

Applied GeoSystems

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

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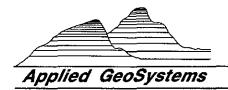
### LETTER REPORT **GROUND-WATER MONITORING REPORT** FOR FOURTH QUARTER 1990

at

Exxon Service Station 7-7003 349 Main Street Pleasanton, California 3-13-91

AGS Job No. 19025-3





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March 13, 1991 AGS 19025-3

Mr. Gary Gibson Exxon Company U.S.A. 2300 Clayton Road Suite 1250 Concord, California 94520

Subject: Letter Report of Quarterly Ground-Water Monitoring for Fourth Quarter 1990

at Exxon Service Station 7-7003, 349 Main Street, Pleasanton, California

#### Mr. Gibson:

This letter report summarizes the quarterly ground-water monitoring for fourth quarter 1990 by Applied GeoSystems (AGS) at Exxon Service Station 7-7003. The Exxon site is located at 349 Main Street on the southwest corner of Angela and Main Streets in Pleasanton, California (Plate P-1). Features of the site include a service station building and two service islands that dispense gasoline. New underground storage tanks (USTs) for gasoline are located northeast of the station building and a waste-oil UST is northwest of the station building (Plate P-2).

### **Background**

In June 1989, and at the request of Exxon Company U.S.A. (Exxon), AGS conducted a soil-vapor survey at the site prior to the removal and replacement of the USTs. In July 1989, Exxon removed three 8,000-gallon steel gasoline USTs and a waste-oil UST, and in August 1989, new fiberglass tanks were installed. The locations of the former USTs are shown on Plate P-2. Soil samples collected by AGS indicated the presence of low concentrations of TPHg (up to 150 parts per million [ppm]) in the northern part of the excavation (AGS Report No. 19025-1, October 1, 1990).

Between January and June 1990, AGS drilled 13 boreholes around the former USTs, installed ground-water monitoring wells (MW-1 through MW-5) in five of the boreholes, and analyzed soil and ground-water samples on behalf of Exxon. The results of soil analyses suggested that soil containing TPHg concentrations greater than 100 ppm exist just southwest of the former fuel UST excavation. Laboratory analysis results indicated ground

water below the site was impacted by petroleum hydrocarbons (AGS Report No. 19025-2, August 1, 1990).

### Field and Laboratory Activities

On December 18, 1990, an AGS representative measured depth to water and subjectively evaluated ground water in the monitoring wells. Ground water in each well was then purged and sampled for laboratory analysis. Field activities were in accordance with the attached Field Procedures.

Ground-water samples were submitted to the Applied Analytical laboratory (State Certification No. 1211) in Fremont, California. These samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg) by modified Environmental Protection Agency (EPA) Method 8015, and for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 602. The sample from well MW-3 was also analyzed for total petroleum hydrocarbons as oil and grease (TOG) by Standard Method 5520B/F. In addition, the ground-water sample from well MW-3 was submitted to state certified Chromalab, Inc. (Certification No. E694) in San Ramon, California, and analyzed for volatile organic compounds (VOCs) by EPA Method 601. Ground-water samples were also submitted to Mobil Chem Labs, Inc. in Martinez, California, and analyzed for organic lead using the method described in the state Leaking Underground Fuel Tank (LUFT) manual. The Chain of Custody Record and Analysis Reports are attached to this report.

### **Ground-Water Gradient and Flow Direction**

Ground-water levels fell an average of 1.6 feet between August and December 1990 (Table 1). A hydrograph was prepared for wells MW-1 through MW-5 to show ground-water elevation differences in each well and illustrate trends in water levels for 1990 (Plate P-3). In general, water levels in the five wells have fallen during 1990. No floating product or sheen was observed on ground water in wells MW-1 through MW-5 during the December 1990 visit. Cumulative results of subjective evaluations are presented in Table 1.

Depth to water measurements and wellhead elevations were used to calculate the ground-water surface elevation in each well (Table 1). A plot of the ground-water surface elevation data suggests that ground water below the site flows toward the northwest with a gradient of approximately 0.025 (Plate P-4). This flow is similar to the ground-water flow directions inferred from the March, June, and August 1990 elevation data.

### Water Analysis Results

Concentrations of TPHg ranged from 0.05 to 0.47 parts per million (ppm), and benzene ranged from nondetectable to 0.009 ppm. Table 2 summarizes the analysis results of ground water samples from the Exxon site. Until December 1990, the data suggested a general increase in gasoline hydrocarbon concentrations in ground water below the site. Concentrations of TPHg and BTEX decreased sharply in December 1990. This decrease in gasoline hydrocarbon levels may be a result of gradually decreasing water levels.

Plots of the TPHg and benzene concentrations for August 1990 indicates the plume of dissolved hydrocarbons encompasses the area of the former fuel USTs and extends toward the former waste-oil UST (Plates P-5 and P-6).

Laboratory results also showed no detectable organic lead in the ground water from the wells (Table 3). The ground-water sample from well MW-3, which is adjacent to the former waste-oil UST location, indicated no detectable TOG, but contained 0.0041 ppm tetrachloroethene.

### Recommendations

AGS recommends continued quarterly monitoring of the ground water in the wells. The next monitoring event is scheduled for March 1991. We also recommend that lead analyses be discontinued since no total lead or organic lead has been detected in ground water at the site since March 1990.

AGS recommends copies of this report be forwarded to:

- Mr. Lester Feldman, California Regional Water Quality Control Board, San Francisco Bay Region, 1800 Harrison Street, Suite 700, Oakland, California 94612; and
- o Mr. Rick Mueller, Pleasanton Fire Department, 44 Railroad Street, Pleasanton, California 94566.

Please call if you have any questions.

Sincerely, Applied GeoSystems

Do Eller Kusymanl

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Keith M. McVicker Project Geologist

Joan E. Tiernan Registered Civil Engineer No. 044600

### **Enclosures:**

Table 1, Results of Subjective Evaluations of Ground Water

Table 2, Results of Ground-Water Analysis for Gasoline Hydrocarbon Compounds

Table 3, Results of Ground-Water Analysis for Lead, TOG, and VOCs.

Plate P-1, Site Vicinity Map

Plate P-2, Generalized Site Plan

Plate P-3, Hydrograph

Plate P-4, Ground-Water Surface Map (December 18, 1990)

Plate P-5, Concentration of TPHg in Ground Water (December 18, 1990)

Plate P-6, Concentration of Benzene in Ground Water (December 18, 1990)

### Attachments:

Field Procedures

Chain of Custody Record and Analysis Reports

Draft Date: February 9, 1991 Final Date: March 13, 1991

TABLE 1
CUMULATIVE RESULTS OF SUBJECTIVE EVALUATIONS OF GROUND WATER

Date	Depth to Water (f		Product Thickness (ft)	Sheen
MW-1	(Wellhead )	Elevation = 343.83 ft)		
2/90	26.08	317.75	None	None .
6/90	26.49	317.34	None	None
8/90	26.47	317.36	None	None
12/90	28.00	315.83	None	None
MW-2	(Wellhead :	Elevation = 344.22 ft)		
2/90	26.31	317.31	None	None
6/90	26.25	317.97	None	None
8/90	26.15	318.07	None	None
12/90	27.94	316.28	None	None
MW-3		Elevation = 342.90 ft)		
2/90	24.78	318.12	None	None
6/90	25.29	317.61	None	None
8/90	25.40	317.50	None	None
12/90	26.84	316.06	None	None
MW-4	(Wellhead :	Elevation = 343.38 ft)		
6/90	30.94	312.44	None	None
8/90	31.21	312.17	None	None
12/90	32.86	310.52	None	None
MW-5	(Wellhead	Elevation = 345.20 ft)		
6/90	26.94	318.26	None	None
8/90	26.90	318.30	None	None
12/90	28.31	316.89	None	None

Elevations relative to mean sea level datum. (Surveyed by Ron Archer Civil Engineer, Inc.)

TABLE 2
CUMULATIVE RESULTS OF GROUND-WATER ANALYSES
FOR GASOLINE HYDROCARBONS

Sample Number	Date	TPHg	Benzene ppm	Toluene ppm	Ethyl- benzene ppm	Total Xylenes ppm
MW-1						
W-28-MW1	3/90	3.3	0.021	0.0092	0.059	0.0190
W-27-MW1	6/90	1.3	0.0079	0.0059	0.032	0.058
W-29-MW1	8/90	2.5	0.077	0.280	0.050	0.250
W-28-MW1	12/90	0.39	0.009	0.002	0.043	0.040
MW-2						
W-29-MW2	3/90	0.065	0.0030	0.0020	0.00098	0.0065
W-27-MW2	6/90	0.67	<0.0005	0.0026	<0.0005	<0.0005
W-28-MW2	8/90	1.3	0.024	0.130	0.037	0.170
W-28-MW2	12/90	0.47	<0.0003	0.0005	0.001	0.003
MW-3						
W-27-MW3	3/90	<0.020	<0.0005	<0.0005	<0.0005	<0.0005
W-27-MW3	6/90	0.20	<0.0005	<0.0005	<0.0005	<0.0005
W-27-MW3	8/90	3.2	0.054	0.380	0.023	0.400
W-27-MW3	12/90	0.20	0.008	0.012	0.006	0.024
MW-4						
W-34-MW4	6/90	<0.020	<0.0005	<0.0005	<0.0005	<0.0005
W-33-MW4	8/90	0.120	0.0052	0.0054	0.0054	0.0099
W-33-MW4	12/90	0.050	0.0007	0.001	<0.0003	0.002
MW-5						
W-26-MW5	6/90	<0.020	<0.0005	<0.0005	<0.0005	<0.0005
W-28-MW5	8/90	0.210	0.0097	0.012	0.0076	0.017
W-28-MW5	12/90	0.19	0.002	0.0035	0.002	0.008

TPHg = total petroleum hydrocarbons.

ppm = parts per million

< = below the detection limits of the analysis.</pre>

Sample designation = W-26-MW5

Well number.
Sample depth in feet.
Water sample.

TABLE 3
RESULTS OF GROUND-WATER ANALYSIS FOR LEAD, TOG, AND VOCS

Sample Number	Date	Lead	TOG	VOCs
MW-1				······································
W-28-MW1	3/90	0.01		
W-27-MW1	6/90	<0.05		
W-29-MW1	8/90	<0.05		
W-28-MW1	12/90	<0.1 *		
MW-2				
W-29-MW2	3/90	0.008		
W-27-MW2	6/90	<0.05		
W-28-MW2	8/90	<0.05		
W-28-MW2	12/90	<0.1 *		
MW-3				
W-27-MW3	3/90	0.01		
W-27-MW3	6/90	<0.05		
W-27-MW3	8/90	<0.05		
W-27-MW3	12/90	<0.1 *	<5.0	0.0041
MW-4				
W-34-MW4	6/90	<0.05		
W-33-MW4	8 <b>/</b> 90	<0.05		
W-33-MW4	12/90	<0.1 *		
MW-5				
W-26-MW5	6/90	0.06		
W-28-MW5	8/90	<0.05		
W-28-MW5	12/90	<0.1 *		

Results are in parts per million (ppm).

Sample designation = W-26-MW5

Well number.
Sample depth in feet.
Water sample.

<sup>\* =</sup> Organic lead

<sup>■ =</sup> Tetrachloroethene

<sup>&</sup>lt; = Below the detection limits of the analysis.</pre>



POST OFFICE BOX 4032 • CONCORD, CA 94524-2032

**ENVIRONMENTAL ENGINEERING** 

G. D. GIBSON SENIOR ENVIRONMENTAL ENGINEER

March 20, 1991

Exxon RAS 7-7003 349 Main Street Pleasanton, California

Mr. Rick Mueller City of Pleasanton Fire Department 4444 Railroad Street Pleasanton, California 94566-0802

Dear Mr. Mueller:

Attached for your review and comment is the Letter Report on Fourth Quarter 1990 Groundwater Monitoring for the above referenced Exxon Company, U.S.A. facility in the City of Pleasanton. This report, by Applied GeoSystems of Fremont, California, details the sampling and monitoring activities performed during December, 1990.

This monitoring event showed both a decrease in the level of dissolved hydrocarbons in the groundwater and a decrease in the water level at the site. A work plan for additional work at this site, to include four soil borings and two offsite monitoring wells, is being submitted under separate cover.

Please contact me at (415) 246-8768 if you should have any questions or concerns about this report. Thank you.

Sincerely,

Gary D. Gibson

GDG:hs 0331E Attachment

c - w/attachment:

Mr. L. Feldman - San Francisco Bay Region Water Quality Control Board

w/o attachment:

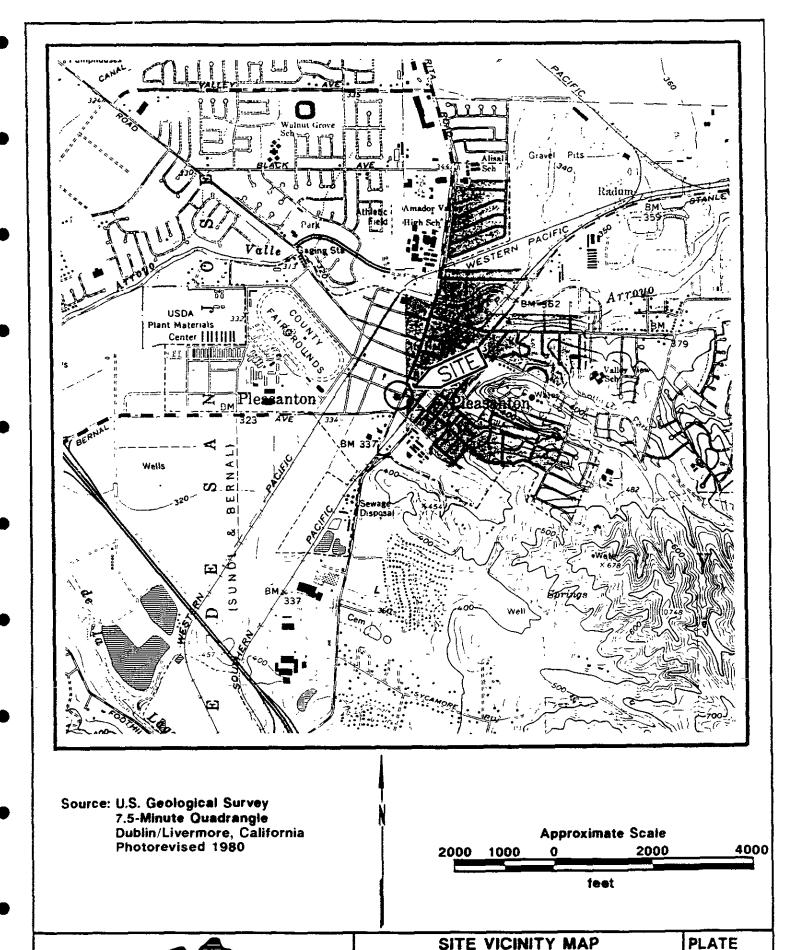
Ms. M. D. Baca

Mr. D. J. Bertoch

Mr. P. J. Brininstool

Mr. J. R. Hastings

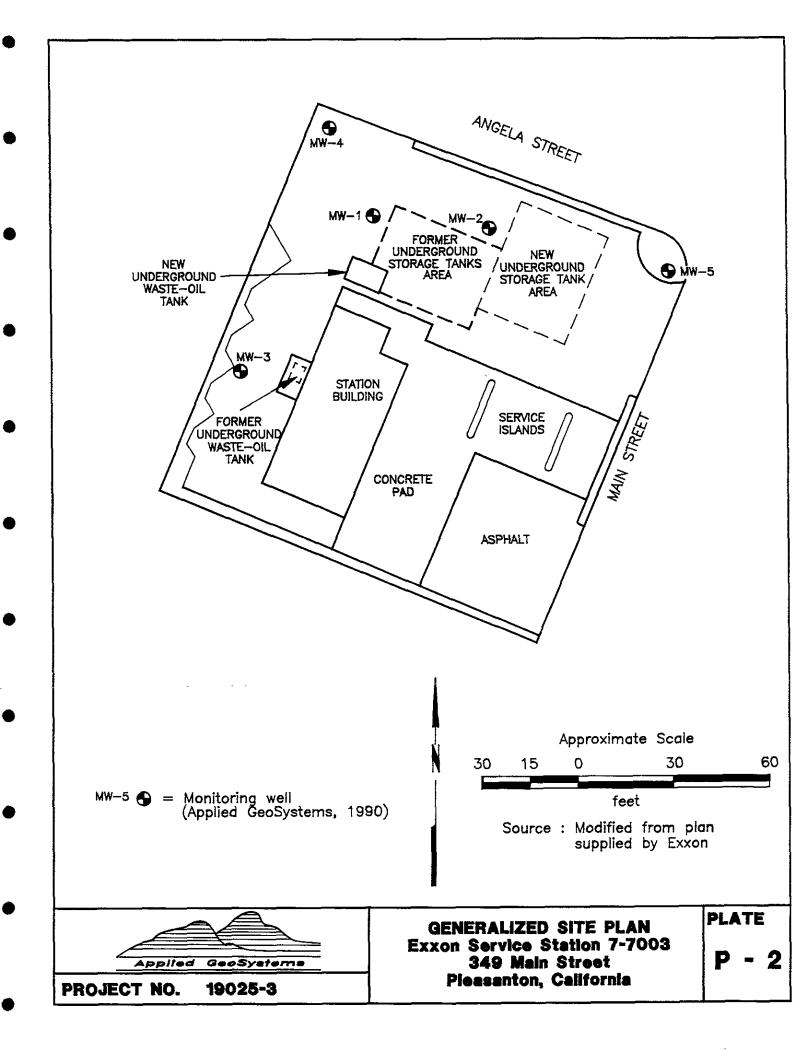
Mr. R. C. Witham - Applied GeoSystems

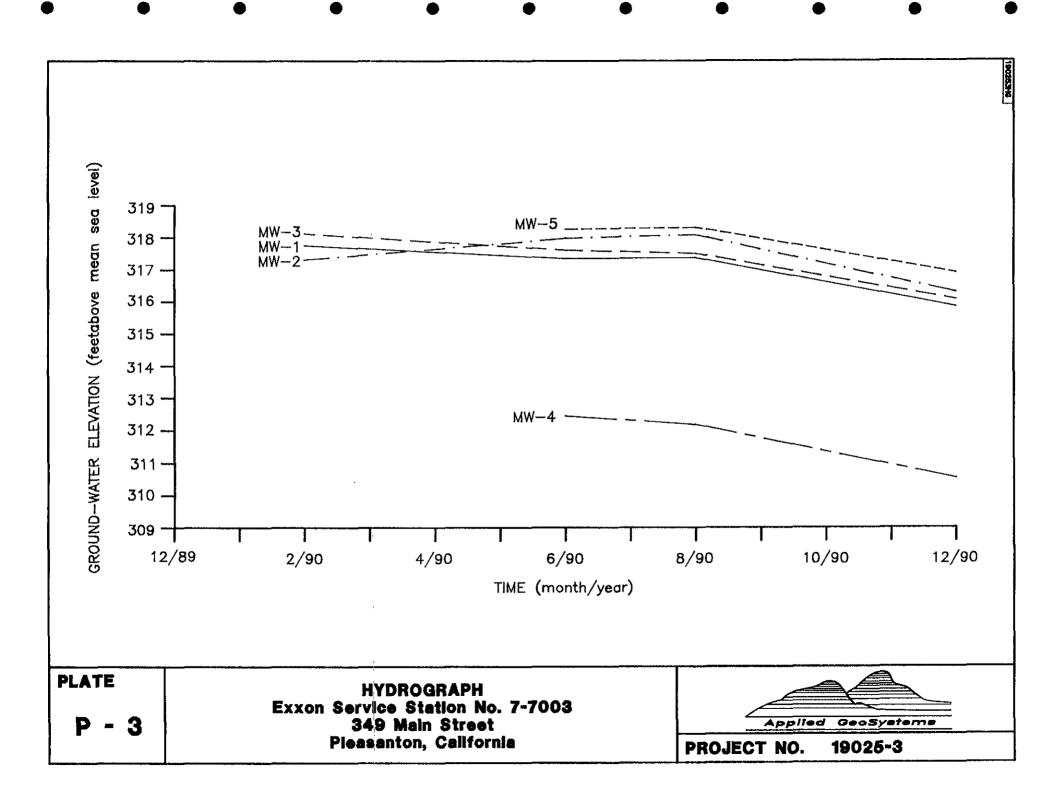


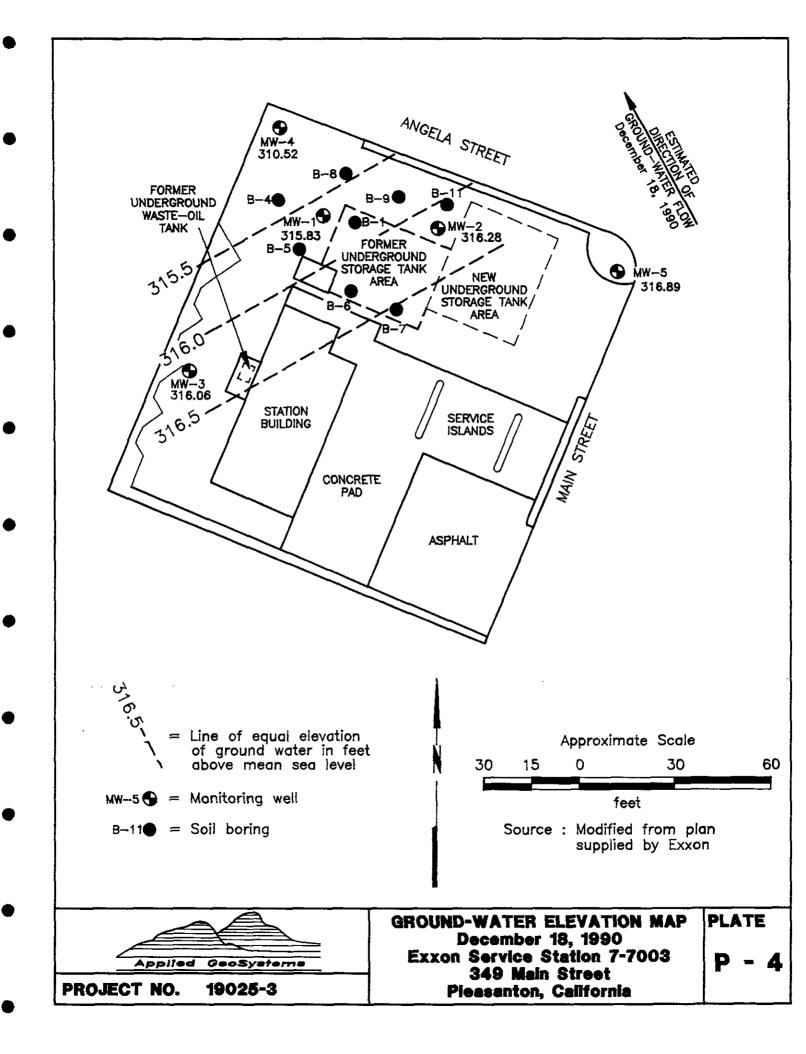
Applied GeoSystems
PROJECT NO. 19025-3

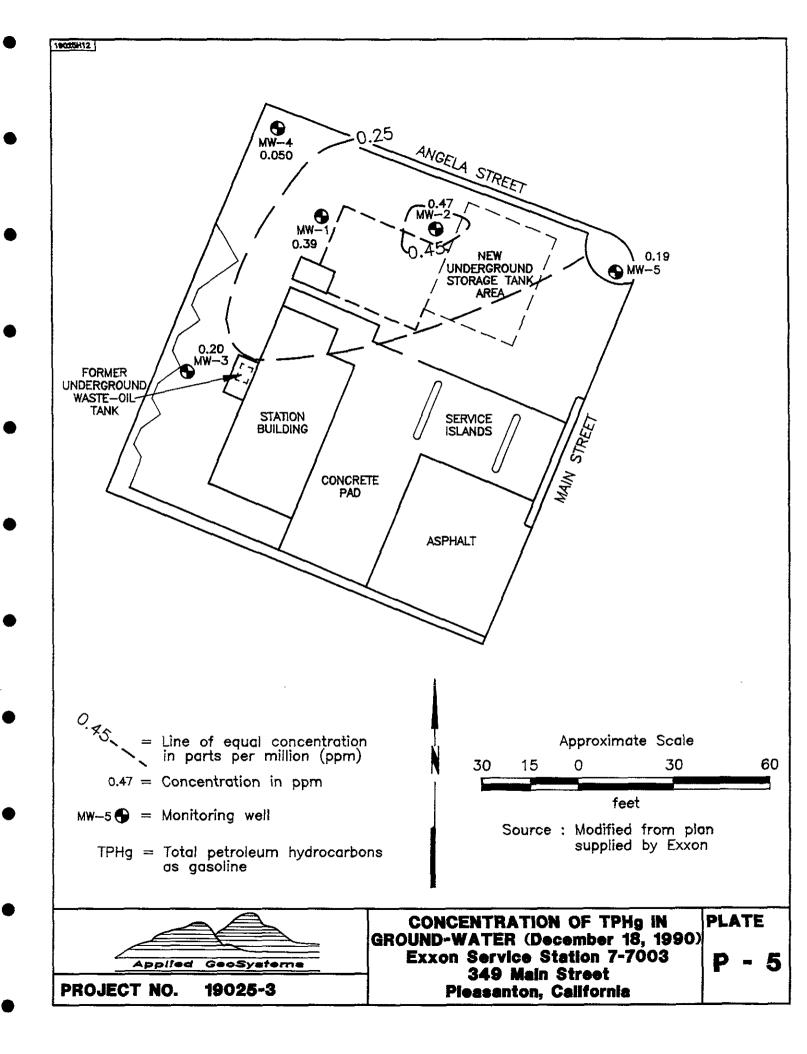
SITE VICINITY MAP
Exxon Service Station 7-7003
349 Main Street
Pleasanton, California

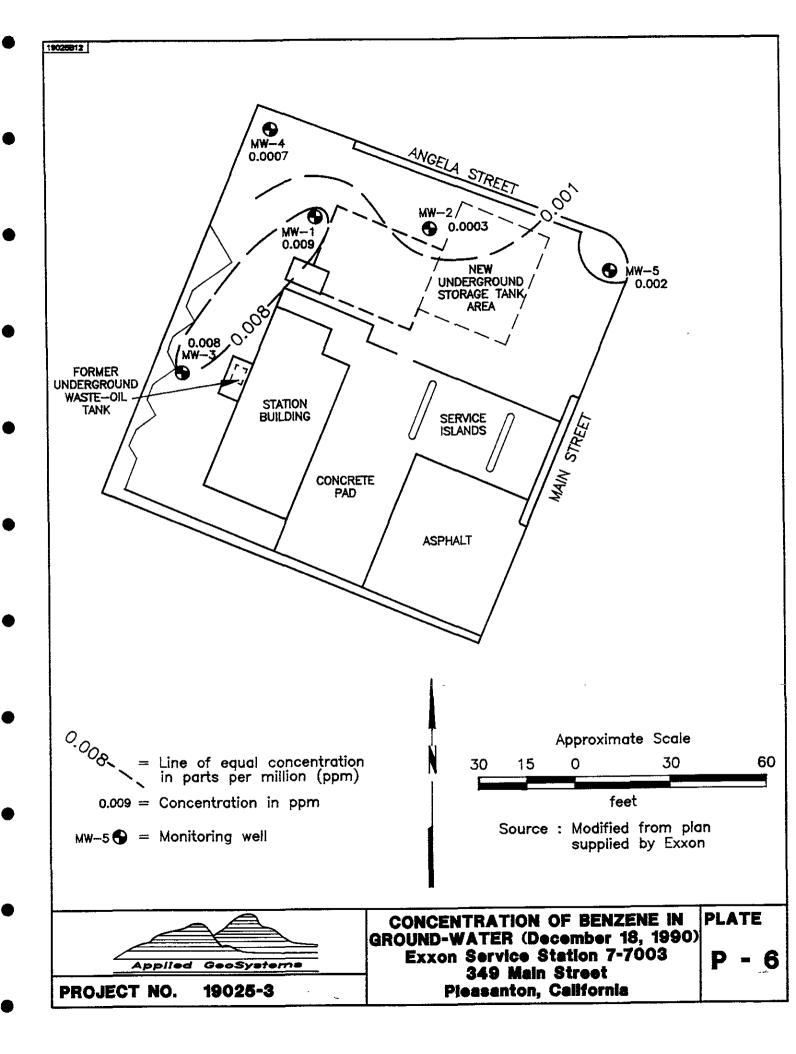
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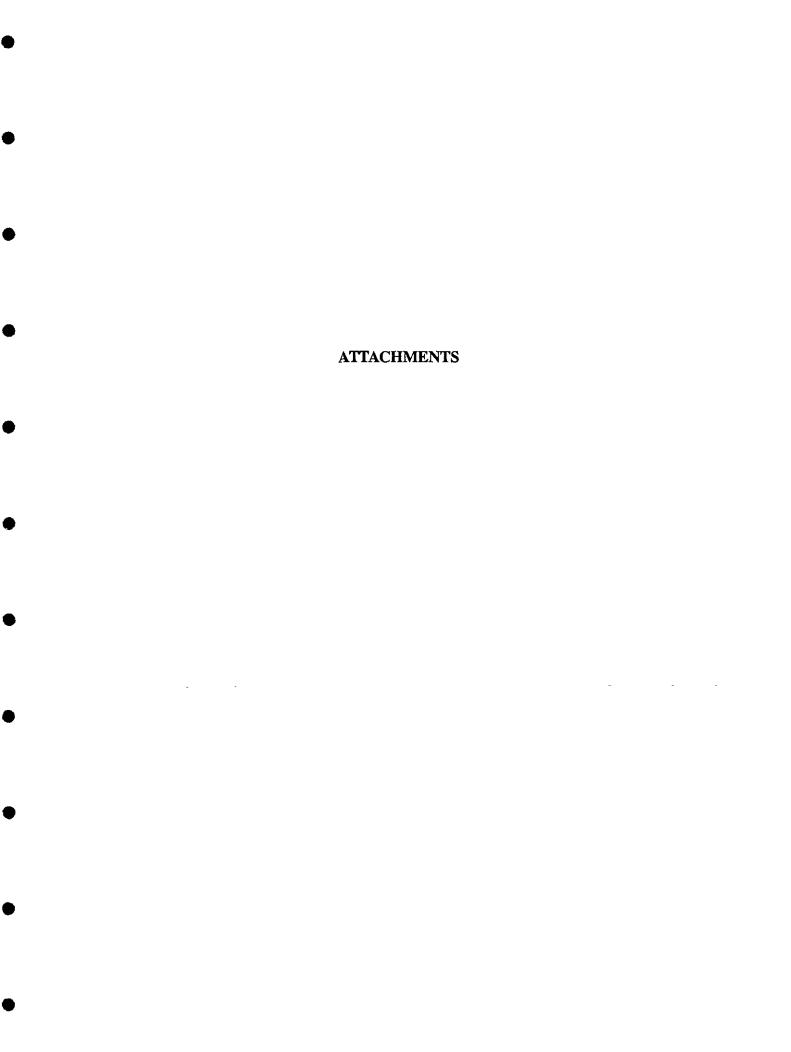












#### FIELD PROCEDURES

### **Subjective Evaluations**

Before water samples were collected for subjective evaluations, the depth to static water level was measured in each well to the nearest 0.01 foot with a Solinst electronic water-level indicator. The ground-water samples were then collected from each well by gently lowering approximately half the length of a Teflon bailer past the air-water interface. The bailer was washed with Alconox, a commercial biodegradable detergent, and rinsed with water before each use. The samples were retrieved and examined for evidence of floating product or sheen.

### **Ground-Water Sampling**

Before ground-water samples were taken, each well was purged of approximately 3 to 4 well volumes of water. A water sample was collected from each well after the well had recharged to more than 80 percent of the static level. Half the length of the bailer was lowered past the air-water interface to retrieve the sample. The bailer was retrieved and water samples slowly decanted into laboratory-cleaned sample containers. For TPHg, BTEX, and VOC analyses, 40-milliliter, volatile organic analysis glass vials with Teflon-lined caps were used. Hydrochloric acid was added to the samples as a preservative. For organic lead and TOG analysis, the ground-water samples were collected in 1-liter glass bottles. The sample containers were promptly capped, labeled, and placed in iced storage for transport to state certified analytical laboratories for analysis.

### Purged Water

Purged water from the wells were stored onsite in 17E 55-gallon steel drums approved for this use by the Department of Transportation. The water was removed from the site by H & H Environmental Services of San Francisco, California, on January 23, 1991.

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## **CHAIN-OF-CUSTODY RECORD**

Applied Q PROJ. NO.			OHAII			_					<i>_</i>				
		ECT NAME			1				ANALYSIS /						
P.O. NO.		XXXX PURASONTON  LERS (Signature)			Oline (Bosz	802/802n	sel (8015)			1		Preserve	cip.		
DATE T	IME		No. of Cont- ainers	A P	87.5				13/	T_/		·	REM	ARKS	LABORATORY I.D. NUMBER
2/18/40		W-28 - MWI	3	X	$\times$		X					HCY TCE			
1		W_28 -MW2	3	$\geq$	$\geq$		X					1			
		W-27 -MW3	6	X	$\times$		X	$\times$	X[						
		W-33 -MW4	3	$\searrow$	X		X								
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### **APPLIED ANALYTICAL**

### **Environmental Laboratories**

13844 Alton Pkwy.-Suite 140 Irvine, CA 92718 (714) 472-1020

### **ANALYSIS REPORT**

Attention:	Jo Ellen Applied GeoSystems 42501 Albrae Street Fremont, CA 94538	Date Sampled: Date Received: Date Analyzed: Date Reported:	12-18-90 12-18-90 12-30-90 01-02-91
Project:	19025-3	Matrix:	Water

					,,,,,,,,,,
Detection limit (ug/L)	<u>Benzene</u> 0.30	<u>Toluene</u> 0.30	Ethyl- <u>benzene</u> 0.30	<b>Total</b> <u>Xylenes</u> 0.50	<u>TPH</u> 50
Sample description					
W-28-MW1 2-012-128*	9.0	2.0	43	40	390
W-28-MW2 2-012-129*	< 0.30	0.50	1.0	3.0	470
W-27-MW3 2-012-130*	8.0	12	6.0	24	200
W-33-MW4 2-012-131*	0.70	1.0	<0.30	2.0	50
W-28-MW5 2-012-132*	2.0	3.5	2.0	8.0	190

#### ANALYTICAL PROCEDURES

BTEX- Benzene, toluene, ethylbenzene and total xylene isomers are analyzed in accordance with EPA Method 5030, followed by EPA Method 8020.

TPH- Total petroleum hydrocarbons as gasoline are analyzed in accordance with EPA Method 5030, followed by modified EPA Method 8015.

TPH = total petroleum hydrocarbons as gasoline.

ug/L = Micrograms per liter = ppb = parts per billion.

<sup>\* =</sup> Laboratory identification number.

### **APPLIED ANALYTICAL**

### **Environmental Laboratories**

42501 Albrae St., Suite 100 Fremont, CA 94538 Bus: (415) 623-0775 Fax: (415) 651-8647

### **ANALYSIS REPORT**

				1020lab.frm
Attention:	Ms. JoEllen Kuszmaul		Date Sampled:	12-18-90
	Applied GeoSystems		Date Received:	12-18-90
	42501 Albrae Street		TOG Analyzed:	12-30-90
	Fremont, CA 94538		Matrix:	Water
Project:	AGS 19025-3		Detection Limit:	5000 μg/L
		TOG		
		$(\mu g/L)$		
SAMPLE		<u></u>		
Laboratory Id	entification			

W-27-MW3

W1012319

ND

 $\mu$ g/L = micrograms per liter = ppb = parts per billion ND = Not detected. Compound(s) may be present at concentrations below the detection limit.

### ANALYTICAL PROCEDURES

TPH as Oil and Grease – Total Oil and Grease (TOG) of mineral or petroleum origin are measured by extraction and gravimetric analysis according to Standard Method 5520 B/F.

Laboratory Representative

January 4, 1991

Date Reported

Transa regions blair

## CHROMALAB, INC.

### Analytical Laboratory Specializing in GC-GC/MS

January 2, 1991

Client: APPLIED GEOSYSTEMS, INC. Date Sampled: Dec. 18, 1990

Date of Analysis: Dec. 31,1990

Project Name: EXXON Sample I.D.: W-27-MW3

Method of Analysis: \_\_EPA 601

· Environmental Analysis

• Hazardous Waste (#E694)

Drinking Water (#955)

Waste Water

Consultation

ChromaLab File No.: 1290122

Attn: Jo Ellen

Date Submitted: Dec. 26, 1990

Project No.: 19025-3

Detection Limit: 0.5 µg/L

COMPOUND NAME	μg/L	Spike Recovery
CHLOROMETHANE	N.D	
VINYL CHLORIDE	N.D.	~~ <b>~</b>
BROMOMETHANE	N.D.	<del></del>
CHLOROETHANE	N.D.	
TRICHLOROFLUOROMETHANE	N.D.	
1,1-DICHLOROETHENE	N.D.	93.5% 92.6%
METHYLENE CHLORIDE	N.D.	
1,2-DICHLOROETHENE (TOTAL)	N.D.	<b></b>
1,1-DICHLOROETHANE	N.D.	
CHLOROFORM	N.D.	<del></del>
1,1,1~TRICHLOROETHANE	N.D.	<del></del>
CARBON TETRACHLORIDE	N.D.	97.2% 90.3%
1,2-DICHLOROETHANE	N.D.	<b></b>
TRICHLOROETHENE	N.D.	_ <del></del>
1,2-DICHLOROPROPANE	N.D.	<del>-</del>
BROMODICHLOROMETHANE	N.D.	
2-CHLOROETHYLVINYLETHER	N.D.	
TRANS-1,3-DICHLOROPROPENE	N.D.	92.5% 90.1%
CIS-1,3-DICHLOROPROPENE	N.D.	<b></b>
1,1,2-TRICHLOROETHANE	N.D.	_ <del></del>
TETRACHLOROETHENE	4.1	
DIBROMOCHLOROMETHANE	N.D.	
CHLOROBENZENE	N.D.	98.1% 95.3%
ETHYL BENZENE	N.D.	- 
BROMOFORM	N.D.	
1,1,2,2-TETRACHLOROETHANE	N.D.	
1,3-DICHLOROBENZENE	N.D.	
1,4-DICHLOROBENZENE	N.D.	
1,2-DICHLOROBENZENE	N.D.	

ChromaLab, Inc.

David Duong Senior Chemist Eric Tam
Lab Director



# MOBILE CHEM LABS INC.

5021 Blum Road, Suite 3 • Martinez, CA 94553 Phone (415) 372-3700 • Fax (415) 372-6955

1290122/011622

Chromalab, Inc. 2239 Omega Road, #1 San Ramon, CA 94583

ATTN: Eric Tam

Project Manager

Date Sampled: 01-02-91 Date Received: 01-02-91

Date Reported: 01-08-91

#### ORGANIC LEAD

Sample Number	Sample Description	Detection Limit	WATER RESULTS
		ppm	ppm
	Project No.:	1290122	
B011001	W-27-MW3	0.1	<0.1
B011002	W-28-MW1	0.1	<0.1
в011003	W-28-MW2	0.1	<0.1
B011004	W-33-MW4	0.1	<0.1
B011005	W-28-MW5	0.1	<0.1

QA/QC: Sample blank is none detected

Spike Recovery on B011001 is 79%

Note: California LUFT 12/87

MOBILE CHEM LABS

Ronald G. Evans Lab Director