MW-2 and MW-5.

- Ground water from the onsite well MW-2 contained lower levels of TPHg, ethylbenzene and total xylenes than all previous sampling episodes, and no toluene was detected. The level of benzene detected in MW-2 was slightly greater than that detected in November 1989.

Results of the laboratory analyses of ground-water samples collected on May 8, 1990 indicated the following:

- TPHg and BTEX were not detected in ground water samples from wells MW-4, MW-5, and MW-6.

- Ground water samples from the onsite well MW-2 contained concentrations of benzene, toluene, ethylbenzene and total xylenes that have been within the same order of magnitude for approximately one year.

Ground-Water Depths and Gradient Results

Ground-water depths for the February 28, 1990, and the May 8, 1990, monitoring episodes are presented in Table 4. A graphic interpretation of the ground-water surface elevation based on measurements taken on February 28, 1990, is presented on Plate P-3. The direction of ground-water flow is inferred to be towards the southwest with a gradient of 0.1 or approximately 10 feet vertical per 100 feet horizontal. A graphic interpretation of the ground-water surface elevation based on measurements taken on May 8, 1990, is presented on Plate P-4. The direction of ground-water flow is inferred to be towards the southwest with a gradient of 0.043 or approximately 4.3 feet vertical per 100 feet horizontal. The direction of ground-water flow is consistent with measurements from previous monitoring episodes.

Conclusions and Recommendations

Based on data from the first and second quarter 1990, the impacts to ground water from hydrocarbons appear to be minimal and decreasing with time. Only water samples from MW-2 appear to have been impacted at levels above the method detection limits for BTEX and TPHg.

On the basis of these results AGS recommends to continue the current QM program. AGS also recommends that copies of this report be submitted to Mr. Scott Seery of the Alameda County Health Care Services Agency, Department of Environmental Health , Hazardous Materials Division, 80 Swan Way, Room 200, Oakland, California 94621, and Mr. Lester Feldman of the California Regional Water Quality Control Board, San Francisco Bay Region, 1800 Harrison Street, Suite 700, Oakland, California 94612.

Scheduling

The third quarter 1990 ground-water monitoring is scheduled for August 8, 1990.

July 3, 1990
AGS 18061-6

Please call if you have any questions.

Sincerely,
Applied GeoSystems

William T. DeLon
Staff Geologist

Joan E. Tiernan
Registered Civil Engineer
No. 044600

Enclosures: Cumulative Results of Subjective Evaluations, Table 1
Cumulative Results of Laboratory Analyses of Ground-Water Samples for TPHg and BTEX, Table 2
Cumulative Results of Laboratory Analyses of Ground-Water Samples for TOG and VOCs, Table 3
Ground-Water Elevation Data, Table 4

Site Vicinity Map, Plate P-1
Generalized Site Plan, Plate P-2
Ground-Water Surface Elevation Map, Plate P-3
Ground-Water Surface Elevation Map, Plate P-4

Appendix A
Field Procedures
Chain of Custody Records (2)
Certified Analytical Reports (2)

TABLE 1
CUMULATIVE RESULTS OF SUBJECTIVE ANALYSES
OF WATER IN WELLS
(page 1 of 2)

Well	Date	Depth to Water*	Inches of Floating Product	Sheen	Emulsion
MW-1	7/88	5.16	NONE	NONE	NONE
	10/88	7.10	NONE	NONE	NONE
	11/2/88	6.08	NONE	NONE	NONE
	11/9/88	6.14	NONE	NONE	NONE
	12/15/88	6.51	NONE	SLIGHT	NONE
	1/3/89	5.10	NONE	NONE	NONE
	1/16/89	4.75	NONE	NONE	NONE
	2/15/89	5.13	NONE	NONE	NONE
	3/17/89	3.68	NONE	NONE	NONE
	4/14/89	3.12	NONE	NONE	NONE
	5/19/89	3.46	NONE	NONE	NONE
	6/89	Well destroyed during tank excavation			
MW-2	7/88	6.85	NONE	NONE	NONE
	10/88	7.81	NONE	SLIGHT	NONE
	11/2/88	7.83	NONE	NONE	NONE
	11/9/88	7.98	NONE	NONE	NONE
	12/15/88	7.89	NONE	NONE	NONE
	1/3/89	6.50	NONE	NONE	NONE
	1/16/89	6.02	NONE	NONE	NONE
	2/15/89	5.22	NONE	NONE	NONE
	3/17/89	3.98	NONE	NONE	NONE
	4/14/89	3.83	NONE	NONE	NONE
	5/19/89	4.85	NONE	NONE	NONE
	6/29/89	7.24	NONE	NONE	NONE
	11/17/89	7.73	NONE	NONE	NONE
	11/21/89	7.24	NONE	NONE	NONE
	2/28/90	4.53	NONE	SLIGHT	NONE
	5/08/90	5.5	NONE	NONE	NONE

See notes on page 2 of 2.

TABLE 1
CUMULATIVE RESULTS OF SUBJECTIVE ANALYSES
OF WATER IN WELLS
(page 2 of 2)

Well	Date	Depth to Water*	Inches of Floating Product	Sheen	Emulsion
MW-3	7/88	7.49	NONE	NONE	NONE
	10/88	9.06	9.0	NA	NA
	11/2/88	9.12	11.5	NA	NA
	11/9/88	7.60	0.75	NA	NA
	12/15/88	7.97	6.72	NA	NA
	1/3/89	7.20	1.08	NA	NA
	1/16/89	6.36	2.64	NA	NA
	2/15/89	5.16	0.12	NA	NA
	3/17/89	5.01	0.48	NA	NA
	4/14/89	4.71	<0.01	HEAVY	NONE
	5/19/89	5.49	NONE	MODERATE	NONE
	6/89	Well destroyed during tank excavation			
MW-4	6/29/89	9.95	NONE	NONE	NONE
	11/17/89	10.56	NONE	NONE	NONE
	11/21/89	10.83	NONE	NONE	NONE
	2/28/90	9.40	NONE	NONE	NONE
	5/08/90	9.70	NONE	NONE	NONE
MW-5	6/29/89	9.03	NONE	NONE	NONE
	11/17/89	--	NONE	NONE	NONE
	11/21/89	9.56	NONE	NONE	NONE
	2/28/90	8.26	NONE	NONE	NONE
	5/08/90	8.89	NONE	NONE	NONE
MW-6	8/1/89	7.34	NONE	NONE	NONE
	11/17/89	8.36	NONE	NONE	NONE
	11/21/89	8.59	NONE	NONE	NONE
	2/28/90	7.05	NONE	NONE	NONE
	5/08/90	7.35	NONE	NONE	NONE

* = Depth to water measured in feet below top of casing.
NA = Not applicable
-- = Not recorded

TABLE 2
CUMULATIVE RESULTS OF LABORATORY ANALYSES
OF GROUND-WATER SAMPLES FOR TPHG AND BTEX
(page 1 of 2)

Sample	Date	TPHg	B	T	E	X
MW-1						
W-7-MW1	7/88	540	6.1	82.7	35.6	180.3
W-8-MW1	10/88	1,420	13.2	4.1	163.8	58.1
W-5-MW1	1/89	410	6.5	10.4	11.8	44.2
	6/89	Well destroyed during tank excavation				
MW-2						
W-9-MW2	7/88	1,080	72	139	33	157.0
W-9-MW2	10/88	1,140	80	10	25	26.0
W-6-MW2	1/89	4,040	103	673	78	527
W-10-MW2	6/89	550	2.7	1.9	10	34
W-15-MW2	11/89	720	1.4	1.4	5.9	34
W-15-MW2	3/90	420	5.0	<0.50	3.0	17
W-11-MW2	5/90	1,100	9.7	0.95	14	48
MW-3						
W-9-MW3	7/88	7,800	385	640	369	2,258
	10/88	Well not sampled				
	1/89	Well not sampled				
	6/89	Well destroyed				
MW-4						
W-14-MW4	6/89	<20	<0.50	<0.50	<0.50	<0.50
W-11-MW4	11/89	<20	<0.50	<0.50	<0.50	<0.50
W-23-MW4	3/90	<20	<0.50	<0.50	<0.50	<0.50
W-18-MW4	5/90	<20	<0.50	<0.50	<0.50	<0.50
MW-5						
W-11-MW5	6/89	<20	0.83	<0.50	0.57	0.94
W-16-MW5	11/89	<20	<0.50	<0.50	<0.50	0.63
W-18-MW5	3/90	<20	<0.50	<0.50	<0.50	<0.50
W-13-MW5	5/90	<20	<0.50	<0.50	<0.50	<0.50

See notes page 2 of 2

TABLE 2
CUMULATIVE RESULTS OF LABORATORY ANALYSES
OF GROUND-WATER SAMPLES FOR TPHG AND BTEX
(page 2 of 2)

Sample	Date	TPHg	B	T	E	X
MW-6						
W-12-MW6	8/89	26	<0.50	<0.50	<0.50	<0.50
W-9-MW6	11/89	<20	<0.50	<0.50	<0.50	<0.50
W-22-MW6	3/90	<20	<0.50	<0.50	<0.50	<0.50
W-15-MW6	5/90	<20	<0.50	<0.50	<0.50	<0.50

Results in parts per billion (ppb)
BTEX = benzene, ethylbenzene, toluene, and total xylene isomers
TPHg = total petroleum hydrocarbons as gasoline
< = Less than the method detection limit.
Sample designation: W-12-MW6

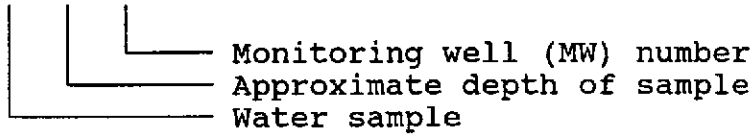


TABLE 3
RESULTS OF LABORATORY ANALYSES OF
GROUND-WATER SAMPLES FOR TOG AND HVO

Sample	Date	TOG	HVO
MW-2			
W-15-MW2	11/21/89	<5,000	NA
W-8-MW2	11/17/89	NA	ND
W-15-MW2	03/09/90	<5,000	ND
MW-5			
W-16-MW5	11/21/89	<5,000	NA
W-7-MW5	11/17/89	NA	ND
W-18-MW5	03/09/90	<5,000	ND

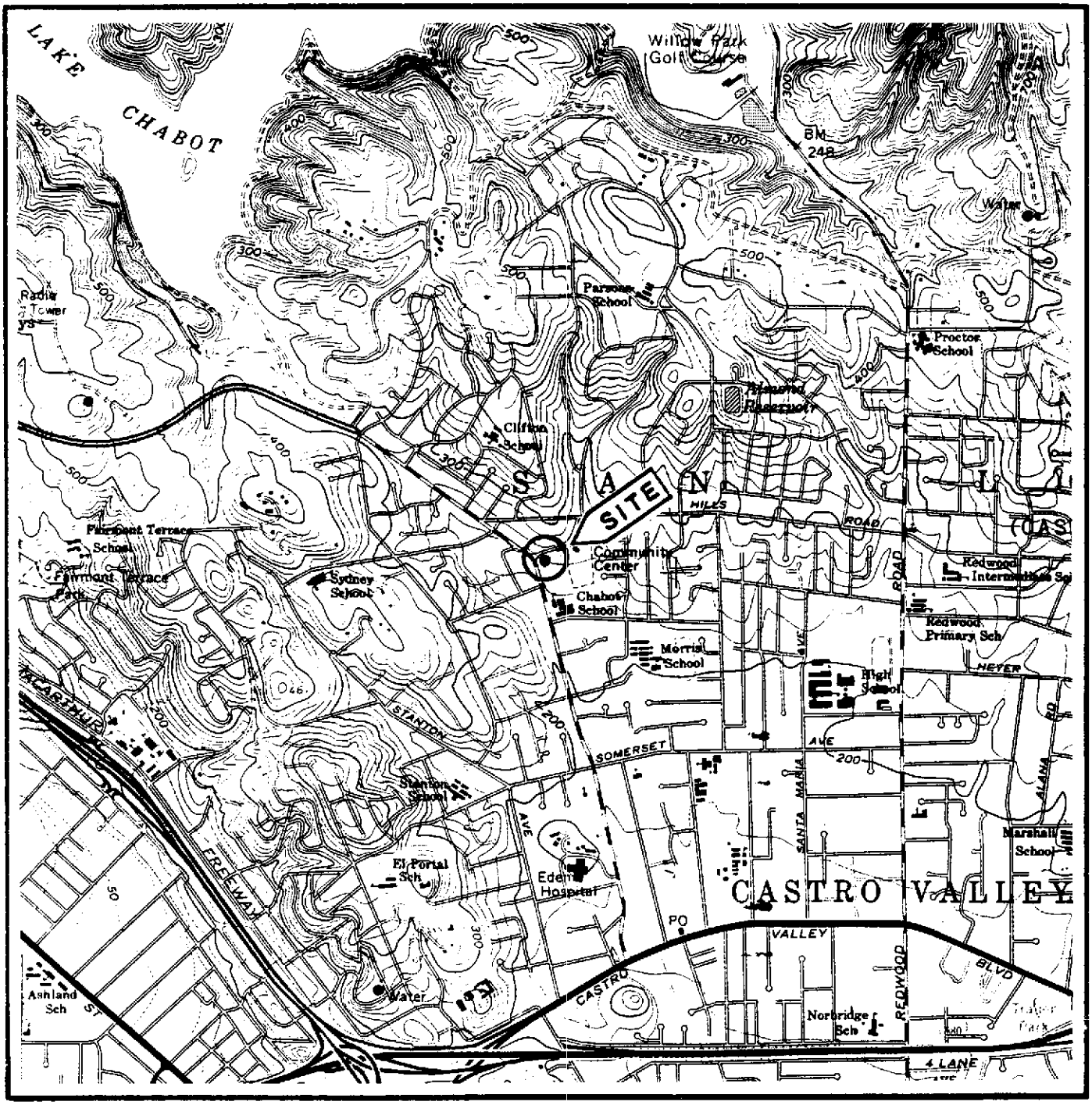
Results in parts per billion (ppb)
TOG = total oil and grease (Standard Method 503A/E)
HVO = halogenated volatile organics (EPA Method 601)
< = Less than the reported limit of detection for the method of analysis used
NA = Not analyzed
ND = No targeted Method 601 compounds were detected
Sample designation: W-16-MW5

- W — Water sample
- 16 — Approximate depth of sample
- MW5 — Monitoring well (MW) number

TABLE 4
GROUND-WATER ELEVATION DATA
Unocal Service Station No. 5484
18950 Lake Chabot Road
Castro Valley, California

Monitoring Well Number	Top of Casing (C)	Static Water Depth (W)	Water level Elevation (C - W)
February 28, 1990			
MW-2	228.88	4.53	224.35
MW-4	227.75	9.40	218.35
MW-5	225.10	7.05	231.95
MW-6	239.00	8.59	230.41
May 8, 1990			
MW-2	228.88	5.50	223.38
MW-4	227.75	9.70	218.05
MW-5	225.10	8.89	216.21
MW-6	239.00	7.35	231.65

Measurements are in feet. Depth measured from top of casing.



Source: U.S. Geological Survey
7.5-Minute Quadrangle
Hayward, California
Photorevised 1980

N

Approximate Scale

2000 1000 0 2000 4000

feet

Applied GeoSystems

PROJECT NO. 18061-6

SITE VICINITY MAP

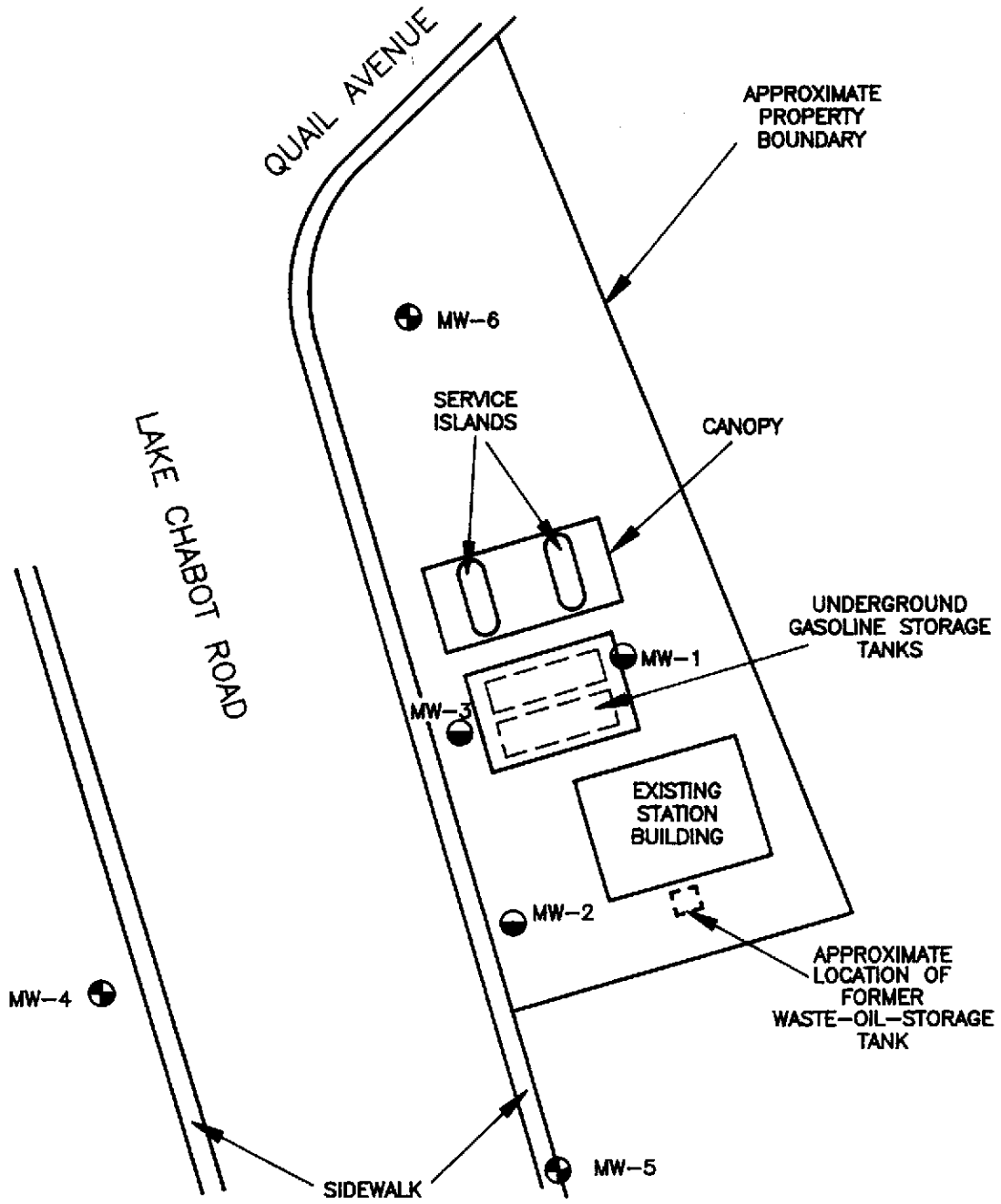
Unocal Station No. 5484

18950 Lake Chabot Road

Castro Valley, California

PLATE

P - 1



MW-6 = Monitoring well installed by Applied GeoSystems (1989)

MW-3 = Monitoring well installed by Applied GeoSystems (1988)

Source: Surveyed by Ron Archer, Civil Engineer, Inc.

N

Approximate Scale

40 20 0 40 80

feet

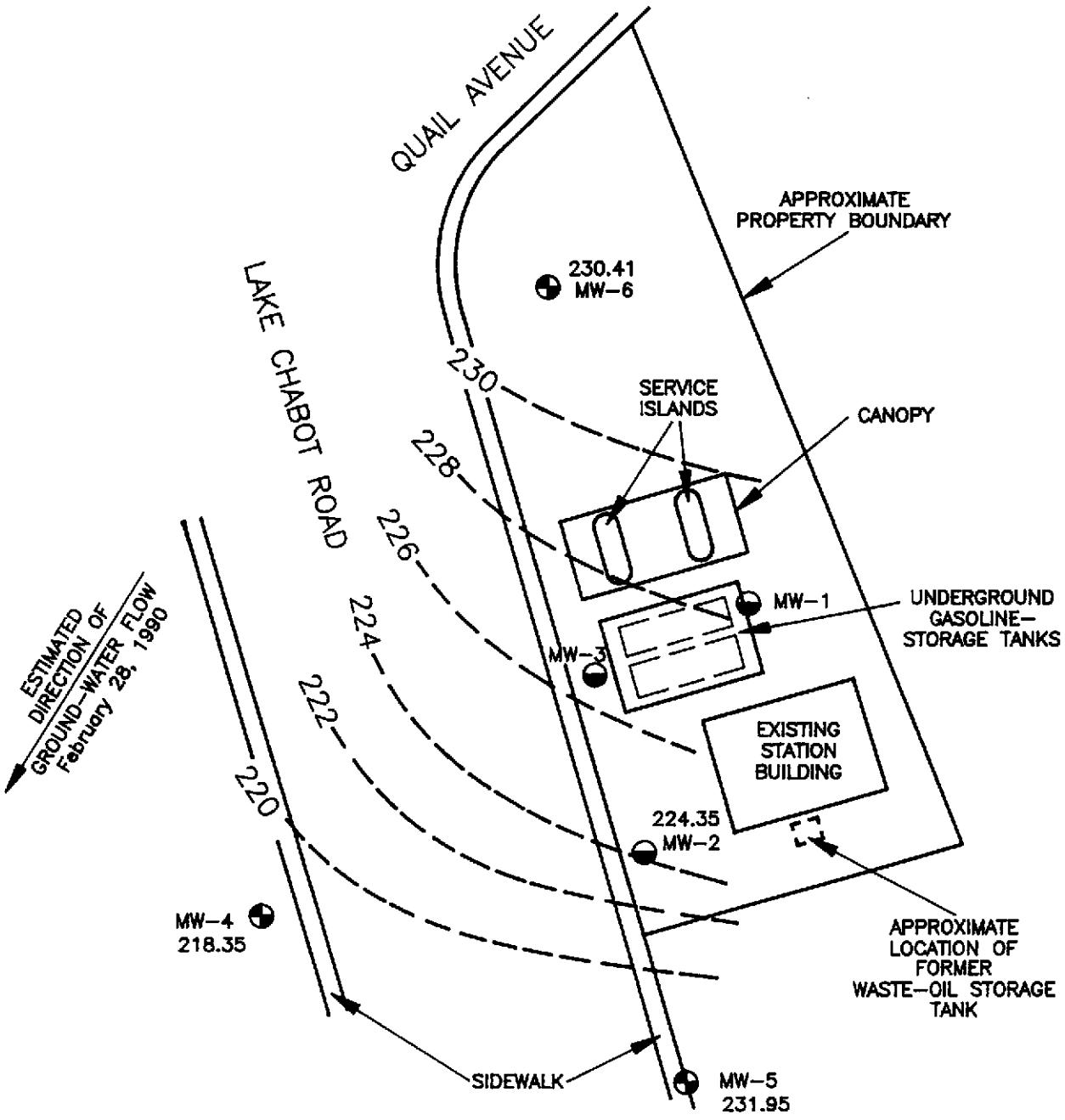
Applied GeoSystems

PROJECT NO. 18061-6

GENERALIZED SITE PLAN
Unocal Station No. 5484
18950 Lake Chabot Road
Castro Valley, California

PLATE

P - 2



230 = Ground-water elevation contour line February 28, 1990

MW-6 = Monitoring well installed by Applied GeoSystems (1989)

MW-3 = Monitoring well installed by Applied GeoSystems (1988)

N

Approximate Scale

40 20 0 40 80

feet

Note: Well head elevations surveyed by Ron Archer, Civil Engineer, Inc.

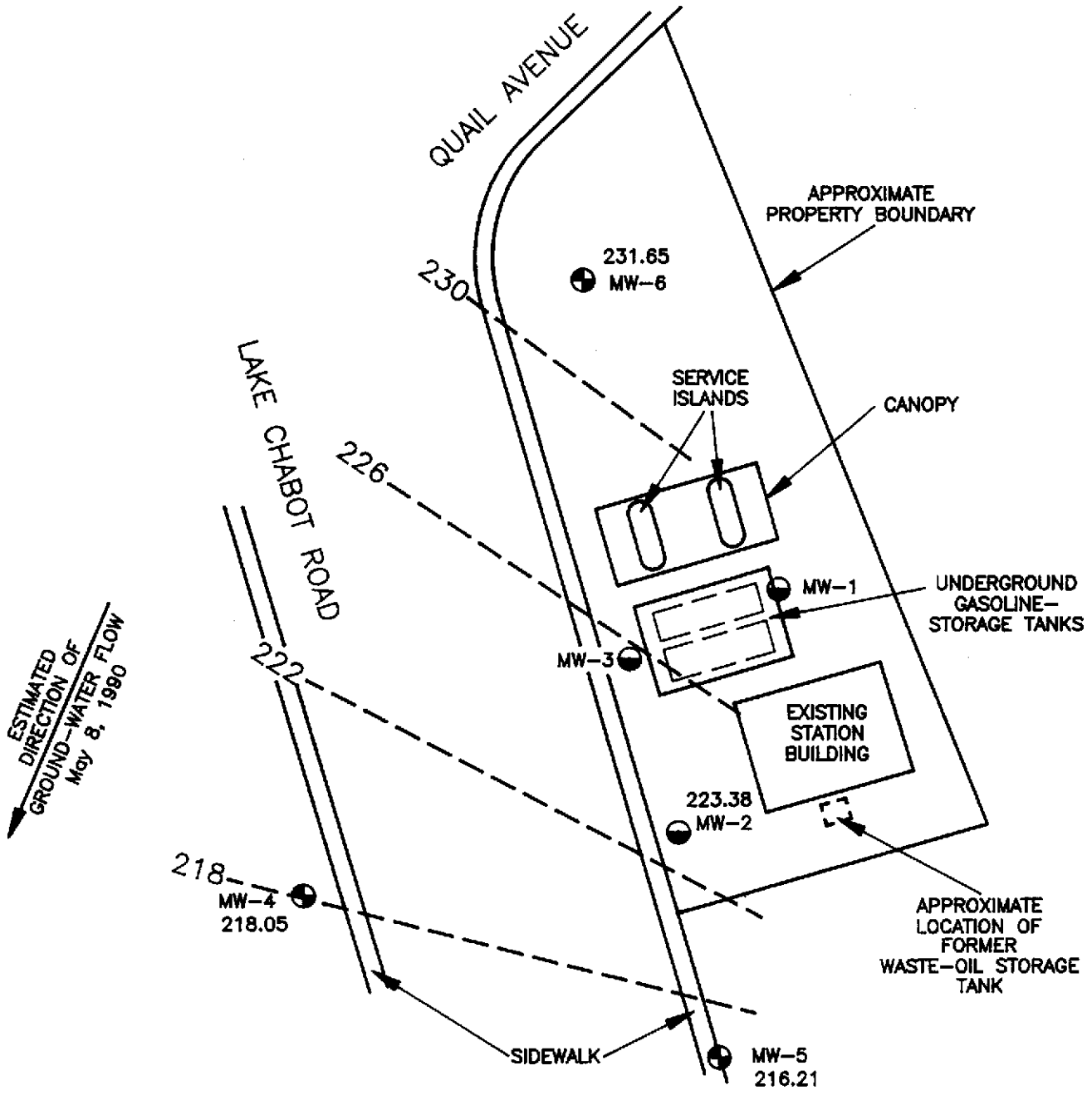
Applied GeoSystems

PROJECT NO. 18061-6

GROUND-WATER SURFACE ELEVATION (February 28, 1990)
Unocal Station No. 5484
18950 Lake Chabot Road
Castro Valley, California

PLATE

P - 3



230 = Ground-water elevation contour line May 8, 1990

MW-6 = Monitoring well installed by Applied GeoSystems (1989)

MW-3 = Monitoring well installed by Applied GeoSystems (1988)

N

Approximate Scale

40 20 0 40 80

feet

Note: Well head elevations surveyed by Ron Archer, Civil Engineer, Inc.

Applied GeoSystems

PROJECT NO. 18061-6

GROUND-WATER SURFACE ELEVATION (May 8, 1990)
Unocal Station No. 5484
18950 Lake Chabot Road
Castro Valley, California

PLATE

P - 4

APPENDIX A
FIELD PROCEDURES
CHAIN OF CUSTODY RECORDS
AND
CERTIFIED ANALYTICAL REPORTS

FIELD PROCEDURES

Ground-Water Monitoring and Subjective Evaluation

The static ground-water level in each well was measured to the nearest 0.01 foot using a Solinist water-level indicator. After static ground-water level was recorded, an initial water sample was collected from each well and subjectively evaluated for floating product, sheen, and emulsion. Each sample was collected by gently lowering approximately half the length of a Teflon bailer, which had been cleaned with Alconox and water, past the air-water interface and collecting a sample from near the surface of the water in each well.

Ground-Water Sampling

Before ground-water samples were collected, monitoring wells MW-2, MW-4, MW-5 and MW-6 were purged by pumping approximately 3 well volumes of water from the wells, or until pH, temperature, and conductivity readings stabilized. Water samples were collected when ground water had recovered to at least 80 percent of static water levels. Each sample was collected by gently lowering approximately half the length of a Teflon bailer, which had been cleaned with Alconox and water, past the air-water interface.

Water samples were transferred to laboratory-cleaned, 40-milliliter, glass vials. Hydrochloric acid was added to selected samples as a preservative. The vials were sealed promptly with Teflon-lined caps or lids, labeled. and placed in iced storage for transport to the laboratory. Chain-of-Custody protocol was observed throughout the process of handling the samples. The purged water was stored temporarily onsite in 55-gallon liquid-waste drums approved for this use by the California Department of Transportation.

Purge Water Storage and Disposal

Purge water from the ground-water monitoring wells was temporarily stored onsite in properly labelled and secured 17E 55-gallon liquid-waste drums approved for this use by the Department of Transportation. Purge water resulting from the first quarter monitoring episode was disposed of by H & H Ship Service Company (H & H), a licensed hazardous waste transporter. Purge water from the second QM episode is scheduled to be removed from the site on July 15, 1990, by H & H.

Applied GeoSystems

CHAIN-OF-CUSTODY RECORD

PROJ. NO. 18061-5

PROJECT NAME UNOCAL STATION #5489 CASTRO VALLEY, Ca.

P.O. NO.

SAMPLERS (Signature) Russell Bik

DATE MM/DD/YY	TIME		No. of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	12 6				Preserved?	REMARKS	LABORATORY I.D. NUMBER
2-28-90	4:40	W-15-MW2	2(40ml)	✓							HCL	ice	
			2(40ml)		✓						HCL		
		RB	1(liter)				✓				—	RB	
	3:00	W-18-MW5	2(40ml)	✓							HCL	ice	
			2(40ml)		✓						HCL		
		RB	1(liter)				✓				—	RB	
	2:45	W-23-MW4	2(40ml)	✓							HCL	ice	
		RB	2(40ml)		✓						HC	ice	
	4:00	W-22-MW6	2(40ml)	✓							HCL	ice	
		RB	2(40ml)		✓						HCL	ice	

RELINQUISHED BY (Signature)	DATE / TIME	RECEIVED BY (Signature)
Russell Bik	3-1-90 9AM	Rimma Skibinsky
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
RELINQUISHED BY (Signature): Rimma Skibinsky	DATE / TIME 3/1/90 1540	RECEIVED FOR LABORATORY BY (Signature): Rimma

Laboratory: Applied GeoSystems

Turn Around: 2 weeks

SEND RESULTS TO:
Applied GeoSystems
43255 Mission Boulevard
Fremont, California 95826
attn: Rimma Skibinsky
(415) 651-1906

Proj. Mgr.: Rimma

Applied GeoSystems

CHAIN-OF-CUSTODY RECORD

PROJ. NO.	PROJECT NAME
18061-5	Unocal Station #5484 Castro Valley, CA
P.O. NO.	SAMPLERS (Signature)
	[signature]

DATE MM/DD/YY	TIME		No. of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	601					Preserved?	REMARKS	LABORATORY I.D. NUMBER
2-28-90	4:40	W-15-MW2	2(40ml)				V					—	Iced	
	3:00	W-18-MW5	2(40ml)				V					—	Iced	

ANALYSIS

RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
[signature]	3/1/90 9AM	Rimma Skibinsky
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature):
Rimma Skibinsky	3/2/90 1214	Tayhi Hernandez

Laboratory: Anametrix

Turn Around: 2 weeks

SEND RESULTS TO:

Applied GeoSystems
43255 Mission Boulevard
Fremont, California 95826
Attn: Rimma Skibinsky
(415) 651-1906

Proj. Mgr.: Rimma Skibinsky

Applied GeoSystems

CHAIN-OF-CUSTODY RECORD

PROJ. NO.	PROJECT NAME
1806.1-5	Unocal Castro Valley
P.O. NO.	SAMPLERS (Signature)
	B Tehrani

DATE MM/DD/YY	TIME		No. of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)						Preserved?	REMARKS	LABORATORY I.D. NUMBER
5/18/90	3:30	W-11-MW2	4	✓	✓									
5/18/90	3:30	W-15-MW6	4	✓	✓									
5/18/90	3:15	W-13-MW5	4	✓	✓									
5/18/90	2:45	W-18-MW4	4	✓	✓									

RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
B Tehrani	5/18/90 2:45	
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature): 5-18-90 1500
		Laura

Laboratory: Applied Analytical

Turn Around: 2wks

SEND RESULTS TO:
Applied GeoSystems
43255 Mission Boulevard
Fremont, California 95826
(415) 651-1906

Proj. Mgr.: Parvian Kabiri

Applied GeoSystems 43255 Mission Blvd. Suite B Fremont, CA 94539 (415) 651-1906

ANALYSIS REPORT

1020lab.frm

Attention: Ms. Rimma Skibinsky
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Project: AGS 18061-5

Date Sampled: 02-28-90
Date Received: 03-01-90
BTEX Analyzed: 03-02-90
TPHg Analyzed: 03-02-90
TPHd Analyzed: NR
Matrix: Water

	Benzene ppb	Toluene ppb	Ethyl-benzene ppb	Total Xylenes ppb	TPHg ppb	TPHd ppb
Detection Limit:	0.50	0.50	0.50	0.50	20	100
SAMPLE Laboratory Identification						
W-15-MW2 W1003010	5.0	ND	3.0	17	420	NR
W-23-MW4 W1003011	ND	ND	ND	ND	ND	NR
W-18-MW5 W1003012	ND	ND	ND	ND	ND	NR
W-22-MW6 W1003013	ND	ND	ND	ND	ND	NR

ppb = parts per billion = µg/L = micrograms per liter.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not requested.

ANALYTICAL PROCEDURES

BTEX– Benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction using EPA Method 5030 followed by analysis using EPA Method 8020/602, which utilizes a gas chromatograph (GC) equipped with a photoionization detector (PID) and a flame-ionization detector (FID) in series.
TPHg–Total petroleum hydrocarbons as gasoline (low-to-medium boiling points) are measured by extraction using EPA Method 5030, followed by analysis using modified EPA Method 8015, which utilizes a GC equipped with an FID.
TPHd–Total petroleum hydrocarbons as diesel (high boiling points) are measured by extraction using EPA Method 3550 for soils and EPA Method 3510 for water, followed by modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Laboratory Representative

03-06-90
Date Reported

APPLIED GEOSYSTEMS IS CERTIFIED BY THE STATE OF CALIFORNIA
DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY
(Certification No. 153)

Applied GeoSystems 43255 Mission Blvd. Suite B Fremont, CA 94539 (415) 651-1906

ANALYSIS REPORT

togwater.rpt

Report Prepared for:
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Attention: Rimma Skibinsky

Date Received: 03-01-90
Laboratory #: W1003010
Project #: 18061-5
Sample #: W-15-MW2
Matrix: Water

Parameter	Result (µg/L)	Detection Limit (µg/L)	Date Analyzed
TPH as Oil and Grease	ND	5000	03-09-90

µg/L = micrograms per liter = ppb
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.

PROCEDURES

TPH as Oil and Grease: Total Oil and Grease of mineral or petroleum origin are measured by extraction and gravimetric analysis according to Standard Method 503A/E.

Laura Kuck, Laboratory Manager

03-12-90
Date Reported

Applied GeoSystems 43255 Mission Blvd. Suite B Fremont, CA 94539 (415) 651-1906

ANALYSIS REPORT

togwater.rpt

Report Prepared for:
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Attention: Rimma Skibinsky

Date Received: 03-01-90
Laboratory #: W1003012
Project #: 18061-5
Sample #: W-18-MW5
Matrix: Water

Parameter	Result (µg/L)	Detection Limit (µg/L)	Date Analyzed
TPH as Oil and Grease	ND	5000	03-09-90

µg/L = micrograms per liter = ppb
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.

PROCEDURES

TPH as Oil and Grease: Total Oil and Grease of mineral or petroleum origin are measured by extraction and gravimetric analysis according to Standard Method 503A/E.

Laura Kuck
Laura Kuck, Laboratory Manager

03-12-90
Date Reported

ANAMETRIX INC
Environmental & Analytical Chemistry
[illegible] Concourse Drive, Suite B, San Jose, CA [illegible]
(408) 432-8192 • Fax (408) 432-8198

REPORT

Rimma Skibinsky
Applied GeoSystems
43255 Mission Boulevard
Suite B
Fremont, CA 94539

March 20, 1990
Anametrix W.O.#: 9003033
Date Received : 03/02/90
Project Number : 18061-5

Dear Mr. Skibinsky:

Your samples have been received for analysis. The REPORT SUMMARY lists your sample identifications and the analytical methods you requested. The following sections are included in this report: RESULTS and QUALITY ASSURANCE.

NOTE: Amounts reported are net values, i.e. corrected for method blank contamination.

If there is any more that we can do, please give us a call. Thank you for using ANAMETRIX, INC.

Sincerely,

Corinne Pham

Corinne Pham
GC/VOA Supervisor

CP/dm

REPORT SUMMARY
ANAMETRIX, INC. (408) 432-8192

Client : Applied GeoSystems
Address : 43255 Mission Boulevard
Suite B
City : Fremont, CA 94539
Attn. : Rimma Skibinsky

Anametrix W.O.#: 9003033
Date Received : 03/02/90
Purchase Order#: N/A
Project No. : 18061-5
Date Released : 03/20/90

Anametrix I.D.	Sample I.D.	Matrix	Date Sampled	Method	Date Extract	Date Analyzed	Inst I.D.
RESULTS							
9003033-01	W-15-MW2	WATER	02/28/90	601		03/11/90	HP14
9003033-02	W-18-MW5	WATER	02/28/90	601		03/11/90	HP14
QUALITY ASSURANCE (QA)							
14B0311H01	METHOD BLANK	WATER	N/A	601		03/11/90	HP14

ORGANIC ANALYSIS DATA SHEET - EPA METHOD 601/8010
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 18061-5 W-15-MW2
Matrix : WATER
Date sampled : 02/28/90
Date analyzed: 03/11/90
Dilution : NONE

Anametrix I.D. : 9003033-0
Analyst : LP
Supervisor : CP
Date released : 03/20/90
Instrument ID : HP14

CAS #	Compound Name	Reporting Limit (ug/l)	Amount Found (ug/l)
74-87-3	* Chloromethane	1	ND
74-83-9	* Bromomethane	0.5	ND
75-71-8	* Dichlorodifluoromethane	1	ND
75-01-4	* Vinyl Chloride	0.5	ND
75-00-3	* Chloroethane	0.5	ND
75-09-2	* Methylene Chloride	0.5	ND
75-69-4	* Trichlorofluoromethane	0.5	ND
75-35-4	* 1,1-Dichloroethene	0.5	ND
75-34-3	* 1,1-Dichloroethane	0.5	ND
156-59-2	# Cis-1,2-Dichloroethene	0.5	ND
156-60-5	* Trans-1,2-Dichloroethene	0.5	ND
67-66-3	* Chloroform	0.5	ND
76-13-1	# Trichlorotrifluoroethane	0.5	ND
107-06-2	* 1,2-Dichloroethane	0.5	ND
71-55-6	* 1,1,1-Trichloroethane	0.5	ND
56-23-5	* Carbon Tetrachloride	0.5	ND
75-27-4	* Bromodichloromethane	0.5	ND
78-87-5	* 1,2-Dichloropropane	0.5	ND
10061-02-6	* Trans-1,3-Dichloropropene	0.5	ND
79-01-6	* Trichloroethene	0.5	ND
124-48-1	* Dibromochloromethane	0.5	ND
79-00-5	* 1,1,2-Trichloroethane	0.5	ND
10061-01-5	* cis-1,3-Dichloropropene	0.5	ND
110-75-8	* 2-Chloroethylvinylether	1	ND
75-25-2	* Bromoform	0.5	ND
127-18-4	* Tetrachloroethene	0.5	ND
79-34-5	* 1,1,2,2-Tetrachloroethane	0.5	ND
108-90-7	* Chlorobenzene	0.5	ND
95-50-1	* 1,2-Dichlorobenzene	1	ND
541-73-1	* 1,3-Dichlorobenzene	1	ND
106-46-7	* 1,4-Dichlorobenzene	1	ND
	% Surrogate Recovery	51-136%	96%

ND : Not detected at or above the practical quantitation limit for the method.
* A 601/8010 approved compound (Federal Register, 10/26/84).
# A compound added by Anametrix, Inc.

ORGANIC ANALYSIS DATA SHEET - EPA METHOD 601/8010
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 18061-5 W-18-MW5
Matrix : WATER
Date sampled : 02/28/90
Date analyzed: 03/11/90
Dilution : NONE

Anametrix I.D. : 9003033-02
Analyst : LJ
Supervisor : CP
Date released : 03/20/90
Instrument ID : HP14

CAS #	Compound Name	Reporting Limit (ug/l)	Amount Found (ug/l)
74-87-3	* Chloromethane	1	ND
74-83-9	* Bromomethane	0.5	ND
75-71-8	* Dichlorodifluoromethane	1	ND
75-01-4	* Vinyl Chloride	0.5	ND
75-00-3	* Chloroethane	0.5	ND
75-09-2	* Methylene Chloride	0.5	ND
75-69-4	* Trichlorofluoromethane	0.5	ND
75-35-4	* 1,1-Dichloroethene	0.5	ND
75-34-3	* 1,1-Dichloroethane	0.5	ND
156-59-2	# Cis-1,2-Dichloroethene	0.5	ND
156-60-5	* Trans-1,2-Dichloroethene	0.5	ND
67-66-3	* Chloroform	0.5	ND
76-13-1	# Trichlorotrifluoroethane	0.5	ND
107-06-2	* 1,2-Dichloroethane	0.5	ND
71-55-6	* 1,1,1-Trichloroethane	0.5	ND
56-23-5	* Carbon Tetrachloride	0.5	ND
75-27-4	* Bromodichloromethane	0.5	ND
78-87-5	* 1,2-Dichloropropane	0.5	ND
10061-02-6	* Trans-1,3-Dichloropropene	0.5	ND
79-01-6	* Trichloroethene	0.5	ND
124-48-1	* Dibromochloromethane	0.5	ND
79-00-5	* 1,1,2-Trichloroethane	0.5	ND
10061-01-5	* cis-1,3-Dichloropropene	0.5	ND
110-75-8	* 2-Chloroethylvinylether	1	ND
75-25-2	* Bromoform	0.5	ND
127-18-4	* Tetrachloroethene	0.5	ND
79-34-5	* 1,1,2,2-Tetrachloroethane	0.5	ND
108-90-7	* Chlorobenzene	0.5	ND
95-50-1	* 1,2-Dichlorobenzene	1	ND
541-73-1	* 1,3-Dichlorobenzene	1	ND
106-46-7	* 1,4-Dichlorobenzene	1	ND
	% Surrogate Recovery	51-136%	87%

ND : Not detected at or above the practical quantitation limit for the method.
* A 601/8010 approved compound (Federal Register, 10/26/84).
# A compound added by Anametrix, Inc.

ORGANIC ANALYSIS DATA SHEET - EPA METHOD 601/8010
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: METHOD BLANK	Anametrix I.D.	: 14B0311H01
Matrix	: WATER	Analyst	: LY
Date sampled	: N/A	Supervisor	: CVP
Date analyzed	: 03/11/90	Date released	: 03/20/90
Dilution	: NONE	Instrument ID	: HP14

CAS #	Compound Name	Reporting Limit (ug/l)	Amount Found (ug/l)
74-87-3	* Chloromethane	1	ND
74-83-9	* Bromomethane	0.5	ND
75-71-8	* Dichlorodifluoromethane	1	ND
75-01-4	* Vinyl Chloride	0.5	ND
75-00-3	* Chloroethane	0.5	ND
75-09-2	* Methylene Chloride	0.5	ND
75-69-4	* Trichlorofluoromethane	0.5	ND
75-35-4	* 1,1-Dichloroethene	0.5	ND
75-34-3	* 1,1-Dichloroethane	0.5	ND
156-59-2	# Cis-1,2-Dichloroethene	0.5	ND
156-60-5	* Trans-1,2-Dichloroethene	0.5	ND
67-66-3	* Chloroform	0.5	ND
76-13-1	# Trichlorotrifluoroethane	0.5	ND
107-06-2	* 1,2-Dichloroethane	0.5	ND
71-55-6	* 1,1,1-Trichloroethane	0.5	ND
56-23-5	* Carbon Tetrachloride	0.5	ND
75-27-4	* Bromodichloromethane	0.5	ND
78-87-5	* 1,2-Dichloropropane	0.5	ND
10061-02-6	* Trans-1,3-Dichloropropene	0.5	ND
79-01-6	* Trichloroethene	0.5	ND
124-48-1	* Dibromochloromethane	0.5	ND
79-00-5	* 1,1,2-Trichloroethane	0.5	ND
10061-01-5	* cis-1,3-Dichloropropene	0.5	ND
110-75-8	* 2-Chloroethylvinylether	1	ND
75-25-2	* Bromoform	0.5	ND
127-18-4	* Tetrachloroethene	0.5	ND
79-34-5	* 1,1,2,2-Tetrachloroethane	0.5	ND
108-90-7	* Chlorobenzene	0.5	ND
95-50-1	* 1,2-Dichlorobenzene	1	ND
541-73-1	* 1,3-Dichlorobenzene	1	ND
106-46-7	* 1,4-Dichlorobenzene	1	ND
	% Surrogate Recovery	51-136%	94%

ND : Not detected at or above the practical quantitation limit for the method.
* A 601/8010 approved compound (Federal Register, 10/26/84).
\# A compound added by Anametrix, Inc.

APPLIED ANALYTICAL

Environmental Laboratories

3459 Edison Way
Fremont, CA 94538
(415) 623-0775

ANALYSIS REPORT

1020lab.frm

Attention:	Ms. Parnian Kaboli	Date Sampled:	05-08-90
	Applied GeoSystems	Date Received:	05-18-90
	43255 Mission Boulevard	BTEX Analyzed:	05-21-90
	Fremont, CA 94539	TPHg Analyzed:	05-21-90
Project:	AGS 18061-5	TPHd Analyzed:	NR
		Matrix:	Water

	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	TPHd
	ppb	ppb	ppb	ppb	ppb	ppb
Detection Limit:	0.50	0.50	0.50	0.50	20	100
SAMPLE Laboratory Identification						
W-11-MW2 W1005167	9.7	0.95	14	48	1100	NR
W-18-MW4 W1005168	ND	ND	ND	ND	ND	NR
W-13-MW5 W1005169	ND	ND	ND	ND	ND	NR
W-15-MW6 W1005170	ND	ND	ND	ND	ND	NR

ppb = parts per billion = µg/L = micrograms per liter.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not requested.

ANALYTICAL PROCEDURES

BTEX-- Benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction using EPA Method 5030 followed by analysis using EPA Method 8020/602, which utilizes a gas chromatograph (GC) equipped with a photoionization detector (PID) and a flame-ionization detector (FID) in series.

TPHg--Total petroleum hydrocarbons as gasoline (low-to-medium boiling points) are measured by extraction using EPA Method 5030, followed by analysis using modified EPA Method 8015, which utilizes a GC equipped with an FID.

TPHd--Total petroleum hydrocarbons as diesel (high boiling points) are measured by extraction using EPA Method 3550 for soils and EPA Method 3510 for water, followed by modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Laboratory Representative

05-24-90
Date Reported